

-WITH HOME BUILDERS' SECTION

JAN 12 1914

JANUARY 1914

AMERICAN CARPENTER AND BUILDER



THE WORLD'S GREATEST BUILDING PAPER

Start the New Year RIGHT—

EVERY Carpenter, Contractor or Builder—as an enterprising man—is ambitious to get ahead in the world. Start the New Year right by putting yourself in the way of earning larger wages and taking on larger contracts. The more you know about your work the more money you will earn and the bigger positions you will hold. Use these long Winter nights for Home Study and so increase your earning powers.

“Radford's Cyclopedia of Construction”

will give you just the practical help you need. These books have proven Money Makers for thousands of wide-awake builders—they will help YOU as well. Let me send this wonderful Set of Books to you on approval, as per Special Offer following page 139.

I wish you a Happy and Prosperous New Year.

Chas Radford
Editor-in-Chief.

Five Cents

Buy Saws with a Reputation Back of Them

☞ The Tools you use have much to do with your reputation as a fine, expert mechanic. You certainly cannot do the finest work, unless you have tools of the very latest pattern—that add speed, ease and accuracy.

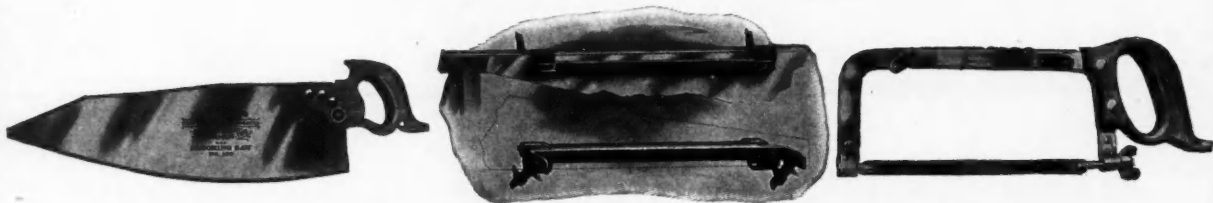
☞ The next time you buy a saw, why not look at the latest and most approved design. Compare the hang, the quality of steel, the grinding and general construction and satisfy yourself that you are getting the most for your money.

☞ Ask to see **Atkins** No. 53, 68 or 400 Skew Back Saws, or **Atkins** No. 65, 69 or 400 Straight Backs. These are splendid types of the up-to-date Saw with Atkins Perfection Handle.

☞ Or if you want the old-style handle, ask for **Atkins** No. 51, 52 or 66 Skew Back, or 54, 64 or 67 Straight Back. These saws bear the maker's name and will give you satisfaction.



Splendid Types of Up-to-date Saws



We Make a Perfect Saw for Every Purpose



Try Atkins Special Saws and Tools

ATKINS *SILVER* STEEL SAWS

☞ Your regular dealer will be glad to order for you any Atkins Saw you may select. He has our catalog or can easily get one. Most likely he has in stock the very saw you want.

☞ If this matter of fine saws is of any interest to you, you have a right to get what you want, and if you want to try an **Atkins Silver Steel Saw**, see that your dealer supplies you and take no other. If he won't—then write to the address below.

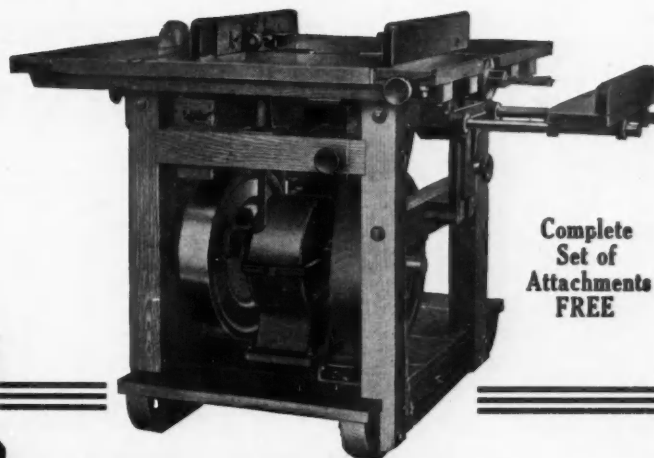
E. C. ATKINS & CO., Inc.

The Silver Steel Saw People

INDIANAPOLIS, INDIANA

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

Investigate the



Complete
Set of
Attachments
FREE



EVEREADY SAW RIG

Learn What it Will Save You in Time and Money

Why not cut loose from the planing mill, with its exorbitant charges and expensive delays? You'll be surprised to learn how much money you can save. Get an "Eveready" Saw Rig and do your mill work right on the job—all the rough sawing—in a mere fraction of the time consumed by hard work or in waiting slow mill deliveries.

The "Eveready" does six men's work—and does it better, too! Besides cross-cut and rip sawing, it joints, sands, jig-saws, grooves, bores, miters and grinds tools. It is unusually light.

Three men can easily transport it anywhere. Operates with a simple gasoline engine at a cost of about sixteen cents a day.

The "Eveready" was designed and built by practical woodworkers—men familiar with every step of the building art. Hard-earned building experience only—made the "Eveready." When you get it, you have everything complete—eight attachments and two circle saws, a rip and a cross-cut. Absolutely no charge made for these attachments, and they are all high grade—built for hard work.

The Mixer
with the
Effective
"4-Way Mix"



Also built for
Steam or Electric Power

OSHKOSH MIXER

No "guess work" about the Oshkosh Mixer! It was designed by brainy, experienced men, who had "been through the mill" before tackling the problem of building a perfect mixer. Their expert engineering and technical manufacturing knowledge combined to make the "OSHKOSH" the one big mixer success of the day. It is built of fewer parts than any other—hence fewer breakdowns, less repair expense. Guaranteed as to efficiency, durability and quality of materials. Its thorough and quick mixing features will make a big "hit" with every contractor who wants the best results in the shortest time at least cost. *Write for full information.*

OSHKOSH MANUFACTURING CO.

316 Main Street

Oshkosh, Wis., U. S. A.

Branch Dealers in Saw Rigs and Mixers

CHICAGO, 1452 Monadnock Bldg.

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RICHMOND, VA., I. Bluford & Company, 1538 East Cary Street.

SALT LAKE CITY, UTAH, F. C. Richmond Mch. Co., 117-119 West Second

South St.

SAN FRANCISCO, CAL., J. E. Dwan & Co., 445-447 Turk St.

SEATTLE, WASH., Harold G. Stern & Co., 524 First Ave., South.

ST. LOUIS, MO., C. O. Fisher & Co., 512 Liggett Bldg.

SAW RIGS EXCLUSIVELY

ST. PAUL, MINN., Raymer Hardware Co., 373 Roberts St.

OMAHA, NEB., Sunderland Mch. & Supply Co.

MIXERS EXCLUSIVELY

NEW YORK, Dodge & Dodge, 1133 Broadway, Eastern Sales Agents.

Live Agents Wanted in Open Territory

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

FOR SURFACING AND POLISHING HARDWOOD FLOORS
The American Floor Surfacing Machine

IS NO EXPERIMENT. Its work since 1903 has established a standard for finely surfaced and polished floors. It is the only machine whose work is specified by leading architects and used in the best government buildings and will surface and polish any kind of a floor from common pine to finest parquetry.

IT IS THE ORIGINAL and only two-roll, self-propelled, dust-collecting machine, that surfaces close to the wall and can be used in small rooms. Anyone can operate it.

ITS WORK IS RAPID, regular, smooth and even because the power that drives the rolls also propels the machine at the same ratio of speed. It has surfaced and polished millions of square feet of the best floors in America and Europe.

GET A MACHINE that does first-class work and in paying quantities, that is fully guaranteed and sold on its merits. Don't be fooled with an imitation.

We sell direct to the users. Write for our free book "Surfacing Floors as a Business"

Use Our Champion Double Disc Machine for Cement, Terrazzo and Marble Floors.

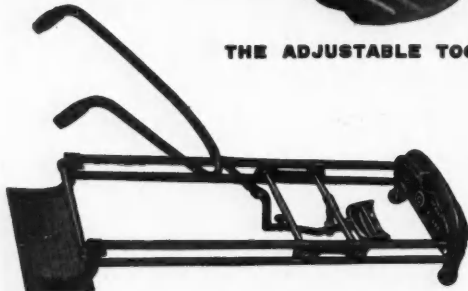
Manufactured by **The American Floor Surfacing Machine Co., Toledo, O.**



\$25.85



THE ADJUSTABLE TOOL



The Haven Planing Floor Scraper

THE
Haven Planing Floor Scraper
Becomes the STANDARD TOOL ON THE JOB

wherever it is used. Builders have awakened to the fact that it solves the problem for good. Our machine differs entirely from all others. The secret of our splendid success rests on the following points:—

- (1) The scraping tool is a true plane, the world's standard leveler.
- (2) A light running carriage.
- (3) A smooth trackway for carriage.
- (4) A shearing cut on the instant.
- (5) Machine remains stationary while scraping enclosed area.
- (6) Angle of blade and thickness of shaving regulated with ease.
- (7) All woods are alike easy.
- (8) No man-killing truck to pull or push; you rest on the return stroke.
- (9) Planes and scrapes simultaneously.
- (10) No chattering, waving or gouging.
- (11) The planing head does better work than the usual hand work, and from four to six times as much.

If you have tried other machines and been disappointed, then TRY OURS AND BE CONVINCED THAT WE HAVE THE GOODS. A TRIAL COSTS YOU NOTHING. DON'T BUY AN INFERIOR MACHINE WHEN YOU CAN GET THE BEST ON EARTH FOR \$25.85. Send for booklet and complete information concerning our guaranteed machine and free trial offer.

THE HAVEN MFG. CO. :: RACINE, WIS.

SCRAPING FLOORS

by hand is expensive

Reduce your cost—

Improve your work—

The Fox Scraper does it



We will send you this machine for 10 days' FREE TRIAL. If you don't like it ship it back.

Mail Your Postal Card to the
FOX SUPPLY CO.
 Dept. A BROOKLYN, WIS.

Scrape Your Floors With this LITTLE GIANT—

You Can Try It At Our Expense



A floor scraper is now a necessity with every builder. In this Little Giant you get a floor scraper you can always depend upon to do its work properly. It is easy to operate. Scrapes floors rapidly, perfectly and economically. We'll let you try this Little Giant before you buy it—a fair proposition—and you can prove to yourself just what it can do. Write us NOW for our special offer for YOU.

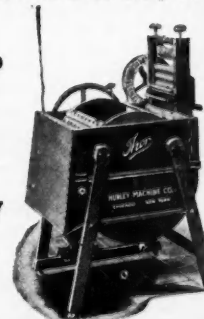
The THOR Electric Home Laundry Machine

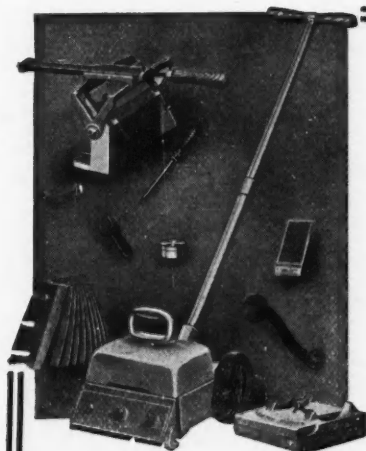
should be in every home. This machine does away with all laundry troubles. Home owners and builders appreciate their convenience and usefulness and it is good policy on your part to install them for your clients. There are now more than 62,000 in use. Sizes, designs and prices to meet every requirement. Sold on liberal FREE TRIAL EASY PAYMENT Plan.

Electric Washers from \$30 up

You ought to have our circular matter describing our Little Giant Scrapers and THOR Washing Machines. Write for this NOW.

Hurley Machine Company
 New York 1008 Flat Iron Building
 37 S. Clinton Street, Chicago





One Man Does Three Men's Work

Polo, Ill., Dec. 12, 1913.

Joseph Miotke,
Dear Sir:

Enclosed I send check for floor-scraping outfit. I have used the scraper a day and a half. One of my men (weighing 115 lbs.) scraped more floor today and did it better than three men could have done by hand. Will do all I can to push the "Acme" floor scraper.
Yours truly, Allen S. Elsey.

The ACME proved its wonderful labor, time and money saving possibilities to Mr. Elsey in 1 1/2 days. A boy does the work of three men. Does this interest you? Do you want the Acme Floor-Scraping Outfit on a WEEK'S FREE TRIAL? Write today for particulars.

JOSEPH MIOTKE, 247 Lake St., Milwaukee, Wis.

Cut Out And Send In The Coupon Below

It Is Good for \$10

During January I am going to save you money by making a special reduction of \$10 in the price of

The WEBER ^{DOUBLE ACTING} Floor Scraper

Just cut out and send in the \$10 Special Reduction Coupon below, with \$30, and I will ship you a Weber Double Acting Floor Scraper, complete with four sets of knives, sharpening device and all necessary equipment. If it is not satisfactory, just *say so*—and I'll refund your money. If you don't care to buy just now, and will send in coupon within 30 days, I will give you the \$10 reduction at any time you're ready.

GUARANTEED

John F. Weber, Pres't

Weber Mfg. Co.

670 71st Ave., West Allis, Wis



\$10 SPECIAL REDUCTION COUPON
This coupon is good for \$10 as part payment for a Weber Floor Scraper. Cut it out and send it in TODAY.

**You can cut costs—You can boost profits
You can save labor and make more money**

BY USING THE

Adjustable Floor Finisher

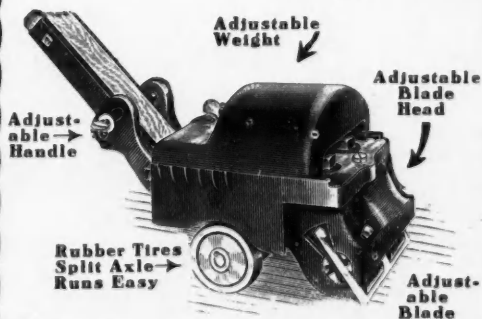
It will pay for itself on a single job.

It will scrape any wood floor perfectly—quickly—easily—hard or soft—old or new. Good work always sure. Blade, Blade Head, Weight, Handle, all adjustable to meet every working condition of wood floors.

Shipped on TERMS TO SUIT YOU

On approval, rental or easy monthly payment basis, or cash-with-order as you prefer.

Cash Price, \$22.50



GUARANTEE:

If the Adjustable Floor Scraper fails to do your work in a manner satisfactory to you at ANY TIME or for ANY CAUSE within reason, you may have the money back if you want it.



Mail this coupon NOW. Learn what the Adjustable will do for you

H. P. Ddrksen, Anderson, Indiana
Without obligating me in any way, send me catalog and best price on the Adjustable.

Name

P. O. State

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



BONDED vs. GUARANTEED TOOLS

Red Devil "Bonded" Tools are Insured Tools



They are insured for TWO YEARS. A signed Bond Policy packed with each tool. Learn for yourself the vast difference between simply guaranteed tools and Bonded tools. Your dealer has Red Devils. If not, we will send one sample only of Red Devil Bonded No. 2622, one inch, Beveled, Socket Firmer, Pocket Chisel, with leather tipped handle, on receipt of 50 cents in coin or stamps.

The stamp of "Red Devil" on a tool means the "O K" of the largest manufacturers of mechanics tools in the world, and you'll never find that stamp on a poor tool.

Write for Booklet of 3000 Red Devils

151 Chambers Street
NEW YORK CITY

SMITH & HEMENWAY CO.

140 Lemoine Street
MONTREAL, CAN.



An Appreciation

***D**URING the reign of KRIS KRINGLE we extend our sincerest appreciation of the many considerations shown us during the past year by those who, with us, are laboring in our chosen field. Orders please us, of course, but the deeper feeling of neighborly friendship prompts this message—A Real Merry Christmas and A Prosperous Happy New Year.*

Milwaukee Corrugating Co.

1853

1913

BUCK BROS.



Fine Beveled Edge
Shank and Socket

Chisels

**Tang and Socket
Butt Chisels**

Plain and Beveled Edges
Send for illustrated Catalog

Buck Bros., Millbury, Mass.

Architects—Contractors—Builders


Perhaps you do not use a steel tape often, but one would come in handy many times, wouldn't it? And occasionally you need one badly, and an accurate one, a

LUFKIN STEEL TAPE

Our tapes embody many exclusive features and are guaranteed to give complete satisfaction.

CATALOG ON REQUEST

THE LUFKIN RULE CO. Saginaw, Mich.
New York



THE MYERS GIANT

ADJUSTABLE TANDEM
DOOR HANGER

for TUBULAR GIRDER TRACK is adjustable to and from the building, and up or down as necessary. Has flexible engine truck with steel rollers revolving on steel roller bearings. The adjustable features prevent trouble from weather conditions or sagging of building. Storms, sleet or ice do not affect it, owing to complete protection afforded by the tubular track. Track and Hanger are constructed to carry and operate heavy doors easily.

This and other styles of Tubular and "Stayon" Door Hangers are shown in our Door Hanger Booklet. Copy mailed on request.

F. E. MYERS & BRO.

ASHLAND, OHIO

"Last a Lifetime and Give Satisfaction To the End"



BUTT CHISEL

TRADE MARK
H. R. BARTON
1882
ROCHESTER, N. Y.

THE CELEBRATED BARTON TOOLS

Send direct for catalogue and our free story book, True Stories. Be sure to specify "CARPENTER'S CATALOGUE."

MACK & COMPANY, 20 BROWN'S BACE
ROCHESTER, N. Y.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

\$20.00 IN GOLD and the machine Free if the Boss leaves a square cut on the Floor where you start; that's our Offer and we prove it. The Boss cuts more level than any other Scraper. The Gage on Front of the Knife is more like a Plane on Wheels. The thickness of shavings is regulated with two Thumb Screws over the Gage. The Knife can be set to any shearing cut.



Write for Prices.

G. J. Kepplinger
Main Office:
DWIGHT, ILL.

Factories: Dwight, Ill., and London, Canada.

Does \$40 Mean Anything To You?

Buy a *Stearns* and save **\$40**



Buy the Floor Scraper that's within your means. If you can't afford to pay a big price, a big, expensive floor scraper will be a "white elephant" on your hands. You'll hate yourself for tying up to a deal that eats up a year's earnings.

The Stearn's Floor Scraper is made for the man who wants to do good work but has no money to throw away. The Stearns is a simple scraper that works clean and smooth as a whistle. Scrapes close up to the wall and in all those corners and cramped spaces. Blade is 6 inches wide and the machine runs evenly and quietly on 5-inch rubber-tired wheels. The Price? Well, let's be frank. If we didn't sell so many of these scrapers, we couldn't make the price so low. The Stearns is a corker at the price we ask.

If you can't buy a Stearns in your town, write us. We'll fix you up. Anyway we have some STEARNS FACTS that you might look over. Just write and ask us to tell you more about the "Stearns."

E. C. STEARNS & CO.
400 Oneida Street Syracuse, N. Y., U. S. A.

WOOD



FREE TRIAL 5,000 in use

RAPID, FLEXIBLE, SELF-PROPELLING WHEN RAISING HANDLE

Send for our new list and free trial proposition.

M. L. Schlueter
107 N. Canal St.
Chicago, Ill.

Made in three sizes: 6 x 18, 8 x 15 and 8 x 12 in. Flexible Roller. Edge Roller easily adjusted to either side.

Let Your First Purchase of the NEW YEAR be a TRIPLE "A" (Spring Driven) Floor Smoother



It will be a happy new year, for you'll realize you've made a wise investment. It will be a prosperous new year, for the Triple "A" will earn on an average of \$20 a day.

The Triple "A" Floor Smoother

weighs 75 pounds. Two extra weights of 50 lbs. and 25 pounds are furnished with the machine. Weights can be adjusted to bring more or less pressure to bear upon the blade. The blade of the Triple "A" cuts below the grit and so retains its edge much longer than the average scraper blade. The Triple "A" will smooth any floor, old or new—varnished, painted or shellaced.

Only Machine with the "Spring Drive"

The Triple "A" is provided with a spring motor which trebles the operator's capacity. The spring drive is a feature possessed by no other machine. When the Triple "A" is pushed forward, the spring winds and stops the machine automatically at the proper distance. The spring then releases and the machine starts back on the cutting stroke, engaging the blade in the floor. This spring drive is so strong that practically all the operator has to do is to guide the machine.

Add to this excellent feature a sanding device, a handle adjustable in length and height, a brass indicator for setting the blade at any necessary degree, a set of specially tempered blades, and a free kit of tools, and you have the complete Triple "A" equipment.

We guarantee the Triple "A" Floor Smoother outfit to be complete in every detail and to be the most perfect floor-surfacing outfit on the market today, regardless of cost.

Satisfaction or money back. Mail the coupon today.

TRIPLE "A" MACHINE CO.
Room 311, 300 W. Indiana Street CHICAGO, ILLINOIS

COUPON. Tell me how I can earn \$20 a day with the Triple "A" Floor Smoother. I don't obligate myself in any way.

Name.....
Street.....
Town.....
State.....

TRIPLE "A" MACHINE CO., Chicago, Ill.
Room 311, 300 W. Indiana St., Chicago, Ill. Also send me complete description of this machine.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

"OHIO EXTRA" AUGER BITS

are High Grade Single Twist Bits, carefully made from specially selected auger bit steel. They are the Most Rapid and Cutting and Perfect Clearing Bits on the market today and are fully warranted.



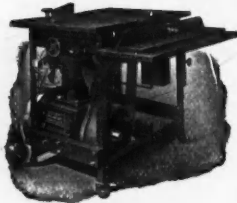
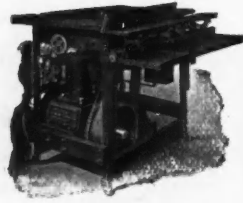
"OHIO" CHISELS, PLANES, ETC.

All "Ohio" Tools are made with the same painstaking care that has built up our present reputation for making only high grade tools. We use in our Edge Tools high grade steel, treated and tempered by the most improved process, which insures Uniformity and Correctness of Temper, and a Keen, Tough and Lasting Cutting Edge. If you appreciate Good Tools it will pay you to insist on having "Ohio" Tools from your Dealer.



Write for our special Carpenters' Catalogue of High Grade Tools and Benches

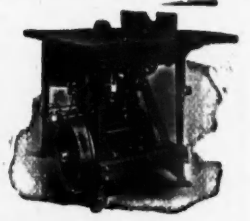
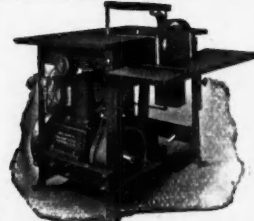
OHIO TOOL CO. (Dept. 15) Columbus, O.



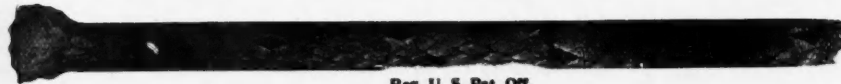
Standard Portable Combination Woodworker

9 Machines in 1
6 P. P. ENGINE

SEND FOR CATALOG G
ATLANTIC ENGINE CO.
Meadville - Penna.



SAMSON SPOT SASH CORD



Reg. U. S. Pat. Off.

Samson Cordage Works

Boston, Mass.

Made of extra quality stock, carefully inspected, and guaranteed free from the imperfections of braid and finish which destroy common cords so quickly. The spots on the Cord, in any color, are our trade mark. Don't be misled by imitations. Samples and full information gladly sent.

LET US EQUIP YOUR SHOP AT SMALL EXPENSE

To have an up-to-date shop should be the aim of every carpenter. You keep the profits on your mill work then. It's not necessary to go to a big expense to put your shop on an equal footing with the average small planing mill.

Invest a little money in a Type "C" Woodworker which is really four machines in one. You don't get one machine with three attachments. Each machine is separate and distinct and can be so used.

You cannot buy better quality in any woodworking machine. The base is of heavy cast iron. The whole machine is as thoroughly reliable as any machine used in a planing mill. It is Guaranteed For a Life Time.

Type "C" Woodworker Complete With Hollow Chisel Mortising Attachment \$152.50



Try a Woodworker for 10 Days FREE

Send us your order for any machine or part. Enclose the price with your order. The machine will be shipped with the distinct understanding that you may return it at the end of 10 days' trial if it is not satisfactory. We will return every penny of your money together with any freight charges you have paid. Or write us for particulars as to how you can buy this machine on time. Ask any bank about our reliability.

The Tannowitz Works
315 N. Front St.
GRAND RAPIDS, MICH.

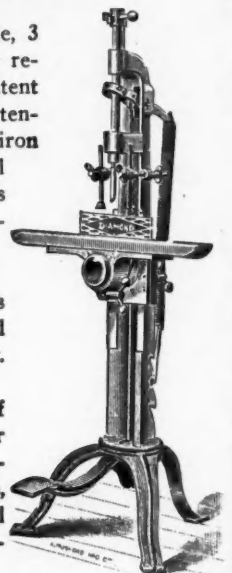
"Diamond" Mortiser

For Foot Power

Will mortise 1/8 to 1 inch wide, 3 inches deep or 6 inches deep by reversing the work and with our patent adjustable tenoning tool will cut tenons 1/8 to 1 inch wide. Has rigid iron column, powerful foot motion and accurate action. The table has horizontal, vertical and angle adjustments.

It takes up but little space, is light and can be easily moved about to accommodate your work.

We make a complete line of Foot, Hand and Light Power Wood Working Machinery suitable for Carpenters, Builders, Cabinet Workers, and other Wood Workers. It will pay you to investigate their merits.



Send for catalog "A."

The Seneca Falls Mfg. Co.

218 Water St., Seneca Falls, N. Y., U. S. A.

(299)

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

SAVE 50 to 100 %

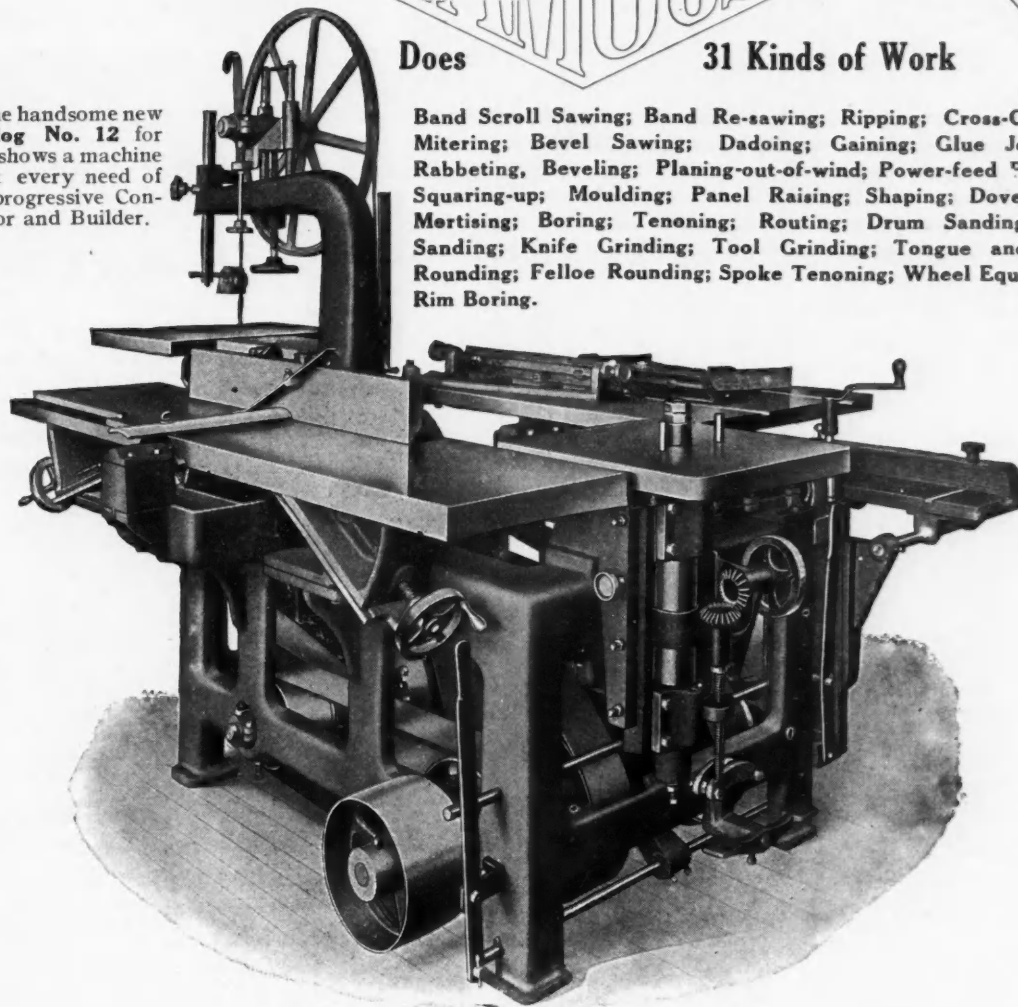
On Your Millwork and Carpentry with a 1914 MODEL FAMOUS "31" UNIVERSAL WOODWORKER—

Over 2,000 others save with
the Famous—why not you?

The FAMOUS "31"

Does 31 Kinds of Work

The handsome new
Catalog No. 12 for
1914 shows a machine
to fit every need of
the progressive Con-
tractor and Builder.



Band Scroll Sawing; Band Re-sawing; Ripping; Cross-Cutting; Mitering; Bevel Sawing; Dadoing; Gaining; Glue Jointing; Rabbeting, Beveling; Planing-out-of-wind; Power-feed Planing; Squaring-up; Moulding; Panel Raising; Shaping; Dovetailing; Mitering; Boring; Tenoning; Routing; Drum Sanding; Disc Sanding; Knife Grinding; Tool Grinding; Tongue and Pole Rounding; Felloe Rounding; Spoke Tenoning; Wheel Equalizing; Rim Boring.

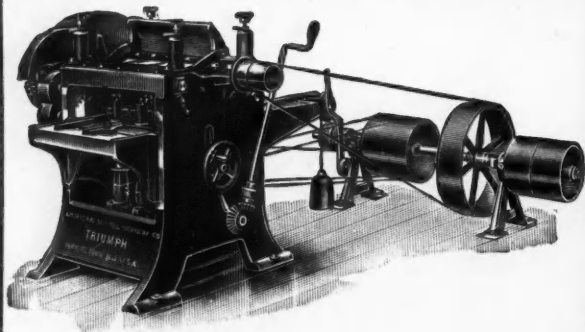
The Famous "31" is furnished in any combination necessary to fit *your* needs; 27 or 32 in. Band Saw, 12 or 16 in. Jointer, Rip and Cut-off Saw Table, Shaper, Borer and other attachments to do up to 31 or more different kinds of work. Tell us what your wants are and get our proposition. Remember, we manufacture separate machines too.

THE SIDNEY TOOL COMPANY
Chief Offices and Factories - SIDNEY, OHIO U.S.A.
AGENCIES AND DISTRIBUTING CENTERS THROUGHOUT THE UNITED STATES AND ABROAD

Name.....
Address.....
I am interested in.....
(state whether combination or separate machines, and what)
CUT HERE

The Sidney Tool Co., Sidney, Ohio.
Send me your new 1914 Catalog No. 12 of Famous Woodworkers and Separate Machines—and show me how to save 50 to 100% on my Millwork and Carpentry.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



You Can Bid Lower and Make Your Profit

If You Own a

"TRIUMPH" PLANER, MATCHER AND MOULDER

You are paying the mill man a good profit on every foot of flooring, siding, ceiling, casing, moulding, trim and machine work. And that brings up your costs and your bid.

With a "Triumph" Planer, Matcher and Moulder of your own you can do all this work yourself, in your own shop, and save the mill man's profits.

You'll turn out just as fine a grade of work as the best planing mill, because the "Triumph" is no toy, but a heavy, business-like machine with all the refinements of the biggest shop planer.

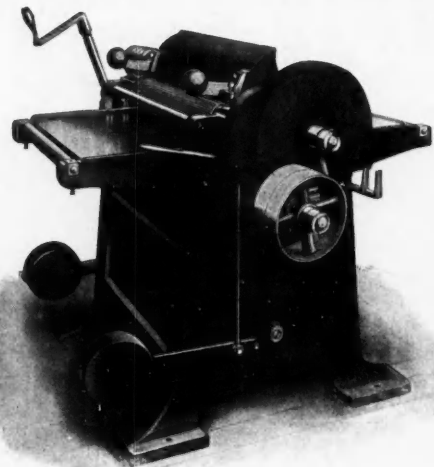
It requires little power and takes up little room. And the price is within the reach of every up-to-date contractor who is studying how to bring his costs down and his profits up.

Send for the "Triumph" Circular.

American Saw Mill Machinery Co.

80 Main Street
HACKETTSTOWN, N. J.

1360 Hudson Terminal
NEW YORK CITY



A Carpenter and Builder always needs good surfacing

This is the kind of work you get with a FAY-EGAN No. 2 "Centennial" Single Cylinder Surfacer.

Write for our Illustrated Bulletin

J. A. Fay & Egan Co., 545-565 W. Front St.
CINCINNATI, OHIO

COMPLETE OUTFIT PRICE HAND AND FOOT-POWER MACHINERY

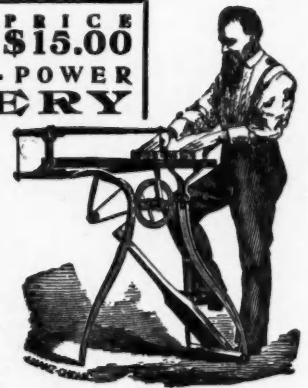
Our No. 7 Scroll Saw is warranted to be made of good material and workmanship, and to saw pine 3 inches thick at the rate of one foot a minute.

Send for
Catalogue.

W. F. & Jno. Barnes Co.

74 Ruby St.

ROCKFORD, ILL.

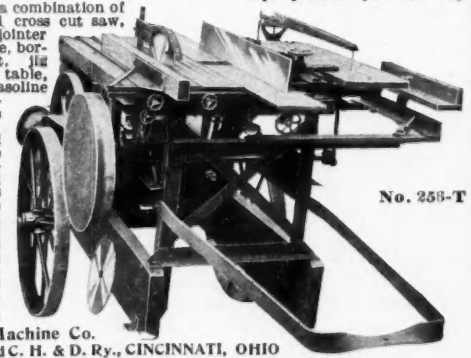


Parks Portable Shingle or Combination WOODWORKING OUTFITS

This machine is a combination of circular rip and cross cut saw, 6 or 12-inch jointer with tilting guide, boring attachment, jigsaw with tilting table, sand disk, and gasoline engine, guaranteed to do the work.

Angle steel frame is the strongest structural material known. Machines are made in large quantities which allows us to sell at lowest prices and make prompt shipment. WRITE FOR CATALOG P A R K ' S Ball-Bearing Machine Co. Fergus Street and C. H. & D. Ry., CINCINNATI, OHIO

are the most practical—the most efficient—the most economical woodworking equipment you can buy



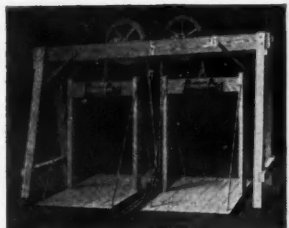
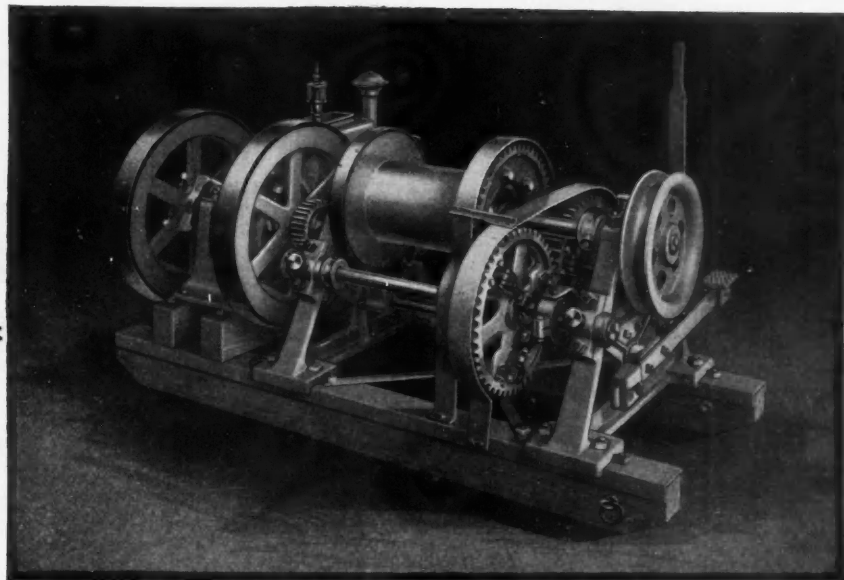
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You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

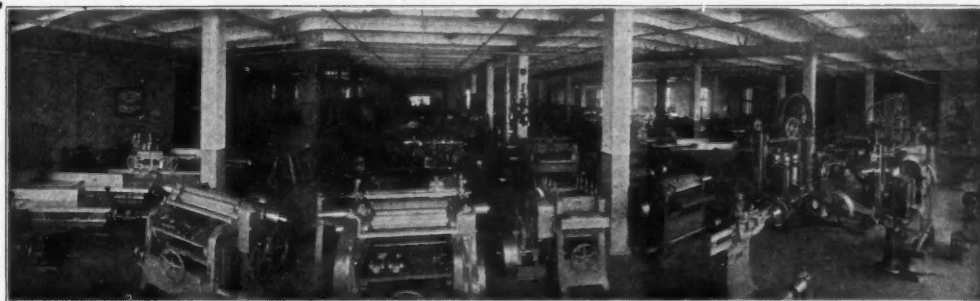
BUILDERS'-HOIST

PORTABLE
SAW RIGS,
PUMPS, ENGINES,
MIXERS, ETC.

WRITE US

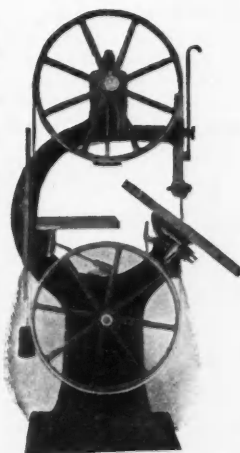


C. H. & E. MANUFACTURING CO., INC.
322 MINERAL ST., MILWAUKEE, WIS.

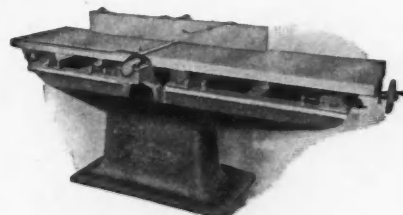


Section of Main Floor Exhibit and Salesrooms

Everything in wood working machinery and supplies for Contractors, Carpenters, Builders, Interior Finish, Sash and Door, Planing Mills, Furniture, etc.

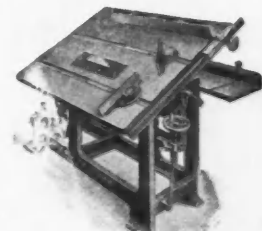


Chicago Band Saws
27-32-36 inch wheels



Chicago Jointers
8-12-16 inch

*Write us Your Wants
and Get Our Special Price*



Chicago No. 9 Combination
Saw

Chicago Machinery Exchange
1215-1223 Washington Blvd. :: CHICAGO

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

STANDARD CLAMP



A Steel Screw and a Wide, Strong Frame are

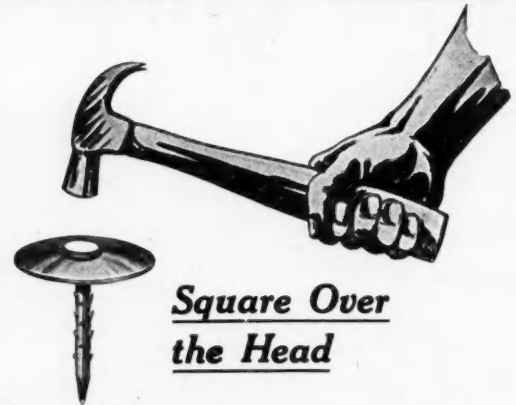
the two features which give the Hargrave Standard Clamps the utmost resistance to wear and failure.

These Clamps are just as carefully made as all of the Hargrave Tools.

Catalogue?

Dept. H

THE CINCINNATI TOOL CO.
Norwood, Cincinnati, Ohio



Square Over the Head

SIMPLEX NAILS DRIVE STRAIGHT

The Shank extends THROUGH the Head. The hammer blow does not glance, as the blow falls directly on the head of the nail shank—not on the curved dome.

Trade **SIMPLEX** Mark
Reg. U. S. Pat. Office
ROOFING NAILS

Have four times the head area of so-called large headed wire nails; hence four times the holding power.

ONE PIECE—not two piece. Head cannot loosen.

Made in two sizes—1 inch and 1½ inch.

Insist that your prepared roofing be furnished with **SIMPLEX NAILS**. Free sample on request.

H. B. SHERMAN MFG. CO.
BATTLE CREEK MICHIGAN

Miller's Lock Mortiser TWO MINUTES

Will cut an opening in a door for a mortise lock
IMPROVED AND UP-TO-DATE

cuts true, in any kind of wood for any size lock from ½" to 1½" thick. Easy to operate, durable in construction. Builders use it everywhere.

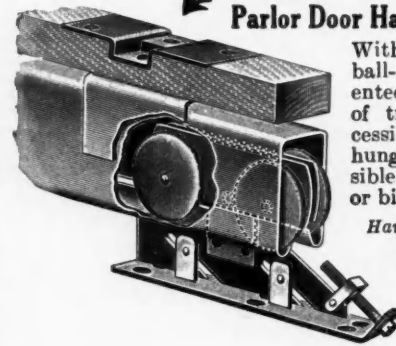
Sent subject to trial.



A. W. Miller Mfg. Co.
Riverside, Calif. Cincinnati, Ohio

Our Butt Mortiser and Rule Gauge for 75c., Postpaid

LANE'S TROLLEY Parlor Door Hangers and Track

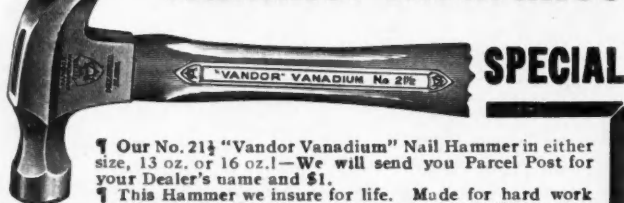


With bicycle quality ball-bearings and patented side adjustment of track (readily accessible after it is hung) makes it impossible for door to scrape or bind.

Have your Catalog!

LANE BROS. COMPANY
Cherry St.,
POUGHKEEPSIE, N. Y.

Hammer Insurance



SPECIAL

¶ Our No. 214 "Vandor Vanadium" Nail Hammer in either size, 13 oz. or 16 oz.—We will send you Parcel Post for your Dealer's name and \$1.

¶ This Hammer we insure for life. Made for hard work and lots of it. ¶ You can return it any time if it proves defective and get a new one.

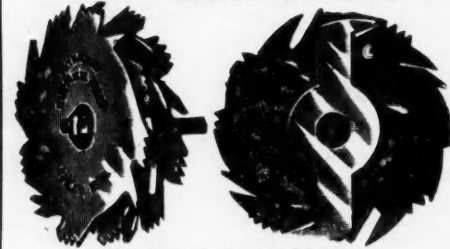
This hammer is warranted to draw anything from a headless brad to a spike.

¶ Drop Forged from the toughest Vanadium Steel. Second growth hand shaved Hickory Handle. Tempered in oil. Easy to work with. Get one to-day. Remember only \$1 and your dealer's name for either size, 13 oz. or 16 oz. Mail your order NOW.

Van Doren Manfg. Co., Inc. Chicago Heights, ILL.
(Vanadium Dept.)

Huther Bros. Patent Groover or Dado Head

Will Save its Cost in Three Days' Time



Showing Arrangement of Cutters

Can be used on any Circular Saw Mandrel.

For cutting any width groove from ½" to 2" or over. Will cut a perfect groove, either with or across the grain, and leave edges smooth. Will ship to any responsible firm on ten days' approval; if not satisfactory you are

at liberty to return at our expense. We also make a specialty of concave ground smooth cutting circular Mitre Saws, for either rip or cross cut; Grooving Saws for all kinds of special work; Lock, Corner Cutters, Concave Saws, etc.

Try our Scraper Blades and you will use no others.

HUTHER BROS. SAW MFG. CO., 1101 University Ave., Rochester, N. Y.

You will get **SPECIAL ATTENTION** if you tell Advertisers you read American Carpenter and Builder.

What You Can Do on the CRESCENT

- Re-Sawing**
- Cutting Off**
- Tenoning**
- Moulding**
- Panel Raising**
- Knife Grinding**
- Mortising**
- Pole Rounding**
- Disc Grinding**
- Rabbeting**
- Boring**
- Grooving**
- Dadoing**
- Jointing**
- Band Sawing**
- Ripping**
- Sanding**

WORK WHILE YOU WAIT

The carpenter who gets ahead meets his work half way. He anticipates the coming work. He is always half way ahead of the other fellow—the one who just waits. He gets to his profits quicker. "Work and Wait" is a good motto. To shut your eyes and trust to luck, or to "go it blind" as they say, will never get you anything.

PREPARE NOW FOR SPRING WORK

In the coming season you're bound to use doors, door and window frames, sash, mouldings, stair rails, spindles, newel posts, and all kinds of interior trim. Why not prepare a nice stock of these now? Then you cut out the planing-mill profits. You'll never be held up on a job waiting for material.

You can make all this stuff on the Crescent Universal Wood Worker. More than that, when the season is on, you can take the machine right out to the job and use it in a hundred ways to speed up and lighten the work.

THE CRESCENT UNIVERSAL WOOD WORKER

is a combination machine. The base is one single casting. This forms a steady, solid mounting for the various parts. The machine has five units,—band saw, jointer, shaper, saw table, and borer. Each unit is a separate machine and can be run separately or in a combination with any of the others. Other attachments can be added to make the Crescent adaptable as a

re-saw, hand-feed molder, tenoner, panel-raiser, pole-rounder, disk-grinder, plain grinder, and hollow chisel mortiser.

SEND FOR FREE CATALOG

The price of the Crescent is within reach of all. Whether you are a Carpenter, Builder, Contractor, or a general Repair Man, you can use the Crescent to increase your capacity and enlarge your business and profits.

Send for our fine 128-page Catalog. We want you to read it. It contains fine information on wood working machinery. The illustrations and descriptions of our wood-working machines will interest you.

CRESCENT
224 Main St.,

MACHINE CO.
Leetonia, Ohio

**Four Men
can Work
at the
Same
Time**



**Ask for
our Red
Catalog**

You will get **SPECIAL ATTENTION** if you tell Advertisers you read American Carpenter and Builder.

MAYHEW NAIL SETS and PUNCHES



No. 435

No. 437

No. 439

Should be in every Kit

Protected by Patents. Infringers will be prosecuted.

No. 435, Nail Set

a strictly new, high quality tool. Hand-forged from the finest crucible steel electrically tempered. Each set is warranted. The finely knurled body is easy for the fingers, and the $\frac{3}{8}$ " square head prevents tools from rolling off the bench. Length, 4 inches. Points $1/32$ ", $2/32$ ", $3/32$ " and $4/32$ ".

No. 437, Center Punch—another reliable tool, hand-forged from the finest crucible steel, electrically tempered. A companion to No. 435 Nail Set, with the same square head and knurled body. Length 4 inches.

No. 439, Prick Punch—construction identical with No. 437 Center Punch, except for the point. Fully warranted. Length, 4 inches.

In addition to the above tools, we especially desire to call the attention of all carpenters, builders, and cabinet makers to Hand-Forged Nail Set No. 434, another of our new tools. Also Solid Punch No. 490, and Center Punch No 491. The diameter of stock in these punches is $\frac{1}{2}$ ". Points are at a correct angle to stand hard usage. Diameter of points of Solid Punch from $3/32$ " to $12/32$ ". These punches, as well as Prick Punch No. 492 and Pin Punch No. 493, have our new embossed hand hold. Prevents tool from slipping or turning in the hand.

These tools are accurately described and illustrated in our new Catalog No. 14, which is sent free on request. Write us. If your hardware dealer does not sell Mayhew Tools, write us and we will see that you are supplied.

H. H. MAYHEW CO.,
Shelburne Falls,
MASS.

C. E. JENNINGS & CO'S

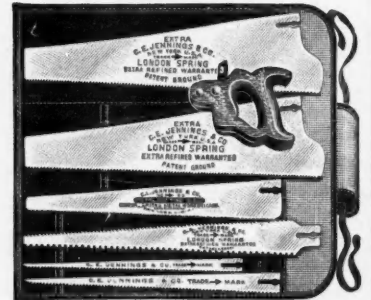
71-73 MURRAY ST., N. Y., U. S. A.



COMBINATION SET OF SAWS No. 131

This set of saws is just what you need. Takes up very little room in the kit and is less expensive than if you bought all the saws separately.

Each blade is fully backed by our guarantee both as to quality and workmanship. The saws are hand-forged from extra refined spring steel, hand filed and set. Warranted to hold edge and set for longest possible time and to run smoothly and easily.



An adjustable lever in the handle operates the screw that holds the blade. Blades may be removed from the handle instantly and another blade substituted. Blade is held firmly and evenly.

Combination Set No. 131 consists of:

- 1—Garland Adjustable Handle
- 1—18-inch Hand or Panel Saw
- 1—18-inch Rip Saw
- 1—16-inch Double Edge Pruning Saw
- 1—15-inch Hack Saw
- 1—14-inch Compass Saw
- 1—12-inch Keyhole Saw

A Waterproof Canvas Case for this set with seven pockets—one for each blade and one for the handle, will be furnished at a slight extra cost.

Ask your hardware dealer to show you Set No. 131. It is so handy and the price so reasonable that you'll like it. Write us for new Catalog of guaranteed tools.

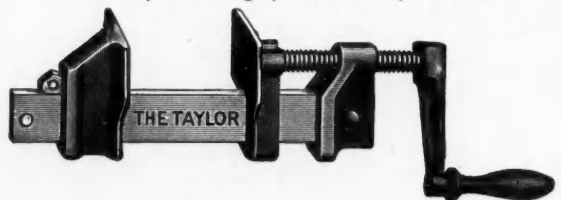
\$13.95

per doz. 4 footers
—if you send cash with order.

Absolutely Safe; two of them will carry a ton, and they last a lifetime. Think of the time you save! One man alone can put them up and take them down easily and quickly.

No Side Swing if you purchase our new fixture at 60c extra per dozen brackets; these keep the brackets absolutely rigid.

Write for Catalog of Builders' Specialties!



About clamps—the sliding jaw on each of ours can be moved in an instant **DIRECTLY AGAINST** the work operated on, so that half a turn of the fine specially threaded screw will apply the power.

Think of the time this saves!

The grip is positive, and special grade of steel in the bar more than doubles the strength of the clamp.

Our No. 10 catalogue shows some very interesting price reductions on four of the most wanted styles. It will pay you to write for it at once.

James L. Taylor Mfg. Co.
Poughkeepsie, N. Y., U. S. A.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

MILLWORK CATALOG QUOTING DELIVERED PRICES



Get
This
Book

NO MORE DOUBT
ABOUT FREIGHT
CHARGES, THIS
CATALOG QUOTES
PRICES FREIGHT
PAID TO YOUR
STATION

Chicago & Riverdale Lumber Co.

WHOLESALE TO THE CONTRACTOR - RIVERDALE-CHICAGO
ILLINOIS - CENTRAL SUBURBAN TRAINS OR SOUTH SIDE ELEVATED

WE PAY
THE FREIGHT

Catalogue
NO
34

ALL
PRICES SHOWN
INCLUDE
FREIGHT PAID
TO
YOUR
STATION

We are now printing our new 1914 Catalog No. 34, illustrating up-to-date designs of Millwork and Hardware, with net prices attached. Freight paid to your station. This is our exclusive idea, no other Millwork Catalog published quotes delivered prices.

On account of the Great Number of Requests already received for this DELIVERED PRICE CATALOG it will not be Mailed to Our General Mailing List but will be Mailed only to Contractors who write requesting us to do so.

Chicago & Riverdale Lumber Co.

Wholesalers to The Contractor
345 East 136th Place - Chicago, Illinois

MANUFACTURERS
OF LUMBER AND
FINE INTERIOR
FINISH

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



Winter Needn't Stop You From Working

When it is too cold to work outside, come in and help meet the demand for hand-made art craft furniture, built-in side boards, kitchen cabinets, and all kinds of household conveniences. On the work requiring fine finish, use a

Starrett Scraper

You can use it on any wood and get a smooth, satiny finish. Ball and socket handle connection permits work in corners and narrow places. Blade is sharpened on four sides, giving eight cutting edges. Slip-on handle permits instant change from edge to edge and gives perfect protection.

Send for big, new, free Catalog No. 206, describing Starrett tools for carpenters.

Our goods are sold at all good hardware stores.

The L. S. Starrett Co.

World's Greatest Toolmakers
ATHOL, MASS.

42-255



BLAKE QUICK ACTING VISE



For Cabinet Makers and Wood Workers. Simplest—Strongest
—Cheapest—Best
Send for Catalogue of all kinds of Vises
PRETISS VISE COMPANY, MAKERS
106-110 La Fayette St., New York, U. S. A.

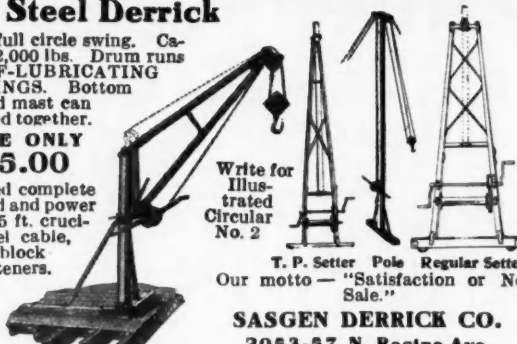
Introducing the New Sasgen Peerless Steel Derrick

with a full circle swing. Capacity 2,000 lbs. Drum runs in SELF-LUBRICATING BEARINGS. Bottom sills and mast can be folded together.

PRICE ONLY \$45.00

equipped complete for hand and power with 125 ft. crucible steel cable, swivel block and fasteners. \$2.00 less for hand power only.

Write for Illustrated Circular No. 2




T. P. Setter Pole Regular Setter
Our motto — "Satisfaction or No Sale."

SASGEN DERRICK CO.
2053-57 N. Racine Ave.
CHICAGO, ILL.
CANADIAN OFFICE, 13 JARVIS STREET, TORONTO, ONT.

Don't Ask the Dealer for Sash Cord. Ask for

"SILVER LAKE"

and see that he gives it to you. It is impossible to



substitute as our name is stamped on every foot of cord. Silver Lake Sash Cord is the Original Solid Braided Cotton Sash Cord, and has been the standard since 1868. No other is just as good.

MADE TO ORDER Fly Screens and Screen Doors

We use the best grades of wire cloth, black enamel, galvanized, pearl and copper bronze, fastened by the improved Standard Shoulder Strip Method, which makes the wire drum tight and firm, can not sag or pull away.



See That Corner?

Notice how stiles are fitted into rails.

Dealers, Carpenters, Contractors and Builders, write for a free copy of our 1913 illustrated catalog

STANDARD SCREEN CO., 1848-50 W. 14th St., Chicago, Ill.
Our screens are all mortised, tenoned, joined with waterproof glue and pinned with steel pins, will last a lifetime.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



With these "Yankee" Tools

you can drive or draw a screw 3 feet over head, in tight corners or most any other place out of reach. Besides this, you get the same service as with the famous No. 30, which you doubtless now have in use. The No. 130 "Quick Return" shown here has a spring in the handle which quickly drives the spindle back for the next stroke. Add the Screw Holder shown here and you see at once what a tremendous advantage you have in this tool, especially in over head work.

With these two Tools you can hold the work in one hand while you start and drive the screw in some place out of reach with the other. For all convenient and close range work this is the quickest "Yankee" Screw Driver we have yet put out.

If your dealer cannot supply you, we will mail you the two for **\$2.25**

Write us for the "Yankee" Tool Book. It tells about every tool we make. A postal brings it.

NORTH BROS. MFG. CO.

Dept. A

PHILADELPHIA, PA., U. S. A.



SEBCO Expansion Bolts

For fastening fixtures to walls or floors where ordinary screws will not hold. When screw is inserted the shield expands with each turn, making it impossible for screw to work loose or pull out.

A working sample free for the asking, also our catalogue that will show you a way to do better work.

STAR EXPANSION BOLT CO.

Catalogue Dept. 5R

147-149 Cedar St. NEW YORK CITY
120 W. Lake St., CHICAGO

Two Styles of Shanks



Our new Precision bits with turned shanks prevent pulling out of the brace chuck. Except for the shank they are the same as our regular auger bits.

Russell Jennings & Bits and Braces

have been the standard for over half a century. Our Precision tools including expansive bits, screw drivers, bit extensions, etc. are also making good. Look them over.



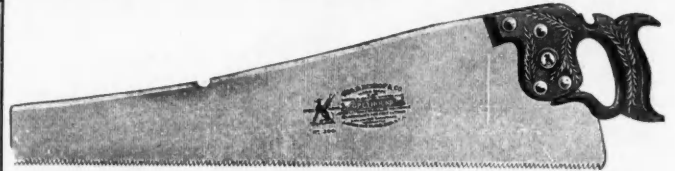
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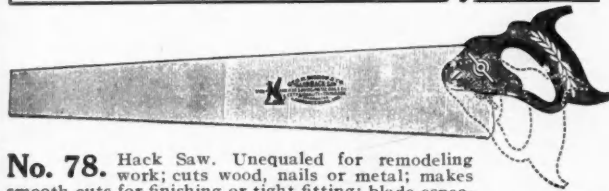
Quality Tools That Save

I would rather lose 100 saws than have one dissatisfied user

GEO. H. BISHOP



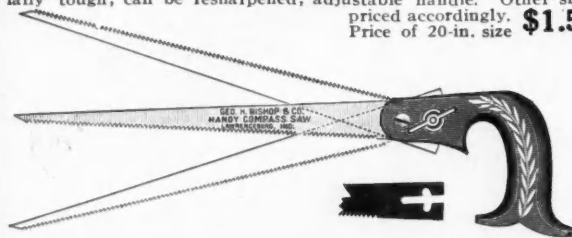
No. 300. Bishop's Greyhound Hand Made Saw. A masterpiece of the sawmaker's art; made of Bishop's Refined Greyhound Steel, pure and tough. We guarantee this saw to cut faster; run easier in all kinds of wood; hold its sharpness and set longer than any other make of good saw in the world. We refund the money if 30 days' trial does not prove our guarantee. Made in all lengths both skew and straight back. Price **\$3.00** of 26 inch saw



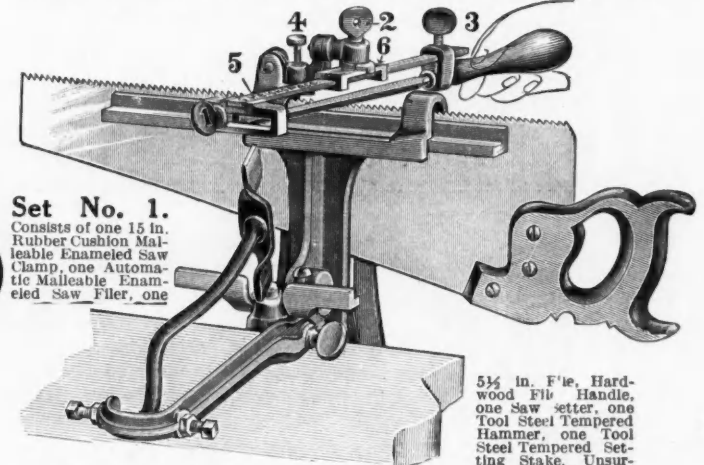
No. 78. Hack Saw. Unequaled for remodeling work; cuts wood, nails or metal; makes smooth cuts for finishing or tight fitting; blade especially tough; can be resharpened; adjustable handle. Other sizes priced accordingly. Price of 20-in. size **\$1.50**



No. 7. A hand made saw of extra refined crucible steel; straight back; highly polished selected blade; full width; thin back; perfect temper; polished beechwood handle, four screws. Price of 26 inch size **\$1.50**



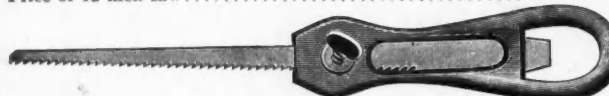
No. 20. Handy Compass Saw. Blade interchangeable, reversible and adjustable; polished and carved handle; hand filed and set; thin back; sizes 10, 12, 14, 16 and 18 inches. Price of 12 inch saw **\$.50**



Set No. 1. Consists of one 15 in. Rubber Cushion Malleable Enamelled Saw Clamp, one Automatic Malleable Enamelled Saw Filer, one

5 1/2 in. File, Hardwood File Handle, one Saw setter, one Tool Steel Tempered Hammer, one Tool Steel Tempered Setting Stake, Unsurpassed for \$5.00

Manual Training Schools or for general purposes. Price



No. 16. Keyhole Pad and Blade. Side screw; handle best malleable stock. Each **\$.15**



No. 9. Patent Handy Saw. Two saws in one; for Panel, Back, Cabinet, Pattern Maker and Small Mitre; toothed for cross cutting and for rip sawing; adjustable handle. Other sizes priced accordingly. Price of 12 inch size **\$.85**



No. 1. Pattern Maker's Saw. Blade 7 1/4 by 1 1/4 inches; 21 gauge; 15 points; plain apple handle. **\$.50**

No. 5. Dovetail Saw. Blade 1 3/4 inch under back; 26 gauge; 17 points; highly polished handle. Price of 8 inch **\$.75**

BISHOP QUALITY makes our UNLIMITED GUARANTEE possible. Look for this trade mark of QUALITY



GEO. H. BISHOP & CO.

Makers of Quality Saws

LAWRENCEBURG

INDIANA

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

Time and Lighten Labor



No. 8. We recommend and warrant this hand made saw. Extra Quality Crucible Steel; highly polished blade; full skew back; taper ground (thin back); perfect temper; hand filed to diamond point; fast cutting; polished applewood handle; five brass screws. This saw cannot be duplicated at the price. All sizes 16 to 30 inches. **\$1.75**
Price of 26 in. size . . .



BISHOP SAWS are sold in more than 20,000 hardware stores. You can be suited in the hang, the handle, the tooth, the weight of blade and the price. Above all stands the **BISHOP GUARANTEE** of **HIGHEST QUALITY**.

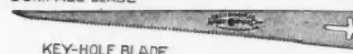


No. 90. A hand made saw that will stand wear and tear. Perfect steel, temper and finish; handle allows full cutting length of blade; rests light and easy in the hand; skew back. Other sizes at proportionate prices. Price of 26 inch saw . . . **\$2.50**

HACK BLADE



COMPASS BLADE

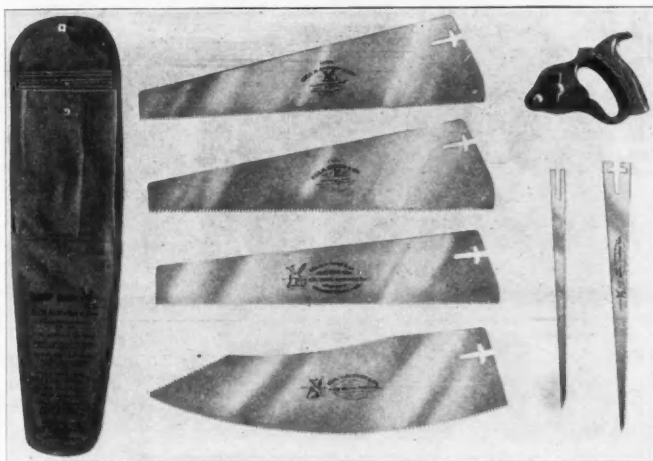


KEY-HOLE BLADE

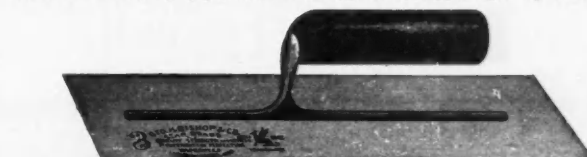
No. 15. Nest of Saws. Interchangeable blades that can be reversed and adjusted to suit conditions. One of the handiest saws a workman can have. Price . . . **\$1.50**



No. 1. Mechanics value a good saw particularly when narrowed down by use. The life of this saw is fully equal to the regulation width. 26 inch length is 1 3/4 inches at point and 5/4 inches at heel. Light and rigid, full taper ground to the back; hand smithed; hand filed and set. Applewood handle highly polished and carved. Price of 26 in. saw . . . **\$1.75**



No. 72. Sextette Nest of Saws. A useful and handy combination for all workmen. Every blade guaranteed; handle adjustable; blades interchangeable; set consists of cross-cut saw, rip saw, hack saw, flooring saw, compass saw and keyhole saw; Khaki scabbard with separate compartment for each blade and the handle. Complete set, each . . . **\$5.00**

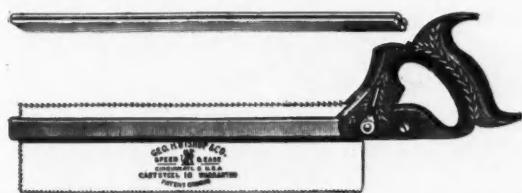


No. 3. Star Trowel. Highest grade; the blade is light, flexible and durable. Riveted at each inch of the mounting. Price of 11 1/4 inch size . . . **\$1.75**

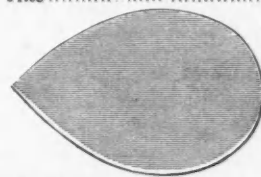


No. 2. Cabinet Scraper and Holder; inexpensive and of a shape to insure a firm, even grip; works in out-of-the-way places; holds blade firmly. Price . . . **\$.50**

No. 22. Corner Trowel. A strongly made, perfectly tempered tool. Length 6 inches. Price . . . **\$.55**



No. 10. Patent Back Saw for back sawing, dovetailing, ripping, cross and depth cutting; removable handle and blade; blade can be adjusted to any angle and to any desired width or distance from edge of the back; saves measuring and marking; made of spring steel, hand filed and set. Ask for complete description of this saw. **\$1.75**
Price of 14 inch . . .



No. 15. Cabinet Scraper of handy size and shape; well tempered and durable. Price . . . **\$.25**

Let the next saw you buy be a **BISHOP**. You take no risk of perfect satisfaction. Ask your dealer for our special folder on hand saws and specialties or write

GEO. H. BISHOP & CO., Lawrenceburg, Ind., or 62 East Lake Street, Chicago, Illinois.

If you have used Bishop Saws, you know how good they are. If you have never used them, get one now and get full value for your money. Remember—we guarantee perfect satisfaction. Write for our new circular containing complete description and prices, now.

GEO. H. BISHOP & CO.

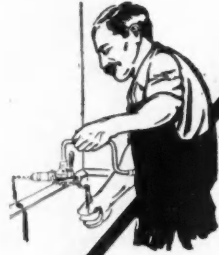
Makers of Quality Saws

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For Service Everywhere and
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Drill Brace No. 192 Excels



Has cut gears and ball bearings that reduce friction to the minimum.

Drilling attachment swivels into three positions. It can be put on or taken off in a moment.

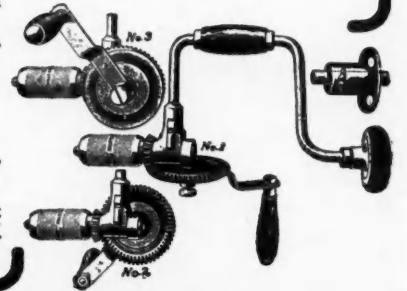
Can be used as a breast drill by simply throwing the dogs out of mesh.

Altogether, an ideal Brace for all-around work—one that *never fails* to give complete satisfaction.

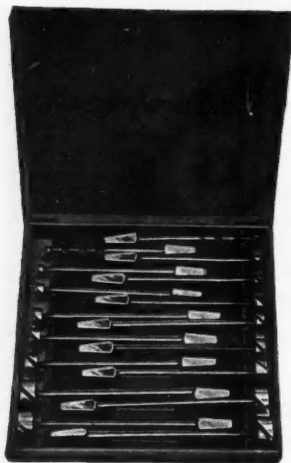
Send for details and complete catalog.

MILLERS FALLS COMPANY

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"A Bit of Utility"



Guided by its circular rim—instead of its centre—the Forstner Labor-Saving Auger Bit will bore any arc of a circle, and can be guided in any direction.

Doesn't matter how hard the wood is, no consequence whether it is full of knots, or the grain awkward to negotiate. The Forstner Bit works with equal smoothness under any condition and leaves a true polished surface on every job.

Unequaled for Delicate Work

Supercedes chisels, gauges, scroll-saws, or lath tools combined, for all kinds of delicate work. Cabinet and pattern makers and carpenters are enthusiastic because they do more work than other bits and cost no more.

We can offer something special in the matter of price on sets packed in a sensible box. Send today for particulars and catalog.

The Progressive Mfg. Co.
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BLACK, GREEN, PURPLE, RED

Booklet, Samples and Prices on Application

Goodell-Pratt's

No. 999

NAIL SETS

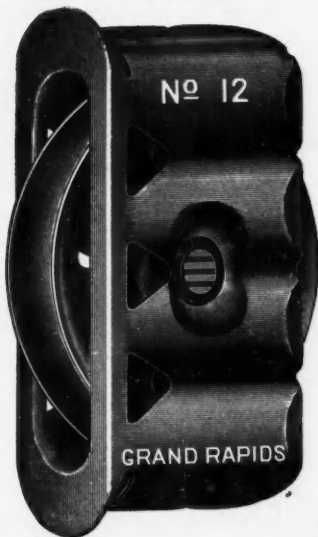
THE KIND THAT STAND
THE POUNDING

No. 990

GOODELL-PRATT COMPANY

Toolsmiths

GREENFIELD, MASS., U. S. A.



"GRAND RAPIDS" ALL STEEL SASH PULLEYS

No Nails No Screws
Just Bore 4 Holes

The time saved by the
"Grand Rapids" will
actually pay for the
pulleys.

You can't afford to use
old style pulleys.

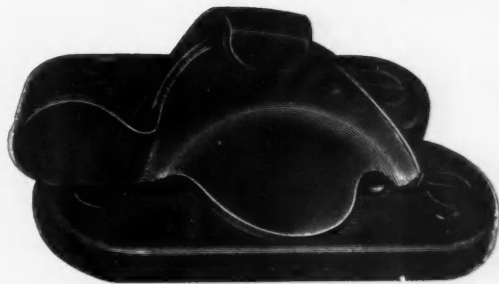
Write for free samples
and prices.



Grand Rapids Hardware Co.
Manufacturers
158 11th Street, GRAND RAPIDS, MICH.

This fasten-
ing is more se-
cure than any
number of
screws or nails
could make it
save about 15
per cent. too.
S O R E W S
C O S T M O N E Y

MONITOR SASH LOCKS



(PATENTED)

NEVER BREAK

**BECAUSE THEY ARE MADE OF VERY HEAVY GAUGE
METAL AND PERFECTLY CONSTRUCTED.**

If the upper plate drops, the Monitor "Never Break"
Sash Lock will pick it up from a lower point than any
other, adjust the sashes perfectly, prevent all vibration
and lock securely, so it cannot be opened from the outside.

MADE IN TWO SIZES AND ALL FURNISHED BY

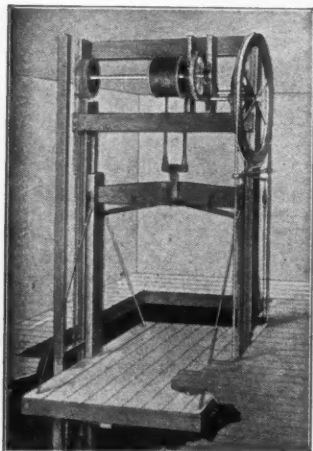
The Champion Safety Lock Co.
Geneva, Ohio

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

A Good Elevator

Is a Good Investment

Saves Time and Labor



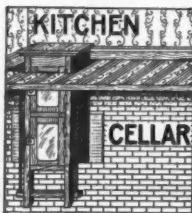
Our product includes **Dumb-Waiters, Carriage, Auto and Store Elevators**—Hand and Power.

These machines are serviceable and will pay for themselves in a very short time. Being practically self-contained, they can be erected by any carpenter or "handyman" in a few hours. Plans for erecting furnished with each elevator.

The Reasonable Cost Will Interest You

Write to us today stating your requirements, giving style of machine wanted, size of platform and number of feet travel and we will name you a money-saving price on equipment made to serve you well.

SIDNEY ELEVATOR MFG. CO. - SIDNEY, OHIO



CARPENTERS WANTED AS AGENTS
During Fall and Winter Months. Big Money; Ready Seller.

SANITARY AUTOMATIC DUMBWAITER
saves carrying food to and from the cellar. Perfectly ventilated; screened openings; finished inside with durable white enamel. Keeps food perfectly. Top lies flush with kitchen floor. You can walk over it. Operates with push button or lever. Also furnished as a Refrigerated Dumb Waiter. Write for Particulars and Price.
YORK AUTOMATIC DUMBWAITER WORKS
639 W. Market St. YORK, PA.

STOP THOSE RATTLING WINDOWS
Do away with sash weights, cords, pulleys and pocket frames and save money by using **AUTOMATIC SASH HOLDERS**

Proved by Use—Unexcelled for windows without pocket frames. Excellent for new windows.

Send for circular and prices, or \$1.00 for trial set prepaid; state approximate weight of sash.

AUTOMATIC SASH HOLDER MFG. CO., 52 Church St., New York.

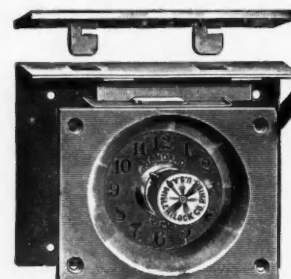
TRADE **Sedgwick** MARK

ELEVATORS AND DUMB WAITERS

— HAND POWER —

Standard of Quality the World Over

SEDGWICK MACHINE WORKS
82 Carroll St., Poughkeepsie, N. Y. New York Office, 132 Liberty St.



LAUGHS AT LOST KEYS

Here's the lock for your tool chest or your shop cabinets. Safe as a bank. No keys to lose. Locks automatically. A few turns of the knob opens it. Made of brass and fits all chests from 1/2" thick and up.

"Standard Time" KEYLESS CHEST LOCK

No. 3380 All Brass Size 4"x3"

will prevent the theft of your tools. You are the only one who can open the lock. Price very reasonable. Can you afford to be without this strong protector for your valuable tools? Of course not.

Write for Keyless Lock Catalog
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Get the Roof that Lasts

—the kind that never fades, never wears out, never needs any painting, re-coating or repairing every few years and never absorbs any water

Genuine Franklin Tunnel Slate

—the strongest, the most uniform in color, the best hand-selected, made from the best slate deposits makes the "Roof that Lasts a Lifetime" and

Guarantees Freedom from all roofing Troubles

Plan NOW to roof RIGHT. Begin by sending to-day for our new Catalogue. Just out. It points the way to immense roof saving. Write for your copy to-day. Sent Free

Slatington Slate Co., SLATINGTON, PA.

Established 1852
Sole Manufacturers Genuine Franklin Tunnel Slate

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Columbia Dumb-Waiters
Pavement or Cellar Hoists
Jumper Disappearing Dumb-Waiters
Chain Blocks, Cranes and Trolleys

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J. G. SPEIDEL Reading, Pa.



CHELSEA

EXEMPLAR OF QUALITY

Send for our Elevator and Dumbwaiter catalog

CHELSEA ELEVATOR CO. 330 W. 26th St., N. Y.



Excelsior Dumb Waiters

The only Knock-Down Dumb-Waiter ever offered, shipped complete to a nail, with explicit directions for erecting, for **\$18.50**

Up-to-Date in Every Particular

Hardwood Car, Self Retaining Machine, Adjustable Weight, Guides, Ropes, Timbers and Hardware. Ropes joined by coupling. No Splicing. Will fit any ordinary opening up to 24" x 30"

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74 Emerson Place - - Brooklyn, N. Y.

