

JUNE 1914

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AMERICAN

CARPENTER AND BUILDER



THE WORLD'S GREATEST BUILDING PAPER



BUILDER TYPES

Picturing certain important groups of "Our Readers"

① THE BOSS CARPENTER

HE is the active man in charge of the work--honest, wide-awake, dependable. His influence is felt alike in the purchase of the building materials and equipment and in the construction of the building. Full satisfaction depends on his knowledge and approval. He is THE BOSS.

Five Cents



The Reflection of a Good Saw is Lasting

Are you really proud of your own Saw? Do you feel—down in your heart—a warm place for this most important tool? Is your Saw standing up to its work and making life pleasanter and easier for you?

If Not—It Should

ATKINS SILVER STEEL SAWS are the kind of Saws that seem—somehow—to earn their way into the hearts of those who use them.

It's because they are dependable—because they can be relied upon to make good. If you do not feel that your Saw is really a better Saw than the other fellows—then you ought to try an ATKINS—and be happy.

SILVER STEEL is as fine and as highly tempered as a razor blade. It's hard and tough—but not brittle. It won't go back on you—when you need it. Then these blades are ground on a taper and will run—even in wet lumber—free and easy with but very little set. They are distinctive and different and finer than any other Saws.

How To Get Them

Tell your dealer to show you a genuine ATKINS SILVER STEEL SAW and look for our name on the blade. He has it or will get it for you if you ask. If he won't, then write to us—we'll tell you how to get quick service.

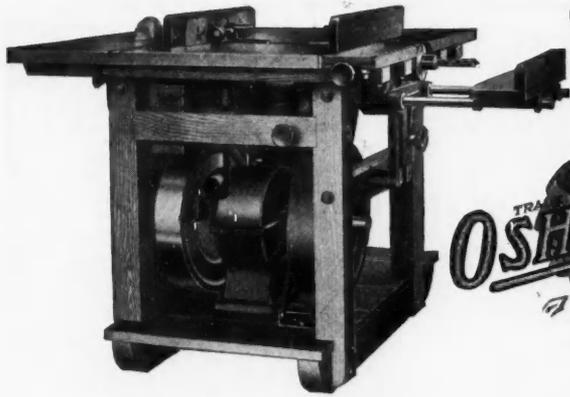
A Free Carpenter's Apron

Send us ten cents, to pay postage, and we will forward, free of charge, a fine strong carpenter's apron with a monthly time book and lots of useful information in regard to the purchase and care of Saws. Perhaps there will be something else in the pocket which you would like to have.

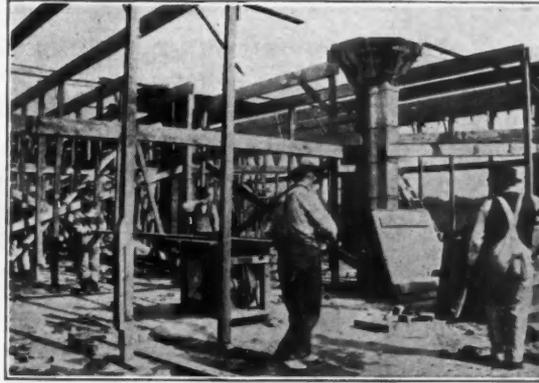
E. C. ATKINS & CO., Inc. :- **Indianapolis, Indiana**

THE SILVER STEEL SAW PEOPLE

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



Complete Set of
Attachments
FREE



An Eveready Saw Rig Saves the Wages of Six Men

NEW LIST OF AGENCIES

CHICAGO, ILL.—Oshkosh Mfg. Company, 1440 Monadnock Bldg.
 ATLANTA, GA.—Oshkosh Mfg. Company, Southern Sales Office, 604 Walton Bldg.
 CINCINNATI, O.—S. O. Holder Supply Co., 1123 Gilbert Ave.
 DENVER, COLO.—Geo. W. Summers & Company, 355 Railway Exchange.
 EVANSVILLE, IND.—Indiana Builders' Supply Co., Furniture Exchange Bldg.
 MILWAUKEE, WIS.—Badger-Packard Mch. Co., 74 West Water St.
 NEW ORLEANS, LA.—Henry J. Malochee, 802 Ferrin Bldg.
 OMAHA, NEBR.—Sunderland Mch. & Supply Company.
 PORTLAND, ORE.—G. A. Saunders Supply Co., Bldrs. Exchange, 2nd and Alder Sts.
 RICHMOND, VA.—I. Bluford & Company, 1538 East Cary St.
 SALT LAKE CITY, UTAH—F. C. Richmond Mch. Co., 117 West Second South St.
 SAN FRANCISCO, CAL.—J. E. Dwan & Co., 445 Turk St.
 LOS ANGELES, CAL.—J. E. Dwan & Co., 1835 South Main St.
 SAN DIEGO, CAL.—J. E. Dwan & Co., 250 First St.
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 SEATTLE, WASH.—Harold G. Stern & Company, 524 First Ave. South.
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 ST. PAUL, MINN.—Dally-Fraser Hdwe. Company, 417 Cedar St.
 CHARLESTON - ON - KANAWHA, WEST VA.—O. A. & H. G. Thayer Company.
 MONTREAL, QUE.—The Canada Mch. Agency, 298 St. James Str.
 WINNIPEG, MAN.—John H. Alexander, 604 Builders' Exchange Bldg.
 VANCOUVER, B. C.—Dominion Dock & Supply Co., 304 Northwest Trust Bldg.

MIXERS AND PUMPS EXCLUSIVELY.
 NEW YORK, N. Y.—John J. Duggan, Room 1652, 50 Church Str.

Oshkosh Mixer

It will pay any contractor to get acquainted with the OSHKOSH MIXER. Request brings full information. Write us today for prices and Special Offer. The Mixer with the Effective 4-Way Mix. Also built for steam or electric power.



Ask for the Bore and Stroke of the Engine

Whether a Portable Saw Rig will *pay* you or not, depends largely on the *Engine*. It requires *power* for a machine to turn out the work of from 4 to 6 men and soon return its *full cost*. Some makers of Saw Rigs *claim* all kind of power for their machines. We state the facts—bore, 4¾ inches—stroke, 6 inches. More than that, we guarantee our Engines will develop over 4 actual brake horse power. Now for some tangible

Proof of What the Eveready Portable Saw Rig Has Done

Note we did not say *will do*. One contractor who formerly bought factory-made window frames, now makes all his own frames with our machine, at 30% less cost and secures even better frames. Another, a building contracting concern, used our machine in building a church and it saved them enough the first season on that *one* contract alone to almost pay for the Saw Rig.

Our Eveready Saw Rig is not a frail, weak machine like some are, but built heavy and strong enough for any service. It is also constructed so that it is *easy* to *move* from one job to another. Also, so *simple*—anyone can operate it. Besides doing cross-cutting and rip-sawing, it joints, sands, jig saws, grooves, bores, miters, and grinds tools. All attachments complete come with it—*no extras* to buy. Send for our Catalog, which gives complete details and contains a long list of letters from well known users.

Live Agents Wanted in Open Territory

OSHKOSH MFG. COMPANY

316 South Main Street

Oshkosh, Wisconsin

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

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.



Scrape Your Floors with a LITTLE GIANT SCRAPER

Its low cost and efficiency make it a very desirable part of each builder's equipment.

At Our Expense

Try It Before Buying

Prove to yourself that it is the best floor-scraper on the market.

Send Today for Our Special Offer

HURLEY MACHINE CO.

1008 Flat Iron Bldg., New York, N. Y.

HURLEY MACHINE CO.

Specify and Install THOR WASHING MACHINES

They are a necessary requirement to every home. Do away with Laundry troubles. Your clients will appreciate them. So will your wife.

Built to Meet Requirements

Electric Washers from \$30.00 up.

Sold on Liberal Free Trial Easy Payments



37 So. Clinton St., CHICAGO, ILL.

AUTOMATIC Ball Bearing Electric FLOOR SURFACING MACHINE



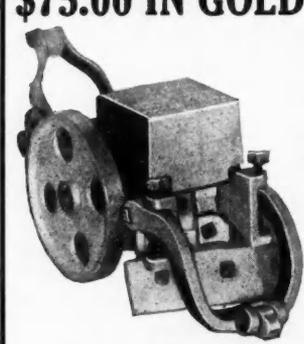
Quickly dresses new floors to stand inspection against the light, or rapidly refinishes old floors. Self propelling; has automatic brake for easy, continuous and uniform work. Surfaces to base board with Edge Roller quickly adjusted to either side doing away altogether with hand scraping.

Our Price Will Interest You

If you are interested in the best floor finishing, we want to show you what others are doing with our machine. Send for the names of well-known users. You should have our booklet too. Above all, get particulars about our **Free Trial Offer.** Made in 3 sizes for small rooms and large areas.

WAYVELL CHAPPELL & CO. Dept. 4847 E. Ravenswood Ave. CHICAGO, ILLINOIS

\$75.00 IN GOLD



and the Machine **FREE** to any one if the Boss leaves a square cut in the Floor where you start to take a shaving, this is our offer and we prove it.

The Boss is the only Floor Scraper made that will plane a Floor without leaving a square cut where the Knife first starts. Because it has Gage in front, Wheels in the rear and Knife in the middle, it can not follow the Grain of the Wood.

A Scraper without a Gage will follow the Grain of the Wood, when the Grain runs in the Knife will follow and when it runs up it will follow it, leaving a wavy uneven Floor. The Boss is fully guaranteed.

WRITE FOR PRICES.

G. J. KEPPLINGER, Main Office: Dwight, Ill.
Factories: Dwight, Ill., and London Foundry Co., London, Canada



IMPERVITE is Guaranteed to Waterproof Walls: Cellars & Pits.

A facing of **IMPERVITE MORTAR** on the inside will resist water on the outside.

ASK FOR BOOK No. 62 **The Standard Paint Co.** NEW YORK BOSTON CHICAGO

Doors—Sash—Millwork



It will pay you to send us your orders and inquiries in this line. We are leaders of

Low Prices and Quick Shipments

Write Us
The National Millwork and Supply Co.
 No. 8411 Hough Ave. Cleveland, O.



WOOD

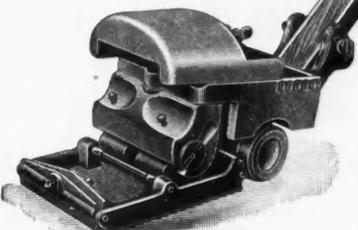
FREE TRIAL
5,000 in use

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



THIS SANDER

← FREE

To Cash Buyers of the ADJUSTABLE FLOOR FINISHER

The Adjustable Sander

It does as good and as rapid work in soft pine as in hard maple, **BECAUSE**—every working part is **adjustable**.

Just the right pressure being brought to bear directly on the blade where it is wanted—the blade tilted to the required pitch or angle to the floor, anyone can do good, rapid work, with a true, perfect cut of any desired depth, free from wave or chatter on any wood floor.

Having cut out the dealer, I can now offer you the complete \$45.00 outfit for only \$24.50, or, for \$22.00 without the Sander, and give you a **TEN-DAY FREE TRIAL** besides.

If you send cash with order, or attach this coupon to your inquiry and order later, I will include the Sander **FREE**, and **PROTECT YOU** with my **unlimited guarantee—READ IT BELOW.**

Even if you don't want to buy now, send the coupon anyway—**RIGHT NOW** before you forget it. It will save you \$2.50 when you do buy.

GUARANTEE

*If at any time or for any reason thru fault of the machine the **ADJUSTABLE FLOOR FINISHER** fails to please you, you may have your money back if you want it.*



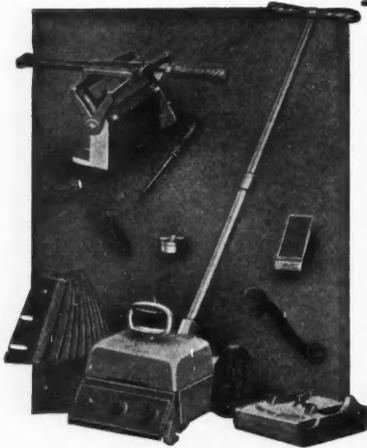
H. P. Didriksen Anderson Ind.

Without obligating me in any way, you may send your printed matter, provided you accept this coupon as payment for the Sander, if I decide to buy for cash.

THIS COUPON IS WORTH \$2.50

Name.....

Town....., State.....



Makes Floor Scraping an Easy Job

The automatic action of the Acme Floor Scraper allows the operator to stand in an easy, upright position while working. No back-breaking positions to get into, and no lifting. Simplest and most effective floor-scraping machine on the market.

Let me prove this by having me send the complete

ACME FLOOR-SCRAPING OUTFIT

to you on a week's free trial basis at my expense.

Catalog and complete detailed information of my Free Trial Offer are yours for the asking.

JOSEPH MIOTKE, 247 Lake St., MILWAUKEE, WIS.

FACTS! MR. CONTRACTOR

\$11.06 saved every DAY you use a Fox Floor Scraper. \$1.23 saved every HOUR you use a Fox Floor Scraper. *This is a positive fact.* We secured the figures from users of the Fox and took the average.

But you don't have to take our word for it. We will let you have this scraper for 10 days' **FREE TRIAL** and if you can't save \$11.06 every nine-hour day you use it, return it at our expense. If you keep it, \$25 pays for the complete equipment.

Can You
Afford to
Lose
\$1.23
per hour?



Just drop us a postal and we will send you a Fox Scraper for 10 days' free trial.

FOX SUPPLY CO.

Dept. A

BROOKLYN, WIS.

Straight-grained cedar that cuts like cheese; smooth, tough leads that make clean-cut, strong marks—that's the way Dixon's Carpenter Pencils are described. Send 16c for generous sample lot 183J.

JOSEPH DIXON CRUCIBLE CO.

 JERSEY CITY, N. J.
 

C. E. JENNINGS & CO'S

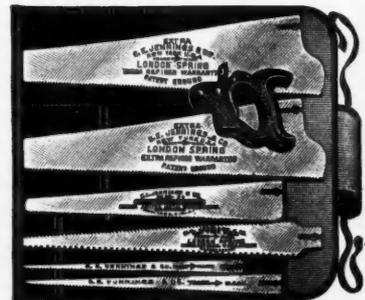
71-73 MURRAY ST., N. Y., U. S. A.

TRADE  MARK.

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 descriptive Circular.



“Yankee” Bench Drills

with Automatic
Friction and
Ratchet Feeds

- No. 1003—One Speed
Drills up to ¼ in.
- No. 1005—Two Speed
Drills up to ½ in.

With these new automatic feed features the “Yankee” is at once the quickest and most desirable Bench Drill made. A Baltimore Dealer writes—“We sold two Drills No. 1005, which you shipped on the 17th ult., as soon as we showed them up. Ship us two more.”

Send for “YANKEE” Tool Book.

NORTH BROS. MFG. CO.
Dept. A PHILADELPHIA, PA.

Stop Wasting Time

Get a “Weber” double acting floor scraper and do better work and four times as much. They are double acting, smooth running and scrape right up to the wall. Used with great satisfaction by up-to-date carpenters and contractors everywhere.

Take advantage of our free trial offer and prove to your own satisfaction the wonderful merits of

The WEBER DOUBLE ACTING Floor Scraper

Don't pay in advance—just order the scraper and give it five days' trial. If satisfied, pay only small percentage, and the balance in small monthly payments.

PAY ME AS IT PAYS YOU

If not satisfied return it at my expense. Write today for our proposition and catalog of labor-saving tools.

JOHN F. WEBER, Pres.
WEBER MANUFACTURING CO.
670 71st Ave., West Allis, Wis.



Adjustability Makes This Machine a Leader

The average floor scraper is not equipped to scrape and finish all floors equally well. To do the work successfully, the machine must be **adjustable** to every condition. Some floors require a deeper cut than others; some need a greater shearing cut. These conditions can be met only by a floor smoother that is

- Adjustable in Weight
- Adjustable in Depth of Cut
- Adjustable in Shearing Cut

TRIPLE “A” (SPRING DRIVEN) FLOORSMOOTHER

is adjustable from the thinnest shaving to a good, deep cut. The blade can be set in any position to get the desired shear. There are two extra weights of 50 lbs. and 25 lbs. The machine can be used with either one of these, with both, or without them. Total weight of machine with the weights is 150 lbs. Heavier than any other hand power machine. The handle is adjustable in length and height.

The big, wide Steel Spring furnishes two-thirds of the motive power. The Triple “A” is not nearly as expensive as a power machine. Not nearly as hard to operate as a hand power machine. The Spring Drive takes two-thirds of the work off the operator.

The Triple “A” Floor smoother is so carefully made and balanced, and the full-gear, wide faced, rubber-tired wheels run so easily that a child can push the machine. Six double edged blades and a full set of tools are furnished free with each machine.

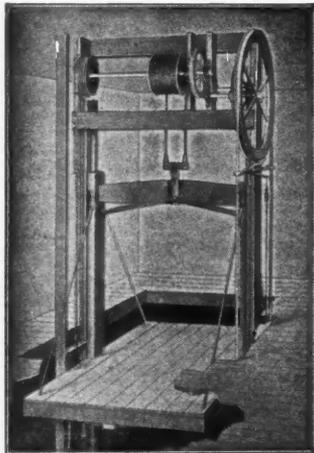
Send for Circular giving complete description of the Triple “A.” It tells how other carpenters make \$20 a day finishing old, new, painted, varnished or oiled floors. Send your name and address and get full information without delay.

TRIPLE “A” MACHINE CO., Room 319, 300 W. Grand Ave., Chicago, Ill.



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' time. 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. WORKS, SIDNEY, OHIO

A FREE Book For You

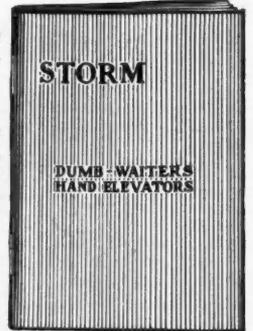
You should have this book because it completely illustrates and describes

STORM Elevators and Dumb-Waiters

We will help you estimate the cost of elevators or dumb-waiters for any of your buildings. Help you install them too. We can furnish any kind or size of elevator or lift you want.

Get Our Catalog.

Storm Manufacturing Co.
Harmon and Vesey Streets
NEWARK, N. J.



We make a specialty of furnishing HAND POWER ELEVATORS AND DUMB WAITERS

Complete F. O. B. Cars Cincinnati, Ohio

FULL blue prints and instructions are furnished with each machine. The gearing is all set up complete and run before it is shipped to you, from our factory. This insures a good perfect running gearing and ready to set up when you receive it.

WRITE US FOR CATALOG AND PRICES
Electric Elevators for Passenger and Freight Service

THE WARNER ELEVATOR MFG. COMPANY
Cincinnati, Ohio

DUMB WAITERS

Some jobbing carpenters make good money on Dumb Waiters and Hand Power Elevators: Do you?

There is money in this line providing you satisfy your customers. The way to satisfy them is to furnish those outfits which will best fill their requirements.

THE SEDGWICK MACHINE WORKS

87 Carroll St. :--: POUGHKEEPSIE, N. Y.
(NEW YORK OFFICE: 128 Liberty St.)

show many types in their new catalog "L" (all of which are carried in stock for prompt shipment), and will submit drawings and specifications on either standard or special outfits free of charge. Get their catalog "L" at once and study it over.



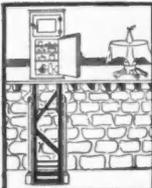
Fly Screens

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.



CARPENTERS AND BUILDERS
make extra money by installing this practical necessity in new and old homes. It saves 3650 trips to the cellar each year. "WIFE'S JOY" DUMBWAITER—Ball Bearing—Disappearing
Operates quickly by a press of the button. Taken up no room. Top lies flush with floor; can be walked on. Practical for any home. Keeps food perfectly. Can be installed complete in 2 hours. WRITE FOR CIRCULARS.
Fifteen Days' Free Trial Without Any Deposit.
AMERICAN ELEVATOR CO. - - Bloomsburg, Pa.



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.



THE COLUMBIA

DUMB WAITERS ELEVATORS
CELLAR HOISTS
JUMPER DISAPPEARING DUMB WAITERS
CHAIN HOISTS, CRANES and TROLLEYS
SEND FOR CATALOGUE.

J. G. SPIEDEL, Reading, Pa.

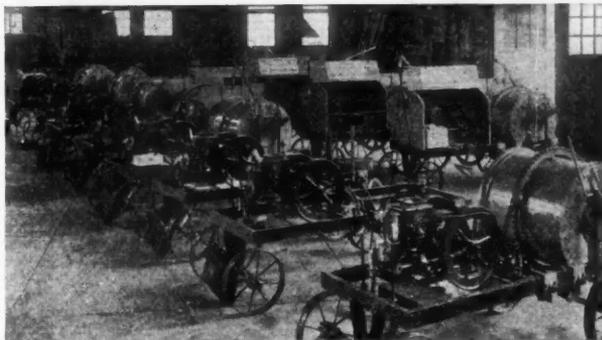


Capacity 50 Cubic Yards per Day—Price \$275.00

THE Atlas Mixer is a machine of large capacity, designed with a view to portability, and equal distribution of weight over the front and rear wheels, making it easily shifted on the job and as easily moved from place to place. Its capacity is five cubic feet of loose material per batch.

ATLAS MIXERS

Frame — Channel Iron. Drum — Heavy Boiler plate, Semi-Steel Heads. Engine — The best procurable; same make as that used on mixers selling at much higher prices.



Above is illustrated a portion of the Atlas Plant devoted to the assembling and erection of Atlas Mixers.

Below is illustrated a one-day shipment of Atlas Mixers. Many of these were repeat orders from large contractors.

Features — Splendid lubrication system — bearings and all friction surfaces fully protected from dust and dirt — expanding ring clutch, like automobile emergency brakes. Drum set very low, placing charging hopper only 42 inches from the ground. Any repair part will be shipped from the factory the day your order is received.

The Atlas is a Dependable, Efficient, Speedy Mixer built upon lines in keeping with modern engineering practices. 10 ft. batch Atlas Mixers sell at a correspondingly low price. Beautiful, illustrated catalog on request.

Atlas Engineering Company
780-90 Thirtieth St. Milwaukee, Wis.

W. E. AUSTIN MACHINERY CO., Southern Sales Managers
Atlanta New Orleans Houston Dallas Memphis Richmond





90 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 from machine. This alone saves one-third the labor necessary to operate other mixers.

Not a Man-Killer
Has an enormous capacity

SIMPLE—COMPACT—HANDY—SUBSTANTIAL

New Principle—Quick Charging—Quick Action—Quick Discharge

Its 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.

The SLUSH mixer mixes 4 cu. ft. of finished 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. When operated by power—one man alone can mix mortar fast enough for a crew of 20 brick layers.

The DRY or WET mixer is good for any kind of mixing—either Dry, Wet or Slush. Is extra fine for brick or block plants, core sand, plaster, brick mortar, chemicals, etc. Capacity—2 to 3 cu. ft. per batch—or 15 to 45 cu. yds. per day. Is just like the SLUSH mixer except a slight change in the drum heads and agitator. Is the best for an all-purpose mixer. The SLUSH mixer is best for big jobs and rapid contract work where slush mixtures are used.

Two men turn either machine easily and do not work as hard as the shovellers. A pump engine will run them. 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.

Write direct to factory for catalogue, prices and terms.

NORTHFIELD IRON COMPANY

402 Water Street - Northfield, Minn., U. S. A.

Bull Frog Mixer

Why Buy A Giant
When The Bull Frog
Leaps—



—the obstacles and enables you to meet competition on a firmer basis. The price will stagger you. We make all sizes from \$27.50 to \$275.00. Our catalogue will show you the exceptionally good values we offer you at these prices. The Bull Frog will mix mortar as well as concrete. Use one machine for all kinds of work. The price of this machine is within reach of the smallest contractor, and will save money for the large one. Our catalogue is Free. Drop us a card for one today.

Farmers Supply Co.
JANESVILLE, IOWA

Supplies the Demand for a Small Perfect Mixer



McCracken Batch 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

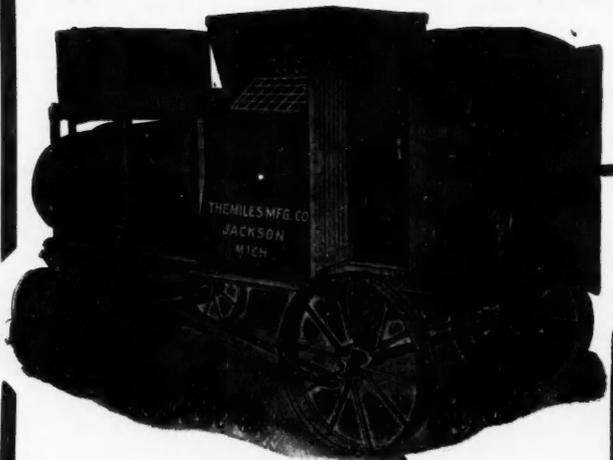
is designed and built to meet the demand for a strong, simple, durable and practical mixer, that is large enough for all ordinary contract work, yet light enough to be profitable on the small job as well as on the large. Mounted on good steel trucks, EXTRA LARGE DRUM OF THE PROPER SHAPE, equipped with 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.

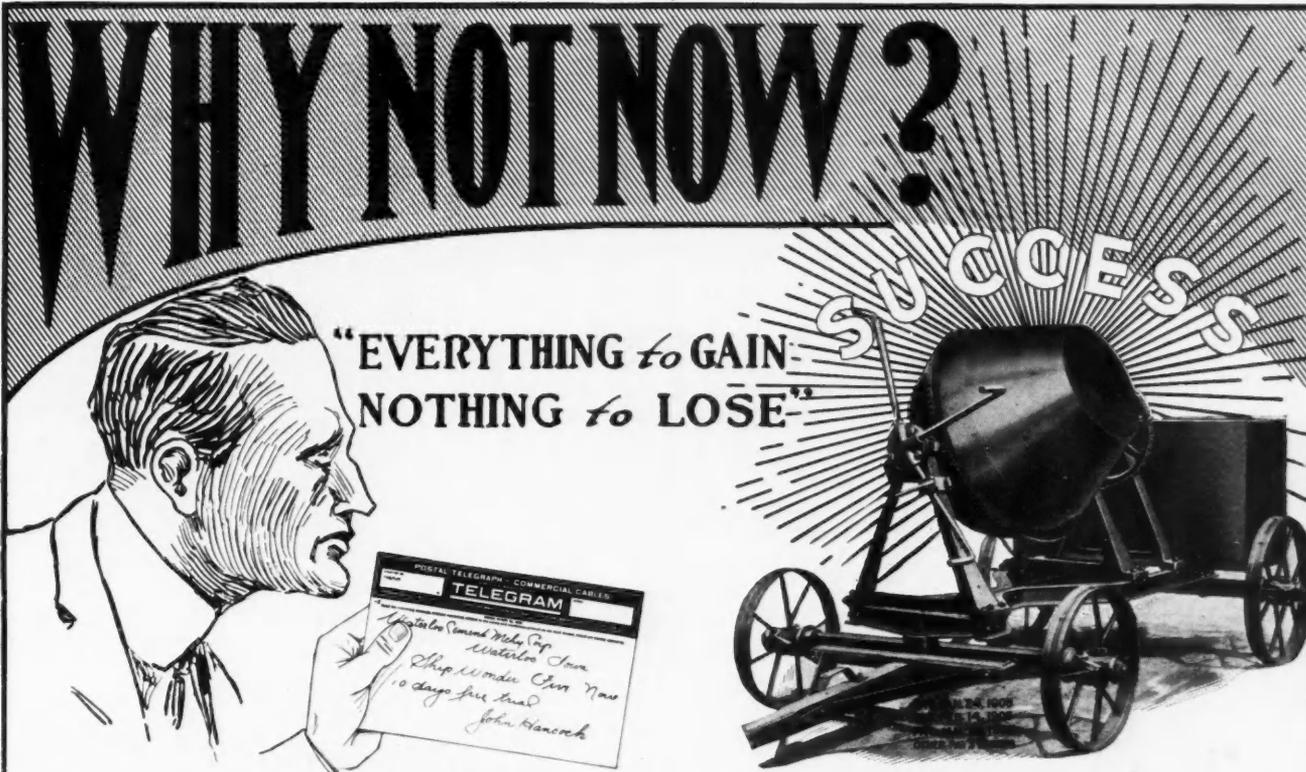
The best feature of the Batch Mixers is the rolling of the materials. The greatest advantage of the Continuous Mixer is the automatic measuring and feeding of the materials.

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.



Suit the action to the word—NOW. This is the Harvest Time—why put off prosperity? The

LITTLE WONDER "FIVE" MIXER

is a great National SUCCESS. You can safely trust such indorsement. The LITTLE WONDER "FIVE" will bring SUCCESS to you—NOW—if you seize the opportunity it offers—NOW.

As pioneers in building mixers of this type we *know* what will and what will not do *your* work year in and year out with smallest upkeep and largest profit per dollar of investment.

We *know* that nothing less than LITTLE WONDER "FIVE" quality and price is profitable to *you*, and we build absolutely the most satisfactory mixer from *your* standpoint. Thousands of purchasers, some using up to 25 LITTLE WONDERS each, testify to this—ask for their letters.

Here are just a few of the *exclusive features* that explain LITTLE WONDER "FIVE" success:

Three heavy A-frame standards supporting drum and driving mechanism. These give rigidity, long main shaft, wide bearings, long life to journals and room between for pulleys, power loader hoist and other purposes, including Rotary Pump to supply mixer where city water is not available. The only mixer of similar capacity having the 3-standard feature, and the greatest improvement ever made in mixers of this type.

Loader scoop on Side Loader low and wide—takes barrows sidewise or endwise. Loader controlled by one lever. I-beam steel frame and axles, standard tread. Many other exclusive features.

Capacity 5 cubic feet per batch—35 to 50 cubic yards per day. Side Loader doubles this. Rapid, perfect, triple mix. Fewest parts, greatest durability and economy of operation. Positively reliable 2½ H. P. gas engine.

Why not order a LITTLE WONDER "FIVE"—NOW? You can't possibly lose under our TEN DAYS' FREE TRIAL and SATISFACTION-OR-WE-PAY-THE-FREIGHT offer. LITTLE WONDER "FIVE" reputation is the best guarantee you could ask, and our Service Stations afford quick aid in emergency—read the list:

WRITE, WIRE OR PHONE THE NEAREST TO YOU—NOW

Albuquerque, N. M.	Buffalo, N. Y.	Evansville, Ind.	Laredo, Tex.	Milwaukee, Wis.	Presque Isle, Vt.	Spokane, Wash.
Atlanta, Ga.	Charlotte, N. C.	Fall River, Mass.	Lebanon, Ohio	Montreal, Que.	Providence, R. I.	Springfield, Mass.
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WATERLOO CEMENT MACHINERY CORPORATION

103 VINTON STREET, WATERLOO, IOWA

\$198 F. O. B. Factory "BOSS" BATCH MIXER

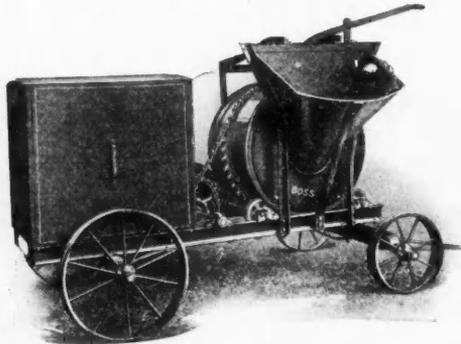
Buy the Sturdy Light Weight 5 ft.

CHEAP MANUFACTURING POWER FROM 200,000 H. P. KEOKUK DAM — EXCELLENT FACTORY FACILITIES — BIG OUTPUT — ACCOUNT FOR OUR LOW PRICES

The high quality of the material used—the value of the improvements—the efficiency of the BOSS—make it worth twice what it costs. That's what BOSS owners say—that's what you will say.



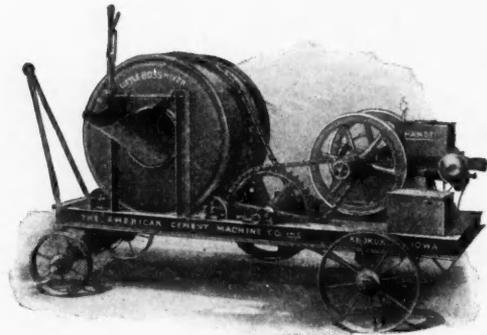
BOSS HOIST ATTACHMENT
For Silo Builders, Masons, Carpenters



Boss Highway Special

Low Loading Measuring Hopper, High Wheels with Wide Tires. Runs in standard wagon tracks.

Write for Catalogs. Stock Carried in Principal Cities.



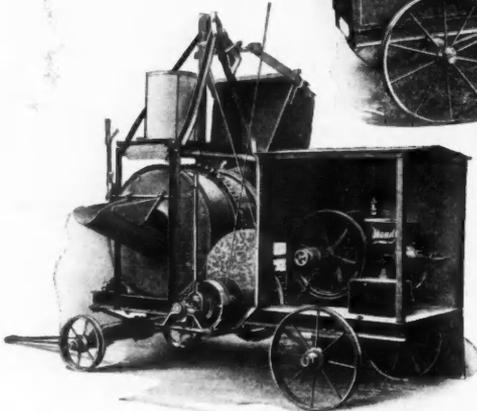
Our Big Factory is still working night and day. We can ship within 24 hours after your order is received

Steel King

10 FOOT SIZE.

BATCH MIXER — BIGGEST CAPACITY MIXER BUILT OF STEEL — SOLD AT LOW PRICES

The American Cement Machine Co., 1006 Johnson Street, Keokuk, Iowa



Boss, with Power Loader, Measuring Water Tank, Extra Builders' Hoist.



Make Your Work Show Profits

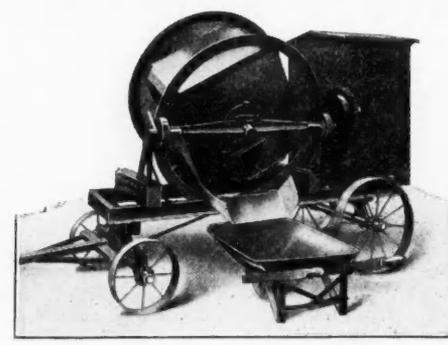
Use Sterling Machines—the greatest money makers ever built for up-to-date contractors.

To prove this we are willing to let you try either machine 10 days before you agree to accept it.

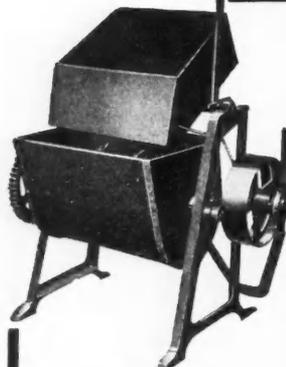
Sterling combination brick and block machines are the speediest to operate, they work with wonderful ease and make most any size waterproof brick and blocks for building purposes. Our price means a large saving of money to you.

Sterling batch mixer produces a perfect concrete mixture in less time, less power and less expense. Simple in construction, no clumsy or complicated machinery.

It will pay you to send for our catalog now.



Sterling Machinery Co., 127E-So. 2nd St., LA CROSSE, WIS.



Think of It!

This HELPER mixer that will mix mortar and concrete, only **\$35.00**

It will mix two cubic feet at a time. The measuring box enables you to get another batch ready while one batch is being mixed. Requires 1½ h.p. engine to run it. Daily capacity 15 to 20 cubic yards.

Send us your order now, or ask for FREE catalog giving more information.

THE CEMENT TILE MACHINERY CO., 132 Rath St., Waterloo, Iowa

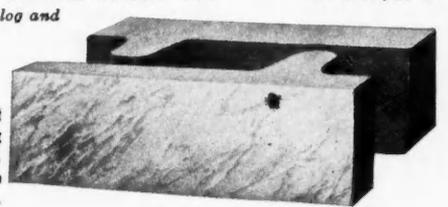
THE BEST CEMENT BLOCK IN THE WORLD

Continuous open air space; reinforced all around; staggered bearings. Makes strongest buildings and silos at least cost.

Block Machines, Automatic Tampers, and Continuous Mixers made by the

BRAGSTAD CONCRETE MACHY. CO. - CANTON, S. D.

Write for Catalog and Prices



See our Exhibit Space 4 Building Material Exhibit. Insurance Exchange Bldg. Chicago, Ill.



Chosen For Their Saving Power

F. Johnson Co., Chicago, nicknamed the fastest of Chicago's foundation builders, owners of 8 of "The STANDARD" Low Charging Mixers, recently bought their 9th outfit. F. Johnson Co. specialize in foundation building and find for this class of work that "The STANDARD" mixers can't be beat. Their simplicity and portability is of great advantage especially where the machines are moved frequently as in above class of work. Consecutive purchase surely stands for satisfaction.

Why not investigate

"The STANDARD" Low Charging MIXERS

Why a
 $\frac{1}{3}$ "on
every
dollar"
saving

Low Charging—the $\frac{1}{3}$ saver—the builder of bigger bank rolls, the Direct from the Barrow Charge that eliminates the unnecessary delay of relaying and does away with the complicated side loader, results in a mixer of fewer, yet sturdier parts, and securing a larger output with less labor, in less time and with less power means a $\frac{1}{3}$ saving on every dollar from the first cost to the operating cost.