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ROOF FRAMING MADE EASY



By the use of
our little book

It's Free

Send today for one of these and learn how to get the lengths and cuts of all rafters for seventeen different pitches of roof. We stamp

this rule on our squares, making it handy and convenient.



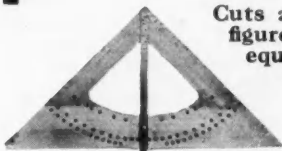
We Manufacture the Only Practical Take-Down Square

NICHOLLS MFG. CO.

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THE IDEAL { TRY SQUARE RAFTER SQUARE MITRE SQUARE

(All in One)



Cuts all your rafters. Cuts any figure of 3, 4, 5, 6, 8, 10, 12, or 24 equal sides. Does your Mitre work. Very simple.

AGENTS WANTED

Mailed on Receipt of \$2.00

IDEAL TOOL WORKS

Box 51 - - Middletown, N. Y.



SAVE TIME and MONEY

make a neat, attractive, weather-proof corner job by using

KEES METAL BUILDING CORNERS

made of galvanized iron. Hold paint like wood. Save cutting bevels. Write today for free samples and pictures of houses finished this way.

F. D. KEES MFG. CO. BOX 552

BEATRICE, NEBR.

If you have never used Gossett Storm Sash Hangers, ask for samples.

SHARP TOOLS



TOOLS with the keen, smooth edge that will stay sharp on the job are found in the tool kits with



Carborundum

Sharpening Stones

Just a few strokes and the edge is there, keen and smooth.

A Carborundum stone cuts—cuts clean, there is no rubbing—it gives an edge—that is an edge—every stone is uniform and it won't fill or glaze.

There is a Carborundum stone for every edge tool.

Ask your hardware dealer.

The Carborundum Company

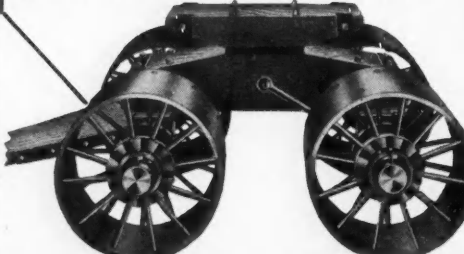

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10-ROOM HOUSE MOVED 5 MILES IN 10 DAYS!

Over country roads and broken fields at that—LITTLE WONDER TRUCKS did it. Are you dissatisfied with your present moving equipment? Is it continually giving you trouble, breaking down when wanted most? You can get away from all that with Little Wonder Trucks. Built to Last. Low prices—we sell direct to you—why not save money on the first cost as well as profit on your operations?

Here's the Little Wonder

Let us furnish your complete House Moving Equipment—everything from Little Wonder Trucks to rollers, jacks, etc. Get our catalog "B" right away. Don't delay. Just a postcard brings it in a hurry.

HOUSE MOVERS SUPPLY CO. Cedar Rapids, Iowa

Queen Architects' Level

For Architects and Builders



A precision Level with high grade telescope, 12 inches long with sensitive bubble. Capable of doing the most accurate work. Moderate price. Send for catalogue.

QUEEN-GRAY COMPANY, 616-618 Chestnut St., Philadelphia, Pa.



White's Improved Level

It's Guaranteed!!!

is especially designed for work where a general-purpose level is required. Telescope is 12 inches long with magnifying power 25 diameters. Will detect an error of $\frac{1}{8}$ " in 300 feet. Shipped on approval to your address, express charges prepaid. Ask today for circular X giving price and full information—Ask today!

DAVID WHITE COMPANY, Dept. C, 419 East Water Street Milwaukee, Wis.

"STERLING" Transits and Levels

MADE BY **Warren-Knight Co.**



A line of instruments specially adapted to the needs of the Contractor and Builder! Illustrated Catalogue S.W. upon request. Special 10 days' trial offer this month.

Engineering and Drafting Supplies

136 N. 12th Street Philadelphia, U. S. A.
Successors to Izard-Warren Co.

BECKMANN INSTRUMENTS



are sold to give satisfaction. Our guarantee means Your Money Back if you want it.

Send for our Circular Y and let us know the work you are engaged in.

The L. Beckmann Co.
500 Adams St., Toledo, Ohio
—Established 1874—

LEVEL WORK

Architects Builders Contractors



insure against mistakes in leveling by using our Architects and Builders Level. We make a specialty of this instrument. It will give positive, accurate service. Saves its cost in a short time.

We manufacture a complete line of surveying instruments in various sizes and at a wide range of price. Our circular No. 27 will explain our instruments to you in detail. It will pay you to get it before deciding upon any surveying instruments.

KOLESCH & CO.
Surveying Instrument Makers. Established 1885.
138 Fulton St. NEW YORK

INTRODUCTORY TRIAL OFFER

If the SELF-SETTING PLANES are not sold in your town and you write us saying, "I saw your trial offer in A. C. & B., we will send you particulars, a carpenter's pencil and our \$1.00 Certificate, which we will receive as \$1.00 in payment for a SELF-SETTING PLANE as stated in our \$1.00 Certificate, and if this \$1.00 Plane is unsatisfactory and returned to us at our expense, we will send you \$1.00 more than you sent us, as the \$1.00 Certificate says.

As this paper guarantees we will do as our advertisement says, you know the plane must be O. K. ALL WE ASK is to have you TRY the SELF-SETTING PLANE on your own bench, in your own way, with or against the grain, on the WORST cross-grained oak, knurly, knotty, hard or soft wood you can find, THAT IS FREE FROM SAND OR DIRT. If it is not worth to YOU, OR YOUR MEN, TWICE ITS COST, return it at our expense as above stated.

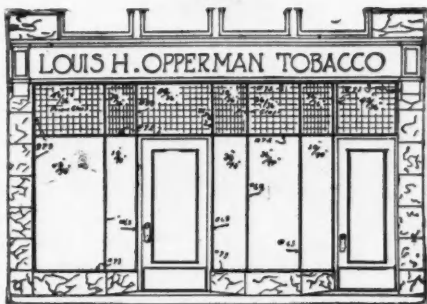
If you send us the addresses of ten carpenters, no matter where they live we will send you another hard, tough carpenter's pencil.

Give the SELF-SETTING PLANE a chance to PROVE ITS WORTH. If it FAILS, return it and we will return your money.

Carpenter's Hard, Tough Pencils, 30c per dozen, postage prepaid.

GAGE TOOL CO., Vineland, N. J.

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FRONT ELEVATION.

IT PAYS TO INVESTIGATE

Before you build that new store front, let us tell you the reasons that have made Petz Bars the recognized standard bar in every part of the United States.

Strength and reliability are insured by the solid steel core. Beautiful and artistic in appearance. A safe bar to use, as it is easy to install and will not break the glass. Has stood the test of the severest storms. Does not increase insurance rates.

You can feel safe when you specify Petz Bars. You should have on your desk, for ready reference, our free booklet on "Modern Store Front Construction." Write for a copy today.

DETROIT SHOW CASE CO.

491 West Fort Street

Detroit, Michigan

RELIABLE FOLDING Scaffold Bracket



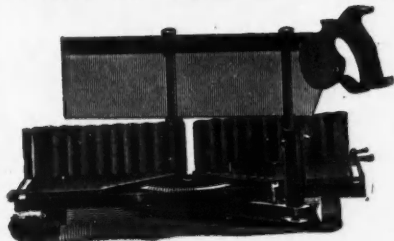
Strong and safe; requires only a few minutes to attach. No holes to bore. Four 10-d or 16-d nails fasten them securely. Positively rigid; no vibration.

The Low Price of these Brackets can be saved in time and material on the first two jobs.

ELITE MFG. COMPANY
100 Ohio Street ASHLAND, O.

GOODELL MITRE BOX

Made of STEEL - Cannot Break

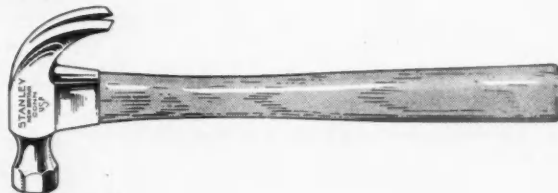
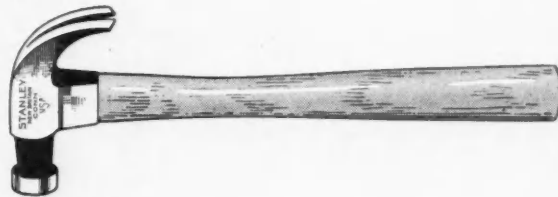
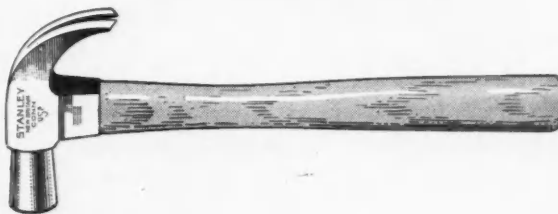


First in Quality and Improvements Automatic Steps for holding up saw. Corrugated Backs Graduated. Gauge for duplicate cuts and many other features

Send for Circular

GOODELL MFG. CO., Greenfield, Mass.

Stanley Tools



Carpenters' Nail Hammers

A line recently added to the long list of Carpenters' and Mechanics' tools manufactured by us.

The Heads are made of a special steel, carefully forged, hardened and tempered.

The Handles are made of selected, second growth, white hickory.

The Claws are of uniform thickness and so formed that they will grip and hold fast at any point of the shank all sizes and kinds of nails, thus enabling the user to draw them from the toughest kind of wood, even where the head of the nail has been broken off.

The improved method of fastening the heads to the handles makes it practically impossible for the head to fly off.

The above features, together with their specially fine finish, will commend them to all interested in good tools.

A special circular containing a complete description of all numbers and sizes will be mailed upon request.

Address

STANLEY RULE & LEVEL CO.
NEW BRITAIN, CONN. U.S.A.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



**Conservative Capacity
Ninety Cubic Yards
Per Day**

Saves 60 to 90 cents on every yard. Pays for itself several times each season. Gives you the edge on your competitors. So light that two men can carry it. Big savings in freight and handling. Can always be set to discharge direct into forms. Saves all wheeling of wet mixture from machine. This alone saves one-third the labor necessary to operate other mixers.

Sold on Trial—Satisfaction Guaranteed

Simple, Compact, Handy, Substantial

**New Principle.
Quick Charging.**

**Quick Action.
Quick Discharge.**

Its 20 mixing blades have a criss-cross, kneading, plowing, hoeing motion which press and fold the entire batch over upon itself many times every second. Insures a quick and thorough mix. You will be proud to say you have a Northfield Hand Batch Mixer, once you see its work. Mixes 4 cu. ft. of finished wet concrete per batch. A batch per minute or 90 cu. yds. per day is easily possible under favorable conditions. 30 to 60 cu. yds. per day is a fair average on ordinary abutment, floor, wall or bridge work. Over 10 cu. yds. per hour have been averaged with this mixer. When equipped with power attachment—one man alone can mix mortar fast enough for a crew of 20 brick-layers. It is not a man-killer. Two men operate it easily and do not work as hard as the shovelers. A pump engine will run it. It is not necessary to have a big, expensive power mixer to economically mix concrete. No job is too big or too small for the Northfield. No better mixer can be had, even at ten times its price. Price within reach of all. Get your order in early if you want one this season.

Write direct to factory for catalogue, price and terms.

NORTHFIELD IRON COMPANY
402 Water Street - Northfield, Minn., U. S. A.

**Supplies the Demand for
a Small Perfect Mixer**



Capacity
3 Cubic Feet
Per Batch

Weight
800 Lbs.

On Trucks
1000 Lbs.

On Trucks
with
Engine
1400 Lbs.

The McCracken Portable Batch Mixer

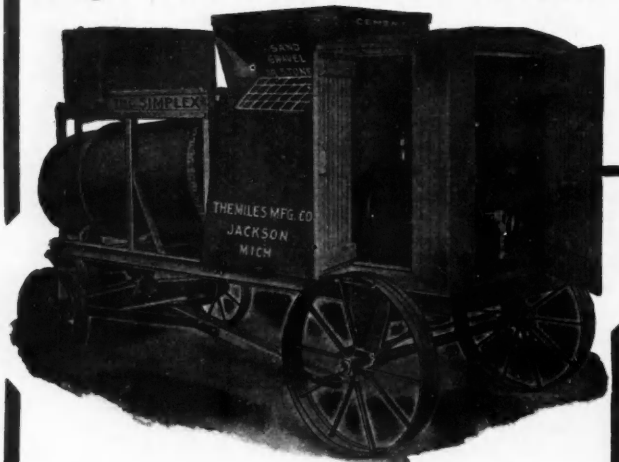
is designed and built to meet the demand for a strong, simple, durable and practical mixer, that is large enough for all ordinary contract work, yet light enough to be profitable on the small job as well as on the large. Mounted on good steel trucks, EXTRA LARGE DRUM OF THE PROPER SHAPE, equipped with our own high-grade 2-HP. SIOUX engine, enclosed in a good steel housing (not a cheap box), also has friction clutch, so that drum can be started and stopped without stopping the engine. Capacity, twenty-five to thirty-five yards per day. Cost for power, twenty-five cents per day. The largest, best and most complete mixer on the market for the money. Write today for prices.

Write for Further Particulars

Sioux City Engine & Machinery Company

9th and Division Sts. SIOUX CITY, IOWA

**Buy The SIMPLEX 1914 Model
MIXER**



Combining the good features of both batch and continuous mixers in the one machine.

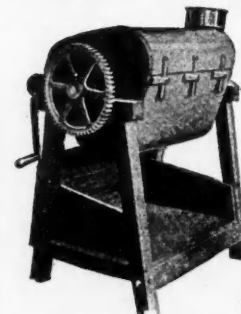
The best feature of the Batch Mixers is the rolling of the materials. The greatest advantage of the Continuous Mixer is the automatic measuring and feeding of the materials.

Only one machine combines these two features—the SIMPLEX. It's the happy medium between the two types of mixers, giving the points of advantage claimed by each, and eliminating the faults of both.

Write for New Complete Catalog.

The Miles Mfg. Co.
309 E. Franklin St. JACKSON, MICH.

Mix with a Mixer



With mixers selling at the present prices, no one doing concrete work wants to be without one.

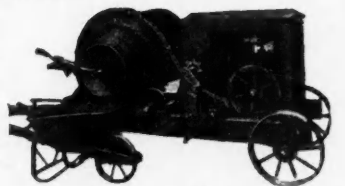
Hand mixing is slow, expensive and wasteful. Laborers are often hard to get.

Machine mixing is faster, cheaper and much more thorough.

Our hand mixers sell from \$24.00 (like cut) to \$75.00 each; three sizes.

Power Mixers (like cut) sell from \$300 up; five sizes. Equipped with side loaders, automatic water tanks, friction clutches, and all up-to-date conveniences. Capacity a batch a minute.

Our \$300 mixer is the ideal machine for the country contractor. Weight, 1500 lbs. Wide gauge. Can be moved anywhere. The only machine of its kind made.

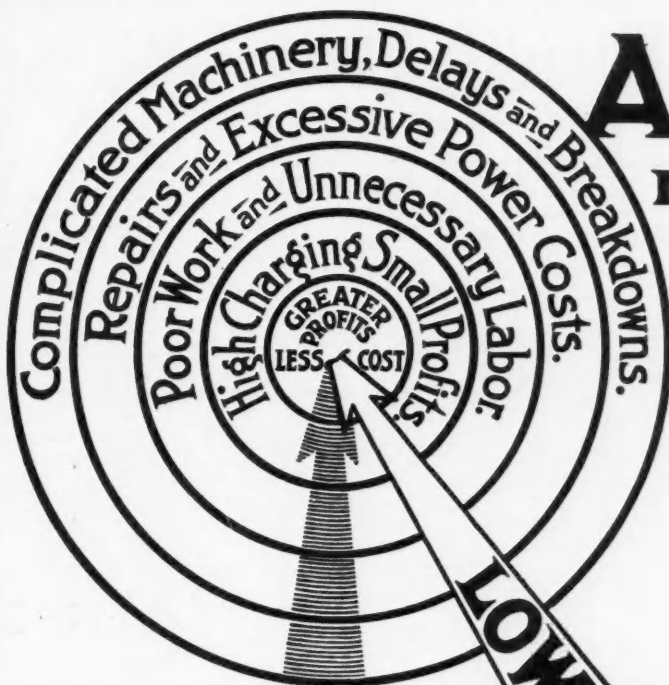


Ask about this machine when writing or come to the cement shows and see it on exhibit.

LANSING CO., 708 Cedar Street Lansing, Mich.

Agents Everywhere

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



A Bull's Eye not sometimes but ALWAYS

Why is it that owners of "The STANDARD" never "wolfs" about repairs, delays and small profits? It is simple enough when you figure it out. Any mixer will mix concrete, but what you want to know is how much will it cost.

"The STANDARD" mixers will mix more concrete with less power, less labor, in less time, than other mixers.

Don't overlook this fact when considering mixing machinery.

There are more of "The STANDARD" at work than any other.

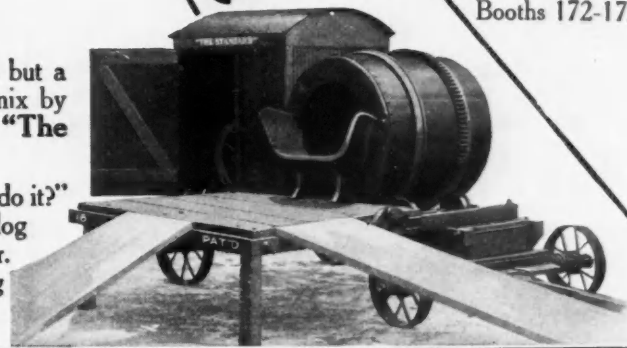
See us at the
Chicago Cement
Show,
Booths 172-173

We show here a contractor's target. Which one do you hit? Very few contractors get their right profits. It's not because they haven't got the work, or that they don't know how to do it, but it's because they never have checked their profits against that of

"The STANDARD" LOW CHARGING MIXER

Just try it once and see where you stand. It don't take but a minute to write us. Makes no difference whether you mix by hand or machine, write us and let us show you why "The STANDARD" hits the bull's eye.

You may say, "Well it looks good on paper but can it do it?" All we ask is 1 minute of your time, just ask for catalog and the name of the nearest "The STANDARD" owner. If you are open to conviction you'll write for Catalog No. 44 Let us hear from you.



THE STANDARD SCALE & SUPPLY COMPANY

CHICAGO
1345-1347 Wabash Avenue

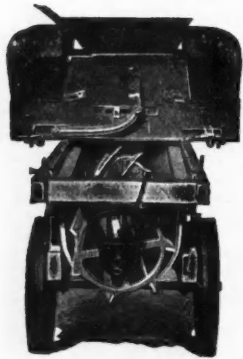
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Please ship at once C. O. D. two new front wheels and iron axle for No. 6 mixer.

Newark, Ohio, Dec. 12th, 1913.

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J. M. WAGENHEIM & SON.

The Coltrin Continuous-Batch Mixers

Shipped anywhere on trial—See them at

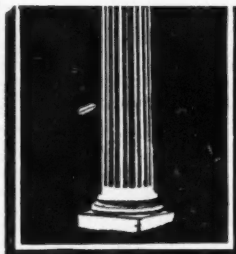
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These reinforced concrete standards are handsome, durable, artistic and inexpensive. They do not rust like cast iron, become dented like sheet metal, or rot like wood. They require neither painting nor repairs, and are not affected by weather conditions.

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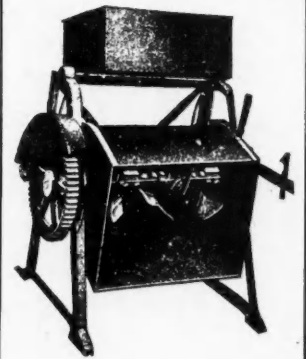
We have numerous beautiful designs, and make the standards of different kinds of concrete. Our sparkling granite concrete rivals natural granite in its beauty.

Write for booklet on "Ornamental Illumination." FREE.

THE PETTYJOHN COMPANY
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The Helper Mixer

Just the machine you want. Will mix concrete and mortar rapidly and thoroughly. Requires 1½ H. P. engine to run it. Average daily capacity 15 to 20 cubic yards.



The Winner Mixer

Is still in the lead *winning* in the race of Reduced Concrete Construction. Built in 4 and 5 cu. ft. sizes. Daily capacity 30 to 40 cu. yds. Only requires one gallon gasoline per day to run engine.



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131 Rath Street Waterloo, Iowa

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WHERE DO YOU LIVE ?



NORTH — SOUTH — EAST — WEST

You'll almost rub elbows with more than satisfied customers—enthusiastic boosters for

LITTLE WONDER "FIVE"

Concrete Mixers

SPECIAL OFFER

Our resources enable us to offer you exceptionally favorable terms if you order before Feb. 1st, 1914, thus relieving you of a large part of the burden of carrying the investment during the dull months.

Tell us where you live and we'll put you in touch with them. Call them up—ask them about the LITTLE WONDER "FIVE" and you'll get "Honest John," MAN-TO-MAN testimony like this:

"I am more than satisfied with the LITTLE WONDER 'FIVE.' It has run every day without a hitch and saves me the cost of two mortar men. The LITTLE WONDER is not only fine for mixing concrete, but the best that ever happened as a mortar mixer. I will be glad to recommend it to anyone."

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Investigate Our Special Offer Now, Before It's Too Late

WATERLOO CEMENT MACHINERY CORPORATION

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comes to every contractor who has a "Big-an-Little" mixer on the job. They know the value of this labor-saving machine. It helps build the bank account.

If you are a contractor you can't afford to do without a "Big-an-Little" mixer, that's clear. We guarantee satisfaction. We guarantee the mixer. You gain by getting a "Big-an-Little" mixer to work for you.

"A MIX A MINUTE"

is a safe average. Capacity 4 to 6 cu. ft. per batch or two wheelbarrow loads—50 yards per day. Saves \$3.00 to \$20.00 per day over hand mixing.

Eight real advantages make the "Big-an-Little" mixer a money-maker. Write for them.

You'll find its aid worth more than the money invested.

We equip it with a Hoist for doing other work.

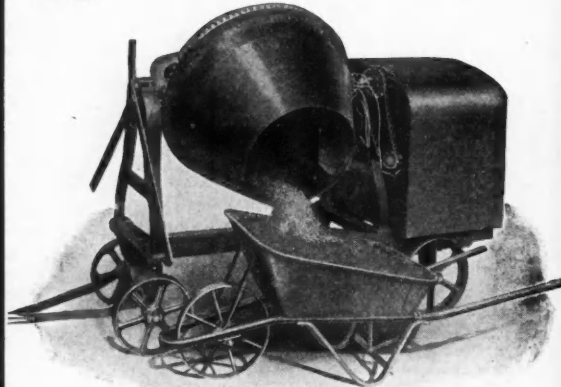
No trial needed with the "Big-an-Little."

Experimenting done long ago.

Now sold at a price that surprises.

Come to the Omaha Cement Show, January 30th to Feb. 4th or Chicago Show, Feb. 12th to 21st.

The One Bright Spot will be the "Big-an-Little" Exhibit.



Basic U. S. Letters Patent No. 782,700

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A Small Continuous Mixer of Special Value to the Contractor for all Inside and Outside Work on EVERY JOB

The Baby Grand saves time and money on all jobs where a big mixer would prove too expensive. It shows true economy in foundation and sidewalk work, in brick and block plants and wherever else a substantial saving is required. It is the very machine for such concrete work as the average contractor, carpenter and builder has to do.

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We also manufacture the Hartwick Two Trough Mixer. A larger mixer for all kinds of construction work. The best of its kind.

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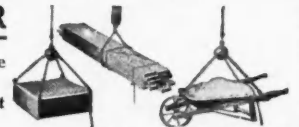
A Combination Mixer and Hoisting Engine

The Biggest Money Maker for Carpenters

LITTLE BOSS MIXER

5 ft. 50 cu. yd. cap. 3 h.p. engine

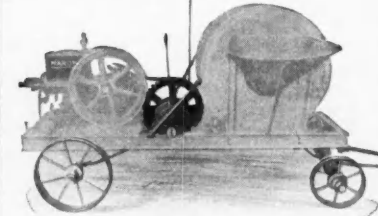
\$198.00 CASH Ask for Our Easy Payment Plan



\$20 a Day Saved

Buy a Mixer built to last, not a "freak" because it is cheap—BOSS at cost 35 cents day for fuel, will mix concrete, put in your foundations, or elevate your lumber and materials one or five stories.

Little BOSS Mixer has more power than some \$400 mixers and compares with any machine on market for thorough and fast mixing. Built of steel and iron. Chain transmission. Can be furnished with side loader.



BOSS HOISTING DRUM

Guaranteed load 500 lbs. Speed 80 ft. minute. Holds 300 ft. cable. Has safety brake.

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We sell concrete machinery at usual wholesale prices—let us save you half.

Don't Fail to Write Us Today for Catalog and Our Liberal Proposition

The AMERICAN CEMENT MACHINE CO., Inc.
 1006 Johnson Street KEOKUK, IOWA

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A PROSPEROUS NEW YEAR

WITH THE

SMITH "MASCOT"

PROSPERITY, with a capital "P." That's what you want for 1914. It is what you will get if you call on the New Smith "Mascot" to help you. You know the Smith Mixer. Immense undertakings testify to Smith Mixer worth—undertakings like the wonderful Sea-going Railway across the Florida Keys, the big dam of the Medina Valley Irrigation Co., near San Antonio, the Puget Sound Extension of the C. M. & St. P. Ry., the immense hydro-electric plant at Keokuk; projects where the equipment must be the best, where the mixers must be everlastingly "on the job" turning out well mixed concrete rapidly and economically.

The "Younger Brother of the Smith," the No. 104 "Mascot," is a new size holding four cubic feet of **wet concrete**. You can put in a four-foot batch of sloppy concrete without any danger of splashing. It not only holds a four-foot batch, but it mixes it perfectly and discharges it with great rapidity.

The "Mascot" is more than a small edition of the Smith. It retains the **duo-cone** drum and **tilting discharge**, and combines with them new features which make it the ideal machine for the smaller concrete work.

Wet cement will quickly destroy the efficiency of any running part with which it comes in contact. On the "Mascot" a dirt and dust-proof casing encloses the central drive gear and pinions and protects them absolutely. This means money in your pocket by increasing the life of your machine. At the end of the season it will be in almost as good condition as at the beginning. The "scrap heap" will have hard work getting the "Mascot" for a number of years. We have many Smith Mixers which have seen over ten years active service.

The "rope-less," "sheave-less" geared side-loader, is a marvel of efficiency. No twisting, buckling or jerking, but a smooth, easy and rapid lift. There are many other strong points in the "Mascot" which will interest you.

Send for "Mascot"
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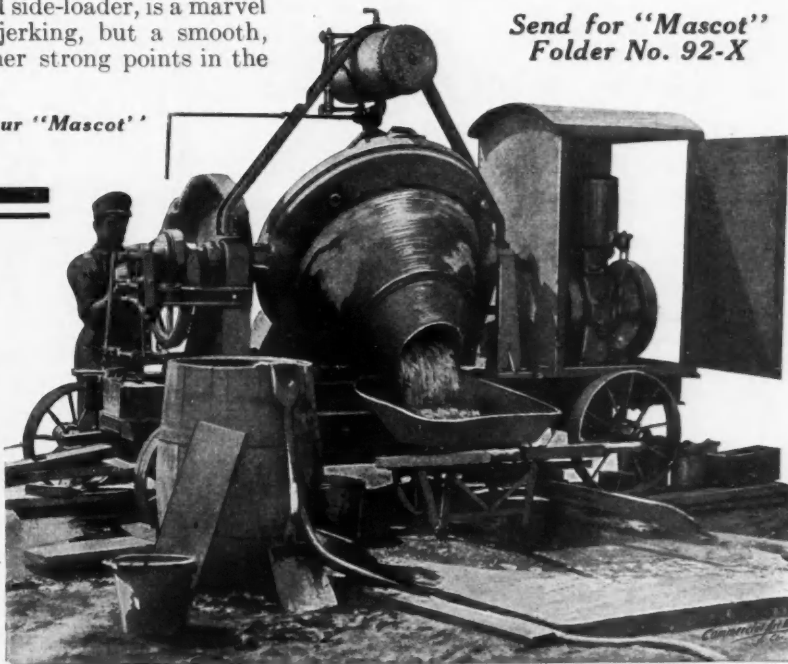
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THE T. L. SMITH CO.
1138 32d Street
MILWAUKEE, WISCONSIN

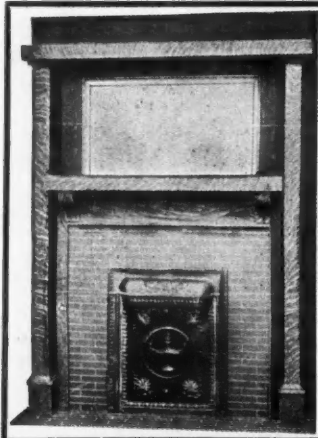
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\$27.00 Our Price to You

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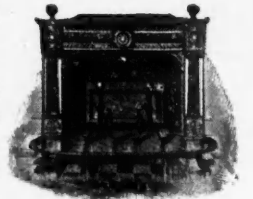
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The Majestic coal chute for foundation walls.

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Yellow Pine,
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in the White.

Any size
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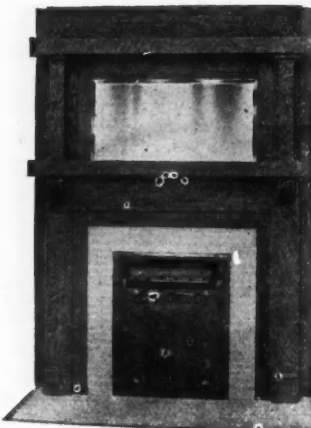
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\$22.50 "From Factory to You"

For this elegant massive, selected oak or birch, mahogany finished mantel. Beveled Mirror 18x36

Price includes our "Queen" Coal Grate with best quality enameled tile for facing and hearth. Mantel is 82 inches high, 5 feet wide. Furnished with round or square columns, as shown in cut. Dealer's price not less than \$35.00.

Catalogue Free—Will send our 100 page catalogue, the finest ever issued, free, to carpenters, builders and those building a home.

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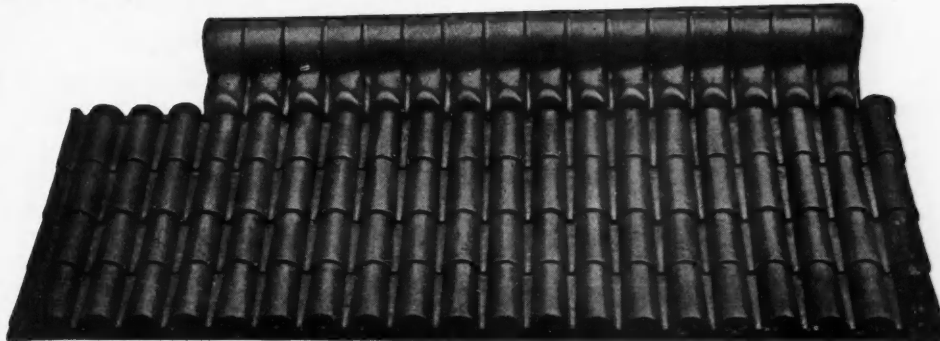
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has won widespread and lasting favor because of its many superior qualities. Beauty, simplicity, durability—these are its salient characteristics. Absolutely storm-proof and water tight.

When put on according to directions, Mullins Metal Tile Roofing is guaranteed to keep in perfect condition for years. No other roofing can equal it for all-round satisfaction. Many of the finest buildings in this country are equipped with it.



We also make Cornices, Building Fronts, Finials, Tympanum panels, Rosettes, Faces and other architectural ornaments. Many thousands of designs to select from.

Ours is the largest and best equipped factory of its kind in the world. We use

only the finest materials. Every artisan in our employ is a masterhand. Our prices are attractive, our services prompt. Glad to submit quick estimates on special jobs.

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214 Franklin St.

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"AMERICA'S BEST FLOORING"

Builders and owners will find it a clinching argument to say "It's floored with OAK FLOORING." It is the biggest single feature to look for in any house or apartment building. It imparts an air of refinement and elegance. It is the modern flooring.

OAK FLOORING 3/4 inch thickness by 1 1/2 inch or 2 inch faces can be laid over old floors in old homes or over cheap sub-floors at a very low cost. It is cheaper than carpets or pine flooring. When laid it has all the appearance of heavy flooring.

There is a solid satisfaction and lasting pleasure in the substantial and dignified appearance of OAK FLOORING.

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For durability, OAK is the best. OAK FLOORING laid thirty years ago, after very hard use, is still in good condition.

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THE OAK FLOORING BUREAU, 890 Hammond Bldg., DETROIT, MICH.



J. W. WELLS LUMBER COMPANY

"Than Which There Is None Better"
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THAT is all you would have to pay and you will get as good a saw as can be made, no matter what the price. You will have your choice of a standard width or of a narrow width, straight back or sway back saw. The narrow width saw costs only \$2.00 in 24" or 26" length; the standard width \$2.50. It can be had in either Cross-cut or Rip-tooth.

Remember, this is a Simonds Saw made of Simonds Special Crucible Steel and absolutely guaranteed by the manufacturers. It is uniformly tempered throughout, is ground for clearance, has a carved and highly polished apple-wood handle and is in fact the most distinctive and highest grade Hand Saw on the market today. Where Dealers do not carry the saw it is forwarded direct

We manufacture a complete line of all kinds of Saws for Mills, and Planing Knives and Files.

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Fitchburg, Mass.	Chicago, Ill.	Montreal, Que.
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No Figuring Required

This Square solves all your rafter problems

You do not have to multiply, divide or reduce from inches to feet—the figures on the Square give accurately the lengths of common Rafters, Hip Rafters, Valley Rafters, Jack Rafters, Cripple Rafters, for any one of seven pitches of roof, also all top, bottom and side cuts.

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Rafter and Framing Square

is an invaluable tool and time-saver for busy mechanics. Errors are avoided as there are no calculations to make and the figures on the Square are guaranteed to be accurate.

For full description see the Sargent Square Booklet, sent free on request. Other Sargent Quality Tools are described in the Sargent Tool Book, a handbook for mechanics, sent on application.

Sargent & Company, Manufacturers, ¹¹⁴⁹ Leonard St., New York

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The Builder Who Draws His Own Plans

THE most recent enumeration* of architects—men who do nothing but design buildings and draw up plans and specifications—shows that there are, all told, 7,788 practicing professional architects in the United States. Of these 2,082 are located in the three largest cities—New York, Chicago and Philadelphia—leaving only 5,706 to serve all the rest of the country.

Uncle Sam's Official Postal Guide lists 58,080 cities and towns large enough to have a post office.

The logic of these figures is evident. Here are *over Fifty Thousand* thriving towns and growing communities where there is no professional architect.

But houses and barns, store buildings and churches are needed just the same; and it is up to the local carpenters and builders to build them. Sometimes they can send away for the plans; but more often they have to draw the plans themselves.

The responsibility then for the greater part of the local building improvements throughout the length and breadth of

*Hendricks' Commercial Register, 1913 Edition.

our broad land rests entirely with the builders. A fact brought out by our recent "Confidential Census" of our readers is that nearly all are acting as architect as well as builder on fully 75 per cent of the structures they erect.

Better Designing Evident

IN traveling over the country one is impressed with the improvement in the designing of the houses being put up. More thought is being given to the niceties of residence planning and there is a conscious effort to get away from the flat sameness of appearance characteristic of home building a generation ago.

If carpenters and builders are to draw their own plans (and certainly that is what the majority of their customers expect of them), they have resolved to draw those plans well. They are reading and studying and using their eyes to see both what is popular and what is in good architectural taste.

The popular magazines have done good work by publishing photographs and plans of attractive homes, and the AMERICAN CARPENTER AND BUILDER, with its wide circulation reaching more than

40,000 of the carpenters and builders who are drawing plans, has been, and is, a valued schoolmaster.

Thus the home owners are demanding better and more modern houses and the builders are becoming better qualified to handle this work satisfactorily. There is a development of popular taste and of general home planning skill that is gratifying.

There can be no quarrel between the professional architects and the home planning builders, but rather the closest sympathy and co-operation. All are endeavoring with the single purpose to raise the standard of building in this country. Where the work is large and compact the specializing architectural worker is found, and he is doing noble work. Where the work is scattered over a wider territory—great in total volume but each item small—the architect cannot afford to go and does not go; there the builder is doing the planning. He is the responsible man, and we are proud of the way in which he is handling his responsibility.

We wish you all a Prosperous and Happy New Year.

Very cordially yours,
Editor, AMERICAN CARPENTER AND BUILDER.

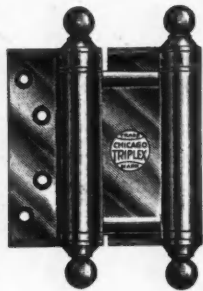
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A SUGGESTION

Do you specify a spring hinge with distinctive features which will appeal to your client and assure satisfaction to all concerned?



Chicago "Triplex" Spring Butts

offer this advantage to you. The appearance, durability and finish of this article are unsurpassed, and in consideration of prices that are conservative in respect to value, the up-to-date builder cannot afford to risk his reputation with goods that are unsatisfactory.

Send for Catalogue C 29. It illustrates and describes the most complete line of Spring Hinges manufactured.

Chicago Spring Butt Company,

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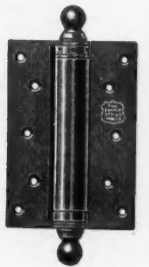
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Yes! the World does Move!

Facts are Stubborn Things



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SPRING HINGES
OF
OBSOLETE
CONSTRUCTION



ONLY

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DOUBLE ACTING

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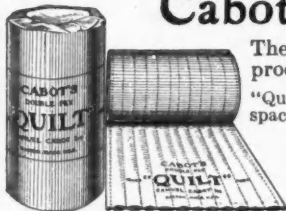
Carry the load on the true bearings

and look alike at both sides of the opening when both doors of a pair of doors are opened in or out. The carpenter can scribe for both doors of a pair from the same side, and avoid guesswork, as he can see what he is doing while fitting the doors.

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Cabot's Sheathing and Deadening Quilt



The Cold-proof, Heat-proof, Sound-proof and Fire-retarding Lining

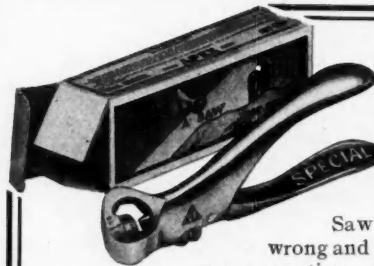
"Quilt" is a matting filled with dead air spaces, and one layer is as warm as twenty-eight layers of common building paper. A house lined with it will always be warm and save coal. Floors and partitions lined with it will stop the passage of sound. Roofs lined with it will keep cool

in summer and prevent heat from escaping in winter. It will save coal enough to pay for itself every two winters as long as the house stands.

Send for a sample and catalog.

SAMUEL CABOT, Inc., Manufacturing Chemists, Boston
24 W. Kinzie St., Chicago - 1133 Broadway, N. Y.

Cabot's Creosote Shingle Stains; Stucco and Brick Stains, Conservo Wood Preservative.



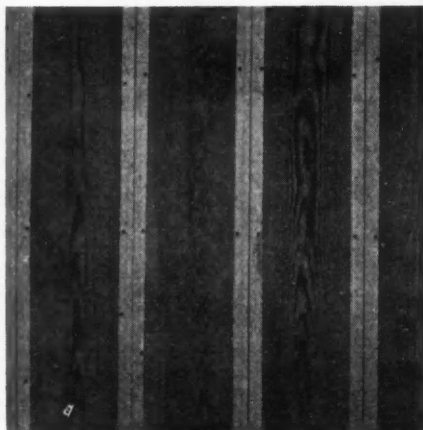
A Tool Carpenters Should Have

The Morrill Special Saw Set—It takes out the wrong and puts in the right set in one operation. Is simple and accurate and has an eccentrically beveled anvil that is indexed to assure a uniform set.

Our valuable booklet "Saw Points" is free for the asking.

Chas. MORRILL

94 Lafayette Street
New York



METALLIC BATTEN STRIPS

PRACTICAL—EVERLASTING—ECONOMICAL

These Batten Strips of Galvanized Metal will never warp, split, or draw away from the boards. Offer no obstruction to sliding doors. Allow for expansion and contraction of the siding. Made in 8-foot and 10-foot length with interlocking joint. Easily cut; no waste. Nailed directly to siding with small nails.



End view showing joint closed. A perfect fitting Batten at all times, in all weathers. Beautifies any building.



End view showing joint open. Provides for expansion or contraction of the siding so nails will not work loose.

Metallic Batten Strips make strong, neat joints. They make the building wind-proof, weather-proof and rat-proof. Also valuable for lining grain bins or wagon boxes.

Write for Free Sample and see for Yourself

METALLIC BATTEN COMPANY

Owensville, Indiana

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

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The
**World's Greatest
Building Paper**

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The
**World's Greatest
Building Paper**

American Carpenter and Builder

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Furnished on application. Advertisements, to insure insertion should reach our Chicago office not later than the 20th of the month preceding date of publication.

PROTECTION FOR OUR READERS

The publishers of the American Carpenter and Builder will not knowingly publish any advertisement of a misleading character nor accept advertising from any individual, firm or company whose business methods are open to question.

We often receive inquiries from readers who desire information about concerns that formerly used the advertising pages of the American Carpenter and Builder, but are no longer doing so. They want to know if these former advertisers are still in business, if they can send them orders with the assurance that they will be filled, and a variety of other questions.

The American Carpenter and Builder will use every legitimate means to safeguard the interests of its readers and to protect them from fraudulent or unreliable concerns. Where the slightest doubt exists our readers should write the publishers for information. It may save them money, time and worry.

In all cases in writing to advertisers say: "I saw your advertisement in the American Carpenter and Builder."

VOL. XVI.

JANUARY, 1914.

No. 4

Building Heights in Europe

MANY of our American cities are beginning to feel that the skyscraper business is being overdone. There is talk of limiting the building heights in many of our cities; in fact, several have already placed restrictions on the aspirations of the high office building promoters.

The building limits in force in the leading European cities are interesting in this connection. Berlin permits a maximum height of 72 feet, but no buildings can rise higher than the width of the street. The maximum height in Cologne and Dusseldorf, known as the "park city" of Europe, is 56 feet 6 inches. Munich draws the line at a building having a ground floor and four stories. In London, in a street less than 50 feet wide, all buildings are limited in height to the width of the street. In wider streets the height is 80 feet. Paris does not permit a height greater than 65 feet, and in Rome the limit of height is set at 78 feet 6 inches.

**Invitation for Bookkeepers and System Men**

WE have received a letter from one of our subscribers which puts into the form of a direct request a matter which we have long wished to take

up in these pages, namely: Bookkeeping and Simple Cost Accounting Systems, suited specially to the needs of carpenters and builders and small construction companies.

Mr. George E. Baxandall, Builder and Contractor, of Calgary, Alberta, writes as follows:

"I believe there are a great number of AMERICAN CARPENTER AND BUILDER readers who are not in business on such a large scale that they can afford to keep a large office staff and who have spent most of their lives in the building trade and not in an office. I believe if you would give us a clear, concise method of bookkeeping as needed by the building trade, it would help a great many. It should be a system that doesn't require too many books. A small contractor shouldn't be obliged to sit up too late at night working over them; just enough to guarantee accuracy."

We hope our readers who have made a special study of these matters will come forward with their experiences and suggestions. We hope to hear from a good many concerning this, and desire to arrange to present this subject thoroughly.

**We Will Be Very Glad To**

A FIRST RATE suggestion comes from Saskatoon, Saskatchewan. One of our subscribers writes:

"Suppose I am about to make a start with a wood-

working shop and want to put in some woodworking machinery, gas engine, etc. I go through your advertising pages and pick out a number of advertisers to write to about these items. Now, I may overlook some of the best ones, so here is my suggestion:

"Just insert a notice in the magazine, stating that if any reader wants to get into communication with all the representative manufacturers in any line, the publishers of the AMERICAN CARPENTER AND BUILDER will forward his name to all of those whom they know to be reliable."

We are very glad to do this. In fact, we are rendering such service to our subscribers continually. It saves their time and postage, and puts them in touch with the right people. It doesn't matter what the item is you may want to investigate, we will be glad to notify our dependable concerns by personal mail that you are in the market.

Don't hesitate to send us your inquiries. We are especially glad to be of service in this way.



It Pays to Advertize

By H. J. Blackledge

IN June, two young men went into partnership. They got out cards bearing something like this:

"BLACK AND HAYLEGER"

CONTRACTORS AND BUILDERS

TRY US

They had a couple of signs made, bearing the same legend and with "Try Us" in big, black letters. They made it their slogan. In signing checks they signed, "Black and Hayleger, Try Us." On the top of each of their tool chests were the words, "TRY US." In a month it was the joke of the town. In two months it had grown past the freak stage. In four months it was being recognized as their own private property. And in a short time more, it began to be respected and—OBEYED. It had begun to pull.

One day a calendar drummer came around. Black wanted to order a hundred at once. Hayleger would not hear to it. It was a waste of money. People would hang them up and never think of looking at the ad. Others would go and cut the ad off. And so on, through the whole list of pessimistic objections. Finally, however, he gave in to the drummer and his partner and they ordered a hundred. New Year's came on Saturday. Thursday



"The Compliments of the Season"

evening they sat up until eleven-thirty, making up a list. On New Year's morning, dressed in their Sunday best, they mounted their wheels and proceeded to call on each and every person for whom they had done work in the last six months, and deliver personally to each, a calendar, and wishing them a happy and prosperous year. Then they went to a dozen or more prospective builders. Next, the hardware, paint, lumber and plumbing dealers, handing out calendars and good wishes to all. Next, they went together over to the only other contractor in the little town and offered him one. He accepted it rather gingerly. They then told him, if he ever got in a pinch to call on them and they would be glad to help him out, and wished him the compliments of the season.

It was a little after five o'clock when they finished. But they were happy and satisfied that they had done a good turn. Anyway, they felt better for having had a decidedly pleasant holiday.

The next day, a man who they had no idea was intending to build, brought down a set of plans and requested them to figure on them. They did so, and turned in a figure the same day. The next day, he gave them the contract. When the house was finished and he was making the final payment, he asked if they had any inkling of why he had come to them in the first place. They told him they had not, and had often wondered about it. "Well," he said, "I am a business man in San Francisco, and I like business methods. When I came up here to visit my niece, last summer, you were just starting your 'TRY US' slogan. So I tried you. You remember how I went down one day and told you the back gate was broken and the cow had gotten out into the streets? And you dropped your work and came right up. It was only a half-hour's work. Then, later, you did a half-day's work for my niece while I was here. Then came the holidays. You took round your calendars and gave my niece one. Also you left one with her for me. I thought that was mighty nice, when you had done only a few hours' work for us. Yet you remembered us. That was why you got the house."



The Builders' Alphabet—(Continued)

Verses by A. D. Hunter, Drawings by P. J. K.



G stands for Gargoyle, Gothic invention;
The result of a brain storm in forum convention.
When we see them to-day in this land of the free,
We surmise that the architect'd been out on a spree.



H stands for Headroom,—the lack of which means
Sore heads and sore owners and some soulful scenes.
When building your stairways—for homes or success,
Leave plenty of headroom; don't do it by guess.



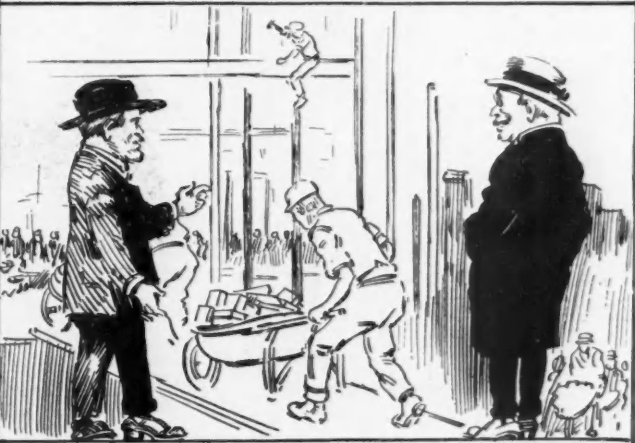
I stands for Ionic, one order of four;
Brought down from the Greeks and the Romans of yore.
Nowadays if a draftsman takes a mite too much "tonic",
The result is invariably labeled "Ionic".



J stands for Journal, the wise builder reads;
The "A. C. & B" is the one that he needs.
From cover to cover it's full to the brim,
Of the help that will keep the "mazoom" rolling in.

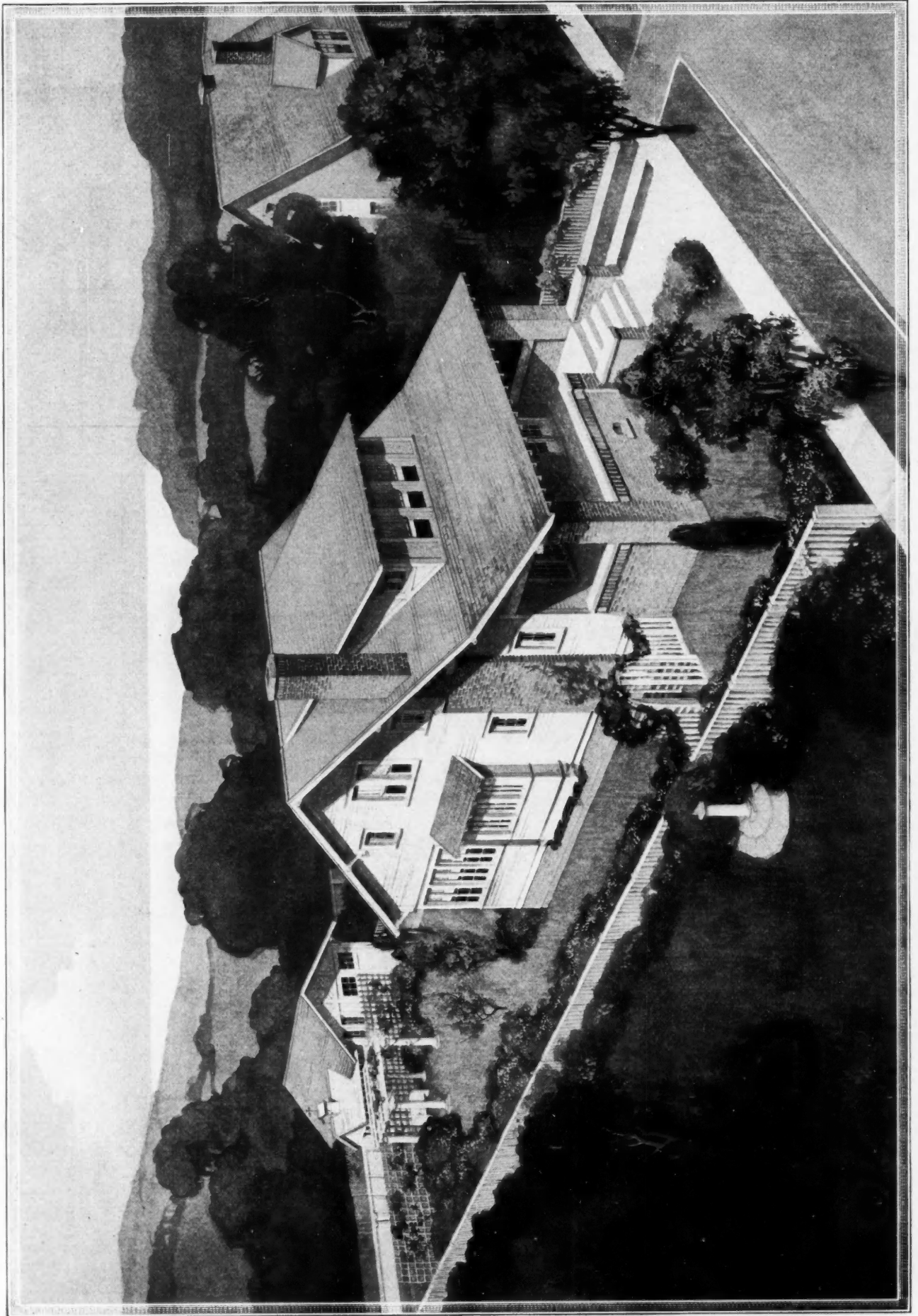


K stands for Knocker, the man who stands still;
While others progress on the road up life's hill.
If his time spent in knocking were given to labor,
He'd be wealthy, respected—a mighty fine neighbor.



L stands for Labor, the greatest equation
In the every-day plan and specification.
Good labor comes high, but you'd better employ it.
In the end it's far cheaper and your clients enjoy it.

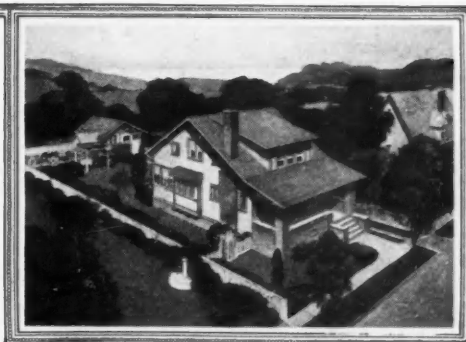
—More Next Month; This is Going to be Good.



GENERAL VIEW OF THE "HOME BUILDER" MODEL BUNGALOW ON AN AVERAGE SIZE BUILDING LOT—SHOWING HOW ANY YARD CAN BE MADE BEAUTIFUL AT SMALL COST
Complete Working Plans of This Bungalow are Given on Pages 46 to 50; Planting Directions are on Pages 42 and 43



The "HOME BUILDER" MODEL BUNGALOW



Model Seven Room Home for \$3,757.20

Complete Set of Architects' Plans and Specifications for Building, Also Detailed Directions for Beautifying the "Home Builder" Model Bungalow as Illustrated on Opposite Page

"AN attractive home with all modern conveniences, of average size, and at a cost within reach," were the directions given our architects for this model "Home Builder" bungalow.

They have designed a seven-room, story-and-a-half bungalow, measuring 28 feet in width. It goes nicely on a 50-foot building lot, with plenty of room for a driveway along one side, and 14 feet of green grass, shrubbery, and sunshine along the other.

Complete plans of this model little dwelling are presented on pages 46 to 50; and a full set of building specifications is given. The drawings are complete in every way, and the floor plans are of large enough scale so that workmen can build directly from them, if desired.

This bungalow embodies all desirable features. The parlor, or living room, and the dining room are large and extremely well lighted. Sun parlor with red tile floor opens off the dining room. The kitchen is just the right size and has openings on two sides, insuring coolness and good air. The pantry is large enough for use, is away by itself where it can be kept cool, and gives space for refrigerator with outside icing door. There is a lavatory on the main floor; also clothes chute from kitchen to basement.

On the second floor are three extra large bedrooms, each one with a lighted and ventilated clothes closet. All the way through, this dwelling is up-to-date as to windows—the amount of light and ventilation secured. In both front and rear bedrooms there are

windows on three sides. This will make these rooms comfortable in hot weather even though they are up under the roof with very little attic space above.

A glance at the first floor plan on page 43, and at the second floor plan on page 44, will show all of these desirable features. There is a built-in case of drawers for linen in the upper hall, and an extra wardrobe in the front bedroom.

Figuring this bungalow at 15c per cubic foot, a conservative figure, the total cost of construction is \$3,757.20. For this price one ought to be able to build as called for in the specifications, using oak floor and trim for the important rooms downstairs, and maple floors and birch trim upstairs. Cellar gives laundry, cold room, etc.

Specifications

Of Labor and Material Required in the Erection and Completion of the "Home Builder" Model Bungalow Shown on Opposite Page; Plans on Pages 46 to 50

ESTABLISHED GRADE: The grade line shown on the drawing is the line to which the lot is to be graded next to the exterior of the buildings, after the completion of the building.

Excavate to the full depth required and at least 8 inches wider all around than shown on the plan. All foundation walls and porch piers must in every case run down to a solid bearing and at least 6 inches below frost from finished grade line.

CARE OF TOP SOIL: All black top soil must be placed separately from the remaining earth, for the use of final grading.

Fill in up to the established grade line under all porches, and up to foundation walls, sloping the earth away from building.

FOOTINGS AND FOUNDATIONS: All footings under all main walls, chimneys and piers, and 12-inch foundation walls up to grade, to be of concrete, composed of one part Portland cement, three parts sand and four parts crushed stone.



A graceful trellis arch that would beautify and make interesting any modest garden. Such trellises come ready made at very reasonable prices, or any carpenter or the home owner himself, if handy with tools, can easily make one.

The concrete contractor is to thoroughly waterproof both concrete basement floor and side walls by means of an approved method as agreed upon with the owner.

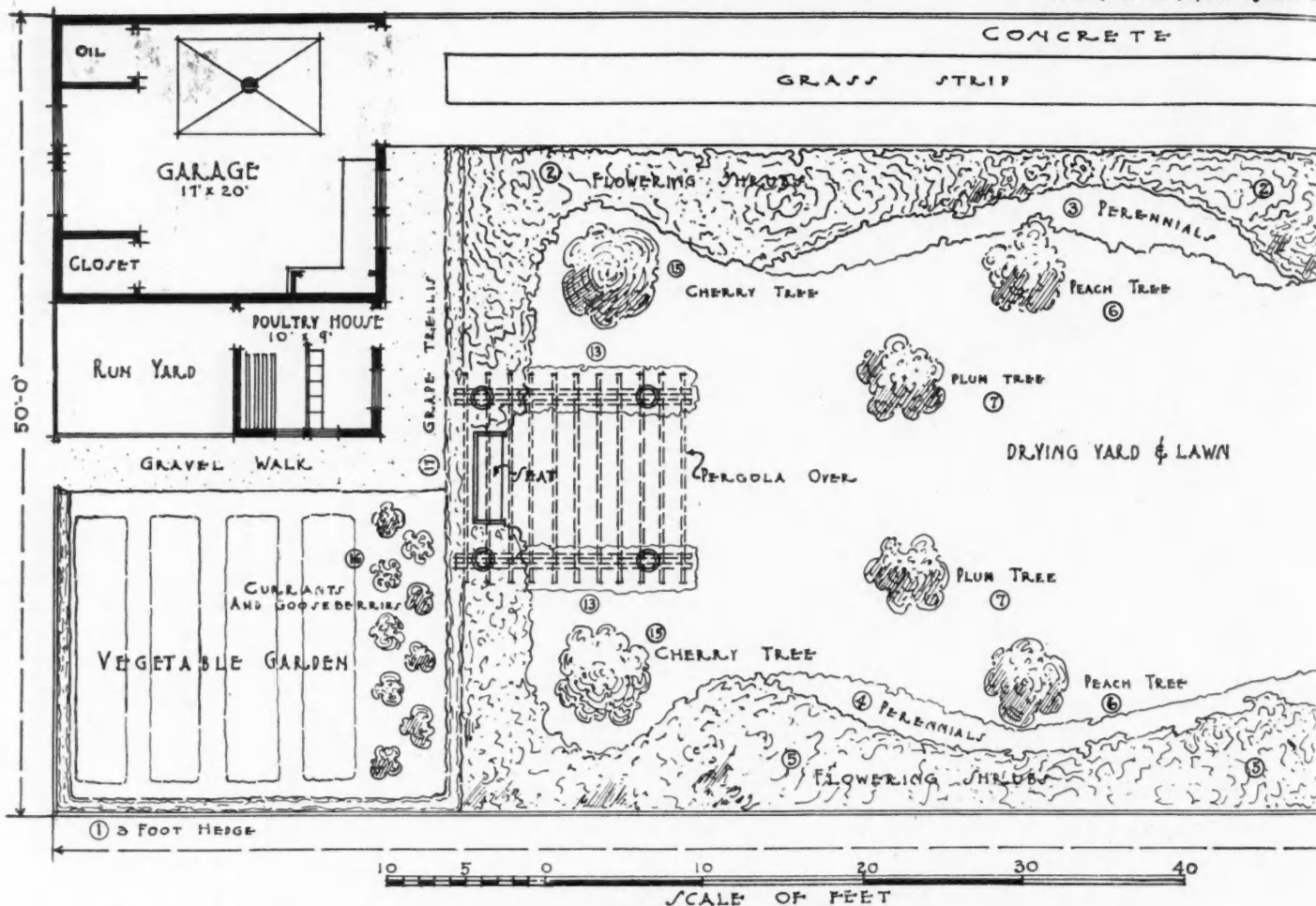
All concrete must be used as soon as mixed, and should any concrete start to set before it is in its place the same must not be used in any way. All concrete walls and piers must be run up, true, plumb, square and level and must be complete and perfect in every respect.

BRICK WORK: All brick used about the buildings and in chimneys, unless otherwise specified, to be the best hard burned local market brick, laid wet if laid in warm, dry weather, and dry if in cold weather. All brick to be laid in fresh lime and sharp sand mortar. Four-inch brick arch laid in front of chimney fireplace and plastered smooth to receive tile. All smoke flues to be lined from bottom to above roof with best fire clay flue lining.

All exposed brick to be face brick as

(Continued to page 44.)

The author of these gardening plans has offered to furnish all the plants, shrubs and trees called for in planting list for \$175 from \$500 to \$1,000 by attr



The Why and How of Decorative Gardening

Detailed Directions for Beautifying an Average Building Lot at Moderate Expense

By Swain Nelson

Landscape Architect and Nurseryman, Chicago

THE reasons for beautifying building lots are so self-evident that it is only necessary to enumerate them. Landscape Gardening has become recognized as one of the noblest arts. Appealing as it does to man's love of nature, love of art, and love of the beautiful, it makes life more pleasant, and love of home more dominant. From a business point of view, too, it is worthy of attention, as nothing adds more to the value of property, both in appearance and actually, than a pleasing arrangement of trees, vines and shrubs.

In landscape gardening each individual case demands a different treatment. No place is so small that it cannot be made more attractive. Whether you intend to plant extensively, or only a little, the first thing to be done is to draw a plan of the grounds, on which the place for each tree or shrub may be indicated. It is far easier to do planting "on paper" than in the soil, and the mistakes of haste may be avoided by the proper plotting of diagrams.

The well known slogan of "an open lawn and a heavy border plantation" expresses what high-light and shadow

express in the composition of a picture. In other words, contrast is the first essential. Many places that would otherwise be beautiful, lack this quality because—to use a common expression—the grounds are "cluttered up" with a collection of many kinds of trees and shrubs planted haphazard.

The successful plan will beautify in two ways—by developing pleasing effects, and by shutting off jarring features of the landscape. Thus, the planting properly done, will serve to frame and make prominent the most attractive views or vistas, soften the hard lines of architecture, and adorn barren spaces. The skyline will be broken, and shadows thrown on roof and wall by the judicious arrangement of tall trees.

Shrubs massed around the house will soften the foundation lines; they may also be used to screen the grounds from the inquisitive gaze of passers-by, or to hide the vegetable garden. Unbeautiful objects, also, such as the rear of a neighbor's premises, or portions of one's

own grounds devoted to domestic purposes, may be concealed from view or rendered less obtrusive to the eye, by the use of shrubs which in every situation will please with their foliage and blossoms.

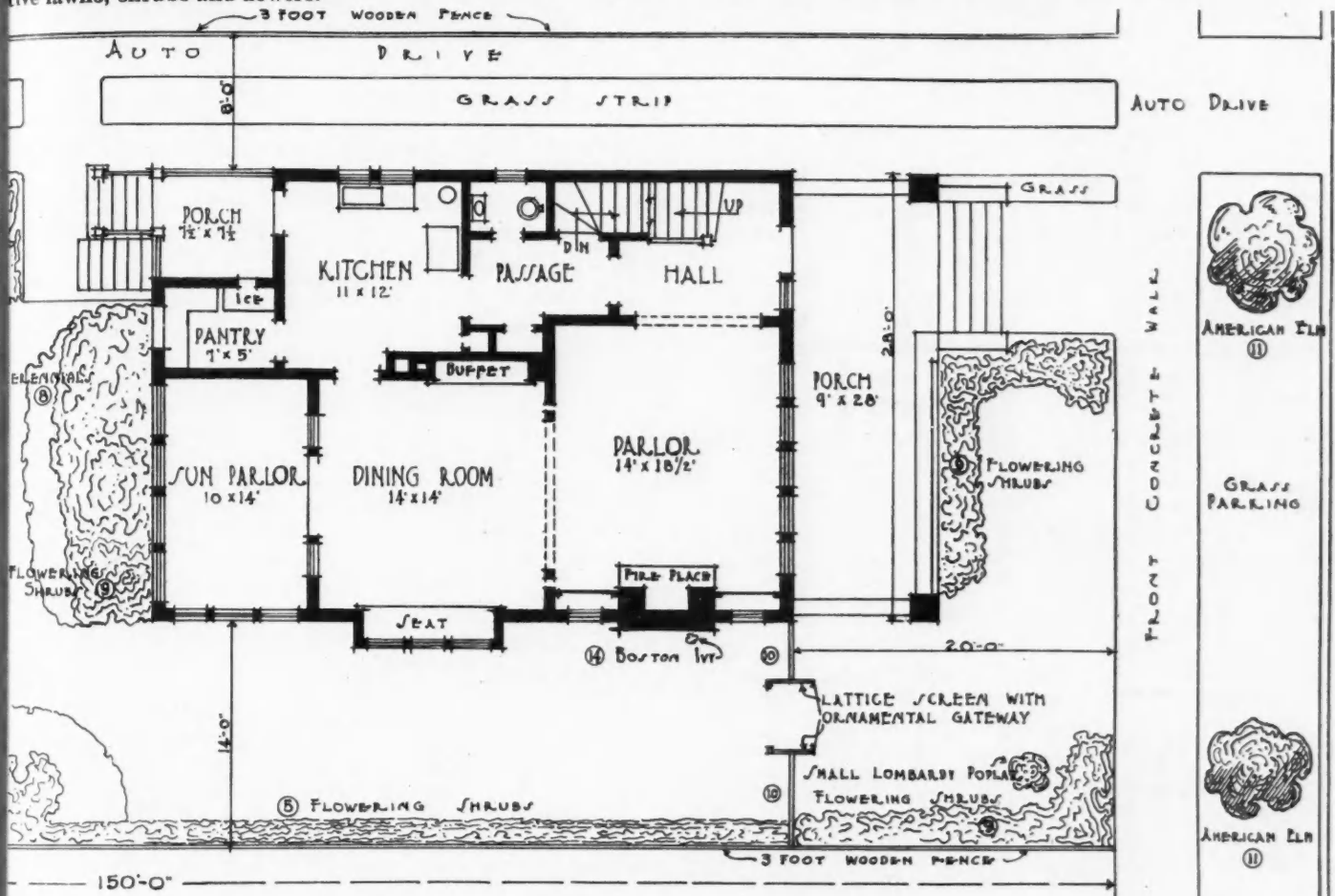
Lawns, to give enduring satisfaction, must have fertile soil, cultivated deeply, and it will be found to be economical in the long run to overhaul the soil thoroughly before sowing any seed. A lawn started on ground properly prepared will take root deeply, be free from weeds and bare spots, and improve each year; while one which is handicapped at the beginning, will become brown as soon as the hot weather comes, and be a source of constant trouble. Deep rooting is not induced by heavy watering, and daily sprinkling soon makes the grass dependent on this nourishment; meanwhile causing the root system to become shallow.

The value of shrubbery is now well

You Can Dwell in a

"HOME BUILDER" MODEL BUNGALOW ON A 50-FOOT BUILDING LOT

For \$100 more, they can be planted and guaranteed for two years. The selling value of any house and lot is easily increased by attractive lawns, shrubs and flowers.



established as essential to outdoor decoration. A landscape merely of trees and lawn, lacks something; just as a forest cleared of its underbrush loses charm. Shrubs may be used either as factors in the general landscape, or as individual forms of beauty; and, planted in masses, hedges and clumps, serve a distinct purpose. Specimen plants are equally valuable. A single shrub best displays the individual beauty of the type, and, if placed near the margin of the lawn with a group of other shrubbery as a background, reaches its maximum of attractiveness. A hedge suited in height and foliage to its surroundings often does wonders.

There are hundreds of varieties of shrubs; most of them beautiful, and but few that do not add beauty to the landscape when tastefully planted. Where conditions will admit, pleasure will be found in a large assortment; for as soon as all the varieties are well known, the eye is opened to a world of beauty in nature not seen before.

Planting List for Plans Shown Above (Both Botanical Name and Common Name—If Any—Are Given)

Group	Quan.	Botanical Name	Common Name	Size
1	170	Ligustrum Amurense		3 ft.
2	12	Forsythia Fortunei	Golden Bell	4 ft.
7		Philadelphus grandiflorus	Mock Orange	6 ft.
15		Rubus odorata	Flowering Raspberry	2-3 ft.
8		Symphoricarpos racemosus	Snowberry	2 1/2 ft.
5		Lonicera Morrowi	Morrow's Honeysuckle	4 ft.
12		Deutzia gracilis	Snow Flower	18 in.
4		Viburnum plicatum		4 ft.
8		Rosa rugosa	Ramona's Rose	3 ft.
5	4	Lonicera bella rosea		3 ft.
7		Symphoricarpos racemosus	Snowberry	3 ft.
3		Sambucus laciniata	Cut-leaved Elder	3 ft.
9		Spiraea sorbifolia	Ash-leaved Spirea	3 ft.
4		Staphylea trifoliata		2 1/2 ft.
8		Spiraea arguta		2 1/2 ft.
10		Hydrangea paniculata grandiflora	Hardy Hydrangea	4 yr.
4		Hydrangea arborea sterilis		3 yr.
6		Spiraea Thunbergi		3 ft.
9	4	Syringa Persica	Persian Lilac	3 ft.
12		Spiraea Anthony Waterer		2 ft.
10		Spiraea callosa alba		1 ft.
3		Hydrangea arborescens sterilis		3 yr.
4		Deutzia scabra		4 ft.
8		Berberis Thunbergi	Japanese Barberry	2 1/2 ft.
6		Calycanthus floridus	Sweet-scented Shrub	3 ft.
11	2	Ulmus Americana	American Elm	4 in.
6	2	Peaches		
7	2	Plums		1 1/2 in.
15	2	Cherries, Early Richmond, English Morello		1 1/2 in.
17	10	Grapes, Concord and Delaware		
10	3	Wistaria Chinensis		

Group	Quan.	Botanical Name	Common Name
3	3	Eulalia gracillima	Ornamental Grass
12		Dianthus barbatus	Sweet William
25		Primula acaulis	
12		Hyacinthus candicans	
10		Chrysanthemum hybridus	
5		Aster Novae Angliae	
6		Anemone Japonica	Windflower
3		Gypsophila paniculata	Baby's Breath
10		Iris Germanica	
15		Iris Pumila	
5		Paeonia officinalis	
4	3	Eulalia Zebrina Japonica	
12		Iris Kaempferi	
12		Iris pumila	
12		Gaillardia grandiflora	Blanket Flower
8		Bollonia latiscyama	False Chamomile
10		Campanula Pericifolia	Carpathian Harebell
5		Hemerocallis aurantaca	
15		Monarda didyma	Oswego Balm
8		Lychnis Chalcedonica	Maltese Cross
3		Mentha viridis	
6		Yucca filamentosa	Adam's Needle
12		Paeonia officinalis	
15		Heuchera sanguinea	
8		Chrysanthemum maximum	Shasta Daisy
10		Hemerocallis Thunbergi	
6		Delphinium hybridum	
12		Funkia subcordata	
7		Achillea millefolium r eum	
15		Phlox decusata var.	
10		Aquilegia chrysantha var.	
15		Belis perennis	English Daisy
5		Digitalis purpurea	Common Foxglove
4		Diecllytra spectabilis	
25		Convallaria majalis	Lily-of-the-valley
6		Penstemon Barbatus	Beard's Tongue
15		Vinca minor	Blue Myrtle
4		Wistaria Chinensis	
3		Ampelopsis Veitchii	Boston Ivy
3		Currant, Red	
3		Currant, White	
3		Gooseberries	

ell in a Park If You Care To

Specifications for Model Bungalow

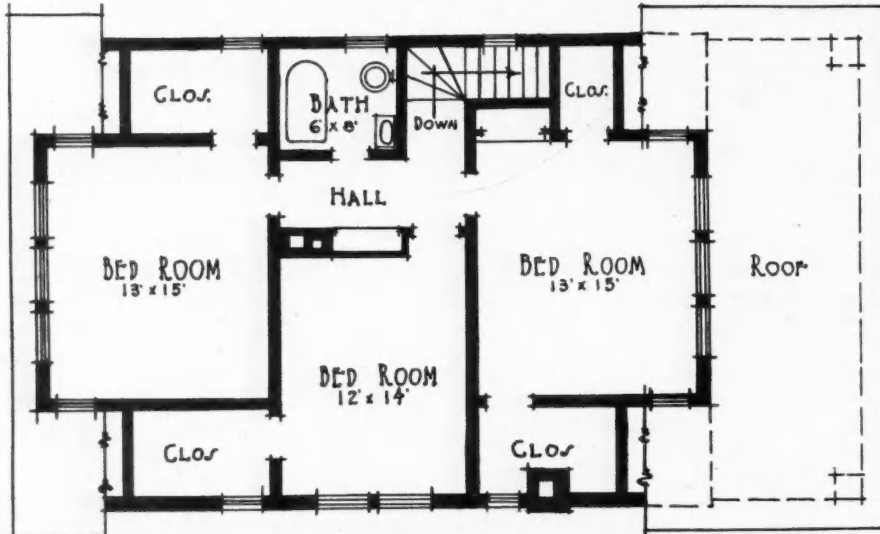
(Continued from page 41.)

selected by owner. The putty mortar used and material for same to be furnished by mason contractor, using the best fresh burned local lime and sharp sand. The shades of mortar and width and style of mortar joint used to be selected by owner.

LATH AND PLASTERING: Lath all side walls and ceilings throughout with dry white pine No. 1 lath, joints

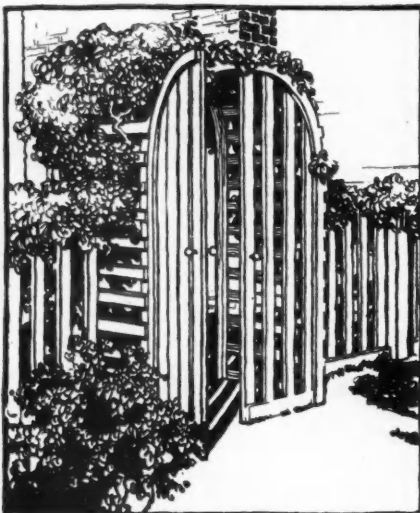
Over this apply the plaster, which is to be two-coat work, the first a coat of good brown hair mortar, the last coat to be a plaster of paris hard finish. Cement wainscoting in kitchen, bathroom and lavatory 4 feet 6 inches high. Bathroom wainscotings to be blocked to imitate tile with bead joint.

EXTERIOR LATH AND PLASTERING: Where so marked on draw-



Second floor plan of "Home Builder" model bungalow. Note extra window space in front and rear bedrooms. Also extra generous amount of clothes closet and wardrobe space.

broken every 18 inches and lath at least $\frac{3}{8}$ inch apart on ceilings and but little closer on side walls. There must not be any lathing through angles, from one room to another; should the lathers find any corner not properly secured, they must not lath until it is made permanent by the carpenter, and in all cases lath to go to floor and behind wainscoting.



Ornamental gate in lattice screen. A very artistic feature in itself, and valuable because of the extra privacy it gives the side and rear yards.

ings, the exterior wall surfaces (above sheathing and paper) are to be stripped with No. 1 pine $\frac{7}{8}$ by $1\frac{3}{4}$ -inch furring, spaced 16 inches on centers (over each studding).

Cover this entire surface with heavy expanded metal lath, securely fastened to all furring strips with heavy galvanized iron staples. Lath must be well fitted and painted with mineral paint, or galvanized.

Cover this lath surface with two coats cement plaster, first coat to be a scratch coat gauged with fresh lime and cattle hair of best proportions to insure the best and most workmanlike job, troweled on with sufficient force to form good clinchers around lath, and all surfaces must be straight and true. When this coat is dry cover the same with a second coat, composed of one part Portland cement to three parts sand, well mixed, adding enough water to work well and finish the surface with "Rough Cast," "Pebbled" or smooth, as may be preferred.