You Need This Saving

WHY WAIT, TEAR OFF THE SLIP,
FILL IN AND SEND TODAY.

The Standard Scale & Supply Co.

Manufacturers of High Grade Contractors Equipments

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Why they
Save
YOU
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every
Dollar

Send me "1" Saving Book" on "The STANDARD" 446

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Hoist Pump Barrows Cans Drerchs
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GET THIS MIXER ON YOUR MIND



Because

It is the biggest and best small batch mixer on earth.
 It is built of the best iron and steel—by the best mechanics.
 It mixes all kinds of concrete, mortar, etc.
 It requires very little operating expense, and attention.
 It costs next to nothing for up-keep.
 It is always ready to do business every day.
 It is priced to you on a cash basis and sold at a low figure.
 It is furnished on skids without power, if you have your own engine, or it is mounted on trucks with engine, or mounted complete with Hoist, or mounted complete with Loader, Hoist, Mixer, or engine can be used indefinitely.
 A mixer and outfit built for YOUR particular purpose.
 Get our catalog and information and your "Big-an-Little" will come later—Increased profits—More contracts—Better QUALITY Work, all go Hand in Hand with the "Big-an-Little."

THE JAEGER MACHINE CO.

318 West Rich Street

COLUMBUS, OHIO

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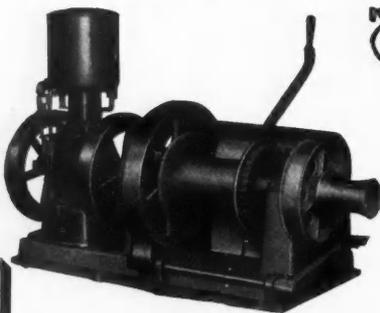
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Look for the Patent Mark

Pat. Jan. 24, 1905.
 Pat. Feb. 14, 1905.
 Pat. Jan. 29, 1907.
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MACHINES

are not made to meet price competition. We have considered Quality before Price. It is this

fact that should gain your attention because we know you want a good machine.

THE BUILDERS' HOIST

is a positive assurance of fast work. It is a *wage reducer*. Any Contractor who owns a hoist will tell you that it soon pays for itself. If you want the best, see the Clover Leaf.

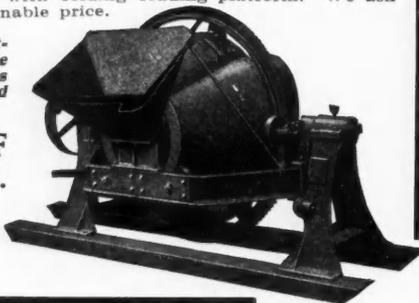
THE CLOVER LEAF MIXER

by its "involute curve" mixing does away with all paddles, blades and deflectors. It's the machine of no repairs, for the mixing is done by the shape of the drum. A substantial, high quality machine that may be had on trucks or on skids and with folding loading platform. We ask only a very reasonable price.

Hoist and Mixer Catalogs will gladly be sent you. Let us have your name and address.

CLOVER LEAF MACHINE CO.

Sample St. Office
 SOUTH BEND,
 INDIANA



We Can Save You Money In Your Mortar Mixing

Mr. G. Ed. Berry, a Harrisburg, Ill., contractor, writes us that with the Blystone Mixer: "One man has siked my lime and made mortar for eight and ten masons besides having time to spare for other work. I have saved the cost of at least one man's wages and a gain of ten per cent more mortar per barrel of lime over the old way of mixing."

Is YOUR mortar or plaster mixing a profit eater. Why not make it a profit producer? Our Blystone Batch Mixer is a mortar and plaster mixer as well as a concrete mixer. It can save you time, labor and material on every mortar or plastering job you do.

The Blystone Mixer operates very easily. It is filled while in motion and material is discharged while machine is in motion. It mixes material in full view, insuring an absolutely accurate mix. The reverse spiral paddle system of the Blystone mixes rapidly, turning material over forty times in ONE minute. Blystone Mixers are furnished with gasoline engine power equipment, or for belt driving. Mounted on skids or portable hand trucks.

BUILDERS—Get The Facts About The Blystone

Let us send you our catalogs and other matter explaining in detail just how the Blystone can save YOU money. Write us for this information right now—while you have it in mind. Asking us for details puts YOU under NO obligations.

THE BLYSTONE MACHINERY CO.

19 Carpenter St. : CAMBRIDGE SPRINGS, PA.

MAILING COUPON

Send me a copy of your Booklet No. 39-T, showing the No. 5 Smith-Chicago Mixer.

Name

Address



On the Road to Success

WITH A

No. 5 Smith-Chicago Special

Sooner or later you, Mr. Carpenter Contractor and also you, Mr. Builder, must realize that CONCRETE has become the most popular building material. Beat your competitors to it. Be the one to lead in your vicinity. Now is your golden opportunity to get into the concrete game yourself. Don't let the other man grab all the profit. Do those concrete jobs yourself. Buy a concrete mixer and double your profits.

In considering the purchase of a mixer you want to take four points into consideration. First—is it a Batch Mixer? Second—Is the mixing action correct so that it will turn out perfectly mixed concrete? Third—Will it mix and place concrete quickly and economically? Fourth—Is the price as low as consistent with good material and perfect workmanship? The answer is YES, when you consider the

No. 5 SMITH-CHICAGO SPECIAL

It's a batch mixer, of an approved type, with a 3 1/4 cubic foot wet capacity. Back of it is the guarantee of the biggest concrete mixer manufacturer in the U. S. It is not a new machine. Ten years have been spent in perfecting it—in bringing it to a point where it is recognized as the mixer that can be depended on at all stages of the game.

The cylindrical drum gives a strong end to center motion of the mass which combined with pouring action of the big scoop blades produces a perfectly mixed batch.

The ground-level, easily operated loader and the "external" discharge chute provide for a rapid feed and a quick discharge.

This all-steel mixer is built of the best material and with excellent workmanship, and is fully covered by our regular guarantee. Before risking your money on other equipment, post yourself about this machine, which has demonstrated its fitness on all classes of work. Mail the coupon for No. 5 Smith-Chicago Booklet No. 39-T.

Mail Coupon for Booklet No. 39-T

THE T. L. SMITH CO.

3123 Hadley Street

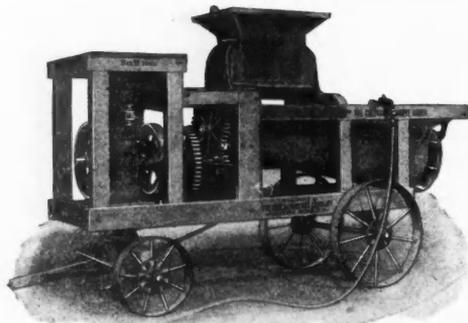
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1306
Old Colony
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CHICAGO
ILLINOIS



WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

"Costs Me About \$10 Per Year To Keep in Good Repair"



No. 9 Coltrin Mixer. Weight 1900 Pounds

Stillwater, Minn., Jan. 29, 1914.

The Knickerbocker Company,
Jackson, Michigan.

Gentlemen: In regard to my No. 6 Coltrin Mixer, bought in April, 1908, will say: that I have been perfectly satisfied with the Mixer, and it has stood the requirements of my work very well and satisfactory. I think I am safe to say that it costs me about \$10.00 per year to keep it in good repairs.

Very truly yours,

(Signed) ALBERT ERLITZ.

The Coltrin Continuous Batch Mixers

Shipped anywhere on trial. Write for Catalog.

THE KNICKERBOCKER CO. :: JACKSON, MICH.



Miller's "Block King"

Makes the BEST BLOCK in the Shortest Time at the Lowest Cost

Unlimited range sizes and shapes. Shipped on trial anywhere. DON'T order until you get our catalogue. The low price will surprise you. Also Tile,

Brick, Chimney, Moulds, Automatic Tampers, and Mixers.

J. C. MILLER CO., Box A Jackson, Mich.

INVESTIGATE THE BOLTE

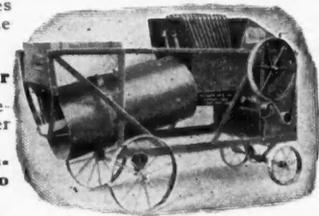
Thousands in use on all classes of Concrete Work throughout the U. S. and Foreign Countries.

Positively a Labor-Saver

over hand or batch mixing, reducing mixing cost 50% over either method.

Sent subject to Trial. Satisfaction Guaranteed or no Sale.

Price Low and terms Right.



Write for Particulars.

Address The Bolte Mfg. Co.

KEARNEY, NEBR.
West 21st Street

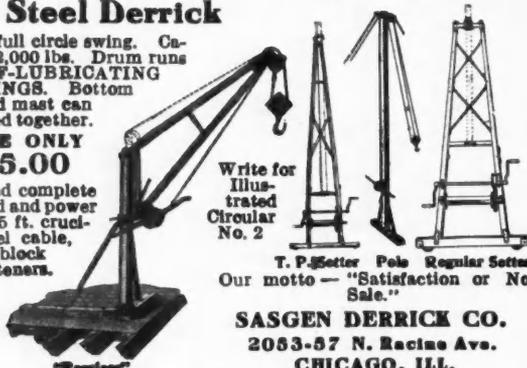
OR CINCINNATI, OHIO
420 E. 2nd Street

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.

THE WINNER MIXER



Will make money for you even if you don't have work enough to keep it running all the time. The cost is very small, and one gallon gasoline will run it a day.

Mixes 4 and 5 cubic feet per batch
Daily capacity, 30 to 40 cubic yards
Ask for our FREE Catalog

THE CEMENT TILE MACHINERY CO.
133 Rath Street Waterloo, Iowa

Delivers the Goods

serviceable machine for the large or small Contractor or Builder. It delivers the goods. That means large quantities of well mixed concrete quickly produced at a low cost.

It's the very machine for work in cramped places. It is compact; there is nothing to hinder charging, mixing or discharging. Any man can operate the Ideal Mixer. Charge directly from the wheelbarrow. End-to-end motion mix. Discharges and cleans itself in one operation. Capacity 7 cu. feet of loose material and over 5 cu. feet of mixed material in one batch.

Decided improvements in our Ideal Type "C" Batch Mixer makes it the most



Ideal Type "C" Batch Mixer



Ideal Machines

are built up to standards that make a hit with builders who know what type of machine gives the best service. The use of thoroughly good material in their construction is not skimmed. The prices at which they are sold are fair prices to you and to us. You may take our **positive guarantee** that the purchase of any of the Ideal products will result in years of satisfactory service and economy.

Ideal Ideas, a monthly magazine chuck full of the latest information about concreting machinery and concrete construction. Worth having. Get your copy **FREE** each month by sending us your name and address.



Makers of High Grade Concrete Machinery

Block Machines
Brick Machines
Dimension Stone and
Curb Stone Machines

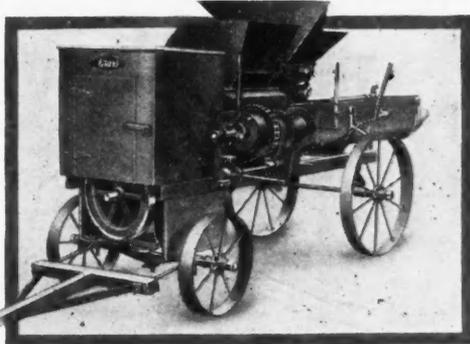
Automatic Power Tampers
Conveyors and Feeders
Batch and Continuous
Mixers

Ornamental Molds, Sill and
Cap, Fence Post, Drain and
Sewer Pipe Molds, Tycrete
Waterproofing and Colors

Ideal Concrete Machinery Co.

London, Ont. Canada

1308 Monmouth Avenue, CINCINNATI, OHIO



The BABY GRAND CONTINUOUS MIXER

combines all the good features of *mixer* and *hoist* at the price of *one* machine.

The BABY GRAND is a logical investment for the Carpenter and Contractor because both mixer and hoist are greatly used in modern construction. You can afford the Baby Grand. It is portable; capacity, 4 to 5 cu. yds. an hour. 2½ H. P. Gasoline Engine furnished with the machine.

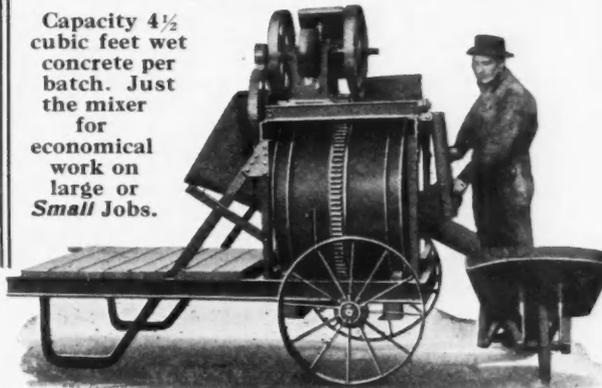
The HOIST is mounted on the frame (see illustration). Operates with or independent of the mixer. Simple friction clutch for starting and hand brake for holding load. Capacity of hoist, 400 pounds. Lifts load 100 ft. per minute.

Our latest CATALOG gives a complete description. Send for it. We also make the HARTWICK TWO TROUGH MIXERS for heavy construction work.

HALL-HOLMES MFG. COMPANY
436 Oak Street Jackson, Mich.

ARCHER CONCRETE MIXER

Capacity 4½ cubic feet wet concrete per batch. Just the mixer for economical work on large or Small Jobs.



Saves the Work of 5 Men

The Archer Mixer by fast mixing and by discharging the concrete directly into the forms saves the work of five men. No wheeling is necessary. Loading platform is low. Barrow dumps into the charging hopper which is strongly braced so it will not bend or "give" under weight.

The price of the Archer makes it an attractive investment for the Carpenter and Contractor. It is built of first quality iron and steel with blue annealed steel plate drum. 3½ H. P. Gasoline Engine. Platform 5 feet long by 38 inches wide and 21 inches high. Can be used anywhere on the job—in the basement or on the roof. We agree to refund your money if the Archer does not do all we claim. Write for full description and price.

Archer Iron Works
2430 West 34th Place

CHICAGO, ILLINOIS

UNBEATABLE VALUE!

\$150 for the **Dunn Power MIXER on TRUCKS** Here are new standards in concrete mixer values—where quality is raised and prices are lowered. The Dunn No. 0 is a sturdy, compact mixer, with ample capacity and power for building contractors' needs. All steel and iron construction, mounted on heavy steel trucks with wide steel wheels, complete with a reliable water-cooled gasoline engine—the entire outfit for only **\$150.00**.

If you want a larger mixer the Dunn No. 1 will surely satisfy. This has a

Capacity of 5 Cubic Feet, 2½ h.p. Engine

power discharge, 12 gauge boiler plate drum, one-piece yoke and is mounted on heavy steel trucks with wide steel wheels. The drum is unusually long for its capacity, which—together with the unique arrangement of mixing paddles—assures the most thorough and practical mixing principle known. The principle and construction of this mixer eliminates hard work, vibration and excessive wear. Price, **\$224.00**.

Write today for a copy of our new mixer catalog and details of our 15-day free trial offer.

BUILD CONCRETE PORCHES LIKE THIS

Dunn Molds make the massive, symmetrical concrete porches so much in demand—the kind that harmonize well with every kind of residence—the kind that literally sell on sight. Dunn prices on porch molds, also on molds for making Columns, Vases, Flower Boxes, etc., enable contractors to get fully equipped for a small investment. All sold on 15 days' free trial. Write for the new mold catalog.

THE NEW CATALOG IS READY

Interesting facts and figures on the profits in the concrete business are given in the new 72-page Dunn catalog—just off the press; also describes Dunn Concrete Block Machine, Drain Tile Machines, Pipe Molds, Fence Post Molds, etc. Don't fail to get a copy.

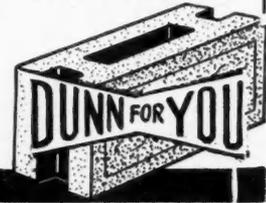


Patent
No. 842262
and 782700

DUNN No. 0.

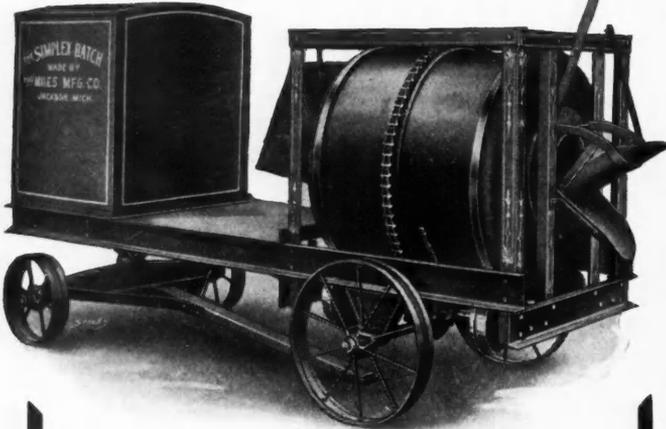


W. E. DUNN MFG. CO.
4132 Fillmore Street, Chicago



BUY THE SIMPLEX BATCH MIXER

1914 Model



Note the heavy, substantial construction, Low Hopper, Heavy Cast Heads, Drum of No. 8 Steel, Concealed Gears, All-Steel Frame, Rear Discharge, also Side Discharge if desired. And best of all our attractive offer.

Write to-day for catalog.

THE MILES MFG. CO.

307 E. Franklin Street Jackson, Mich.

The RIGHT WAY to make your Blocks is on a

FOUR WAY MACHINE

This is one of the most rapid and easily operated machines on the market today. Makes blocks 8x8 x16 inches; also equipped to make blocks 10 inches wide if desired.

Makes continuous air space blocks, also blocks with a concrete web.

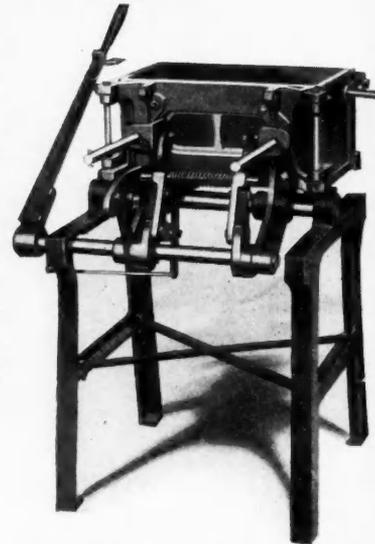
The ONLY machine that makes continuous air space blocks down face.

Our Catalogue is FREE!