CARPENTER WORK: The carpenter shall furnish all the necessary materials and labor, tools and every species of hardware, including nails, bolts, spikes, screws, etc., and he shall supply all minor articles of carpentry and woodwork, including all necessary jobbing and

cutting for all other trades that are required for the perfect and efficient completion of the various works. Put up necessary temporary doors and board up windows in first story and cellar; cover for doors and board up windows first story and cellar; cover for protection the treads of all stairs, also all other interior and exterior work liable to damage during the construction of the said building.

TIMBERS: All rough lumber, where no particular timber is specified, shall be of good No. 1 Norway or yellow pine, sound, well seasoned, free from large, loose or dead knots or other imperfections liable to impair the durability or otherwise weaken the timber.

All floor joists must be sized to widths and set crowning-edge upward. All joist, studding, rafters and other framing timbers to be set 16 inches on centers, unless where otherwise mentioned on drawings.

HEADERS AND TRIMMERS: Frame double-headers and trimmer joist, well spiked together, around all stairways, chimney breasts, etc.

All joist under partitions to be set double. Bearing partitions to be cross-bridged.

All door and window studs shall be set double; truss over all openings in bearing partitions in a substantial manner; angles of rooms must be made solid.

BRIDGING: All joist to be well cross-bridged with good sound 2 by 2-inch stuff, well fitted at the angles and put in as soon as joists are leveled.

Frame horizontal 2 by 4-inch collar beams to all rafters 8 feet above the upper ceiling joist, well spiked to each set of long rafters.



A four column pergola; grape trellis at the back. A pergola of this style built of cypress costs about \$35. Wisteria clammers over the pergola rafters, and small flowering plants are bedded along each side.

SHEATHING: Enclose the entire exterior vertical frame wall surface of building with surfaced No. 2 common matched sheathing boards, laid close, well nailed with two eightpenny nails to all studding; all loose knots cut out and all sheathing well fitted around windows, doors, angles and corners.

BUILDING PAPER: Cover the entire exterior sheathed surface with a good heavy tar building paper, all joints well lapped at least 6 inches and run in under all casings, around windows and doors and to lap around all angles and corners. Also cover all rough floor surface with one thickness of building paper after all plastering is completed and dry.

SIDING: The building is to be sided with first quality clear poplar or white pine siding, 4 inches wide and laid with a lap of at least 1 inch. Cut close joints against all casings, corner boards, etc., and properly nail with sixpenny nails every 16 inches. The carpenter is to notify the painter to prime all siding as soon as it is placed in position.

ROOF SHEATHING AND SHINGLES: Cover the entire surface of main roof and all porch roofs with No. 2 common sheathing boards $\frac{7}{8}$ -inch thick by 6 inches wide and spaced 2 inches apart, well nailed to all rafters and tightly fitted at all valleys, hips, etc.

The entire roof to be shingled with the best 16-inch white cedar shingles, laid $4\frac{1}{2}$ inches to the weather. Make perfectly water-tight around all chimneys, etc. All shingles to be nailed with at least two galvanized cut shingle nails to each shingle. Use galvanized iron hip shingles on all hips, well run in under each course. The carpenter must see that all sheet metal flashing is properly set in place while shingling, as he will be held responsible for all leaks in the roof after all shingling is completed.

EXTERIOR TRIMMING: All exterior finishing lumber to be of good white pine or cypress where exposed to view or weather, well fitted in place and primed by painter as soon as work is completed.

PORCHES: Construct porches as shown on elevations and details. Rear porch floor to be of 1 by 3-inch dressed and matched select white pine flooring, with all joints painted with a thick coat of white lead and oil while it is being laid.

Porch ceiling to be of $\frac{7}{8}$ -inch clear, narrow beaded yellow pine ceiling, and same material to be used for cornice planciers.

OUTSIDE STEPS: All outside and porch steps must rest on masonry piers run from below frost to grade line by the mason as directed by the carpenter if not shown on foundation plan.

Rear outside steps to have 2 by 10-inch carriages not over 3 feet apart,

$1\frac{3}{8}$ by $11\frac{1}{2}$ -inch treads made from three $3\frac{1}{2}$ -inch pieces, laid $\frac{1}{2}$ inch apart, $\frac{7}{8}$ -inch risers, $\frac{7}{8}$ -inch cove under all nosings. Ends of steps to be finished as shown on elevations.

ROUGH FLOORS: Cover the entire floor surface throughout, with surfaced and matched No. 2 common fencing, well nailed to all joist and tightly fitted in all corners, and all flooring damaged by plumbers, gas-fitters, furnace men or other mechanics must be replaced by the carpenter in first-class condition before it is covered with the building paper and finished floor.

TOP FLOORS: After all plastering and cement work is completed and dry and all plumbing and gas pipes have been installed, cover the entire rough floor surface with paper, as before specified and then lay the finish floor as follows:

The parlor, dining room, first floor hall, and second floor hall are to have clear, kiln-dried $\frac{7}{8}$ by $2\frac{1}{4}$ -inch plain sawed red oak flooring.

The kitchen, pantry, lavatory and three chambers are to have clear, kiln-dried $\frac{7}{8}$ by $2\frac{1}{4}$ -inch face white maple flooring.

All closets to have surfaced No. 2 fence flooring; all bad knots and other defects cut out.

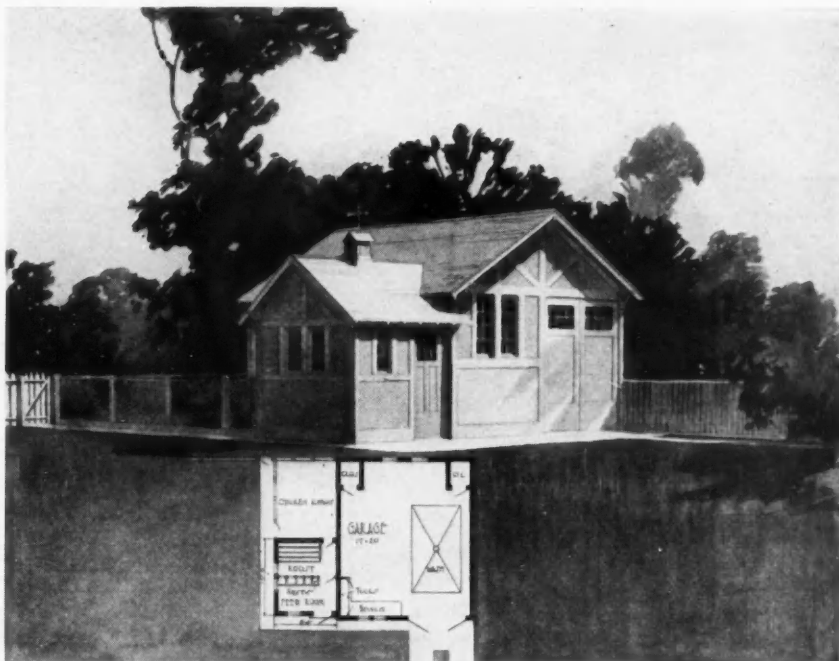
All oak floors to be hand-smoothed, scraped and sand papered, then to be filled by painter and given one coat of shellac varnish, then covered with paper or canvas for protection until all carpenter work is completed.

DOOR FRAMES: All outside door frames to be $1\frac{3}{4}$ inches thick, to be rabbeted $\frac{1}{2}$ inch by thickness of doors, to have $1\frac{3}{4}$ -inch thick oak sills.

All inside door jambs to be $\frac{7}{8}$ inch thick by thickness of partitions, of same wood as trim of wood in which it faces and fitted with $\frac{1}{2}$ by $1\frac{3}{4}$ -inch stops.

DOORS: All outside doors to be $1\frac{3}{4}$ inches thick with glass above lock rail. The exterior surface of all outside doors to be of white pine. The interior of all outside doors to be of same wood as

(Continued on page 51)



Combined Garage, Workshop, and Poultry House to Go with "Home Builder" Model Bungalow.

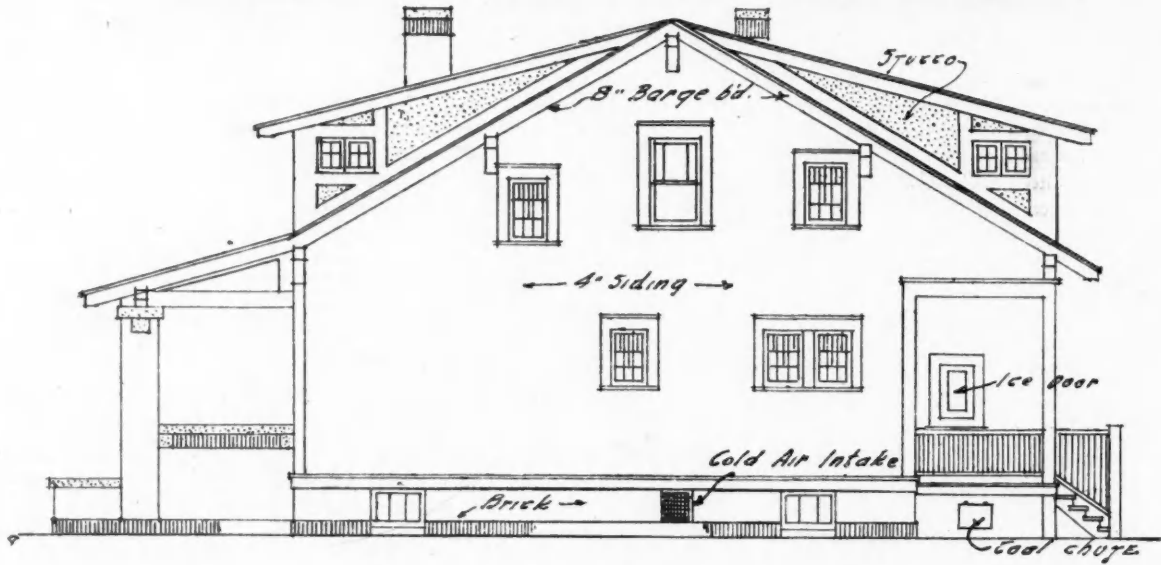
It doesn't cost very much more to build a garage that looks like something. It can have good proportions and an architectural appearance in harmony with the residence, without straining anybody's purse. A great many home builders would like to be able to keep their autos right at home, and cut out the nuisance and expense of the public or rented garage.

This little building is 17 by 20 feet, constructed in a fire-resisting way of cement plaster on metal lath. We have designed this garage big enough to accommodate a car nicely, and leave enough extra space for a home workshop, storage space of garden tools, etc.

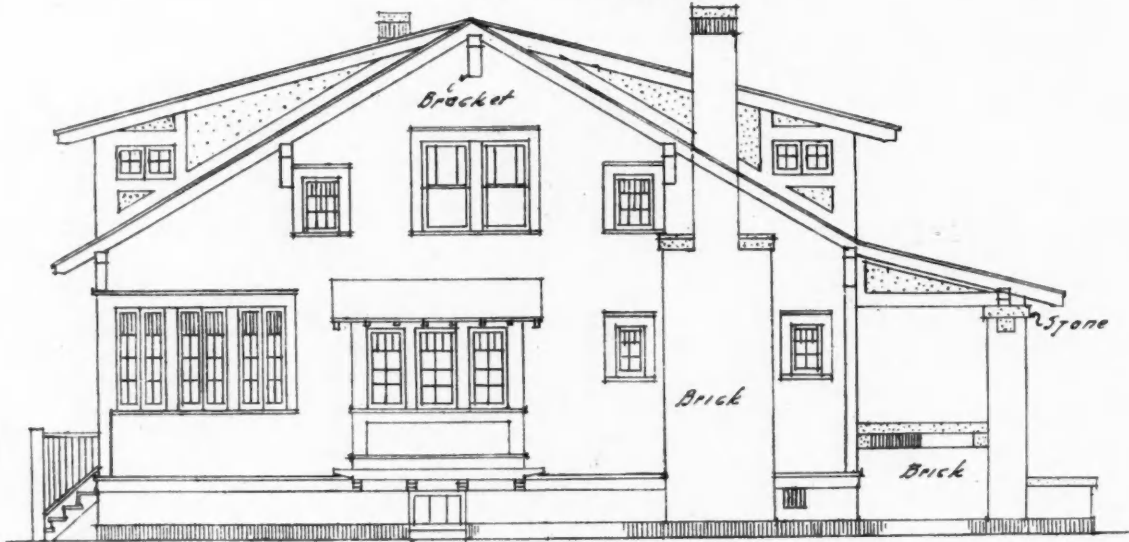
Also in connection with the garage there is a model poultry house, 9 by 10 feet—just about right to keep a couple of dozen chickens in good shape. It wouldn't do to house chickens next to a horse stable, but an auto and the poultry flock are very good friends and will not hurt each other.

The home builder misses half the fun and profit if he doesn't keep a few chickens, and lay out a vegetable garden and have some shrubs and flowers to make his house and lot into a real home.

Working Plans for "Home Builder" Model Bungalow



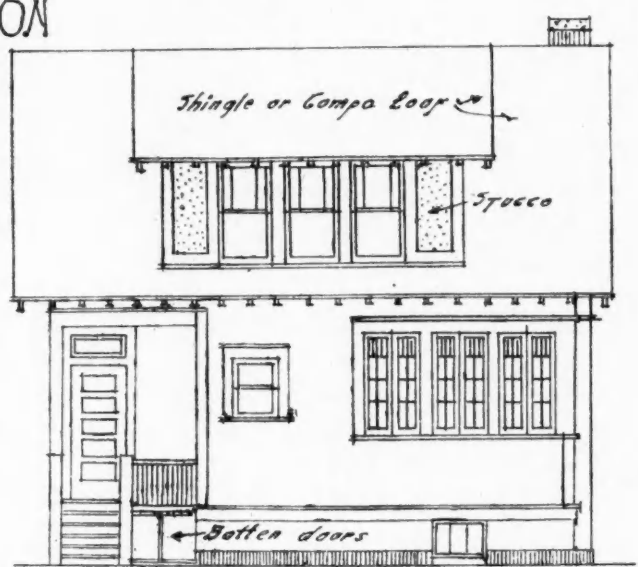
WEST ELEVATION



EAST ELEVATION

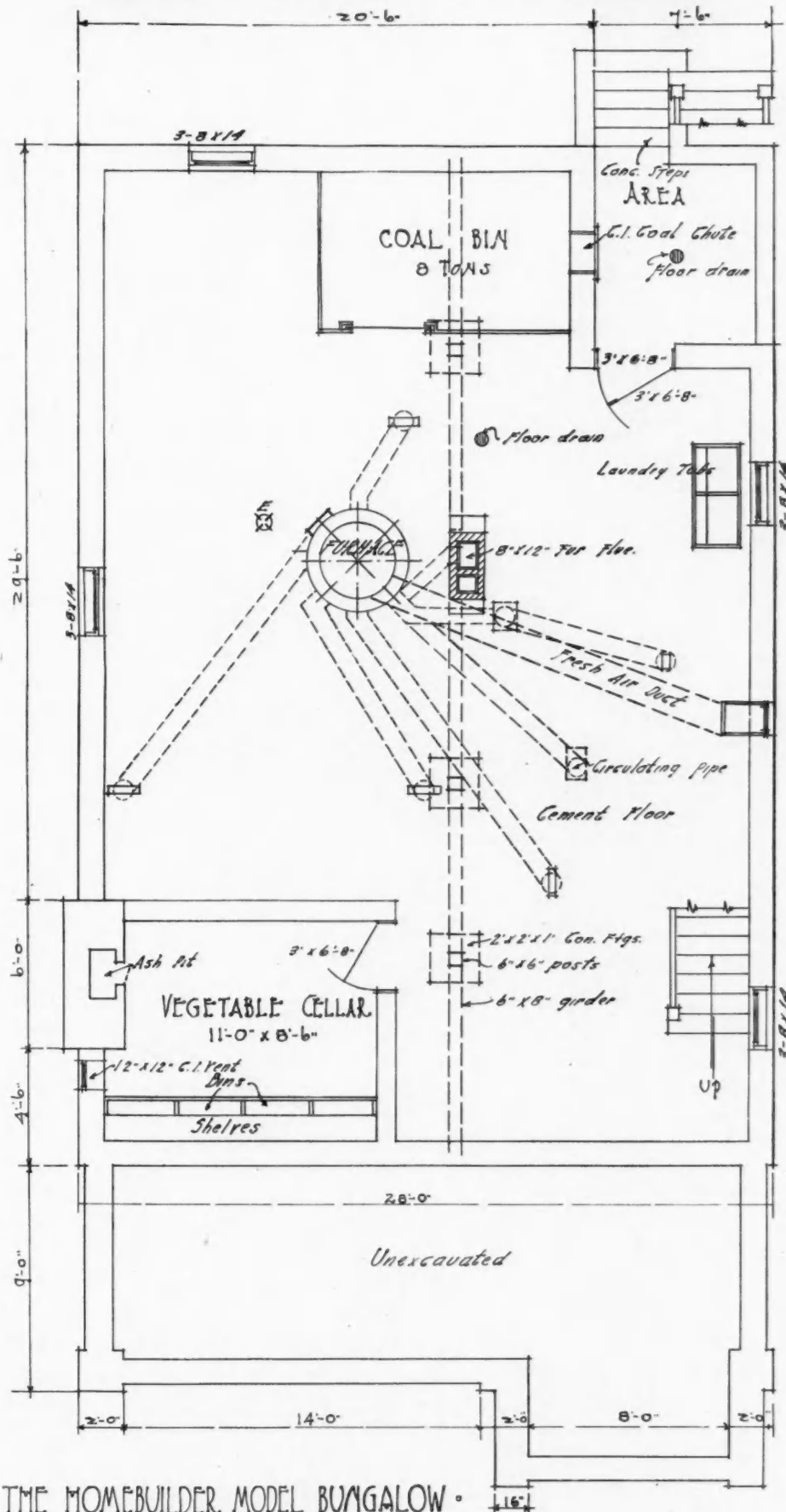


FRONT ELEVATION



REAR ELEVATION

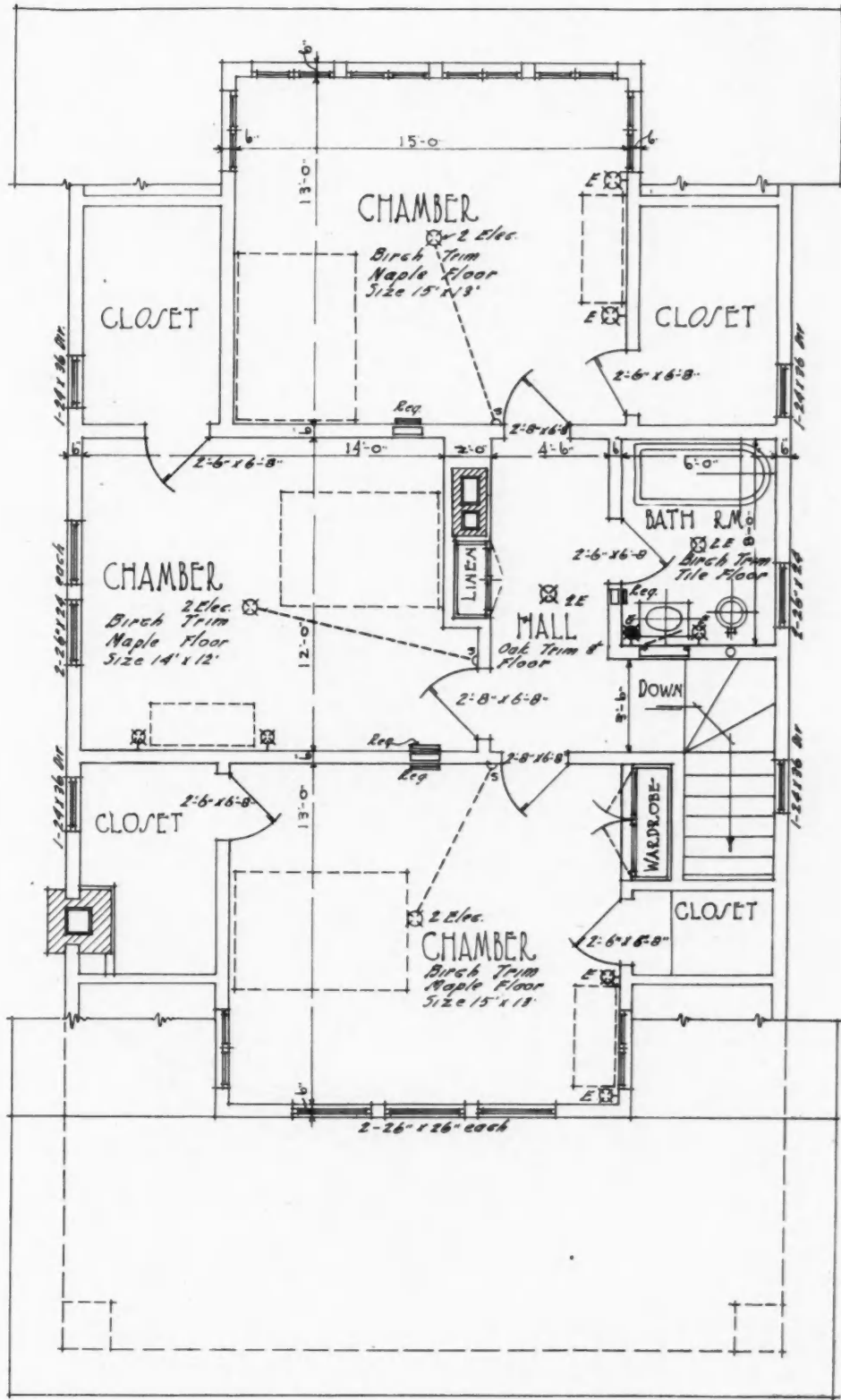
For Perspective View, See Page 40



THE HOME BUILDER MODEL BUNGALOW
 DESIGNED BY
 THE RADFORD ARCHITECTURAL CO.
 CHICAGO

BASEMENT PLAN

For Perspective View, See Page 40



CUBAGE ESTIMATE
 23740 CUBIC FEET MAIN BUILDING
 1308 - - - PORCHES (1/2 CUBAGE)
 25048 TOTAL AT 15¢ A CUBIC FT
 EQUALS \$ 3757.20

SECOND FLOOR PLAN

For Perspective View, See Page 40

Specifications for Model Bungalow

(Continued from page 45)

hereafter mentioned for inside doors.

All inside doors facing hardwood trim to be veneered with same wood as hereafter specified under head of "Inside Trim"; to be 1¾ inches thick and to have three-ply, glued-up horizontal panels.

All doors must be kiln-dried, sand-papered, free from knots, checks, plane marks, stains, finger marks and perfectly hung in place and in working order.

WINDOW FRAMES: All single sash frames to be regular plank frames 1¾ inches, rabbeted ½ inch by thickness of sash, of select white pine or cypress.

All frames for check rail windows to be of the form, styles and dimensions as marked on plans; all pulley stiles to be ¾ inch thick, of hard pine.

SASH: All sash to be of clear white pine 1¾ inches thick. All single sash are to be hung on good butts and to swing as desired by owner, where not otherwise mentioned.

All check-rail sash to be hung on cast iron weights with sash cord and secured with good sash lock.

FLY SCREENS: Contractor to provide all windows, outside doors and enclose rear porch with fly screens, well fitted in place, constructed out of white pine for frames, with best enameled wire cloth. All check rail windows to have half screens to slide up. All single sash windows to have hinged screens. Front door screen of red oak. All doors to have spring hinges.

INSIDE FINISH: All finish to be clear, sand-papered clean and smooth. Closets to be trimmed with plain 4-inch O. G. casing (no blocks). See details for all other trim.

All windows to have proper stools and aprons. Outside doors to be fitted with oak thresholds.

Put in place beam ceilings (if desired), wainscot, columns, seats, book cases, etc., where same are shown on plans, all according to details.

All inside finish to be as follows: Oak—All of first floor, stairway, and second floor hall. Birch—All of second floor except hall.

CLOSETS: All closets to be finished up with at least two shelves as directed by the owner and to have ¾ by 3-inch hook strip fastened to walls and to extend around entire closet with at least two dozen hooks fastened to same.

ANGLE BEADS: Furnish turned angle beads 4 feet long; put in place on all plastered angles. Also put up all necessary door strikers against the base where the doors would otherwise strike the walls.

PANTRY: Construct and set in place all pantry shelving, cupboards, drawer-cases, bins, etc., as shown on plans and as directed by the owner, all to be complete in every respect and ready for use.

CHINA CLOSET: To be constructed of same wood and design of trim as balance of dining-room woodwork, having three adjustable shelves and glass above a 1⅛-inch counter shelf which is to project with a moulded edge to form a cap for the case of six drawers below; all this work must be done in a most mechanical manner and in harmony with the other trim.

STAIRWAYS: Construct the front stairway of the design as shown on details out of kind of wood mentioned above for hall, all treads and risers to be housed, wedged and glued into wall string.

Cellar stairs to have 1⅛-inch tread, ⅞-inch risers and ⅞-inch wall strings of yellow pine with cove under nosing.

HARDWARE: The contractor must furnish and put in place all necessary hardware, such as hinges, locks, bolts, etc., also knobs, butts, locks, latches, trimmings and fastenings of every description of the styles, weights and finishes as selected by the owner.

SHEET METAL WORK: Gutters to be made of No. 26 iron, well fastened to roof and to have proper fall. Place all down spouts of No. 26 galvanized iron where shown on elevation or where may be found necessary.

All flashings are to be made with No. 26 galvanized iron, all to be well painted on both sides before putting in place.

OUTSIDE PAINTING: Paint all of the sheet metal work and exterior woodwork, except roof, three coats of pure white lead, mixed with boiled linseed oil, tinted to suit the owner. Coat all large and dark knots with a thick coat of shellac varnish. Prime all frames as soon as delivered, and all other woodwork as soon as set in place by carpenter. After priming coat is dry, putty up all nail holes and other imperfections with best linseed oil putty. All shingles to be dipped in shingle stain and given one brush coat after laying. All this work must be done by experienced men and satisfactory to owner.

INSIDE PAINTING AND FINISHING: Painter must see that all woodwork is in proper condition to receive the first coats before proceeding with the work. All inside woodwork to be filled as soon as delivered to building, and all oak floors filled as soon as laid and properly smoothed by carpenters.

All oak or other hardwood trim woodwork, doors and floors to be filled with a paste filler, tinted to suit owner.

Over this apply to all woodwork, except floors, one coat of a standard sur-

facier and one coat of "Dead-Lac," or similar preparation.

Finish all oak floors and treads of stairways with two coats of an approved floor finish, well flowed to an even surface. Finish all maple floors in kitchen, bathroom and pantry with two coats of boiled linseed oil.

GLAZING: Glaze all sash, outside doors and transoms with best American double strength "AA" quality sheet glass, well sprigged and puttied, except the front door, which is to have beveled plate glass.

DRAINAGE: Excavate for catch-basins, trenches, etc., leaving the undisturbed bottom for all drainage shown on foundation plan, or herein described; giving pipe a uniform fall from highest point of soft tile (being 12 inches below cellar floor) to its connection with city sewer.

CATCH-BASIN: To be three (3) feet in diameter, the depth where located being 3 feet 6 inches below the gradual fall from house to sewer, and same to be constructed with an 8-inch hard burned brick wall, laid in cement mortar and plastered with pure cement on inside to 6 inches above water line. The inlet and outlet to catch-basin will be elbows turned down.

BOILER: Put in one galvanized hot-water boiler to contain 30 gallons on cast iron standard. Make all necessary connections for water-back to stove and to basement furnace. Hot water to be taken from the boiler to the sink, bath tub, wash bowl and laundry tubs. Boiler to have a ½-inch sediment cock at bottom.

SINK: Place one white enameled 18 by 30-inch cast iron roll-rim sink where shown on floor plans, trapped with "S" trap and screw and to have brass ⅝-inch bibbs (for cold water, hose bibb) and enamel drain and 12-inch enameled back.

BATH TUB: Put in one 3-inch roll-rim enameled iron bath tub, with overflow and strainer, rubber plug and chain complete; supplied with nickel-plated combination bath-cock and trapped with lead drum trap.

WATER-CLOSETS: Put in place in bath room and in lavatory two siphon jet water-closets, with low-down antique oak tank, with pull complete and antique oak double cover, making the whole a complete job in all respects.

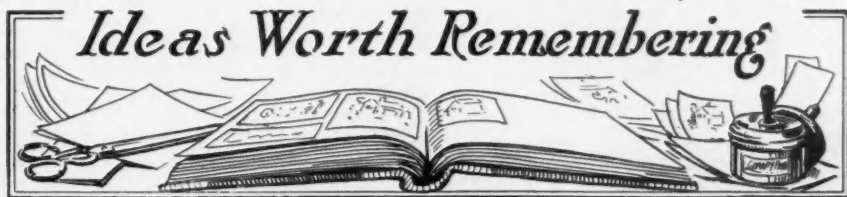
WASH BOWLS: Put in place in bath room and in lavatory two enameled iron top and back and apron. Basins to be supplied with nickel-plated chains, stay, plug and strainer, trapped with lead "S" trap and screw and supplied with nickel-plated basin cocks and nickel-plated bracket and screws.

LAUNDRY TUB: Furnish and set in place in basement, complete, a two-compartment slate or soapstone laundry



A Modern Home Interior Full of Suggestions and Good Ideas. Spaciousness is the Keynote. Landscape Panel Decoration Adds to the Feeling of Size in These Rooms. No Policy Spent in Interior Decoration Goes Further than in one of these Wall Paper Landscape Friezes. The Beam Ceiling Work and Placing of the Lighting Fixtures Should be Noted.

The Home Builders' Scrapbook



Ideas Worth Remembering

tub, 16 inches deep, 24 inches wide by 4 feet long, set on painted cast iron legs. To have 1½-inch brass waste plugs, lead trapped waste, and supplied with hot and cold water through "Fuller's" ⅝-inch brass hose bibbs.

FURNACE: Furnish and install warm air furnace selected by owner, with heating pipes running to all rooms; fresh air duct from inlet in north basement wall and thence under basement floor in vitrified clap pipe to furnace; also re-circulating pipe from hall; all as shown on drawings; work to be done in best workmanlike manner; the job when complete to be guaranteed to heat the building to 70 degrees in zero weather.

GAS FITTING: The building is to be piped for gas, with outlets in kitchen and in bath room.

ELECTRIC WIRING: All the electrical work herein included shall be executed according to the rules and regulations adopted by the National Board of Fire Underwriters and subject to the inspection and approval of the local Board of Fire Underwriters.

The building shall be thoroughly equipped from the source of supply to each outlet with best insulated copper wire and approved brand and acceptable to inspector, well installed and run through porcelain insulators at all timbers and porcelain insulators where wires cross each other, well wrapped with tape.

All joints and connections must be well soldered and wrapped with insulation tape. No wire must come within 6 inches of any water or waste pipe.

PLUMBING SPECIFICATIONS: The plumber shall find, provide, fix good and complete, as the progress of the work requires it, all cocks, plugs, soil-pipes, waste-pipes and all necessary fittings for hot and cold water, to fixtures and apparatus to make the whole complete and in good working order, as shown by drawings or hereinafter described. Place one sill cock on outside of the house where owner may direct, with extra stop and waste cock, to shut off in cold weather. All supply pipes to be ¾ inch; all galvanized iron pipes. All exposed plumbing to be nickel-plated.

WASTE PIPES: All waste pipes from fixtures to soil pipe to be lead pipes of the various sizes as required, and properly trapped with non-syphon traps. All soil pipes must be 4 inches in diameter inside and of cast iron, and be ventilated up through the roof, well tarred both inside and out. Calk tight all joints with molten lead and oakum. Put in all necessary vent and re-vent pipes. All to be open plumbing throughout. Connect soil pipe to street sewer with 6-inch vitrified tile pipe laid with cement joints and with sufficient fall.

New Idea in Kitchen Cabinets

The kitchen cabinet is the joy of the housewife and now one has been evolved with still another attraction. It has an automatic extension table.

With a cabinet base only 28 inches deep this extension table arrangement gives a free working space of 70 by 37



Table Front with Legs Slids Back Into Cabinet

inches. For the small kitchens that are being built in new houses and apartments, such a folding kitchen cabinet is ideal.

The upper part of the cabinet includes, of course, the regular outfit, comprising a flour bin, aluminum-lined bread box, grocery compartment with removable shelf, large sugar drawer, screw-top cannisters for spices, etc. The lower part of the cabinet is used for storing kitchen utensils, a door at each end giving easy access to this space.

The extension table feature is decidedly new and is bound to be appreciated.



Electric Fan Helps Furnace

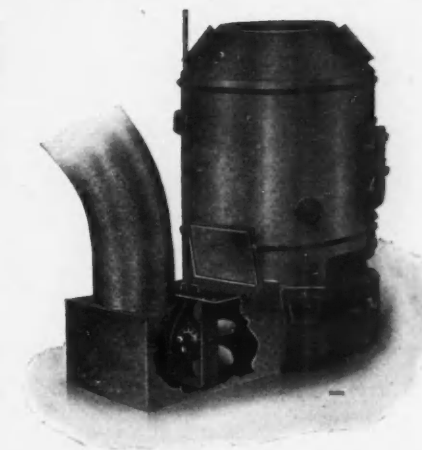
The best of heating plants occasionally fails to deliver. The fire burns brightly and the coal is consumed, but for some reason or other the heating pipes don't "draw right." In certain kinds of weather this happens, and we think it

is because of adverse winds or lifeless atmosphere; we don't know.

A sure remedy has been devised. A faithful little electric fan comes to the rescue.

Tests have demonstrated that such a miniature blower connected up with a warm-air furnace not only does away with these annoying, sluggish spells but also improves the heating efficiency all the time.

A small electric fan is installed, as illustrated, in the cold air box of the furnace. No special wiring is necessary as a long attachment cord and plug to be connected to any ordinary lighting socket furnishes the power. The cost of operating the fan is small, made up many times by the saving in fuel. By means of the fan, heat that usually goes up the chimney or stays in the cellar is



Electric Fan Increases Heating Power of Warm Air Furnace

forced through the heating pipes to the rooms above.

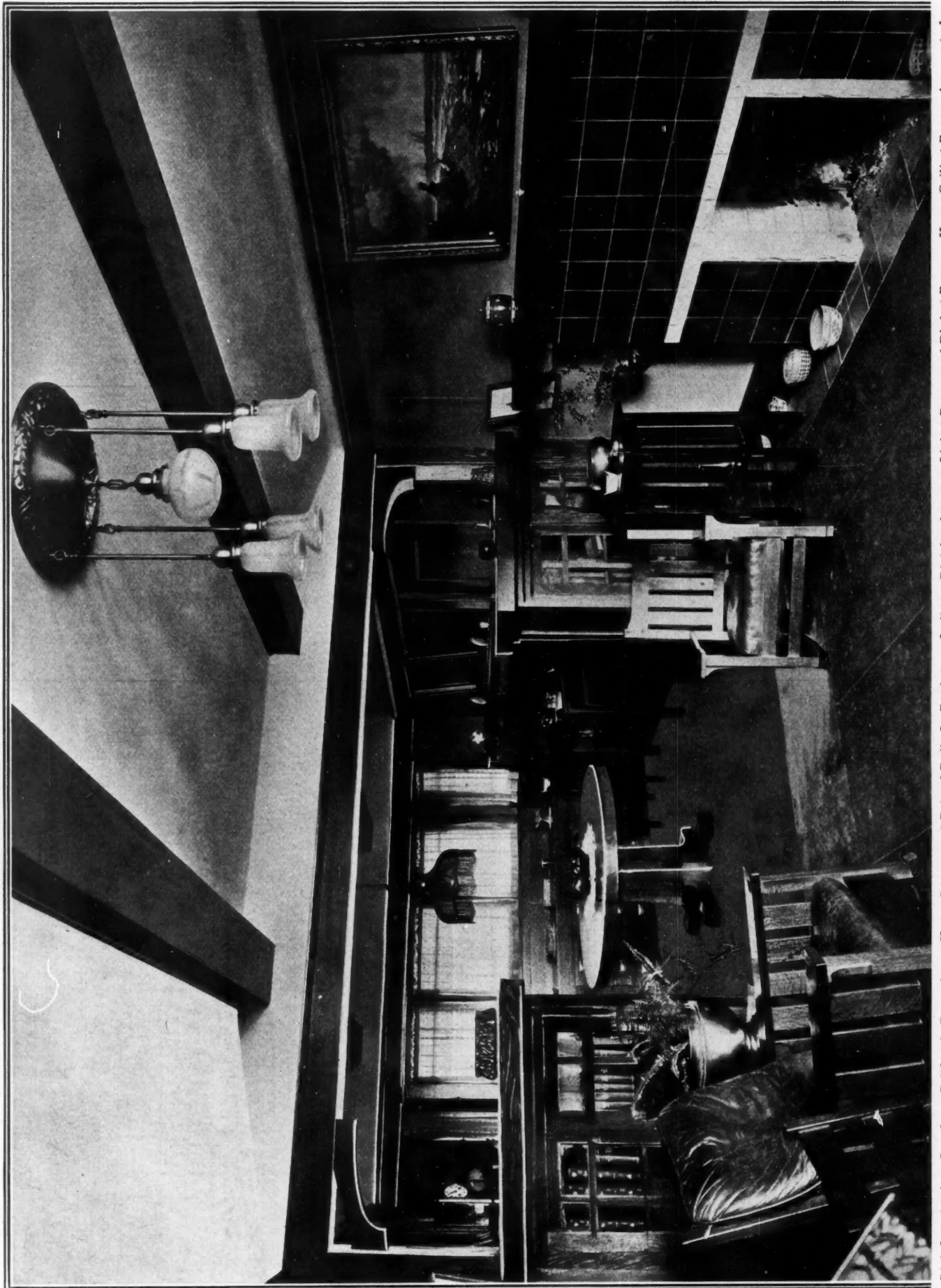
To receive the motor an opening 15 by 9 inches should be cut in the top of the cold-air duct near its junction with the furnace. This hole is fitted with a hinged cover. In mild weather, when the motor is not required, it may easily be removed and the opening closed by the hinged cover.

Not Permitted

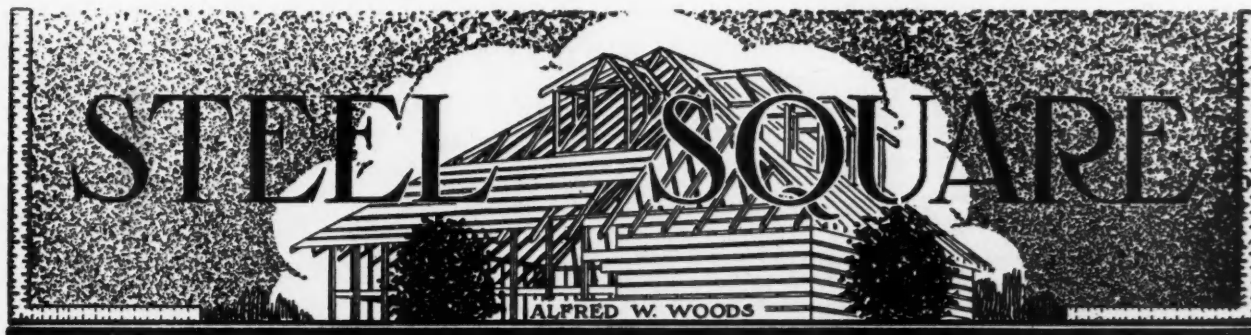
Prospective tenant—"This apartment is too small. Why, there isn't room to swing a cat."

Janitor—"Ve don't allow no cats in de puilding."—*London Sketch.*

A Modern Home Interior Full of Suggestions and Good Ideas. Spaciousness is the keynote. No Money Spent in Interior Decoration Goes Further than in one of these. The Kitchen is Separated from the Dining Room Only by "Bookcase Colonnade". The Kitchen Landscape Panel Decoration Adds to the Feeling of Size in These Rooms. The Beam Ceiling Work and Placing of the Lighting Fixtures Should be Noted. Wall Paper Landscape Friezes.



Rich Interior in a Southern California Bungalow. Heavy Beams and Pair of Built-In Bookcases Indicate Division between Living Room and Dining Room. Heavy Ceiling Beams Appear to be Continuous Throughout Both Rooms. Ceiling is Slightly Vaulted. Walls are Covered with Plain Paper. Open Fire Place Shows Attractive Combination of Square Tiles. Concrete Lintel and Fire Lining and Heavy Wood Mantel Shelf



Possibilities of the Steel Square

ILLUSTRATING A GENERAL RULE FOR FINDING THE SIDE CUT OF THE JACK AND HIP AND THEIR RELATION TO ONE ANOTHER

By A. W. Woods

IN our last article we talked along the line of mental calculation in the use of the steel square in finding the lengths and cuts of jack rafters. We are going to continue along the same line in this article, but confine our remarks to another part of the roof timbers, namely—the hip or valley. But really there is no difference, because the general or governing rule applies to both alike.

A builder once said to us that he experienced no trouble in framing the jacks, but when it came to the hip or valley it bothered him without first laying off a draft of it on a board and working by scale from that. We told him to just forget about its being a hip or valley and consider it a common rafter and proceed in the same way; as the general or fundamental rule applied to both alike.

He could not understand this and accused us of being a joker, and that we were afflicted with rafters on the brain. It was up to us then to make good, and so with a few strokes of the pencil we drew a square, as shown in illustration, and laid out the run of the hip and common rafter.

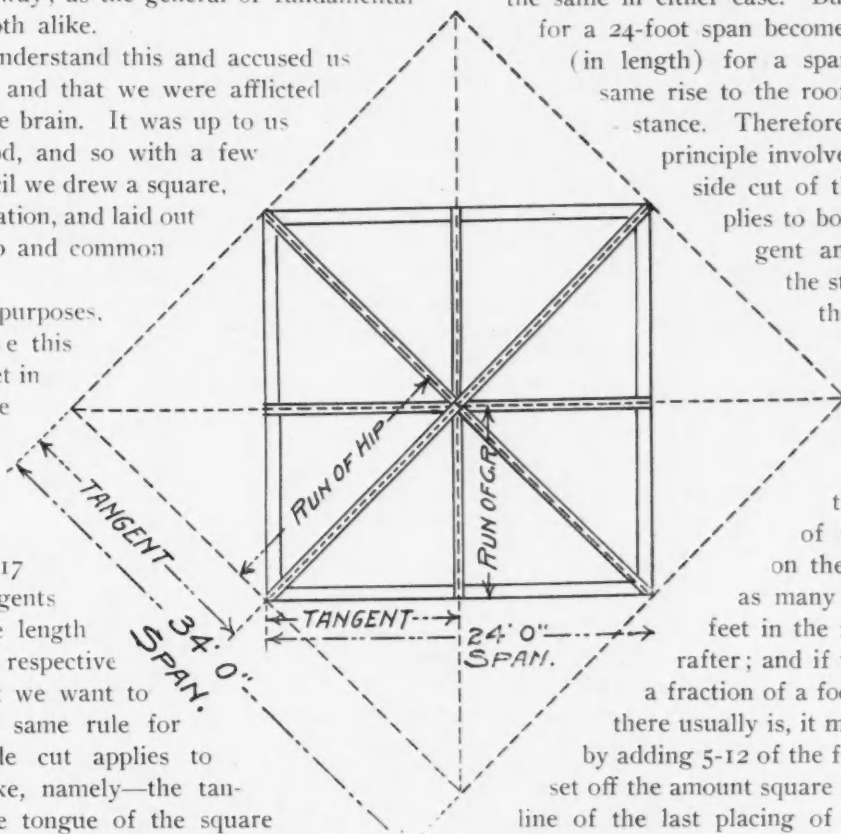
For illustration purposes, we will suppose this square to be 24 feet in diameter; then the run of the common rafter would be 12 feet, and that of the hip would be 17 feet, and the tangents would be of same length as that of their respective runs. Now, what we want to show is that the same rule for obtaining the side cut applies to jack and hip alike, namely—the tangent taken on the tongue of the square and the length of the rafter, taken on the blade will give the angle for

the cut, the blade giving the angle.

It should be remembered that the tangents are fixed quantities, that is, they are not governed by the pitch but remain the same regardless of what the pitch may be. Therefore, there is nothing in the illustration to show what the pitch of the roof is. If it was framed with no pitch at all, but showing each rafter in its respective place, then the length of the rafter would be the same as its run; and its tangent and length would give the side cut of the rafters, which in this case is simply a miter; but as we said before, the same rule holds good for any pitch the roof may have.

The run of the hip is 5-12 longer than that of the corresponding common rafter, but the rise remains the same in either case. But note that the hip for a 24-foot span becomes a common rafter (in length) for a span 5-12 wider with same rise to the roof as in the first instance. Therefore, the treatment, or principle involved for obtaining the side cut of the jack or hip, applies to both; that is—its tangent and length taken on the steel square will give the angle for the side cuts.

As to finding the length of the hip, take 17 on the tongue and the rise per foot run of the common rafter on the blade and place it as many times as there are feet in the run of the common rafter; and if there happens to be a fraction of a foot in the run, which there usually is, it may be taken care of by adding 5-12 of the fraction to itself and set off the amount square out from the plumb line of the last placing of the square. That is, if the fraction is, say 2 inches, the amount would be 2 10-12 inches; in



Illustrating Cuts of Hips and Jacks by a General Rule

Rich Interior in a Southern California Bungalow. Heavy Beams and Pair of Built-In Bookcases Indicate Division between Living Room and Dining Room. Heavy Ceiling Beams Appear to be Continuous Throughout Both Rooms. Ceiling is Slightly Vaulted. Walls are Covered by Plain Old Pine. Open Fire Place Shows Attractive Combination of Square Tiles, Concrete Lintel and Fire Chimney and Heavy Wood Mantel Shelf.

other words, instead of its being 2 inches it is the length of the diagonal for 2 inches.

The length of the hip rafter should be reckoned along the center of its back, and as it rests at an angle of 45 degrees with the plate, it furnishes a puzzle

that is not readily grasped by the average man to know just how to get at the proper length, depth of seat cut, etc., all of which we have gone over before.

With this we close by wishing all of the readers a Happy New Year and a prosperous one.

Unusual Contest Shows Good Feeling

"CONFIDENTIAL CENSUS" BRINGS FORTH ASTONISHING RETURNS—"A. C. & B." READERS EAGER TO HELP

THE AMERICAN CARPENTER AND BUILDER wishes to publicly thank the host of subscribers for their quick compliance to the "Confidential Census" proposition in the November issue. The loyalty and spirit of friendly helpfulness shown has been truly surprising. We thought that we knew our readers; but we didn't. We didn't know half what good fellows they are.

Very nearly a thousand have sent in the readers' census blanks all filled out and have given us a world of information that will help us to offer a more practical and helpful building magazine than ever before. A good many couldn't tell all they wanted to, even by answering the 113 questions in the census, and

wrote us long letters in addition. We have read and studied these every one.

We are hard at work tabulating, enumerating and studying this great volume of information and will present some parts of it in our coming numbers. For instance, the building business forecast for next year will be presented. These reports, from such reliable sources, have come from every state in the Union and in many states from practically every county. This will be the most accurate possible advance survey of the building situation for the coming year. We are hard at work on the figures and can only say at this writing that the building prospects for next season are very encouraging.

Prize Winners in the November Prize Contest are the Following:

First Prize, \$5.00—D. E. A. CAMERON, Gen. Supt. Byers Bros. Construction Co., Kalamazoo, Mich.

Second Prize, \$2.00—C. C. FENWICK, Carpenter and General Builder, St. Joseph, Ill.

And 48 *Third Prizes* of \$1.00 each to: S. J. CLARKE, General Builder, Cullman, Ala.

JOSEPH O. STRADLING, JR., Contracting Carpenter, St. Johns, Ariz.

MAURICE D. BONE, Builder and Carpenter, Batesville, Ark.

H. BEGIEN, Carpenter and Builder, Oakland, Cal.

R. J. WELTON, Architect and Builder, Haxtun, Colo.

GEORGE A. KEENEY, Carpenter and Builder, Delaware City, Del.

J. S. SWEET, Carpenter and Builder, Tampa, Fla.

S. W. FOSTER, Architect and Builder, and Building Material Dealer, Sandpoint, Idaho.

SANDFORT E. RIEKE, General Builder, Barrington, Ill.

H. A. TAYLOR, Real Estate Builder, Morris, Ill.

ALBERT E. TELLE, Architect and Builder, Salem, Ind.

J. G. LAMSON, Real Estate Builder, Nevada, Iowa.

A. H. KIRKWOOD, Carpenter and Builder, Marion, Iowa.

EDW. I. BARNES, Carpenter and Cabinet Maker, Chanute, Kans.

REEVES & SILER, Architects and General Builders, Williamsburg, Ky.

W. F. KRONE, General Builder, Bogalusa, La.

H. E. KNAPP, Architect and Builder, Guilford, Me.

GEO. K. HALL, Contractor and Builder, East New Market, Md.

C. F. PACKARD, Architect and Builder, Hull, Mass.

DAVID S. BETCONE, Supt. of Construction, Bay City, Mich.

FRANK N. KARTHEISER, Manager of Sash and Door Factory, Menominee, Mich.

S. E. LOWDEN, General Builder, Peculiar, Mo.

C. H. LINDBERG, Carpenter and Builder, Warren, Minn.

J. H. PHILLIPS, Carpenter and Builder, Grenada, Miss.

C. H. TURK, Architect, Livingston, Mont.

SANG C. RECK, General Builder, Alliance, Neb.

JOHN W. HORNER, Carpenter and Builder, Danbury, N. H.

JOHN DE VRIES, Journeyman Carpenter, Carlton Hill, N. J.

GEORGE TULLY, of Shaut & Tully, Carpenters and General Contractors, New York City.

M. F. COPELAND, Carpenter and Builder, Eagle, N. Y.

JOHN K. GUSTAFSON, Building Contractor, Jamestown, N. Y.

CHAS. E. MORRELL, JR., Architect and U. S. Supt. of Construction of Federal Buildings under Treas. Dept., Oxford, N. C.

WILLARD H. WEBSTER, Architect and Builder, Cogswell, N. Dak.

WALTER L. HILL, Architect and Builder, Okmulgee, Okla.

CHAS. F. LEWELLYN, Carpenter and Builder, Zanesville, O.

E. W. GREGG, Contracting Carpenter, Coquille, Ore.

H. S. RAHISER, Architect for Pittsburgh Hardwood Door Co., Pittsburgh, Pa.

JOHN T. COXHEAD, Manufacturing Cabinet Maker, Yankton, S. Dak.

A. F. SPEIGHT, Architect and Builder, Clarksville, Tenn.

R. E. GILMORE, Architect, Dallas, Tex. EUGENE HAMILTON, Contracting Carpenter, Duchesne, Utah.

JAS. A. CLARK, Architect and Builder, Alexandria, Va.

THOMAS FOSSARD, Manufacturing Director the Rutland Mfg. Co., Rutland, Vt.

T. HOLLINGWORTH, Carpenter and Builder, Centralia, Wash.

J. W. WIGGINS, Carpenter and Builder, Keystone, W. Va.

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Other visible text in pieces: KRIS KRINGLE, JM, TRADE MARK, COZY CABS, Hy-Rib, RED DEVIL AUGER BITS.

January Ad. Puzzle Prize Contest Above are fragments of 21 advertisements appearing in this issue. Can you identify them? Some are old friends; some you will have to hunt a little to locate. Study our advertising pages this month; read every offer. Then list the 21 ads. these were clipped from. Be sure to give the names and addresses and the page numbers. Also write a brief, straightforward letter, 100 words, on this subject:

“Why I Am Interested in Concrete and Mortar Mixers”

We Will Award These Prizes

13 Prizes For the best letter (and correct Puzzle solution) \$10.00 worth of goods selected from our Ad. pages
\$30 in Prizes For the 2 next best letters (and correct Puzzle solution) \$5.00 worth of goods selected from our Ad. pages
 For the 10 next best letters (and correct Puzzle solution) \$1 worth of goods selected from our Ad. pages
 When sending in your Puzzle Answer and Letter, be sure to state the goods you select from our Ad. Pages, in case you win a Prize; goods of ANY value may be selected, and prizes will apply either in whole or part payment on them.

This Contest Closes MONDAY, FEB. 16th. Prize winners will be announced in March issue.

Address your letters to your friend, **THE ADVERTISING EDITOR, American Carpenter and Builder, Chicago.**

To keep the coming in during the winter months

Tough Times in Troy

A LEADING CONTRACTOR AND BUILDER OF THIS PENNSYLVANIA TOWN TELLS OF HIS WINTER'S WORK AND TAKES A SHOT AT SOME ARCHITECTS' PLANS HE HAS MET

Editor AMERICAN CARPENTER AND BUILDER:



I AM very much interested in the many ways suggested in the AMERICAN CARPENTER AND BUILDER columns for keeping the \$'s coming in during the cold, winter months.

I have a shop with a rip saw, a band saw, a jointer, a cut-off saw, dado heads, foot mortiser, two gasoline and one steam engine; and carry from \$300 to \$1500 in stock of

different kinds; but I find it hard to earn much money during the winter. We have had plenty of work up to the second week in December, when we finished a gambrel roof and basement barn, 40 by 48 feet, which was heavy timber frame. This calls to mind a barn we built during June, 36 by 60 feet, also heavy timber; the main plates and purlin plates were 60 feet long, without a splice hewed out 67 years ago and in business ever since!

I have built 3 farm reservoirs this fall, holding 166 barrels, 255 barrels, and 750 barrels, respectively. Built them of concrete 1:2:4 mix and when filled with water none of them leaked a drop. No waterproofing used. I have built a lot of concrete water troughs and I have not had a leak yet. You can waterproof your work with water, cement, sand, and gravel; but lots of men don't. (The above is a digression from the subject in hand.)

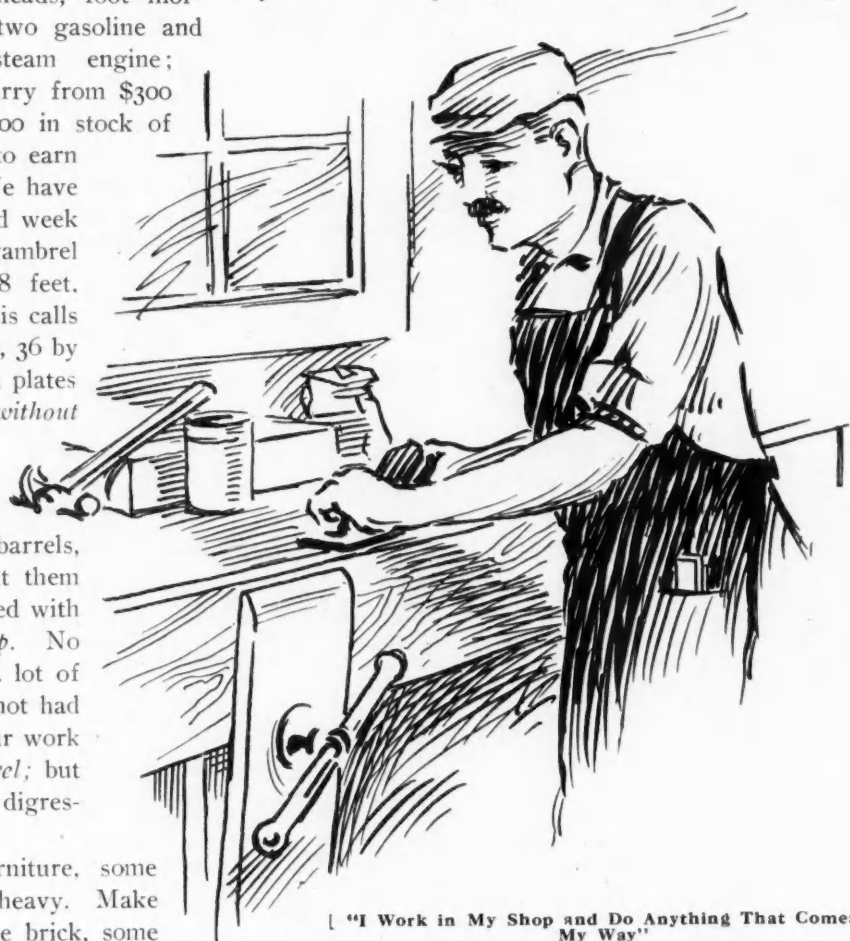
I have made some mission furniture, some screens, some sleds, both light and heavy. Make some concrete blocks, some concrete brick, some

concrete burial vaults, a few concrete fence posts, and do any old thing that comes along.

But from now until about April 1, what I earn won't cause any curvature of my spinal column.

Now, as for getting up some houses during warm weather to finish in the winter. That stunt is a good one, but it won't work here. When a man builds here, you get his plans in the spring. Then if you bid low, you get the contract, with a double riveted clause to let him in before Thanksgiving under pain of mortal sin, as the preacher says.

You can't even build stock door and window frames any more and expect to sell them. Stock mouldings,



["I Work in My Shop and Do Anything That Comes My Way"



—"my lord Architect"

stock doors, and stock windows don't give my lord architect enough margin! They must be *odd*, and God knows some of them are (so are some of the men who design them). I built a \$6,000 *bunglehigh* last year which had four flights of stairs! and no living man could put any of them in, as they were drawn, and pass by the foot of them into the rooms! Also, where a landing came 5 feet 10 inches from floor to top of landing floor, a closet under the landing called for a 2 feet 8 inches by 7 feet door! Then on second floor we hauled the closet partitions into the rooms a foot and raised all side walls a foot, and then used doors 5 feet 10 inches high, although *all* doors on second story *plan* were marked 2 feet 8 inches by 6 feet 8 inches.

Now the *architect* gets *pay* for those mistakes and the *contractor* gets *h—l* if he don't correct them, and, verily, life is one darned thing after another.

C. J. CASE,

Contractor and Builder, Concrete Construction.



Winter Profits Selling Silos; Summer Profits Erecting Them

EDITOR AMERICAN CARPENTER AND BUILDER:

Possibly you don't know how very interesting we manufacturers find your paper. It is the link that connects us with your subscribers, who are our customers. And, just as every good mechanic has at heart the interests of his patrons, so have good manufacturers at heart the interests of the people who patronize them.

Accordingly, we are very much interested in the problem of what to do to keep busy during the winter months. The winter months are dull months in the lumber business, just as in the contracting business, and we have, on this account, worked out a plan which will help both the contractor and ourselves.

In connection with our business of selling lumber, millwork

and other building supplies, we manufacture and sell direct to the user the Seattle Silo. A silo is a big barrel, for the preserving of summer fodder in succulent form for winter use. Like any other barrel, it must be tight to be worth anything. We make the staves from trees cut in our own yellow fir forests, and they are tongued and grooved deeper than usual, to make an extra good joint. The silo is provided with patented doors, that swing in, and the door bars, and bars which connect the ends of the hoops, form a ladder. It is thus possible to get into the silo easily, and to tighten the hoops when necessary without a special ladder.

These good points, together with its honest manufacture, and the fact that it is sold at a very low price, may make the Seattle Silo easy to sell. The sensible time to work up a silo business is the winter, when the farmer has plenty of time to give the matter thought and attention. We do not ordinarily employ agents, but we are willing to pay a good commission, which comes out of our profits and is not added to price, to any of our carpenter friends who will represent us in their territory. And we will protect these representatives by giving exclusive territory in the order of application.

We have literature which we will be glad to supply to any carpenter. However, this is not much needed, because the silo proposition has been thoroughly advertised in all farm papers, and is advocated by every experiment station and agricultural college. Every farmer wants a silo, and it is not hard, when you consider its advantages, and low price, to sell him a Seattle Silo.

The plan is that only a small deposit is to be required at this time in evidence of good faith, and the silo will be shipped later, probably with a car of lumber going to the same point, so as to take advantage of the carload rates. The carpenter who takes the order for the silo should be able to take the contract to put it up, and he can do this job at any time it is handy to get at it.

Another advantage in this winter salesmanship proposition is that the carpenter who takes it up is bound to pick up many small jobs on the side, and stands a mighty good chance at a big one if he comes across a farmer who is going to build a house or barn.

I will be very glad to provide further information to readers of your publication upon request. The plan impresses us as decidedly practical, and we hope that it will solve the winter-work problem for many carpenters.

W. G. Funck, care Hewitt-Lea-Funck Co., Seattle, Wash.



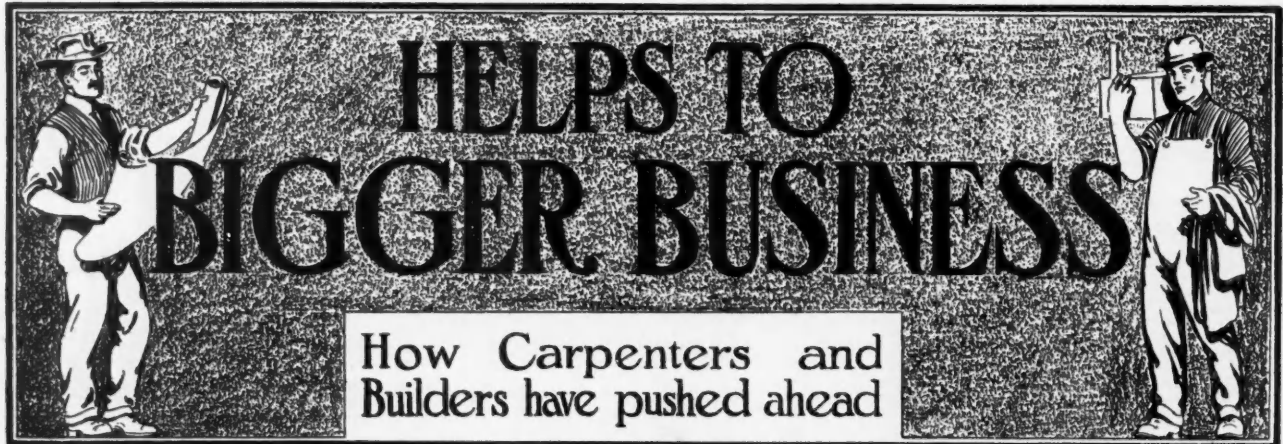
Some Good Pointers for Winter Income Makers

Brentwood, Cal.

EDITOR AMERICAN CARPENTER AND BUILDER:

Just a line to let you know how I put in the winter months when work gets slack. I have found it a very good way for a man to do repair work and not to be afraid to use the pick and shovel if it required it and to do small odd jobs. Although it would be a day or two it gives a fellow a chance for something to do all the time and he is kept fairly busy all the time and lots of times gets inside work by doing it, which the other fellow would have gotten. That has been my experience and that way I am kept at work all the time. There is always some one looking for some one to crate and pack furniture and make repairs of all kinds if one will just take it up and get acquainted. It makes it easy to find lots one can do to help along during the slack time in the building line.

M. V. G.



Quick Framing with My Portable Power Wood Worker

HOW I BUILD HOUSES AND BARNs WITH THE HELP OF MY COMBINATION PORTABLE RIP SAW, JOINTER, BAND SAW AND BORING MACHINE—SOME QUICK FRAMING DONE

By **Chris. Henderson**
Contractor and Builder, Xenia, Illinois

I USED to wonder about this power wood-working proposition. I heard lots of talk about what it was doing for some contractors and builders, and then I used to see the machines advertised and written

up in my building magazine. Wonderful things were claimed in the way of doing hard, tedious work easily; and the power woodworkers, especially the portable ones, seemed to be pretty strong, useful machines. It



Contractor Henderson and His Gang on a Recent Remodeling Job. His Gas Driven Combination Portable Woodworker Does All the Heavy Work and a Good Deal Besides

had me wondering for quite awhile.

Well, I don't wonder about them any longer. I got an outfit and have found out for myself.

Some of the things we do with my portable woodworker some of the boys may not believe. But let me assure you right now that we do them, and no mistake about it. And I wouldn't go back to the old hand-labor ways for a good deal of money.

Take for instance, the house job illustrated in the photo. This re-modelling was begun and brought right up to the place where you see it by myself and four men in just three hours' time. The entire frame work of this addition is oak. I would hate to think of how we would have felt after hand-sawing out all of those oak timbers!

Then, there is the job illustrated in the hand bill. This was a large lumber shed, and we averaged 1,000 feet of lumber an hour, all framed, ready to put up.

I do considerable barn work, and three of us usually frame a 40 by 40-foot mortise and tenon frame barn in three days' time, including rafters and all framing timbers, ready to raise.

The main feature of my wood-working machine is the swing saw under the saw table. With this I can saw 1-inch lumber up to 14 inches wide. I use a straightedge and cut everything to a gauge, so all pieces are exactly the same.

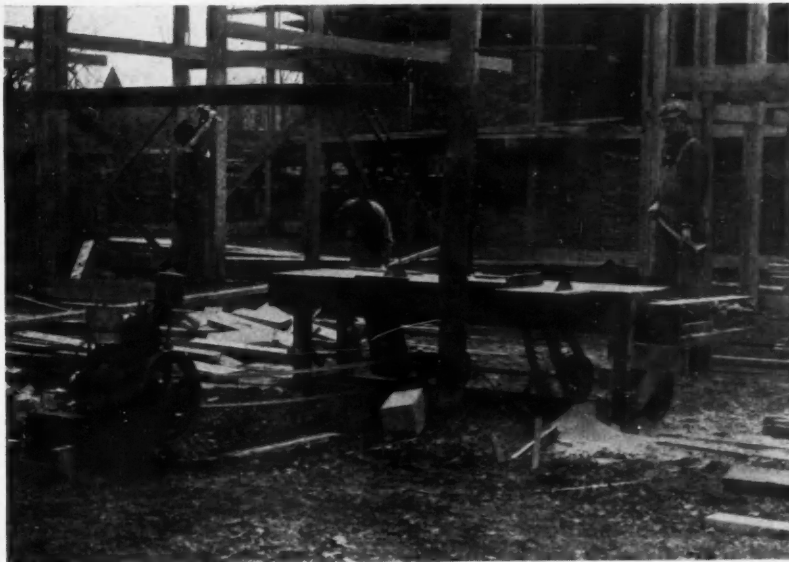
With my jointer and boring machine I can build a window frame without the use of a hand-tool except a hammer. On one end of the bench I have fixed up a band-saw that I use to rip out tenons and splices in barn work.

My machine consists of rip saw, cut-off saw, band saw, jointer and matcher, boring machine and sand paper drum. There are not very many cuts about a building or many pieces of work that I cannot do on my little machine. It does all the heavy work, and the longer I work with it, the more I discover it is able to do.

As you will see, my woodworking machine is driven by a small gasoline engine, mounted separately. I find that this is convenient.

Chris. Henderson, **Contractor and Builder,**

XENIA, ILLINOIS.



Having purchased a new Mortising machine, I am now prepared to do all kinds of

PLANING AND JOINING.

Window and Door Frame Work a Specialty.

It will be to your advantage to consult me when you intend building a house or barn on your farm.

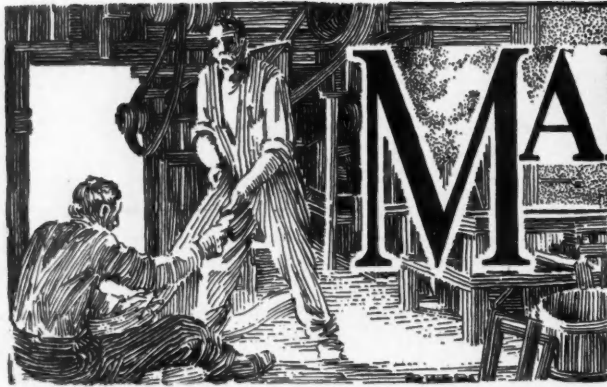
My experience in the carpentering and building line enables me to give the best work for the least money.

Chris. Henderson.

Phone 56.

Little Hand Bill Which Brings in Some Business

Since investing in this outfit I have been able to build up a much better business than I ever had before. I have had a quantity of hand bills printed and distribute them around where I think they will do me some good. Xenia isn't a big town, but I find business comes in to me from all around the surrounding country. The power woodworker seems to interest the people and brings their business my way. Then it enables me to do their work in good shape and they come again.



Jimmie's Combination Machine

Part V.

DIAGONAL LATTICE WORK—IDEA FOR PLANT TRELLIS—
WIDE BOARD SIDING WORK

By W. D. Graves

JIMMIE was getting out some stuff, yesterday, which struck me as being capable of considerable development in the way of winter work, as well as being worth while for summer. By the use of his machine he got out a lot of lattice work from boards of common thickness, with the crossings halved together, making it so cheaply and neatly that it would

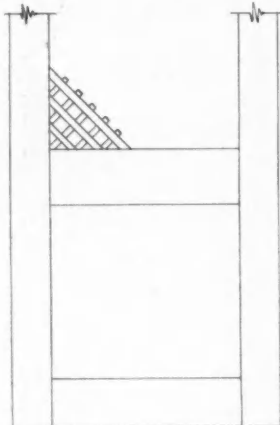


Fig. 1. Screen Braced with Ready Made Lattice

seem practically available for various novel purposes. He first took boards S2S, and the wider the better; and cut half way through across one side, grooves as wide as he wanted the members of his lattice and as far apart as the desired width of the opening therein. In order that the openings might be of exactly uniform width he gaged the spaces by means of a little stop fitting inside the grooves, so that each one was automatically spaced from its predecessor. After the required number of boards were grooved he proceeded to rip them, with a fine-toothed and smooth-cutting saw, to the width of the grooves. It was then merely a matter of driving the pieces together and sanding the surfaces on the sand wheel which he has affixed to the lower wheel of his band saw.

It struck me that one might advantageously make up quite a lot of this stuff in winter, gluing the joints, and that it could be profitably used for many purposes. Those which occur to me at the present moment, and

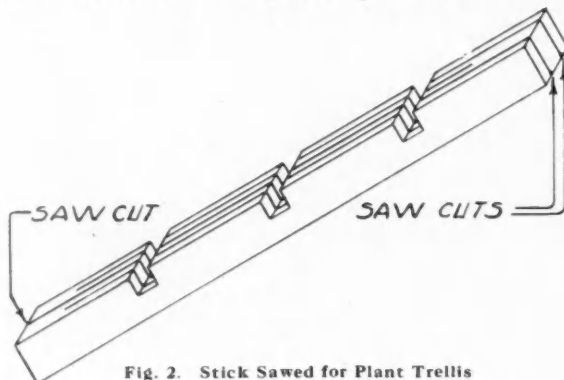
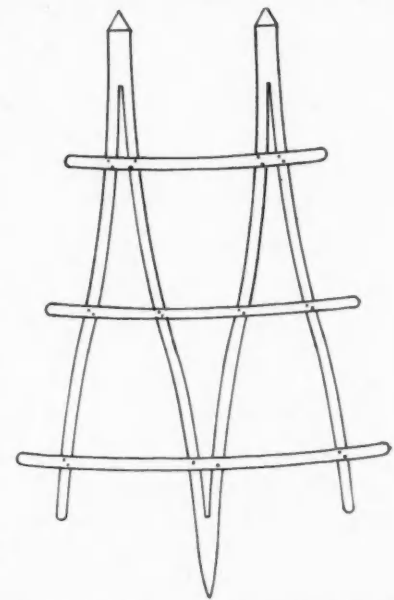


Fig. 2. Stick Sawed for Plant Trellis

which, of course, but represent the possibilities, are for bracing screen doors somewhat as shown in Fig. 1, for filling the whole lower panel of such screens as are exposed to the assaults of children and dogs, and as a part of brackets and grilles of various sorts. Variety may be attained by cutting the grooves at other than right angles and so making the openings of diamond shape.

The dado head and the smooth cutting saw—any fine toothed and moderately stiff saw may be made to cut almost as smooth as a plane by keeping it in prime order and feeding it slowly—make the halving together a very simple and cheap process, while having the stuff glued up in comparatively large pieces makes it practicable to quickly cut out just what is wanted for the purpose in hand. The slight waste which will be unavoidable will be far more than compensated for by the gain in making the stuff in quantity; a gain, by the way, which is far more material than the hand worker is apt to realize.



Seeing Jimmie at this work reminded me of a sort of plant trellis

we used to make years ago, so I made three which were accepted with a quite effusive appearance of gratitude by Harriet and a couple of our neighbors. Perhaps I shouldn't speak in quite that way, as the gratitude was doubtless real; but I have so often noticed such marked difference in the aspect of people when asked to accept a gift and when asked to buy that I am perhaps a trifle pessimistic. I have probably made cords of those little trellises in my

Making Power Wood Workers Pay

smaller farms, and more people will move in. Then, of course, there will have to be more building.

There will also be different kinds of work which can be done in a shop, in the winter time, when the building season is over.

O. S. HOUGE,
Contractor and Builder,

Design for Builder's Shop

To the Editor: Arcadia, Nebr.

I am planning on building a small carpenter shop. I do not want to put a dollar more into it than is absolutely necessary. I want it small, compact, convenient, large enough and so arranged that I can do my framing inside in bad weather, arranged to make window and door frames, screens, etc. Arranged so I can put in more machinery later, such as boring machine, sander, planer, jig saw, turning lathe, etc. All I want at present is rip and cross cut saw and dado. Want an office to do drafting, figuring, etc., in. Places arranged to keep blueprints, plans, etc., arranged so I can lay my hands on them without looking over a lot of other papers.

Where would you advise me to get my equipment, and what kind? There isn't enough work here to put in a well equipped shop at present. Please advice me as to plans, construction, etc. Would you advise ground floor to work on? Store room above? Two story? Drop siding walls? Size of windows and how many? Arrange for heat later on? (Could not heat at present.) Office and shop built together? Engine house built on outside?

I haven't a very large capital to invest at present, but want to calculate on growing. Would you advise large

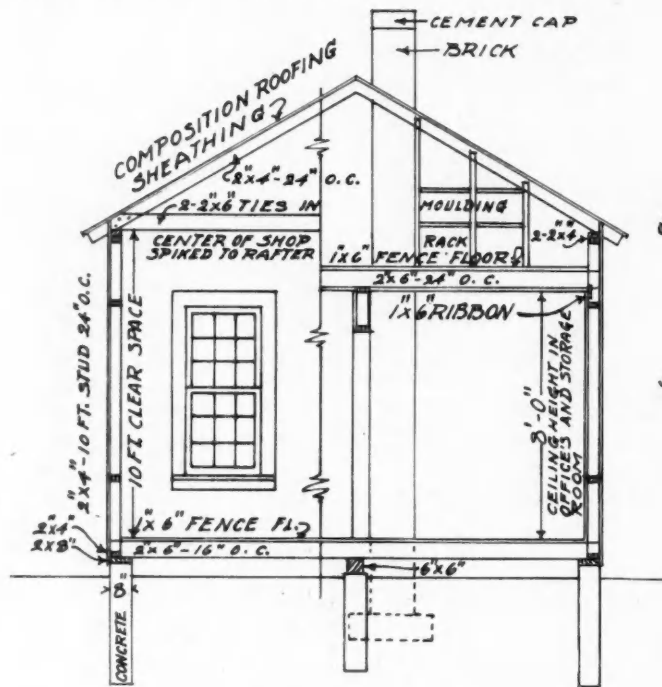
rial such as roofings of all kinds, different kinds of woods, flooring of all kinds, weather board of all kinds, different styles of drop siding, brick of all kinds, stains and paints, hardware of different kinds and styles. I would also like to display some of my work such as screen doors, window screens, window frames, etc.

LOUIS M. BROWN,
Contractor and Builder.

Answer: We take pleasure in sending you herewith drawings showing our suggestion for a small wood working shop, planned along the lines suggested in your letter. You will see that we have made this into two general parts; one a shop proper, and the other the offices and display room. By using 10 foot studs throughout we are able to get a clear space 10 feet high in the shop. This is desirable for ease in handling large doors, tall cases and other sizable pieces. The ceiling over the office and store section is 8 feet high, which leaves considerable space overhead for the storage of lumber, etc.

We wish our readers who have power woodworking shops would write giving their opinions as to the questions above. Both Mr. Brown and other prospective shop builders will be interested to see photos and plans of your shops. Send them in and we will illustrate them.