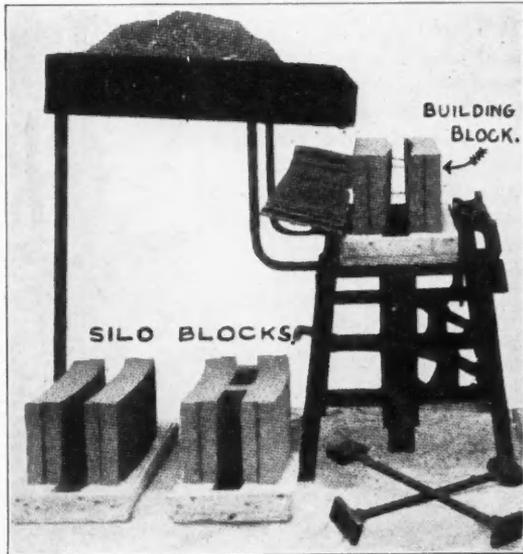
—Say—

THE CEMENT TILE MACHINERY CO.

Concrete Machinery Manufacturers
135 RATH ST. WATERLOO, IOWA



The Perfect Cement Block Machine



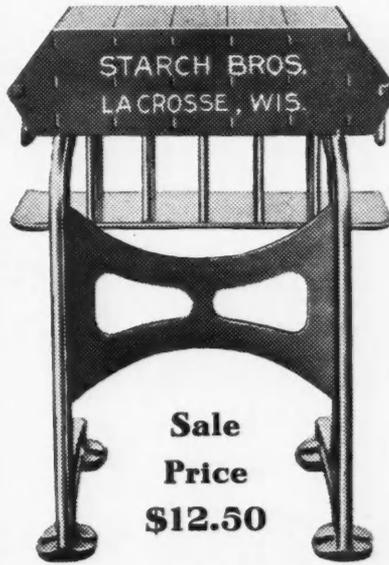
Makes hollow wall building blocks and silo blocks. Complete outfit for work on any kind of building. Simple and inexpensive. No experience necessary to run the Perfect. Blocks 8 in. high, 9 in. thick and 24 in. long, tongued and grooved. Four galvanized iron ties make blocks strong.

Write for More Particulars. The PERFECT Pays
J. J. COYNE, Manufacturer :: Fond du Lac, Wis.

BUY NOW. SAVE \$15.50

Special 30-Day Offer

In order to advertise the **Leader Cement Brick Machine**, we make this special sale price of **\$12.50**. The regular price is \$28.00. You save \$15.50 by placing your order now.



The **Leader Cement Brick Machine** is guaranteed. Money back if you're not satisfied. Makes 5 cement brick in one operation. A man can make 1500 to 2000 brick in 10 hours. Built of cold rolled steel. Lasts a lifetime.

This is your chance to get this **GUARANTEED** machine with complete set of face plates and outfit at a very low price. Remember this offer is good for 30 days only. Send your order today. We will cheerfully refund your money if you are not satisfied.

Write us now for Full Particulars.

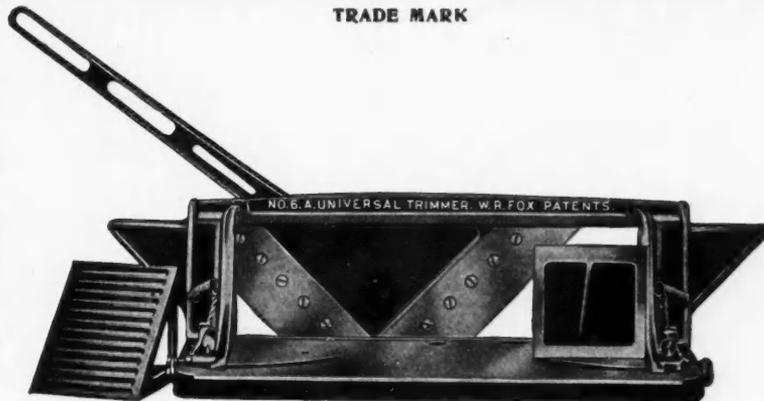
STARCH BROS. CO., LA CROSSE, WIS.

FOX

"UNIVERSAL TRIMMER"

TRADE MARK

**A
Machine
For
Every
Need**



**A
Need
For
Every
Machine**

6A. FOX "UNIVERSAL TRIMMER"

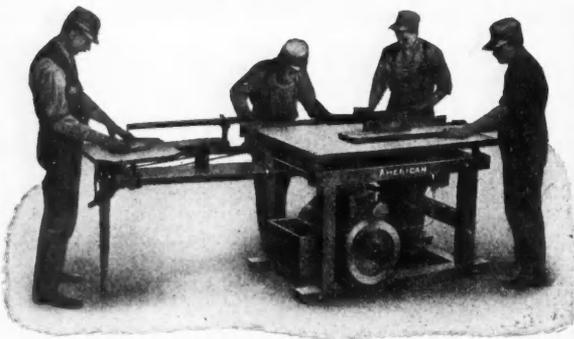
You Will Never Know What Perfect Work is Until You Use a Fox "Universal"

The fitting of interior finish is greatly improved by using a Fox Universal.

Write **TODAY** for Our New Catalog

FOX Machine Co.

22 FRONT AVENUE N. E.
 GRAND RAPIDS, - - MICHIGAN



"Your machine is the only one I have ever seen that is built strong enough to stand up under the work it is expected to do."

This is what one contractor said about the

"AMERICAN" Contractor's Portable Variety WOOD-WORKER

And he voiced the opinion of hundreds of users all over the country, who have found that the "American" is under-rated—in distinction from the many other similar machines which are much over-rated both as to power, capacity and endurance.

The fact is that our long experience as builders of woodworking machinery exclusively, enables us to make the "American" Wood-Worker amply strong for the most severe duty, without excessive size and weight.

If you are buying a wood-worker as a permanent and profitable investment, the "American" is the machine you want.

Send for the "American" Pamphlet, No. 47.

American Saw Mill Machinery Co.

80 Main Street
HACKETTSTOWN
NEW JERSEY

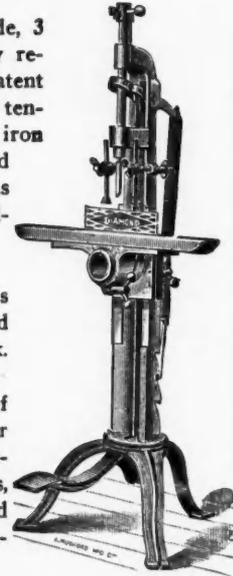
1360 Hudson Terminal
NEW YORK CITY
NEW YORK

"Diamond" Mortiser For Foot Power

Will mortise $\frac{1}{8}$ 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 $\frac{1}{8}$ 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.

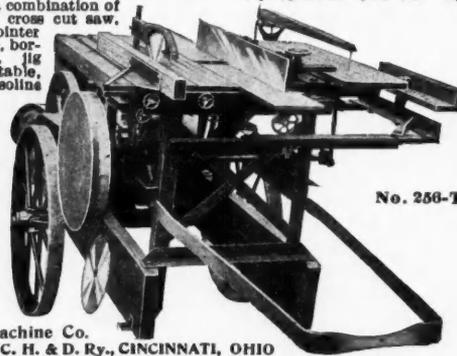
218 Water St., Seneca Falls, N. Y., U. S. A.
(299)

Parks Portable Shingle or Combination WOODWORKING OUTFITS

This machine is a combination of circular rip and cross cut saw, 6 or 12-inch splitter with tilting guide, boring attachment, jig saw 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

PARK'S
Ball-Bearing Machine Co.
Fergus Street and C. H. & D. Ry., CINCINNATI, OHIO



No. 256-T

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

CARPENTERS

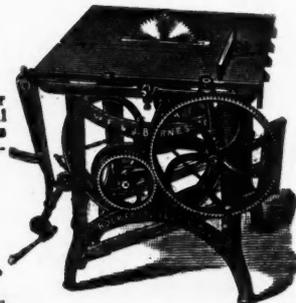
In these days of close competition need the best possible equipment, and this they can have in

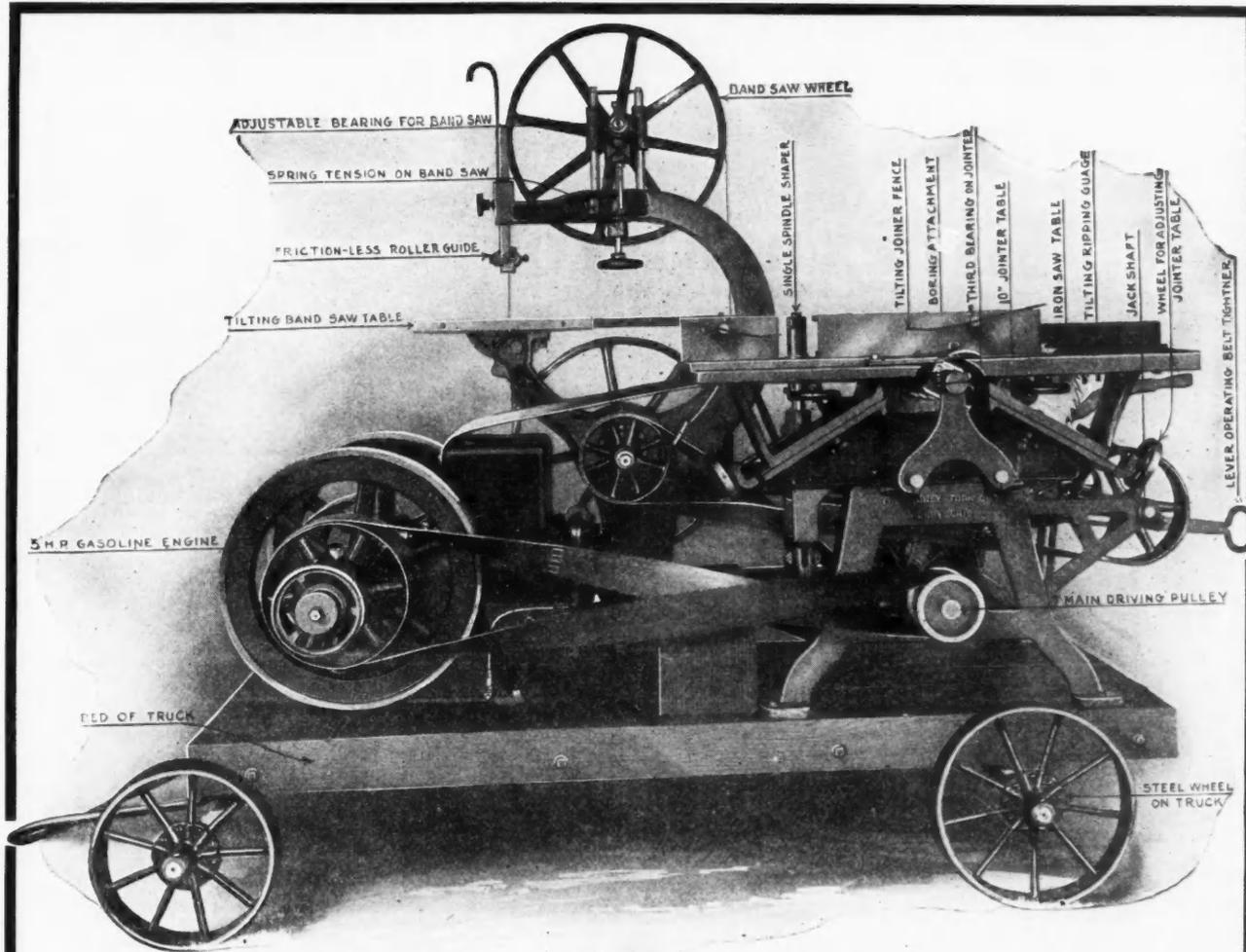
Barnes' Hand and Foot Power Machinery

Our new foot and hand power Circular Saw No. 4, the strongest, most powerful and in every way the best machine of its kind ever made. For ripping, cross cutting, boring and grooving.

SEND FOR OUR
NEW CATALOGUE

W. F. & John Barnes Co.
74 RUBY ST. ROCKFORD, ILL.





**You helped Smith pay
for his automobile!**

Yes, you did! You turned over to Smith and his mill work that you could do yourself with a "Famous" Woodworker. He made a good profit on YOUR work—on OTHER work turned in to him—and NOW he's driving a fine, new car! You helped pay for it. You are helping to pay for OTHER automobiles—and it's time you began to put this extra money into your own pocket.

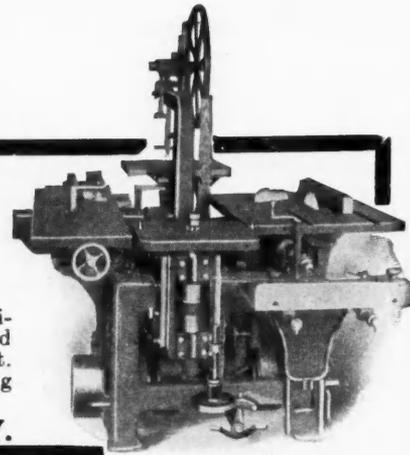
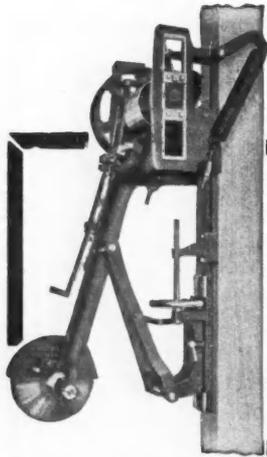
**Are you going to do
it again this year?**

A "Famous" Universal Woodworker will enable you to save hand labor—keep the profits that belong to you in your own shop—promise (and DELIVER) more quickly—handle more work at a better profit—stamp you as the progressive man—and add new business by leaps-and-bounds.

There is a special "Famous" for you. Send the coupon and we will tell you something about it. Send it today. Don't help pay for the "other fellow's" car any longer. You want one. A FAMOUS will help get it.

THE SIDNEY TOOL CO., :: Sidney, Ohio
Now!—mail the coupon.

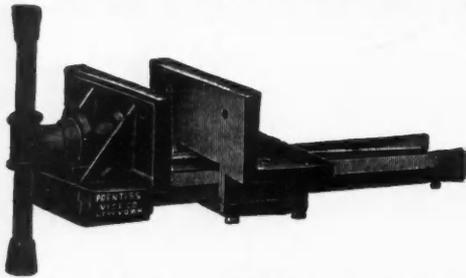
Sidney Tool Co., Sidney, Ohio.
Gentlemen: I want my own car. Prove to me that you bet, a "Famous" for me—that it will do my work best. Send your catalog No. 12—I am interested.
Signed.....
Business.....
Address.....



EXHIBITION

Complete line of Wood Working Machinery including Universal Combination Woodworkers for Contractors and Builders. Largest stock in New York. New and rebuilt. We are manufacturers of high-grade woodworking machinery. Sixty years in the business. Write us.
P. PRYIBIL MACH. CO., 512-24 W. 41st St., New York, N. Y.

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.

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 $\frac{1}{2}$ " to $1\frac{1}{2}$ " thick. Easy to operate; durable in construction. Builders use it everywhere.



Sent subject to trial.

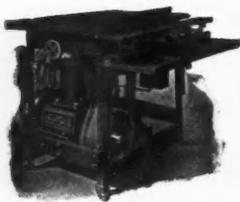
A. W. Miller Mfg. Co.
 Riverside, Calif. :: Cincinnati, Ohio
 or Butt Mortiser and Rule Gauge for 75c., Postpaid

GENUINE BANGOR

Roofing Slate
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 Blackboards

Large Facilities, Prompt Deliveries
EAST BANGOR CONSOLIDATED SLATE CO.

East Bangor, Pa.



Standard Portable Combination Woodworker

9 Machines in 1
 6 H. P. ENGINE

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



"OHIO EXTRA" AUGER BITS

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



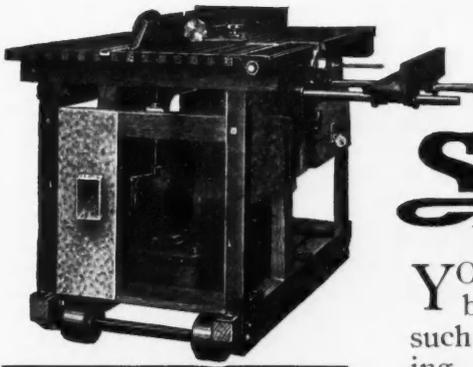
"OHIO" CHISELS, PLANES, ETC.

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) Charleston, W. Va.



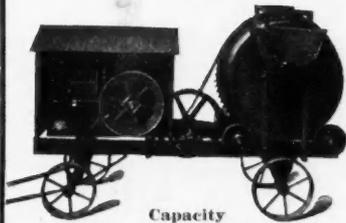


"Simplicity Jr."

CONCRETE MIXER

A practical mixer at a price you can afford to pay. Simple design, all steel construction, chain drive, low loading hopper, quick and handy discharge; light, easy to handle, yet strong and durable.

Write for Bulletin No. M24



Capacity
5 cu. ft. per batch.
50 cu. yds. per day.

C122

Increase Your Profits

You Can Do It by Using a

Simplicity CONTRACTORS SAW RIG

YOUR men can saw four times as much lumber with ease besides performing many other time-saving operations, such as: jointing, dadoing, all standard boring, rabbeting, shaping, sanding and grinding tools. You can increase your daily output at a lower cost and do better work with the "Simplicity" Saw Rig.

The big, powerful 4 H. P. "Simplicity" Engine, enables you to saw 4-in. lumber with ease. We are engine builders and know that the "Simplicity" engine will deliver the power, and absolutely guarantee it to produce the very best results with the "Simplicity" Portable Saw Rig.

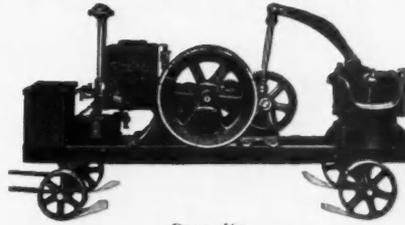
On reinforced cement contracts you can save considerable on your form lumber by doing your own mill work with our outfit No. 2. A full set of attachments is furnished free. It will pay you to write today for full details. Just drop us a card. Dealers Wanted.

TURNER MFG. CO.
129 LAKE ST. PORT WASHINGTON, WIS.

"Simplicity" POWER PUMP

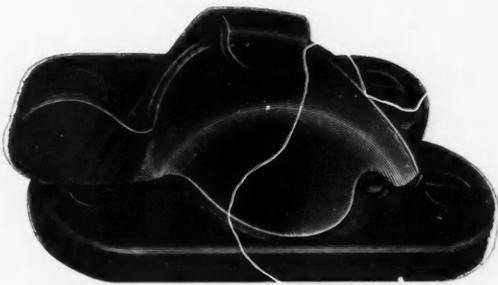
Just the trench pump for handling large quantities of water against a low suction head.

Write for Bulletin No. T28



Capacity
3,500 to 6,000 gallons per hour.