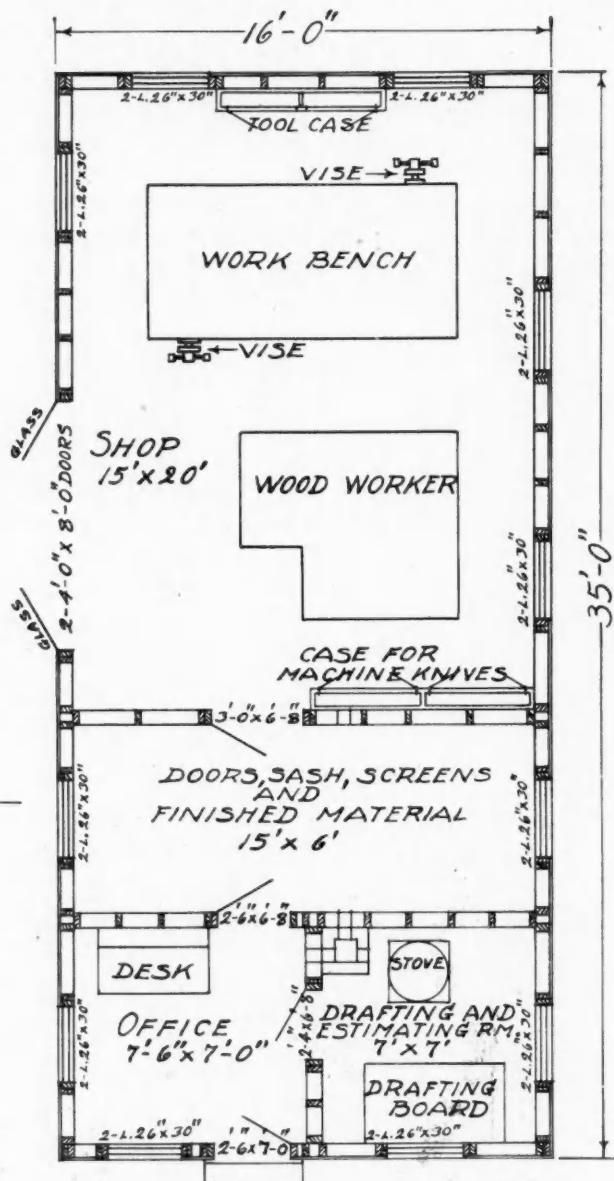
EDITOR.



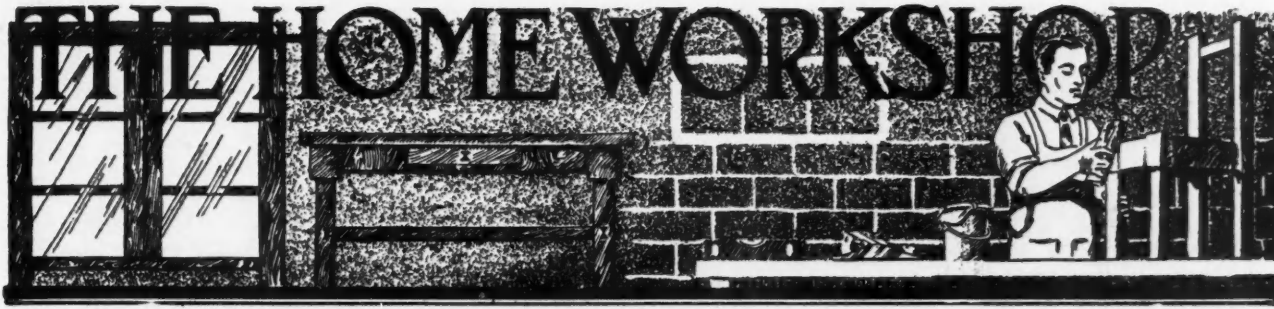
CROSS SECTION OF BUILDING

signboard above shop? I believe in advertising. I want to let the public know what I have, what I am doing, and what I can do.

I want to begin building shop soon. I want my office arranged to display by building books. I am well satisfied with my "Cyclopedia of Construction," and have about 40 issues of AMERICAN CARPENTER AND BUILDER. I have a number of plan books, and other books relating to building, catalogues, etc., and intend to get more. I also would like some arrangement for displaying samples of building mate-



FLOOR PLAN OF SHOP



How to Make a Fern Stand

PHOTO, WORKING DRAWING, AND COMPLETE DIRECTIONS FOR MAKING AND FINISHING THIS EASILY-MADE PIECE OF FURNITURE

By Ira S. Griffith

THE fern stand shown this month is the work of Mr. O. Spear of Indianapolis. It is constructed of black walnut and finished in the natural color.

STOCK BILL FOR FERN STAND

Posts, 4 pieces, $1\frac{1}{2}$ by $1\frac{1}{2}$ by $28\frac{1}{2}$ inches, S-4-S.
 Rails, 4 pieces, $\frac{3}{4}$ by 2 by 13 inches, S-4-S.
 Rails, 4 pieces, $\frac{3}{4}$ by $1\frac{1}{2}$ by 13 inches, S-4-S.
 Slats, 12 pieces, $\frac{3}{8}$ by $2\frac{1}{4}$ by 7 inches, S-2-S.
 Bottom, 1 piece, $\frac{3}{4}$ by $12\frac{1}{2}$ by $12\frac{1}{2}$ inches, S-2-S.

Remove the mill marks from the surfaces of the various pieces that are specified as squared on four sides. Remove the mill marks likewise from the two surfaces of the other pieces and square them to width, shaping the slats as indicated in the drawing. These slats may be made with vertical sides if desired. Saw the various pieces to their proper lengths and shape the posts as the drawing indicates.

In laying out the mortises the posts may be set upright in the positions they are to assume in the finished piece relative to one another and the approximate locations marked roughly as with penciled circle. After this has been done they may be laid upon the bench top side by side and the top ends evened by means of the try-square and the accurate locations of mortise ends determined by measurement and marked with a very sharp pointed pencil. These lines will need to be carried across the two inner surfaces—the faces. The posts must be placed, when in the vertical position, so that faces shall be turned in. Faces are more likely to be square than are the other surfaces and the joints are, therefore, more likely to fit snugly.

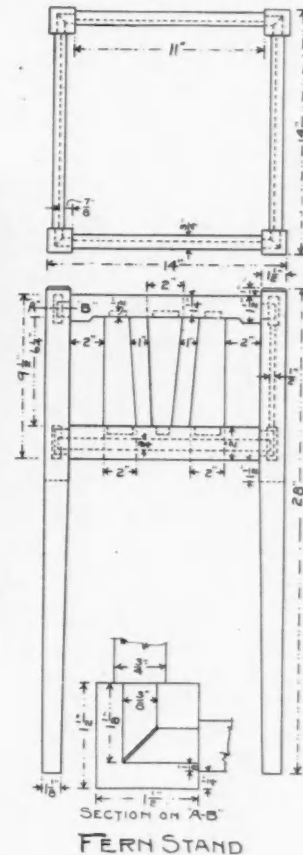
Since the rails are all of the same length they may have their lengths marked across the face edges at one operation. After this they may be separated and these lines scored entirely around the two ends to indicate the shoulders of the tenons. After the tenons are gauged and sawed the rabbet for holding the bottom may be worked.

In assembling the piece the two opposite sides may be glued and clamped first. After the glue on these has hardened, the remaining parts may be placed and the whole clamped. See that the rails are square with the posts and that the diagonals are equal.

Remove all surplus glue after the glue has hardened

and sandpaper any rough places. Much time may be saved if sandpapering is pretty well done before assembling.

For a natural finish—which is as pretty as any for walnut—apply a coating of paraffine oil, or boiled linseed oil is equally good in case the first is not avail-



Photograph and Working Drawing of Fern Stand

able. Apply with a cloth and after allowing it to stand some twenty minutes wipe the surplus liquid off. Allow this to stand at least forty-eight hours and then apply a very thin coat of shellac. Allow the shellac to stand over night and then sandpaper it smooth using number 00 paper. Upon this shellac base apply several coats of some good furniture or floor wax.



The Garage Door Problem

PART 2—ARRANGING TRACKS WHERE DOORWAY IS NOT FULL WIDTH OF FRONT

By E. J. G. Phillips

Engineer with the Richards-Wilcox Mfg. Co.

Fig. 4 shows a condition which is more frequently met with, that is, a garage in which there is a foot or more space between the jambs and the side wall and yet not space enough to slide the doors. In this case the doors can also be hung with the right angle door hangers already described, sliding the doors over against the side wall.

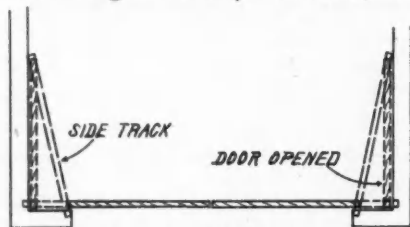


Fig. 4. Plan View of Right Angle Doors

A slightly different arrangement of the track is required, but if erected as described below, a satisfactory working job may be had. After the hangers have been attached to the doors, measure the distance "C" from the front edge of the door to the center of the rear hanger pendant, and lay off this dimension on the top of the front track, measuring either side of the center and draw a line, Fig. 5. Then with the track lying on the floor, place one end of the side track on top of the front track over the line and the other end in a line at right angles with the out end of the front track and mark the angle which side track makes with front track. The slots in front track will then be cut with hack saw and chisel to this same angle and will appear as shown in Fig. 5.

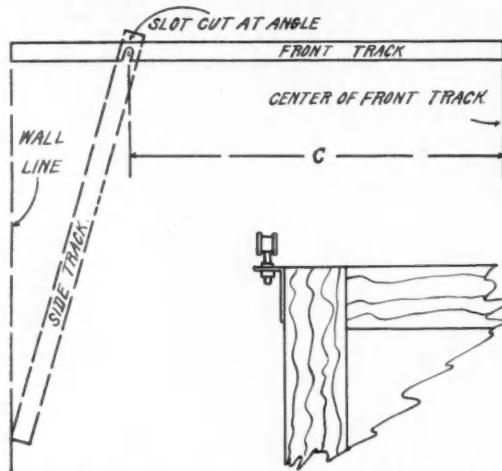


Fig. 5

Fig. 6

5. The side tracks may be supported with the regular side brackets by placing a board across the corner of the building to which the brackets can be attached or the track may be attached to the ceiling with suitable brackets. In this case the front end of the side tracks should extend into the wall 2 inches and if the angle of this track is great, the back ends of tracks should enter walls a short distance. The front track should extend entirely across front of building and two inches into side walls.

On rare occasions there may not be headroom enough to use one track above another and in these cases it is

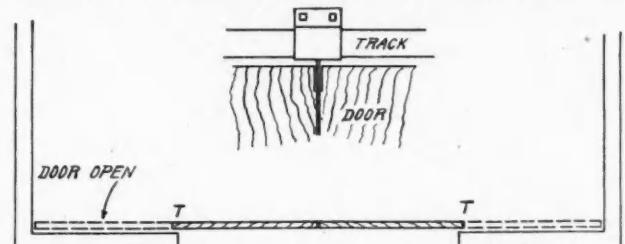


Fig. 7. Sliding Doors Where There is Free Wall Space

necessary to use a rear hanger with pendant same length as front hanger and to attach rear hanger to door with special irons as shown in Fig. 6. The front track will then be made only about 4 inches longer than width of opening and the side tracks will be placed against the ends of front track and at the same height. Special fixtures are, however, to be avoided whenever possible because of extra trouble and expense involved.

If, as shown in Fig. 7, there is sufficient wall space adjoining the opening to slide the doors straight back and yet clear, a pair of simple sliding doors may be used, preferably hung on the inside of building. These doors require no special comment as builders are quite familiar with their use, except that hangers with both vertical and lateral adjustment should be used. The lateral adjustment provides for running the doors close to the jambs, assisting in keeping out the weather, while the vertical adjustment provides for the proper clearance between the floor and the bottom of the door. Of course it is unnecessary to say that the trolley or

box shaped tracks are in every way superior to the old flat rail tracks and should always be used. A center stop bracket may be used over the center of the opening to stop the doors. A small notch is cut out of each door to receive the stop, see Fig. 7.

Where Small Hinged Door Compels Sliding All to One Side

Another type of building is shown in Fig. 8, in which a small swing door is located near the large door in the front wall, prohibiting the sliding of main doors toward both sides of building. In this case a single right angle door may be used, fitted with hangers and track as described above, except that in the case of a single door two four-wheel hangers should be used, a hanger with short pendant for the front end of the

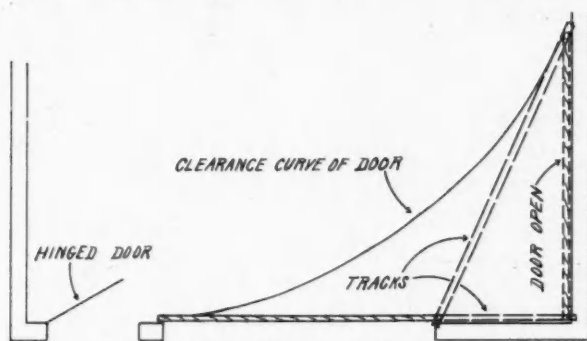


Fig. 8. Plan View—Wide Door to Slide All one Way

door and a hanger with long pendant for the rear end of the door. If, however, the car is nearly the length of the garage and too much space would be required to swing the large door around the corner (see clearance curve of door), two doors may be used, hinged together as shown in Fig. 9. As shown, a curved section of track is necessary and three hangers suitable for operating in curved track must be used. Hangers similar to the four wheel hanger for right angle doors, except that frame is knuckle jointed, are satisfactory. The center hanger must have a special plate for attaching to doors, which will bring the center of the pendant over the joint between the two doors.

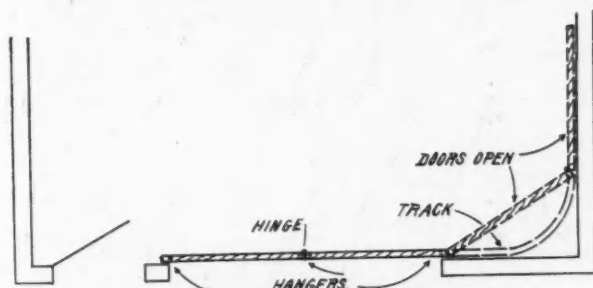


Fig. 9. Two Narrow Doors to Slide one Way

To make a tight job, the meeting styles of the doors should either be astragals or be rabbeted. The doors when open will stand as shown in the illustration. To use the curved track, at least two feet of space is required between the jamb and the side wall.

If there is sufficient wall space the doors for this

opening may be hung as shown in Fig. 10, using one track with a compound curve. The doors will then when open stand side by side along the front wall and when closed, will hang in a continuous line across the opening. The double tracks may be attached to the head jamb with double brackets as shown in Fig. 10 at F, or separate ceiling attachment brackets may be used for each track. The hangers will have to be located somewhat farther from the edge of the door than is

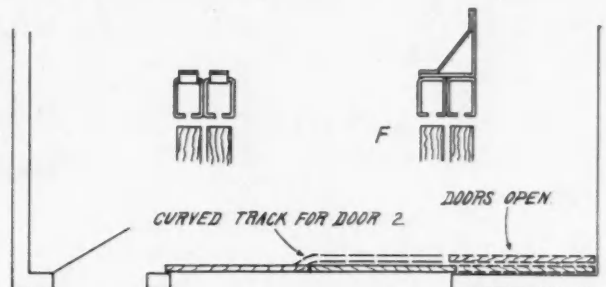


Fig. 10. Two Narrow Doors to Slide one Back of the Other

customary for ordinary sliding doors; and hangers with knuckle jointed frame are necessary for the door which operates in the curved track. Much time and worry can be saved if the builder will be careful to locate the track and hangers exactly according to the specifications or sketch which reputable manufacturers are willing to furnish. Make the meeting stiles of the doors astragals. This outfit operates very satisfactorily and is well liked because both doors can be hung close to the jamb at top and at both sides, but if it is desirable to use weather strips at the bottom, the doors should be hung with parallel tracks as shown in Fig. 11. In this case, the jamb G should be furred out to meet the door and the head jamb at H should also be

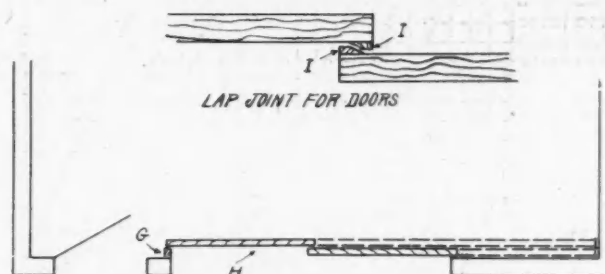


Fig. 11. Door Leaves Slide on Parallel Tracks

extended out to meet door. If the hanger aprons are set into the doors flush, less space is required between the doors for clearance in operating, but a better and cheaper method of closing the joint between the doors is shown in the sketch where I-I are strips 1/2 inch thick and 1 inch wide nailed to the doors. The doors can then have from 5/8 to 3/4 inches space between them, allowing sufficient clearance for hanger aprons and nuts and yet when closed the two strips lap from 1/4 to 3/8 inches making a tight joint.

Next month Mr. Phillips will discuss some other arrangements of sliding Garage Doors.



Handy Charts for Figuring Furnace Pipes

SIMPLE AND RELIABLE SCHEME FOR QUICKLY DETERMINING SIZE OF PIPE REQUIRED TO HEAT ANY ROOM WITH WARM AIR

By Cecil F. Herington

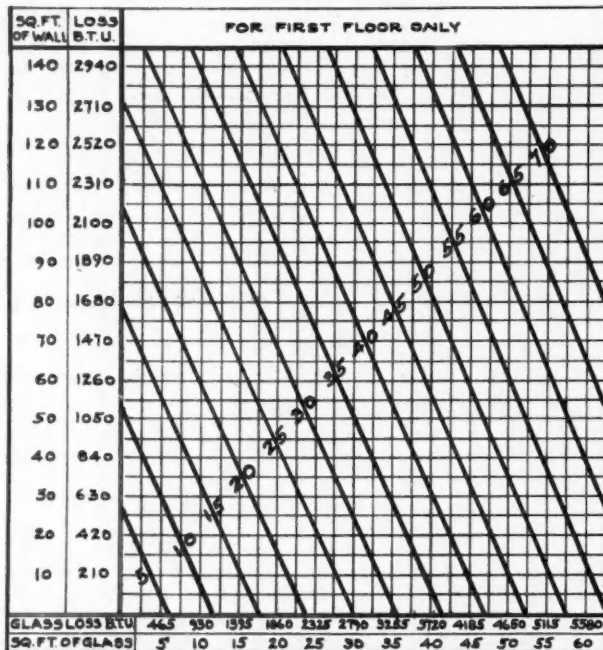
"I FULLY realized," said the Old Builder. "that the average person is likely to experience difficulty and make errors in trying to figure out the size of furnace pipes by the B.T.U. method, which was given in the April and May issues of the AMERICAN CARPENTER AND BUILDER, and for that reason I am giving a little chart which is accurate and has proved a great help to me for quick work.

"It would be more correct to say *two charts*, since the pipe sizes for the first and second floors are different for equal wall and glass surface, owing to the fact that the air rises more rapidly to the second floor. In the chart shown in Fig. 1 (which is for first-floor pipes) the numbers of square inches required are represented in heavy diagonal lines across the chart,

while the net wall area is given in the first column on the left-hand side. At the bottom of the chart, across the last line, is given the number of square feet of glass and door area. This chart is made for a room with southern exposure and of good construction. To obtain accurate results, it is necessary to make the corrections as stated at the bottom of the chart; that is to say, whatever number of square inches is shown as required by the chart, this amount must be increased by 10 per cent, if the building, instead of being of good construction, is only of a medium grade work, while if the work is poor, the increase should be 20 per cent instead of 10 per cent.

"Besides this addition, if the room faces east instead of south, another 10 per cent must be added, or if it

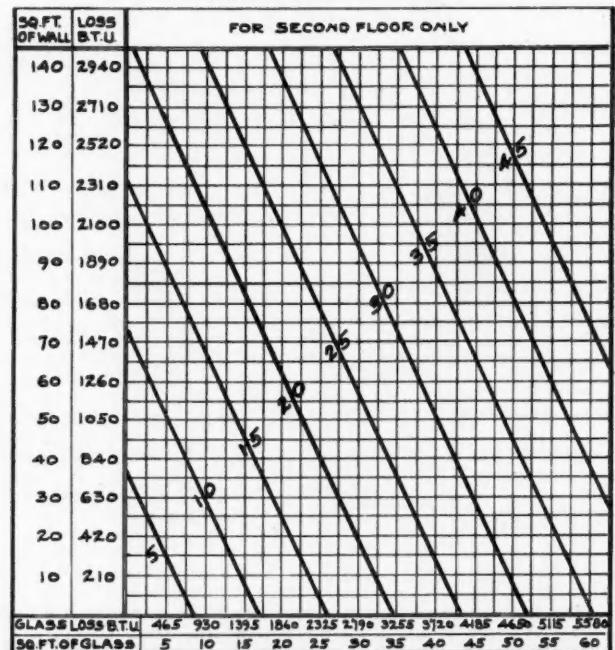
FURNACE PIPE AREAS IN SQUARE INCHES COMMON FRAME HOUSES



Note... The above is for good construction and S. Exposure. Add as follows:— medium construction 10%, poor 20%, East exposure 10%, West 20%, North 25%, Cold attic above 10%, Cold cellar beneath 10%

Fig. 1. First Floor Chart

FURNACE PIPE AREAS IN SQUARE INCHES COMMON FRAME HOUSES



Note... The above is for good construction and S. Exposure. Add as follows:— medium construction 10%, poor 20%, East exposure 10%, West 20%, North 25%, Cold attic above 10%, Cold cellar beneath

Fig. 2. Second Floor Chart

faces west, 20 per cent, and north, 25 per cent. A cold attic above means another increase of 10 per cent, as does likewise a cold cellar beneath.

"For example: taking the room considered in the May issue, which is a first-floor parlor with two outside walls, one 14 feet long facing north, and one 12 feet long facing east, with two windows on the north side and one window on the east side. We found that this room had 110 square feet of wall with north exposure and 30 square feet of glass. Without going into the computation we can run up to the left-hand column of the chart shown in Fig. 1, under the heading 'Sq. Ft. of Wall,' until we come to the number 110, and we can run across the bottom line, which reads in 'Sq. Ft. of Glass,' until we come to 30. Following up the 30-line until opposite the 110, we find that we are located between the diagonal lines marked '45' and '50' at about $\frac{2}{5}$ the distance from 45 to 50, so that the number of square inches required is 47.

"This, however, is for southern exposure and must be increased 25 per cent, which means 12 square inches more, to obtain the amount for northern exposure. Then, taking the east wall, which we figured out at 105 square feet of wall and 15 square feet of glass, following across the bottom line of the chart shown in Fig. 2 to the 15-mark and up the 15-line to a point opposite 105 in the left-hand column (half way between 100 and 110) we find that we are between the lines marked '30' and '35,' at a distance of about $\frac{3}{5}$ from 30 to 35 or about 33 square inches. This must have 10 per cent added to get east exposure, Adding these two together we find that the 36 plus 59 equals a total of 95 square inches.

"As the building we were considering was of medium construction, we add 10 per cent, and as it had a cold cellar we allow another 10 per cent, or a total of 20 per cent more, which means an additional 19 square inches, bringing our total up to 114 square inches required, which is about 8 square feet, whereas, by actual computation we obtained 83 square feet. This slight variation is due to not reading the table with mathematical precision; but is quite near enough for all practical purposes.

"To use the second-floor chart, which is shown in Fig. 2, we can take the same upstairs bedroom which we were considering in the May issue, this room having a 10-foot length wall with two 5 by 3-foot windows and facing south. Because of there being but one exposed wall in this room, it is much easier to obtain from the chart than the first one. With the net wall area of 70 square feet, which we locate in the left-hand column of the second-floor chart, and then running across the bottom line until we strike 30 feet of glass and following up this 30-line until we reach a point opposite the 70 just located, we find we are about $\frac{2}{5}$ the distance between the 25 and 30 heavy lines or 27 square inches required. Adding the 10 per cent for medium construction and another 10 per

cent for a cold attic, we find that our total pipe area must be 32 square inches, which is .22 of a square foot, or exactly the area obtained in our previous mathematical calculation.

"These charts are so simple that even one who does not understand heating will be able to obtain results of a very high character by following the directions and of absolute accuracy. It will be noted that the loss in B.T.U. is also given opposite the number of square feet of wall and above the number of square feet of glass, that is to say 144 square feet of wall with southern exposure, and under other normal conditions will radiate about 2940 B.T.U., while 60 square feet of glass under the same conditions will radiate about 5580 B.T.U. It will also be noted that, as the hot air brings in approximately 1 B.T.U. per cubic foot which is available for heating, this loss in B.T.U. also equals the number of cubic feet of air which must be supplied per hour from the furnace to offset this loss.

"For instance, on our second-story bedroom, the 70 square feet of wall are shown in the second column to radiate 1470 B.T.U. and will therefore require 1470 cubic feet of hot furnace air per hour to counteract this loss, while the 30 square feet of glass will radiate 2790 B.T.U., requiring 2790 cubic feet of hot furnace air to counteract this second loss. The sum of the two (1470 plus 2790) equals 4260 cubic feet per hour, or 71 cubic feet per minute, which, with the 20 per cent correction for the cold attic above and medium construction, gives 85 cubic feet per minute required—exactly as previously found.

"Later," concluded the Old Builder, "I will give you similar charts on steam heating radiator surface and hot water surface so that anyone who can figure out his wall and window areas will know exactly what size radiator he requires."



Forest Notes

The forests of Florida contain 175 different kinds of wood.

There are seven spruces in the United States. Four are confined to the west; two to the east; while one, white spruce, has a continent-wide distribution.

Sawmill waste of Douglas fir, of which an enormous quantity is found in the western forests, is being used to make paper pulp by a mill at Marshfield, Oregon.

In proportion to its weight, California redwood is the strongest conifer so far tested at the U. S. forest products laboratory. This strength is due to its long wood fibers.

The Philippine bureau of forestry reports that American and European lumbermen are trying to secure large and regular shipments of Philippine woods mainly for cabinet making.

Experiments with various chemical extinguishers for fighting national forest fires have not been very successful. The unlimited supply of oxygen in the open, forest officers say, tends to neutralize the effect of the chemicals.

Ventilation—Warming the Air

SIMPLE AND EFFICIENT METHOD IN USE IN SCHOOLS AND OTHER PUBLIC BUILDINGS

By Harold L. Alt, M. E.

AFTER the air of ventilation has been properly purified, moistened and raised to the proper temperature there still remains the problem of carrying this air to the various points of outlet and also the problem of regulating the temperature so as to make the air delivered of the temperature desired regardless of outside weather conditions.

This problem has been solved by several methods,

while the cheapest of the several methods giving positive ventilation, is open to the objection that the rooms on the north side are quite likely not to require air of as low a temperature as those on the south side, while those on the windy side must undoubtedly have warmer air fed into them than those on the sheltered side. Consequently with the single duct or trunk line system the air is almost sure to be of the wrong temperature for 50 per cent of the building. Even with this disadvantage this system of ventilation is a great step in advance of the "indirect" or "direct-indirect" non-positive methods previously mentioned.

For those of our readers who may not be familiar with the method of heating large quantities of air for use in this manner, it may be interesting to state that this heating is accomplished by either steam or hot water in combination with extraordinary large radiators

which are called heating stacks or coils. These heaters may be constructed of iron pipes in a manner similar to the ordinary pipe coil as shown in Fig. 2, or they may consist of special cast iron sections made for this sort of work and having on the surface projecting lugs against which the air strikes, thus secur-

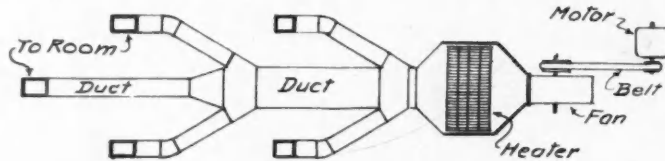


FIG. 1. SIMPLEST FORM OF HOT AIR VENTILATION

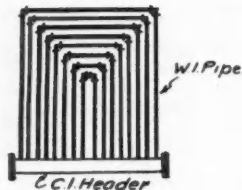


FIG. 2. PIPE COIL HEATER

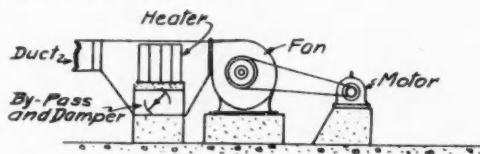


FIG. 3. ELEVATION OF HEATER & BY-PASS

Main Parts of Ventilating and Warming System

the simplest of which is to heat all the air to the same temperature and to distribute it to the various rooms through a trunk line system of ducts. This means that one large size duct is used from which branches are taken, the main duct gradually reducing in size down to the last outlet as shown in Fig. 1. This system,



The New Wentworth School at West Hammond, Ill., Classed as a Model High School Building

ing the maximum heating effect.

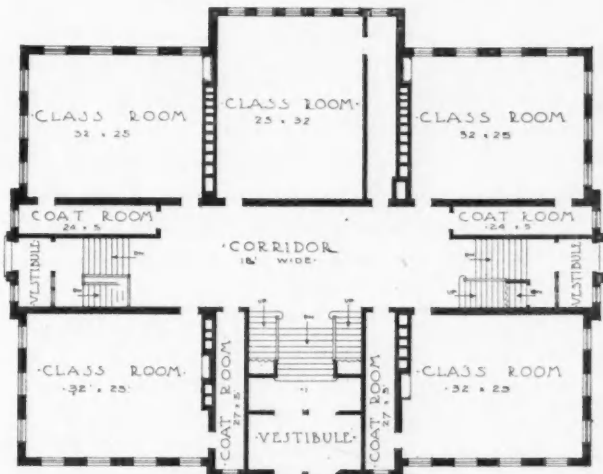
Regulation of temperature is generally maintained by turning on one or more rows of these heaters as required in order to produce air of the desired temperature for delivery into the room. Graduations between these various fixed points can also be accomplished by placing a bypass below the heater with a damper so arranged as to bypass a certain amount of the air around the coils and mixing it with the hot air on the other side. This is shown in Fig. 3.

For example, if four sections of the heater raise the temperature to 86 degrees and three sections to 68 degrees and it is desired to have the air at 75 degrees, it could be accomplished by opening up the four sections and also partially opening the bypass damper, thus allowing the 86 degree air to be diluted on the other side of the heater by mixing with the cooler air until the desired temperature is reached.

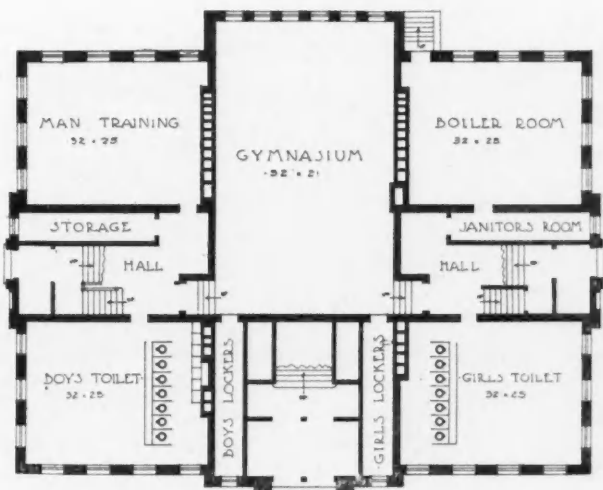


Model High School at West Hammond, Ill.

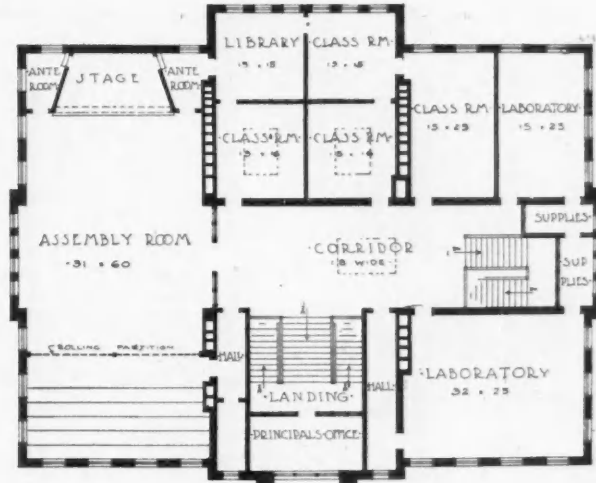
WE present herewith photograph and floor plan diagrams of the new high school building recently completed for school district 155, Cook County,



First Floor Plan



Basement Floor Plan



Second Floor Plan

Ill., located at West Hammond. The school authorities unite in pronouncing this in every way a model building for high school purposes. It was designed by the well known school house architect, G. W. Ashby, of Chicago.

The main entrance in front leads into a wide vestibule and into a hall from which five large, well lighted class rooms open. Each of these class rooms on the main floor is provided with a cloak room of ample size, well ventilated and lighted.

On the second floor there is a large assembly room extending the full width of the building from front to back. This assembly room is provided with a platform or stage and the necessary anterooms, so that student theatricals and other entertainments can be satisfactorily presented. A set of roll partitions about two-thirds of the way back in the assembly room divides this room into two nice large class rooms when occasion requires. Each room has its own separate entrance from the main hall.

Besides the assembly hall, the second floor gives space for the physical and mechanical laboratories, supply rooms, library, principal's office, and four class rooms.

In the basement are gymnasium, manual training room, toilets and locker rooms; also the heating plant. The basement is entered by way of two side doors, one at either end of the building.



“THE most blessed of human endeavors is service—the service that educates and builds, and makes this old world a better and a happier place in which to live and work. Service is the spirit of the hour. It blesses him that gives and him that receives; it is the brotherhood of man in business; it is a helping hand extended unselfishly; it is bread cast upon the waters; it is a way of helping ourselves by helping each other. The best that can be said of any man is this: He served others that they might better serve themselves.”—I. H. C. Service Bureau.



Noon-Hour Talks by the Boss Carpenter

Talk No. 18—Column Footings

THE BOSS TELLS HOW TO FIGURE CONCRETE FOOTINGS FOR COLUMNS AND SHOWS DIFFERENT TYPES USED IN CONSTRUCTION

“WE have seen,” said the Boss, “that it may be necessary to widen to a considerable amount the footings under foundation walls where these walls rest upon soft soils, or where they carry heavy loads. As already explained, the effects of this widening may be to demand either the installation of a heavy stepped footing, or the use of steel in a lighter slab of concrete to provide the necessary tensile strength to resist splitting by bending. The stress conditions existing in a thin footing were illustrated in Fig. 38, Talk No. 17.

“Concrete footings for columns where quite a considerable surface area is needed to provide the necessary resistance to the supported load, must also, as in the case of wall footings, be either stepped or reinforced. A comparatively simple method was shown in Talk No. 17 for use in strengthening the projecting slab in a wall footing; but for column footings, the problem is not quite so simple. A comparison of conditions in a wall footing and in a column will show that, while the wall footing may be considered to be in a condition similar to that of a number of individual cantilevers extending outward from each side of a long wall; each one loaded uniformly with an amount equal to the upward earth pressure, the column footing is approximately in the condition of a flat plate supported and fastened at the middle to a vertical support, and bearing a uniformly distributed load on the surface of the plate, equal in intensity to the upward earth pressure.

“It can be readily seen that a plate of this type would need reinforcement crossing and extending in two and possibly four directions across the column. Figs. 43 to 48 show methods of arranging these reinforcing bars as followed in different types of design.

“In the case of the wall footing, the bending moment at the wall line was assumed to be that of a uniformly loaded cantilever, as explained; but in the case of a flat plate with a central support, the maximum bending moment is not so simply or accurately obtained.

“I have just read a method of obtaining the greatest bending moment in a footing, given in Taylor and Thompson’s ‘Concrete, Plain and Reinforced,’ which seems to be simple and is stated to be of good service in both round and square footings. Where a square footing is used, the value of r used in Formula 13, is found by taking the distance from the center of the footing out to the middle of the space between a circle drawn entirely around the outside of the footing, and another drawn entirely within the footing, and just tangent to the sides of same. Where a square column is used on top of a square footing, the average radius of the column, found in the same manner, is to be used in the first line of values in the table of constants given.

“Formula given is as follows:

$$M = w r^2 (2/10 + C_1 + C_2) \dots (\text{Formula No. 13})$$

in which

M = Maximum bending moment at edge of column, in foot-pounds per foot of width, or inch-pounds per inch of width.

w = Uniform earth pressure under footing, in pounds per square foot.

r = Average radius of circumscribed and inscribed circles of column, in feet, and the stress C_1 and C_2 are taken from the table given below.

Value of Constants for Use in Formula No. 13

Ratio of Slab Average Radius to Column Average Radius.	C_1	C_2
2	0.72	0.19
2.5	1.44	0.13
3	2.47	0.70
3.5	3.82	1.53
4	5.50	2.65
4.5	7.52	4.05
5	9.95	5.84

“The depth of the footing at the line where the column joins the footing may be determined by formulas 12 to 12^d, as given in Talk No. 17. In applying

formula, 12^3 , care should be taken to notice that M is in inch-pounds per inch of width, and use b as equal to unity. The remainder of the design is similar to the problem of a wall footing already shown, and must be investigated in a similar manner.

“Other engineers and builders when calculating column footings, divide the footing up into strips one foot wide extending outward from the line of the base of the column or block upon which the column rests, and treat these strips as cantilevers uniformly loaded with an amount equal to the upward pressure of the soil. Often the thickness of the footing is assumed, and then the amount of steel cross-section needed per strip one foot wide is determined. The compressive stress resulting in the concrete must then be figured. After the size and number of rods per foot of width has been determined, each foot of width of the footing

of a block or plinth under the column. Mr. Godfrey says that in a square slab supporting a column, ‘The slab should be surmounted by a plinth or block of concrete upon which the column rests. The depth of the slab should be governed by the upward pressure of the soil on all of the area of the slab outside of this plinth, allowing a unit in shear (on the section that would be sheared if this plinth should sink into the soil) of 40 pounds per square inch. Rods should all pass under this plinth; that is, there should be four sets—two parallel to the sides of the slab, and two diagonally. Rods parallel to the sides of the slab, lying toward the edges and not under the plinth, would be of little or no use. They will only serve to intensify the stress of the rods at right angles to themselves which do lie under the upper block or plinth. The use of rods at right angles to each other, spaced uni-

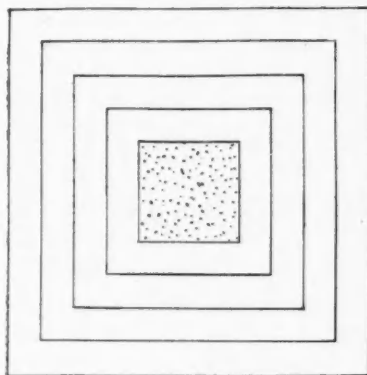


Fig. 43. Plain Concrete Stepped Column Footing

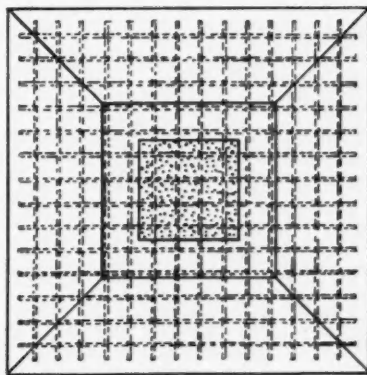


Fig. 44. Reinforced Concrete Column Footing. Bars Spaced Equally

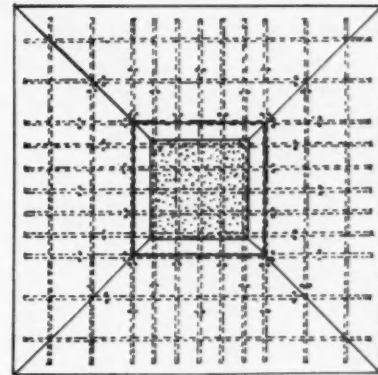
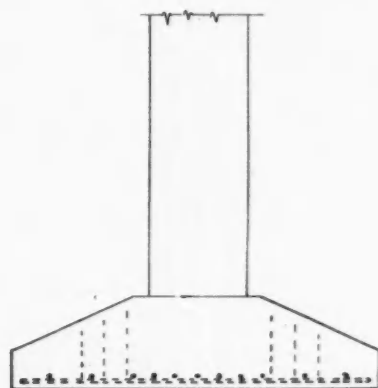
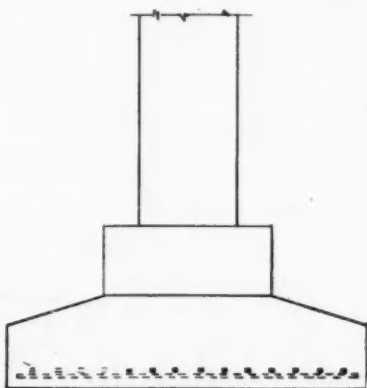
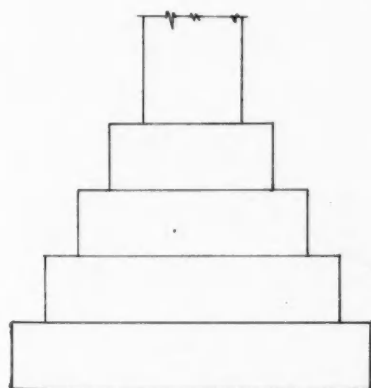


Fig. 45. Reinforced Concrete Column Footing. Bars Double-Spaced at Sides of Column



is provided with these bars, and the result is similar to that shown in Fig. 44.

“Others advocate the use of two main sets of crossed rods extending from side to side of the footing directly under the column; and two diagonal sets of rods crossing under the column, similar to the scheme shown in Fig. 46. These diagonal rods are used to reinforce the corners, and should not leave any considerable space of footing uncovered.

“Edward Godfrey, in his work on ‘Concrete,’ makes a statement in regard to the design of column footings, evidently without reinforcement for diagonal tension, which may prove of interest since it refers to the use

formly both ways, is a common but irrational method of reinforcement.’

“Heidenreich, in his ‘Engineer’s Pocketbook,’ gives a method of determining the amount and arrangement of the reinforcing bars which seems to be simple and at least logical. He suggests that after the area of the column base is deducted from the area of the footing, the remainder of the footing is to be considered as eight cantilevers—four running parallel to the sides, and four extending along the diagonals of the footing. One-eighth of the total upward pressure on the area around the column base is supported by each cantilever, and acts at the center of gravity of the cantilever as

in the case of a uniformly distributed load. This allows the value of M for each cantilever to be easily found by the principles shown in Talk No. 17; and the depth and amount of reinforcement may be found as in the case of a wall footing. Care should be taken to keep all units consistent in figuring the bending moment, in either foot-pounds or inch-pounds. It is seen that this method provides for four sets of rods crossing under the column, and seems to be a rational arrangement of reinforcement, since it transmits the pressure directly to the base of the column.

"In these footings it must be remembered that, as in the case of wall footings, the depth d is only to the center of the rods. It is common to add 2 or 3 inches to this dimension to get the total depth of the footing."

The Boss then completed the set of drawings showing different types of column footings, and called attention to the fact that the absence of stirrups or bent-up bars in most of these illustrations indicated either low shearing stresses when the footing is tested for shear or else a lack of consideration for shear or diagonal tension in the concrete. He also mentioned that it is well to apply the formula

$$v = \frac{V}{bjd}$$

which was given in Talk No. 17, when shear is to be investigated; and, if the value of v at the edges

of the column or its plate or block is more than 40 pounds per square inch, provision should be made against possible failure by diagonal tension, as indicated in the previous paper.

"It may be well to call attention at this point," said the Boss, "to the liability of excessive shearing stresses in the concrete, and large bond stresses between the steel and concrete, occurring in the design of footings. In choosing the sizes of plain, straight rods, the rule of imbedding the rods for a length on each side of the column equal to at least 50 diameters of rod should be kept in mind. If a twisted or deformed bar is used, this rule may not be necessary, but care should be taken to determine its bond value if a different ratio of length to diameter is used. If failure by slipping of the rods is feared, the ends of the rods may be bent and turned backward through an angle of 180 degrees, forming a smooth bend. This involves expense and care in placing.

"Fig. 43 shows the ordinary plain concrete stepped column footing, which is commonly designed by the rule of allowing the off-set to approximate one-half the depth of the stepped layer. This may necessitate the use of a considerable amount of concrete, and considerable excavation to get the needed width at the bottom.

"Fig. 44 shows a type of column footing reinforced with steel rods equally spaced and crossing in two

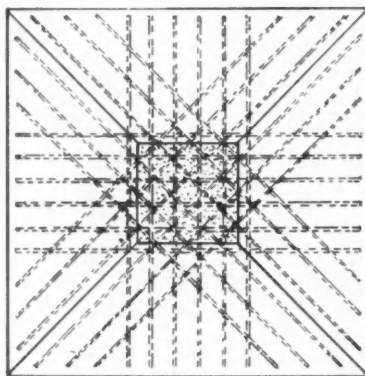


Fig. 46. Reinforced Concrete Column Footing. Bars Extending in Four Directions.

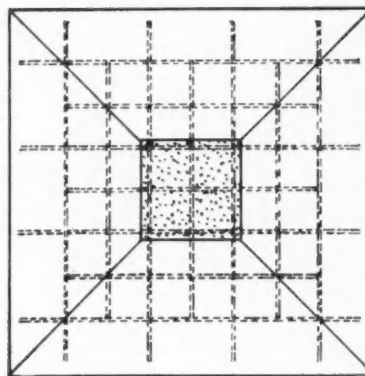


Fig. 47. Reinforced Concrete Column Footing. Ransome Type.

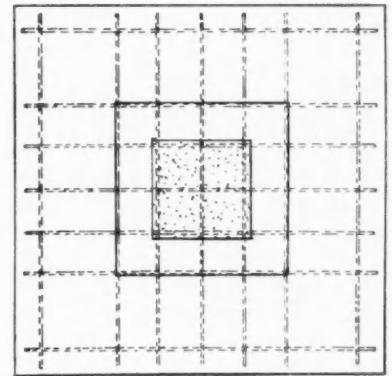
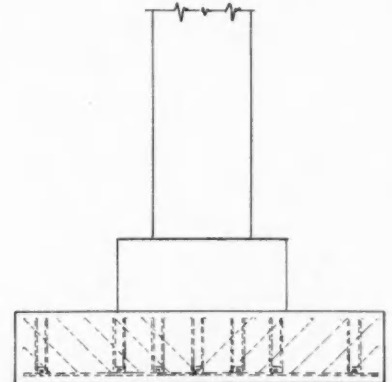
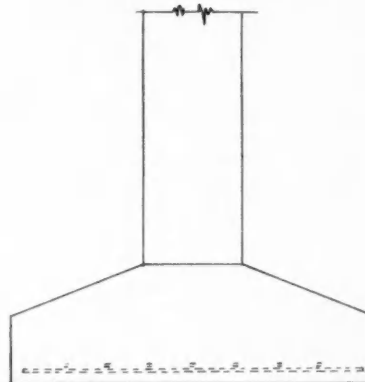
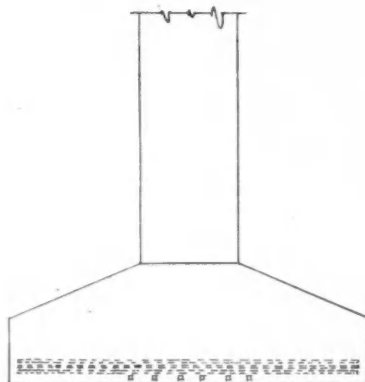


Fig. 48. Reinforced Concrete Column Footing. Showing Use of Kahn Trussed Bars.



directions. It is possible that a part of the reinforcing steel near the outer edges in this type of footing might be omitted without appreciable effect. This has been done in Fig. 45 with apparent success, although it is probable that the spacing under the column in Fig. 45 is closer than in Fig. 44. A rule often used in the placing of reinforcing, as shown in Fig. 45, is to determine the spacing of the steel rods directly under the column such as to resist the bending moment at the column edge, and then space the rods in the parts of the footing outside the column lines at double the distance of those inside.

"In Fig. 46 a form of footing is shown in which rods extending diagonally are used in connection with the crossed rods. This form of reinforcing seems to find favor from the standpoint of supplying strength to the corners of the slab, where in other types they may be relatively weak or contain unnecessary rods.

"Fig. 47 shows a type of Ransome column footing which is seen to be of the same class as Figs. 44 and 45. Other instances of design might be shown; but the figures given illustrate, as previously stated, common types in use where the shearing stress in the concrete may not be sufficient to need the use of stirrups in order to prevent failure by diagonal tension in the concrete. The bond stress between the steel and concrete is also supposed to be within allowable limits. This discussion will be found, if forgotten, in Talk No. 17.

"Fig. 48 shows a form of footing used by the Trussed Concrete Steel Company. This type of footing, as will be seen, is provided with reinforcement against failure by diagonal tension, the reinforcing steel consisting of Kahn trussed bars extending in two directions. Two points to be noticed here are the use of the block under the column, and the grouping of the bars directly under the column. The block in this case is made 12 inches wider than the column for columns less than 24 inches in least diameter, and 16 inches wider for columns above 24 inches. The depth of the block is the same as for a plain concrete footing—that is, twice the projection from the side of the column.

"Where thin slabs which are to be reinforced against failure by diagonal tension are to be used, a method of determining the unit shearing intensity is needed. This may be done by multiplying the area outside of the column area, or area of a plinth or block if one is used, by the unit-pressure on the soil, and dividing this quantity by seven-eighths of the depth from the top of the footing to the center of the rods multiplied by the distance around the outside of the column or plinth. The depth referred to should be taken at the edge of the column or plinth. If this unit-value is greater than 40 pounds per square inch, assume that one-third of the unit-shear is taken by the concrete, and the other two-thirds by stirrups or bent-up bars, which must be provided and spaced in a manner indi-

cated by formulas (12^f), (12^g), and (12^h) in Talk No. 17.

"Taylor and Thompson give a method of determining the number of stirrups for use in a footing of this type, which seems to be satisfactory and economical. They omit the area outside of a line around the entire footing which marks the limit of 40 pounds per square inch shear in the concrete. Then the new footing area outside the column base or plinth is multiplied by one-half of the unit-shear which is supposed to be taken by the stirrups to obtain the total amount of stress to be resisted by the stirrups. The diameter of the stirrup needed is found as in formulas 12^f and 12^g in Talk No. 17; and the sectional area of one stirrup is multiplied by the working unit tensile strength of the steel, to obtain its holding value. Dividing the total amount of the shear or stress just found, by the value of one stirrup, will give the number of stirrups to be spaced around this entire area within the limits of the 40 pounds per square inch line and the base of the column or plinth.

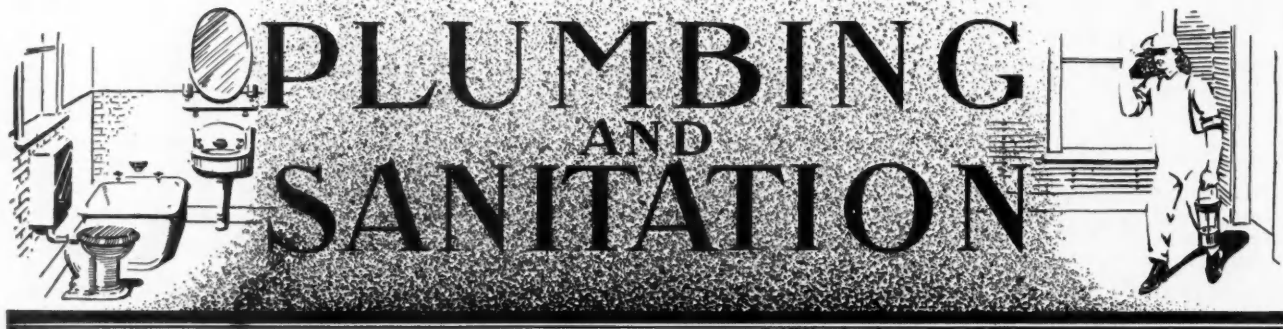
"Bond stresses should be investigated by the use of formula 12^g, using the amount of shear on each one of the elementary divisions considered in determining the amount of steel to be used in that division.

"In closing, it may be well to call attention to the need of depth in reinforced footings where common bars are used, in order to keep the shearing and bond stresses as low as possible. This will effect the value of the ratio between the area of cross-section of steel and concrete, if a size and spacing of bar has been determined upon and then the depth changed to lessen the shear or bond stresses. If the formulas for design given in Talk No. 17 are examined, it will be seen that there is a dependence one upon the other which must be considered in altering a value obtained by one of these formulas. It should also be noted, that, as the value of p changes in altering a design, the value of f_s and f_c may no longer bear the same ratio as assumed at the beginning of the work."



Tool Chest Romance

It is plane that I love you, he began.
 Is that on the level? she asked.
 Haven't I always been on the square with you? he urged.
 But you have so many vices, she remonstrated.
 Not a bit of it, he asserted.
 What made you brace up? she queried coquettishly.
 The fact that I saw you, he replied with a bow.
 I ought to hammer you for that, she answered saucily.
 Come and sit by me on the bench, he urged.
 Suppose the others should file in? she murmured.
 You couldn't let your arms compass me, she continued.
 I know a preacher who's a good joiner, he suggested.
 Promise not to chisel him out of his fee, she requested.
 That wouldn't auger well for us, he answered.
 Shall I wear the blue print? she asked, as they started for the license.—*Exchange.*



How to Build a Septic Tank

PRINCIPLES OF ITS ACTION—SIZES AND DIMENSIONS ADAPTED TO RESIDENCE SEWAGE DISPOSAL—
DETAILED METHOD OF CONSTRUCTION

By Paul Chesterton

WHILE the septic tank is rapidly driving out of existence the old types of cesspool and other unsanitary and disease-breeding forms of sewage-collecting vats and pits, but very few people understand the principle upon which the action of the septic tank depends. A great many have the idea that in order to start the action in a septic tank, some kind of material or some particular brand of germs or bacteria must be placed in the first batch of sewage allowed to enter the tank. This, however, is not the case, as will be shown.

What a Septic Tank Is

A septic tank consists of a water-tight underground enclosure used for the storage and purification of sewage. The enclosure is usually constructed of concrete or brick, but may be made of large glazed drain-tile bedded in concrete, or even from empty barrels. Often, in small work, an enclosure consisting of a single chamber is used, but tanks for the ordinary residence consist of two chambers. Larger tanks have even three or more chambers. Figs. 1 to 3 show different types of two-chamber tanks.

In the two-chamber tank ordinarily used, the sewage enters the first chamber through a curved pipe which extends below the normal water level of this chamber. This first compartment is provided with a tight-fitting cover that keeps out the light, air, and falling materials which would otherwise disturb the scum that forms on the surface of the liquid in this chamber.

The first compartment is closed off from the second by a wall, as shown in Fig. 2, or by a water seal, as shown in Fig. 1. Connection between the two chambers exists through the bent-pipe of Fig. 2, or through the narrow passage shown in Fig. 1. This second chamber is well ventilated. It also contains a connection which allows the discharge from the

tank to pass out into a line of drain-tile connecting with a running stream or with the beds in which the last part of the purification process takes place.

The connection between the second compartment and the drain usually consists of an automatic siphon, as shown in Figs. 1 to 3. This siphon works intermittently, depending on the depth of the liquid in the second compartment. The pressure from the liquid on top of the bell of the siphon automatically regulates the periodic discharge of liquid into the drains leading to the beds for final disposal.

Working Principle of the Septic Tank. The action of the septic tank is based upon the fact that in nature organic

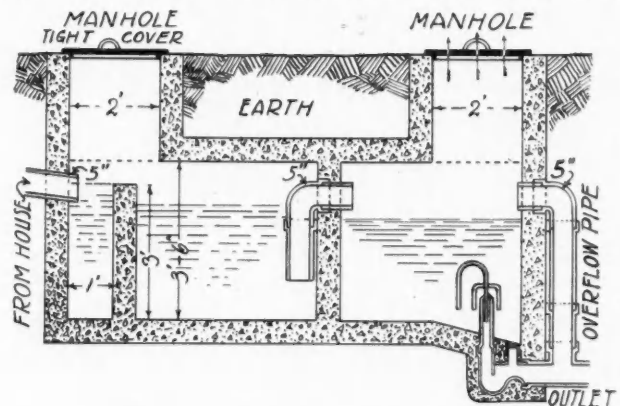


Fig. 2. Septic Tank with Separate Settling Chamber.

matter is broken down into inorganic compounds by certain types of bacteria. These bacteria are very small vegetable organisms which are widely distributed. They are found in air, water, and soil, as well as in the bodies of living animals and plants and in products derived from them. These bacteria are so small that a single drop of fluid may contain thousands of them.

In starting a septic tank, the first sewage to come into the tank is seeded with bacteria from the air, water, or soil. This army of little workers is divided into different classes, each class having its own special function. One class of bacteria is known as *aerobic*, and lives only in the presence of free air or oxygen. Another class is called *anaerobic*,

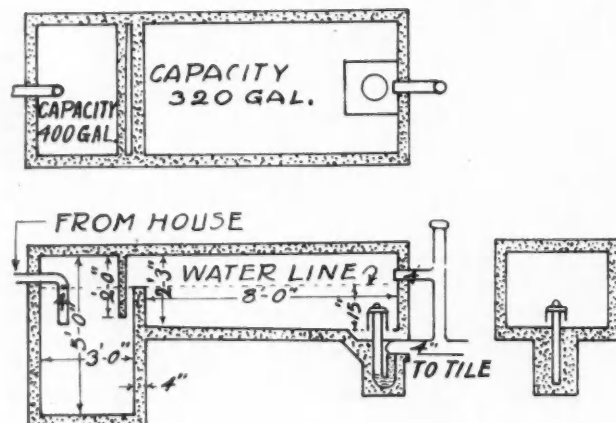


Fig. 1. Concrete Septic Tank for Use in Level Ground.

since it thrives only in the absence of air or oxygen. A third class is known as *facultative*, since bacteria of this class can live either in the presence of air or without air, as the case may be. Each one of these classes has its own work to perform in the purification of sewage. The aerobic bacteria prepare the way for the anaerobic army by using the supply of oxygen which exists in the sewage as it comes into

sewage from the first tank to the second, is so arranged that the quantity of sewage passing out of the first tank is taken from that part of the tank midway between the scum at the top and the sediment at the bottom.

The partially purified sewage in the second chamber is removed at intervals by means of a hand-operated plug or an automatic siphon connected to the drain-pipe used to conduct the liquid away from the tank. The final step in the process of purification is completed by allowing the liquid, which is without oxygen, to flow out into a porous, air-filled bed of material to become thoroughly charged again with oxygen and acted upon once more by the aerobic bacteria in this bed. The result of this last action is the changing of the effluent into clear, practically pure and harmless liquid.

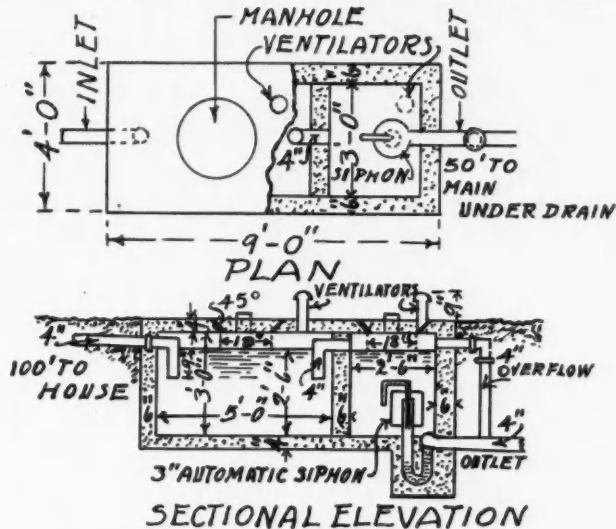


Fig. 3. Septic Tank for Use in Sloping Ground

Sizes and Dimensions of Septic Tanks

The required size or capacity of a septic tank will depend upon the quantity of sewage which it is to receive daily. Large tanks for service in a community should be treated as special problems, and their design should be handled by an engineer who makes a specialty of this class of work.

Smaller tanks for private use may be built along the lines shown in Figs. 1 to 4. At least two compartments are necessary for satisfactory service—one for receiving the sewage, and liquefying it as above explained, and the other to serve as a storage or discharge chamber in which the automatic siphon is placed.

The capacity of the first chamber should be sufficient to hold from 24 to 36 hours' flow of sewage. The second chamber should be of a size such that the automatic siphon may be adjusted so as to cause a discharge about every 12 hours. In arranging the size of this second chamber, accurate data should be obtained from manufacturers of siphons, regarding the discharge depths and capacities of siphons, so that the discharge chamber may be built of a proper size and depth to discharge the required quantity of effluent at stated intervals.

The tank shown in Fig. 1 is that recommended by Messrs. Ocock and Wright of the University of Wisconsin, and is suitable for a family of about six persons. This tank is designed on the basis that each person will use on an average about 70 gallons of water each 24 hours. The first chamber holds about 400 gallons of sewage below the water line, and is 3 feet long, 4½ feet wide, and 5 feet high, inside dimensions. The second compartment is of the same width as the first, but is 8 feet long and 2 feet 3 inches high, and holds about 320 gallons to water line.

the tank. It is bacteria of this class also which finish the work of purification when the sewage has passed through the tank and reached the beds where the effluent or discharge is finally deposited. The anaerobic bacteria, though comparatively few in number, are very active, and bring about the reduction or breaking-up of solid matter which settles to the bottom of the tank.

From the above, it may be seen that the septic tank is a laboratory in which a great number of busy little chemists are changing foul materials into comparatively clean and unobjectionable ones.

If we trace a quantity of sewage from the time it leaves a residence until it reaches its final destination, we shall find that it arrives in the tank in nearly the same condition as when it started from the house, except that possibly a small part of the oxygen has been removed by the aerobic bacteria in the drain-pipe. When the sewage passes into the tank, the heavier parts sink to the bottom; while the lighter parts rise to the top of the first chamber of the tank, there forming a thick scum. This scum is the workshop of the aerobic bacteria, and also serves as a cover, shutting off light and air and thus protecting the active anaerobic bacteria who are at work on the solid material in the interior and at the bottom of the tank.

The aerobic bacteria at once set to work on the scum and those parts of the sewage which are exposed to the air, or on new sewage containing oxygen, and, by a putrefactive and fermentative process, change this part of the sewage to a liquid which contains no oxygen. After the incoming sewage is deprived of its oxygen, the anaerobic bacteria begin work on the solid matter in the interior and bottom of the tank, and change it into material which is again to be acted on by the aerobic bacteria at the surface or at a later stage.

When a new charge of sewage enters the tank, a part of that which has been acted on by the bacteria escapes to another chamber of the tank. The pipe or passage which takes this treated

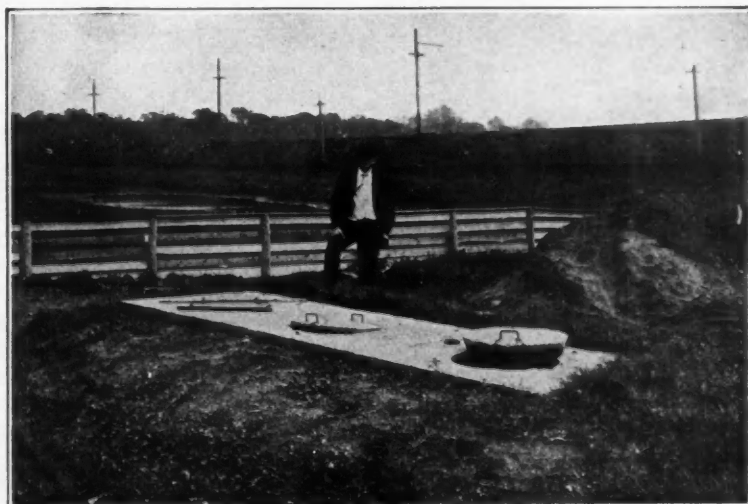


Fig. 3A. Concrete Septic Tank Adaptable to Ordinary Town Residence or Country Home.

The sewer pipe enters the first compartment so that it is well above the natural water line of the tank. In Fig. 1 the center of the inlet pipe is about 8 inches down from the bottom of the cover. The inlet and outlet pipes are both 4 inches in diameter; also the vent and overflow pipe shown at the extreme right of the second chamber and connecting with the chamber and the drain-pipe.

The walls and cover of the tank are composed of Portland cement concrete mixed in the proportion of 1 part Portland cement, 2 parts clean, well-graded sand, and 4 parts crushed stone or screened gravel. The thickness of all concrete is 4 inches; and the top is well reinforced by using $\frac{1}{4}$ -inch

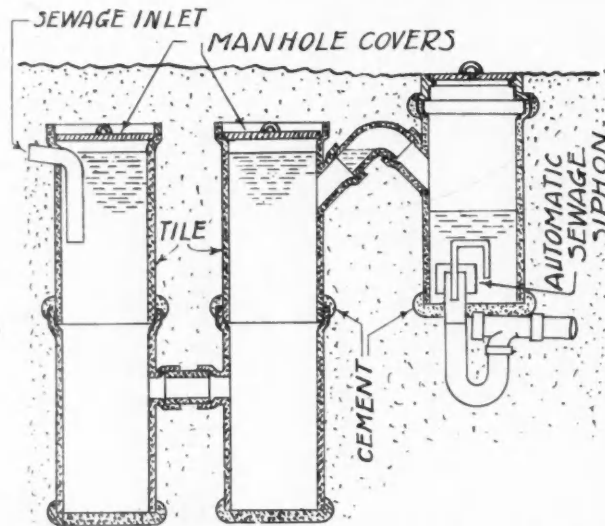


Fig. 4. A Sewer-Tile Septic Tank for Use with Small Residence.

steel rods laid crosswise of the tank about 1 inch up from bottom of slab, and spaced 4 inches apart:

Removable slabs are shown as a part of the top, one or two located over each compartment. These slabs are reinforced similar to the other parts of the cover; and are also provided with iron or steel handles cast into the concrete at each end of the slab, so that they may be lifted off for cleaning out the compartments of the tank. The automatic siphon is shown located near the exit from the second chamber, and connected to the drain-tile at the bottom of this chamber.

The tanks shown in Fig. 1 will require about $5\frac{1}{2}$ barrels of Portland cement, 2 yards of sand, and 3 cubic yards of crushed stone or screened gravel. About 200 feet of $\frac{1}{4}$ -inch rod will be needed in the top, especially where the ends of the rods are bent into loops to aid in their holding power.

The type of tank shown in Fig. 1 is no more efficient than a tank having a flat bottom with all parts at the same level, as shown in Figs. 2 and 3; but the tank of Fig. 1 is more serviceable in ground that has but little fall, since it permits laying the drainage tile which receives the discharge nearer the surface of the ground than is possible in the tanks of Figs. 2 and 3.

In locating a septic tank, two conditions are to be noted: First, the distance which the tank is to be placed from the house; the second, the depth of the tank in the ground. It is well to have the tank between 100 and 200 feet from a residence if possible, on account of the discharge beds which are used in connection with the tank. This, however, is not always a necessity; and in many cases the tank may be placed close to the cellar walls of the residence, and the discharge carried some distance away to the beds. A slight odor more or less offensive may be noticed for the first four weeks or so, in the case of a new tank just started; but this will soon disappear.

The depth of the tank in the ground will depend on the natural slope of the land and the size of the lot in which the tank is placed. The inlet or sewer pipe should always be placed deep enough so that it will not freeze in winter. This pipe should have a slope of about 1 foot in 100 feet, and should be laid with cemented joints. A vitrified clay pipe or a cement pipe of a very dense nature may be used in this location.

If the lot is small and there is danger of the sewer pipe from the house freezing, the tank may have to be built close up to the cellar wall of the house. It should be noted from the illustrations, that it is practically impossible to install basement laundry tubs in connection with a system of this kind in level ground, on account of the depth to which the tank would have to descend and the resulting unsatisfactory action of the beds which are to receive the discharge.

The septic tank shown in Fig. 2 is also proportioned for service in residence work where the family consists of six or seven persons. This tank is sunk in the ground, and is entered through the two circular manholes at the top. The part of the tank at the extreme left acts as a basin for catching the heavier parts of the sewage and keeping them out of the larger first compartment. The two compartments in this tank are on the same level, making it necessary that the land slope away from the discharge end of the tank, in order that the discharge pipes may not be too far underground, as will be explained later. Where the slope will not permit, the tank may be raised nearer the surface and built along the same general principles.

Fig. 3 shows a similar type of tank designed by W. C. Davidson of the Missouri Engineering Experiment Station and proportioned to suit the needs of the average small residence or farm house. The dimensions given in the illustration are sufficiently clear for all practical purposes.

In all concrete tanks of the types described above, it is well to reinforce the corners of the tank with $\frac{1}{2}$ -inch steel bars, bent with the ends at right angles, and spaced from 6 to 8 inches apart. This rule will apply at all places where two flat surfaces meet. Often No. 9 woven wire fencing is used in place of the bars.

After the forms have been removed from the inside of a concrete tank, the inside surface should be plastered with a good coat of Portland cement mortar about $\frac{1}{2}$ inch thick,

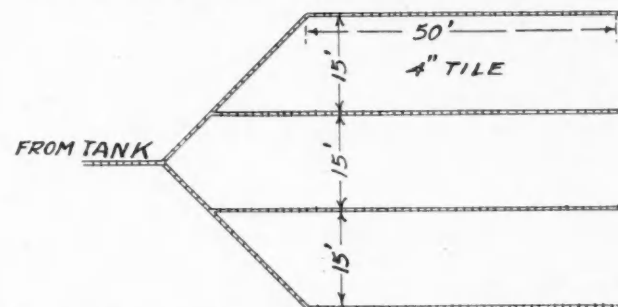


Fig. 5. Drainage Plan for Distribution of Discharge from Septic Tank.

consisting of 1 part Portland cement and 2 parts sand. After this coat has hardened, the entire interior surface of the tank should be painted with a coating of neat cement and water mixed to about the consistency of thick cream. A stiff whitewash brush may be used for this purpose. This plaster and wash treatment makes the interior of the tank water-tight.

A simple type of septic tank is shown in Fig. 4. This tank is made from ordinary glazed sewer pipe of 24 inches diameter or larger, and from standard fittings used in connection with this size of pipe. The tile are bedded and jointed in cement mortar, and may be fitted with cast-iron manhole rings

and covers; or cement mortar manhole rings and covering slabs may be used.

The action in this case is the same as in the tanks already described; but a tank of this sort should be used only for small families. The inlets and discharge pipes should be about 4 inches in diameter.

When a creek or running stream is near at hand, the discharge pipe is often led directly to this source of removal; but care should be taken that this water is not used for domestic purposes or in pastures at some location farther

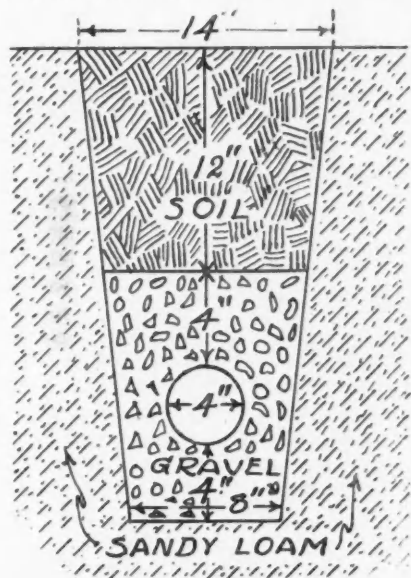


Fig. 6. Cross-Section of Drainage Ditch in Distribution System.

down stream. It must be remembered that the sewage has not received its final treatment by the aerobic bacteria at the time it is discharged by the siphon into the drain-pipe, and has not become thoroughly purified.

Ordinarily a tightly laid line of 4-inch diameter drain-tile takes the effluent in its partly purified condition, and distributes it into some form of drainage system similar to that shown in Fig. 5. This system consists of 4-inch tile spaced $\frac{1}{4}$ inch apart, and laid in branching lines not deeper than 14 to 16 inches from the surface of the soil to the top of the tile. This plan is for light, sandy, porous soils; but in the case of heavy soils, the tile should be surrounded by gravel or cinders as shown in Fig. 6, and the top of the trench covered with the original soil.

It must be remembered that the effluent which comes into these tiles is entirely without oxygen, and that its reduction by the aerobic bacteria which exist in the top soil requires contact with air so that it may take up oxygen again. Hence the necessity for burying the drain but a short distance from the surface of the ground, and the need of porosity in the surrounding soil.

The tile must be periodically filled with sewage from the discharge chamber of the tank, thus allowing intervals of rest between charges, during which the soil or material surrounding the tile may again take up oxygen for the next supply. This periodic action is furnished either by the siphon shown or by the hand-operated plug referred to.

The capacity of the drainage system should be nearly equal to the volume of effluent discharge from the tank at any one time, so that all the system will be filled, and emptied, at the same time.

If there is an excess of water passing through the septic tank, it may be necessary to lay an under-drain surrounded by crushed stone or gravel in connection with the drainage scheme shown in Fig. 5. This will not inter-

fere with the action or location of the tile shown in Fig. 6; but will require an increase in the depth of the trench, and another line of 4-inch tile laid in the stone about 8 inches below the first line. This lower line of tile is not connected in any way to the discharge chamber of the tank, and merely serves to remove the surplus water. The purifying process takes place in the upper pipe and surrounding soil as usual.

The drainage tile should be laid on a slope not to exceed 1 inch fall and 50 feet of length, and should not extend into low land where the natural ground-water level will interfere with the absorption from the soil surrounding the tile lines.

One foot of 4-inch tile should be used for each gallon of liquid discharge into the drains, if in porous soils. In heavy soils, it may be necessary to use 2 feet of tile per gallon of liquid. It is claimed that from 325 to 400 tiles are needed, when laid in gravel or cinders, for a family of six.

Grease Traps. Grease from kitchen sinks should not be allowed to enter the septic tank with other material. The grease is not changed to any appreciable extent by the bacteria, and in time will clog up the system.

Effects of Frost. We have already mentioned that the sewer pipe from the house to the tank must be buried deep enough so that it will not freeze. There is no danger of the material in the septic tank freezing, since the contents are kept warm by warm water entering from the house and by the heat given off by the action of the bacteria. The temperature at which bacterial action is most active ranges from 75 to 105 degrees Fahrenheit, but the winter temperatures reduce the action to quite an extent. For this reason it is well to bury the tank as far as possible and still maintain other conditions, or to cover it with earth as a protection. Even in very cold climates, the absorption system of drain-tiles which are buried in loose soil or gravel-filled trenches will work in a very satisfactory manner.

Cleaning Out

If a two-chamber tank is used so that the scum on the surface of the liquid in the first chamber is not disturbed by filling or emptying the tank in its ordinary method of working, there is no need of cleaning out the sludge at the bottom of the tank oftener than once a year. It is not policy to disturb the scum covering any more frequently than actually necessary, since it takes some time to get the tank back into working condition. The openings left at the top of the tank should be large enough to afford access to both chambers of the tank as occasion may require.

Need of Water Supply

The septic tank is of best service when some kind of supply of running water is piped into a residence; but this is not absolutely necessary. A good supply of running water may be obtained at a country residence by the use of a hydraulic ram, gasoline engine, windmill, or hand pump, and a storage tank either outside or inside the house. If a windmill or engine is used, some form of automatic shut-off should be installed, so that no attention need be given to the system after it is started.



"Home-made" does not imply quality in almost anything but bread, and certainly does not mean much when applied to tools. One can buy much better tools than are usually made, particularly if they are power tools. The home-made lathe and rip saw bench are not nearly as complete or effective a tool as can be bought at almost the same price as the material and time would cost if they were "home-made."

H. C. HANER.

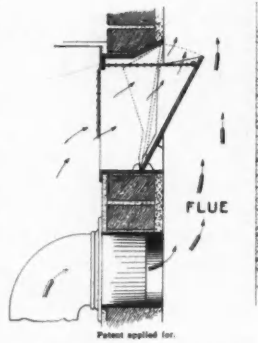
The Editors Drawer

New things worth while

New Kitchen Ventilator

The illustration shows a vertical section through a kitchen range flue in which is placed a new style ventilator.

Hot and steamy kitchens are effectively relieved by the use of this simple device. It makes use of the power in the smoke-flue, the intense draft created by the fire, to suck the hot air, steam and odors out of the upper part of the room. Such a ventilator should be installed in all new work and is easily inserted in houses already built. The ventilator is made of cast iron and is so simple it cannot get out of order.



Ventilator Installed in Range Flue

Cement Construction Tile

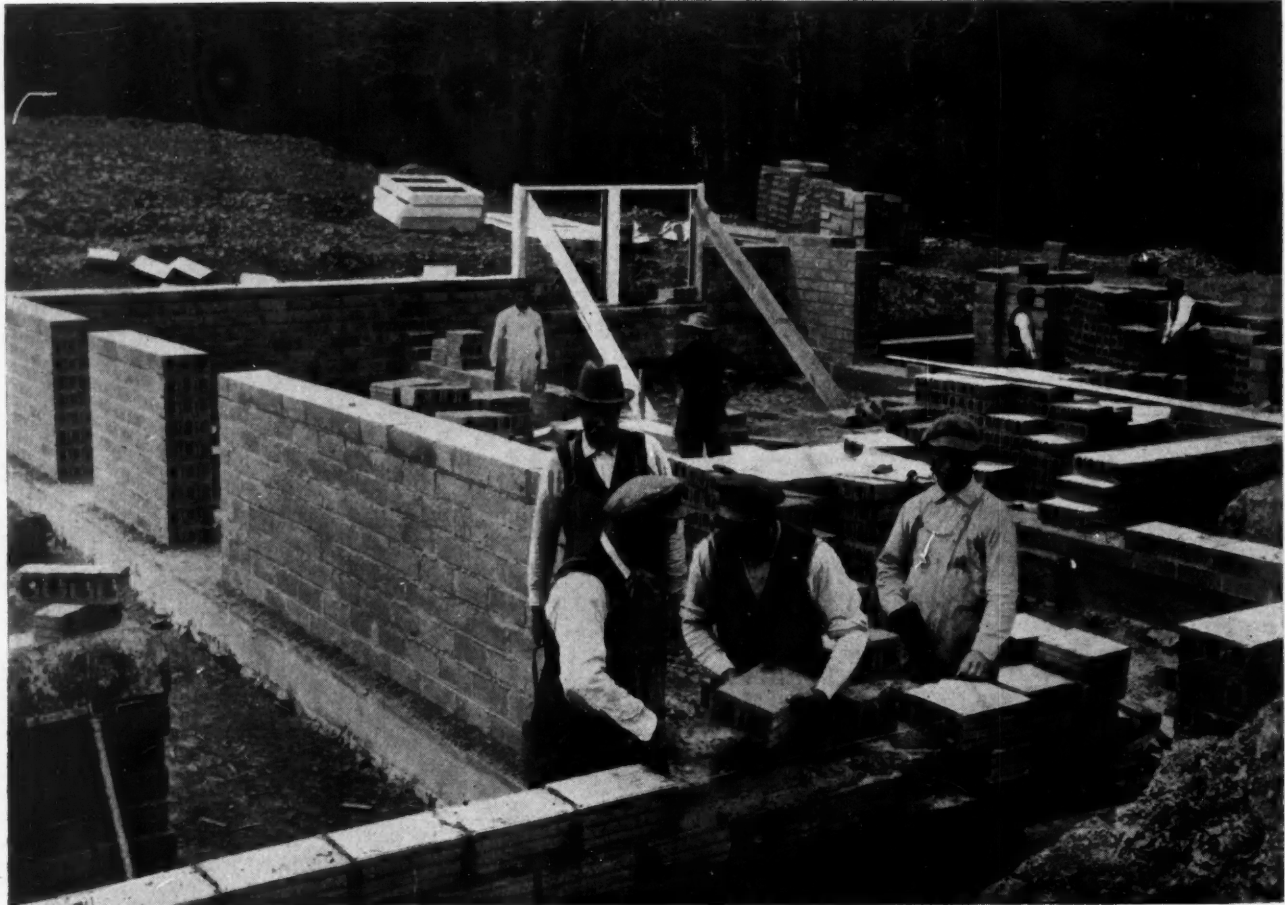
While the manufacturers of burned clay products have been developing their hollow structural tile, the concrete men have not been asleep. Nowadays we all recognize the value of hollow air spaces in building walls. Hollow concrete blocks have made use of the principle, and the clay tile developed it still further. And now we have the cement construction tile, which possesses all the advantages of the clay product and some more besides. Also it is claimed the price is very much more reasonable.

That these cement construction tile are by no means an experiment, is shown by the great variety of uses to which they have already been put. The photograph shows the beginning of work on one of the finest residences in Cleveland. This building is now finished and is a very beautiful, substantial structure. Something like 50,000 cement construction tile were used in its erection. Three sizes of tile were used: 5 by 8 by 12 inches, 5 by 12 by 12 inches and 5 by 16 by 12 inches.

The outside of the building was finished with cement plaster and the inside with hard wall plaster, applied directly to the tiles.

The machine that turns out these cement tiles is truly a wonderful machine. It produces twenty tile per minute. This is one of the few really automatic cement product machines.

Without doubt, before very long there will be a full supply of these cement construction tiles on sale in every locality. The machinery manufacturer is licensing one representative construction or building material company in each locality, to manufacture these cement tiles. It is expected that this will prove a good thing to all concerned. It is certain that the houses, barns, store buildings, and factories constructed



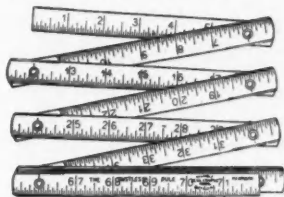
Laying New Cement Construction Tile on Large Cleveland Residence Job.

in this way possess many advantages that are bound to make the cement construction tile a popular and standard building material in the course of time.

Rustless Metal Rule

A great many mechanics are coming to prefer the jointed rule to the old style folding kind. Some have found the wooden rules too fragile for hard and constant use. These will be glad to know that a new discovery has placed a light weight rustless metal rule on the market. It is a folding rule and comes in lengths from 2 to 6 feet.

"Luminoy," of which the rule is made, is a special alloy of aluminum. It has a beautiful bright surface that requires no polishing to keep it bright. The interesting point is that this metal does not rust as steel does. Expose it to moisture, drop it in snow or water; you may forget to dry it, but no rust will accumulate; it will be as clear and bright as new.



Metal Rule That Won't Rust

The figures are large and clear and it is accurately graduated to 1-16th of an inch on both sides. The joints are strong and will not work loose. The light weight of this rule is one of its desirable features—it weighs only a trifle more than one ounce per lineal foot.

As the cost of these new rules is very reasonable they are sure to become popular among builders and other mechanics.

Storage Battery Locomotive for Hauling Lumber

The operation of large lumber yards is being much simplified by the use of the electric storage battery locomotive illustrated. One of these has actually handled a train carrying 100,000 pounds. One seven-ton locomotive in operation at the plant of the Potlatch Lumber Company is regularly hauling trains containing 70,000 feet of lumber. They have over fifty miles of track in their lumber yards.



Electric Storage Battery Locomotive at Work in Big Lumber Yard

The storage battery locomotive is simple in design and rugged in construction. Anyone can operate the engine, as a single controller handle turns the current on and off. For large lumber yards and other industrial plants where there is considerable hauling to be done, these electric locomotives are making a great saving. A saving of \$600 per month is recorded in one instance.

Concrete Bridge Hides 66-Inch Pipe

By L. M. Edholm

The city of Seattle, Washington, solved the problem of hiding an ugly sewer pipe which ran above ground through Washington Park, by constructing a beautiful bridge of concrete which carries this 66-inch pipe across a ravine and is built in such a way as to completely hide it.

The bridge has been built in the imitation of an old Roman aqueduct. It is of reinforced concrete faced with dark red burlap brick and the outside surfaces of the concrete have a stipple finish.

The piers are of solid concrete and rest on a hard pan bottom. It is about 16 feet in the center and 14 feet at the abutments. The arches are made in one piece, which gives strength to the bridge.

The structure is very graceful and instead of detracting



Artistic Viaduct Carries a 66-Inch Sewer Pipe

from the looks of the park, as the sewer line was bound to do, it adds to the appearance of the park. The bridge affords a 5½-foot walk across the ravine, which is a great convenience to the public. It was erected at a cost of \$16,485.

A Smooth-Boring Bit

A new improvement in bits makes the boring of holes a pleasure. The result of a test was recently observed where two smooth holes were bored in an old cedar shingle. The shingle didn't split.

This new bit is made with one floor lip and one side spur so there is very little friction. The floor lip is a continuation of the last thread of the worm and the side spur is on the opposite side of the worm. The bit will bore smooth and true, pulling itself into the wood without pressure on the brace. Another excellent thing is that the bit cannot be spoiled in filing.

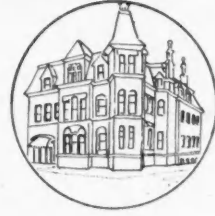
It is sold as a better bit than the carpenter has previously had and as it will bore into any wood with or against the grain with equal results, it is safe to predict great popularity for it.

Making Corn Cribs Rat-Proof

Secure some heavy screen wire and cover the walls and overhead with it, using care about the corners, joints and openings to make them close. Let the wire extend down to the bottom of the crib, then make a concrete floor or bottom, allowing the concrete to come up 2 or 3 in. on the screen wire. This floor can be made on the ground, using plenty of rock for drainage, or it can be made by covering an elevated floor with the concrete.

In this way nearly the entire loss caused by rats and mice can be prevented. The wire will permit the air to pass through the bin as freely as would the usual slat or board construction. In this way the corn saved in one year would pay the expense of the concrete floor and screen lining for the crib, and the lining and floor would last many years.

CORRESPONDENCE



Questions Answered and Ideas Exchanged.

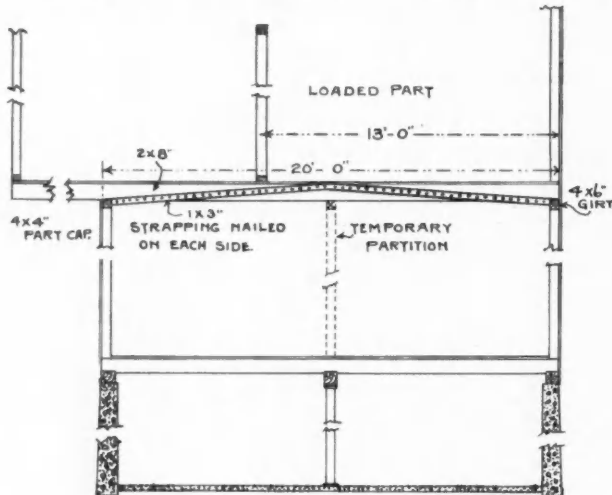
Our Readers are Requested and Urged to Make Free Use of These Columns for the Discussion of all Questions of Interest to Carpenters and Builders

"Is This a New One?"

To the Editor: Hull, Mass.
 Did it ever happen to you? No doubt it has, and to many others as well. Quite frequently in building operations there arise difficulties, mostly the ones we did not see when estimating, that have to be overcome later and in an inexpensive manner.

As I have used to good advantage several ideas obtained from reading the AMERICAN CARPENTER AND BUILDER, think perhaps the following may assist some reader in the future. It did me, and as the old saying is, "What's good for one is good for another."

Several years ago I was building a house, and after looking



Each Joist is Trussed with 1 by 3 inch Strapping.

matters over, found I had a 20-foot span for 2 by 8-inch floor timbers, also that the floor was loaded with a partition above.

I later found that I would have to help carry a shed roof dormer window with the same partition.

If one had taken the pains to look out for the framing earlier, this difficulty would not have occurred. But then we do not always thoroughly inspect an architect's plans. After getting into the hole, I began to look around for some way to get out.

This, as you know, is not always an easy matter. After thinking it over for a day and having a good night's sleep, I devised the following scheme, at the same time feeling quite confident it would work.

Is it plain to you? Well I simply did, or had the men do, this. As I said before, my floor joists were 2 by 8-inch, a 20-foot span, with a load 13 feet from one end.

After nailing the timbers in place, I set a temporary partition under the timbers so as to give them plenty of

crowns. Then I picked out some sound and long pieces of 1 by 3-inch strapping, cutting to proper length, sprung up to top of timbers at center, allowing ends to fit against girt and partition cap and nailed them on to beat the band, one on either side.

After doctoring all the joists in the same manner, we went up on top and tried the floor for stiffness. Say! It was like a bridge.

I was in the house more than a year after finishing the job and the crown was still in the floor.

Try it yourself some time and see how it works. You can plainly see that each timber is a truss in itself and an inexpensive one to make.

I have not taken the time as yet, to work out how great a load it would carry and don't know as "I should worry" as it has already done a good turn for me, also taught me a lesson.

C. F. PACKARD,
 Carpenter and Builder.

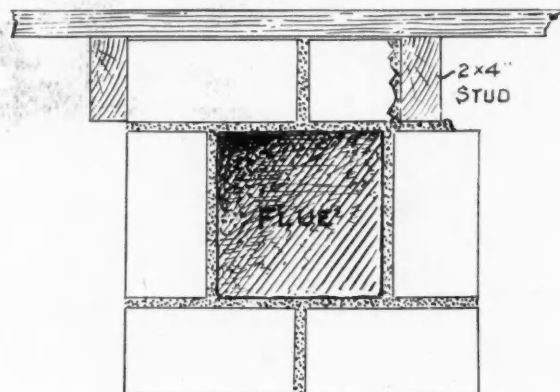


Would License All Building Mechanics

To the Editor: Clyde, O.

While reading the November issue, I find in a letter by James L. Brooks, of Pleasantville, O., a mention of something which interests me. (The licensing of contractors and builders, who may superintend the building of even ordinary buildings and houses.) I would like to know what other readers think about it. While I am a contractor in masonry only, I will state two, of numerous experiences I have had, which led me to believe that a good many of the building trade branches ought to require a license, or at least be able to pass an examination to show they are qualified.

First, while walking up the street one morning to work, I met an old reliable bricklayer of this town, and he says: "Say, Graves, I want to tell you what I saw yesterday (Sunday), while looking over Mr. ——— new house.



Faulty Chimney Work That is Too Common.

The chimney builder has bricked around a floor joist; nothing covers that joist but a coat of mortar from the inside of the flue, and I am going to report it to the insurance company that insures the building."

Second, while tearing down a chimney top to rebuild one time, upon getting it down to where I could see in the attic, found that one corner of the chimney below was bricked around a 2 by 4 inch stud, as per sketch. I cannot understand what prevented a fire from starting, as the plaster in many places was all that protected it from the inside of the flue. The chimney builder wanted to put chimney out next the siding and found the studs too close to admit that, so built up to the stud on each side. Upon that discovery, the chimney was totally rebuilt.

Such things as that have led me to believe a mason, as well as other of the building tradesmen, ought to have papers to show he is qualified to do the work right, or lose his papers, the same as a boat captain, doctor, engineer, etc. My above experiences show careless work that is dangerous to life and property.

In some cities, I believe, they have licensed mechanics; but in a small town or the country without inspectors, any common laborer with just a little experience, when out of a job, will take up building and pronounce himself a contractor.

I would be pleased to hear what some other readers have to say about mechanics like the above taking examinations under state laws, or rules. B. S. GRAVES.



Flashing a Chimney Built Against an Outside Frame Wall

To the Editor:

Goulds, R. I.

Will you please tell me how to flash a chimney which is built into an exterior shingled or sided wall? I have trouble getting a job that will stay water tight.

ARTHUR B. CONGDON.

Answer: This is a problem that is frequently encountered, as home builders often want a big fireplace against one of the outside walls in the living room. Also an outside chimney of attractive face brick or stone, exposed clear from the foundation, is thought to add considerably to the architectural appearance of a house, whether built of brick, cement stucco, or with shingle or clapboard siding.

Figure 1 shows a method suggested by Kidder for this

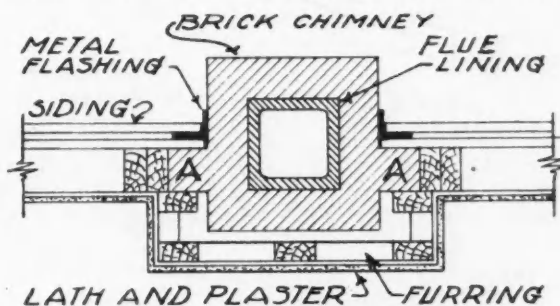


Fig. 1. Section View Thru Chimney and Wall.

work. The chimney is laid up with two projecting lugs, "A." These give a solid stop for the siding and permit metal flashing to be inserted as indicated. This detail, however, seems to be open to the objection that it requires the timber frame work to be fastened solid to the brick chimney, a thing that should never be done. Also, it is doubtful if the metal flashing inserted in this way would keep out the weather for any great length of time.

An arrangement which we much prefer is illustrated in

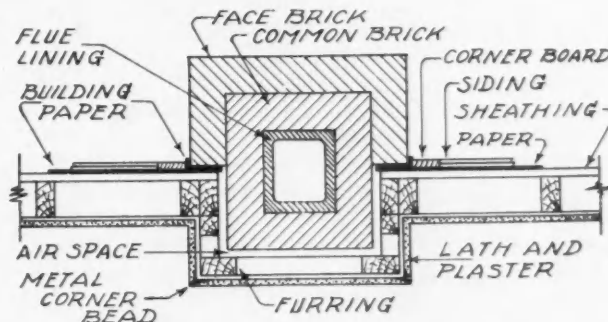


Fig. 2. Section Thru Brick Chimney.

Fig. 2. The inside, common brick chimney, is laid up half inside and half outside the wall. The 2 by 4 frame work is built up around this in the regular way, an ample air space being left all around the brick work and no connection between the wood studs and the chimney. Then the outside course of face brick is laid across the outside and returned against the wood sheathing. A fold of building paper is inserted, as indicated, and the corner boards are nailed on as close up into the corner joint as possible. This makes a water proof joint which, at the same time, takes care of the unequal shrinking and settling of wood work and brick work that is sure to occur.

EDITOR.



Details of Fireplace Nook

To the Editor:

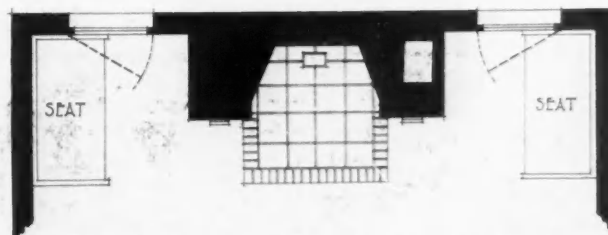
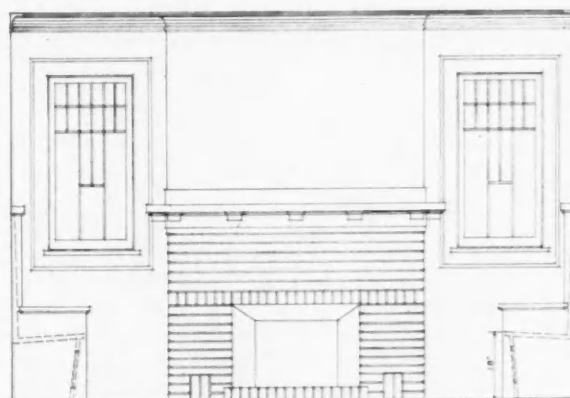
Dayton, O.

I wish you would publish a detail for a seat on each side of a fireplace. The sketch shows a floor plan of what I would need. The fireplace will be centered in an alcove 13 feet 3 inches wide.

J. E. B.

Answer: We suggest an arrangement as indicated in the plan view and elevation herewith. An inward opening casement window is placed on each side of the fireplace. Comfortable seats of simple design are built in. These may have hinged covers, if desired, so that books, games, etc., can be stored inside.

The mantel design is worked out, using rough texture brick laid with a racked out joint. The mantel shelf is a



Plan View and Elevation of Cosy Fireplace Nook.

hardwood plank. The hearth is of large red tiles; the front and sides edged with bricks standing on end. This arrangement raises the hearth 4 inches above the surrounding floor. Some will prefer the hearth to be flush with the floor, and for these the design can be easily modified.

An ash drop is indicated in the back of the hearth. This is a very important item. It is covered with a little cast iron trap door and the ash receptacle underneath is big enough to hold a couple of barrels of ashes. It saves dirt and much labor to be able to sweep the ashes down, then periodically to remove them by way of the basement.

The casement window details show a good suggestion for a fancy arrangement of small panes separated by wood sticks. In most places it is possible to find sash of attractive patterns, similar to this, in stock, and they are not much more expensive.

EDITOR.



Thanks to "Radford's Cyclopedia"

To the Editor: Montevideo, Minn.
Here you can see what I have been doing this season. It is our new M. E. church building. I am foreman of this



Large Church Building at Montevideo, Minn.

job and I can thank "Radford's Cyclopedia of Construction" for my position.

As for me, I would like to receive the "A. C. & B." twice a month.

J. HELLERVIK.



Deepening a Stone Foundation

To the Editor: Montgomery City, Mo.

I have a two-story brick building with 13-inch brick walls and foundation of rock about 3 feet 6 inches deep and about 2 feet wide. I want to put a basement under building and would like to know the best method of doing this. Basement will be 7 feet in clear. Would like to know if concrete would be the best to put under the rock foundation and how to get up tight under same, and if there is not some method of doing this without shoving up building and without taking out present foundation.

If I take out dirt from under present foundation how much of section could I remove at a time?

G. B. SHARP.

Answer: This proposition is one which generally has to be handled by a person who can make an inspection of the job

and determine what method is the best suited in that individual case. The construction of buildings vary to such an extent, and the qualities of soil are so different in different localities that no one general rule can be given which may be followed in all cases.

Whether shoring would have to be used in the case described in your letter would depend upon the general construction of your building. A scheme which is often used in propositions of this kind is to dig pits about 3 feet apart, extending to the depth of the new foundation. In these pits lay the concrete footings for the new wall and then set granite blocks of the size required, to extend up to the old foundation, or build these individual piers out of hard stone or brick. Steel wedges or slabs of stone, or slate should be securely wedged in between the old foundations and the new piers. After these piers and new foundations are settled thoroughly, earth then may be removed and the space filled in with coursed stone or hard brick, thus completing the wall. Only a small section of the wall should be completed at any one time, and care should be taken that no settling occurs in the walls above the foundations. All connections between the old foundations and new foundation wall should be thoroughly wedged, so that there can be no possible chance of settling.

EDITOR.



Hay Door Works O. K.

To the Editor: Greeley, Neb.

This picture was snapped during hay season, at the barn I built for Mr. J. J. Fitzpatrick. There has been quite a bit of discussion about arranging hay doors. This one is



Well Designed Barn at Greeley, Nebr.

counterbalanced to slide easily up and down. It gives a big, free space for the hay fork and never causes any trouble.

FRANK DELORM.



Quite a Record for 18 Months

To the Editor: Greenbank, Wash.

Enclosed please find photo of a portion of my past eighteen months' work at the Greenbank Dairy Farm. In addition to the buildings shown in photo, there are four residences, one hotel and one school house, which are also located here.

The barns are constructed without cross timbers or collar beams. I do my own designing.

O. E. STARKS.



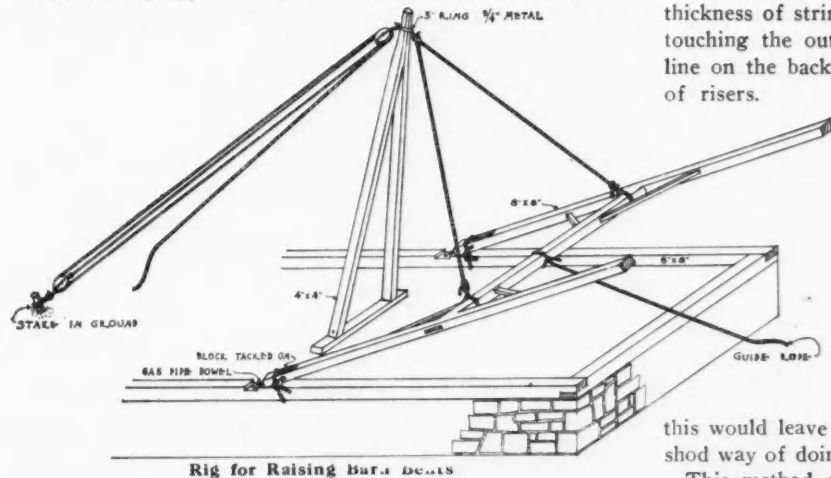
New Buildings at Greenbank Dairy Farm. These Eight Structures and Six More Built in 18 Months, by O. E. Starks

Raising Barn Bents

To the Editor: Moulton, Iowa.
 What is the best plan for raising a gambrel roof on a barn of 40-foot span? I want to frame the rafters and truss before raising.
 FRED WILLETT.

Answer: This subject has been discussed frequently in these columns, but it is of sufficient importance to make another description interesting. The illustration shows one of the best methods; in fact, it is the one most commonly used by barn builders.

The raising apparatus consists of a heavy iron ring and



Rig for Raising Barn Beams

hook, the ring made of 3/4-inch round iron and the hook of 1-inch iron. This is to slip over the top of the raising jack or derrick. A convenient size for the ring is from 5 to 6 1/2 inches in diameter.

The raising jack is made of 4 by 4-inch timbers. This should be built long enough to raise the barn frame to an angle of about 45 degrees before the ring slips off the end of the derrick.

A two- or three-pulley tackle is preferred for this derrick, using a 3/4-inch rope, of which approximately 150-foot length is required.

While the question above refers particularly to gambrel roof trusses, we have illustrated in the drawing, an ordinary square barn bent. The method of procedure would be the same in either case. The two important things to look out for are to have the feet of the truss fastened so that they cannot slip forward when the raising begins; also take care to have a strong guide rope properly attached, which will hold the frame in a vertical position, and not allow it to fall forward.

EDITOR.

Claims His Way is Better

To the Editor: Karnac, Manitoba.
 I am an interested reader of your most useful and instructive paper, but take exception to part of an article contained in your December number by I. P. Hicks, under the heading "How to do work fast." At the end of the article Mr. Hicks says; "Do your work easiest, quickest and most scientific way."

Most certainly, by all means do so. I fully agree with him there; but, in my opinion he tells of a way to get the bevel with a steel square for mitering the risers to an open stringer which is unquestionably slower and also not as good as by an ordinary rule of thumb method, I've always used.

I do not in any way wish it to be thought that I don't believe in the steel square. The steel square is probably far better for the roof-cut Mr. Hicks explains in the preceding

part of his article, but for this particular cut I think it much slower.

This is the method I always employ after laying out treads and risers on the stringers; draw a line parallel with one of the riser lines at a distance from it equalling the thickness of the risers to be used, square these lines over on edge of stringer. Now set bevel with blade touching riser line on outside edge of stringer and at the inside edge, the line representing the thickness of riser. This must give the correct bevel for mitering the stringers. For cut of riser, lay out on edge of riser two lines representing the thickness of stringer; set bevel from face of riser with blade touching the outside line on the front edge and the inside line on the back edge, this will be the correct bevel for cut of risers.

Now Mr. Hicks' method is all right (although slower) where one has a stringer the same thickness as the riser, but directly the stringer is thicker than the riser (and in my experience the stringer nearly always is thicker), the angle of the cut on stringer must be more obtuse than an angle of 45 deg. and more acute on the riser to make the riser fit all through. Of course, it could still be cut at an angle of 45 deg., but

this would leave a hole at the back of stringer and is a slipshod way of doing work.

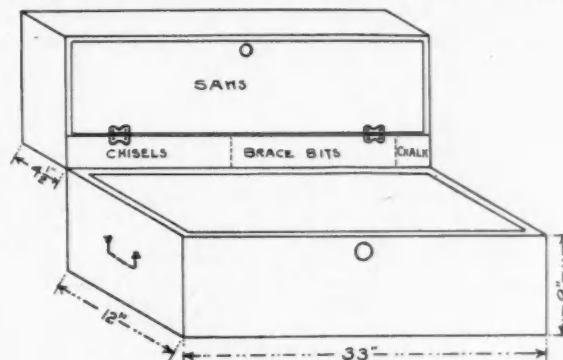
This method of course will answer with any thickness of riser and stringer, and will make a good job and I claim is a good deal quicker than the method Mr. Hicks describes.

I might add that my experience in stair-building has been all in England and Canada, I believe in the United States, most stairs have rough stringers put in first and the finished stringers afterwards put in would need to be only the same thickness as riser, but in many cases no doubt the stringers would be thicker than the risers.

PERCY PEACOCK.

A Convenient Tool Box

To the Editor: Queensville, Ontario.
 I am sending a drawing of a tool box that I made. The cover is 4 1/2 inches deep; the top part lifts out and contains compartment for saws, chisels, brace bits, etc. These can be kept locked up when not in use, while the rest of the



Specially Designed Tool Case

tools can go in the bottom of the box with places for each, if you wish to keep them that way.

This box is made of 5/8-inch basswood, and I think it is very handy and roomy. Besides the lock above mentioned, there is a time lock on the main part of box. It is all well glued and the corners are dove-tailed, besides having brass corners. It also has brass trimmings with my initials on the cover.

CLAYTON FOSTER.

Problem in Hand Railing

To the Editor:

Merritton, Ont.

Will you submit the enclosed problem to some of your hand-railing experts? This is about my first problem in hand railing, and you can see what I am up against. I would like to know:

First—Is my method of curving the steps right to get the rail in one pitch, or will it have to be in two pitches—the lower rise being $7\frac{1}{2}$ inches and the upper consisting of two steps, $5\frac{1}{2}$ inches?

Second—The bevel to twist the wreath.

If my method is right to get the pitch lines, I can easily develop the face mould; but I want to know what bevels and how to apply them to twist the wreath.

B. C. FAWELL.

Answer: From Mr. Fawell's letter and sketches he submitted, which are shown in the accompanying Figs. 1, 2 and 3, I conclude that he would like to be enlightened regarding the best method to develop the tangents over and above the plan curve of 6 inches radius at the top of the stairway. His method to curve the steps 15 and 16 seems to be all right;

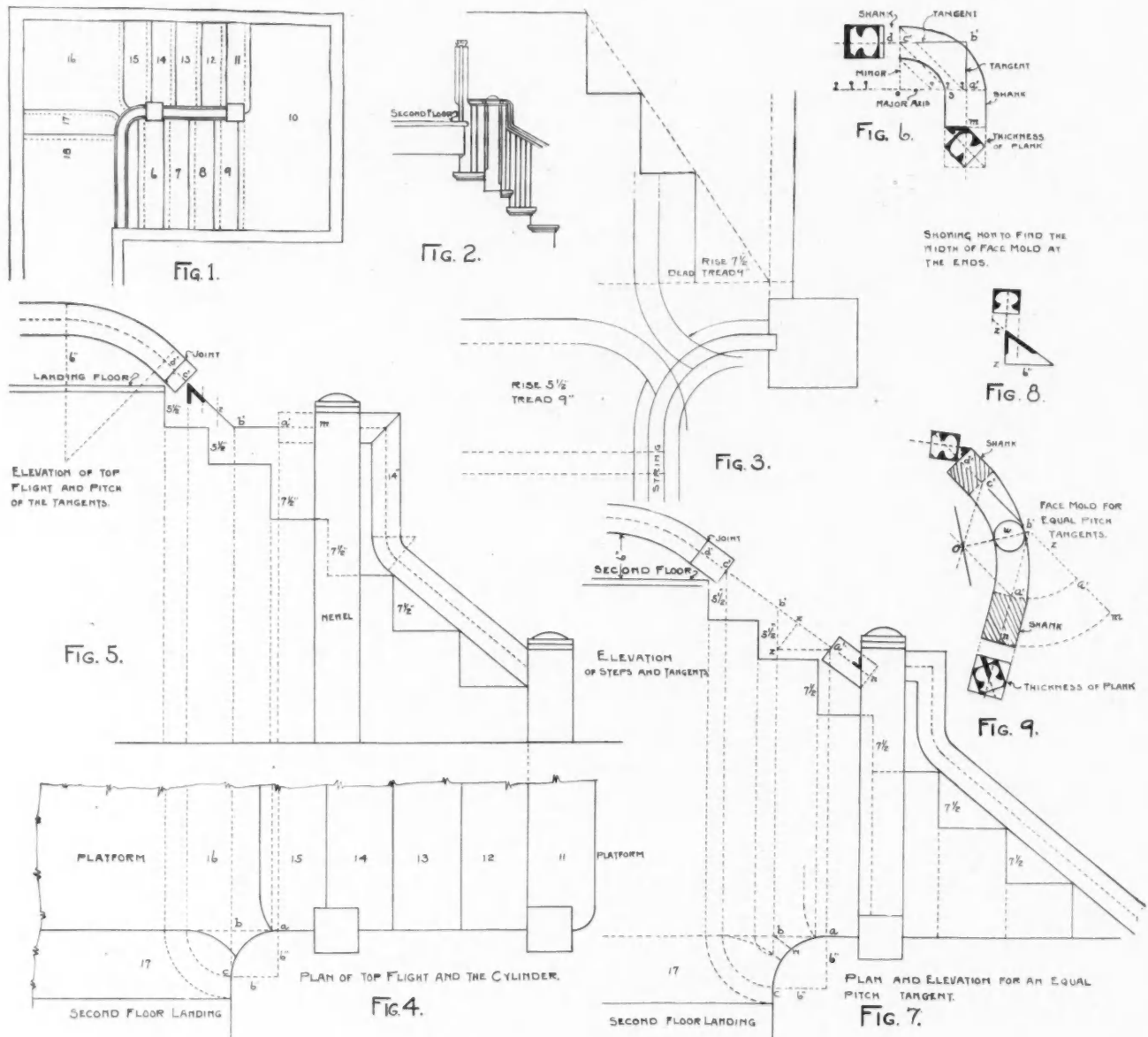
but why reduce the two top risers to $5\frac{1}{2}$ inches, while all the other risers are $7\frac{1}{2}$ inches? There is nothing short of absolute necessity that will justify such a difference in the size of the risers; not so much because it alters the pitch of the rail, but rather the annoyance and danger it will cause in the stepping.

If Mr. Fawell will pay careful attention to the following figures and explanation, he will find all the knowledge he needs pertaining to the development of the face mould tangent and bevels.

Figures 4 and 5 represent the plan and elevation of the top flight and the cylinder. In Fig. 4 the plan tangents *ab* and *bc* are shown unfolded, and in Fig. 5 they are shown developed over and above the steps; where the tangent *a'b'* is shown to be a level tangent aligning with the knee of the gooseneck; and the tangent *b'c'* is shown inclined to meet the easement in the landing rail, which stands 6 inches above the landing floor.

These developed tangents indicate the exact length of the face mould tangents.

In Fig. 6 it is shown how to use them in the development of the face mould. The tangent *a'b'* is here shown at right



Working Out a Hand Railing Problem.

angle to the tangent $b'c'$, which is the rule in every case where one tangent is level and the other inclined.

From a' draw the line $a'o$ parallel to $b'c'$ and from o draw a line to c' parallel to $a'b'$. These two lines represent the major and minor axis of the face mould curves.

To find upon the major where to fix the pins, take in the compasses the length of the tangent $c'b'$; fix one point in c' and turn around to cut the major in s ; connect $c's$; draw parallel lines from the minor, cutting the major as indicated where the pins are shown.

The width of the mould at the end c' will be the same as of the plain rail and at the end a' it is determined by the bevel as shown from c' in Fig. 5 along its long edge to z .

For this kind of a rail there need be but one bevel and as shown at c' , in Fig. 5, it is formed by the pitch of the tangent $c'b'$, and it is to be applied to the end a' of the rail, as shown at m in Fig. 6.

No bevel is required at the end c' because c' is upon the minor axis.

Mr. Fawell will observe that the arrangement, as indicated in these figures, will meet the conditions presented by him in his elevation, Fig. 2.

In the following Figs. 7, 8 and 9 it is shown how to construct the rail over the cylinder to meet the conditions shown in his elevation, Fig. 3.

The developed tangents $a'b'$ and $b'c'$, as shown above the cylinder steps in Fig. 7, are equally inclined. The face mould for this arrangement of tangents is shown in Fig. 9; the line d, c, b, z, a, m in this figure is a duplicate of the pitched tangents as shown in Fig. 7 by the same reference letters.

To draw the face mould, place the length of the tangent $b'c'$ in the compasses; fix one point in c' and turn around to o ; again place the point in b' and turn around to intersect in o ; connect $o c'$. From b draw a line to a parallel to $c'o$ and also a line from a to o parallel to $b'c'$; now connect $b'o$; which will be the minor axis; the major is drawn square to the minor through the point o , as shown.

From b' draw $b'w$ along the minor; draw the circle equal in diameter to the width of the plain rail, which also will be the width of the mould at this point; make the mould at the ends a' and c' the same as shown at z in Fig. 8 along the long edge of the bevel.

The bevel is found as shown in Fig. 8 at the top angle of a triangle composed of a 6-inch base to equal the radius of the plan curve and an altitude to equal the line $z z$, shown in Fig. 7. One bevel only is required in this construction also, and that because the two tangents are equally inclined. But because the tangents do incline, the bevel is to be applied to the two ends of the wreath and for the same reason (equal tangents) they are to be applied reversely, as shown in Fig. 9.

MORRIS WILLIAMS.

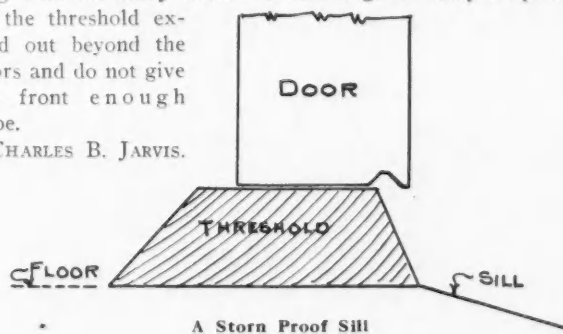
Non-Leak Threshold

To the Editor:

Cache, Okla.

I am inclosing a sketch for a threshold that may help Jack Leg with his leaky doors. I find a great many carpenters let the threshold extend out beyond the doors and do not give the front enough slope.

CHARLES B. JARVIS.



Building a Store Ice Room

To the Editor:

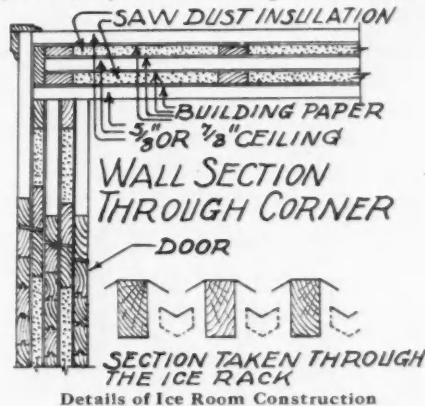
Shoemaker, N. M.

I am writing to you with the object of getting information how to build an ice box; this one is for keeping meat, butter, and so forth in a general merchandise store. Dimensions, about 8 by 8 feet, and high enough to hold a quarter of beef with sufficient room above for ice.

I built several ice boxes some years ago, but I wish to be up-to-date in building this one, and, therefore, I turn to you for information.

N. P. SUND.

Answer: The details herewith shows the section of wall and door, commonly used in refrigerators of this type. It



Details of Ice Room Construction

also shows a method of constructing an ice rack which is used overhead in this type of refrigerator. The small dots between sheathed walls indicate dry sawdust, which is placed in the space as a method of insulation.

The method of construction shown is as follows: Two or more perfectly air-tight walls, with dead air chambers between them filled with sawdust, make a good type of wall. Three air-tight walls with $7/8$ -inch space between them would probably serve your purpose better.

A cheap way to obtain this would be to build the outer wall and cover with good two-ply red rosin sized building paper. This should then have a coat of linseed oil to make it air-tight and durable; then strip this with $7/8$ -inch strips, ceil again, and cover with paper as before, being sure that all joints are stripped down and air-tight. Next cover the strips with paper as before (this may be oiled and dried before applying), and finish with the inner wall or ceiling, which can be best coated with shellac. To make a job which will economize ice, this should be the construction of floor and ceiling as well.

Now, as to the ice shelf. All that is necessary is to form a rack, which will support the ice wanted, and at the same time give free passage of the air down and around it, and at the same time carry the water off perfectly. This may be secured by taking 2 by 4-inch, arranged side by side on edge, 4 inches apart. Cover them with galvanized iron, so that it will project $1\frac{1}{2}$ inches on each side of the 2 by 4's, and bend down at an angle of about 30 degrees; then place a series of troughs between the 2 by 4's to carry off the water into another trough at the ends of these; and connect with a drain-pipe, which should be trapped so that the air cannot pass back through it into the cooling room. It goes without saying that the ice rack should be at the top of the room, as the cold air descends, keeping up a circulation. The doors should be constructed with air-chambers, same as the walls.

EDITOR.

Interested in Silos

To the Editor:

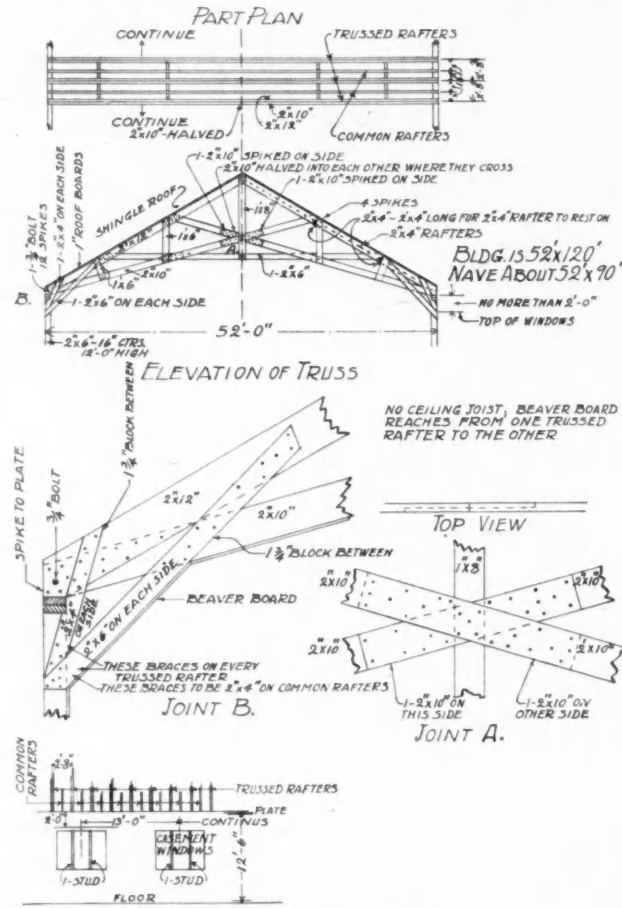
Sardis, B. C., Canada.

If it is not out of place to ask, I would like to see the question of silos taken up in the AMERICAN CARPENTER AND BUILDER, both as regards construction of concrete and wooden silos.

SIGFRID EDSTROM.

Cheap Truss for Church Roof

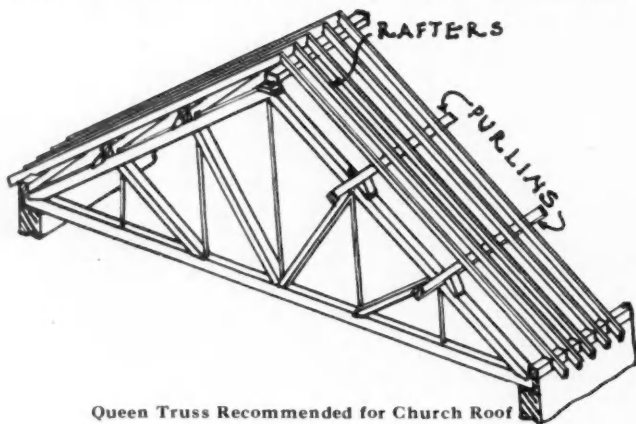
To the Editor: Appleton, Wis.
 Here is a sketch of a trussed rafter and details of principal joints. These trussed rafters have to be spaced 2 feet 8 inches on centers (this is the width of beaver board; would prefer 3 feet 6 inches if rafter is strong enough) with a 2 by 4-inch common rafter between them, so that common 7/8-inch roof boards can be used. The roof will be shingles and the



ceiling beaver board. The reason for using beaver board is that the building will at some time be moved, and if plaster were used it would probably crack badly during the time of moving.

The diagonal 2 by 6's shown at sides are used as wind braces and cannot reach down any farther on account of the windows.

This roof is to be on a church in a small village, and the people being mainly of the working class, there is not much money available, and it has to be put up as cheaply as possible,



Queen Truss Recommended for Church Roof

sible, so this is a kind of charity job. It is really a temporary church to be used as a hall later on. By using the trussed rafters I can plant my footings where convenient for timbers (there will be no basement), doing away with heavy posts and piers, which would be necessary if trusses were not used. I intend to spike all the joints thoroughly with 20d. spikes, as shown on the sketch.

EDWARD A. WETTENGEL.

Answer: We would not consider that the type of truss shown is best for use with so great a span (52 feet.) We believe that some type of queen truss would be more suitable for use in this location. The type of truss shown is rarely ever used for spans over 48 feet, and must be used with great care of design, even for that span. It is also common practice to design trusses of this type so that the rise of the roof shall be at least 10 1/2 inches to 12 inches. You will see that your truss is quite flat as compared with this limiting slope.

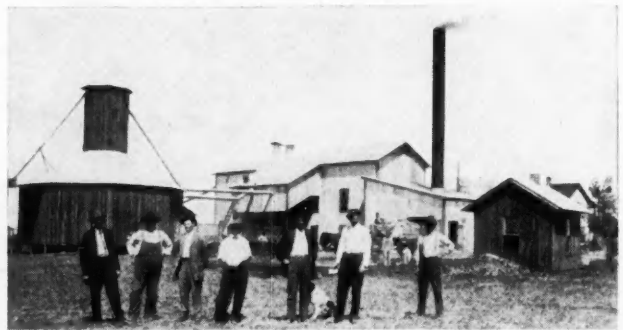
We also consider that the 1 by 6-inch and the 1 by 8-inch vertical members shown in your truss are of too light section. Also the 2 by 6-inch horizontal member seems to be too light.

The wind bracing at the walls seems to us to be amply strong, and we believe that in connection with this bracing the method of fastening trusses to plates by spikes would be secure. We see no harm in splicing joists where they cross at center of truss, providing the splice is made as strong as other parts of the member.

EDITOR.

Cotton Gin Building

To the Editor: Electra, Texas.
 An interesting job that I have been handling lately is shown in this photo, the building for the County Line Union Gin Co. These are gin house, 20 by 72 feet; octagon cotton house, 36 by 36 feet; boiler house, 26 by 28 feet; cotton seed house, 20 by 50 feet; and an office, 12 by 12 feet.



Contractor Smith and Friends of New Cotton Gin

The capacity of this gin is three bales of cotton per hour. The cotton house has fifteen stalls, each stall holding six bales.

The picture shows myself and a bunch of my good friends.

R. H. SMITH,
 Contractor.

Easily Found Nail Set

To the Editor: Grinnell, Iowa.
 Here is a little wrinkle which I have picked from one of my men. Most every finisher will carry his nail set in the same pocket he carries his nails in, and quite often it is hard to find. Considerable time is lost in this way. Here is the remedy: Wrap the nail set with insulating tape, which will enlarge this set so you can find it at once.

If you carry two sizes of sets, keep the one used most in the left pocket and the other, or smaller set, in the right pocket. Try this and you will save lots of time and annoyance.

G. J. S.



Neat 5-Room Concrete Cottage in Course of Building

An Arkansas Bungalow

To the Editor: Cotter, Ark.

Here is a five-room concrete block bungalow or cottage I am building. It has, I believe, some interesting and worth while features. The width is 28 feet, the length 48 feet. The rooms are laid out in a modern way, commodious and convenient. Living room, dining room, kitchen, bedroom and bath are provided.

This is the second bungalow of this style I have built this past year. In this one I am using gypsum plaster board for the partitions and for the outside wall I am plastering right against the concrete blocks, which have a hollow air space. The house rests on a solid concrete foundation; we have special concrete chimney or flue blocks for the chimney.

I have laid a double floor in this bungalow, and some will think it is a queer way to lay a floor. The sub-floor is of native oak, the top floor of yellow pine. We have considerable sand in our soil here, and it cuts too much for a highly polished floor.

G. B. ORTMAN,
Builder and General Contractor.



Cost of Metal Ceiling Work

To the Editor: Burchard, Nebr.

Please give me some rules for figuring metal ceiling—that is, how much a man can put on in a day, and what it is worth a square to put on, and same on painting.

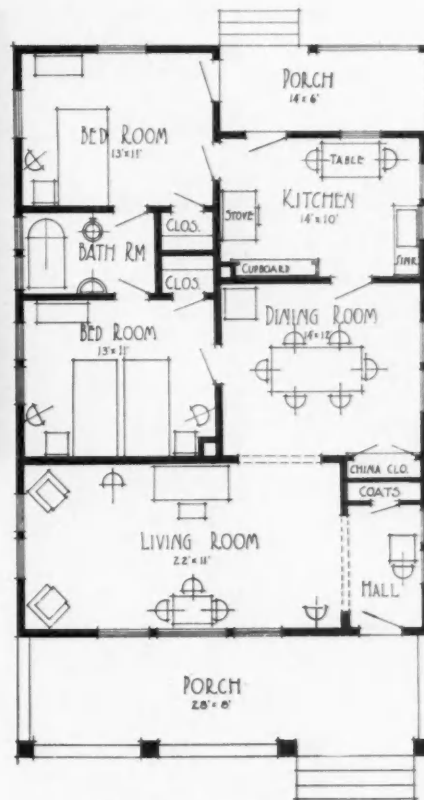
EVERETT HERRON.

Answer: The following from Radford's "Estimating and Contracting" may prove of service to you:

In placing ceiling, two men in a nine-hour day will put on from 300 to 400 square feet of ceiling with cornice. On plain work on large surfaces, these quantities may be doubled.

In painting metal ceiling, one gallon of paint is estimated to cover about 500 square feet of surface, and one man will put on about 80 square yards of paint, one coat, in an eight-hour day.

EDITOR.



Floor Plan of Concrete Cottage

Ft. Hays Model Dairy Farm

On pages 89 and 90 of our November issue we presented some photographs of the model dairy farm and silos of the State Experiment Farm at Ft. Hays, Kansas. By mistake, the design of these buildings was credited to Mr. W. A. Richter. While he was employed on this work, we understand that the ideas for the design were furnished by Prof. Reed, Head of the Department of Dairying at the State Agricultural College at Manhattan, Kansas. Mr. Richter made pencil drawings from his sketches and these were revised, traced and blue printed in the Engineering Department of the college at Manhattan. The Superintendent of Construction for all of this work was Mr. Warren A. Baker, of The Warren Baker Construction Co., Hays, Kansas. Editor.



Large Horse Barn

To the Editor: Derby, N. Y.

Some of my fellow readers may be interested in this picture of a fancy or thoroughbred horse barn I have just constructed for Lieut. G. L. Stryker, of this place. It measures 78 by 206 feet, containing thirty box stalls. It has one large room inside with tan bark floor for exercising horses. It measures 50 by 180 feet.

G. R. DINGMAN.



Large Thoroughbred Horse Barn at Derby, N. Y.

A Large Modern Residence

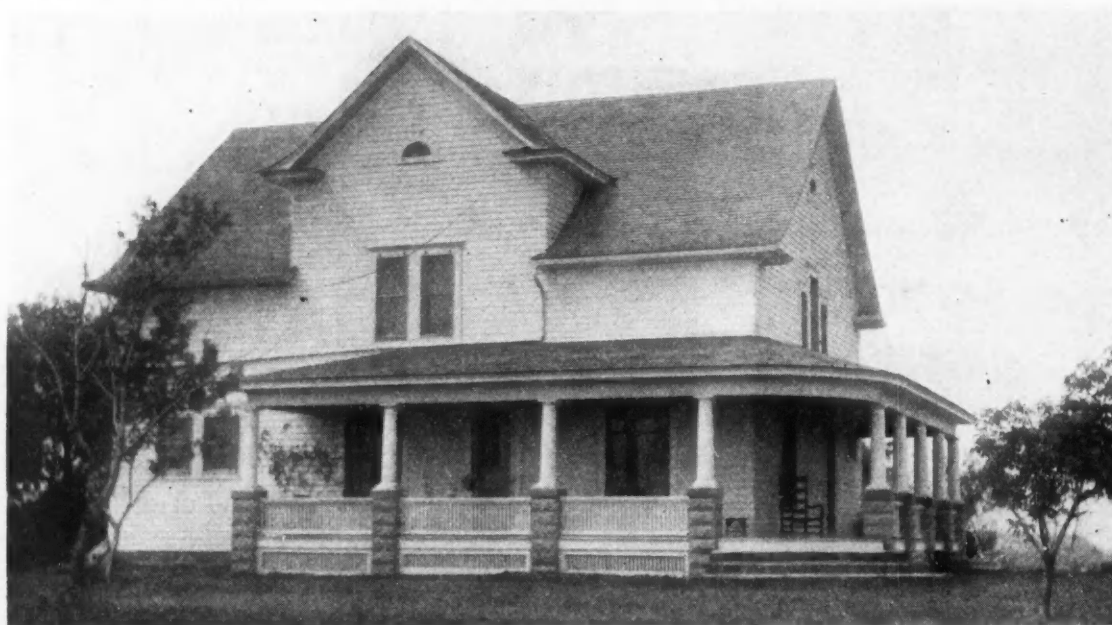
To the Editor:

Hickman, Neb.

I have been 30 years in the building business and have put up a good many first-class dwellings in quick time. This one, however, is, I believe, the cheapest house I ever built; that is, as to labor cost.

This house measures 30 by 40 feet. With the help of two boys, sons of the owner, 16 and 17 years old, I built this house complete in four weeks, day work. I paid them \$1.50

lintels, foundation blocks, etc. It will be found a useful addition to the outfit of small contractors whose requirements in this direction do not warrant buying a standard set of steel plate molds. The latter are to be preferred if the dimensions of these units are sufficiently standardized and a fairly large quantity required; but there are hundreds of small builders and contractors who go on putting in more or less expensive dressed stone sills, lintels, steps, etc., when concrete units for the same purpose can be turned out



Ten-Room Residence Planned and Built by J. E. Offer, Hickman, Neb.

each per day and I received \$234.90 for my work, which made the total labor cost \$306.90.

I believe all of the boys will agree that this is doing pretty well.

The house is finished in yellow pine throughout. Has a warm air heating plant in the basement. There are five rooms down stairs; reception hall, parlor, dining room, kitchen and bedroom. The bathroom is on this floor, also a large back entry or work room. On the second floor are five good sized bedrooms with an ample supply of closets. Both front and back stairways are provided.

The outside of this dwelling is made attractive with a large circle corner porch and prominent gables on the roof.

I am a charter member of the AMERICAN CARPENTER AND BUILDER and have received much help from its pages.

J. E. OFFER, Contractor and Builder.

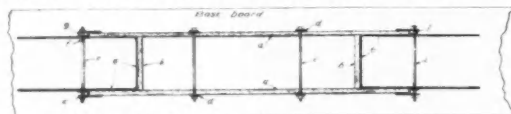


A Simple Mold for Concrete Sills, Steps, Lintels Etc.

To the Editor:

St. Catharines, Ont.

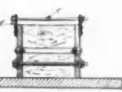
In Figs. 1, 2 and 3 are illustrated a simple form of mold suitable for casting small concrete units such as sills, steps,



— Fig. 1. —



— Fig. 2. —



— Fig. 3. —

Plan and Two Elevations of Adjustable Mold

cheaper, but just as satisfactory in transverse strength, and can be made to look as well in appearance.

The mold is made of well seasoned timber—preferably white pine, and is adjustable to varying lengths and depths, the widths also being variable if spare sets of certain parts of the mold are kept on hand. Fig. 1 illustrates a plan view, Fig. 2 a half section and elevation, and Fig. 3 an end view.

The mold consists of a plain box with loose sides (a), and ends (b), with no bottom or top. The sides are held together by bolts (c), passing through lugs (d), screwed to the sides, the ends forming distance pieces against which they are bolted. To the end pieces are screwed iron straps (e), bent to a "U" shape, the width between the legs of the "U" being made to fit between the sides. In these legs, holes are punched at suitable intervals to receive cotter pins or bolts (f), passing through lugs (g), which are attached to the side pieces as shown. The legs of these "U" straps should be made of sufficient length to admit of the smallest length of block required being cast, the ends being moved along to the desired distance, and secured in place by means of the cotter pins engaging with holes in the "U." The whole box rests on a base board as shown, but is not attached thereto.

The blocks are to be cast face downwards, and where a special face is required such as a sloping top on a window sill, etc., a face plate is placed in the bottom of the box. These may be cheaply made of wood and suggestions for a few of such plates are shown in Fig. 4. Where the drip groove is required, this may be formed after the concrete has been placed, by means of a round edged board, or rod.

The depth of the block can, of course, be varied according to the height to which the concrete is poured in the mold, and if it is desired to make the mold variable in width as well, it is only necessary to make a few spare end pieces

and "U" straps of the width required and use longer bolts for holding the sides together.

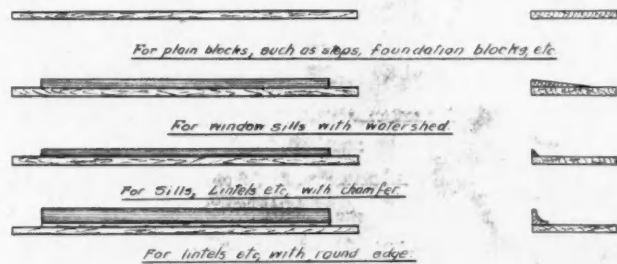
The forms should be thoroughly saturated with water before the concrete is placed so as not to absorb water from the concrete, or some soft soap may be worked well into them instead.

The concrete mixture should be well proportioned, a suitable mix being 1 cement, 3 sand, and 5 gravel, using as a facing, 1-2 mix of cement and sand. If about 1 part of hydrated lime to each 3 parts of cement, be added to the facing mixture a much better appearance is obtained.

The surface may, of course, be afterwards tooled and finished similar to a stone block if desired, but for ordinary purposes the molded finish will usually be found satisfactory.

—Elevation.—

—Section.—



— Fig. 4. —
Typical Face plates for Sills, Lintels etc.
Face Plates for Adjustable Mold

Sand and gravel should be well washed, and if the concrete is mixed by hand, should be turned over at least 3 or 4 times until a uniform color is obtained throughout the mass. The mixture should be sufficiently wet as to pour easily into the mold and then be well rammed down.

After the concrete has set, which in a medium climate should be from 2 to 4 hours after placing, the mold may be taken apart by releasing the end pieces and removing the bolts, leaving the block on its face plate. It should remain on the plate until properly cured, and to enable this to be done, it is advisable to keep a supply of face plates on hand, according to the quantity of blocks required.

It is hardly likely that the average house builder will possess a steam plant which can be used for curing purposes, hence it will be necessary to cure the blocks by the air process.

The blocks are carried on their plates to an open shed or some place where a free circulation of air is obtained, and should be thoroughly wet down with a watering can or hose once or twice a day for about a week. It is good practice to watch for the edges of the block turning light, as this indicates that less water is required.

If you should run short of face plates, the blocks may be taken off after being cured for 2 days and piled up in the yard, where they can be wet once a day and allowed to cure until the time they are wanted. The blocks should stand for at least 28 days before being used, but the older they are before using, the better they will be.

It is just as important to exercise care in the curing of the blocks as in casting them, as no matter how well made they may be, their strength and durability will be considerably lessened unless properly cured.

JOHN A. DICKINSON.

Placing Porcelain Insulators in Concrete Work

To the Editor:

Kansas City, Mo.

Sometimes the carpenter is called upon to place porcelain insulators in concrete work. Here is a method which I have found to work quite well: Take two boards about 4 inches wide and place edge to edge; along the line of

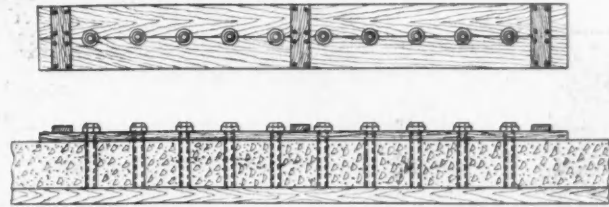


Fig. 1.

Porcelain Insulators Through Concrete Floor

the joint, lay out the centers of the tube holes and then fasten the boards together by cleats nailed in between the tube-hole centers, care being taken to leave enough room for the heads of the tubes. The holes may now be bored to receive the tubes.

When the tubes go through the floor, the thickness of the boards used should correspond with the thickness of the wearing top of cement. When the concrete has set, the boards may be taken out and the cement surface brought up flush with the under side of the heads of the tubes. This leaves the heads of the tubes projecting above the finished surface of the floor.

If the floor is laid and surfaced in one operation, the edges of the boards should be beveled to facilitate removal from the concrete. The recess left by the boards may then be plastered up.

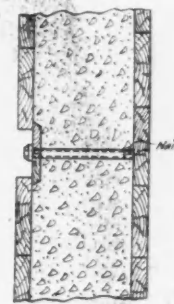


Fig. 2.

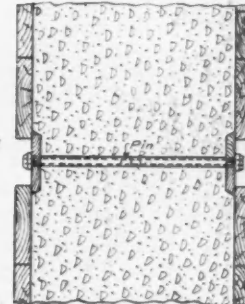


Fig. 3.

Porcelain Insulators Through Concrete Walls

Figure 1 shows the arrangement in plan and section. When the tubes go through a concrete wall, an opening should be left in the form, over the inside of which the tube boards may be nailed. The recess left by the boards may be plastered up after removal. Figure 2 illustrates the scheme. If it be desired, for the sake of appearance, to have a head on each face of the wall, two tubes may be used, as shown in Fig. 3. A wooden pin should be inserted in the abutting ends of the tubes to preserve alignment. This scheme may be used where the wall is very thick and which would necessitate a tube of extreme length. A single board may be used to hold the tubes, the board being afterwards split and removed. This works fairly well when the grain of the wood is quite straight, but where it is not, the board is removed only after considerable "whittling," which is liable to break some of the tubes.

C. O. SANDSTROM.



A Good Furniture Polish

To the Editor:

Mayville, N. Dak.

In answer to D. M., in the December number, for a good furniture polish, this is a good one, got up by my father: One part raw linseed oil to five parts turpentine, shaken well. Saturate a rag and apply. This has to be dried off well with a piece of cheesecloth.

This also makes a good polishing oil in combination with powdered pumice stone.

In case the furniture is old or dusty, it has to be cleaned with water first before polishing.

We use this furniture polish in preference to a good many patented polishes.

OSCAR LURA.

Photo (slightly reduced in size) of Front Cover—an Oil Painting, beautifully reproduced in the original colors by New Offset Litho Process.

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Special MODEL BUNGALOW Completely Detailed on Large
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Complete Building Specs. and Gardening Directions.

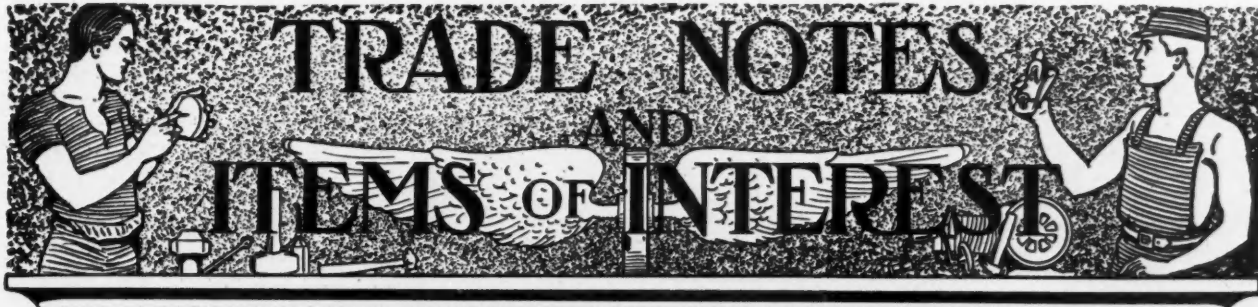
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Through this department the editors aim to keep builders, contractors, carpenters and architects in touch with what their friends, the manufacturers, are doing for them in new or improved tools and machinery, methods and materials—pertaining to building. Items for these columns must have real news value; they are offered here as interesting information for our readers; they are not advertising. No matter will be printed here simply because some advertiser wishes it. Likewise, no matter will be excluded simply because the article described is not advertised in this magazine. Suggestions for the betterment of this department are requested of our readers.

The Outlook By L. A. De Vore

Many a contractor is bemoaning fate for the unprosperous year, for the bad times and so forth—but do you realize the old saying, “that it’s always the darkest before the dawn?” If it wasn’t for the fact that everybody is going around with that hang-dog look you would not notice business conditions. Buck up, don’t make a mountain out of a mole hill. You have had worse times.

Now for a look ahead. We have just finished one of the biggest years for concrete construction. Do you know that? We have before next year one of the greatest booms known in history—the boom of concrete construction. Everywhere people are waking to the fact that concrete is the greatest of building materials, the one that will outlast any other, the cheapest in the long run. It is the ideal road material. Think of the thousands of roads that will be built next year through the Good Roads movement. Think of the large amount of work that means. You can get your share of that.

Again, turn to building construction. How many new buildings went up in 1913, built entirely or partly of concrete? Hundreds—yes, hundreds of thousands. There will be twice that many next year.

Manufacturers all over the country who build constructors equipments, are busily laying plans for the big boom in business. They are using slump times to build up for the bigger times. How about you, are you doing the same? Are you getting wise to all the new wrinkles in your business?

The plea of all manufacturers, both of cement and machinery, is—“don’t cheapen the product of your work to insure yourself a profit; but cheapen the labor and operating cost by using equipment most up to date.”

The coming Cement Show at Chicago, February 12-21, 1914, is going to be one of the greatest. It, in itself, is going to be the greatest prophecy for the big concrete boom. Everybody is straining themselves to make this show a success. Your help is asked.

It will show all the latest improvements and machinery on the market for cheapening the labor cost of concrete mixing. One of the most interesting spaces which features low mixing cost will be the space of The Standard Scale & Supply Company, Chicago, Pittsburgh, Philadelphia and New York. These booths will be found in the annex, Nos. 172-3, and in them will be found some of the greatest boosters for the big concrete boom.

These booths will show several sizes of the famous “The Standard” Low Charging Concrete Mixers, the mixer with the self paying “knack.” They will also show hoists, pumps, and barrows, and will have for free distribution for all who ask one of the most complete Contractors’ Equipments Catalogs ever issued. This book shows and

describes everything that the progressive contractor desires in the way of twentieth century time and money-saving equipment. Don’t forget, if you come to the Show, that you will miss the biggest part of it you don’t get this catalog.

Remember, 1914 holds in its hand promises for the biggest concrete boom ever, and it is by having the best equipment that you can get your share of it. If you can’t attend the show, you certainly can write to The Standard Scale & Supply Company, Chicago, for a copy of their latest catalog, Y-100.



Contractors’ Cozy Wagon

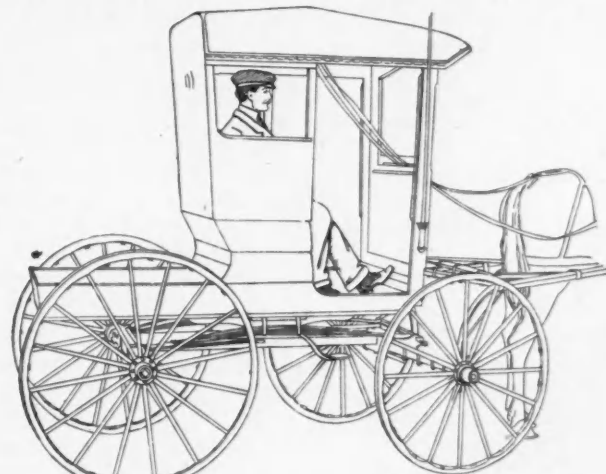
“GET A COZY CAB AND FORGET THE WEATHER”

The first “Cozy Cab” was suggested by a doctor. Wm. A. Hunter, president of Fouts & Hunter Carriage Mfg. Co., relates the story. About nine years ago, Dr. McAllister, of Terre Haute, came to my factory and said: “Will, I want you to build me a buggy that will keep me dry in wet weather, warm in cold weather and protect me from the sun in hot weather. It must be light enough for one horse to pull over bad roads, and it must be well-built and nicely finished.”

I did some mighty hard thinking and figuring for several weeks, and finally I designed and built what he wanted, although I knew I could improve it if I had more time.

The Doctor was mighty well pleased, and so proud of it that he showed it to his friends. Within two weeks, six other physicians came to me and left orders for a rig “like Dr. McAllister’s.” In six months, I had more orders than I could take care of and had to enlarge my factory.

The demand has been steadily increasing. Each year I have profited by the experience of my customers by adding improvements, until I now feel that my latest design is perfect.



The “Cozy Cab” a Comfortable Ride in Any Weather

The Cozy Cab is the Perfect Buggy

The Cozy Cab today is the finished product, after years of slow striving and patient determination. It was no easy matter to accomplish this buggy, which has so many good features and vital improvements. It was a fight, where the victory gained came only after the most persistent effort.

This is the only practical wagon ever built for every-day use of contractors and builders. The manufacturers designed it not only for ample room, strength and easy running qualities, but considered the comfort and health of the user. When open, in pleasant weather, the flexible door curtains are out of sight and out of the way. In 30 seconds, with one hand and without dropping the lines or leaving the seat, the Cozy Wagon can be made storm-proof. Rain, snow, mud, dust and cold winds do not worry the man who drives a Cozy Wagon—he knows he will be dry, warm and comfortable.

The Cozy Cab is made in a large factory where this one style of buggy is manufactured exclusively the year round—twice as many as all others of this type combined—other manufacturers imitate this style of buggy only in their dull season. It is not manufactured by Fouts & Hunter as a side line, but as an exclusive proposition.

The Cozy Cab is the only buggy that offers absolute and perfect protection in all kinds of weather and under the most varying conditions. A buggy that gives comfort, safety, convenience and splendid service. The Cozy Cab is not the result of a freak idea, but a final accomplishment of constant effort, constant thought, experiments and development for over nine years. Every idea, every thought was studied, compared, tested and proved, and built into a storm-proof buggy that is nothing short of a "Masterpiece."

The Cozy Cab is the buggy for every day in the year! Not another vehicle can compare with it for simplicity of construction and operation, for perfect protection under all climatic conditions, for safety under any circumstances, for comfort and roominess, for convenience and get-at-ability of every part.

The manufacturers are making a 30-day-free-trial offer to introduce the Cozy Cab among contractors and carpenters. To your honesty, fairness and unbiased judgment, they leave the Cozy Cab. They have faith and confidence in both. They know that your decision will be in favor of the Cozy Cab, as it has won the favor, the confidence, the good will and the hearty enthusiasm of thousands before you.

Write today for handsome free catalog and special 30-day-free-trial offer; address Fouts & Hunter Carriage Manufacturing Co., 205 Third Street, Terre Haute, Ind.

Hess Announces Profit Sharing Plan

The Hess Warming and Ventilating Company, in its advertisement on another page, calls attention to a new arrangement to enlist the co-operation of contractors and builders in its furnace selling campaign.

For many years this company has made a specialty of selling complete furnace equipments, direct from its factory to consumers, furnishing complete working plans, illustrated directions for installing, and tools, if necessary. It has built up a large business all over the United States; and very many of its customers are contractors and builders.

The business of plumbers and hardware dealers has not been solicited, for the company has preferred to plan all the equipment furnished, and to be directly responsible to consumers. Its business with builders, however, has been most satisfactory, and the purpose, now announced, is to extend that business by bringing contractors and builders into a Profit Sharing arrangement, which consists of a special allowance or discount from its factory-to-consumer prices. Contractors are invited to address the company and secure an outline of the proposed arrangement. The company's address is 1220 Tacoma Building, Chicago, Illinois.

"Standard Time" Keyless Padlocks

Here is a solid brass padlock that can be opened either in the dark or light in five seconds or less. This is done by the aid of sight, touch or sound. It is guaranteed to be positively non-pickable, is rust and dust proof and represents the highest type of workmanship and security.



The many advantages of Keyless locks are obvious; there are no keys to lose, break in lock or become duplicated by the dishonest person who may want access. The "Standard Time" lock is not an experiment, but has been on the market for many years and of the million or more in use all are giving satisfactory service in every respect. No one having anything to lock can afford to be without the protection of a "Standard Time" lock. It is the cheapest kind of insurance, and is adaptable to any purpose where a lock is required.

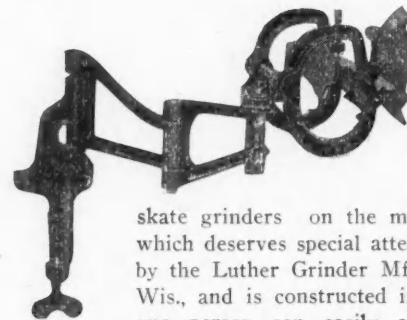
Illustration shown is half actual size. Made by the Miller Lock Co., Frankford, Philadelphia, Pa. Write them for particulars.

They Want Agents

Agents usually clean up on new things. Chair tips are going well. The Evergrip Gliding Caster Co., Dept. V., 20 Warren Street, New York City, want agents and distributors everywhere to sell their chair tips. Write these people for their proposition to carpenters. They will send you a sample set free of charge and make you a good offer.

Skate Grinding Attachment

Now that cold weather is here, a great many people are wondering how they are going to grind their skates for the winter. It is not an easy matter for one person to



successfully grind a pair of skates, and do it quickly without some good device in which to hold them. There are not a great many efficient

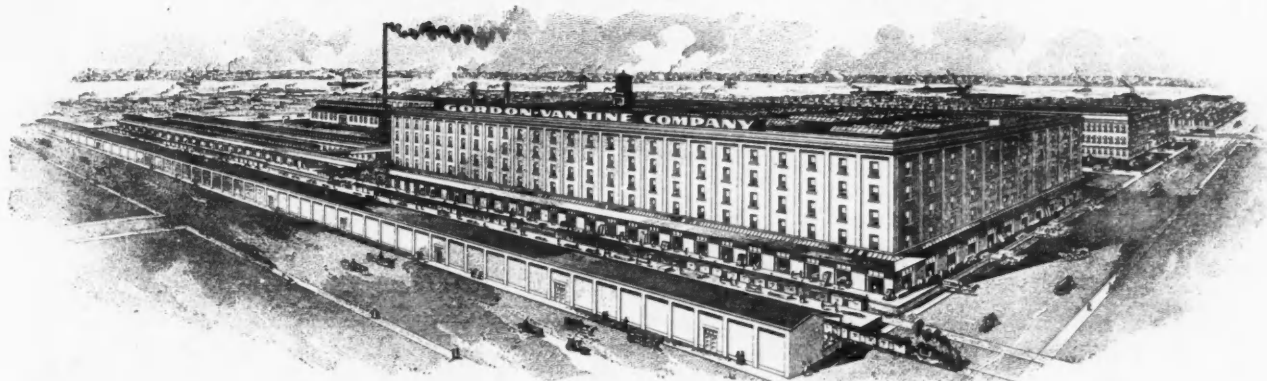
skate grinders on the market. One, however, which deserves special attention, is manufactured by the Luther Grinder Mfg. Co., of Milwaukee, Wis., and is constructed in such a manner that one person can easily operate it, giving the proper bevel to any kind of skates.

This attachment can be clamped to any bench, and is arranged so that it can be swiveled to any position. The clamps are adjustable to hold any size or kind of skates and are also adjustable to give the skate any bevel you desire. It can be used with any bench grinder or with any other grinder near at hand. It is extremely simple to adjust, and is exceptional in that it takes only one person to operate it, successfully.

The "Famous" Line of Woodworking Machinery

Looking over the copy of the 1914 catalog of the Sidney Tool Company, which has just reached us, we confess our surprise at the extent of their line of woodworking machinery. We have heard so much about the Famous Universal Woodworker that somehow we got the idea that this universal machine, in its several sizes and in the portable and stationary models, was all this Sidney concern are manufacturing.