MONITOR SASH LOCKS



(PATENTED)

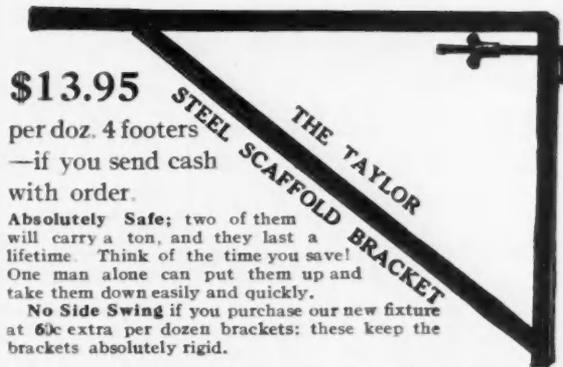
NEVER BREAK

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



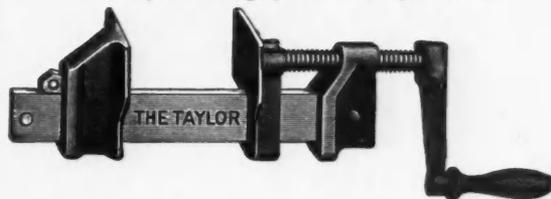
\$13.95

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 60¢ 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!

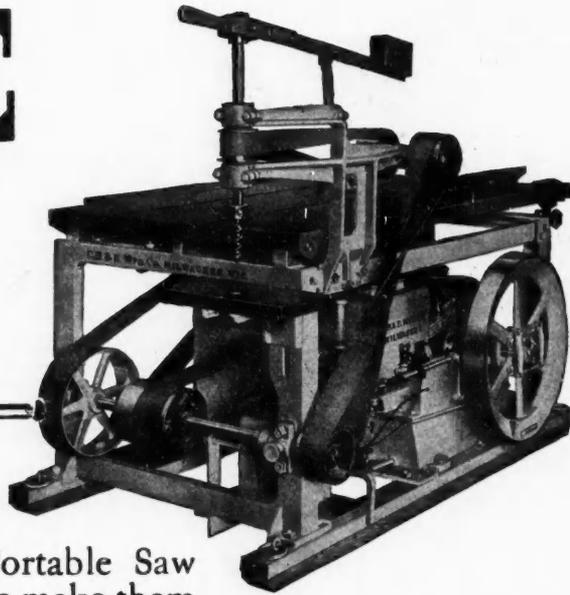
The grip is positive, and special grade of steel in the bar more than doubles the strength of the clamp.

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.

WRITE US

FOR OUR NEW
1914 CATALOG

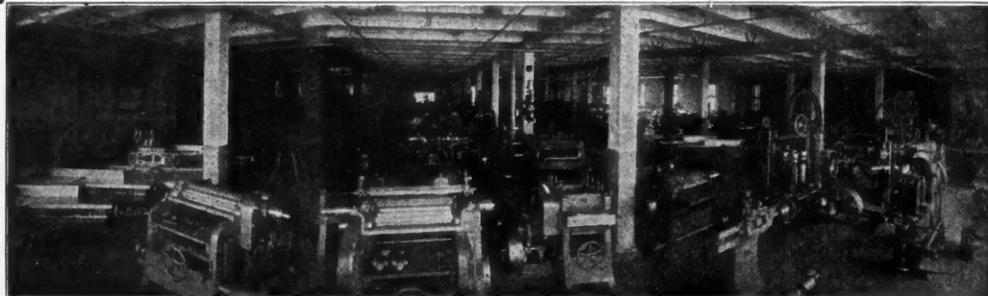


AS PIONEERS in the manufacture of PORTABLE SAW RIGS, we are entitled to claim that we manufacture the BEST Portable Saw Rigs on the market today; in fact, we make them complete in five different sizes to meet every requirement of the trade.

We also manufacture hoists, pumps, elevators, mortar mixers, concrete chutes, air compressors, gasoline engines, etc.

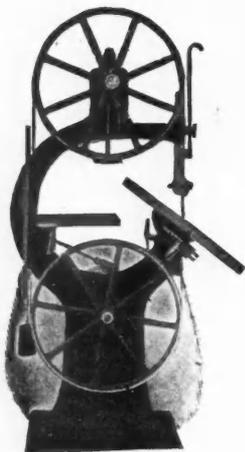
Write Us for our new 1914 attractive Catalog

C. H. & E. MANUFACTURING CO., Inc.
322 Mineral Street MILWAUKEE, WISC.

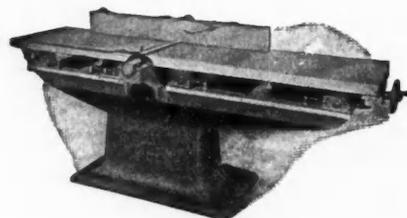


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Everything in wood working machinery and supplies for Contractors, Carpenters, Builders, Interior Finish, Sash and Door, Planing Mills, Furniture, etc.



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



Get Your Share Of the Profits WITH A *Crescent* Universal Wood Worker

EVERY year the planing mills grab a big share of your profits. Why don't you keep that money? You can produce your own mill work at **cost**. It's poor policy to pay high prices for finished product when you can get out the same stuff for a trifle more than the cost of the rough lumber. All you need is **equipment**.

You are far-sighted. You can see that it's wise to invest a little money in **good equipment** now and let your added profits pay for it. **Prices on mill work are going up** each year. That means your profits from building are bound to be **less**. Better start now and figure on getting out your own stuff and quit handing your earnings to the other man.

Buy a Crescent

It's the machine that's **guaranteed** to make good on your work. It will not be out-of-date in a year or two. It's a lifetime machine.

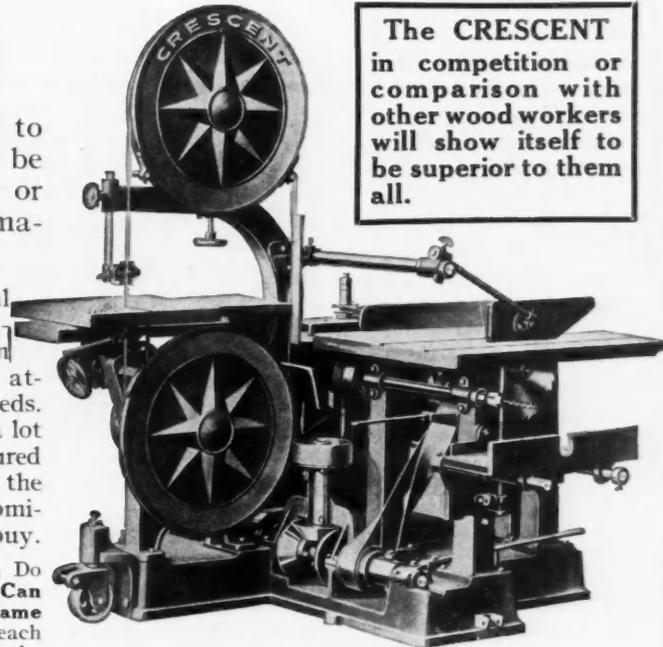
What You Can Do on the CRESCENT

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

The Crescent Universal Wood Worker is a combination machine. You can get any combination of attachments to fit your needs. You do not have to buy a lot of unnecessary parts. Figured in plain dollars and cents, the **Crescent** is the most economical wood worker you can buy.

Look at "What You Can Do On the Crescent." **Four Men Can Use This Machine at the Same Time** without hindering each other. It's the machine for the shop or for the job. Construction is all you could wish for. We back every part with our guarantee to make good any defect.

You really should have our Red Catalog. It goes into details and gives the information a buyer wants. Nothing disguised. All in plain type, so you can decide for yourself. This book is **FREE**. **ASK FOR IT.**



The CRESCENT in competition or comparison with other wood workers will show itself to be superior to them all.

THE CRESCENT



MACHINE CO.

224 Main Street

Leetonia, Ohio

CONTRACTOR CLEARS \$450 IN 10 DAYS

M. H. Ireland,
Anamosa, Ia.
—Contractor—
cleared above by
using **LITTLE
WONDERS**—
What one man
can do with Little
Wonders you can
do—Get next to
this **LITTLE
WONDER
TRUCK**—It will
triple your profits.



Here's the Little Wonder!

**10 ROOM HOUSE 5 MILES 10 DAYS
MOVED IN**

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 post card brings it in a hurry.

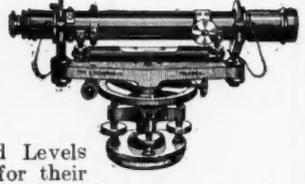
HOUSE MOVERS SUPPLY COMPANY 620 Eastlark Court
Cedar Rapids, Iowa

**BECKMANN
INSTRUMENTS**

Builders Levels

The leading contractors today equip themselves with the most accurate type of levels, believing that the speed, accuracy and all around efficiency, more than pays them.

Beckmann Transits and Levels are particularly designed for their purpose, both in accuracy and rigidity of construction.



Write today for our Builders Manual "Y"

The L. BECKMANN CO.
500 Adams St. TOLEDO, OHIO

Carpenters and Builders Attention

You owe it to yourself, as well as to the property owner for whom you are working, to see that his buildings are adequately equipped with proper protection from loss by lightning.

His confidence in your judgment will make it easy for you to secure this additional work.



**THE BARNETT
SYSTEM OF**

Guaranteed Lightning Protection

is the easy way to more profits on the same job. Our rods are in big demand and there is a big profit in selling them. They are made of pure copper cable, with attractive fixtures that are easily put on any building.

Why not equip yourself to take advantage of the opportunities for this work which are continuously arising? Let us show you the way to more profits on the same job.

FREE CABLE SAMPLES, PRICE LIST AND CATALOG

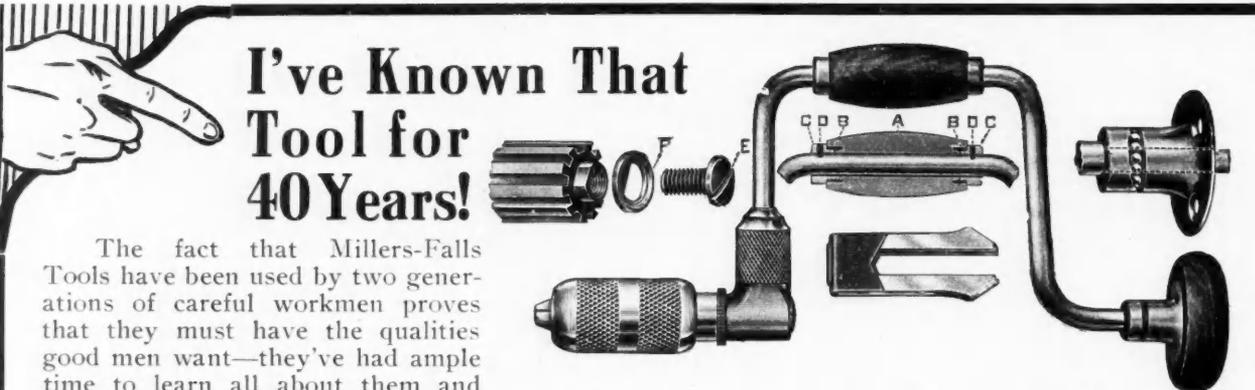
Jos. A. C. Barnett & Co.

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Riverside, Iowa



**I've Known That
Tool for
40 Years!**



The fact that Millers-Falls Tools have been used by two generations of careful workmen proves that they must have the qualities good men want—they've had ample time to learn all about them and prove, by practical experience, their exceptional merit. One of the best tools in our line is our

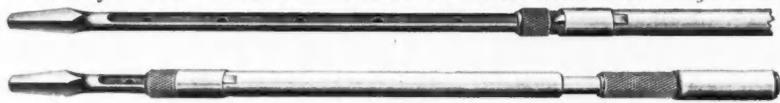
Master Ratchet Brace No. 8130

Has every desirable feature; Ball-bearing Head; Non-splitting, always Free-acting Sweep Handle; Dust-protected Ratchet Parts; Forged Steel Jaws taking round shanks 1/8" to 1/2", No. 1 Morse Taper and all sizes Bit Stock and Expansion Bit Shanks.

Telescope Extension Bit Holder No. 6

is another tool you should know and use. Nickel-plated Steel; length 16 1/2" to 24", engaging at 1 1/2" intervals; chuck follows bits into the bore. A light, strong, rigid tool that we can fully guarantee.

Ask your Dealer, who probably carries Millers-Falls Tools. If he doesn't, write us and we'll send you the name of a Dealer who can take care of your needs. New Catalog on request.



MILLERS-FALLS CO.
Millers Falls Mass.

WHITE'S IMPROVED LEVEL

SHIPPED ON APPROVAL — Our No. 2011 Improved level, illustrated herewith, is especially designed for work where a general purpose level is required. Telescope is 12 inches long with magnifying power 25 diameters, and is capable of detecting an error of 1-16 inch in 300 feet. We ship this level out on approval, express prepaid, in order that you may try it out on your own work before deciding to keep it. Ask today for your circular X and special net price sheet. Ask today!



DAVID WHITE COMPANY
No. 2011 419 E. Water St. Dept. C Milwaukee, Wis.

Two Instruments for the Price of One

When in need of an Architect's Level or a Builder's Transit do not fail to investigate our

Transit-Level

(Pat. Pending)



It is convertible and will serve as a first class Builder's Transit as well as an Architects' Level. If you should have use for an instrument at all you should buy this accurate, durable and most serviceable instrument which is without question the leader as to general usefulness among all instruments on the market. It has no equal for Efficiency and Economy.

To keep abreast of up-to-date methods send for Catalogs and Circulars and be informed as to the latest and best.

GEIER & BLUHM
672 River Street, Troy, N. Y.

"Sterling" Convertible Level



The wise Builder does not look at price only, but investigates the advantages and practical values before selecting a Level.

If you would know why you should select a "Sterling," write TODAY regarding Free examination privilege.

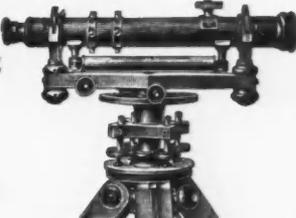
WARREN-KNIGHT CO.

Makers of

"STERLING" TRANSITS AND LEVELS

136 N. 12th St. PHILADELPHIA, U. S. A.
Successors to Iszard-Warren Co.

LEVEL WORK



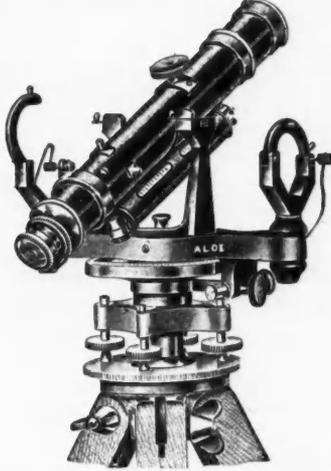
Architects Builders Contractors

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 prices.

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



Rent This Level 10 Months Then It is Yours

[Builders --- Contractors --- Architects]

This is not the old style Architect's Level. It is the newest model convertible level. There is not a single Builder, Contractor or Architect who has not almost daily need of this instrument. For laying out buildings, locating foundation piers, leveling up foundations, walls and floors, aligning shafting, walls, piers, etc., for getting angles, locating levels anywhere, ditching, laying streets and walks, running straight lines, and a hundred other uses.

Instruction Book Free

Complete illustrated booklet, telling how a builder, contractor or architect can use the convertible level, sent free on request.

WARNING

The Level we offer is the new Aloe Convertible Level. Don't confuse the Convertible Level with the ordinary style Architect's Level. The only work that can be satisfactorily done with the ordinary Architect's Level, is the determining of elevations. But the Convertible Level, besides its use as a level, is a modified transit and broadens the use of the level 100%. You can't afford to buy any but the Aloe Convertible Level.

HALF CENTURY REPUTATION

We have been manufacturers of transits and levels since 1863, and our instruments are the standard of the world.

FREE TRIAL

We allow you to convince yourself by a trial of the instrument before you obligate yourself.

THE RENT BUYS IT

No large cash outlay needed. Just pay the rent for a few months and the instrument is your absolute property.

Send Coupon—No Obligation

Send the attached coupon today and we'll send illustrated booklet and complete details of how you can own the Aloe Convertible Level for 10 months' rent.

A. S. Aloe Co., 621 Olive St., St. Louis, Mo.

COUPON

A. S. Aloe Co., 621 Olive St., St. Louis, Mo.
Please send free instruction book on the use of the Convertible Level and complete details of your rental plan. This request in no way obligates me.

Name

Occupation

Street

City..... State.....

Am. C. & B. June 14



*The Rice Leaders of the World Association
desires to announce that its Committee
has selected
The L.S. Starrett Co.
of Athol, Massachusetts
as the Recognized Leader of the World
in the manufacture of
Fine Mechanical Tools
which by invitation becomes a
Member of our Association
enjoying all the privileges and benefits thereof*

over

Starrett Tools

ARE RECOGNIZED AS
LEADERS
OF THE
WORLD

This is a reproduction of the official announcement of our invitation to become a member of the RICE LEADERS OF THE WORLD ASSOCIATION.

Men in the mechanical industries and the trades will acknowledge that this honor is fully deserved because of the perfect service always rendered by Starrett Tools.

We are glad to become members of this association whose requirements are honor, quality, strength, and service.

The L.S. Starrett Co.
World's Greatest Toolmakers
Athol, Mass.

42-332



“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.
Torrington, Conn.



MACHINE BIT



BRACE BIT

ROOF SLATES

STRUCTURAL SLATE BLACKBOARDS

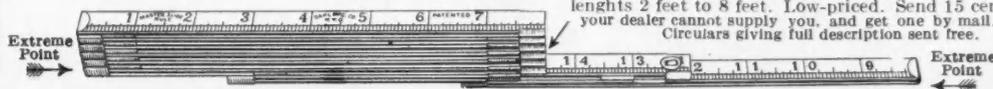
E. J. JOHNSON
38 Park Row New York
Quarry Operator
BLACK, GREEN, PURPLE, RED

Booklet, Samples and Prices on Application

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

Correct INSIDE Measurements — Improved Master Slide Rule

A Carpenter's practical rule that will take inside or outside measurements accurately. Two Rules in One. Made of select boxwood trimmed with brass plated steel. Strong; rigid; convenient. Easily used. Made in all lengths 2 feet to 8 feet. Low-priced. Send 15 cents a lineal foot (In U. S. A.) if your dealer cannot supply you, and get one by mail. Circulars giving full description sent free.



DAHL MFG. CO.
51-G East 42nd Street
NEW YORK CITY

The "EUREKA" Spiral Screwdriver

Made in Two Sizes. No. 1—14 inches long, opened; 9 inches closed.
No. 2—19 inches long, opened; 12 inches, closed.