But we were wrong. Their line of universal woodworkers, being the most unusual, is naturally the one most talked



Gordon-Van Tine Co.'s Building Material Plant

At Davenport, Ia., and Vast Lumber Yards at St. Louis

Our business with Carpenters and Contractors throughout the Nation is growing with giant strides. They have come to realize the tremendous advantages offered by the Gordon-Van Tine Company's wonderful Millwork and Building Material Plant in Davenport, where everything used in a building, from shingle nails to the finest interior wood-work, can be secured in double-quick time at a fraction of retail prices.

They have learned that our immense Lumber Yards in St. Louis can "fill the bill" in less time and for less money than retail lumber yards with their limited stocks and heavy running expenses.

We ship building material into practically every community in the United States. We have an enormous output. Our small profit comes on the big volume—the total business. The man who orders a single window or door gets exactly the same low price as the man who orders in car-loads.

We have reduced the manufacturing cost and the handling cost to an absolute minimum. We have applied the principles of scientific management to this vast Building Material enter-

prise. The goods are loaded direct from platform to cars without a penny of drayage. In addition to all these facilities we have a Special Service Bureau for the benefit of Carpenters and Contractors. Expert lumbermen, practical carpenters, experienced contractors, and a staff of Architects make this department of great practical benefit to all who require such service. We invite Carpenters and Contractors wherever possible to visit our plant. We want you to inspect our facilities, to meet our men, to study our methods of business.

But whether you come to Davenport or not, you will receive the absolute best that we have in materials, prices and service.

Millwork, Lumber and Roofing

25 to 50 Per Cent Below Average Retail Prices

These are not "paper" savings but in actual dollars and cents. The most thorough investigation, the most rigid comparison, will prove these statements correct.

Quality, Prices and Service

Insure Saving and Satisfaction

All Gordon-Van Tine Millwork, Lumber and other Building Material is of the highest guaranteed quality. The prices speak for themselves. The service is yours for the asking. We have "made good" for thousands and thousands of Contractors and Carpenters in all parts of the country. A test order is all we ask. Every item listed and described in our Catalog is ready for immediate shipment. Hundreds of items in fancy doors and windows, special stair work, porch work, and interior finish which cannot be duplicated by local planing mills inside of two or three weeks are ready for quick delivery.

Send for Big, New, Color-Illustrated Building Material Catalog

The splendid Catalog contains over 5,000 bargain offers in high-grade Building Material, and is a veritable Encyclopedia of Building Information for contractors and carpenters.

The new edition of the Gordon-Van Tine Book of Plans contains a splendid collection of beautiful and practical designs for houses, cottages, bungalows, etc. These plans have been built from, over and over again, and the cost of material for each plan is guaranteed not to exceed our estimate on same. In writing for the Book of Plans, enclose 10c to pay cost of postage in mailing. (268)

GORDON-VAN TINE COMPANY

676 Federal Street

Davenport, Iowa

Carpenters' and Contractors' Service Bureau

We maintain for the benefit of customers a highly efficient Service Bureau. The various departments of this Bureau are as follows:

Estimating Department

Furnishes quick accurate estimates. Get our estimate on your next house bill.

Plan Department

We employ a staff of high-class architects. We work from your rough draft or description of proposed building—charge less than your local architect.

Advisory Service

Our experienced men will be glad to assist in solving any knotty problems that present themselves in connection with your work. Please feel free to use this service.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

about. Looking through this catalog, however, we see that the "Famous" line of woodworking machinery includes all of the standard types of machines that are in use in power woodworking shops and small planing mills. There are band saws in 36, 32, 27 and 20-inch sizes. These are equipped with either iron or wood wheels, adjustable tilting table and all gauges.

The variety and combination saws in several styles and sizes are important items that are fully illustrated and described.

Several styles of swing cut-off saws are pictured. The "Famous" hand jointer is given a prominent place. There are also 18 and 24-inch planers, double-belted planers, etc.

Shapers are illustrated, both the single and double-spindle models. There is a vertical hollow chisel mortiser, also a combined mortiser and tenoner, post borers in several styles, and a number of wood-turning lathes brings one up to the section devoted to the well known Famous Universal woodworkers.

Throughout, this catalog is very nicely illustrated and the descriptions of the machinery are complete and understandable, giving the information a prospective purchaser would want to have. In the back part of the book is a supplement giving many useful tables and other information.

This is a catalog of 128 pages, nicely bound and of handy size for reference. Copies will be mailed to our readers upon request. Address The Sidney Tool Company, 112 Highland Avenue, Sidney, Ohio.



Easy to Own an Engine Now

One of the most notable things in the kerosene and gasoline engine business, is the new sales plan adopted by Ed. H. Witte, of the Witte Engine Works Co., 1770 Oakland Ave., Kansas City, Mo. He now sells direct from factory to

user, and has arranged for easy payments, at no advance over regular prices. The plan is devised so a Witte engine can earn its own cost, while the user is paying for it. For 27 years Mr. Witte has done nothing but build Witte engines. His catalogues and circulars, together with the prices he makes, show he is a master at his business. The Witte factory is one of three of the first gasoline engine factories in America, and is now one of the oldest and largest exclusive engine businesses, selling only direct to the user. Mr. Witte has just brought out a very handsome, large sized circular in three color printing, the title of which is, "Own Your Hired Hand—It's Cheaper than Hiring." The text matter and the rich illustrations show in a convincing manner that a Witte engine, using either kerosene, gasoline, gas, naphtha, or distillate, is a competent "hand" suitable for any work that can be harnessed to a belt. The striking part of this showing is the really low price that can be made on all sizes of these engines, from 1½ to 40-horse-power, stationary, portable, skidded, or sawrig styles. These factory prices mean a saving to purchasers, of anywhere from \$25.00 to \$350.00, according to the size and style of engine selected.

The 60 days' free trial plan is also explained in connection with the liberal five-year guaranty, which Mr. Witte makes very definite and broad. Your name and address, sent to Mr. Witte, at his address, as given above, will bring you one of these new circulars, together with his big, fine catalog and easy payment sales plan.



Ed. H. Witte

For Porches Like This—

USE CON-SER-TEX CANVAS ROOFING

Con-Ser-Tex makes flashing unnecessary. Just turn the edge of the canvas up under the siding. Makes a perfect, leak-proof joint and prevents water from working its way into the wall. There will be no rotted timbers or siding; no leaking down on the porch below

Serves Two Purposes—Roof and Floor

No other roofing can stand the scuffing of feet, the shifting of chairs and porch furniture, the steady wear and tear, like Con-Ser-Tex. Cover the porch floor with it; cover the roof or balcony. It's made for either purpose and made GOOD. The value of Con-Ser-Tex as a convenient, efficient roofing for all porches, decks, roofs, etc., can only be determined by the unlimited satisfaction it has given in actual use. Carpenters find it saves time. It is easy to lay. Our word for it is our guarantee that Con-Ser-Tex never rots, mildews, or stretches, and that it is durable. Con-Ser-Tex is made from an exceptionally strong, durable canvas specially treated to resist wear and all weather conditions. Once down, Con-Ser-Tex always lays flat. Never rattles; never heaves or bulges. It is always neat. To get the genuine Con-Ser-Tex Canvas roofing, see that it bears our trade mark. We'll send you a generous sample of Con-Ser-Tex with description and price on request. Write now for particulars about the BEST canvas roofing. Con-Ser-Tex makes porch-roofing easy.

William L. Barrell Co.

8 Thomas Street :::: New York City

Chicago Distributors:

Geo. B. Carpenter & Co., Wells and Michigan Streets

California Distributors:

Waterhouse & Price Company
San Francisco :::: Los Angeles



**CON-SER-TEX
CANVAS
ROOFING**

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

\$300 Monthly For You



**YOU!
YES YOU
CAN GET IT**

I Want to Pay This Big Salary to YOU!

I want square men and women to act as my Special Sales Representatives in every county. I want hustling, energetic, ambitious fellows, anxious to make big money, who are willing to work with me. I want to show YOU how to MAKE \$300 PROFIT AND EXPENSES EVERY MONTH. I want to show YOU how to make more money, easier, quicker, more sure and certain than you ever did before in all your life. I want you to advertise, sell and appoint local agents for the most sensational seller in 10 years—the startling invention that has set the entire country agog—

The Robinson Folding Bath Tub

Here is an absolutely new invention. Nothing else like it. Has taken the entire country by storm. Solves the bathing problem. Gives every home a modern, up-to-date bathroom in any part of the house. No plumbing, no waterworks needed. Take full length baths in any room; up stairs, down stairs, bedroom, sick-room, parlor, kitchen, any room in the house. The Robinson Tub folds in small roll, handy as an umbrella. Rivals expensive bathroom. Constructed of the wonderful "Steelne" material. I tell you, it's Great! Remember it is needed in every home. Means modern bathing facilities for all the people. A godsend to humanity.

Sensational Sales Success

What others are doing YOU can do. Read these records: N. T. Smith, Ohio, \$90 weekly profit. Meyers, Wis., \$250 first month. Beasley, Neb., \$35 profit first 4 hours. Newton, Calif., \$60 in 3 days. Mathias, Fla., \$120 in 2 days. Corrigan, N. Y., \$114 in 60 hours. C. H. Tremor, Ind., \$85 profit first 6 hours. W. F. Hincard, New Mexico, \$35 in 2 days. Average men, average sales, average towns. Undeniable Proof of the Big money to be made by hustlers everywhere. The Robinson Tub is badly wanted and eagerly bought.

I want you to handle your county. I'll furnish demonstrating tub on a liberal basis. I'm positive, yes, I'm absolutely certain that you can make bigger money in a week with me, than you ever made in a month before. Hustlers, east, west, north, south, are simply coining money. Orders, orders everywhere. For, remember, fully 70 per cent of the people have no bath rooms. You can take the orders right and left. Quick sales and immense profits. Two sales a day mean \$300 a month profit. Stop and realize the tremendous possibilities. Look around you. Be amazed. Your neighbors, friends, relatives, have no bathrooms. They are eager for one; never had the opportunity to install one. You step in; show the tub. Sale's made; profit sure.

No Experience Needed

Why, I don't care if you never sold anything before in all your life; you can make good big money with me. You're honest? You're square? Of course you are. You've got grit, ginger, gumption? Of course you have. You want to make good? You want to make big money? Sure you do. Well, that's all I ask. If you are willing to do your best, backed by my co-operation and help, you can blast out the biggest financial success of your career. I grant credit, you know, so money can't hold you back. I furnish sample on liberal plan. I help you out and back you up. So don't let doubt drag you back. You have nothing to lose. My other men are building homes, starting bank accounts, so can you.

Customers' Words of Praise

See how pleased these people are: "Delighted with Tub; will recommend it." Mrs. Jennie Hall, Miss. "Bath Tub O. K. Just right size." Wm. Benz, Ohio. "Our tub has been in daily use. Fine." Mrs. J. E. Randall, N. Y. "Have been using your Tub. Could not do without it." Mrs. G. C. Money, Iowa. "Robinson Tub first-class." Chas. A. Massie, Wash. "Tub arrived. Children and all delighted." C. R. Loucks, La. "We all took a bath. It sure is a daisy." O. L. Morris, Ore. "After testing your Tub can say it surely is a wonder and gives entire satisfaction." O. P. Morgan, Ohio.

Empties Itself

Remember This: The Robinson Folding Bath Tub, equipped with our special Outlet Emptying Device, makes the tub positively self-emptying. How convenient and handy this is. After the bath no fuss and bother, emptying the tub. By the time you are dressed the tub is emptied ready to lay away. All the conveniences of a modern, up-to-date bathroom, and yet the Folding Tub does not take up space or be in the way when not in use. No special room need be set aside as a bathroom unless desired. Any room can be made into a bathroom in 5 minutes' time. Is it any wonder users are delighted and agents are enthusiastic? The Robinson Folding Bath Tub demonstrates its value immediately upon showing. It is the ideal bathing equipment for every home, city, country or town, for camping, etc., as well as the one desirable tub for the sick-room. Bedroom, parlor, living room or kitchen; any room can be made into a bathroom in a jiffy. All this without plumbing, waterworks or extra expense. After the initial cost there are no further expenses to pay. Every home, everywhere is just waiting for the Robinson Folding Tub.



Guaranteed for 10 Years! Cannot Leak

Every Robinson Folding Bath Tub that leaves our factory is guaranteed for 10 years against any defect in manufacture. This is due to the remarkable invention, "Steelne," the material used in the construction of the Robinson Folding Tub. Constructed with this material the Tub can be and is, guaranteed for 10 years. Should it prove defective a new Tub is immediately furnished in its place. This guarantee protects every customer for a period of 10 years. Steelne makes the Tub soft and pliable, yet strong and lasting. The Tub cannot spill, tip nor splash. Just as strong and durable in use as the ordinary enameled tub, but in convenience so far superior. In buying the Robinson Tub, customers take absolutely no risk. They are guaranteed against defects by our liberal, binding guarantee. Families everywhere boost the Robinson Tub to their friends, which makes the sales come fast and sure for our representatives. Surely the Ideal bathing equipment without one objectionable feature.

JOIN ROBINSON'S MULTITUDE OF MONEY-MAKING AGENTS

Yes, join the many agents who are making bigger money than they ever did before. You don't need to quit your regular job right now. Try the business out evenings, Saturday afternoons, whenever you have a little spare time. See that all I tell you is so. Then quit your job. Say good-bye to the time-clock; say good-bye to grinding work and meagre pay. Bid your pay-check pals farewell forever. Just for a change you be the Boss. You can do it. I know after one week of spare-time effort you will be eager to devote all your time to the sale of the Robinson Folding Bath Tub. You will be enthused, positively amazed. You will say: "My luck was surely with me when I got acquainted with Robinson."

A Sure Chance for Ambitious Hustlers

I wish that I might call a meeting of all ambitious men and women in America that I might talk to them and tell them of the tremendous possibilities in this business; show them the sales my other representatives are making; convince them beyond the possibility of doubt that here at last is the chance they have been waiting for: the "Opportunity" that is said to knock at every man's door once. If I could only look you squarely in the eye and tell you all the facts about this wonderful business; if I could only lay before you undeniable proof—stacks of letters and orders on my desk; if I could show you enthusiastic letters from Robinson Representatives—Hesitate? Why, man, you wouldn't hesitate for the thousandth part of a second. You would drop everything, your job, your other business, like a "hot potato," and say, "Robinson, I am with you."

Mail This Opportunity Coupon TODAY!

Yes, sign this coupon right now. Don't send me a single penny. Don't send me any return postage. Don't send me any remuneration at all. Just sign and mail the coupon. That is all I ask. By sending the coupon you give me the chance to prove every word I have said. Let me prove every statement. Let me tell you the whole enthralling, ambition-awakening story of a tremendous, world-wide success. Will you do this? Of course you will. Sign and mail the coupon NOW!

H. S. ROBINSON, Pres't,

**The Robinson Cabinet Mfg. Co., 233 Vance St., Toledo, O.
Canadian Address, Walkerville, Ont., Can.**

Sign the coupon below. Let me tell you the amazing story of "Steelne"; let me tell you of that ingenious device that makes the tub self-emptying; let me tell you of the years of self-sacrificing experimental work; the years of unremitting effort in the working out of an ideal, perfect bathing facilities for every home, that the rich, the poor, the high, the lowly, might have the comfort and convenience, the pleasure and luxury of a modern bathroom. Let me tell you of this wonderful invention as it is today, an article which I honestly believe to be the greatest invention for the average American home of past century. I can't tell you all this in person, so send the coupon below and let me write you a long letter.

Let Me Tell You All

I want to tell you the entire story. Then you can decide whether or not you appreciate the immense possibilities of the business I want you to start in. You will read of hundreds of men in your position who were at first skeptical, then curious, then enthusiastic, who are making bigger money today than they ever thought possible in their most rosy day dreams. I will tell you how one ambitious agent in each community can connect with "Opportunity"; get a strangle-hold on success; know the blessed stimulus of financial independence. You will then realize, know, and appreciate the fact that honesty and ambition combined with the right proposition and backed by conscientious effort are the only requisites to an abundant success.

Special Opportunity Coupon

**H. S. ROBINSON, Pres't
Robinson Cabinet Mfg. Co., 233 Vance St.
Toledo, Ohio**

\$300 a month looks good to me. Write me and tell me all about your special plan and how I can make this big money acting as your representative. This obligates me in no way.

Name

Street and No.

Town..... State.....

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

Improved Master Slide Rule

The Dahl Manufacturing Company of 51-G East 42nd Street, New York, who are well known as manufacturers of the Master slide rule, have recently made an improvement on this rule, and are now offering this product as the Improved Master slide rule. The illustration as presented with this article shows the new rule. Its particular feature is the inter-locking device, which is on every slide, and which makes this rule, when opened, entirely fool-proof and rigid. The rule cannot be closed except by releasing the spring on the first or lower slide. This spring is known as the key spring. When the Master slide rule was first put on the market, there was no device that would prevent the rule, or any section of the rule, from closing, and sometimes a careless workman would make mistakes by not having the rule extended full length or by having one or more of the slides out of place. This cannot occur with the Improved Master slide rule.

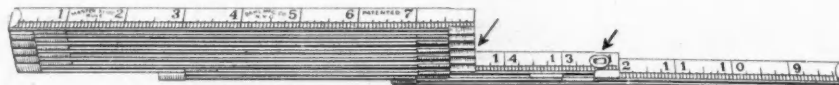
The particular feature of the Improved Master slide rule is that accurate inside measurements can be taken just as easily as outside measurements. All the slides, in the improved rule, come out only one at a time, consecutively, from the bottom. The illustration herewith shows the proper method of holding the Improved Master slide rule.

The Dahl Manufacturing Company has added this new and excellent feature to the Master slide rule at immense expense. Patents have been allowed in practically all civilized



Improved Master Slide Rule in Use

countries. Special machinery was necessary for the making and inserting of the springs. The new rule, however, is offered to consumers at no increase in price and the quotations made for the old rule will still hold good for the new one. Further information can be obtained by addressing the Dahl Manufacturing Company, 51-G East 42nd Street, New York, N. Y.



Detail View of Side of Rule Used for Inside Measuring

Own a Factory like this You Can

We Built This Factory Paid For it In 3 Years

We will furnish Equipment Free

ANY AMBITIOUS MAN OR WOMAN SHOULD SUCCEED
Requires no experience—We start you in business in your own town. Show you how to grow prosperous in the canvas glove business. THE DEMAND is enormous—continuous—never falling—everybody—everywhere wears canvas gloves—the farmer—mechanic—doctor—lawyer—the laborer—MILLIONS of canvas gloves are required to supply the demand—they have revolutionized the glove industry.

THERE IS A MARKET right in your locality—you can supply it. Every merchant and storekeeper for miles around will buy their canvas gloves from you—they want to patronize home industries—you can meet competition—sell as cheap or cheaper than they can get elsewhere—Besides we furnish you names of over 700 jobbers and dealers who buy canvas gloves.

YOU CAN START making money from the beginning—Profits are immense. Cost of production and maintenance of business, small. We borrowed money a few years ago—to start—began with two sewing machines—Today we employ many men and women—Have become independent and prosperous.

OUR GREAT FREE OFFER
We furnish the tools FREE—assist you to start a factory—co-operate with you to successfully conduct the business—give you the benefit of our experience—make it almost impossible to fail.

You become in reality A BRANCH of the McCreery Mfg. Co.—Working independently—we furnish the raw materials—you turn out the finished product—reap the profits.

There are no strings to our offer—you are not bound by any contract to buy from us—only a man to man agreement—that so long as our prices are as low or lower than you can get elsewhere you will buy of us—that's all.

Full information is yours for a post card—Send it Now.

MCCREERY MFG. CO.

803 Dorr Street

Toledo, Ohio

OUR FACTORY is located in a section of the United States where there are hundreds of manufacturing plants—where everything from pins to automobiles are made—Help is scarce—we cannot enlarge our factory—we can't stand still—we must expand, so we want to start a few of these factories—watch their interests—give them our valuable assistance. **IN ORDER TO DO SO** we are offering to a limited number of ambitious men and women in other localities the opportunity to get into this big paying business.

We Tell You All About The Business
in our interesting booklet—How we help you start for yourself—to become a successful business man or woman—How we can furnish the tools—equip you in the manufacturing of canvas gloves, FREE. All this is told in the booklet.

We have confidence in your ability to succeed—all that is required is ambition—a progressive-get-what-you-go-after-spirit and determination to make good. It costs you but a postage stamp—a postal card to learn more of this great opportunity.

Write today for book—Don't delay—Only a limited number of equipments will be offered FREE.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

S. C. JOHNSON & SON

Mr. Contractor,
Where - ever - you - are.

Dear Sir:-

The certificate attached to this letter is worth \$1.10 in merchandise. Cut it out, fill in your name after the words "furnish gratis to", and then present it to your leading paint, hardware or drug-dealer. He will give you free the book and half-pint packages of Johnson's Wood Dye, Under-Lac and Flat Wood Finish.

If your dealer hasn't this material in stock he will procure it for you from his jobber. Assure him he will be reimbursed for every certificate he redeems -- all he has to do is to mail them to us.

These half-pint packages will enable you to give Johnson's Wood Finishes a trial, and we hope you will take advantage of the opportunity. When you have convinced yourself of the merit of these goods we trust that you will use and recommend them in your work. We know they will never fail to give satisfaction to you and your clients.

Our leading products are shown and described on the back of this letter. You are probably familiar with at least part of this line. We want to call your attention to one particularly important feature, and that is - if you specify "JOHNSON'S" - your painter is bound to get good results as our products are very easy to use -- furthermore they will save you money in labor as our goods accomplish a quick finish, keeping painters on a job the minimum length of time. This quick-drying quality also prevents dust and dirt from accumulating in the finish.

Use the certificate and prove our claims.

Insist upon your dealer redeeming this coupon. He can very easily get these half-pint packages for you as all the leading paint, drug and hardware jobbers handle Johnson's Artistic Wood Finishes.

Thanking you for your attention and wishing you and yours a happy and prosperous New Year, we remain

Respectfully,

S. C. JOHNSON & SON.

Per: *H. Johnson*

ACB

\$1.10

S. C. JOHNSON & SON

\$1.10

Racine, Wis.

Upon presentation of this certificate please furnish gratis

to

½ PINT JOHNSON'S WOOD DYE (DESIRED SHADE)
½ PINT JOHNSON'S UNDER-LAC
½ PINT JOHNSON'S FLAT WOOD FINISH
1-25¢ BOOK "THE PROPER TREATMENT FOR FLOORS WOODWORK & FURNITURE"
S. C. JOHNSON & SON

TO YOUR LEADING
PAINT DEALER



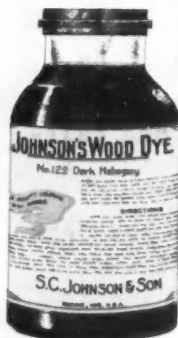
BY

Robert L. Johnson
JR. PARTNER

*Notice to Dealer
Have recipient of half-pint packages
sign here return certificate to us and
we will reimburse you at your cost.*

Johnson's Artistic Wood Finishes

JOHNSON'S WOOD DYE



is manufactured in seventeen popular shades for the artistic coloring of all wood. With it inexpensive soft woods may be finished so they are quite as beautiful as hard wood. Johnson's Wood Dye is a combination spirit-oil dye possessing the good qualities of both a spirit and an oil stain and the disadvantages of neither.

All shades of Johnson's Wood Dye may be lightened by adding wood or denatured alcohol and darkened by adding No. 172 Flemish Oak Dye.

Two or three shades may also be mixed together—in this way hundreds of different effects can easily be produced.

JOHNSON'S PREPARED WAX



for finishing and polishing all new and old furniture, woodwork and floors. Contains 20% more of the hard expensive polishing wax than other brands on the market—for this reason it will cover one-fifth more space and will never become sticky or tacky in the warmest weather or from the heat of the body. Unsurpassed as a furniture polish.

Johnson's Prepared Wax is the only proper finish for floors, as it will not show scratches or heel-marks and can be easily kept in perfect condition. To get the best results on floors a weighted brush should be used for polishing the wax.

JOHNSON'S UNDER-LAC



superior to shellac or varnish and should be used wherever these preparations would ordinarily be used.

Particularly adapted for use over Johnson's Wood Dye where a high gloss is desired. Unequaled for oil-cloth, linoleum, sanitas, etc. It dries hard in less than an hour.

JOHNSON'S PASTE WOOD FILLER



is for filling the grain and pores of all wood. It is made from the best needle-like silex crystals, pure linseed oil and best Japan dryer. It does not

settle or harden in the cans as is the case with most fillers. It may be wiped with ease 6 hours after applying, and dries rock-hard in twenty-four hours. Made in four shades—*Natural*, *Golden Oak*, *Dark Oak* and *Antwerp*.

JOHNSON'S FLAT WOOD FINISH



for that beautiful, artistic, hand-rubbed effect without the expense of rubbing. Imparts a durable finish which can be

washed with water. With it one can accomplish a finish closely resembling the hand-rubbed at one-third the expense. Apply with a brush. It dries hard in three or four hours. Is giving perfect satisfaction everywhere.

JOHNSON'S POWDERED WAX



for ball-room floors. Put up in enameled tin cans with perforated tops. Very easy to use—simply sprinkle lightly over the floor just before the dance

and the feet of the dancers will spread the wax, polishing the floor and producing a perfect dancing surface. It is absolutely free from dust. Has just slip enough and not a bit too much.

JOHNSON'S CRACK FILLER



for filling cracks and crevices in floors and woodwork which are to be finished natural or with John-

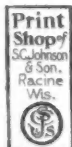
son's Wood Dye. It hardens in twenty-four hours so the work may be finished and it takes Johnson's Wood Dye the same as the wood itself.

JOHNSON'S KLEEN FLOOR



for cleaning finished floors and keeping them in perfect condition. Very simple to use. It removes all spots, stains, discolorations, water marks, etc., leaving the wood bright

and clean. Adapted for cleaning all floors—whether finished with wax, shellac, varnish, oil, or any other preparation.



MANUFACTURED BY

S·C·JOHNSON & SON, RACINE, WIS.

"THE WOOD FINISHING AUTHORITIES"



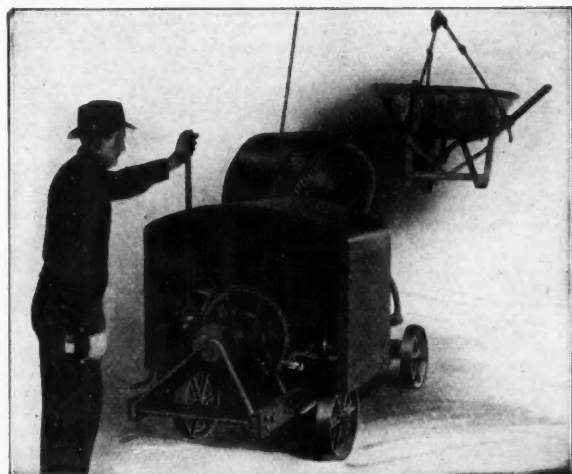
The Medium Size Mixer

The "Big-an-Little" Concrete Mixer is designed especially to meet the requirements of the building contractor who would find a larger machine too expensive a proposition for him to use. Its capacity is up to fifty cubic yards per day, one-sixth of a yard per batch, and its average output ability is a mix a minute. The operating power is furnished by a gasoline power engine of two and one-half horse power, and as a time, labor and money saving machine in this line of work it is worth while investigating.

Should it be so specified, this mixer will come to you equipped with a Lifting Hoist, as per the illustration, which makes it a two-in-one machine, as the hoist can be used by most contractors to good advantage.

As is well known to the building world, the Jaeger Machine Company has achieved a wonderful success in the designing and manufacturing of concrete mixing machinery. During the past nine years this company have placed upon the market many valuable products, and it has a justly earned reputation of being one of the leading manufacturers of such goods. And in the "Big-an-Little" Concrete Mixer this company has combined all the exclusive and unsurpassed features of efficiency, reliability, durability, quality and economy found in its make of larger machines.

This machine gives a perfect mixture, as has been proven by very severe tests, a fact due to its correct principle of construction and operation. Compared with any hand mixing method, it gives a saving of fully 50 cents per cubic yard, in addition to the producing of a much superior mix and with far less labor. Where the building contractor finds the larger size machines too costly for his general use, and yet finds hand mixing expensive owing to the time and labor involved, the "Big-an-Little" Concrete Mixer is the happy medium whereby he can pros-



Big-an-Little Mixer with Hoist

ecute his work to the best advantage and greatest possible profit.

Consequently, and as may be supposed, there is a steadily increasing demand being made for this valuable machine. If space limit here would permit, we would only be too glad to publish a detailed description of the machine and its operations, but to do so would require more space than could be devoted to the subject. Therefore, our suggestion is that those interested to learn full particulars, address The Jaeger Machine Company. It is a machine that merits your investigation. Address the Jaeger Machine Co., Columbus, Ohio.

You will get **SPECIAL ATTENTION** if you tell Advertisers you read American Carpenter and Builder.

Just Out!

**J-M
Washerless Faucet**

**No Dripping
No Waste**



It's here at last—the faucet *with-*
out a washer!

Think of it, a faucet that saves time, money and worry by putting an end to re-washing. A faucet that saves money for the user because it never leaks and never needs repairs!

Entirely different from any other faucet on the market. Instead of the obsolete, short-lived washer, the J-M Faucet is made with a *conical valve* that bears directly on a *spherical seating*.

Leakage is impossible, as the metal-to-metal contact between valve and seating is absolutely perfect at all times.

Operates as well on high pressure as on low. As efficient on hot water as on cold. No water hammer. No whistling. No splashing. No dripping to discolor porcelain sinks and tubs. Self-cleaning seat.

In Demand Everywhere

Millions of dollars are wasted every year by leaky faucets. Municipal authorities and property owners everywhere are eager to eliminate this waste. You can help them — by recommending the J-M Washerless Faucet.

Not An Experiment

This faucet is a famous English patent. Prominent engineers and water experts pronounce it the most perfect faucet on the market. Thousands have been in successful use for years. Adopted by the Metropolitan Water Board of London and other cities.

**Sold with an Unqualified
Guarantee**

To show our confidence in the J-M Washerless Faucet we guarantee the valve seating against ordinary wear and tear for ten years.

Write Us Today for Booklet

H. W. JOHNS-MANVILLE CO.

Manufacturers of Asbestos Shingles; Roofings; Stucco; Pipe Coverings; Cold Storage Insulation; Waterproofing; Sanitary Specialties; Acoustical Correction; Cork Tiling; Fireproof Doors, Etc.

- | | | | |
|------------|--------------|----------------|----------------|
| Akron | Dallas | Louisville | Rochester |
| Albany | Dayton | Memphis | St. Louis |
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| Chicago | Indianapolis | Philadelphia | Washington |
| Cincinnati | Kansas City | Pittsburgh | Wilkes-Barre |
| Cleveland | Los Angeles | Portland, Ore. | Youngstown |
| Columbus | | | |

THE CANADIAN H. W. JOHNS-MANVILLE CO., LIMITED
Toronto Montreal Winnipeg Vancouver 2157

Turn the dull winter

Take orders for Seattle Silos
to be delivered later in year

Big special offer to contractors, contracting carpenters and builders. Effective January, February and March

Turn dull days into big profits. Write today for our special proposition which will enable you to make a lot of unexpected profit the next few months. We have previously mentioned in our advertising that we manufacture a high grade silo in the Seattle Silo—and sell it at a *low price* because sold *direct* from mill. We want to put from 10 to 40 of these silos into your neighborhood next summer to show farmers the wonderful values and the amazing quality we can give them in lumber and millwork of all kinds.

**You can easily clean up
several hundred dollars profit**

within the next three months. There are dozens of farmers in your neighborhood needing silos—and the farmers *know* they need them. Show the farmer what a wonderfully good silo we have for him at unheard of prices—tell him about the dependable quality and life-long durability of the silo and you can get his order on the spot for delivery not later than July 1st. You'll get a good commission on each silo that you sell, as well as the chance for a good job of erecting it for the farmer later on in the year.

**At the right is one of the ads
used in last season's advertising** →

This gives you in brief the leading points concerning the Seattle Silo. We will give you full particulars when you write. We'll tell you about the unsurpassed quality of the one-piece fir staves and their toughness and durability. We'll tell you just how our plan of selling works out and how it means up to a 60% saving to the farmer.

**We pay you handsomely to get
Hewitt-Lea-Funck's products
known in your neighborhood**

The commission we allow you on the sale of a Seattle Silo will mean to us the sacrifice of our profit—you will sell our silos at the same price we would quote direct. But we will profit in the end, because every sale of a Seattle Silo will bring us further business. Once a neighborhood gets acquainted with the quality of Hewitt-Lea-Funck lumber, the lowness of our prices, and the fair and square way in which we do business, we are sure of a big business from that neighborhood.

**If this proposition sounds good
tell us to hold open this chance
—use the coupon today—NOW**

If our proposition sounds good, get a pen or pencil right now and fill out the blank. You aren't the only man in your neighborhood who is eager for a chance to turn the tedious winter days to profit. If you want the opportunity to make some big money on Seattle Silos, lose no time in letting us know—fill out reservation blank at the bottom of this page and mail today. Doing this doesn't obligate you. It merely tells us you are interested, and holds open the opportunity.

HEWITT-LEA-FUNCK COMPANY

408 Crary Bldg., Seattle, Wash.

**Give me first chance at that
Silo proposition**

Hewitt-Lea-Funck Co., 408 Crary Bldg., Seattle, Wash.

Gentlemen:—Your Silo proposition, so far as you have outlined it in your advertisement, sounds good to me. I believe I would like to act as your representative on the plan outlined. Please send full information and reserve for me the following counties _____

_____ state of _____. I will let you know within five days after getting your proposition whether or not I will represent you.

Name _____

R. F. D. No. or Street _____

Post Office _____ State _____

Business _____

You will get **SPECIAL ATTENTION** if you tell Advertisers you read American Carpenter and Builder.

Buy your Silo

Direct from the mill

Don't pay a fancy price for a silo. No better silo than the Seattle, and the price is very low. Made of famous "Puget Sound" fir. Manufactured in one of the six mills. Sold direct to you at one profit above producing cost. You get *better quality* as well as up to a 60% saving on a

Save
up to
**60% on this
clear fir Silo**

Close and straight grain. No sap or knots. Wonderfully durable. *Doors of new patented swinging type.* Quick detachable. No lifting. Door bars form safe, strong ladder from which hoops are easily tightened. *Write today for special silo folder* and how to get low shipping rates even on single silos.

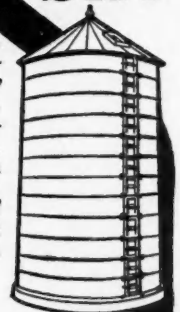
Save up to 60%
on lumber and millwork

Get better lumber, too. Buy the choicest lumber and millwork at prices up to 60% lower than local dealers ask for inferior materials. *You are guaranteed satisfaction* when you deal with us. All orders shipped within 24 to 48 hours. Reach our customers within an average of two weeks' time. *Write today for catalog and price list.* Send bill of materials, if you can, for estimate.

Hewitt-Lea-Funck Co.

408 Crary Bldg.,
Seattle, Wash.

**Seattle
Silo**



days into big profits

Resolve to make 1914 your biggest year—

And start NOW to make good in your resolve by getting Hewitt-Lea-Funck's proposition to you

If you have been passing by the chance to get better lumber and millwork at a saving of up to 60%, take advantage of this profit-making opportunity the coming year, and write for our proposition today.

Hundreds of carpenters, contractors and builders have benefited by our plan of forest-to-mill-to-user, since we began selling direct to the lumber user a year and a half ago. We control the forests, operate saw mills, logging railways, planing mills and ship direct at one small profit over producing cost. Not one middleman gets a profit.

Better lumber at up to a 60% saving means more jobs and double profits

Our low prices enable you to underbid your competitor, get the business and make more profit, besides. If you stand to make \$300 on a \$3000 contract, based on the purchase of lumber you buy locally, you can make \$600 on the contract, buying materials of us.

Your customers will be delighted with the quality of the material you put into their buildings if you use Hewitt-Lea-Funck lumber, millwork and shingles. The work you do is your best advertisement. Here's your chance to make your customers strong friends and boosters, by giving them better materials.

Let our architects help you plan—let us figure your lumber bills

In addition to giving you the chance to get better lumber at a wonderful saving, we are equipped to be of great help in working up plans for your customers and figuring your bills for you. We have a large plan department, and maintain constantly a large staff of architects under the charge of one of the best known architects on the Pacific Coast. We'll draw plans from sketches at one-tenth the charge local architects make. We'll give you our advice, without charge, on inside or outside decorating, landscape gardening, etc. We're experts at designing barns. We have a large corps of expert estimators ready to give their instant attention to your lumber bills.

We serve the East as well as the West

Six great mills on the Pacific Coast stand ready to fill your orders immediately. Our standing rule is, "Get out all orders within 24 to 48 hours." Seven rival railroads rush our shipments to destination. Two weeks or less to the Mississippi is the usual time of delivery. Our amazingly low mill price counterbalances the freight and makes possible a 40% to 60% saving besides. In addition to our Pacific Coast mills we have a large Southern mill for the service of South and East.

Hewitt-Lea-Funck Co.
408 Crary Bldg. Seattle, Wash.

Absolute satisfaction guaranteed

You can't lose in dealing with us. We prepay the freight, allowing thorough inspection of lumber before accepted. Even then you and the owner are protected by our guarantee which reads, "We guarantee better material, grade for grade, than trust and combine standards"—(the standard local dealers go by.)

Get our prices F. O. B. your station and our proposition to you

Mail the coupon today. See what a wonderful saving we can make you on all material items. Find out how greatly we can help you to increase your profit. We ship everything complete for building; lumber, lath, sash, doors, shingles, millwork, hardware and paint. Send us any bills of materials on which you are now figuring and get an estimate of cost delivered your station. Even if you aren't doing much figuring right now, get our prices and our proposition. See what a wonderful saving we are prepared to make you. Plan now for a big business later on. Mail the coupon today.

Send this coupon today together with the coupon on opposite page



Hewitt-Lea-Funck Co.,
408 Crary Bldg., Seattle, Wash.
(BE SURE TO WRITE PLAINLY)

Please send me the following:

Catalog and General Price List of Lumber and Millwork.

Name _____

Street or R. F. D. No. _____

Post Office _____ State _____

Business _____

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

They Have Free Trial Offer

Wayvell Chappell & Co., 4847 E. Ravenswood Park, Chicago, are offering an automatic ball-bearing electric floor surfacing machine that will pay any builder to look into. It is warranted to dress wood floors quickly, cheaply and attractively.

On new work it will sandpaper a finish that will stand inspection against a slant light after varnishing, so that hand scraping is not necessary for a first-class piece of work; on old floors, it will rapidly remove old varnish, shellac, dirt, etc., and make them white, clean and sanitary—like new floors—or will quickly take off the wood of rough or badly-warped floors.

Made in three sizes—for small rooms and the largest areas. Is powerful, self-propelling, has automatic brake for easy and uniform work, surfaces to base with edge roller quickly adjusted to either side. Address the above company Dept. D., for their booklet, which tells all about the machine.

+

Necessity of Using a Typewriter

Today a typewriter is absolutely essential in writing business letters of any nature. It is an injustice to any business man to correspond with him in long hand.

Even though you write only one or two business letters a week, these letters should be typewritten. We all now-a-days have lost the ability to write in the beautiful flowing copper plate style of writing of our grandfathers; and the modern hand-written letter is responsible for an enormous number of mistakes of all kinds; some of them costing far more than the price of a typewriter.

The man who is satisfied to write business letters with any old kind of a pen, or possibly with a lead pencil, has only himself to blame if he is considered a tenth-rate proposition.

He knows that the man or business house who has to puzzle his letters out will not pay very much attention to him.

Most people, even completely recognizing the fact that business correspondence should be typewritten, find that an expense of \$100 for a typewriter is beyond their reach—even though they realize that it is expensive and undignified to try to get along without one.

There is an enormous demand today for a thoroughly reliable and satisfactory typewriter, at a price within the reach of the man having even only one or two letters a week to write; a machine that anyone using the complete and detailed instructions furnished with each typewriter can operate to produce perfect work with half an hour's practice. Harry A. Smith, realizing this demand for a machine that can be relied on to do perfect work and give satisfactory service, is offering in this issue a typewriter that will write a clean cut and perfect letter and stand up under the hardest kind of usage, at a price making it possible for everyone to enjoy this convenience and business necessity.

+

"Easy-To-Make" Furniture

This is a large portfolio size book, measuring 12 by 18 inches. It illustrates 100 easy-to-make furniture designs, drawn to scale by expert designers. It is stated that this book of working drawings has been created through the collaboration of some of Grand Rapids' foremost furniture designers and craftsmen, to meet the demand that has arisen for work of this kind.

See the announcement in another part of this magazine regarding this book, or write the publishers, Crater & Holt, 43 National Avenue, Grand Rapids, Mich.

\$250⁰⁰ MONTH REPAIRING AUTO-MOBILE TIRES

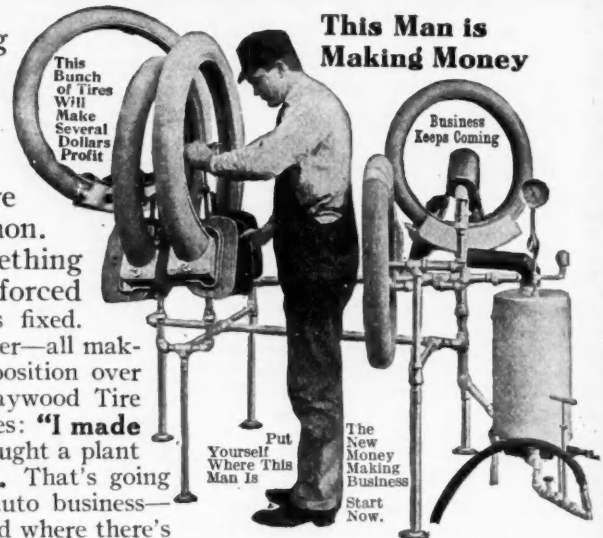
Be first to enter this new big paying business in your town. Open your pockets. Let the dollars pour in. Act quick. Every auto sold means more tires to mend. Automobile business is growing fast—enormous field for tire repairing. Punctures and blowouts are common. Tires need retreading and vulcanizing. Something going wrong all the time. Thousands forced to buy new tires because they can't get old ones fixed. Think of the old bicycle days—repair shops on every corner—all making money—busy day and night. Autos make same proposition over again—only ten times bigger and better. Users of Haywood Tire Repair Plants are making big money. Johnson, Tex., writes: "I made as high as \$18 profit in a day." Another man who bought a plant September, 1911, writes he has cleared over \$3,000.00. That's going some! Operate a plant as side line in connection with auto business—garage or as an independent business. Find neighborhood where there's a bunch of autos—get all the steady business besides transient work. Experience unnecessary. You learn quick. Simply follow directions—practice a few days on a couple of old tires and you'll be ready to coin money. Business comes fast and easy.

Repair Tires at Home.

college or to start a garage and repair business. in short time. We have outfits for home use.

Learn of the

Young men! and boys repair father's tires—get money he pays garage man. Get the neighbor's work. Make money to attend college or to start a garage and repair business. Auto owners—repair your own tires—save money—pay for your outfit in short time. We have outfits for home use. Anyhow investigate. Send today for catalogue. See the wonderful possibilities in this marvelous field. Learn of the enormous money-making opportunities in this fascinating new business.



HAYWOOD TIRE & EQUIPMENT CO.,

660 N. Capitol Ave., Indianapolis, Ind.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



The Most Satisfactory Construction

The construction for store fronts and display windows most satisfactory to Architects, Contractors and Owners, is one which combines beauty, distinction and classiness with simplicity and rapidity of setting as well as security and safety to the glass. There is but one construction which embodies all these points and that is the

Zouri 1914 Safety Setting For Plate Glass

The "all glass" effect secured by the Zouri 1914 Safety Construction gives a maximum of display front with a minimum of sash.

The All-Metal Construction of the Zouri 1914 Front gives beauty as well as durability.

The attractiveness of a store front of Zouri 1914 Safety Construction makes it a very profitable investment, while its safety makes it the most satisfactory setting to use for plate glass.

The safety of the Zouri 1914 Setting is secured by the indirect pressure method of fastening the outer mouldings against the glass. No chance for careless workmen to set the screws so tight that the glass will break—or to leave them so loose that it will rattle.

Be sure your specifications call for Zouri 1914 Safety Settings for both sash, rail and corner bars. If not write our Service Department for advice and suggestions. They can give you many reasons why you should use the Zouri Store Fronts.

ZOURI DRAWN METALS COMPANY

221-233 WEST SCHILLER STREET, CHICAGO

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



Winter Profits

This winter you can do a nice business building partitions, finishing off or remodeling rooms with

NEPONSET
WALL BOARD

You have probably seen our advertising to House Owners in which we have told them to "fix up their house this winter" with NEPONSET Wall Board. Remember this—NEPONSET Wall Board is waterproof and finished. It does not require decoration. The whole job is yours.

BIRD & SON

**EAST WALPOLE, MASSACHUSETTS
21 RIVER STREET**



New York Chicago Washington
Portland, Ore. San Francisco
Canadian Plant, Hamilton, Ont.

Plumbing and Heating Supply House Enlarge Plant

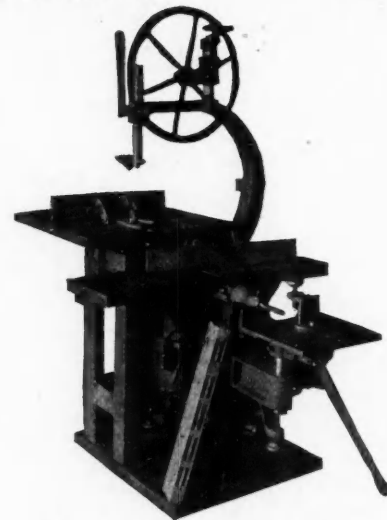
The John Hardin Company, of Chicago, have recently enlarged their plant and are now capable of handling nearly twice their former business. This company have been established over thirty years, located at the same address, and are the original jobbers of plumbing and heating supplies selling direct to the contractor and consumer at wholesale prices. The general manager, Mr. John A. Usher, reports that the out-of-town business has increased over 100 per cent in the past year.

The company has just issued a new catalog showing everything in plumbing and heating supplies, water pressure systems and gas lighting apparatus for country homes. The book is very nicely gotten up, contains over 250 pages and is sent free to all those contemplating building or remodeling.

The company invites out-of-town customers to call when in Chicago, and they will be glad to show them through the establishment.

Guaranteed Woodworking Machinery

The Tannewitz Works, Grand Rapids, Mich., guarantee every machine and part described in this catalog to be strictly high grade in every way, and to be unexcelled by any other machines of this class, regardless of their higher prices. They use only the best materials and the best workmanship in these machines. They claim you cannot buy better quality for the purpose in any other machine built. They guarantee that should there be any defect in the material or workmanship they will make it good by replacement or otherwise without expense to customers.



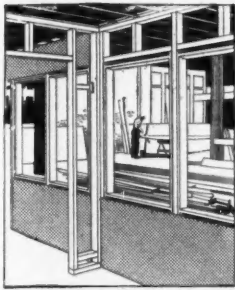
Tannewitz Universal Woodworker

They are now making an offer to send any of these machines or parts, shipped with the distinct understanding that builders are to have the privilege of returning them at the end of ten days from date, if for any reason they find them unsatisfactory. They will return the full amount paid, together with any freight charges. This is the most liberal offer that could be made.

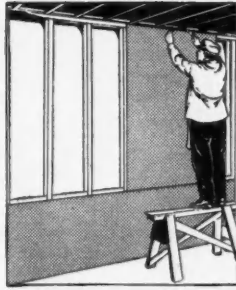
One of their leaders is the Tannewitz Type "C" Universal Woodworker with band saw and wheeled truck. It is a substantial, portable and all cast iron Universal Woodworker. You secure four machines in one at practically the price usually charged for any one of these machines. When you consider buying this woodworker you are not buying one machine and three extra attachments. On the contrary, you are buying four distinct machines, any one of which can be used on ordinary work without setting up. These machines are combined simply to lower the cost of manufacture.

Address the above company for full particulars.

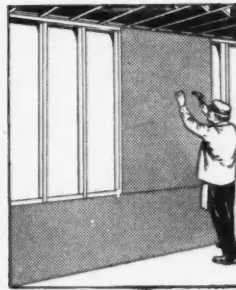
You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



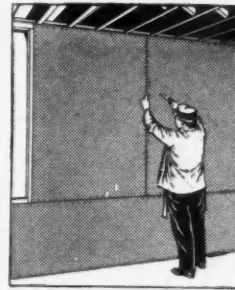
1—INSIDE WALLS
Headers should be placed where needed for nailing top and bottom of panels, top of baseboard, etc.



2—PLACING PANEL
First nail top center to hold in place. Continue as in next picture.



3—NAILING CENTER
Always nail to intermediate studding, before nailing edges. Use fine wire brads.



4—NAILING EDGES
Smooth out panels, then nail edges with flat-head nails, three inches apart.



5—SAWING
Use a fine, panel saw, as for any fine lumber, pebbled side of panel up.

BEAVER BOARD

A Standard Building Material

IT is time for every contractor and carpenter to seriously consider the facts.

A one-man, one-factory business in 1906 is today a world-wide business which covers every part of the United States and Canada; is established in Great Britain, and reaches South America, Europe, Australia and other Countries.

BEAVER BOARD is a big success, and its use should be as thoroughly understood as that of brick, lumber, concrete or any other building material.

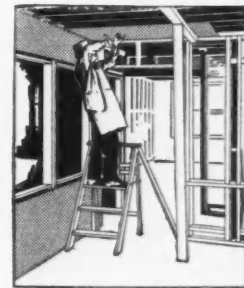
Good Workmanship Needed

BEAVER BOARD is easily put up, and the carpenter is the right man to do it. But first-class A-1 results can't be obtained by merely slapping it on the wall. Instructions must be followed.

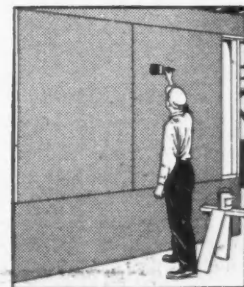
The pictures on this page tell the

story. Furthermore, we stand ready to give you the benefit of our eight years experience *all at once*.

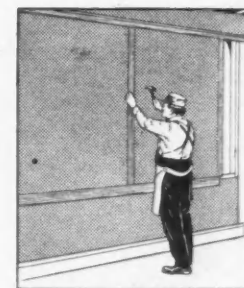
Also full information about recent improvements that have made BEAVER BOARD better than ever.



6—CEILINGS
Note support at right to hold loose end of panel in place.



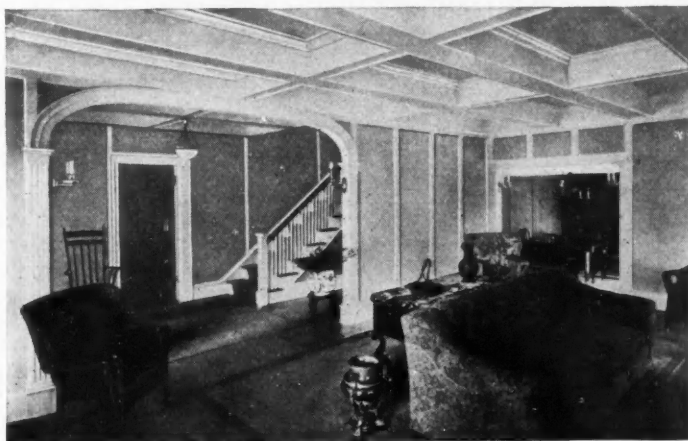
7—PAINTING
This should be done before strips are put over edges of panels.



8—FINISHING
Decorative strips are stained (or primed) before they are nailed over edges.

THE BEAVER BOARD COMPANIES

United States: 328 Beaver Road, Buffalo, N. Y.
Canada: 528 Wall St., Beaverdale, Ottawa.
Great Britain: 4 Southampton Row, London, W. C.



FINE WORKMANSHIP

This beautiful interior in the home of Mr. J. H. Manning at Ballston Lake, N. Y., gives a hint of the fine results of good BEAVER BOARD designing and workmanship.

Mail the Coupon and with *absolutely no obligation* on your part, let us put your name on the mailing list. You'll get, at once, the whole story of BEAVER BOARD, and inside information about the fine points of BEAVER BOARD designing, construction, decoration, selling possibilities, etc.

Please put me on permanent mailing list to receive all literature issued by Contractors' and Carpenters' Co-operative Department.

Name

St. Address

Town

State.....

You will get **SPECIAL ATTENTION** if you tell Advertisers you read American Carpenter and Builder.

Many Uses for Canvas Roofing

In Pittsburgh, Pa., recently, an interesting piece of work was done with canvas roofing over concrete. The concrete roof of a large reinforced building was to be used during the noon hour by the employes of the concern occupying the building. It was thought best to cover this concrete with canvas roofing but the question of fastening to the concrete, and making the entire job thoroughly waterproof and satisfactory was not without its difficulties. Con-ser-tex canvas, made by the William L. Barrell Co., 8 Thomas Street, New York City, was finally selected by the architect, as suitable for this kind of work. The surface to be covered was broom-cleaned and free from ridges or rough places. One coat of a suitable waterproof coating was then applied, and as soon as the surface was dry a coating of heavy liquid glue was put on. Con-ser-tex canvas was then laid with the brown side down in the wet glue and stretched tightly, care having been taken to work out all air bubbles under the canvas so as to insure close adhesion. The canvas was lapped on the edges $1\frac{1}{2}$ inches, set in glue. After laying and setting, the upper side of the canvas was painted with a light coat of good lead and oil paint, and a second and heavier coat was added after the first was thoroughly dry.

The illustration shown with this article, is that of a new house in Orange, N. J. Con-ser-tex canvas roofing was used on the main porch roof and the porch deck of the house, which, as can be seen, is of stucco. The canvas was put on before the stucco. The flashing was then put on, and finally the stucco applied. Con-ser-tex canvas roofing can be used in connection with slate, or any roofing, for valleys or hips in place of copper or tin. It can also be used in place of box gutters. Where flat roofs are used a piece of lead or copper, 14 inches square, can be laid on the roof over the spout opening and the canvas fastened over



Fine House at Orange, N. J., Roofed as to Porch Roof and Deck with Con-Ser-Tex Canvas Roofing.

it. Later the canvas can be cut and glued down. This is a very satisfactory method of using canvas in place of box gutters. It is cheaper and saves considerable labor.

Con-ser-tex canvas is particularly suitable for porch roofs on account of its sound proof feature. It is neat in appearance, low in first cost, and extremely durable. Every reader of the AMERICAN CARPENTER AND BUILDER should be acquainted with this excellent product, and a full set of samples with prices will be mailed to any address on request, to the Wm. L. Barrell Co., 8 Thomas St., New York.



Copper Bearing Sheets and Tin Plates

The question of increased durability from sheet metal products is an important one, and it is quite natural therefore that the advent of Copper Bearing Sheets and Copper

SNOW
-ICE-
AND THE
LOWEST
TEMPERATURES
DO NOT AFFECT
FLEX-A-TILE
ASPHALT SHINGLES

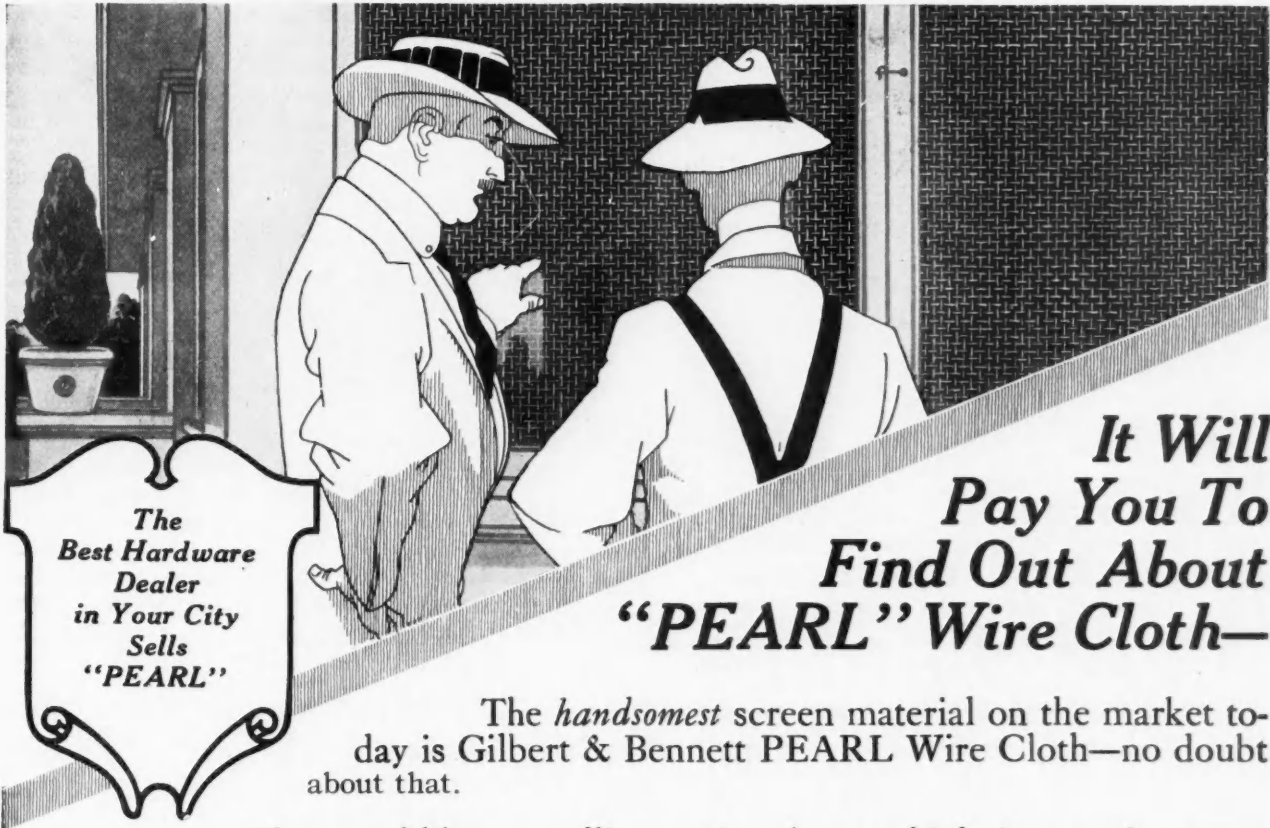
Have you seen the Flex-a-tile Giant—a new Flex-a-tile shingle?

“JUST AS GOOD AS NEW,” is the verdict of every Flex-a-Tile roof owner who looks to see how it is standing up under the attacks of winter. Comes in five colors—Red, Garnet, Greenish-gray, Emerald and Brown. Write for free sample.

THE HEPPESS CO.

1010 45th Avenue, CHICAGO

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



**It Will
Pay You To
Find Out About
"PEARL" Wire Cloth—**

The *handsomest* screen material on the market today is Gilbert & Bennett PEARL Wire Cloth—no doubt about that.

The pearl-like, metallic coating from which it gets its name is the best protection against *rust* ever discovered.

Screens don't wear out—they *rust* out. Gilbert & Bennett PEARL Wire Cloth is as near rust-proof as metal can be made; consequently it is as near *wear*-proof as a screen can be.



For Screening Doors, Windows and Porches

Investigation will bear out the statements we make about PEARL Wire Cloth. The many years it has been in use—satisfied customers—enthusiastic dealers tell the story better than *we* can.

You can buy PEARL in two weights—Regular and Extra Heavy, Extra Stong Grade.

But to be sure of PEARL *wear* you must get genuine Gilbert & Bennett "PEARL Wire." Two Copper Wires in the Selvage and a Round Tag bearing our name on each roll are the identification marks. Ask your dealer or write us direct for samples and literature.

The Gilbert & Bennett Mfg. Co.

(Established 1818)

Dept. B—277 Broadway
New York City

Dept. B—38 S. Dearborn Street
Chicago

Georgetown, Conn.

Kansas City, Mo.



You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



Winnipeg winters offer real test of motor wagon

Up in Winnipeg the heavy snow drifts and icy pavements frequently make the use of horses impossible.

W. F. Lee, a carpenter, builder and dealer in supplies is a Winnipeg owner of a Kessel-Kar Motor Wagon. This motor wagon is "always on the job," no matter what the physical or atmospheric conditions may be.

A motor wagon that will give satisfaction in Winnipeg will give satisfaction anywhere—and the KesselKar is giving satisfaction *everywhere*.

KISSELKAR TRUCKS

There are four all important elements to be considered in the selection of a motor wagon. 1st.—Its construction and *record*. 2nd.—Its adaptability to the duty required of it. 3rd.—The permanency and responsibility of the makers. 4th.—The facilities to give thorough service.

Each of these considerations are satisfactorily met in KesselKar Motor Wagons.

KesselKar Motor Wagons and Trucks are built in six sizes, 1500 lbs., 1, 1½, 2½, 3½ and 6 tons capacity.

Investigate KesselKar Motor Wagons and the written KesselKar Service Guarantee to owners. Write for new illustrated portfolio.

Kissel Motor Car Co.

546 Kissel Ave., Hartford, Wis.

New York, Minneapolis, Chicago, Philadelphia, Milwaukee, Los Angeles, San Francisco, Oakland, Dallas, Boston, St. Paul, Kansas City, and over 300 other leading points.

Bearing Terne Plates, together with the convincing evidences of their superior service qualities, should awaken an intense interest on the part of buyers and users of these commodities.

Practical and important developments along the line of improving quality, and the betterment of the products used by the sheet metal trade, have been due to the efforts of the American Sheet and Tin Plate Company, of Pittsburgh, Pennsylvania, which firm for a number of years has been making these matters a subject of diligent research, and has been conducting service tests of the various materials now in common use. The results of these tests are absolute and unequivocal, since actual time and weather determined the measure of service, and likewise the loss from rust and corrosion.

The acid test as a correct measure of corrosion is practically everywhere now regarded as an exploded theory, and has been relegated to the ash heap of abandoned "proofs." It is unreasonable to suppose that submitting a product for a few hours to a highly destructive agency should in anywise be regarded as a fair or conclusive proof of its durability when exposed to the elements. In contrast to this, the results of actual service tests have proven beyond disputation that Copper Bearing Steel possesses exceptional resistance to rust.

It is an established fact that scientifically manufactured steel when alloyed with a certain percentage of copper, possesses remarkable durability, and will resist corrosion and the action of the elements to a great degree.

The working qualities of Copper Bearing Steel are likewise important. This material is soft and more ductile, and experience has proved it to be satisfactorily worked when subjected to severe drawing or forming operations.

It is a logical conclusion, therefore, as a result of these findings, that Copper Bearing Sheets and Copper Bearing Terne Plates are destined to fill a long felt want in the sheet metal trades. It has also been shown that these products are well adapted for the manufacture of Roofing, Siding, Culverts, Tanks, Car Roofs, and all exposed Sheet Metal Work, where durability and resistance to the deteriorating influences of weather and soil are highly important factors.

The only sure and certain measure of value for all sheet metal products is service, and Copper Bearing Steel has unquestionably proved its worth along this line. Then, too, the name is not fanciful or misleading, but clearly indicates the nature of the product—a feature that is appreciated by both buyer and user.

In view of all developments, it is but fair to predict that the use of Copper Bearing Steel is but in its infancy, and as a material to meet general needs, it has come to stay.

It is a matter of note that many leading concerns have already recognized the truth of the claims made for Copper Bearing Steel, and have adopted it for their requirements. Other users have been investigating and have conducted tests individually, but with practically the same results as obtained by the manufacturers. Notably among these are prominent Railroad Systems, Stove and Range Manufacturers, Culvert, Tank and Silo Manufacturers.

Leading buyers and users have been thoroughly convinced of the superiority of this material, and its worth is further evidenced by the increasing demand for Copper Bearing Steel Sheets, both black and galvanized and for Copper Bearing Roofing Tin. The manufacturers will gladly supply any metal worker or distributor with full and explicit information regarding Copper Bearing Steel, together with illustrations, tables and analyses of many exhaustive tests which have been conducted. It is to the interest of the trade to secure complete information on this important subject, since the merits of this material are now being everywhere recognized.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



OPEN IN NICE WEATHER

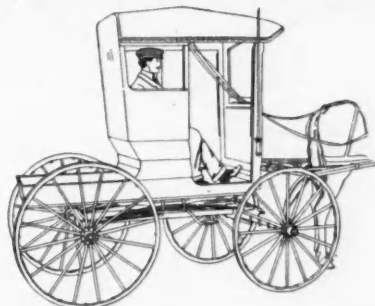


CLOSED IN BAD WEATHER

Keep Dry and Warm in a Cozy Cab

No More Coughs, Colds, Rheumatism or Pneumonia
If You Drive a Storm-Proof Cozy Cab

The Cozy Cab is a storm-proof buggy—the lightest, easiest running made. It is instantly adjustable. In 30 seconds, without leaving the seat or dropping the lines, it can be made absolutely storm-proof. It protects from rain, wind, snow, mud, dust, etc. Keeps your clothes dry and clean. Provides perfect protection from sudden changes in the weather. No loose curtains to fold, lose or leave behind. The Cozy Cab is a *Complete Buggy*. When open in nice weather the protective features are out of sight and out of the way yet always ready for instant service. We have spent eight years perfecting the Cozy Cab. Over 10,000 now in use. Made by experts in the largest factory in the world making storm proof buggies exclusively.



Here is the Contractors Cozy Wagon—just the thing for the Contractor and Carpenter. Body 30" wide and 76" long. Room enough to carry a hurry-up order of nails, lumber, cement, etc. A folder illustrating and describing this wagon will be sent to you with the catalog.

Handsome Catalog—FREE

Our new 1914 catalog is ready. It tells all about Cozy Cabs—how they are built, what they are made of and why they are the most desirable storm-proof buggies made. 12 different styles to choose from—the largest line in the world. *Your copy is ready—write for it today.*

FOUTS & HUNTER CARRIAGE MFG. CO.
205 Third St. Terre Haute, Ind.

From Factory to You

We alone manufacture Cozy Cabs. We sell BY MAIL exclusively at *Factory-to-user Prices*. No jobbers, dealers or agents profits to pay. You deal direct with the factory. We, the manufacturers, *Guarantee* every Cab and are directly responsible to *you* for the service of the Cab.

30 Day Free Trial

You can have a 30-day trial of any Cozy Cab without costing you a cent. You can use the Cab 30 days in all kinds of weather, over all kinds of roads before you decide to keep it or send it back **AT OUR EXPENSE**. If it is not entirely satisfactory, ship it back, we will pay the freight *both ways* and the trial will not cost you one cent. You do not have to send us any money in advance to get a *Free Trial*.

Write for the 1914 catalog and Free Trial proposition.

CUT ALONG THIS LINE



COZY CABS

FOUTS & HUNTER
CARRIAGE MFG CO
1000 N. 3RD ST. TERRE HAUTE, IND.

Date _____

Fouts & Hunter Carriage Mfg. Co.
205 Third St., Terre Haute, Ind.

GENTLEMEN:—

Send me, postage paid, a copy of the 1914 Cozy Cab Catalog. Also details of the Contractors Cozy Wagon.

Name _____

City _____

State _____

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

"Delivered Price Catalog" of Millwork and Hardware

A "Delivered Price Catalog" of millwork and hardware is a startling innovation, introduced by the Chicago & Riverdale Lumber Co., in their 1914 "We Pay the Freight" Catalog No. 34, quoting prices on each item, freight prepaid to your station.

Contractors will appreciate the great advantage of having at hand for instant reference this catalog, which makes it no longer necessary to write mills for special delivered price estimate before knowing the cost laid down at their station.

This catalog illustrates one of the most complete lines of millwork and hardware ever shown and it gives net prices on each item. This concern also issues a lumber price list giving F. O. B. Saw Mill and F. O. B. Chicago. Copies will be sent to any of our readers on request. Address the Chicago & Riverdale Lumber Co., 136th Place, Chicago, Illinois.



The Universal Clothes-Drier

A neat, durable and compact set of clothes bars is being made by the Universal Clothes-Drier Co., Ordway Bldg., Newark, N. J. This drying rack attaches to any door casing or to the wall. It is easily adjusted up or down to suit convenience. It contains over 30 feet of drying surface. The Universal clothes-drier is popular with housewives because it does away with the cumbersome clothes-horse or with outside lines. No kitchen or laundry is complete without one.

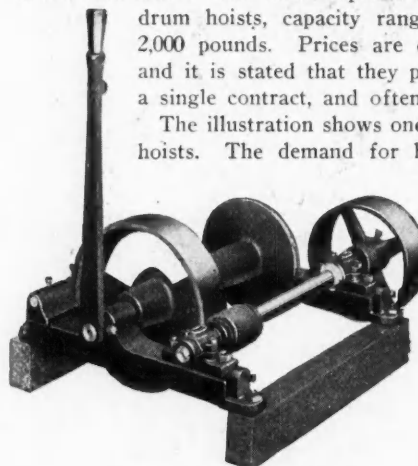
All home builders should investigate the Universal clothes-drier. The company is making a special inducement to agents, a co-operative selling plan, at this time. Write them.

The "Reliable Erie" Portable Hoists

The saving of time and labor in the handling of materials for construction work of all kinds, is an item which will reduce your loss and increase your profits. In order to meet competition you must have up-to-date equipment and modern labor-saving devices for handling your work and materials on the job.

The "Reliable Erie" line of portable hoists is interesting in this connection. This line comprises both single and double drum hoists, capacity ranging from 500 up to 2,000 pounds. Prices are extremely reasonable, and it is stated that they pay their first cost on a single contract, and often in a very few days.

The illustration shows one of their single drum hoists. The demand for hoists of 500 pounds and 750 pounds capacity, at moderate price, but of unquestioned efficiency and simplicity, which can be mounted on portable gasoline engine outfits of 4½ horsepower, caused the Erie Clutch & Pulley Co. to

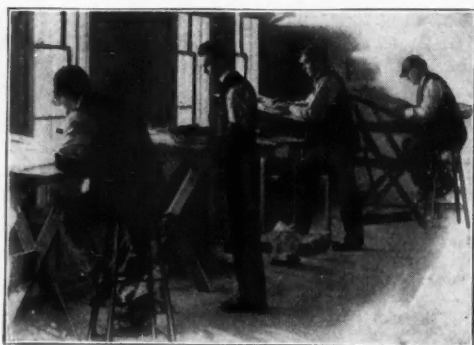


Erie Single Drum Hoist

bring out these sizes. They are ideal machines for light work of all kinds.

For full information address the Erie Clutch & Pulley Co., Erie, Pa.

Much of the cork used throughout the world comes from Portugal, which harvests about 50,000 tons a year.



Our Expert Service Is Free to Architects and Contractors

In our Draughting Department are experts who have devoted their lives to specializing in the preparation of floor plans for refrigerators and cooling rooms.

The service of these refrigerator experts are at your command to assist you in making the best use of the floor space available for the refrigerating system. Often they are able to suggest special features and conveniences.

Send your refrigerator problems to these experts, and carefully worked-out Floor Plans, Estimates, etc., will be submitted without charge. McCray Refrigerators are built-to-order for every requirement—arranged for either mechanical or ice refrigeration. We also have a complete line of stock sizes ready for immediate shipment.

WRITE FOR OUR VARIOUS CATALOGS

No. 91—Regular Sizes for Residences

No. A. H.—Special Built-to-Order for Residences

No. 73—For Florists

No. 50—Hotels, Restaurants, Clubs and Institutions

No. 69—For Grocers

No. 60—For Meat Markets

and file them for reference. McCray Refrigerators are the "Standard of Superiority," and are specified by the leading architects everywhere.

McCray Refrigerator Company, 606 Lake Street, Kendallville, Indiana, U. S. A.
Chicago—158 N. Wabash Ave. Branches in All Principal Cities New York—McCray Bldg., 7-9 W. 30th St.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

Best and most practical for all inside and outside measurements

A newly invented and improved Slide Rule with interlocking device on every slide. Far superior to all other rules. Takes inside measurements of doors, windows, boilers, furnaces, cupboards, etc. Most practical; most useful.

Even if you buy a barrel of rules, you cannot measure the *inside* of a barrel except with a MASTER SLIDE RULE.



MASTER SLIDE RULE

(IMPROVED)

is made of selected boxwood and trimmed with brass plated steel. Cannot rust. Made in all lengths from 2 feet to 8 feet. Opens and closes instantly. When rule is extended it is held perfectly rigid by strong steel springs. Never gets out of order. No parts to work loose and get lost. One side gives inside measurement (see Figs. 2 and 3); the other side (see Fig. 4) is for outside measurements. The Master Slide Rule measures only 8 inches over all when closed.

In opening the rule, the slides pull out automatically one at a time from the bottom. In closing the rule, the key spring must be pressed, this releases the first slide which in turn automatically releases the next slide and so on until the rule is closed. This interlocking device makes the **Improved Master Slide Rule** absolutely **fool-proof**. These new features are fully protected by patents in nearly all civilized countries of the world.



Fig. 2

You Can't Do This with an Ordinary Rule



Fig. 3—Master Slide Rule in position for taking inside measurement. Gives instantaneous reading. No figuring, no bother and accurate to 1-100th part of an inch.

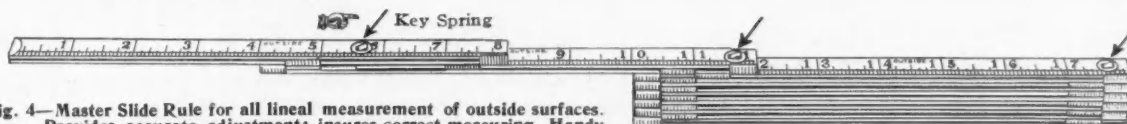


Fig. 4—Master Slide Rule for all lineal measurement of outside surfaces. Provides accurate adjustment; insures correct measuring. Handy to carry around. Opens and closes instantly.

The Improved Master Slide Rule Is Sold at the Same Price as Heretofore

Your hardware dealer should be able to supply you with an Improved Master Slide Rule at the retail price—15 cents per lineal foot. If for any reason you cannot procure a Master Slide Rule in your town, send us 15c per lineal foot and the name of your dealer and we will send you a rule at once.

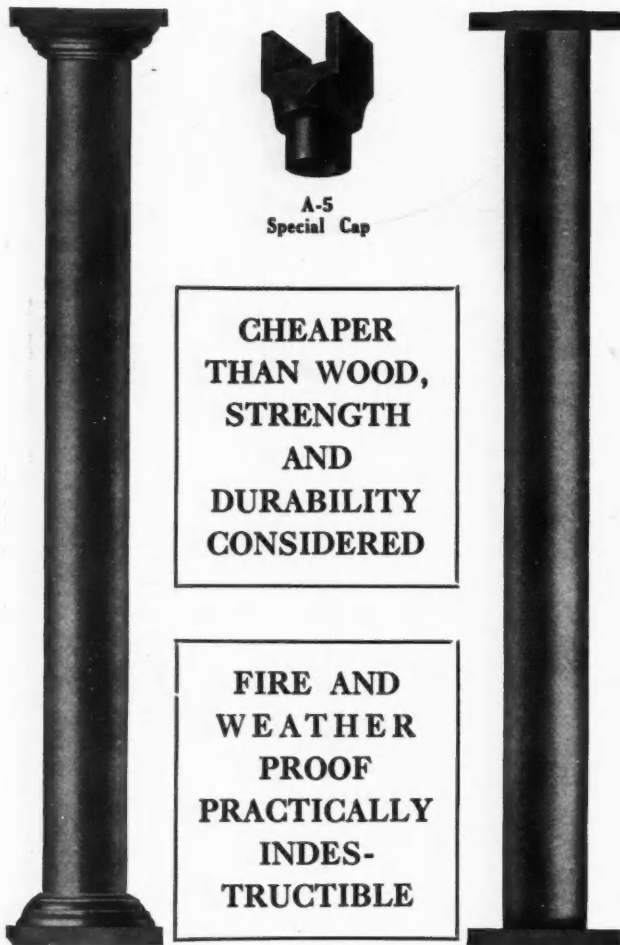
DAHL MANUFACTURING CO. 51-G East 42nd Street
NEW YORK, N. Y.

You will get **SPECIAL ATTENTION** if you tell Advertisers you read American Carpenter and Builder.