Push on the end and the screw goes in. Can be used as an ordinary screwdriver. The simplest and best made. Durable and powerful. Send for Circulars.



DECATUR COFFIN CO., Decatur, Illinois

If You Like It, Buy It

If You Don't Like It, Send It Back

Those are the only terms attached to our liberal

10-Day, Free Trial Offer

We want to convince you that it will save you time and money, and better the quality of your work if you have a

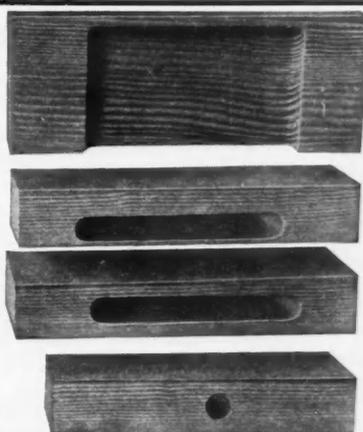
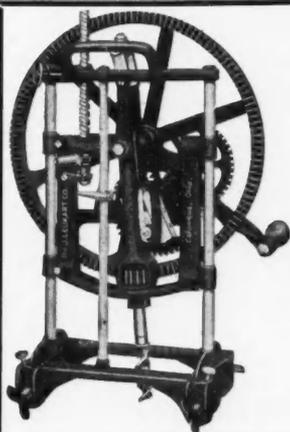
CHAMPION MORTISER

Perfectly designed and equipped with ball bearings, large gears and automatic stop. Cuts mortises in three minutes. Any size, any shape from a perfect round hole up to 6 1/4 in. slot. Price very reasonable.

TELL US YOU'D LIKE TO TRY THE CHAMPION FOR 10 DAYS FREE OF CHARGE.

Colgan Machinery & Supply Co.

616 New Hayden Bldg. COLUMBUS, OHIO



Hammer Insurance



Our "VANDOR VANADIUM" Nail Hammers in two sizes, No. 22, 13 oz. Finishing; No. 21 1/2, 16 oz. Standard. We will send either size 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.)

1853



1914

Fine Beveled Edge
Shank and Socket
Chisels



**Tang and Socket
Butt Chisels**

Plain and Beveled Edges

Send for illustrated Catalog

Buck Bros., Millbury, Mass.

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

The celebrated Barton Planes and Edge Tools for carpenters and all other woodworkers are unequalled by any other made for keen, hard, smooth cutting edges. If your hardware dealer does not handle

TRADE MARK



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 RACE
ROCHESTER, N. Y.



No.
901

Goodell-Pratt's

NAIL SETS

are now put up in
LEATHER CASES

containing one each: 2/32, 3/32,
4/32 and 5/32-inch points.

You already know, or should know, the quality of the nail sets, and you will find the cases convenient.

Every nail set is made of high-grade tool steel, and is hardened and oil-tempered very carefully.

If your dealer has not got any yet, tell him about them.

*Our catalog shows 1500 Tools.
It Is Free.*

**Goodell-Pratt
Company**

Toolsmiths

Greenfield, Mass., U. S. A.



DIAMOND EDGE TOOLS

A RECOGNIZED STANDARD
OF QUALITY

The Mechanic's Choice

Warranted to give satisfaction and represents the acme of perfection in tool making.

DIAMOND EDGE Hatchets are made of highest grade solid crucible cast steel, perfectly tempered. Bit and head carefully ground and sharpened, ready for use. Second growth young hickory handle, perfectly hung, fastened with a **DIAMOND EDGE** patent lock wedge.

Ask Your Hardware Dealer—He Can Supply You.
If Not, Write Us—Department W.

SHAPLEIGH HARDWARE CO.

Established 1843
ST. LOUIS

"DIAMOND EDGE IS A QUALITY PLEDGE"

HOISTS

"RELIABLE ERIE"



All styles single and double drum hoists at prices from \$25 to \$150. Any contractor or builder contemplating the purchase of a hoist will save time and money by getting the "Reliable Erie" Catalog at once.

Our Hoists require less power and have a greater lifting efficiency than other hoists. Made to stand the strain of heavy loads without "give" or breakage.

Let us help you select the hoist you need.
ERIE CLUTCH & PULLEY CO. ERIE, PENNA.

HOISTS

15 cts. Saves Work All Summer



PATENTED

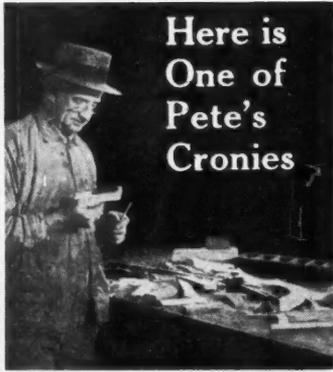
Water the Lawn with a **DUO NOZZLE**

Combination Hose Nozzle and Lawn Sprinkler. Cuts your labor in two; throws twice the water in given time. Big fan spray or straight stream. No shutoff to cause hose to burst. Furnished with attachment to use as sprinkler.

Buy a Duo from your hardware dealer. If he can't furnish you, send us 15 cents and get one postpaid.

H. B. SHERMAN MFG. CO.
Barney St. BATTLE CREEK, MICH.





Here is
One of
Pete's
Cronies

A fellow workman in the pattern shop—if there is one thing he prides himself on it is the condition of his tools—so, then, he, too, uses

Carborundum Sharpening Stones

The Round Combination Bench Stone, the Slip and Gouge Stones.—He says they make his good tools *better* tools, because they cut quick and clean—give a keen, smooth edge—never glaze or fill—and they last.

Carborundum Sharpening Stones are work-bench and tool-kit necessities. At your hardware dealer or order direct.



The Carborundum Company
Niagara Falls, N. Y.



Patent Cutter Head Fits Any Saw Table

Make your saw table do more work by having one of these tools.

Our new illustrated catalog sent on request.

Pat. Dec. 30, 1913

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

Articles Every Carpenter Needs

Boxwood
Folding
Rules

Spring Joint
Rules

Steel Rules



Steel
Tapes

Woven
Tapes

Pocket
Tapes

We guarantee to YOU absolute satisfaction
CATALOG ON REQUEST

When in need of these
say to the hardwareman

THE LUFKIN RULE CO.
New York Saginaw, Mich.



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.

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.

GOODELL

You Will Buy This All-Steel Mitre Box

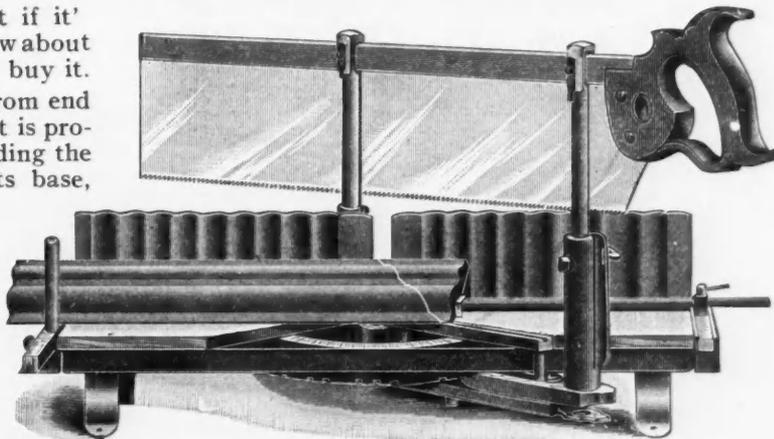
In fact you can't help buying it if it's shown to you, and the more you know about mitre boxes, the quicker you will buy it.

The Goodell is made of Steel—from end to end and all the way through. It is provided with automatic stops for holding the saw, it has an accurate scale in its base, and is fitted with a gauge for making duplicate cuts, etc.

It cannot break and get out of order—it is always ready to do fast, accurate work at no notice.

Send for Circular C and prices—now, in time to have it for your spring building work

Goodell Mfg. Co.
Greenfield, Mass.



An Offer to Carpenters and Builders

We want one of our Improved HONEYCOMB MITRE BOXES in every community, and will sell one Box at WHOLESALE to Carpenters and Builders where they are not handled by the dealers.

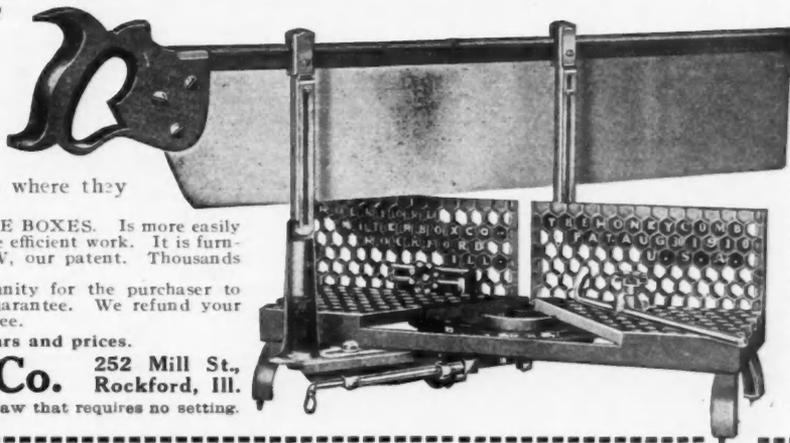
The HONEYCOMB is the BEST of all good MITRE BOXES. Is more easily kept in good condition and permits faster and more efficient work. It is furnished with the very highest grade of BACK SAW, our patent. Thousands of more than satisfied users.

Our pride is quality and we give honest opportunity for the purchaser to judge for himself. Each Box tagged with our guarantee. We refund your money if 10 days' trial does not prove our guarantee.

Write TODAY for descriptive circulars and prices.

Rockford Mitre Box Co. 252 Mill St., Rockford, Ill.

It's the only concern that can furnish a Mitre Box Saw that requires no setting.



WHY TAKE A CHANCE

of having a defective wall from using a scrap wall tie in varying thickness as light as tin.

Ask your dealer the weight of a box containing 1000 ties and if the weight is below 50 pounds you are buying an inferior tie and entitled to rebate.

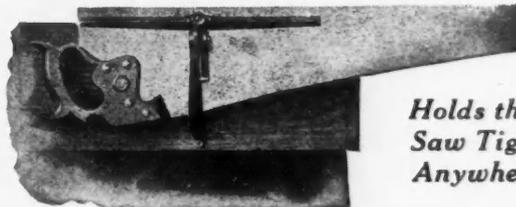
To be safe, specify the

WHALE BONE WALL TIE



and if your dealer cannot supply same, order direct from us and we will ship the same day as received, at price of \$2.50 per 1000, Pittsburgh, Pa.

ALLEGHENY STEEL BAND COMPANY
BELL PHONE: 718 Cedar North Side, PITTSBURGH, PA.



Holds the Saw Tight Anywhere

The Gunn Self-Fastening Folding Saw Clamp

Fastens itself to work bench, tool box, board, joist, pile of lumber, fence rail—to any suitable place—without screws, nails or other means of fastening. Stands firmer than any other, with their troublesome screws, nails, and braces. Made of best malleable iron; 15 inches long; weighs 3 pounds; folds like a jack knife; can be carried in coat pocket. Guaranteed not to break.

Price, \$1.00 at Most Good Hardware Stores, or Sent, Prepaid, Anywhere, for \$1.25. Money Refunded if not Satisfactory.

L. D. GUNN FOLDING SAW CLAMP CO.
P. O. Box 643, Pittsburgh, Pa.



Uncle Si Says:

"I'm a carpenter, so I'm not supposed to know a whole lot about steel. I do know there's good steel and bad steel and it doesn't take me long to tell the difference in the tools I use.

"I know a fellow who took an old Simonds (pronounced Si-monds) Saw, chopped a piece out of it and made himself a fine razor.

"The reason a Simonds Saw holds its edge and lasts so long is because there's better steel in it."

The price of 24-inch or 26-inch Simonds Hand or Rip Saws is \$2.50. If not at your Hardware Dealers, order direct from us. Sent postage paid on receipt of price.



SIMONDS MANUFACTURING COMPANY

17th St. & Western Ave.
CHICAGO, ILL.
NEW YORK CITY
PORTLAND, ORE.

FITCHBURG, MASS.

NEW ORLEANS, LA.
SAN FRANCISCO, CAL.

St. Remi St. & Acorn
Ave.
MONTREAL, QUE.

MEMPHIS, TENN.
SEATTLE, WASH.
ST. JOHN, N. B.
LONDON, ENGLAND

SARGENT

Other Sargent Quality
Tools are described in the
Sargent Tool Book, a
handbook for me-
chanics sent on
application.

No. 53.

A light floor or veneer
Scraper with wood face to
lessen friction.

A useful and convenient
tool, low in price.

For full description of this
and other

SARGENT WARRANTED PLANES

SEND FOR SARGENT PLANE BOOKLET

SARGENT & COMPANY

Makers of Squares, Planes and Mechanics' Tools

1149 Leonard St. New York

Much Interest Shown In Lumber Advertising

April Ad Puzzle Prize Contest

BRINGS OUT ENLIGHTENING FACTS CONCERNING THE USE OF ADVERTISED GOODS BY CARPENTERS AND BUILDERS—LUMBER AND OTHER BUILDING MATERIALS CONSIDERED O. K. IF THE MANUFACTURERS ARE WILLING TO SUBMIT THEM TO THE HIGH COURT OF THOSE WHO KNOW.

IN presenting the April Ad Puzzle Prize Contest, in which we asked the four questions concerning the use of lumber and lumber advertising, we were sincere in our desire to obtain some reliable, first-hand information bearing on this subject. We really wanted to find out how the average building contractor feels about building material advertising, and by this we mean, not the little local ads, but the big national campaigns.

We wondered if builders generally are taking full advantage of the interest that is being worked up on certain general classes of building materials or on certain specific brands by means of wide publicity campaigns through the popular magazines, newspapers, building journals, etc.

It is easy for us, or for anyone else, to sit in the office and spin theories about how things ought to be, and then to jump to the conclusion that they are that way. We are not contented, however, to follow any such easy course. It is, and always has been, our rule to get out among the builders themselves and find out from actual investigation the real facts of any proposition.

So in this instance, taking advertised species of lumber as a typical example of advertised building materials, we have been sincere in our effort to get at the truth. And we are very glad to announce that our readers have given us a very valuable fund of information.

The testimony of three builders in widely separated parts of the nation is interesting and at the same time typical of most. W. H. Bryant, Designer and Builder, Hemet, Cal., writes:

"1st. Because of my location, a long distance from shipping centers, freight rates very high, it is difficult for me to buy any lumber other than that general-

ly sold here. I have, however, been interested in your advertising of oak flooring and have been able to interest my customers and have bought oak flooring from Los Angeles (the first used in this vicinity), using it in several houses of the better class.

"2nd. In this locality the building owners rely largely on the advice of the architects, contractors or builders.

"3rd. In my experience the most effective way to advertise a building material is through the architects and builders. This is an age of specializing, whatever we want to have done for us, we go to those who have fitted themselves for that line of work and devote their time to it. We not only have them do for us what we want, but we rely almost entirely on their advice in the way it should be done.

L. W. H. Gradisky, Carpenter and Builder, Hartford, Conn., writes:

"I think it necessary to advertise in the popular magazines to put the merits of building material before the general public, and also to advertise in the building magazines to keep the builders posted so that they can recommend and can answer all inquiries made by prospective customers.

"It certainly has a greater influence with me, seeing material advertised in the building papers than in the popular magazines or women's papers, as it seems to me that if one has a reliable building material he would appeal direct to the builders."

And Mr. A. B. Campbell, of Marcus, Wash., writes:

"I thoroughly believe in the advertising in my own building magazines. Such advertising has 100 per cent more influence with me than the same ads in any of the popular or women's papers. As

a consequence, I write for a better acquaintance to every new ad that appears in my building magazines. I have samples and data from over 50 per cent of the 'A. C. & B.' advertisers. I was the first in this town to use the Cott-a-lap Co. product. First, by getting their samples and showing them to my customers; then purchasing the goods from a dealer in this city. This all happened because of 'A. C. & B.' advertising. And the same holds good regarding my tools and machinery, much of which I have purchased through 'A. C. & B.' ads."

From a study of all of this material and from other sources, it is evident that the builder is the most important link in the chain that connects the manufacturer of building materials with the actual sale and use of his material, and that to have the most effective publicity and sales campaign, the approval and co-operation of the builders must be secured.

Prize Winners in the April Contest are the Following:

First Prize, \$10.00 worth of goods selected from our 24 pages, W. H. Bryant, designer and builder, Hemet, Cal.

Two Second Prizes, each consisting of \$5.00 worth of good selected from our ad pages:

L. W. H. Gradisky, carpenter and builder, Hartford, Conn.

A. B. Campbell, Marcus, Wash.

Third Prizes, each consisting of \$1.00 worth of goods selected from our ad pages:

Elijah Jones, contractor and builder, Greenville, Ill.

E. C. Shilling, Blue Rock, Ohio.

C. R. Bartholomew, contractor and builder, Castlewood, S. D.

George L. Story, Waterville, Vt.

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CHICAGO SPRING BUTTS

REPUTATION

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



Chicago "Relax" Spring Hinges

are in great demand. They are substantial in construction and readily applied. The EXCLUSIVE FEATURE of spring action release, allowing the door to be placed at any desired position and automatically re-engaging when the door is closed,

is of recognized merit and utility.

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

Chicago Spring Butt Company

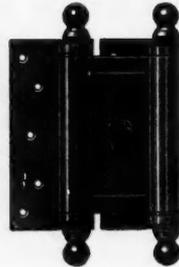
CHICAGO



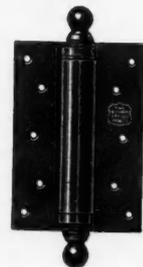
NEW YORK

Yes! the World does Move!

Facts are Stubborn Things



**Don't Buy
SPRING HINGES
OF
OBSOLETE
CONSTRUCTION**



ONLY

Bommer

DOUBLE ACTING

Spring Butt Hinges

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.

YOUR HARDWARE MERCHANT CAN SUPPLY THEM

Bommer Bros., Manufacturers Brooklyn, N. Y.

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.

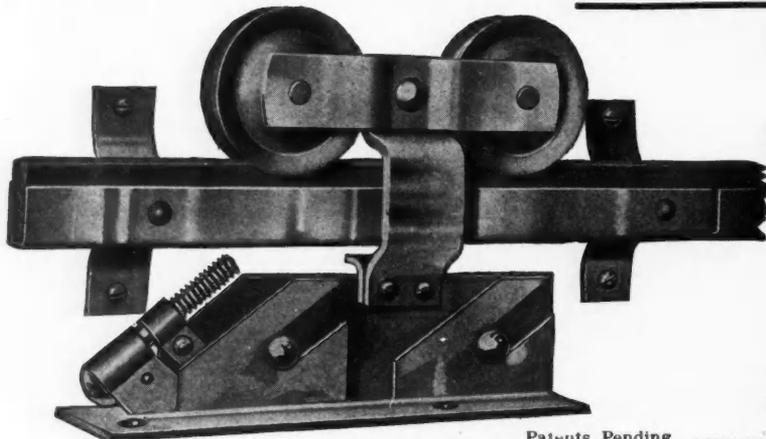
**No
Guess Work
with a
MORRILL SAW
SET**

Simple and accurate. The only Saw Set a carpenter should use. Takes out the wrong set and puts in the right set at one operation.