Cast Iron Columns

In all Lengths up to 12 Feet

Carried in Stock



A-2070.
Moulded
Cap and Base.

A-2073.
Plain Cap
and Base.

CHEAPER
THAN WOOD,
STRENGTH
AND
DURABILITY
CONSIDERED

FIRE AND
WEATHER
PROOF
PRACTICALLY
INDES-
TRUCTIBLE

We are in a position to furnish promptly Cast-Iron Columns in lengths from 6 to 12 feet. For concealed supports and in cases where ornamentation is not necessary, our Columns answer every requirement. The ends are carefully machined, insuring an even bearing.

Prices on Application.

James B. Clow & Sons
CHICAGO

FOUNDRIES:

Coshocton and Newcomerstown, Ohio

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

H. W. Johns-Manville Co. Enlargements

Baltimore—In order to properly take care of the big increase in its volume of business, the Baltimore branch of the H. W. Johns-Manville Co., has been compelled to seek larger quarters.

The new home of the company is a modern six-story building with floors measuring 47 by 187 feet, located at 207-13 E. Saratoga St., which is within two blocks of the Post Office and right in the heart of the business section. It will include an attractive store and up-to-date offices, in addition to large warehouse accommodations. To facilitate the handling of incoming and outgoing shipments there will be a railroad switch running into the building.

Cleveland—The Cleveland (Sixth City) branch of the H. W. Johns-Manville Co., has recently been obliged to provide larger quarters for several of its subsidiary offices. The Columbus Office and contract department are now located on the ground floor of the new seven story fireproof Peters Power Building, 45 West Long Street, with large warehouse facilities half a block distant. The Toledo Office and warehouse have been moved to 213 Water Street. This Office has just completed a pipe covering, stack lining and cork tiling job in the Second National Bank Building, Toledo, which possesses many unique features. Other Cleveland Branch sub-offices are located in Akron (717 Second National Bank Building,) Dayton (259 Fourth Street Arcade), and Youngstown (502 Stambaugh Building). Resident representatives are stationed at Lima, Massilon, Greenville and other points in Ohio, also at Huntington and Parkersburg, W. Va. Their work is supplemented by a large corps of traveling men. Last, but not least, the Cleveland Branch has just closed a long-term lease for another larger warehouse on Front Street which, when remodeled, will give the branch larger and better storage and shipping facilities than ever.

Toronto—The Toronto branch of The Canadian H. W. Johns-Manville Co., Limited, announces its removal to more spacious quarters at No. 19 Front Street, East. This new store and warehouse has a floor area of approximately 35,000 sq. ft. and is situated in the heart of the wholesale district.

In their new quarters this firm will be able to carry a larger stock and have ample space for the display of their complete line of J-M Asbestos Roofings, Packings, Pipe Coverings, Building Materials, Electrical and Railroad Supplies, Automobile and Plumbing Specialties, etc.

The entire building will be lighted by their well-known Frink and J-M Linolite System of Lighting and one room will be used for exhibiting these systems of lighting.

San Francisco—The San Francisco Branch of the H. W. Johns-Manville Co., recently secured a contract for J-M Transite Asbestos Shingles, to be used on Fort Castenas, Honolulu, H. I.

These shingles are not only artistic but, it is said, are both fireproof and immune to the action of the elements. They are made of Portland cement and asbestos moulded under hydraulic pressure, and should, therefore, be extremely strong and practically indestructible. Because of their insulating qualities, buildings covered with these shingles are said to be warmer in winter and cooler in summer—the latter an important feature in connection with any roof covering for use in a tropical climate. A booklet describing these shingles in detail can be secured by addressing the manufacturers.



Kirker-Bender Fire Escapes Popular

The Dow Wire and Iron Works, Louisville, Ky., have just made shipment of three Kirker-Bender fire escapes for the State Training School at Chehalis, and four for the Insane Hospital at Ft. Steilacoom, Wash.

\$1500.00 MADE IN ONE MONTH WITH A "LONG" CRISPETTE MACHINE.

—that's what Mr. Eakins made—paid his last \$10.00 for rent of a store window—at the end of 30 days had \$1500.00 in the bank—Today he is independent—a Crispette Machine and Crispettes did it—Perrine, Calif., took in \$380.00 in one day. Every nickel brought him almost 4 cents profit—What are you going to make of the future—just barely earn a living—keep wishing for something to turn up?—DON'T DO IT. LISTEN—take that money you have saved up against the day of opportunity—invest it in a Long Popcorn Crispette Machine and make fortune smile on you—build up a big paying business. Think of the fortunes made in 5-cent pieces—street cars—moving picture shows—5 and 10-cent stores—Everybody will spend a nickel—Everybody likes Crispettes—children—parents—old folks—You don't need any experience. You can start anywhere—in a store window—a small store-room where the rent is cheap, or the kitchen of your home. The Crispette Machine and Long's secret formula to the man of limited means is safe and strong—a sure way to independence and fortune—make money right from the start.

By This Man



Almost 400% Profit

Every 20 cents spent returns you \$1.00 cash—NOT THEORY—not guess work—not imagination, but the actual, bona fide, proven record of profits of Crispette producers from Coney Island to Oregon—from Canada to Argentine Republic.

STOP! You have followed the rut too long. You have accepted only what others care to give. Get on the other side. TAKE only WHAT YOU WANT! F. C. Thompson, Oregon, took in \$575.00 in 27 days. E. H. H., Penn., sold over 12,000 rolls in two weeks, etc. Just a sample of the letters received from "Crispette" merchants from all parts of the country. Our greatest money barons began with a far less advantage than I offer you today. Write NOW—for my handsome illustrated, 48-page, free booklet, "How To Make Money In The Crispette Business." Or

Come and See Me at My Expense

It isn't necessary to write and tell me you are coming. Just drop in any time. I will pay your traveling expenses within 300 miles if you buy a machine. I will give you all the references you may desire—responsible merchants, bankers, citizens—write to them if you will, then go over the "CRISPETTE" business with me. Get the full information—the startling good news!

I Want to Start You in the Same Business that Made Me Wealthy—
W. Z. Long



W. Z. LONG COMPANY

818 High Street Springfield, Ohio



\$100 A DAY MADE BY THIS MACHINE

THE EIGHTH GREAT WONDER OF THE WORLD

Fill in The Coupon Below

Follow Carefully the Amazing Facts

Answer to Yourself These Pertinent Questions

What salary do you EARN! What salary do you GET! Stop a minute and consider. You know that what you receive from your employer represents but a small portion of what you really earn. Get on the other side! If your earning power amounts to thousands every year—then EARN IT—AND KEEP IT YOURSELF.

NO GREATER, BETTER OPPORTUNITY can be put up to you offering such CERTAINTY OF SUCCESS—producing the enormous—honest—legitimate profits—requiring such small investment—so light running expenses. Any man of ordinary intelligence—ambitious—progressive—energetic—who wants to get ahead in the world—should make a "Crispette" Machine pay for itself in a few weeks.

The world today hungers for the "different," and it pays millions of dollars every year to satisfy this desire. Why not be the one to satisfy this demand in your locality—and reap your share of the golden harvest now ripe and ready for you!

Fill in the coupon—send for free book, "Dollars and Sense In The Crispette Business." It tells the whole story—how and where to start, how to succeed, gives experiences of others, etc. It's worth reading, even if you don't start. If you are looking for a good thing and easy money, send today for this book.

W. Z. LONG CO.,
(818) Springfield, Ohio.

Without any obligation at all, please send me, free, your book, "Dollars and Sense In The Crispette Business."

Name

Address

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

The Stearns Floor Scraper

Among the latest candidates for popular favor in the way of floor-surfacing machines is the Stearns Floor Scraper No. 10, made by E. C. Stearns & Co., 400 Oneida St., Syracuse, N. Y., and a general view of which is presented. The handle is adjustable and with its braces is $38\frac{1}{2}$ inches long; the wheels are 5 inches in diameter and rubber tired, so as not to mar the floor, and the finish is in aluminum. The wheels are set in and the knife can be run close up against a wall when the scraper is in use. The knife, which is 6 inches wide, scrapes the floor when the scraper is drawn towards the operator and it is firmly clamped in the scraper. The weight of the device is such that as

nearly all of it rests on the knife it tends to prevent vibration or "chatter," thus doing away with all wavy effects on the floor. In adjusting the scraper there are only two screws to manipulate, thus rendering the device simple in operation. The weight of the scraper complete is only 115 lbs.



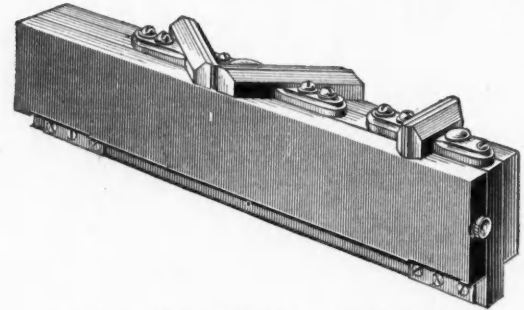
Stearns Floor Scraper



Gem Folding Mitre Box

The illustration shows a new folding mitre box of much merit, which is being placed on the market by J. C. McCarty & Co., 21 Murray Street, New York City. This is a mitre box that occupies very small space when folded.

It consists of a central frame or partition, and to this the two base pieces are hinged. The saw cuts are reinforced at the top with steel guides which insure abso-



Gem Folding Mitre Box in Folded Position

lutely accurate cutting. These guides are easily and quickly adjusted.

The Gem folding mitre box is adapted to any size or style of hand or back saw. Moderate in price and very convenient, this folding mitre box will be interesting to all carpenters, and should be investigated at once. Inquire of your local hardware dealer or write the manufacturers who will send full information.

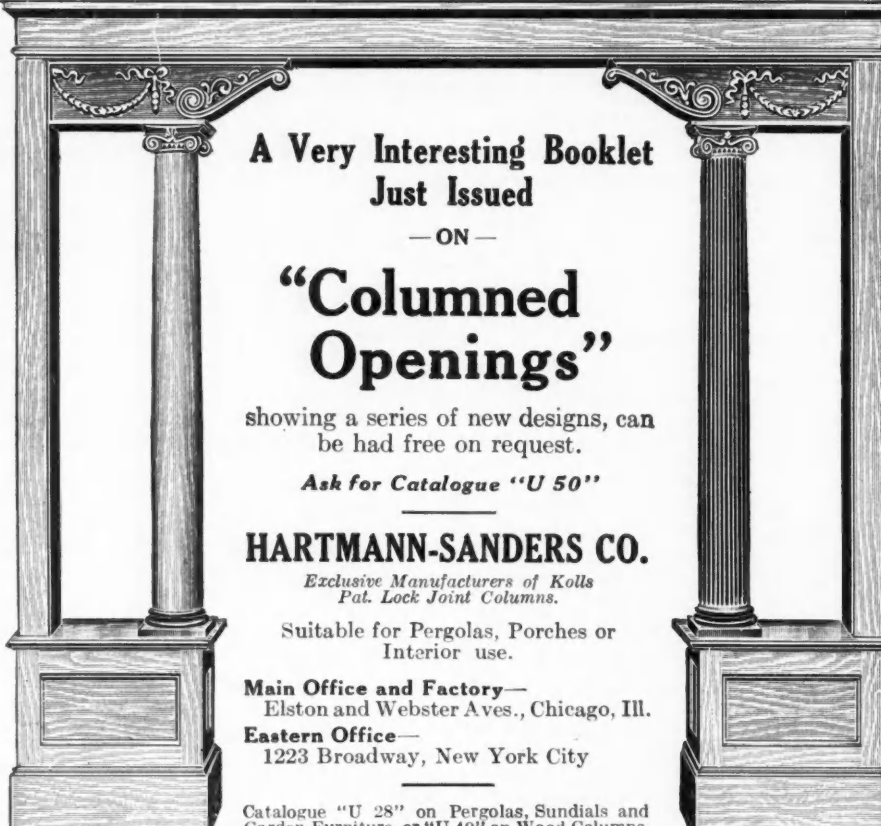


Universal Auto Turntables

When the automobile was first introduced, garages were unknown. Owners of cars had little thought of that item, because the barn was considered adequate for their needs.

Not so today. Those with whom efficiency has become a habit, who demand that their cars be subject to immediate call, have found the garage—both public and private—to be indispensable.

Constant demand for conveniences in both public and



**A Very Interesting Booklet
Just Issued**

— ON —

**“Columned
Openings”**

showing a series of new designs, can
be had free on request.

Ask for Catalogue “U 50”

HARTMANN-SANDERS CO.
*Exclusive Manufacturers of Kolls
Pat. Lock Joint Columns.*

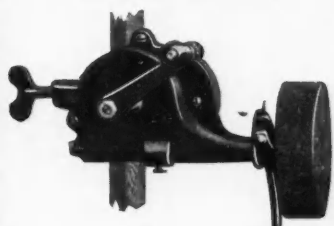
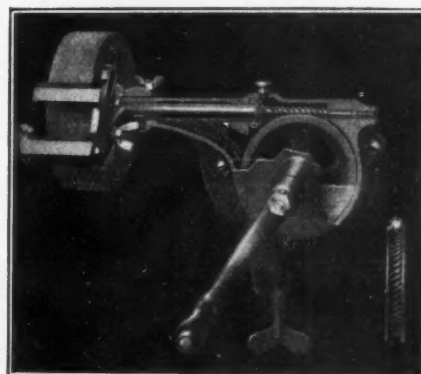
Suitable for Pergolas, Porches or
Interior use.

Main Office and Factory—
Elston and Webster Aves., Chicago, Ill.
Eastern Office—
1223 Broadway, New York City

Catalogue “U 28” on Pergolas, Sundials and
Garden Furniture, or “U 40” on Wood Columns

You will get **SPECIAL ATTENTION** if you tell Advertisers you read **American Carpenter and Builder**.

**Make Tool Sharpening
Quick and Easy by Using**
LUTHER
“Best Maide”
TOOL GRINDERS



These wonderfully handy tool sharpeners will put a keen edge on your tools quickly and with absolute accuracy. Improved and exclusive features of construction insure easy, silent running and make the Luther “Best Maide” the most satisfactory grinder for all tool sharpening purposes. Special attachments extend their usefulness to many other shop operations.

Double-Faced Sharpening Wheel

In “Best Maide” Grinders the grinding and finishing are both done on one wheel. Tool is brought to an edge on the medium grit body and is smoothed off and finished on the fine grit side face. No other grinder performs both these operations on a single wheel.



Hand - Power Breast Drill

Drilling can be easily done with the “Best Maide” Grinders by means of special attachments for bench use and for free hand work. Both these attachments are illustrated below.

DIMO-GRIT “The Wheel For Steel”

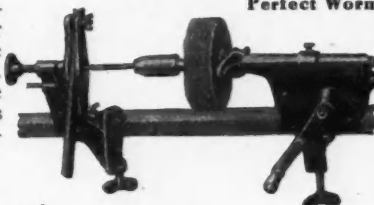
Luther Grinders are the only tool sharpeners equipped with wheels of DIMO-GRIT, the marvelous, new, artificial diamond sharpening substance. DIMO-GRIT cuts the hardest steel as easily as emery does copper. *No water needed.* No danger of drawing temper. Lasts longer and sharpens tools many times faster than emery. Increases your own efficiency as well as that of your tools. All DIMO-GRIT wheels are guaranteed for five years.



Improved Swiveling Device

Power Bench Drill

Perfect Worm Gear

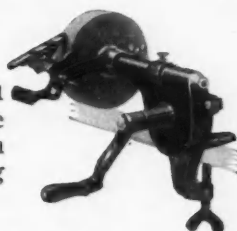


The worm gear and shafts of these “Best Maide” Grinders are cut from solid steel by special machines of our own designing. They are of extra large diameter, which provides great wearing surface and makes the grinding wheel run true and without vibration. Ball bearings assure wonderful ease, speed and quickness in operation.

The new patented Swiveling Device used in Luther “Best Maide” Grinders permits quick and accurate adjustment of the frame to any desired angle, horizontal or vertical, and holds machine rigidly in position. The most difficult and awkward job of tool grinding is made easy by this exclusive improvement.

Sharpening Attachment for Twist Drill

A special attachment enables you to sharpen twist drills perfectly on the “Best-Maide” Grinder. This easy operation will keep your drill-sets in perfect working order.



If Your Hardware Dealer Can't Show You Luther Grinders, Mail Back the Coupon for FREE HONE

Luther “Best Maide” Grinders are sold by nearly all leading hardware dealers. If, on inquiry, you find that your dealer does not handle Luther Grinders, and you will give us his name and the name of the tool grinders he *does* handle, we will send you a handy little DIMO-GRIT Pocket Hone free for your trouble. Use the attached coupon and get our descriptive folder telling about “Best-Maide” Grinders.

LUTHER GRINDER MFG. CO.

773 Point Street

MILWAUKEE, WIS.

Free Hone Coupon

Luther Grinder Mfg. Co.
773 Point Street, Milwaukee, Wis.

In compliance with your condition for Free Hone

I make the following report:

Dealer's Name

Grinder Handled

Please send me Free your Special Folder illustrating and describing Luther's “Best Maide” Tool Grinders.

Name

Address

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

Typewriter Sensation

2 Dollars A Month

**Buys a Genuine
Standard No. 2
SMITH-PREMIER
Typewriter with
MEDICAL
KEYBOARD**



and at \$71.20 less than the manufacturer's price

Never before has anything like this been attempted. Dealers get \$3.00 a month rent for this make of machine, not nearly as perfect as the one we will send you, and you pay only TWO DOLLARS A MONTH AND OWN IT.

A-GUARANTEED-TYPEWRITER-\$28.80

Perfect machines only, complete outfit, nothing extra to buy, no strings of any kind to this offer. Just think of buying such a typewriter for \$8.80 down and \$2.00 a month. Cash price \$27.40. Thousands of people have paid \$100.00 cash for Smith-Premiers. It's Standard, by many considered the best typewriter ever built. A key for each character, so each character printed is always the same; a brush for cleaning the type built into the machine; the tilting carriage instantly throws all the writing in plain sight. Comes to you with complete operating instructions, tools, waterproof cover, practice paper, everything ready. It runs beautifully. Writes as perfect and clean cut a letter as quickly and as easily as any machine bought for \$100.00. It's wonderfully simple, a child can operate it with half an hour's practice and rapidly attain speed. It's strongly built and will give you years and years of honest service and complete satisfaction.

Send the Coupon and We Will Ship You This Smith-Premier Typewriter

When the typewriter arrives, deposit with the express agent \$8.80 and take the typewriter three days and try it. If you find it to be the best typewriter you ever saw, satisfactory in every respect, keep it and send us \$2.00 each month, until our special price of \$28.80 is paid. If you don't want to keep it, return it to the express agent, and he will give you back your \$8.80, and return the typewriter to us. We will pay the return express charges.

You won't want to send this machine back after you have seen it and tried it. You can't imagine the perfection of these machines till you see one, and the price is \$71.20 less than the catalogue price, and it is guaranteed just as if you paid \$100.00.

Only 200 orders will be filled on this offer. Act today to be sure

This coupon states the terms. Fill it out, send it now, today. You can't lose, and it's the greatest economical typewriter opportunity you will ever have.

COUPON

HARRY A. SMITH

No. 180 North Dearborn Street, CHICAGO, ILL.

Ship me a No. 2 Smith-Premier f.o.b. Chicago, as described in this advertisement. I will pay you the \$20.00 balance of the SPECIAL \$28.80 purchase price, at the rate of \$2.00 per month. The title to remain in you until fully paid for. It is understood that I have three days in which to examine and try the typewriter. If I choose not to keep it I will carefully repack it and return it to the express agent. It is understood that you give the standard guarantee for one year.

Name.....

Address.....

Shipping Point.....

A. C. & B.

private garages has brought into the field valuable inventions, until today the "real smart" car owner—with whom results count—does not stop at merely a garage.

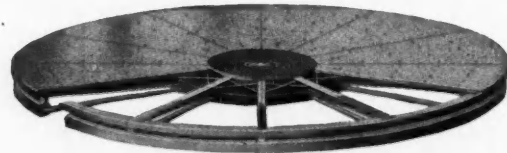
As he equips his car with all time, labor-saving and safety devices, as well as those which add to his pleasure, comfort and convenience, so also he should equip his garage and make it complete and up-to-date.

The so-called complete garage consists of gasoline tanks, air compressors, portable cranes, tool kit, etc., and the owner of a garage so equipped could not get along without them.

But, viewing the garage question from all angles, is a garage equipped in this way as complete and up-to-date as it can be made? Are there no other big improvements which, if added, would greatly increase garage efficiency?

To this we say: "No garage, no matter how well equipped, is up-to-date, modern and complete until a Universal Auto Turntable has been installed."

Experience covering many years has taught that auto-turntables must be strong and substantial in order to stand up under the constant hard usage they are subject to. To have strength, you must have weight properly distributed to



Details of "Universal" Auto Turntable

points of greatest strain. In the "Universal" you get all of this.

The word "turntable" implies "a table that turns," and too much stress cannot be placed on this feature. You want a turntable that is easily turned when loaded to its full capacity, one that a child can operate. That's just what you get when you purchase the "Universal."

The "Serpentine" ball-bearing race course—patented—is what makes the "Universal" the easiest turning table on the market. Note that the top of table rests only on the seven balls at the summits, the remaining balls revolving in sockets, which are filled with lubricating oil.

As the table moves, the balls at the "high spots" roll on and are replaced by others coming up. This means that at least 50 per cent of friction is eliminated; or, in other words, an easy-to-turn turntable.

Superstructure is of structural steel built in truss form, reinforced so as to give greatest possible strength. The top plates are No. 7 gauge steel, well braced underneath. The table has a checkered iron removable center with No. 7 gauge steel plates from same to outer rim, all neatly fitted, slightly sloped from center to rim for drainage. The twelve steel top plates (all of which are removable) are reinforced by angle irons at proper intervals, firmly riveted cross-wise underneath and resting on structural trusses.

The table cannot tilt, as the slightest depression throws caster wheels (on outer rim) to rim track.

The only foundation required is a circular concrete base, slightly larger than turntable, perfectly level, on which table is anchored. Concrete foundation is grooved so as to drain to sewer. The "Universal" requires a pit but 12 inches deep, and any good mechanic can install the "Universal" at a minimum cost.

Write the manufacturers, the Canton Foundry & Machine Co., Canton, Ohio, for illustrated catalog.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

Building during 1914 will be progressively better—

There will be more Good Construction
Because there will be more Wood Construction.

In turn that means there will be more *houses built of and trimmed with*

ARKANSAS SOFT PINE

the wood that completely satisfies the men who do the work
and the men who pay the bills.



BUNGALOW OF DR. C. A. WHITE, MARYSVILLE, OHIO.

Arkansas Soft Pine, the wood that holds paint, used for outside trim. Arkansas Soft Pine,
the wood of varied and pleasing figure used for inside trim. Proof of
floor plan will be sent on request.

DEAD AIR SPACES—Using certain kinds of fad materials, the great problem is to create them; using **ARKANSAS SOFT PINE**, you have a material in which Nature has created millions of dead air spaces.

ARKANSAS SOFT PINE is the one dependable nonconductor building material within your reach; it holds heat, cold and moisture at bay *on the outside of your home*.

SPECIAL NOTE We will be glad to send at your request copy of **“HOW TO BUILD”**

ARKANSAS SOFT PINE BUREAU

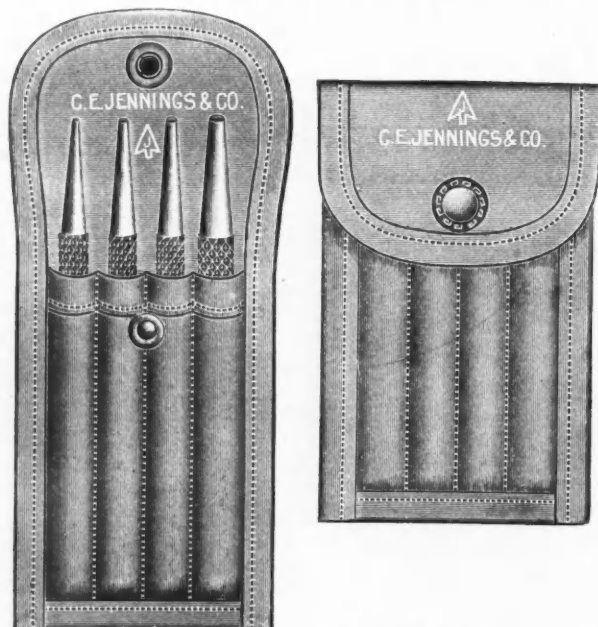
308 South Canal Street

CHICAGO, ILL.

You will get **SPECIAL ATTENTION** if you tell Advertisers you read American Carpenter and Builder.

Arrow Head Nail Set

C. E. Jennings & Co. are offering a nail set of four sizes, packed in a neat leather case, as illustrated. These nail sets are made with the same care as all the Arrow Head tools. They come either polished or blued.



Set of 4 Nail Sets in Leather Case

With these tools a nail can be set or drawn out at any angle, without splitting the head. Nails bent in driving can be straightened with them, and then set. Screws with

worn or broken heads, can be easily backed out with these sets. They are made of the best tool steel and are fully warranted.

For further information address C. E. Jennings & Co., 71-73 Murray St., New York City.

Superiority of Surfaced Cement Floors

Comparatively few contractors and engineers recognize the trouble caused by dusty cement floors, nor the cause, nor have they investigated the reason why the cement floors are more friable, porous and stand less resistance than ordinary cement block or concrete work. The trouble is due entirely to the fact that the bond is disturbed or broken by agitation of the surface in attempting to trowel these floors to a surface similar to a pavement.

It is a well known fact that a cement bond once broken or disturbed will not become hard. The result is a poor floor, which has operated against the adoption of floors of this kind in fire-proof buildings. There is not a vast difference between an ordinary cement floor and a terrazzo floor. You could get the same results by rolling graded, screened and washed gravel with cement for the top dressing, afterwards grinding the surface down, and the floor would be equal to any terrazzo floor made with marble for the top dressing. With the various tints and colors that would appear from the use of gravel, the floor would be equally as beautiful, besides being harder.

There is no mystery about laying either of these floors if care is taken in the quality of the last coat, laying the floor to a straight edge, afterwards machine surfacing the floor, using carborundum. While a troweled cement floor is constantly giving off dust and disintegrating, is rough and uneven, a surfaced floor is not only smooth and level, of mechanical appearance, but in all other re-

The Proven Reliability of Ceresit as a Waterproofing

Ceresit has been used in thousands of jobs to waterproof concrete, stucco, or cement mortar. It has yet to acknowledge its first failure.

It has successfully waterproofed swimming tanks, water towers, dams, etc., against heavy continuous hydrostatic pressure.

It has waterproofed basements, cellars, engine pits, and other underground places against seepage of ground water.

It has waterproofed concrete and stucco under all conceivable weather conditions. It has waterproofed the floors of laundries and bath rooms.



WATERPROOFING COMPOUND

Embodies all those qualities that make for successful waterproofing without any of those disadvantages that make for dissatisfaction.

It does not impair the strength of concrete. It does not discolor. It has no odor. It is easily mixed without expert labor.

You Building Contractors are moer and more getting into the concrete and stucco end of building design and construction.

It is, therefore, distinctly worth your while to know all about Ceresit, the perfect waterproofing.

Write for the "Book of Evidence." It gives all the facts.

Ceresit Waterproofing Company

FACTORIES—Chicago; Unna, Germany; London, Paris, Vienna, Warsaw

910 Westminster Bldg.
CHICAGO, ILLINOIS



You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



ASBESTOS "CENTURY" SHINGLES

"The Roof that Outlives the Building"

THE significant fact in the roofing business today is that, the better an architect, roofer or contractor knows Asbestos "Century" Shingles, the more freely he recommends them and uses them.

He finds, too, an ever-growing response from the property owners.

There are thousands of houses, schools, churches, buildings of all descriptions roofed with this practical,

light-weight material. The reputation of these Shingles is becoming truly national.

Above is the residence of Mr. Gustav Johns, Bengris, Md., designed and built by J. Hughes, Architect and Contractor, Baltimore, Md. It is roofed and sided with Asbestos "Century" Shingles.

Send for our Booklet; "Roofing: a Practical Talk"; also terms and trade prices.

KEASBEY & MATTISON CO., Factors
Dept. B, Ambler, Penna.

Branch Offices in Principal Cities of the United States



"It's an ill wind that doesn't blow someone some good."

Too bad that these flimsy roofings, so skillfully foisted on the public, cause needless expense, disappointment and trouble to owner and contractor!

But in the end they only emphasize the permanent satisfaction and business you can derive from a permanent roofing like

Genuine Bangor Roofing Slate

If you want to have more customers satisfied so well that in turn each will send you more customers—if you want to build up such an endless chain of profit and good will let us show you how we can help you do it through our Trade Help Department. Mail the attached Coupon today—so you won't forget.

Genuine Bangor Slate Co. Easton, Pa.

Quarries, Bangor, Pa.

It will pay you to fill this out, detach and mail today
Jan. 1914.
Please send me particulars about your ability to help me make more money.
Name.....
Address.....



—It Stays and Satisfies

VULCANITE ORNAMENTAL ROOFING

will without paint or repairs **outlast** any other roof covering. It costs less to buy and less to lay. Thoroughly fireproof and resists all weather conditions.

This roofing is laid in strips, one edge of which is cut in a shingle or slate pattern. It is durable and very decorative. Seven handsome, mellow shades to select from—colors which cannot fade because they are the natural tint of the crushed rock surfacing.

Vulcanite Ornamental Roofings are made in several artistic designs such as diamond-shaped tile effect, mitered slate effect, and V-edge effect.

Vulcanite Asphalt Shingles known under the trade name **Vulcantile**, are better than wood shingles. They last longer, are fire-resistant and do not crack or break. You forget roof troubles when you use any of the Vulcanite Roofings.

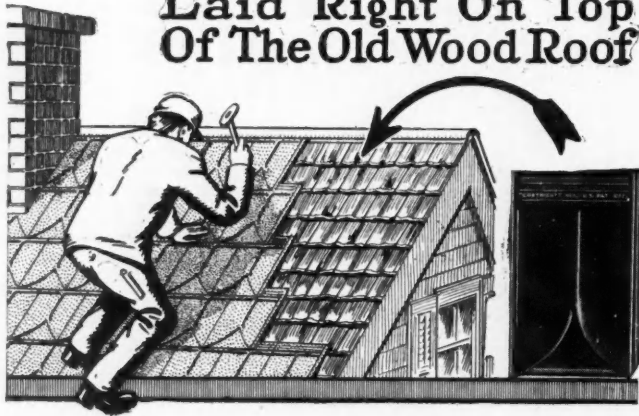
Write for Catalog and FREE Samples.

Patent Vulcanite Roofing Co.
2500 Ogden Avenue
CHICAGO :: ILLINOIS



You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

**Laid Right On Top
Of The Old Wood Roof**



**Cortright
Metal Shingles**

“The Permanent Roofing”

It isn't necessary to take off the old, wood-shingle roof in order to lay a Cortright Roof. These fire-proof, storm-proof metal shingles can be put on right over the old roof, without making a lot of dirt or exposing the interior of the building to the elements during the alterations.

Every contractor not already using Cortright Metal Shingles should write at once for our free book “Concerning That Roof” and information of especial interest to contractors and builders.

Cortright Metal Roofing Company
PHILADELPHIA CHICAGO

Cortright Metal Roofing Co., Philadelphia, Pa.:

Gentlemen:—Send me your Free Book “Concerning That Roof” and Special Information.

Name

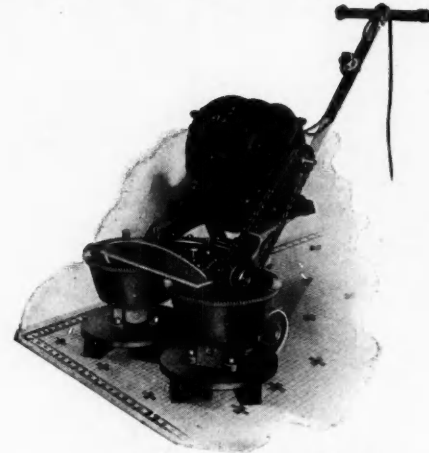
Address.....

City State

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

spects would be just as satisfactory as the higher-priced floors.

The past ten years have witnessed the rebuilding of the downtown districts of our principal cities, in which cement has played an important part. It is becoming more important every year, not only eliminating wood, especially for floors, but wherever it is possible, due to the



Power Surfer for Cement Floors

advancing prices of that material. In New York City alone there are hundreds of acres of cement floors, and in nearly every instance they are unsatisfactory as a floor, due to the fact that they have been laid as a pavement with a rough, uneven surface.

With a properly constructed machine, the cost of surfacing these floors, if done a few days after laying, is very small, while on the other hand, profits are large and the satisfaction of the owner and tenants more than compensates for the difference in cost. A smooth surface is usually dustless, but a rough surfaced floor is always dusty, porous and unsanitary, and it is one of the great questions confronting engineers and contractors at the present time, how to produce a smooth finish, non-absorbent cement floor, without adding greatly to the present cost.

The machine illustrated was designed and built by an experienced construction company and it is being used by leading contractors and floor companies. It is, without question, one of the most popular and strongest built machines in use today for these purposes. The reasons can readily be seen, for the machine has two 12-inch discs with eight carborundum blocks, with a cutting face of 64 square inches, driven 225 R.P.M., having universal couplings connecting the discs with the main driving gears, by which the pressure is applied to the center of the disc instead of to the edge, thus eliminating any possibility of leaving disc marks on the finished floor.

Contractors who are laying cement or composition floors and interested in giving their patrons a finish that will prove satisfactory, will find it to their advantage to investigate the qualities of this machine. It is manufactured by the American Floor Surfacing Machine Company, of Toledo, O., who are the pioneers in the floor surfacing machine business and have been building them for more than ten years. Their machines are used in all parts of the civilized world.

You will have the satisfaction of knowing that you are not buying an untried experiment. This company sell their machines entirely on their merits and guarantee them in every particular, and on account of the growing use of cement, and the large demand in the near future, finishing this product in a satisfactory manner will greatly popularize the further uses of this permanent material.



Home of F. C. Arey, Oak Park, Illinois
Architect—F. O. DeMoney, Chicago, Ill.

F. C. Arey's House Is as Permanent as Its Plaster Base

And the same applies to every one of thousands of beautiful stucco houses that are being put up all over the country.

Whether for outside stucco or inside plaster



makes a foundation that will never give way. It keys the plaster to the wall, saves waste when the plaster is applied, and offers a smooth surface to the trowel that makes uniform work easy.

We want builders and contractors to know the advantages of "KNO-BURN" Metal Lath and "KNO-FUR," the variety of "KNO-BURN" made for exterior use that does away with furring and sheathing. We want them to convince *themselves* that they can make every stucco job they take a permanent success. We have prepared a booklet that explains the construction and general superiority of "KNO-BURN" over other forms of lath. Write today for booklet No. 35 and "**Stucco Specifications**" compiled for the Association of Metal Lath Manufacturers. Every builder should have them.

North Western Expanded Metal Co. No. 903 Old Colony Bldg. CHICAGO, ILL.

Spanish Tile



Address The Moeschl-Edwards Corrugating Co.



Catalogue "S" showing a complete line of Ornamental Roofings mailed free to Architects, Contractors and Carpenters

Write for Prices on

- Ceiling
- Columns
- Cornice
- Cresting
- Culverts
- Finials
- Garages
- Gutter
- Marquise
- Roofing
- Shingles
- Siding
- Skylights
- Spouting
- Tanks
- Ventilators

Covington, Kentucky



This is the **Standard Take Down Square.**

It makes good with the user.

Send and know more about it.

Southington Hardware Co.
Southington, Conn.



THE GALE

BARN AND GRANARY VENTILATOR

For all your buildings

INEXPENSIVE, BEAUTIFUL, STRONG

Made of heavy galvanized iron. Screened inside. Storm-proof and bird-proof. Perfect ventilation guaranteed. All you have to do is to place ventilator on roof and nail fast.

Write for Illustrated Circular with Complete Prices.

Galesburg Sheet Metal Works,
Galesburg, Illinois

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

"Blue Grass Cluster Roofing" Two Dozen Shingles in One Sheet

A new form of metal tiles, possessing many advantages, is being offered by the Moeschl-Edwards Corrugating Company, of Covington, Kentucky. In this roofing there are 24 heavily embossed metal tiles to each sheet, arranged side by side, and arranged in two rows. Thus the largest sheets are 24 inches wide and 10 feet long. Smaller sheets are also furnished in 5, 6, 7, 8 and 9 foot lengths.

The Blue Grass Cluster, as this roofing is called, has been produced to meet the demands for a moderate priced metal roof that will give a more artistic appearance than usual. This style of roof can be applied as quickly and as easily as ordinary corrugated roofing because the lock joints fit perfectly. The end joints also are carefully designed so that they take care of expansion and contraction.

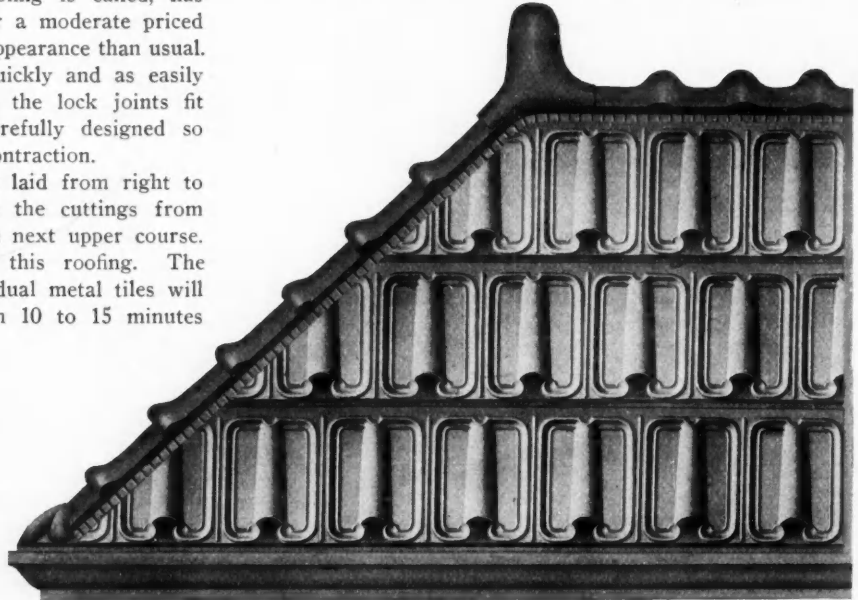
Beginning at the eave, this roofing is laid from right to left. There is practically no waste as the cuttings from right end of sheet are used to start the next upper course. No special tools are required to lay this roofing. The saving of time as compared with individual metal tiles will be appreciated from the fact that from 10 to 15 minutes is all that is required to lay one square of the cluster shingles.

The fact is pointed out also by the Moeschl-Edwards people that whereas in a square of 10 by 14 shingles there are 240 feet of open joints; in this cluster style (single sheets measuring 24 by 120 inches) there are only 60 feet of open joints.

This new roofing weighs 85 pounds to the square. It is shipped crated. It is offered in several attractive pat-

terns. Samples and prices and descriptive circulars will be mailed our readers on request. Address The Moeschl-Edwards Corrugating Company, Covington, Kentucky.

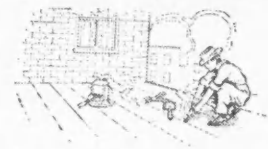
In the open yellow pine forests of Washington and Oregon a collapsible plow is being used in digging fire lines to stop surface fires. The plow can be dismantled and folded into a compact form, so that it can be packed on horseback, and weighs only 40 pounds. When in use, one man with a horse can do the work of 20 or more men working with shovels.



Hip-Roof Covered with "Blue Grass Cluster Roofing"



Your Building is No Better Than Its Roof—



and there is no better roofing material obtainable than

Copper Bearing Open Hearth ROOFING TIN

This material has long passed the experimental stage—and has been proved by time and weather to be the most durable for roofing purposes. The tin roof of quality and service is secured as follows:

BASE PLATE—Copper Bearing Open Hearth Steel.

BRAND—"C. B. Open Hearth" in addition to trade-mark.

WORKMANSHIP—An honest and experienced tinner.

PAINTING—Red oxide and linseed oil properly applied.

COATING—20 to 40 pounds, 30 and heavier is recommended.

RESULTS—Good protection, lasting service, satisfaction and economy.

Write for full information on our Copper Bearing Ternes, and for booklet "Copper—Its Effect Upon Steel for Roofing Tin." We also manufacture Apollo Best Bloom Galvanized Sheets, Black Sheets, Formed Products, Etc.

American Sheet and Tin Plate Company

General Offices: Frick Building, Pittsburgh, Pa.

DISTRICT SALES OFFICES:

Chicago Cincinnati Denver Detroit New Orleans New York Philadelphia Pittsburgh St. Louis
Export Representatives: UNITED STATES STEEL PRODUCTS COMPANY, New York City
Pacific Coast Representatives: UNITED STATES STEEL PRODUCTS COMPANY, San Francisco, Los Angeles, Portland, Seattle

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

THE FLYING MERKEL
For 1914

MODELS AND PRICES:

MODEL 440 —4 H. P., Belt Drive, Single Cylinder.....	\$210.00
MODEL 441 —4 H. P., Chain Drive, Single Cylinder.....	\$210.00
MODEL 470 —7 H. P., Belt Drive, Twin Cylinder.....	\$225.00
MODEL 471 —7 H. P., Chain Drive, Twin Cylinder.....	\$225.00
MODEL 473 —7 H. P., Self Starting "Yellow Jacket" Model.....	\$290.00!

Immediate Deliveries of Genuine, Guaranteed 1914 Models in Carload Lots or Less

Wire for Territory today.

THE MIAMI CYCLE & MFG. CO.
601 Hanover Street
MIDDLETOWN, OHIO, U. S. A.

A Free Book of Money Saving Ideas For Dairy Barn Builders



You will be interested in reading "Helpful Hints to Dairy Barn Builders." It tells many of the things learned by W. D. James—America's foremost dairy barn designer. It will help you make more money.

It tells about the new plank frame construction, the famous King system of ventilation, perfect lighting, proper width and arrangement. It tells about stable floors, site, size, appearance, design, drainage and equipment. And it shows four floor plans of barns that have attracted widespread attention.

You can obtain a copy of this valuable, helpful book FREE. Merely answer these few questions and the book will come by return mail. For whom do you expect to build or remodel dairy barns? (Give name and addresses.) When? For how many cows? Address

James Manufacturing Company
8675 Cane St., FT ATKINSON, WIS.

Special Offer Of Blue Prints



Mr. James wants to make you a special offer of complete working blue prints of modern dairy barns of different sizes and types. Also ask how to secure free help from our agricultural department. Write today.

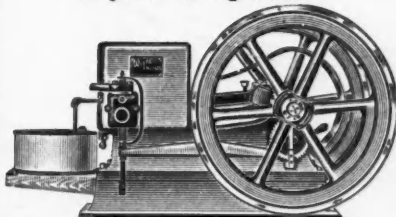


Get My Latest Engine Offer

Let a WITTE earn its own coat while you pay for it. Take full 60 days' Free Trial to prove its big value.

Five - Year Guaranty

I unqualifiedly guarantee every WITTE engine for five years against defects, and consequent faulty operation. I carry the risk, as I have done for my thousands of customers during 27 years.
Ed. H. Witte.



WITTE Engines

Kerosene, Gasoline, Distillate, Gas

All styles 1 1/2 to 40 H. P. Used and recommended by shop, mill, and factory men all over the earth. All my life I have been a shop man, making my own engines. I sell only what I make. That is why, for 27 years, WITTE engines have always made good and stay good.

Look at These Prices!

4 H. P.,	\$ 75.50
6 H. P.,	99.35
8 H. P.,	149.90
11 H. P.,	218.90

Other sizes proportionately low. WRITE FOR MY FREE BOOK, and all about my New Liberal Offer BEFORE you arrange to try any engine. I save you money, besides giving you the easiest chance to get the best engine service. Write me to show you.

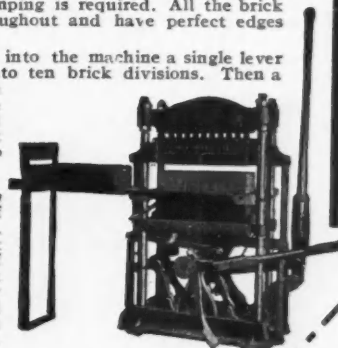
ED. H. WITTE, Witte Iron Works Co.
1779 Oakland Ave., Kansas City, Mo.

10,000 Pressed Cement Brick Daily Made Under 80,000 Pounds Pressure

This is the actual daily record of the *Helm Press* when operated by power. No tamping is required. All the brick are pressed uniformly throughout and have perfect edges and corners.

When the material goes into the machine a single lever movement distributes it into ten brick divisions. Then a downward sweep of the pressure lever exerts the enormous pressure and completes the ten brick. It requires less time than to describe it.

This is the labor saving and profit making method of making the best cement brick. Helm pressed cement brick compete with all grades of clay brick from the cheapest to the most expensive. They are sold as pressed brick and consequently are preferred by architects and builders.



Send for the Helm Catalog Today—NOW

It tells all about the hand and power Helm City Brick Presses designed for brick and block making. Queen City Brick Mch. Co., 171 Bank Bldg. It also describes the Helm DRY wall building system which will interest you. Traverse City, Mich.

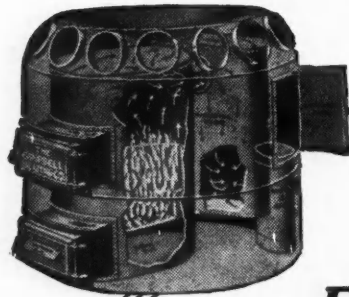
Queen City Brick Mch. Co.

171 Bank Building TRVERSE CITY, MICH.

Please send your free book on Helm Presses.

Name.....
Address.....

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



FREE
Heating Plans
and Specifications

THE expert heating engineer is the only man who can put clean, moist, normal air into every room in the house at a temperature of 70° in even the coldest and windiest weather.

Plans and specifications prepared scientifically are necessary to accomplish this result and more to heat the house economically with easily controlled normal air.

The Campbell Winter Chaser

is economical and durable and with every furnace sold, free plans and specifications are furnished together with a legal guaranty providing that the contract will be complied with.

Moisture in the air is as important as heat. Dry air in the house causes winter itch, predisposes the occupants to colds and sore throat, and the Campbell System is the only one that provides adequate protection. Gallons of water must be used every day to keep the air healthful—normal. Heating a residence with clean, moist, warm, normal air is really a big job for a big man, and to do it at low fuel cost, with a heating plant that in many instances lasts over 20 years, is a real Campbell job.

Write for Booklet "Twice a Day"

Campbell Heating Co.

Des Moines, Iowa

1221 Walnut St.

The Original Gas Engine

Things have changed a good deal since the first gasoline engine was built. Improvements have been made; the parts have been simplified; and the reliability of gas engines has been brought up to very near 100 per cent. Mr. R. E. Olds, of Lansing, Mich., was one of the very first to design and build a successful gasoline engine. It is interesting to learn that his engine has so kept abreast of the times, in fact has led with gas engine improvements to such an extent that the direct lineal descendant of that first engine is today in the very front rank.

Mr. Olds, Chairman of the Original Gas Engine Company, with his associates in this concern, is producing a remarkable engine.

These engines can be had in all of the sizes required by contractors, builders and woodworkers. They are strong, thoroughly reliable, and warranted to make a good account of themselves in any weather and under the most trying working conditions. Some of the special features that have been proved in the Original gas engine are the following: Frost proof; free from vibration; light weight for the power delivered; extra large oblong cooling tank; large valves cooled by both air and water; enclosed crank cases; special lubricator; self-oiling boxes; all joints and connections locked so they cannot work loose.

The Original gas engine people make it their boast that every engine is thoroughly tested in the factory before it is shipped. This prevents engine trouble on the job. A pretty good indication of the worth of a gas engine is the company it keeps. The Original gas engine is being regularly furnished by a number of the leading concrete mixer companies, also in connection with standard makes of hoists, saw rigs, etc. This is a good endorsement.

Write the Original Gas Engine Company, 630 Kalamazoo Street, East, Lansing, Michigan, for their illustrated catalog. Every user or prospective user of power should know about these engines.

"Columned Openings"

A new illustrated catalog of much interest to builders has just been received from the Hartmann-Sanders Co., of Chicago and New York. These people manufacture the well-known Koll's Patent Lock-Joint Staved and Turned Columns, which are warranted not to come apart. This new catalog illustrates the use of these columns for colonnades and other cased openings.

In this catalog they have illustrated only those designs that are in keeping with the trend of domestic architecture of the present day. In all of the work illustrated, the architectural detail has been carefully carried out; everything correct in design and detail, which gives this work a pronounced air of distinction.

The illustration reproduced on page 128 is interesting. This columned opening was furnished for the rooms in the new Hotel Sherman, Chicago. The total width of the opening is 14 feet, the height 10 feet, pedestals are 3 feet long by 30 inches high and columns 8 inches in diameter.

All of the designs illustrated in this new catalog are their stock designs. The Hartmann-Sanders Co. are prepared, however, to submit special designs and prices for openings to meet individual requirements. All they need is information as to the size of the opening and room in which the same is to be used. They make a specialty of following architects' plans and specifications in turning out special work.

This new catalog should be in the hands of every one of our readers. Ask for catalog "U 50" addressing the Hartmann-Sanders Co., at Elston and Webster Avenues, Chicago, or their eastern offices, 1123 Broadway, New York. They also issue a valuable catalog, "U 28," on Pergolas, Sundials and Garden Furniture, also "U 40" on Wood Columns.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

Smoke is nothing but unconsumed fuel, therefore it must be true that when you cut out smoke you eliminate waste and cut down fuel bills. Here is another fact—just as true. You can't burn smoke—the only remedy is don't make it. In other words burn all the fuel.

KEWANEE

Smokeless Firebox Boilers

are smokeless. They have been proven so time and again. Better than that they are proven fuel savers—often saving as much as one-third of a coal bill. It means money to you to find out.

KEWANEE BOILER COMPANY

Kewanee, Illinois

BRANCHES: Chicago, New York, St. Louis, Kansas City, Salt Lake City

The Bovee Furnaces

AT

Manufacturer's Prices



Will give every one of your patrons most perfect results. They last longer and actually require about one-half the fuel used by other furnaces.

They are made heavy, of the very best material and workmanship. Take your rule and measure the fire pots, the large combustion chamber and the long travel of heat and compare it with all other furnaces and see WHY the Bovee

uses less fuel and lasts longer than others. Get our special prices. We can save you 40% on a heating plant. Any handyman can install them.

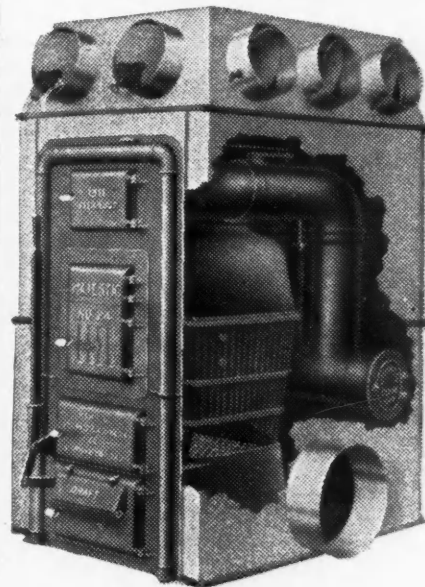
Bovee Furnace Works

50 Eighth Street

Waterloo, Iowa

THE SQUARE THE MAJESTIC

SPEAKS FOR ITSELF

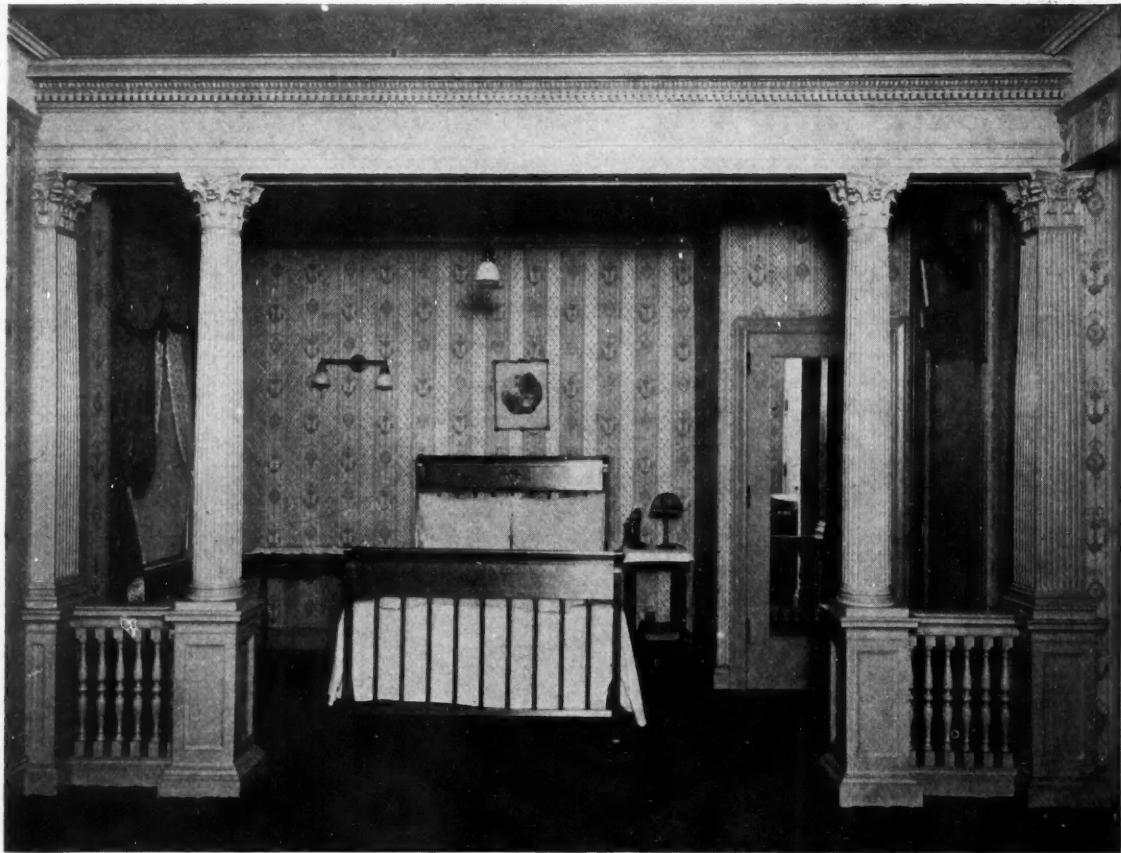


A Splendid Type of all cast warm air heater. The down-draft Radiator saves a large portion of fuel. Write for our agency.

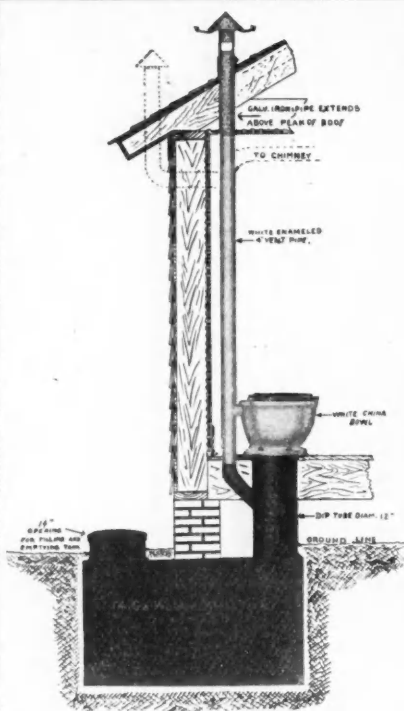
The Majestic Furnace Co.

Huntington, Ind.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



Typical Room in New Hotel Sherman, Chicago, Showing Columned Opening Made by the Hartman-Sanders Co.



Plan of Installation

The Sanitary Antiseptic Closet System

A Modern System Requiring no Water and no Sewer Connection

Indispensable for the Home, School, Factory, Store, Church, Park, Railway or Public Comfort Station or any place where sewerage facilities are not available.

Abolishes the outside open closet vaults or cesspools and the attendant discomforts and dangers of disease.

Can be installed inside or outside.

Looks like the ordinary sewer water closet, but requires no water or sewer.

Requires only thirty minutes' attention twice a year. Installation costs two-thirds less than any flush-water system. Chemical used in operation costs less than water.

Approved by leading sanitary and health authorities.

Guaranteed in every way.

Special proposition installing first system in any locality. Complete systems cost from **\$25.00** to **\$50.00**. **Booklet Free.** Please state requirements.

AGENTS WANTED—Please State Experience, Etc.

SANITARY CHEMICAL CLOSET CO., Dept. B, BRADFORD, PA.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



STAMPED STEEL TILING

Just the thing for
Bathrooms, Kitchens, Restaurants,
Butcher Shops, etc.

AND ITS RIGHT IN YOUR LINE

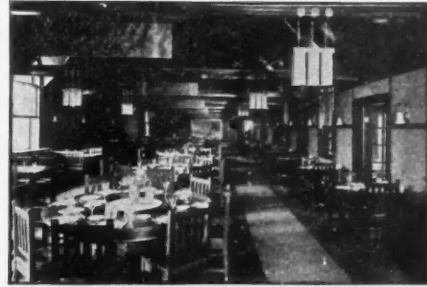
Real tile frequently becomes loose and falls off. This cannot. The studding or plaster is first sheathed with narrow, dry boards and the metal put on with small nails

SIX PATTERNS

Furnished with Baked White Enamel finish—or simply prime painted Metal trim Cap Base, Corners, etc., supplied or you can use wood trim.

NORTHROP, COBURN & DODGE CO.
29 Cherry Street, New York

Elbert Hubbard Uses Plastergon



Dining Room of Elbert Hubbard's Nationally-Known East Aurora Inn, Finished in Plastergon.

Ask any progressive architect how Plastergon compares with other wall boards. He'll tell you that with Plastergon your field becomes bigger every day—your profits larger.

Plastergon is
THE ONLY GUARANTEED WALL BOARD

W. J. Scales, a prominent architect in Glen Falls, writes: "I delayed writing wishing to have the board applied and see how it acted. This has been done. It fills the bill. I shall use Plastergon wherever possible."

PLASTERGON

is moisture proof—surpasses wall paper in beauty, economy and adaptability. Because it displaces lath and plaster, you get the plasterer's job—his profits.

Samples and literature free. Just drop a postal—but now—it will pay you—pay big.

PLASTERGON
WALL-BOARD

PLASTERGON WALL BOARD CO.
Department A, Tonawanda, N. Y.



Master Builder Hatchet

THE BEST YOUR MONEY CAN BUY

The MASTER BUILDER has the right grip and hang. Drives as easily as a hammer. Made of MASTER STEEL, Individually tempered and tested. Octagon handle prevents turning; swelled end on handle prevents slipping. Keen, thin edge, carefully ground; thin bit gives even balance with pole.

PRICE
\$1.50

FREE

WITH EACH MASTER BUILDER HATCHET WE GIVE, ABSOLUTELY FREE, ONE METAL CAP TO PROTECT CUTTING EDGE

No. 319—Size 1 3/4" bit No. 320—Size 2 3/4" bit
Either size \$1.50, from you hardware dealer or delivered free by Parcel Post.

If you want a really good hatchet, order a Master Builder today

GERMANTOWN TOOL CO.

518 Commerce St., Philadelphia, Pa. 62 E. Lake St., Chicago, Ill.



Special Wedge-Handle can Never Come Loose

SEE THAT THIN BIT!

STILLWELL CALIFORNIA Bungalow Homes



Scientifically planned, artistic, comfortable for any climate. Solve the high-cost-of-building and servant problems.

10 Rooms \$4500
Plans & Spec. \$5 Up.
"REPRESENTATIVE CALIFORNIA HOMES" 50 ideal homes, \$1600 to \$6000, Price 50c
"WEST COAST BUNGALOWS" 50 inexpensive homes, \$500 to \$2000, Price 50c
"LITTLE BUNGALOWS" 28 perfect little homes, \$300 to \$1400, Price 25c

Photos, floor plans, descriptions of 128 ideal homes. SPECIAL—ALL 3 BOOKS SENT POSTPAID FOR ONE DOLLAR.

E. W. STILLWELL & CO., ARCHITECTS
4192 HENNE BLDG., LOS ANGELES

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

BIRCH

See our adv. in the DEC. 1913 A.C.&B.

Before you decide on interior trim for your houses, investigate Birch. Birch is close-grained and hard—very durable. Takes a great variety of stains easily and permanently. Has a beautiful, rich figure resembling that of mahogany. Use Birch for all inside trim—doors, casings, base and floors. The best interior finish at the least expense.

Send for FREE BIRCH PANELS

NORTHERN HEMLOCK & MANUFACTURERS ASSN.
Wausau Wisconsin

Why Buy an Elephant to Do the Work of a Horse?

**Save \$10 to \$20
a Day**

By Using the Portable, Light-weight, Rapid,
Smooth-running

EUREKA SELF MEASURING MIXER
"WHERE GUESS WORK ENDS"

Engineers, Contractors, Builders: If you haven't awakened to the remarkable possibilities of this self-measuring mixer and its astonishing advantage over any batch mixer you ever saw, you are overlooking the biggest money-saving opportunity that anybody could possibly offer you in connection with concrete production.

Before you buy another Mixer, read our Catalog No. 36.

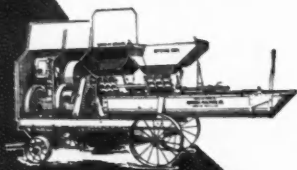
It describes the advantages of the EUREKA Self-Measuring Mixer of half the weight, half the first cost, one-third the operating cost and EQUAL CAPACITY.

Ask about the EUREKA FIFTY—the special outfit for building contractors. **Fifty yards a day.** Low price, strong, serviceable, just the mixer for small jobs.

**Over 300
Eurekas
Used in
New York
City**

Positively guaranteed to be superior to the ordinary mixer in advantages, quality and performance.

Ask for Catalog No. 36, and Names of Eureka Users in Your Territory.



NO WHEELING
NO WAITING
NO GUESSING

**EUREKA MACHINE
CO.**

12 Case Street
LANSING, MICHIGAN

W. V. JOHNSON & CO.
General Eastern Agents,
1 Madison Avenue,
New York
City

Stocks in
Principal
Cities

Plastergon the Choice of the Fra

Fra Elbert Hubbard's Roycroft Inn at East Aurora, N. Y., has recently been all dolled up. Where the visiting elect partake of refection—the state dining room, in fact—the walls and ceiling have been all done over, using Plastergon wallboard.

To the builder, wall board has specially attractive features. First of all, it has added a distinctly new source of profit to his business, inasmuch as the walls and their coverings were formerly a distinct and separate part of the work, which only interested the builder from the point of view of how much money he would lose, through the delays of the plasterers.



New Dining Room at Roycroft Inn

Now, with wall board, the builder is interested in the walls and their coverings, from the point of view of how much money he can make, by taking the plasterer's job into his own contract; and how much money he can save by having the building finished at the convenience of the builder, and not at the convenience of the plasterer. The builder is also interested in the fact that wall board being cheaper than lath and plaster, he is thereby enabled to make a lower bid for the whole job than can be obtained by the owner through separate contracts for building, plastering, decorating, etc.

Among the pioneer manufacturers of wall board, is The Plastergon Wall Board Company, of Tonawanda, N. Y., whose product has become thoroughly familiar to builders through their extensive advertising in the trade papers, the magazines and the newspapers. The enormous success which the product of this company has attained has proved beyond question the merit of Plastergon, while their up-to-date, progressive methods have won the favor of the trade.

The Plastergon Company claim certain features in their board, which merit the consideration of builders who are

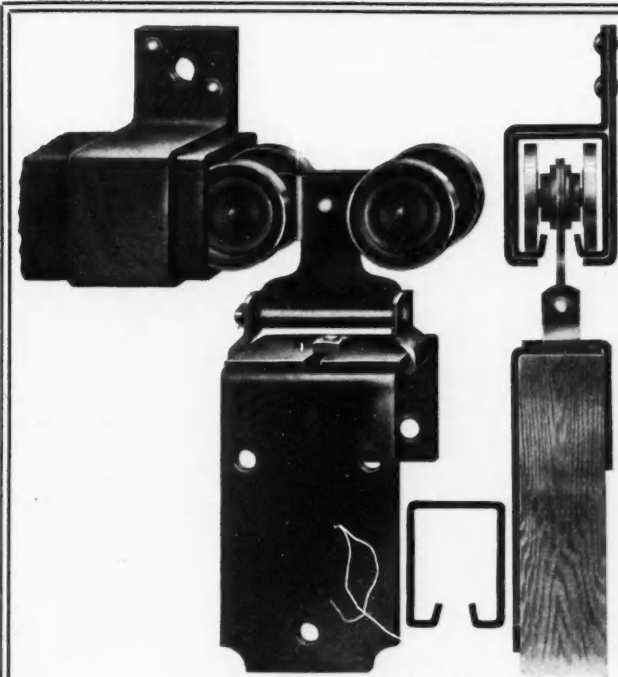


Living Room Finished with Plastergon

taking advantage of the opportunity for extra profit which wall board affords them. While these features are many, the one which principally interests builders, and which therefore includes all the rest, is that every Plastergon Board is guaranteed to give absolutely satisfactory service. The price of Plastergon also is right.

Builders who realize the great profit-making possibilities of wall board will do well to communicate with The Plastergon Wall Board Company, of Tonawanda, N. Y., and ascertain from them their prices, business-making plans, etc., which, together with samples of Plastergon will be forwarded on request to any of our readers.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



For doors weighing up to 400 pounds.

Hinged pendant extra strong and permits door to swing out at bottom if desired. Suitable for doors 1½ to 2 inches thick. Track can be attached to side or ceiling supports, and is furnished in any length up to ten feet in one piece. Brackets for side wall attachment furnished regularly. Runs in No. 31 16-gauge trolley track. Distance from top of door to center of hole in bracket 5½ inches. A pair of hangers consists of two hangers and carriers, one center and two end brackets, lag bolts for brackets and carriage bolts for hangers. Weight—Hangers, per pair, 10 pounds; track, per foot, 1½ pounds.

Delivering the Goods

No man or firm ever achieved lasting success by any other method than that of DELIVERING THE GOODS. And Richards-Wilcox success is built on that solid foundation.

We make "A Hanger For Any Door That Slides." That refers not only to the kind of door, but also to the price the owner is willing to pay for its sliding.

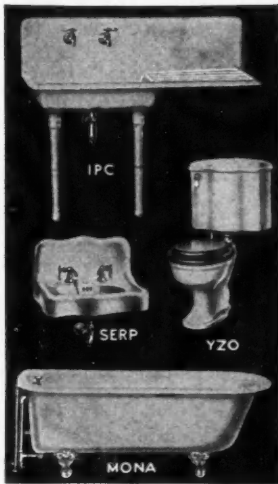
The hanger here illustrated is our No. 321 and insures to an absolute certainty permanently satisfactory sliding barn doors.

Your hardware dealer can give you price particulars and take care of your orders for it.

Richards-Wilcox

MANUFACTURING CO.
AURORA, ILL. U.S.A.

EVERYTHING IN GUARANTEED PLUMBING AND HEATING SUPPLIES AT WHOLESALE



IPC—1-Piece 20-52 in. Long White Enameled Sink with patented concealed wall hanger and patented extension legs, N. P. Fuller faucets and adjustable N. P. trap to floor or wall. Complete, **\$19.85**

YZO—Siphon Wash-Down Low Down Closet Outfit. Light or dark oak tank and seat, **\$12.00**, mahogany tank and seat, **\$13.00**. White everlasting vitreous tank and mahogany seat **\$17.25**

SERP—18 x 24 in. Drop Apron Lavatory, with patented concealed wall hanger, heavy N. P. compression faucets, heavy N. P. adjustable trap to floor or wall, Complete **\$12.00**

HARDIN'S Steam and Water Boiler. Send floor plans for complete plan and heating estimate. **\$135.00 Up**

Everything Guaranteed

MONA—5 ft. x 30 in. Roll Rim Enameled Bath Tub, heavy N. P. Fuller faucet, heavy N. P. ball pattern, patented adjustable waste and overflow, complete, **\$16.80**. 4½ ft. tub, fitted with same trimmings, **\$16.35**

Do not associate us with the many firms carrying Plumbing and Heating Supplies as side lines. We are the only EXCLUSIVE plumbing and heating supply house selling high class guaranteed material at wholesale direct. \$200,000.00 capital behind our guarantee.

Send for Our Complete Catalog-41

JOHN HARDIN CO., 30 Years at 4543-53 Cottage Grove Ave., CHICAGO, ILL.



Here's YOUR Chance



If you've never had the advantage of a first-class knowledge of Building Plans, Specifications, Estimating, Contracting, etc., then here's your opportunity.

Our Chicago school has hundreds of carpenters and builders who are studying Plan Reading, Estimating, Contracting, etc., in the Day and Evening Classes. You can study this same work at home by our new, quick, easy method. We've no books to sell. We do have practical work, offered by no other correspondence course in America.

CHICAGO TECHNICAL COLLEGE

Study at Home by Our New, Quick, Easy Plan BUILDERS' COURSE in Plan Reading, Estimating, etc.

Don't study from old-time plates in books. Use "Chicago Tech." up-to-date blue print plans of buildings now being built or recently completed. Let us tell you more about our plan of helping you go after the big job. Write today. Never mind the cost—it's small, anyway. We want the earnest, ambitious men in the building trades.

Mark and Mail the Coupon Now!

\$15

Outfit and all blue prints

FREE

Chicago Technical College, 1017 Lake View Bldg., Chicago

Mark "X" opposite work in which you are interested. Without obligation on you we'll send full information.

Architectural Drafting Bldg. Superintendence
 Builders' Course Structural Steel Drafting
 Estimating Structural Steel Design
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 House Planning Machine Drafting
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Name
 Address
 Town State
 College or Home-Study Course

CHICAGO TECHNICAL COLLEGE, 1017 LAKE VIEW BUILDING, CHICAGO, ILL.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

Save Your Time and Lumber

It makes more difference to the contractor and builder how much of his form or scaffolding lumber is split and broken up than it does to the lumber dealer. The Pull Easy nail collar makes it possible to save all of the lumber used in temporary construction from being damaged in dismantling.



"Fits any Nail"

This collar is a small steel device which fits any size nail from an 8d to a 20d. A nail driven with it is left protruding far enough from the wood so that the head is always ready for the claw of a hammer or nail-puller. A moment's consideration will impress a builder with the immense advantage of this little nail collar over the age-long habit of imbedding nails into wood and subsequently digging for the heads with a nail-puller or knocking the timber down and pounding out the nails afterward. There is no time lost in merely slipping a collar over each nail which is to be driven temporarily.

The saving in time in taking down falsework, which is secured with Pull Easy nails is enormous.

You can use the nail collars over and over again because no amount of pounding will crumple or break them down. And the nails can usually be drawn out straight, which means they can be used again.

There is no reason why a carpenter cannot go on using his form lumber and scaffolding almost indefinitely if he uses this little steel nail collar.

The manufacturers are the Pull Easy Mfg. Co., Waukesha, Wis. They will supply you with literature and samples on request.

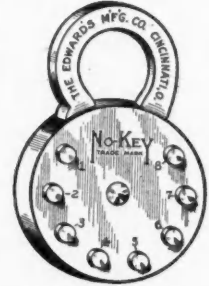


"Always Ready for the Claw"

No Keys—Merely Press the Buttons

Here's a lock that requires no key—no knobs to turn—no clicks to count. To open it, just put your fingers on the buttons—the right buttons, and pinch—just a little bit. It flies open at once. But if you don't know the right buttons, you cannot open it and you cannot pick it for there's nothing to pick. Opening the No-Key Padlock, when you know the combination, is just as simple as turning on the electric light.

Notice the buttons numbered from 1 to 8. Eight buttons are on each side, any of which may be included in a combination. Padlocks are set on different combinations, and as more than 40,000 are possible, each purchaser is assured of a combination known only to himself. The No-Key Padlock is made of solid brass and bronze, without a bit of iron or steel to rust out. It will last a lifetime. Made in one size only—weight, 5¼ ounces.



Keyless Padlock

It is the mission of the No-Key Padlock to do away with keys—to save time, money and pockets. It is simple and practical—a device valued by every man.

Is indispensable to the owner of an automobile, motorcycle, boat or bicycle. It is the most convenient and practical padlock to lock speed and spark levers, tool boxes, extra tires, garages, etc. No need to remove gloves or wash greasy hands—no use for matches, as the lock can be operated as quickly and easily in the dark as in the light.

The No-Key is a patented invention and fully protected in the United States by patents. For further information address The Edwards Manufacturing Co., 401-407 Eggleston Avenue, Cincinnati, Ohio.

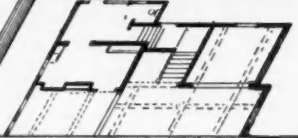
Going to Build Remodel or Repair?

Building Material Catalog

House and



Barn Plans



THESE TWO GREAT BOOKS WILL REDUCE YOUR BUILDING EXPENSES

Everything you need in lumber, millwork, hardware, roofing, paint, etc., is quoted in the Building Material Catalog at factory prices. Why pay high prices when you can buy direct from us, save money, get prompt deliveries and highest quality material.

Our Plan Book shows views of some of the most attractive houses, bungalows, summer houses, barns and garages ever built for the money. It also shows how you can obtain floor and elevation plans free.

Both books are FREE. Write for them TODAY.

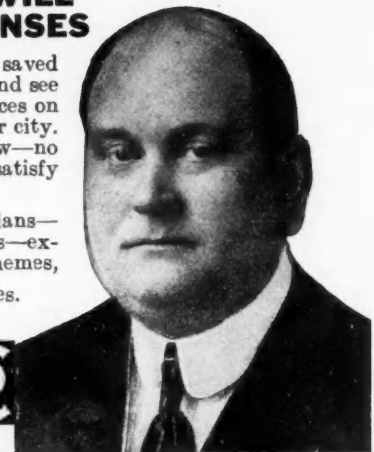
Thousands have bought of us and saved money. Why not you? Get the books and see what this means to you. I will quote prices on all material needed, freight paid to your city. Everything guaranteed to be brand new—no wreckage. Everything guaranteed to satisfy you or you get your money back.

I will give you new ideas on floor plans—finish—panel and glass doors—windows—exterior and interior trim—paint color schemes, etc.

H. B. MUNGER, Pres.

CHICAGO MILLWORK SUPPLY CO.
AMERICA'S GREATEST SASH AND DOOR HOUSE

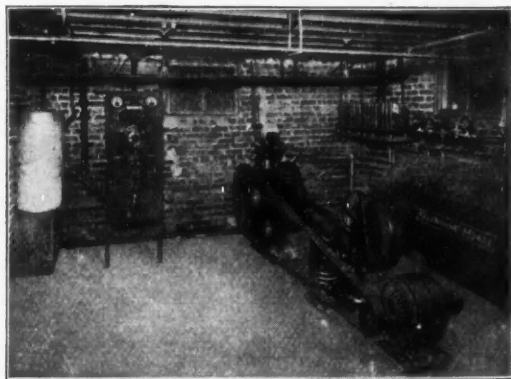
1422 West 37th St., CHICAGO, ILL.



You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

When considering Plans for Residence or other buildings remember the best time to install the
Electric Light Plant and Water System

IS DURING THE TIME OF BUILDING



A Fairbanks-Morse Installation in a Village Home

We will furnish Specifications and Estimated Cost for installing a Fairbanks-Morse Plant upon request, with information as to size and dimensions of building. Write us for Catalog No. 1H 1409 giving full description of various size outfits.

Fairbanks, Morse & Co.

New York Chicago San Francisco

Pump Out Your Ditches with a Novo Centrifugal

Use it wherever you have to handle a large volume of water at a moderate head. Novo Centrifugal Pumping Outfits will lift 20 feet and deliver from 90 to 650 gallons per minute.

They have proved themselves efficient, economical and reliable. This pump is of the standard horizontal, side suction type.