The eccentrically beveled anvil is so indexed that you can see what you are doing. Gauge screw and locknut keeps work uniform.

FREE "Saw Points" a valuable Booklet.

**Chas. Morrill, 94 Lafayette Street
NEW YORK**



Patents Pending

IF YOU HAVE NEVER USED SHARON No. 2 PARLOR DOOR HANGERS

Don't fail to try a Set

No Cutting, Grooving or Counter-sinking needed.

Fits any width opening. Simple and always accessible adjustment.

Its smooth, easy, absolutely noiseless running has never failed to please. Money-back guarantee.

Write the

SHARON HDW. MFG. CO. SHARON, PA.

JUN -5 1914

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The World's Greatest Building Paper

Important Notice

When your subscription expires, renew at once, using the blank enclosed in your final copy. If it expires with this issue your renewal must reach us before June 25, to avoid missing the July number. Use P. O. or Express Money Order if possible, but bills or 2-cent stamps may be sent at our risk.

The World's Greatest Building Paper

American Carpenter and Builder

Entered as second-class matter July 1, 1905, at the postoffice at Chicago, Ill., under the act of Congress of March 3, 1879.

Published on the first day of each month by

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RADFORD BUILDING, 1827 PRAIRIE AVE., CHICAGO

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ADVERTISING RATES

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. XVII.

JUNE, 1914.

No. 3

Architect Must be Versatile

By William Holabird

Senior Member of Notable Architectural Firm of Holabird & Roche, Chicago

THE field of architecture is not overcrowded. In fact, the contrary obtains. Today the young man who wishes to become an architect has splendid advantages, far better than those at his command a decade ago.

To become a successful architect, however, he must qualify in many things. He must have good habits, a steady nerve, be industrious, and have mastered the rudiments of the profession. Above all these, he must have integrity, because he is compelled to handle constantly funds that belong to other people.

In selecting a vocation, he must have a fondness for it. If he chooses a profession for which he has no liking, his success will be greatly handicapped. No man, to my knowledge, ever has attained high honors in a calling for which he has a natural aversion. I think that is one of the great dangers which parents and advisers are too prone to overlook. They indiscriminately choose a young man's business for him and as a consequence, caring little for it, his progress suffers. All sorts and conditions of men are to be found today who complain about the unattractiveness

of their calling and who wish they had made a more fitting selection of their life's pursuit.

Too Many Work Mechanically

Of course, to be an architect and a successful one, a young man must be an architect in all the term implies. He cannot enter the profession half heartedly. He must work untiringly, faithfully. I would venture to declare that 80 per cent. of the young men following the various professions of today, do their work mechanically and without full knowledge of details. They have not mastered their chosen calling.

The young man who determines upon architecture as a means of earning a livelihood, must be pretty thoroughly educated. He must know mathematics in order to learn construction. He must be able to draw both mechanically and free hand; have a conception of coloring, and be able to do water color and oil work to a minor degree.

It is possible for him to educate himself by working during the day and studying at night. We have had instances of young men entering an architect's office,

boarding themselves, and supporting families, and finally saving enough money with which to take a course in European colleges.

No Short Cut to Top

Architecture is not difficult to learn if the young man is willing to work and acquire knowledge. He must start at the bottom. There is no short cut to success, and none of the men who have reached the top ever found a quick route. They all succeeded in the same way—by plodding, conscientious effort.

The remuneration received by successful architects is only fair. We have not increased special charges and rates as they should be increased. The architect, however, earns as much, as a general rule, and perhaps a trifle more, than do those who follow similar professions. He gets good fees, of course, but when he has paid his draftsmen and the various kinds of engineers he must employ, the major portion of those fees go to his employes. But they are an independent lot, are these successful architects, who never are out of employment.

I would advise any young man who has a yearning to become an architect to enter the profession without fear of the future. His success will depend upon his ability to grasp the essential and minor details that spell "fitness." He cannot be a shirker. He must stick to his work and study it incessantly. Even the most successful architect does not know it all. New and greater things are being done every day. He must keep abreast of his business.



SPELL NOW backwards and you have WON.



Wage Rate is Higher in 40 American Cities

BUREAU OF LABOR STATISTICS REPORTS WEEKLY COMPENSATION IN SIXTY PRINCIPAL INDUSTRIES IS INCREASED

THE average rate of wages per week in forty of the leading cities of the United States for more than sixty of the principal industries was higher on May 15, 1913, than on May 15, 1912, with the single exception of the mill work carpenters, which showed no change, says a statement just issued by the Bureau of Labor Statistics.

The greatest increase was for marble setters, which was 6.6 per cent.

Of the more important trades, the following increases in weekly rates of wages between May, 1912, and May, 1913, are given:

	Per Cent Increase		Per Cent Increase
Bricklayers	1.7	Plumbers and gasfitters.....	3.1
Carpenters	1.7	Structural iron workers.....	2.6
Hodcarriers	1.3	Stonecutters	2.2
Painters	4.2	Iron molders	5.3
Plasterers	1.0		

Highest Scale Per Hour

The highest scale per hour paid in May, 1913, in the above trades were as follows:

Bricklayers, 87½ cents, in Dallas and San Francisco.

Carpenters, 65 cents, in Chicago.
 Hod carriers, 50 cents, in Portland, Salt Lake City, and San Francisco.
 Painters, 65 cents, in Chicago.
 Plasterers, 87½ cents, in San Francisco.
 Plumbers and gas fitters, 81¼ cents, in Seattle.
 Structural iron workers, 75 cents, in San Francisco.

Stone cutters, 70 cents, in Portland.
 Iron molders, 50 cents, in San Francisco.
 The Bureau showed that thirty-four trades showed a reduction of hours between May, 1912, and May, 1913, twenty-eight reported no change, and one reported an increase.



Preserving Plans for Buildings

MANY DOLLARS CAN BE SAVED BY INSTITUTING CAREFUL SYSTEM

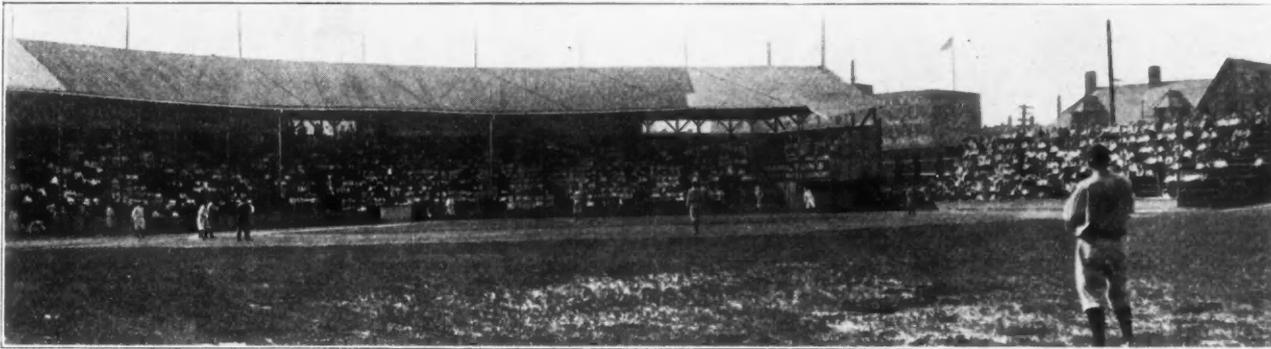
ALITTLE stunt which has been put into use in a certain builder's shop may be suggestive to others. Every set of plans which has been used in building a house is kept, and is placed in a rack with others of the same season. Thus, if an owner desires to have a building duplicated, it is not necessary to go to the structure and look it over, drafting new plans for the work, but reference can immediately be made to the old ones and the work done accordingly.

The racks are dated, the plans for each year going into the place provided for them. A tag is tacked on each, upon which are written the names of the owners for whom the work was done. Plans are retained as far back as 1895.

When any information is needed as to a certain building, as in the construction of an addition, there is never any question about it; the plans are gotten out and the exact figures on the job are presented.

"Before we arranged this system of filing them," said the head of the concern, "I must confess that very good care was not taken of them. We did not throw them away, it is true; but they were allowed to lie around without any especial effort being made to systematize the proposition, so that it was a day's labor to secure any particular set of plans that happened to be wanted. Now, however, it is a matter of instant reference, and there is no delay about it. We have saved many a dollar by being able to give immediate information and estimates on putting up a house 'like that of Mr. Jones you built for him four or five years ago,' as the inquirer tells us."

All of this may sound to the hypercritical as going too far with little things. "Penny wise and pound foolish," someone may say. But when it is remembered that the biggest businesses in the world are those which are most careful to stop the tiny leaks, and that the little losses are most dangerous because they are hardest to locate, the advantage of looking after details and economizing at every turn will be realized and appreciated by every wide awake and up-to-date carpenter and builder in the country.



Play Ball!

THE PLANNING AND CONSTRUCTION OF GRANDSTANDS FOR BASE BALL PARKS
AND FAIR GROUNDS

By Leonard Lytle

With The Lytle Construction Co., Sioux City, Iowa

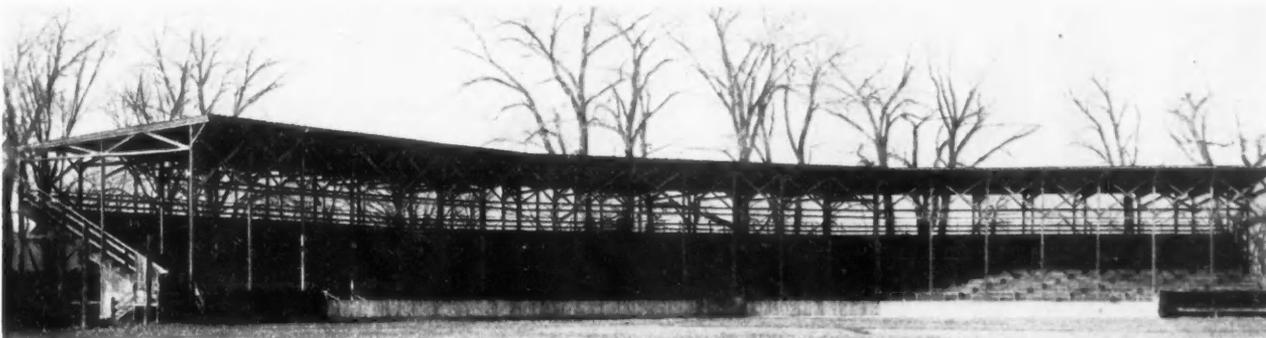
A CARPENTER and builder is likely to be called upon to build an unusual kind of a structure on very short notice. The man who possesses a broad knowledge and who can give advice, and be able to talk intelligently concerning any of these unusual structures, is the man that is most likely to be selected for doing the work. There are a great many things outside of the building of houses and barns on which it is well for the carpenter and builder to keep himself posted. Skating rinks, theaters and grandstands are only a few of the many things along this line. The base ball season is here, and there will be hundreds of new grandstands erected all over the country. While the fair season does not start until late in the summer, the management of many of the county and state fairs frequently start to work to repair and remodel their buildings in the early spring.

In the building of a grandstand, it is of the utmost importance that the spectators will have the sun at their backs, and not in their faces. Grandstands are always occupied during the afternoons, and as much as possible the stand should be made to face the east or north, or northeast. It is very annoying and trying on the eyes and nerves to sit on a hot day and look into blinding sunlight to see a ball game or horse racing. In Mexico, where bull fighting is the national pastime, the rings are always built circular, with seats for spectators all the way around, rising gradually by

steps as they do in our grandstands. At the back, the seats may be some 30 to 40 feet above the ground, and the height of this part of the building at 4 o'clock in the afternoon, the hour at which all bull fights commence, casts a shadow over about one-half of the entire seating space on the west side. These seats in this space are known as "Sombra," while those on the sunny side are "Sol." These words, of course, mean shade or sun. As could be expected, the seats in the sun are the cheaper.

It will be well for the builder not to forget this phase of grandstand construction, that the spectators' backs should be to the sun. At Sioux City, Iowa, at the grounds of the Interstate Fair Association, a very large grandstand has been in use for several years, which faced to the southwest. The discomfort of the spectators was very great on bright days, and the complaints were numerous. Two years ago, the fair management decided to change their mile track to a half mile track, and at the same time to erect a new grandstand, this time setting it in the proper way so that it would face nearly east. The improvement proved very popular and successful at last year's fair.

Formerly all grandstands were covered with gable roofs, and the writer believes that nearly all of those grandstands in country towns have such roofs today. The new grandstands that are being put up have flat roofs. Of course, when we speak of flat roofs, we



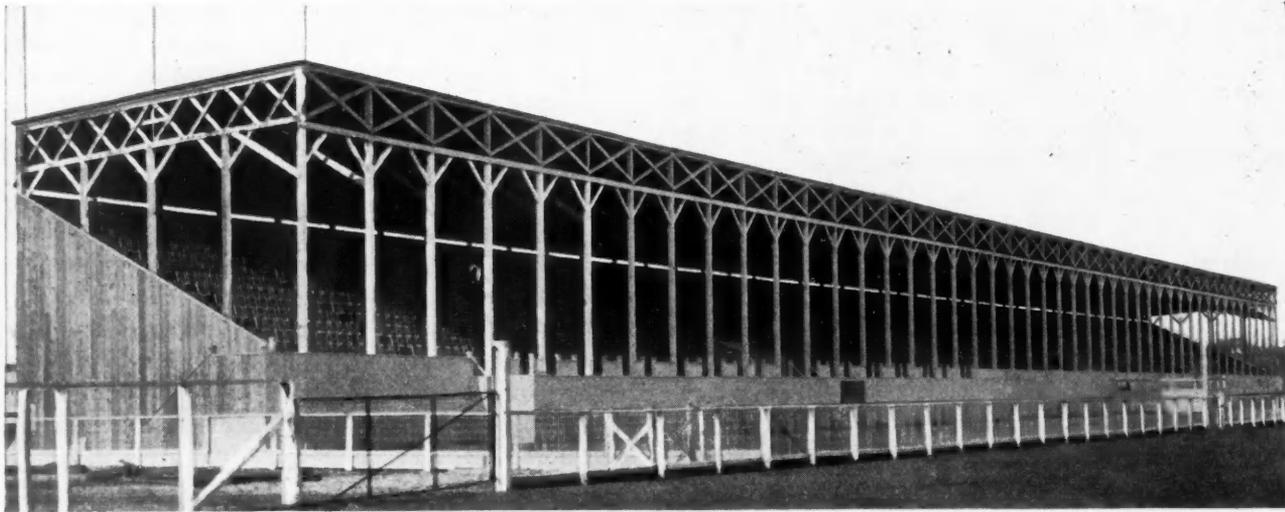
Base Ball Grandstand 252 Feet Long with Seating Capacity of 3,500.

do not mean that they are absolutely flat. They slope from the front to the rear, about three-eighths of an inch to the foot. The upper surface is covered with a gravel roof, or can be covered with many of the composition roofings which are on the market.

The first photo shows one of the grandstands erected by the writer about 8 or 9 years ago. It has one of the old fashioned gable roofs, which were in vogue at that time. The roof is supported by light timber trusses, which were made up on the ground and hoisted into place by means of a gin pole. This grandstand is 216 feet long, and has a seating capacity of 2,500. The entire building, including the bleachers and fence 20 feet high around the field, was built by the writer under a rush order in 10 days' time. The footings supporting the weight of the grandstand are made of cinder concrete, mixed about 1 to 6. The cinders were screened and the concrete was mixed and placed in a rather wet condition. It is now, after

are located near the front. The fronts of both of these grandstands are covered with wire mesh or poultry netting, to prevent spectators being hit with the ball. There are booths provided for each team, and in the center is a box for reporters and telegraph operators. As grandstand number two is built in the midst of a very beautiful park, the ordinary high board fence would be an eye sore, and to get around this the management has a canvas fence with which they enclose the ground whenever a game is going on.

The third photograph shows the large grandstand which was built to replace the one torn down at the Interstate Fair Grounds at Sioux City, Ia. The old grandstand had a gable roof and the new one was put up with a flat roof. The material from the old structure was worked into the new grandstand. This building, unlike baseball grandstands, is built in a straight line, as the race track runs straight, or nearly straight at this point. The building is 462 feet long and



New Grandstand at the Interstate Fair Grounds, Sioux City, Iowa,—462 Feet Long, Seating Capacity 5,000.

all these years, in a most excellent condition, and the writer would not hesitate to use this kind of concrete for any light structure of this kind.

It can easily be seen that a grandstand with a gable roof is a much more expensive proposition than one with a flat roof, on account of the great amount of extra lumber required and the extra amount of roof surface. It will be noticed that it was necessary to put up a gutter along the front of the building in order to keep the water from dripping down and interfering with the spectators' view. Of course, a game could not go on if there was a very heavy rain, but it was found that even a light shower often caused a dripping from the roof that would last for quite a while. In a flat roof grandstand this trouble is done away with, as the water is thrown to the back of the building.

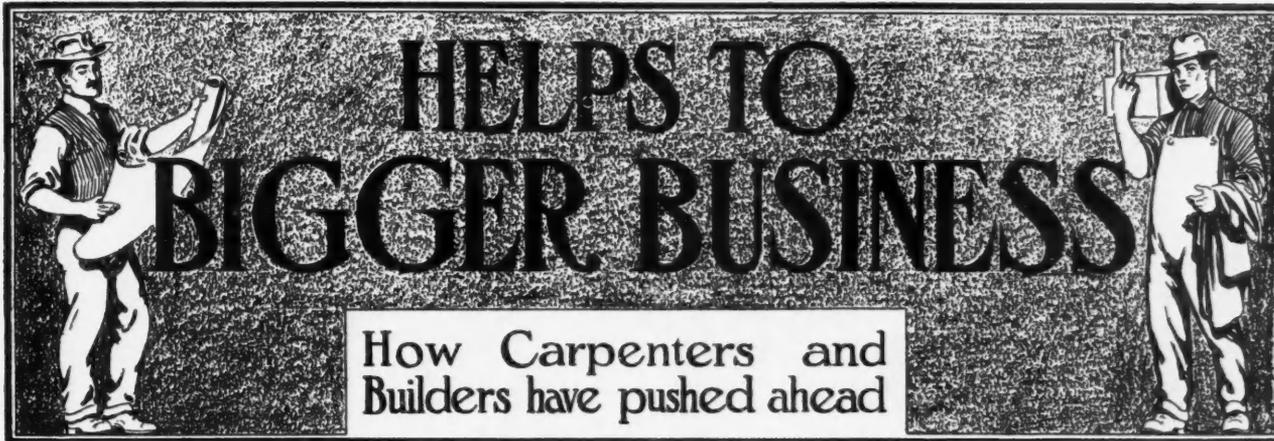
The second photograph shows a large baseball grandstand which is 252 feet long, and has a seating capacity of 3,500. Spectators enter the same as they do in the one just described; that is, by means of a large outside stairway, and by inside stairways, which

has a seating capacity of 5,000. Boxes are provided across a portion of the front. The higher priced seats are directly opposite the judges' stand.