Novo Centrifugal Outfits are made in three types: Direct-connected, chain drive or belt driven. They are mounted with 2 1/2 to 15 h. p. Novo Engines. Steel trucks can be provided for any of the above sizes.

Novo Engines are made in ten sizes: 1 to 15 h. p.

Send for the Novo Book
"Reliable Power"

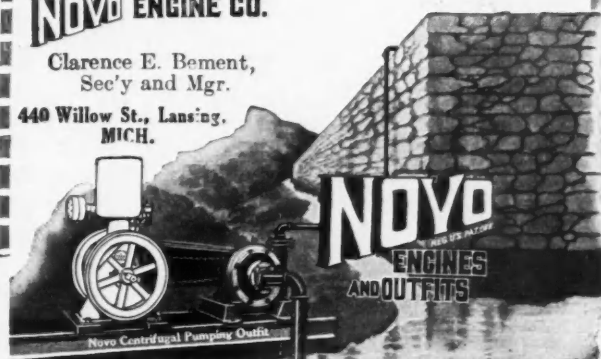
for full details of all the Novo Centrifugal and the many other Novo Pumping Outfits and Hoists. They meet every contractor's needs.

**NO TANK
 NO FAN
 NO FREEZING
 TROUBLE**

NOVO ENGINE CO.

Clarence E. Bement,
 Sec'y and Mgr.

440 Willow St., Lansing,
 MICH.



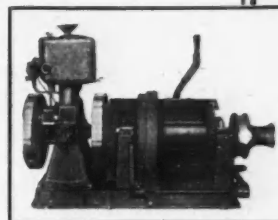
"Constant Operation"

—It doesn't make any difference how good your equipment may be—if your engine breaks down or stops, your outfit isn't worth a darn.

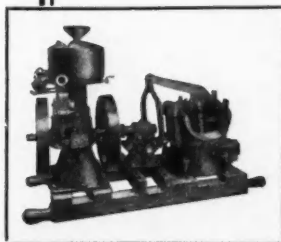
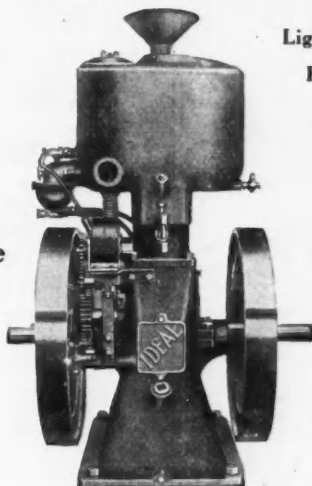
—It's good common sense—what do you think?

**Dirt Proof
 Fool Proof
 Enclosed Crank Case
 No Vibration**

**Light Weight
 Frost Proof
 Large Valves
 Compact**



"Ideal" Type M Engines



Get Catalog No. 314 on "Ideal" Engines, Hoists and Pumps

The engine that has improvements that proves its name. The engine that means constant service—always on the job with a push. No breakdowns or stops when you use "Ideal" power. Does not require expert mechanic to operate. The engine that means dollars saved on your operating cost.

Can be equipped with either magneto or battery ignition.

"When Buying Equipment—Buy 'Ideal' Power"

Original Gas Engine Co.

R. E. OLDS, Chairman

630 Kalamazoo St., E.

LANSING, MICH.

Are you going to the Chicago Cement Show? See us, Booth 180 in Annex.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

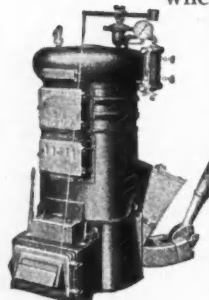
UNDERFEED

FURNACE OR BOILER

Cuts Your Coal Bills $\frac{1}{2}$ to $\frac{2}{3}$

Mr. Builder:

GET acquainted with the Underfeed, because it is the Heating System which ADDS to the RENTING or SELLING value of ANY building. This statement is backed up by an overwhelming lot of red-blooded, cheerful



Boiler

testimony. When your own coal pile is hardest hit during winter's *freeziest* days, over 25,000 happy home owners are rejoicing because the UNDERFEED has *cut* their heat cost in *two* and in some cases, even in *three*. The Underfeed *does* save $\frac{1}{2}$ to $\frac{2}{3}$ of coal bills and provides *clean, even, adequate* heat with *least* attention, from winter's start to finish. An Underfeed soon pays for itself and then keeps on saving for a lifetime.

Prof. L. Wayland Dowling, University of Wisconsin, at Madison, backs up this statement when he writes:

"I have used an Underfeed Hot Air Furnace five years, and a conservative estimate shows a saving of at least \$30 per year in our coal bills. The Underfeed has stood the test in temperature ranging from 25 degrees below zero to the warm early spring days."

Write TODAY for FREE Booklet fully describing

THE PECK Williamson

Underfeed FURNACES BOILERS

Let us send you some fac-simile testimonials from people in your own neighborhood—people who KNOW that the Underfeed insures *all-time* comfort at *least* possible cost.

Mr. George M. Condon, 597 W. Grand Boulevard, Detroit, Mich., after four years' experience with Underfeed Boiler writes: "I pay \$3.65 a ton for slack where my neighbors pay \$8 and \$8.50 for fuel, and a ton of slack lasts me as long as a ton of hard coal and with equal results."

Send rough sketch or blueprint of the floors to be heated and your basement, and we will forward Heating Plans and Estimate of Cost prepared by our Engineering Department, which is at your service FREE.

Exclusive Saving Advantages Which Spell ECONOMY

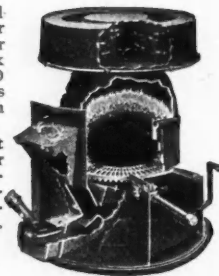
The Underfeed saves \$2 to \$3 a ton on coal, burning *Cheaper* grades of hard or soft coal—slack, pea or buckwheat sizes.

All fire on top. Smoke and gases *must* pass through fire, are *entirely* consumed, creating *more* heat and keeping the heating surface *free* from heat-retarding soot. Perfect combustion. No clinkers. Few ashes.

Underfeed heaters are adapted for both large and small buildings. Installed in unit or battery form in residences, apartment houses, halls, churches, theaters, schools, etc.

Write TODAY for Underfeed Warm Air Furnace or Steam and Hot Water Booklet.

THE PECK WILLIAMSON CO.
436 West Fifth Street CINCINNATI, OHIO



Furnace

Winter Tests Haulage Methods

"Most business men realize the inefficiency of horses to properly meet their haulage problems, but nevertheless many of them delay the adoption of motor trucks because they have not taken time to fully familiarize themselves with the benefits to be derived," says R. D. Jones of the KisselKar.

"The winter months, wherever a cold climate prevails, is the time to make a study of both the truck and the horse. The truck, with mechanical certainty, will be found plodding its way through snowdrifts, gliding over ice, constantly, regardless of wind or sleet, doing its duty regularly and tirelessly, and covering a four to five times greater distance than the horse in the same period. If it is bought under a manufacturer's service guarantee, and it ought not to be bought under any other circumstances, its uninterrupted use is practically assured.

"Against this the investigator should not rest content with his own individual experience with horses. He may have been particularly fortunate. But if he consults statistics, or if he just examines closely the average conditions in his own immediate vicinity, he will find that the horse is a mighty uncertain proposition.

"He will learn that direct losses from death or accident to horses during the winter totals an immense amount. He will learn that losses of trade and good will through inability to meet delivery promises promptly is, though *inestimable*, an item that no business man can afford to ignore. He will learn that owners of trucks, with a few exceptions, inevitably traceable to an inadequate system, would not go back to horses under any circumstances.

"When he takes up his pencil and starts to figure, reasons for using motor trucks will multiply. The most important of these that will appear lies in the adaptability of the truck to an increasing business—in fact through its very capacity to run constantly, tripling and quadrupling the possibilities of the horse, it acts as a spur to widen the zone of sales territory. In town or cross-country, it matters not where the truck is called upon to go, it is ready and able.

"Every business man ought to take time to find out this winter what motor trucks are doing. It will prove a revelation to many."

Still in the Ring

Evidence as to where the old cars go still multiplies. F. H. Cunningham of Hoopston, Ill., writes that he has a 1910 KisselKar "50", which he has driven 65,874 miles.

"I have never had any engine trouble and the car is always ready to go day or night," says Mr. Cunningham. "It has cost me all told only \$48.75 for repairs, and \$21.65 of that was paid for damage to another car with which I collided. My car was not even scratched in the accident."



Varnish and Satisfaction

Successful builders are building more than houses. They are building reputations.

It is the satisfied customer who spreads the good word around and sends new trade to the builder who has really pleased.

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If a varnish refuses to dry, but stays tacky; if it proves to lack toughness and strength, so that it mars easily; if it becomes brittle, easily cracking; or if it is softened or discolored by water—a poor, unsatisfactory floor is the result. The owner is never satisfied, and he holds a grudge against the builder, even though the builder may not himself have done the varnishing.

Floor varnish has to stand the racket. It has hard work to do, and must be especially qualified if it is to do it satisfactorily. Not every varnish will do for finishing floors.

Some of the leading varnish makers have given an astonishing amount of study to this floor varnish question. The work of Berry Brothers, Inc., along this line has been notable. For fifty-five years they have been making varnishes. They have produced a floor varnish known as "Liquid Granite," which they guarantee to be water-proof, mar-proof and sanitary. Floors finished with it are safe from snow and water. Heavy blows won't crack it, and washing with soap and water does not affect its appearance, except to clean and brighten it up.

Berry Brothers make several other special varnishes also. Their "Luxeberry Wood Finish," for instance, is what they recommend as the best for the finest rubbed or polished finish on interior woodwork. This company desires to co-operate with our readers to the fullest possible extent concerning all items of varnishing. Write Berry Brothers, Inc., Detroit, Mich., and ask for their interesting, free booklet, "Natural Woods and How to Finish Them."

Post up on this varnish proposition, for it means satisfaction and building success.

Trunk manufacturers in Colorado are abandoning the usual basswood and cottonwood for the trunk box, and are turning to Engelmann spruce, which combines lightness, strength, and ease of working.

"Corbin Specialties"

We have just received a very interesting, finely illustrated catalog of the above title, featuring some of the newer and more prominent articles in the P. & F. Corbin line of builders' hardware. Considerable space is given to concealed transom blind, and casement window fittings that are new and are shown in this book for the first time. These are original in conception and design and are sure to attract a great deal of attention from hardware dealers, architects, builders and building owners.

The matter of automatic exit fixtures is also thoroughly presented. A study of the working drawings and other illustrations pertaining to this subject will be a liberal education to anyone concerned with the building or outfitting of public buildings. City building ordinances are becoming very strict in regard to having all public buildings of every sort equipped with anti-panic door hardware, all doors to open outward. Door checks, Corbin ball-bearing pin tumbler cylinder locks, together with some specimen styles of distinctive hardware are also given place in this catalog.

The book measures 9 by 12 inches and contains 50 pages, printed on fine enameled paper and copiously illustrated. The P. & F. Corbin Company, New Britain, Conn., will mail copies to any of our readers who will write for them.



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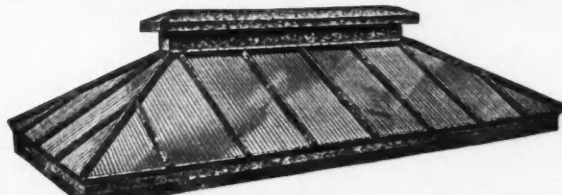
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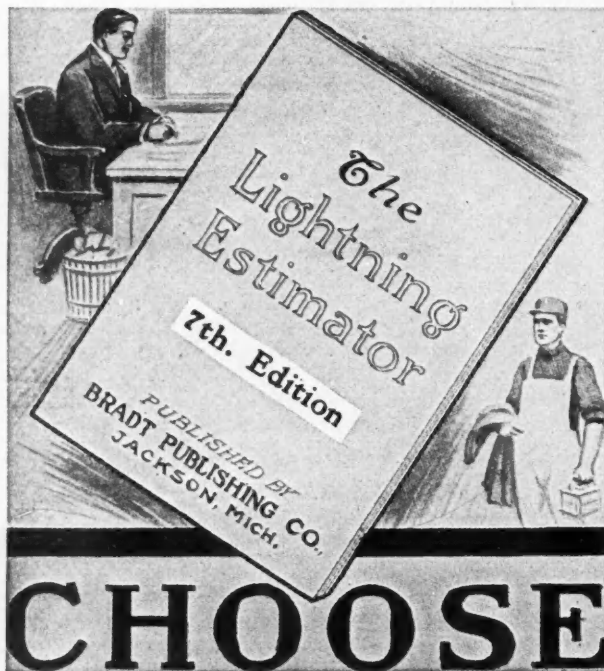
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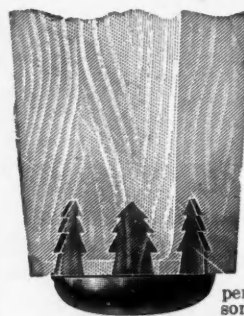
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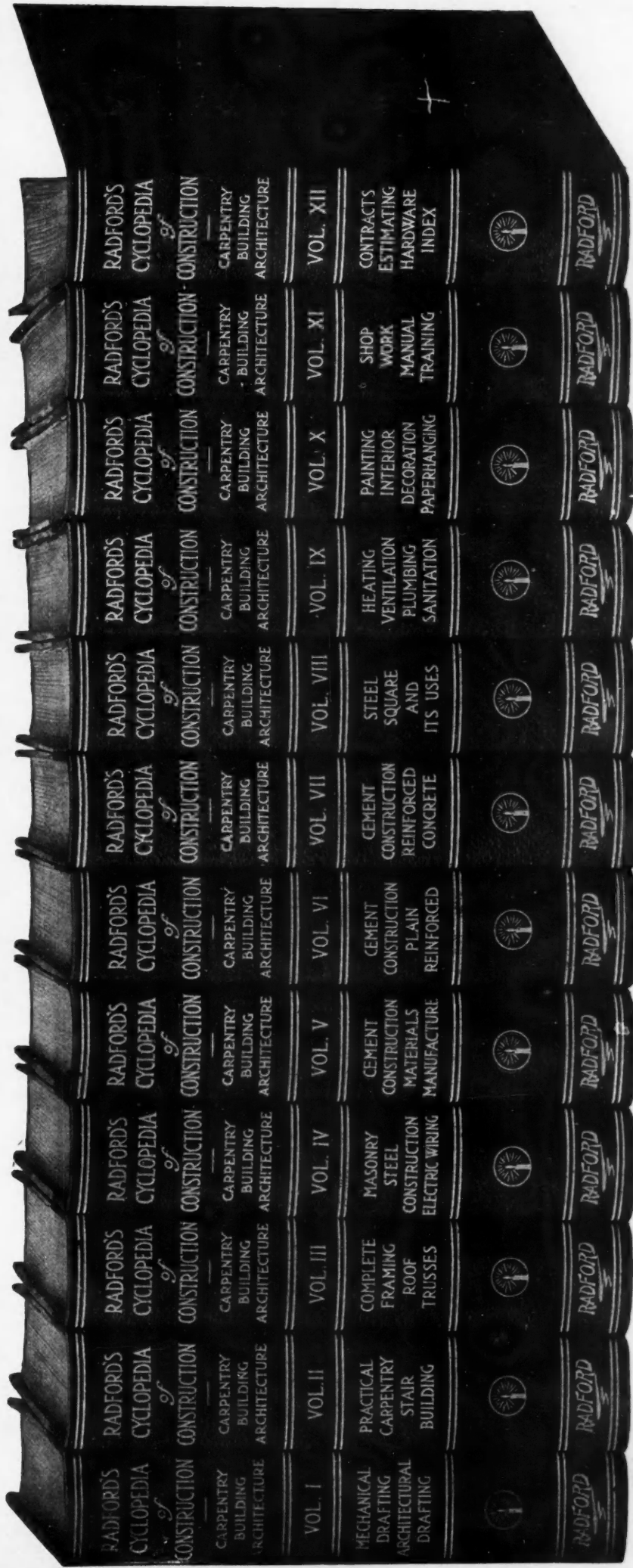
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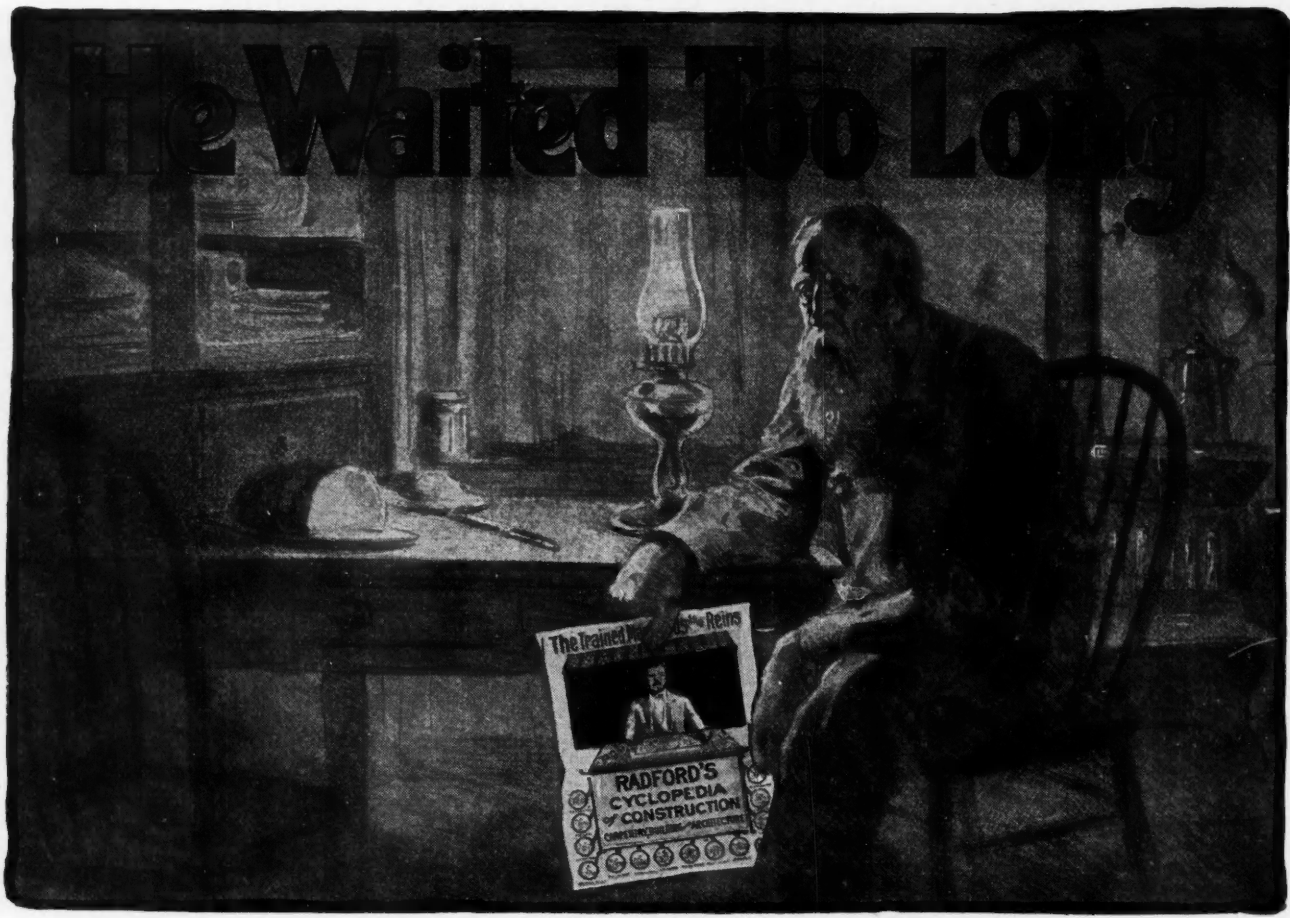
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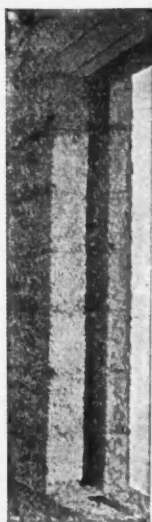
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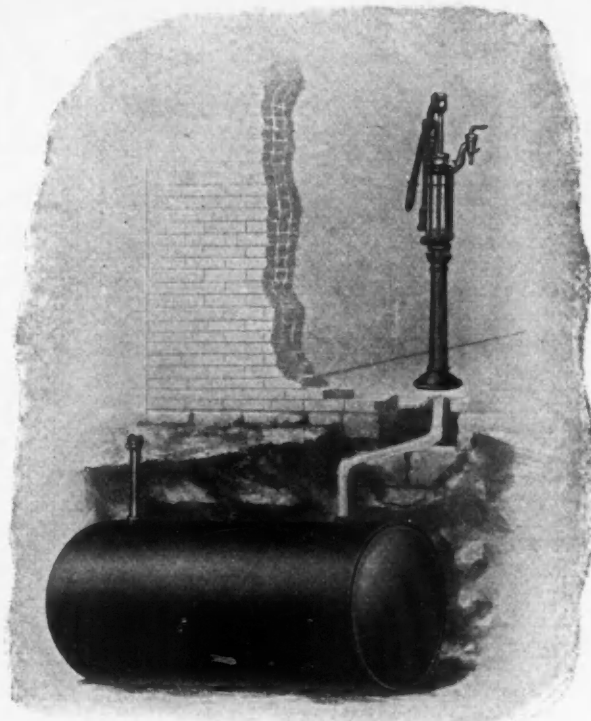
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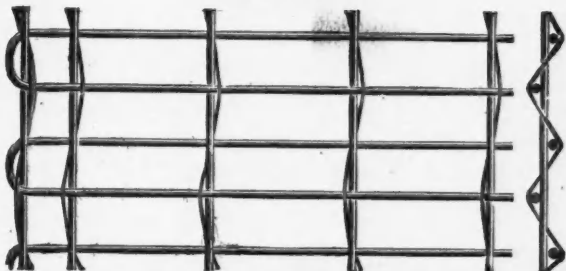
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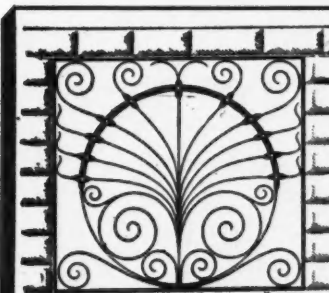
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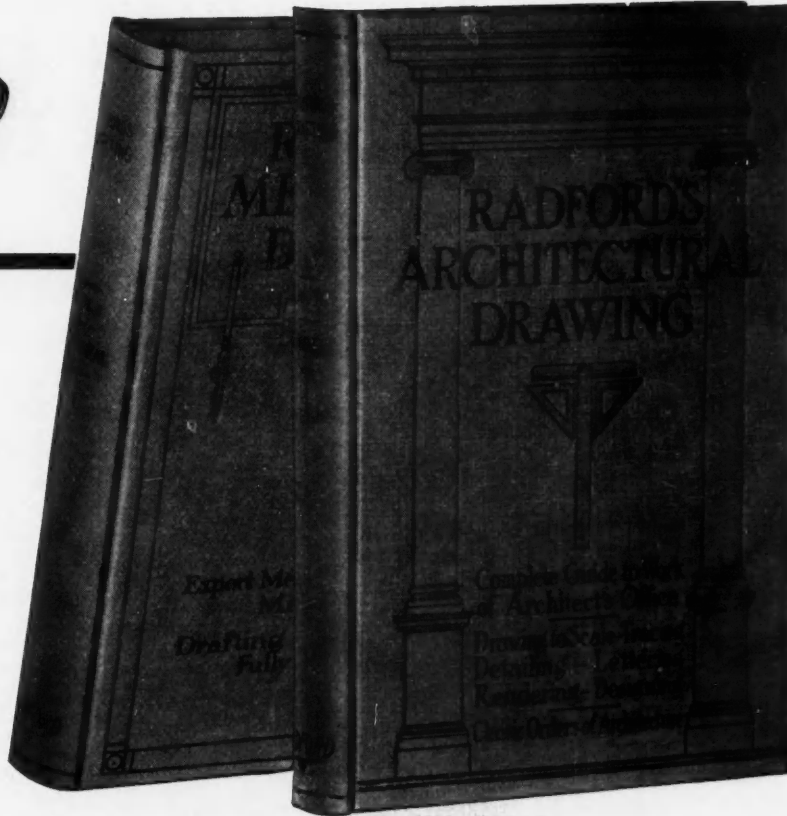
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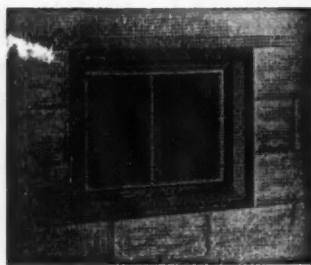
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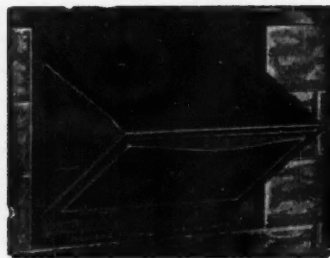
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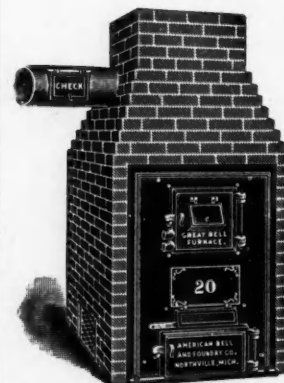


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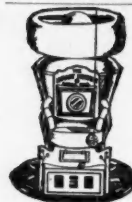
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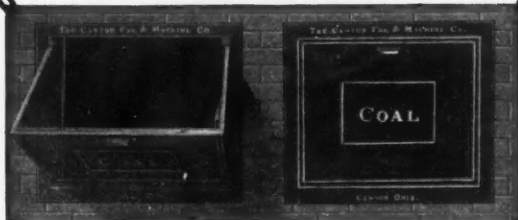
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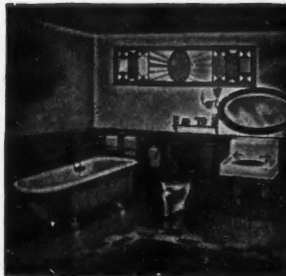
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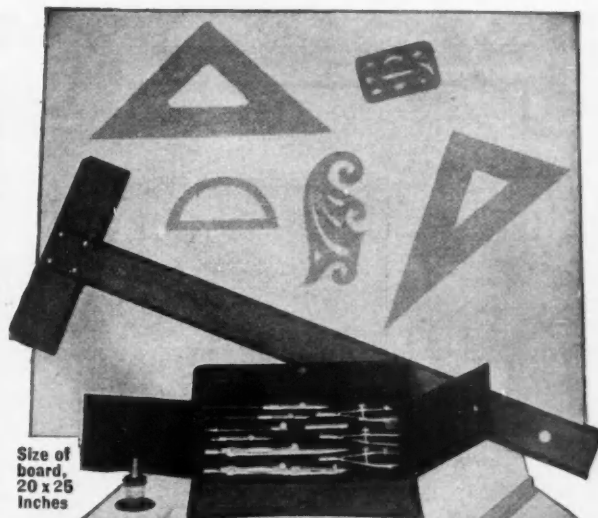
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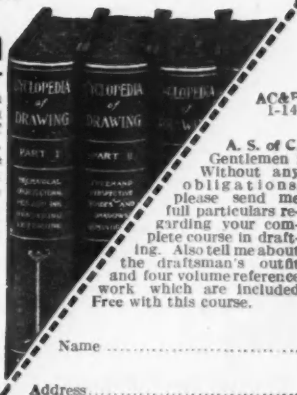
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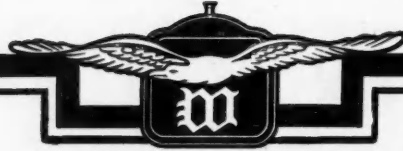
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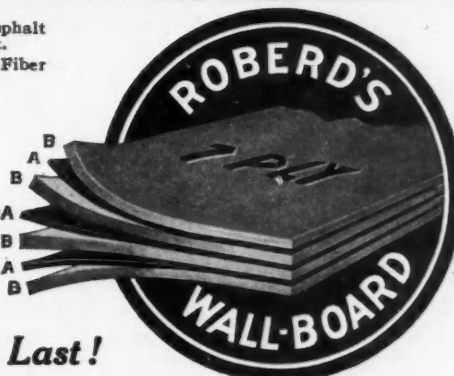
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Improved Steel Ceilings Skylights

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Get our prices.
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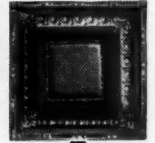
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If you will handle our Classik Steel Ceiling orders will come piling in so rapidly that you will be compelled to employ a clerical force. The demand is there waiting for someone to supply it.

Steel Ceilings

are decidedly in advance of others. They offer beautiful, deep embossed effects which make competition a very easy matter to overcome. Hundreds of rich looking combinations are included in the Berger line. Write the nearest Berger Branch for catalog and information.

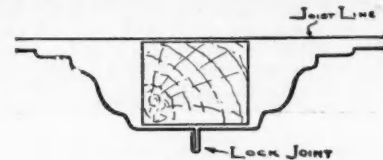
THE BERGER MFG. CO., Canton, Ohio

For the best service address nearest branch.

New York Philadelphia St. Louis
Boston Minneapolis San Francisco

Also manufacturers of Ferro-lithic and Multiplex Reinforcing Plates, Metal Lath, Roofing, Eaves Trough and Conductor Pipe, and Sheet Metal Building Products of all kinds.

METAL CEILING



See that Joint?

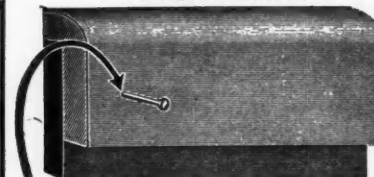
The Acme of perfect construction. Don't nail or slip the joints. Lock them. Full information in catalogue E.

S. KEIGHLEY METAL CEILING & MFG. CO.
PITTSBURGH, PA.

THE DENNIS "CLINCHER"TM
FELT WEATHER STRIP
PATENT PENDING

Specify The

**W. J. Dennis
Clincher Felt
Weather
Strip**



**NOTE - NAIL PASSES THROUGH
BOTH MOULDING AND FELT.**

**If You Want
the Best
Made**

Manufactured only by

W. J. Dennis & Co. - 2226 W. Lake St., Chicago
Free Sample to any address for your Hardware dealers' name.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

Saves
Time

BAYONNE ROOF AND DECK CLOTH

Saves
Paint

Wears Longer than any
Other Canvas Covering



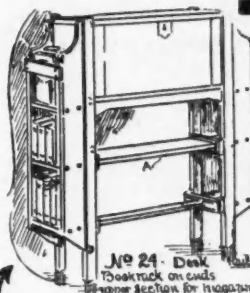
Arthur T. Remick, Architect.

Besides the economy in time and materials, you get the credit for knowing your business when you use Bayonne. Lays on dry boards and only requires painting after laying. Our preparation is applied under pressure and permeates the fabric, making it positively waterproof and prevents the surface from scaling, even with hardest wear.

Write for booklet N giving
laying instructions and prices

JOHN BOYLE & CO., INC.

112-114 Duane St. } NEW YORK CITY 202-204 Market St.
70-72 Reade St. } ST. LOUIS, MO.



No 24. Desk
Book rack on ends
Upper section for magazines
44 in. High
36 in. Wide

Easy-To-Make Furniture

100 designs drawn to scale by expert designers, easy to understand. Carpenters and contractors make one piece of furniture and save the price of the entire portfolio. Sent prepaid on receipt of \$2.00.

Satisfaction guaranteed or
money refunded.

Crater & Holt 43 National Avenue
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This Pearson's Automatic SHINGLE NAILER WILL PAY FOR ITSELF ON FIRST JOB

Do your nailing fast—faster than ever before. You can use this Pearson's Nailer on any pitch roof. Wear mittens, gloves, etc. This "Hand Nailer" is the only Nailer—throw nails in by the handful—then start nailing. Nails easily driven through tin or quite heavy sheet iron.

These nailers are made in two sizes—The BLUE Nailer for 3d common No. 14 gauge wire nails. The RED Nailer for 3d galvanized No. 13 gauge 1 1/4 inch wire nails.

It will come right to your door, quick, by insured parcel post, all prepaid for only \$5.00.

IT MAKES GOOD.

PEARSON MFG. CO. • ROBBINSDALE, MINN.

HOW TO BUILD A REPUTATION

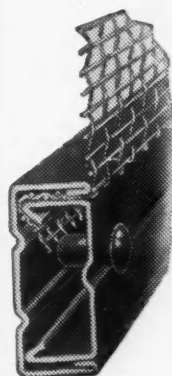
You build a reputation as you build a giant sky-scraper—first the firm foundation and then the gilded dome.

Let it be known among your customers that you are handling "BROOKLYN" Metal Ceilings—that's the firm foundation of your reputation.

The durability of the material and the handsome appearance of the finished job finally establishes your name in your community. This means more business at a bigger profit for you.

Write for our special offer.

Brooklyn Metal Ceiling Company
283 Greene Ave. Brooklyn, N. Y.



Fly Screens

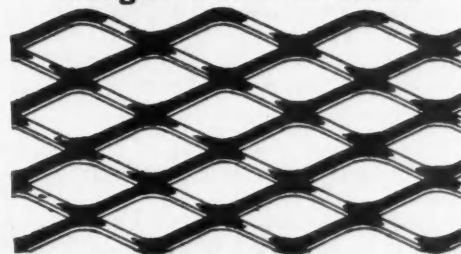
Metal Frame
REWIRABLE CIN-MAN-CO.

See method of securing wire cloth, held by rounded corners, which prevents cutting by vibration.

Special inducements to
Carpenters and Builders
Booklet Free

The Cincinnati Fly Screen Co.
1010-1026 Evans St., Cincinnati, O.

Berger's Metal Lath



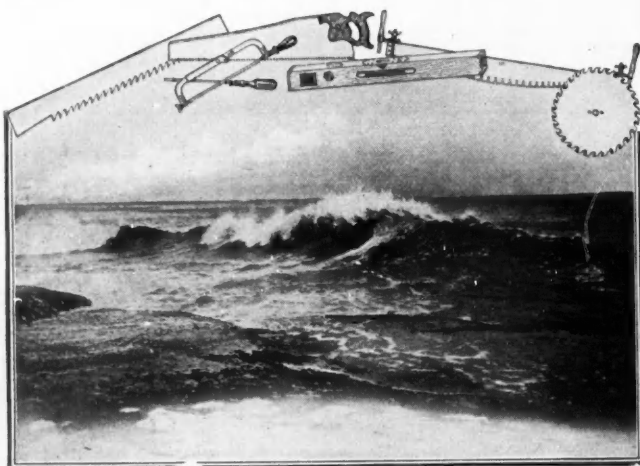
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The Berger Mfg. Co., Canton, Ohio

For the best service address nearest branch

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You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



Every Sea is Crossed

by Disston products. From their birthplace in Philadelphia they flow out in ever-increasing volume to the very ends of the world. By river boat and ocean steamer—by railway trains and pack trains—they spread out over the oceans, the plains and the mountains. In the forests, the mills, the mines; in big cities and on the farm—wherever saws and tools are used, the ones bearing the Disston Brand are pre-eminent and predominant.

DISSTON Brand Goods (Quality Guaranteed)

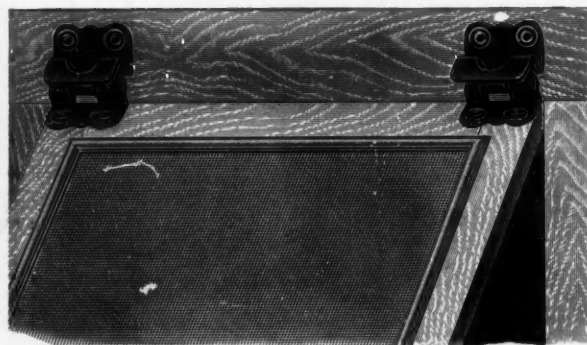
possess three great features that have placed them first in the world's demand. First quality of material. From the raw materials to the finished product, every process is performed within the Disston Works by special methods that are not possible of duplication, and keep Disston Quality unequalled. Second, efficiency. Distinctive patterns, original methods of manufacture, and the long experience of the Disston Works, coupled with the skill of the workmen and the quality of materials used, fosters an efficiency that can not be successfully imitated. Third, reputation. Generations of mechanics have already tested and approved them. The present demand, which is greater than ever, and constantly growing in size and scope, offers the strongest kind of testimony to their continued superiority. You can

"Depend on Disston"

HENRY DISSTON & SONS
Incorporated

Keystone Saw, Tool, Steel and File Works
PHILADELPHIA, U. S. A.

Half the Carpenter's Time Saved!



Watrous No. 18 Safety Screen and Storm Sash Hanger.

Lug on lower section acts as gauge for securing perfect location without measuring.

Barbed car nails instead of screws!

A Hammer the only tool needed!

A card will bring you a sample and full information.

Watrous Mfg. Co.
Des Moines, Iowa

A HANDY COMBINATION VISE



As Bench Vise

Garage, Factory, Home and General Use. **Weight, 35 lbs.**

It's a good sized anvil, a practical bench vise (jaws 4 inches wide), reliable pipe vise, and dependable drill press, quickly interchangeable and all in one. Made of the best semi-steel.

The handiest combination ever made for

Introductory Price, Only \$3.00



Send your order direct to our factory and we will make shipment the day we receive it.

STANDARD TOOL & MFG. CO.
100 Industrial Bldg.
INDIANAPOLIS, INDIANA



As Drill Vise

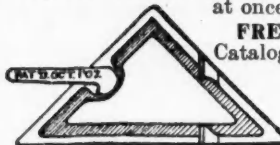
Buy 1—Get 3

TOOLS IN ONE

Mitre—Square—Line Gauge

If you haven't a Rule Tool Gauge in your kit, order one at once. 25c each, postpaid.

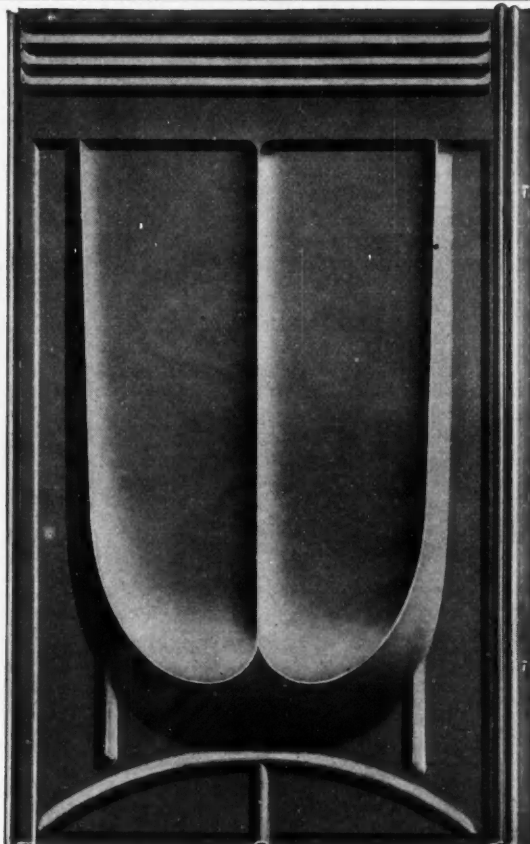
FREE—No. 5 Builders Hardware Catalog and price list to Contractors and Material Men. We do not sell to contractors or carpenters in Cook County, Illinois.



"THE RULE TOOL"

Rehm Hardware Company
1501 Blue Island Avenue CHICAGO, ILL.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



EDWARDS "OHIO" METAL SHINGLE

The very latest addition to the big Edwards Metal Shingle Family has just arrived.

The "baby" is named after our own great state. Note the handsome, novel design and clean cut embossing. This pattern is made in one size only, 14 x 20 inches.

Manufactured from the best quality Worcester Grade Terne Plate, painted or "Tightcote" galvanized.

The "Ohio" has the patent interlocking device and every other good feature that has made Edwards Shingles famous.

Samples and Price on Application

The Edwards Mfg. Co.
"The Sheet Metal Folks"

401-417 Eggleston Avenue, Cincinnati, Ohio

Largest Manufacturers of Metal Ceilings, Metal Shingles,
Steel Roofing and Siding in the World.

New York Office: 81-83 Fulton St. Branch Office and Ware-
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"UNIVERSAL TRIMMER"

TRADE MARK

**A
Machine
For
Every
Need**



NO. 6 A. UNIVERSAL TRIMMER W. R. FOX PATENTS

GA. FOX "UNIVERSAL TRIMMER"

**A
Need
For
Every
Machine**

**You Will Never Know What Perfect Work is Until You
Use a Fox "Universal"**

*One Stroke of the Knife Produces a Perfect Angle—
This Means a Great Saving of Time to You.*

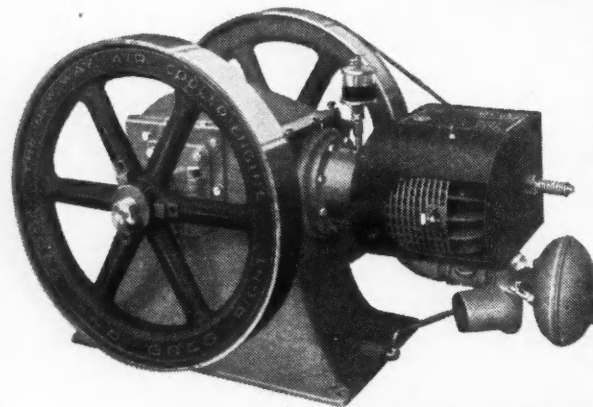
Write **TODAY** for Our New Catalog

FOX Machine Co.
22 FRONT AVENUE N. E.
GRAND RAPIDS, . . . MICHIGAN

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

Camp with Us At the Chicago Cement Show in February

The Whole Family Of "NEW-WAY" AIR-COOLED ENGINES Will be there



The "NEW-WAY" line is composed of the most up-to-the-minute engines on the market.

For contractors machinery there is no better power made.

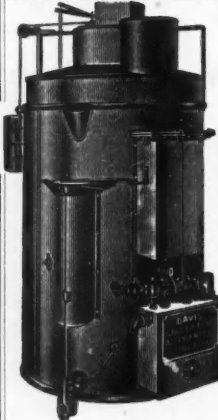
They are simple, durable and economical.

Air Cooled — Dust Proof — No Water — No Pumps
No Freezing — No Overheating — Automatic Lubrication — Large Valves. The best power on the market for the money. Can be mounted on any machine.

Write for
Catalog

THE "New-Way" MOTOR COMPANY
LANSING, MICHIGAN, U.S.A.

LIGHT YOUR HOUSES With Davis Acetylene Lights



The Davis System provides a perfectly safe and reliable means of lighting any building. No experience is required to install this system in new or old buildings.

The excellent points of Davis Acetylene Lighting Systems cannot be fully appreciated until you have read what we have to say about them. They are vastly different from any other acetylene lighting system because there is positively no danger from leakage or explosion. The light is always strong and steady.

Architects and Builders
will find it profitable to accept our offer to local representatives and salesmen. Write for complete details and description.

Get the Best Light — The Best is the Davis

DAVIS ACETYLENE CO.
90 Crawford St. Elkhart, Ind.

Use KEROSENE Engine Free!

Amazing "DETROIT" Kerosene Engine shipped on 15 days' FREE Trial, proves kerosene cheapest, safest, most powerful fuel. If satisfied, pay lowest price ever given on reliable farm engine; if not, pay nothing. No waste, no evaporation, no explosion from coal oil.


Gasoline Going Up!
Gasoline is 9c to 15c higher than coal oil. Still going up. Two pints of coal oil do work of three pints gasoline.

Amazing "DETROIT"
—only engine running on coal oil successfully; uses alcohol, gasoline and benzine, too. Starts without cranking. Only three moving parts—no cams—no sprockets—no gears—no valves—the utmost in simplicity, power and strength. Mounted on skids. All sizes, 2 to 20 h. p. in stock ready to ship. Engine tested before crating. Comes all ready to run. Pumps, saws, threshes, churns, separates milk, grinds feed, shells corn, runs home electric light plant. Prices (stripped), \$29.50 up. Sent any place on 15 days' Free Trial. Don't buy an engine till you investigate money-saving, power-saving "DETROIT." Thousands to write, you get Special Extra-Low Introductory price. Write! (158)

Detroit Engine Works, 495 Bellevue Ave., Detroit, Mich



A FREE BOOK On Concrete Machinery



It isn't exactly a catalog because it gives you the cost of making concrete Blocks, Bricks, Porches and Chimneys. It tells all about making Drain Tile, Sewer Pipe. How to make them at a good profit, etc


You should have this 64 page book if interested in concrete. Write at once indicating machine you are mostly interested in

Price \$40

W. E. DUNN MFG. CO., 4132 Fillmore St. Chicago

All About Concrete

Blocks
Bricks
Porches
Chimneys
Drain Tile
Sewer Pipe
Mixers



You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

It won't pinch him



BECAUSE it is equipped with a **Shelby Chief Floor Hinge and Door Check**. He may follow his Mother back and forth through the door without being bumped over or receiving injury.

The door opens easily and closes without slam or jar.

The hinge rests on the surface of the floor—carries the weight and closes the door.

The check sets on top of the door; controls the closing speed of the hinge on the floor.

The cost of purchase and installation is small.

No double swinging door should be without a Shelby Chief. Ask your dealer about it.

SHELBY SPRING HINGE CO.
SHELBY, OHIO.

THE SHELBY CHIEF HINGE



The Raise

What would a raise in salary mean to YOU?

The satisfaction of going home with a good-sized raise should mean more to the ambitious man than anything else. It means more than money—it means success. It means that you are a better man this year than you were the year before. It means that you are capable of new responsibilities. It also means that you are a big man now and important where you were a small man and unimportant before.

SALARY GUARANTEE

THE AMERICAN SCHOOL OF CORRESPONDENCE GUARANTEES that you will receive an increase of fifty per cent over your present salary within three years from the date of your enrollment; or, failing in this, the School guarantees to refund to you the full amount paid for your course.

Special Salary Guarantee Offer

This is the most wonderful offer ever made by any educational institution. We positively guarantee to raise your salary or refund every penny you have paid us for your course. This guarantee is backed by our sixteen years' experience in correspondence instruction—by a school that has succeeded because it has been true to its principles of giving the students the instruction for which they enrolled.

Just say to yourself: "I am tired of earning a small salary; I am tired of sticking at the same old job—tired of seeing other men get good positions and big pay, while I seem to be simply tagging along behind. I am going to sign this coupon now and see what AMERICAN SCHOOL OF CORRESPONDENCE can do for me. I am going to accept their salary guarantee and make good."

Thousands of young men have accepted this offer and we have raised their salaries over fifty per cent. What we have done for these men, we can do for you. Just think of it! Your success in life may depend upon whether you sign and send this coupon today or not. Why not do it right now—before you turn the page and forget it?

American School of Correspondence. Chicago, U.S.A.

Your Opportunity Coupon

Check the course you want and mail the coupon now

American School of Correspondence, Chicago, U. S. A.
Please send me your Bulletin and advise me how I can qualify for the position marked "X."
A. C. & B. 1-14

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| ... Building Contractor | ... Bookkeeper |
| ... Architectural Draftsman | ... Stenographer |
| ... Structural Engineer | ... Private Secretary |
| ... Concrete Engineer | ... Accountant |
| ... Civil Engineer | ... Cost Accountant |
| ... Surveyor | ... Certified Public Acc't |
| ... Mechanical Engineer | ... Auditor |
| ... Mechanical Draftsman | ... Business Manager |
| ... Steam Engineer | ... Fire Ins. Inspector |
| ... Stationary Engineer | ... Fire Ins. Adjuster |
| ... Gas Engine Engineer | ... Fire Ins. Expert |
| ... Auto. Mechanician | ... Moving Picture Op'r |
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Name.....

Address.....



When you want tools of any kind — tools that you can bank on to be just the kind and quality you want them to be, insist on the Swan Trade Mark.



It's a plain guide to all that is best in carpenters' tools and your assurance that you are dealing with an old, reliable firm that makes tools as good and solid as its reputation.

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The JAMES SWAN CO.
Seymour, Conn.

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Want Help, Agents, or a Situation? Use our

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RATES 5 CENTS A WORD. CASH WITH ORDER

No Display Type Allowed in Classified Advertisements

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PATENTS secured. Legal protection our specialty. **HARRY PATTON CO.,** Suite 355 McGill Bldg., Washington, D. C.

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DRAFTSMEN'S, BUILDERS' AND FOREMEN'S COURSES—Day, evenings or by mail. **MAACK'S ACADEMY OF ARCHITECTURE,** 1743 Chouteau Ave., St. Louis, Mo.

LEARN THE REAL ESTATE BUSINESS—Our Complete Instruction Book Teaches: Listing, Appraising, Management, Salesmanship, Insurance, Brokerage, Advertising, Renting Agency, Forms, Etc. 121 Subjects. Excels \$20.00 Correspondence Course. Buckeye Cover 75c. Silk Cloth \$1.00, postpaid. **REALTY BOOK COMPANY,** 5999 Euclid Ave., Cleveland, Ohio.

Wanted

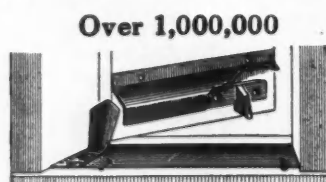
AGENTS WANTED for house lighting machines, supplying gas for small country homes as well as large. Simple and economical. Guaranteed. A live proposition. Write for terms. **THE ALEXANDER F. MILBURN CO.,** Baltimore, Md.

Miscellaneous

CABINET MANTELS direct to builder, \$3.00 to \$40.00. **AMERICAN MANTEL TILE & GRATE CO.,** Hamilton, Ohio.

FREE—\$1.00 Self-Setting Plane Certificate and Pencil, free. See ad., page 24. Self-Setting Planes on trial at Our Risk. **GAGE TOOL CO.,** Vineland, N. J.

\$1.00 FOR COMPLETE BOOK OF FORMULAS AND INSTRUCTIONS on the Manufacture of Interior, Exterior Decorations, Sanitary Flooring and Artificial Marble. Mixing and Casting Concrete, Plaster, Soft Metals, Marble Dust, Composition, etc. Making Elastic and Rigid Moulds, Stuccoing, Coloring and Gilding. (We supply all Materials for Manufacturing these products.) Write for illustrated booklet describing instructions. **ALBERT MFG. CO.,** 441 Wythe Ave., Brooklyn, N. Y.



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You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

Here's What People Want **The Axtell**

A perfectly tight All-Metal Weather Strip for bottom of doors and swinging windows. Saves sill from wearing and can be put on any door in 5 minutes at 200% profit. Sells at sight wherever shown. Our prices will interest you. Write us.

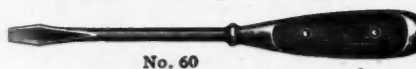
E. I. Church & Co.
West Hanover, Massachusetts

THE UNIVERSAL PITCH GAUGE

Requires more roof-framing in less time than any other tool or method. Any one pitch — of 100 — in FIVE MINUTES, with 22 cuts, lengths, etc., for each pitch; including plancher, fascia, and perline bevel, etc. This done by those who don't even understand framing. Gauge marks hundreds of irregular hips; octagon hips and jacks; hopper bevels and much more framing. Fits any square. Makes a most perfect stair and brace gauge. Steel nicked.

Price, \$1.00 prepaid. Ten days to test. Money back if returned. **JOHN PARKHILL,** Rochester, Minn.

Pioneer Drop Forged Screw Drivers



No. 60

One piece. Bead prevents slipping. Most practical, durable, improved driver made.

Show this ad to your hardware dealer, or write us for catalog.

SOUTHINGTON MFG. CO., Southington, Conn.

THE ZIMMERMAN IRON BASE

is the ONLY BASE having a CENTER BEARING.

It carries the required weight without allowing the corner supports to sink into the floor and prevent the base of column and floor from rotting.

See "SWEET'S" page 956.

S. CHENEY & SON, MANLIUS, N. Y.



Bottom View Showing Center Bearing

PULLMAN AUTOMATIC VENTILATOR

Three sizes—2x12 inches, 3x15 inches, and 4x18 inches. Box of brush brass; hood of black enameled steel; copper screened; brass screws thru-out. Handsome and substantial. Can be installed in lower sash rail of window. Best, cleanest, neatest ventilator for homes, offices and all buildings. Our line is complete. Prices reasonable.

Write for Free Catalog and Prices.

Pullman Automatic Ventilator Mfg. Co. York, Penna.

Three Tools in One SQUARE LINE GAUGE MITRE



Compact, strong, no loose parts. Guaranteed accurate. Should be in every carpenter's and mechanic's tool kit. If your dealer can't furnish you with "The Rule Tool" send 25c for one post-paid. Pays for itself a thousand times over.

THE RULE TOOL CO., 15 Hermon St., NEWARK, N. J.

Triumph Light!

EVERYBODY WANTS BETTER LIGHT. HERE IT IS

This new 100 to 700 candle power light turns up and down like gas. One-third cost of electricity, gas or kerosene. For home, church or store. Anyone can operate. Perfection guaranteed or money back. Write for catalog. (A. C. B.) Dept. 20. Agents Wanted. **BRILLIANT GAS LAMP COMPANY** 1009 S. Wabash Av., Chicago, Illin'is



**THE WORLDS GREATEST HAMMERS
ALL OTHERS OUT OF DATE.**

Smash not thy fingers or Fish Hook the Nails. Do the same work with half the effort. The nail holding feature makes you safe in your Scaffold work.

Get them from your dealer or from us.

Double Claw Hammer Co.
453 Broadway
BROOKLYN, N. Y.

DOUBLE CLAW \$1 PARCELS POST



Dutch Boy Painter Specification

Copies sent free to any architect or builder writing to our nearest branch for specifications "B". This specification covers the painting of wood, brick, cement, plaster and metals.

NATIONAL LEAD COMPANY
New York Boston Buffalo Chicago
Cincinnati Cleveland St. Louis San Francisco
(John T. Lewis & Bros. Co., Philadelphia)
(National Lead & Oil Co., Pittsburgh)

20 Reasons Why You Should Investigate the **SANDOW** Kerosene Stationary ENGINE

It runs on kerosene (coal oil), gasoline, alcohol or distillate without change of equipment—starts without cranking—runs in either direction—throttle governed—hopper cooled—speed controlled while running—no cams—no valves—no gears—no sprockets—only three moving parts—portable—light weight—great power—starts easily at 40 degrees below zero—complete, ready to run—children operate them—5-year ironclad guarantee—15-day money back trial. Sizes 2 to 20 horsepower.

Send a postal today for free catalog, which shows how Sandow will be useful to you. Our special advertising proposition saves you one-half cost of first engine sold in your county. (184)

Detroit Motor Car Supply Co.
196 Canton Ave Detroit, Mich.

8 Grape Vines, 6 Currant Bushes \$1

All best 3 year old stock. If planted now or early spring will fruit next summer. Should ground be frozen we tell you how to protect and keep them dormant ready for early spring planting. Orders accepted now and forwarded at any future time if preferred. Grapes are Worden, Niagara, Iona, Concord, the best early, medium and late varieties. Large cherry currants. Write for list of our \$1 Friend Makers, consisting of all kinds of Fruit Trees, Berries and Roses.

The Landscape Garden Co., Newburgh, N. Y.

CORKS the CRACKS

The Introstile Doorbottom automatically shuts the aperture. Thresholds not needed. Door faces not altered. Durability permanent. Value great for both new and old buildings. Price moderate.

The Introstile & Novelty Co., Marietta, Ohio

MONEY FOR YOU
By Our Plan

UNIVERSAL CLOTHES DRIER

The kitchen wonder.—Indispensable to every housewife. Can be attached to wall or ceiling. Easily removed. Contains 30 feet of drying surface. Adjustable to suit convenience of operator. Does away with lines and the cumbersome clotheshorse. No kitchen or laundry complete without a UNIVERSAL-DRIER. Neat, durable, irresistible. Every demonstration a sale.

Retails for \$1.50. Big commissions to reliable men.

WE WANT AGENTS
Write today for our liberal offer that will make money for you during the dull season.

Can be raised to ceiling as shown by dotted lines

The Universal Clothes Drier Co.
Factory: Rutherford, N. J. Sales Dept. Ordway Bldg., Newark, N. J.

\$4 Per Month Buys This Visible Oliver Typewriter

Nothing Down—Free Trial. Less than Agents' Prices. Shipped on approval. If you want to keep it, send us \$4 a month. Our booklet is worth sending for because it tells you how to save \$41.50. IT'S FREE.

Typewriters Dist. Syndicate
166-L-58 N. Michigan Boulevard, Chicago

We Ship on Approval

without a cent deposit, prepay the freight and allow 10 DAYS FREE TRIAL on every bicycle. IT ONLY COSTS one cent to learn our unheard of prices and marvelous offers on highest grade 1914 models.

FACTORY PRICES do not buy a bicycle or a pair of tires from anyone at any price unless you write for our new large Art Catalog and learn our wonderful proposition on the first sample bicycle going to your town.

RIDER AGENTS everywhere are making big money exhibiting and selling our bicycles. We sell cheaper than any other factory.

TIRES, Coaster-Brake rear wheels, lamps, repairs and sundries at half usual prices. Do Not Wait: write today for our latest special offer on "Ranger" bicycle.

MEAD CYCLE CO. Dept. S-122 CHICAGO

Berger's

Ferro-Lithic Reinforcing and Furring Plate

Write for catalog

For the best service address nearest branch.

The Berger Mfg. Co., Canton, Ohio
New York St. Louis Boston San Francisco Minneapolis Philadelphia

SLATE WE HAVE WHAT YOU WANT

*In Roofing Slate. Slate Blackboards
Structural and Plumbers' Slate*

SATISFACTION GUARANTEED IN QUALITY AND PRICE
ASK FOR DELIVERED PRICES

J. K. HOWER, Station, C., Slatington, Pa.
R. J. KICHLIN, Sales Agent

GENUINE BANGOR Roofing Slate
Structural Slate
Blackboards

Large Facilities, Prompt Deliveries

EAST BANGOR CONSOLIDATED SLATE CO. East Bangor, Pa.

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Silentflow

A Noiseless Water Closet

IN THE TOILET adjoining the sick room one of the distressing noises can be eliminated by installing the "Silentflow."

This closet was not put on the market until it was proven perfect in construction, design and workmanship.

SPECIFY WOLFF H-7005 FOR RESIDENTIAL USE

L. WOLFF MANUFACTURING COMPANY
Manufacturers of
Everything in the Plumbing Line
The only complete line made by any one firm.

General Offices, 601-627 W. Lake St. Showrooms: 111 No. Dearborn St., CHICAGO
Pottery: Trenton, N. J.

BRANCHES: Denver, Colo.; Omaha, Neb.; Minneapolis, Minn.; Dallas, Tex.; Rochester, N. Y.;
St. Louis, Mo.; Washington, D. C.; Cleveland, O.; Cincinnati, O.; Kansas City, Mo.;
San Francisco, Cal.



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PHOENIX

INSIDE SLIDING BLINDS

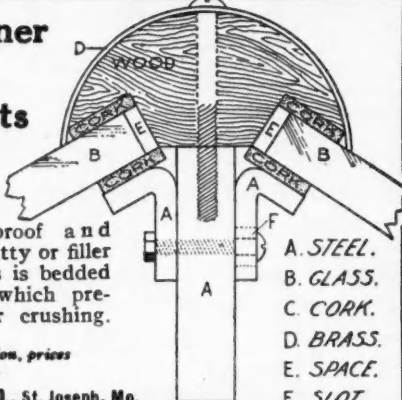
WILKES BARRE, PA.

The Phoenix Sliding Blind Co.
Enclosed find my check for blinds. I am pleased with them and sorry I did not have them put throughout the whole house.
C. W. BURT.

**Comfort!
Economy!
Convenience!** PHOENIX SLIDING BLIND CO.
BRIDGE & CANAL STS. PHOENIX, N. Y.

The lately improved springs and corrugated steel rods put the "PHOENIX" far in lead of less improved styles. Write for Catalogue "C" and free samples, showing construction.

Shultz Corner Posts For Store Fronts



make a strong, handsome and practical joint. They are water-proof and dust-proof and never rot. No putty or filler is used. The glass is bedded on Spanish cork which prevents cracking or crushing. Not expensive.

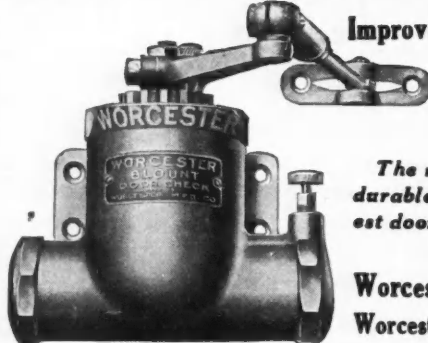
Write us for description, prices or estimates.

All Steel Corner Post Co., St. Joseph, Mo.

- A. STEEL.
- B. GLASS.
- C. CORK.
- D. BRASS.
- E. SPACE.
- F. SLOTT

THE WORCESTER

Improved BLOUNT DOOR CHECK



The most certain, durable and strongest door check built.

Worcester Mfg. Co.
Worcester : Mass.

CALDWELL SASH BALANCE



Does away with weights and cords, and VASTLY more durable.

Makes sashes work perfectly.

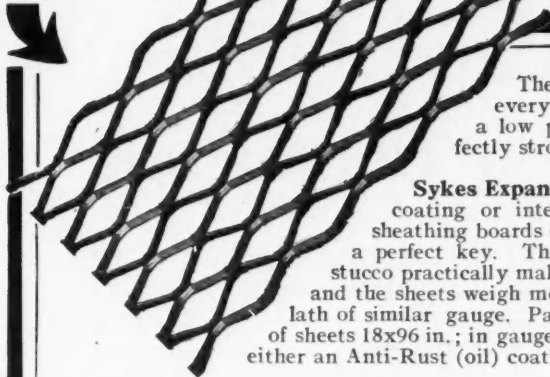
Permits greater window space in new work, as box frames are not necessary.

May be applied to old windows without altering sashes or frames.

Write for circular to the
Caldwell Mfg. Co.
15 Jones Street, - Rochester, N. Y.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

Sykes Expanded Cup Lath, Self-Furring Keys Perfectly Wide Strands Rigid



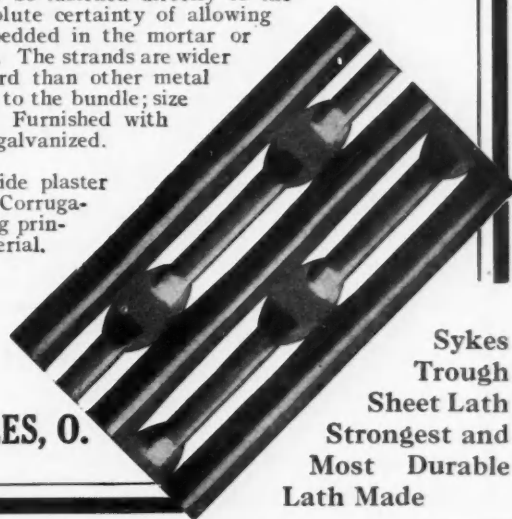
Do All Your Stucco Work, Over Coating or Interior Plastering on Sykes Metal Lath

There will be a noticeable decrease in the cost of construction on every building where Sykes Metal Lath are used. Provide the best at a low price. Sykes Metal Lath can be depended upon to furnish a perfectly strong, rigid base for all stucco or plaster work.

Sykes Expanded Cup Lath is self-furring. It is used for Stucco Work, over-coating or interior plastering. Can be fastened directly to the sheathing boards or studding with absolute certainty of allowing a perfect key. This Lath becomes imbedded in the mortar or stucco practically making a reinforced wall. The strands are wider and the sheets weigh more to the square yard than other metal lath of similar gauge. Packed 20 square yards to the bundle; size of sheets 18x96 in.; in gauges 27, 26, 25, and 24. Furnished with either an Anti-Rust (oil) coating painted black or galvanized.

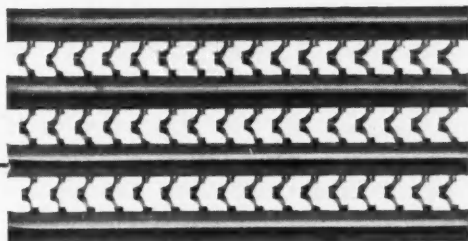
Sykes Trough Sheet Lath is incomparable in its utility for inside plaster work. Can be used to great advantage on any kind of a building. Corrugations run entire length of sheet. Unusual design, strength and keying principle. Easy to apply; easy to plaster on and very saving in material. Size of sheets, 13½, 15½, 18½, 23½ in. wide by 96 in. long.

Get our circulars and convince yourself that by buying Sykes Metal Lath from us you can save money and procure the best metal lath made. Price low; quality away above the ordinary.



Sykes Trough Sheet Lath Strongest and Most Durable Lath Made

THE SYKES METAL LATH & ROOFING CO., NILES, O.



RIB LATH

Rigid—Easy to Plaster—Perfect Clinch

RIB LATH is a superior metal lath with beaded ribs that span between the studs making it exceptionally stiff and rigid, and permitting a wider spacing of studs. RIB LATH provides a perfect clinch for the plaster, which will not streak or crack. Saves time, labor and material in erection. Furnished in three types and nine different weights. RIB LATH on RIB STUDS provide a fireproof hollow partition with open passage for conduits, pipes, etc. Also Detroit Diamond Lath and Steel Corner Beads.

VALUABLE RIB LATH HAND BOOK—Containing details, specifications, tables, illustrations, etc.—FREE to those interested in building.



Trussed Concrete Steel Company

644 Trussed Concrete Building

DETROIT

MICHIGAN

Reinforcing, Hy-Rib and Lath, Steel Sash, Etc.



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1872

1913

41 YEARS OF FAIR DEALING

WITH THE

Carpenters, Builders and Contractors

IS YOUR assurance that we can serve you to your advantage. We ask nothing more than a trial. When in need of builders' hardware send us your plans and specifications. Let us bid on your requirements. We can give you a better value at a lower price than any other hardware dealer.

**Tool for Every Trade
Electrical Supplies
Contractors' Supplies
Builders' Hardware**

(80,000 Different Items)

Our years of experience, our immense buying power, our reputation have enabled us to place before you the largest assortment of well-known builders' hardware, tools of all kinds, etc., in the country. All the leading manufacturers are represented. Our stock is the pick of the choicest and most reliable.

Your orders will be filled promptly. No delays; no waiting for goods out of stock. You will be entirely satisfied with our selection, for our knowledge of hardware and supplies insures your getting the best. Each piece in every shipment is sorted and labeled from the specifications and packed so the workmen will lose no time in handling.

Let us bid on your next contract. Whether your order is large or small, we appreciate it and give it the individual attention that makes buying from us both pleasant and profitable.

When you are in Chicago, call on us. Let us show you over our big store. Look over our display of "quality" hardware. You will go away with the feeling that we can make good on our promise to give you the best service, the greatest satisfaction, the utmost quality at a moderate price.

Let us Figure on Your Next Bill

ORR & LOCKETT

Established 1872 **HARDWARE CO.**

14-16 West Randolph St., CHICAGO, ILL,

**LOW
PRICES**

**HONEST
VALUES**

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

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NOTICE TO ADVERTISERS

Forms for the February number of the American Carpenter and Builder will close promptly on January 20. New Copy. changes and orders for omissions of advertisements must reach our business office, 1827 Prairie Ave., Chicago, not later than the above date. If new copy is not received by the 20th of the month preceding date of publication the publishers reserve the right to repeat last advertisement on all unexpired contracts. AMERICAN CARPENTER & BUILDER CO.

Better Walls Inside and Out

The
Only Wall Board
Reinforced with Lath

Keyed
Lath Keeps
Plaster In and Up

In Less Time
and for
Less Money



INSIDE



OUTSIDE

OF INTEREST
TO EVERY AMERICAN
CARPENTER AND
BUILDER

Your work will pay you better, both in money and results, when you use Bishopric Wall Board for interiors.

Makes you independent of lath-and-plaster troubles and after expense. Comes in handy sheets ready for instant nailing to studding. The moment it is up the walls are ready for paint, paper, kalsomine, burlap, or any other kind of decoration.

Prepare the outer walls instantly for cement, stucco, plaster or concrete. By simply attaching the handy sheets of Bishopric Stucco or Plaster Board just as they come, one man can keep far ahead of the plasterers.

Another advantage is *stability*. Where old style backgrounds sag, spring and crack—

BISHOPRIC WALL BOARD

"CAN'T CRACK, BUCKLE OR PULL LOOSE"

Needs no paneling. One man with a hammer and saw can apply it and do an expert job. It can't crack, shrink, buckle or pull loose in any climate—winter or summer. All this is guaranteed by our

\$5,000 Anti-Warp Bond

First you have kiln-dried laths, next a heavy layer of toughened Asphalt-Mastic in which the laths are imbedded, and through which vermin can't penetrate. Next a layer of heavy-size fibre board. Air-tight, damp-proof, and sanitary. Once up stays up.

BISHOPRIC STUCCO or PLASTER BOARD

"DAMPNESS CAN'T PENETRATE"

holds the outer material everlastingly tight in its keyed laths.

Saves 50% of the outer material, 50% of the workman's time and 100% of all after trouble.

Plaster simply can't fall down. Winds can't enter. Damp can't penetrate. Rats can't gnaw through. Sun can't affect it. Makes a cool house in summer—warm in winter.

Note the solid construction—a layer of fibre board, a layer of asphalt mastic and then keyed laths, to hold your outer stucco, plaster or whatever else it may be. No metal to rust and "bust."

Fully Patented

Both Bishopric Wall Board, and Stucco or Plaster Board are fully protected under U. S. patents. They are in a class by themselves.

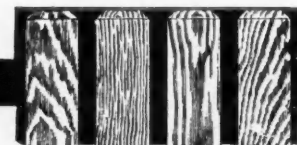
WRITE FOR FREE BOOK

Send for new Bishopric Book, Samples of both Bishopric Boards, and complete architectural Blue Print Plans for building a Model House. All free.

THE MASTIC WALL BOARD AND ROOFING CO.

452 ESTE AVENUE, CINCINNATI, OHIO

CENTRAL DOOR & LUMBER CO., PORTLAND, OREGON
Licensed Manufacturers and Distributors for Pacific Slope



You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

YOUNG MEN WANTED

To **Recome Draftsmen and Designers** At **Once**

The constant demand for trained men always exceeds the supply. Positions paying \$75 to \$100 per week are open now. Some weeks over 250 positions paying the highest salaries in all parts of the country stay open. Let me send you one of my regular weekly "Draftsmen Wanted" lists. You can have one of these positions. I'll give you just the training that you need.

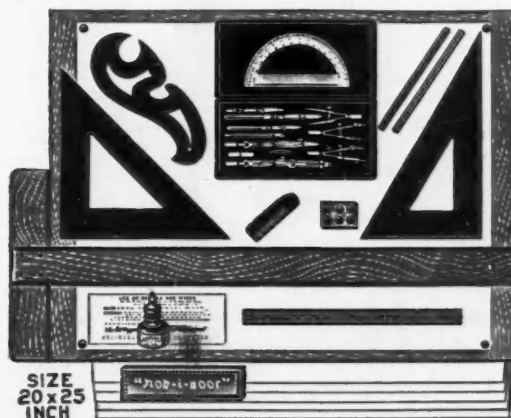
Chief Draftsman Earn \$125 to \$175 Per Month To Start



Will Train You Personally and Instruct You Properly on practical Drafting room work **until** you are perfectly competent and **until** you are placed in a permanent paying position at a salary paying **at least \$125 per month.** This is a most exceptional opportunity for a limited number of selected

ambitious men between the ages of 16 and 40, whom I will train personally and give individual instruction. I am making this special offer in order to fill the constant demand for properly trained men in this line. I give **each** of my students my own **personal attention**—and consequently I must limit the number of students. If you desire such an opportunity, get busy **now** and **write to me at once.** Don't wait till tomorrow, do it **today.** You can earn **more** than I charge for my time and personal training.

You **can** make it. I have trained the highest paid draftsmen and know exactly the kind of training those men need who draw the biggest salaries. In my position as Chief Draftsman, I keep in constant touch with the demands of the profession. I will give you just the kind of training you need—in your own home—during your spare time. **Send the Coupon.**



SIZE 20 x 25 INCH

Earn Big Money at Once

I Guarantee

To instruct you **until** competent and placed in a permanent paying position at a regular Draftsman's salary of at least \$125 to \$175 per month and guarantee to furnish you free the complete Draftsman's working outfit at once from the start.

While You are Learning at Home. Yes, that's exactly what I mean. As soon as you become my student you can begin earning a handsome income while learning at home. I mean just what I say. This is a special offer I am making. Absolutely no obligations of any kind in

sending the coupon. But you must write at once, as I will take the names in the order I receive them.

Send the Coupon

Fill out and mail the free coupon at once for my book, "Successful Draftsmanship," also list of open positions and for the free offer to be earning good money at once while learning at home. This offer is positively limited, and in order to benefit thereby you must act **at once.**

CHIEF DRAFTSMAN Div. 2661 **CHICAGO**
ENGINEER'S EQUIPMENT CO. (Inc.)

This \$15.00 Draftsman's Working Outfit Free

These are regular working instruments—the kind I use myself. I give them free to you if you enroll at once. The handsome set of instruments shown here is imported and encased in a plush-lined leather case. One of the most exquisite sets I have ever seen. **Send the FREE COUPON today.**

FREE BOOK and EARNING while LEARNING OFFER COUPON

Chief Draftsman, Engineer's Equipment Co., Div. 2661, Chicago, Ill.

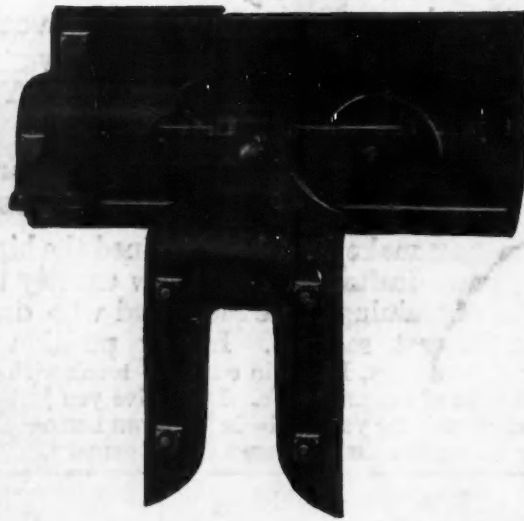
Without any obligation to me whatsoever, please mail your book, "Successful Draftsmanship" and full particulars of your liberal "Personal Instruction" offer to a few students. It is understood that I am obligated in no way whatever.

Name _____

Address _____

You will get **SPECIAL ATTENTION** if you tell Advertisers you read American Carpenter and Builder.

Storm-Proof Hanger



Distinctive Features

Easy running.

Anti-Friction steel-roller bearings.

Frictionless contact with rail.

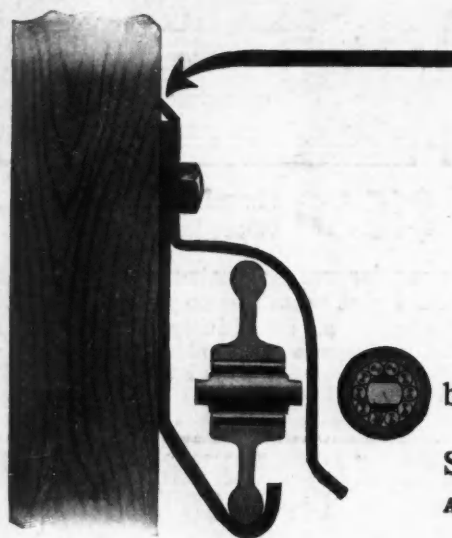
Great strength and durability.

Illustrated directions packed with each pair.

The cut shows the No. 66 Rigid style.

The No. 77 has a flexible Hinge Joint.

STORM-PROOF RAIL



TITE-FIT



Requires no brackets.
Forms a continuous bracket in itself.
Requires no housing. Fits close against the building. (See sectional view.)
Perfect tread for hanger wheels. Bird- and Storm-proof.

A detailed description will be found in our general Catalog, a copy of which will be gladly mailed on request.

NATIONAL MFG. COMPANY

STERLING, ILLINOIS