Every now and then we read of some terrible accident happening when a grandstand collapses at some Fourth of July celebration, President's Inauguration, or some great military review, etc. Every builder should take no chance that he may be the cause of the loss of many lives on account of making a flimsy structure. Do not be afraid to make the structure stronger than necessary. The giving away of one girder may cause the injury or death of hundreds of people, and the disgrace and perhaps punishment of the builder.



SPEAKING ABOUT MORTISING MACHINES. In a cabinet shop, I know of a case, where the tapered shank of a mortising chisel would not stay in the plunger. A mill machinist rubbed a little powdered rosin on the bit shank and the two held together happy ever after. W. M. C. JASBURY.



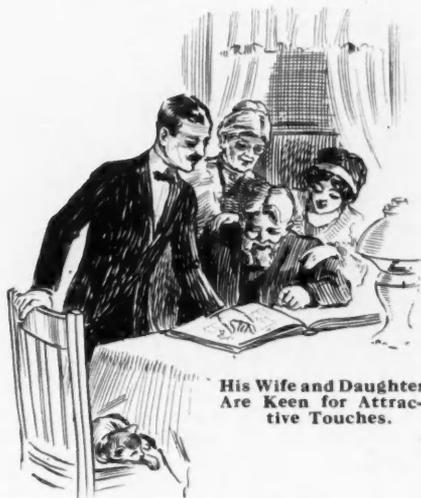
How to Build Up a Rural Business

By Dick Dickinson

IN spite of his prosperity, many a farmer still builds an old-fashioned house with an "L" and poorly devised barns. And the newer, money-saving improvements, as silos, manure pits and cement structures, are very slow in finding favor with him.

Here is a great field for the carpenter and builder in a country town, a great part of whose business

comes from the farmers. He has but to get in touch with the best in agricultural progress, be prepared to suggest and carry out, and, with an eye for advertising, his country trade will expand greatly in volume and quality.



His Wife and Daughter Are Keen for Attractive Touches.

True, the agricultural papers are constantly dinning these new things into the farmer, but he still holds back. It doesn't take like the man on the ground who can show him. He is suspicious of most things that come to him through the books or on paper.

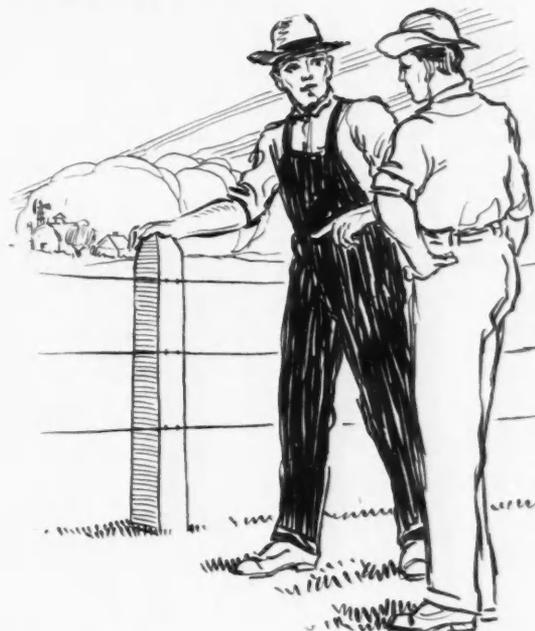
Getting the Farmer Started

The next time you are asked to figure on a farm house, get a plan-book of various kinds of structures. Talk the matter over with the farmer, and be prepared to make suggestions. Be sure to bring his wife and daughters into the conference. They are the keenest for the attractive touches that take the humdrum and monotony out of country life. Don't force anything upon him, or insist on anything beyond what he thinks he can afford. He may have seen hundreds of such plans, but they won't have the appeal that you can make in a short talk.

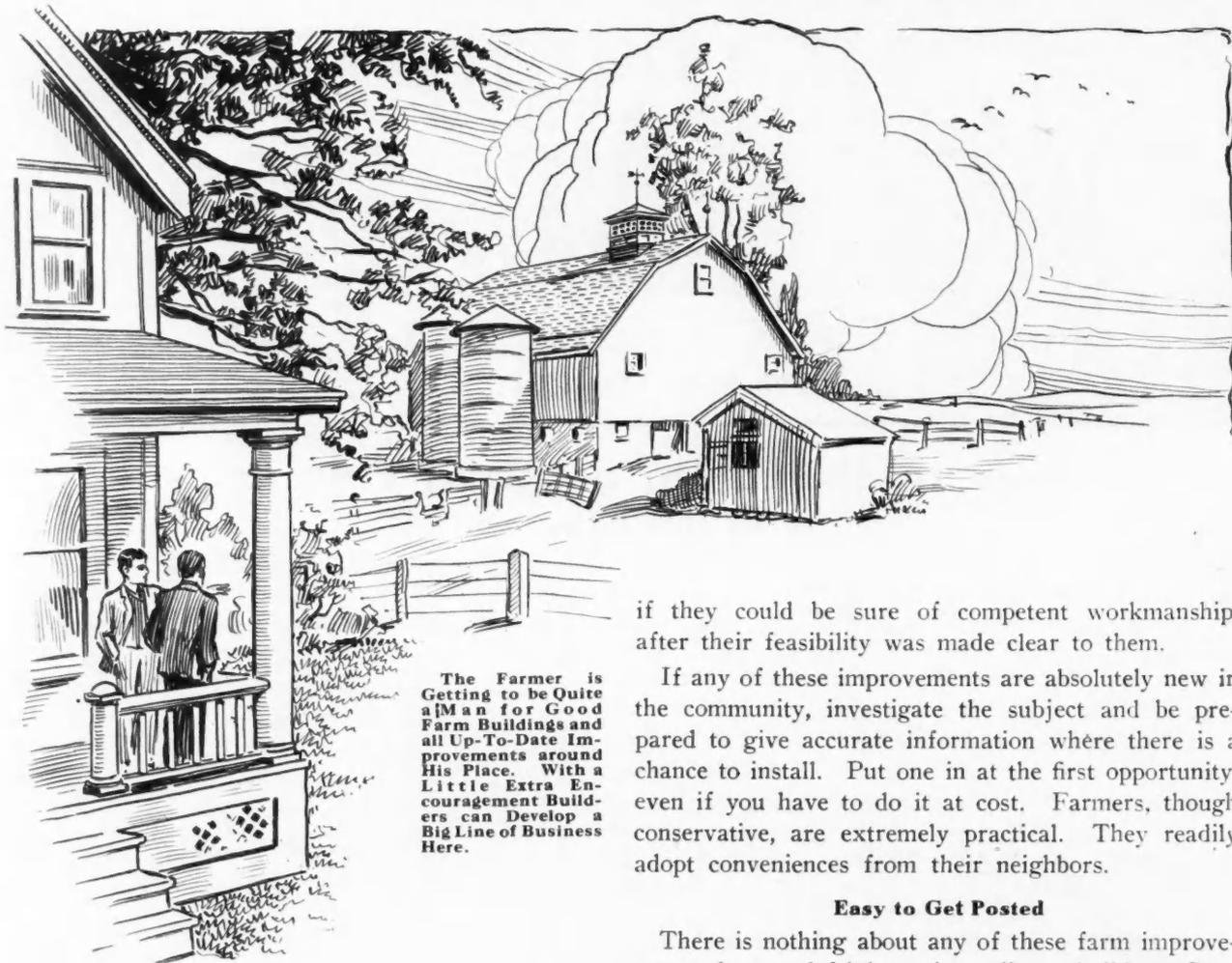
If his new house departs ever so slightly from the cigar-box type of architecture, you have entered a wedge for a good run of business in that neighborhood. Farmers are more democratic and of more uniform financial ability than your patrons in cities. An attractive bungalow, with labor-saving arrangements, takes mightily among them. For years afterward they will come and ask you to build them a house "like you built for Brown." They have been shown.

Other Farm Structures

But don't stop here. Be equally prepared, no matter what farm structure is under consideration, to offer suggestions according to the farmer's financial ability. You will find them in plenty in the better agricultural papers, as well as in numerous books. One or two good periodicals are now published, devoted exclusively to farm engineering. The advertising columns of a farm paper will direct you to unlimited sources of information.



Many Farms Do Not Even Have Cement Fence Posts.



The Farmer is Getting to be Quite a Man for Good Farm Buildings and all Up-To-Date Improvements around His Place. With a Little Extra Encouragement Builders can Develop a Big Line of Business Here.

The permanency of cement structures appeals to farmers, but in general they know little about their construction or possibilities. In many communities you will not find a single cement post. The first fence you build is sure to bring good business.

Troughs, root cellar, corn cribs, silos, manure pits, and a great many other things can be built to advantage of concrete. The farmer knows it in a way, but he needs educating.

A manure pit will prevent a 50 per cent loss of the fertilizers in the manure due to leaching. A silo, of whatever material constructed, will save as great or greater a per cent of stock provender. It is a proven fact that feeding without silos is one of the greatest wastes on American farms.

You will have to be prepared to show some of these advantages, but it is not a complicated subject. The first silo or manure pit in a neighborhood means many more. They are catching.

Farm Lighting Systems

And there are not a few communities where the farmers have never seen an air-pressure water system, or an acetylene or electric light plant on a farm. They are entirely practical, and the more progressive farmers have them. Many more would install them

if they could be sure of competent workmanship, after their feasibility was made clear to them.

If any of these improvements are absolutely new in the community, investigate the subject and be prepared to give accurate information where there is a chance to install. Put one in at the first opportunity, even if you have to do it at cost. Farmers, though conservative, are extremely practical. They readily adopt conveniences from their neighbors.

Easy to Get Posted

There is nothing about any of these farm improvements that need frighten the ordinary builder. Go a little out of your line and be prepared to show their advantages and cost. Have the information ready to be used at the first opportunity. Information can be gotten from a few modern books on farm engineering. One or two thoroughly up-to-date agricultural papers will keep you posted on new advancement.

You need not be fearful of the business that will follow. Farmers can now afford these improvements. It is only a question of being shown.

It not only means business, but there is a good satisfaction and honest pride in feeling that one has been largely responsible for the modern school building, attractive homes, labor-saving equipment and general improvements in a community.



Roofing Over Gambrel Joint

To the Editor:

Rushville, Neb.

In answer to Mr. Russel Scofield's Roofing Question in March number, wanting to know how to shingle over the bend in a gambrel roof so as to do a good job, I have used galvanized iron cut into strips 6 or 7 inches wide, letting it lap down on the last course 4 or 4½ inches and nail down well. After nailing you can bend it over and nail down occasionally. Then proceed with your double course of shingles over the hip, letting them project about 1½ inches.

A. STILES,

Contractor and Builder.



Adventures in Home Building

My Hollow Tile House

By **Ralph E. Morrison**
Editor of the Kansas City Star



DID the advantage of living in an ice chest ever appeal to you? Aside from rather cramped quarters I have often envied the tomato its ice chest apartment. "Who is a tomato that it should be cool while I swelter?" I asked.

I am answering that question by



On top of the concrete foundation the men laid a damp proofing course of asphalt soaked paper to keep moisture from creeping up.

beginning to build a house along what I conceive to be the ice chest idea—the nearly air-tight compartment within the outer walls. The reason for this comparison is that the temperature within the ice chest stays for a long time the pitch at which it is put. An advantage, this, in the extremes of winter or summer.

I am going to build my house of hollow tile, faced on the outside with stucco, having the appearance of any stucco covered house.

The outside walls of the house will be fireproof, damp proof, heat proof, cold proof, wind proof, vermin proof.

They will be built of hollow tile from the bottom of the basement up to the roof,

making the basement as warm and as damp proof as any part of the house.

Along with the idea of building this kind of a house, came two surprises. I was at first amazed to think that these advantages which appear so apparent to me had not long ago appealed with equal force to others. "So," I said, "I will be doing some pioneering."

Second surprise came when I found I was not a pioneer at all. I am finding the use of hollow tile for residences to be a practice years old in Europe. Yesterday a man whose younger years were spent in his native Austria was telling me that even at the time he left Europe many of the better houses in the outlying districts of Austrian cities were of hollow tile construction.

That is a condition that should not be. The ocean should not separate us from knowledge. If Europe has long recognized hollow tile as a competitor of wood, brick and stone, we who build homes in this Central West should have had the same choice. Great corporations, who see millions in the saving of a penny, have the world for a school-room. But the individual, lacking co-operative facilities, learns slowly that which may be much to his benefit and

which may be well known to another people than his immediate neighbors.

At the beginning of my investigation I was led to believe that the construction I was after was very expensive. I have proven to myself in figures from

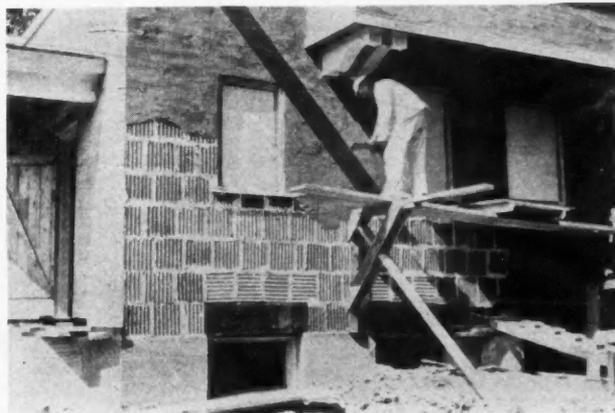


The masons had to do a lot of leveling and plumbing to get the window and door frames set just right.

actual bids on the entire work in the house that anyone able to have a house built can afford fireproof tile, for the cost is not much more than frame and stucco construction.

I have built other houses of the customary materials, and have not been satisfied. They have been hot in the summer and cold in the winter. I wanted a house that would be as pleasant in temperature 110 in the shade as when the thermometer is 20 degrees below zero, either of which is reached sometimes in Kansas City.

One day I met a man who had been an engineer in many of the countries of Europe. He told me how hollow tile had been used for a long time



After the tile walls were laid a cement plaster finishing coat was put on. This will never crack.

in government buildings and higher class residences in Russia, Austria and Italy and many other countries. He told me also of the rapid spread of this construction in this country.

I had seen the queer-looking blocks several times being used in walls of office buildings and public garages. I began to watch the construction and ask questions of the men putting up the tile. It was so simple and easy.

I learned the reasons for the use of the material.

The hollow tile has been proved to be an absolute non-conductor of heat, cold or dampness. This has been done before proper experts. In a recent hollow tile show in Chicago it was demonstrated to representatives of a packing company how hollow tile was a good material to use in walls of their refrigerator coolers.

I am satisfied because of the thoroughness of my investigation that these representations are true.

I read in books concerning hollow tile. Then I interviewed architects and builders concerning it.

I was told of the water test, how water at a tremendous pressure had been held for many hours against a hollow tile wall without dampness penetrating the first hollow of the tile. An intense heat was placed against the same wall and on the other side there was no change in temperature. I learned the strength of the material and was satisfied.

"We are furnishing hollow tile to be used in skyscrapers, apartment houses, warehouses and high school and other public buildings in this section of the



The Outside and Inside of a Well Designed Bay.

These photographs made at the residence of Miss M. L. Bradford, Magnolia, Massachusetts, convey some fine ideas for artistic home building. The design is by Architects Everitt and Mead, of Boston.

The structure is something of a summer cottage and is accordingly roughly finished within. The studs show and the inside of the matched siding serves as the finish in this room. All was stained a mellow brown.

But what about the bay window? It is an oriel bay, composed of four windows along the front and one set angling at either end. The end windows and the two outside ones of the center group are divided into three rows of small panes. These windows are all fixed sash. The two center windows of the group are narrower, containing only two rows of small panes. These windows are outward opening casements.

The window sill serves as a broad shelf and holds growing plants and flowers and other knicknacks. The whole group of windows is curtained, instead of attempting to drape each separately.

This bay window looks out onto a porch. The cottage is sided with shingles stained brown. The white trim makes a striking contrast.



My hollow tile house is a beauty. Rather English in appearance. It suggests Shakespeare—very much up-to-date.

country," the hollow tile concern told me. "The demand for this material for this class of construction keeps us going to the limit all the time to supply."

The tiles are hollow, but with supporting partitions. The clay or shale is non-absorbent. The idea is that the air spaces in the tile make it an absolute non-conductor.

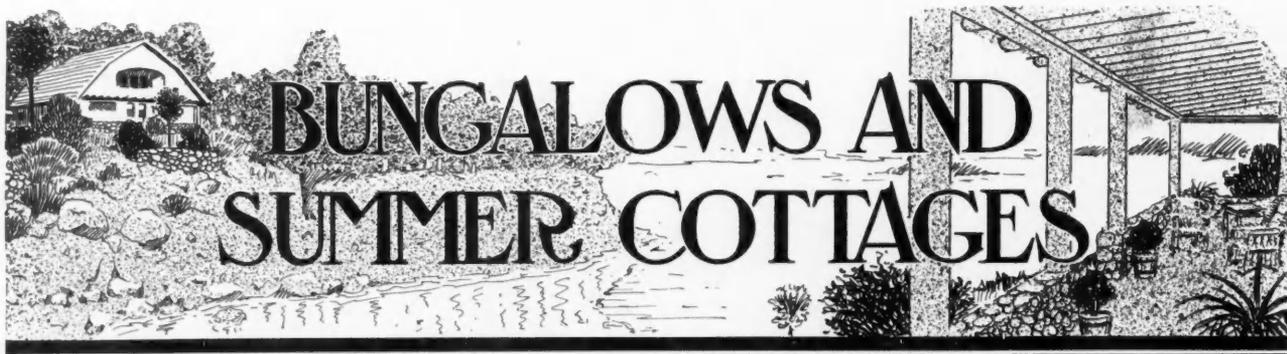
If this is true—and I am sure of it—one can easily guess how warm and how cool a house I am going to have. The hot sun of the summer and the cold winds of the winter will be equally impotent.

The heating will be very easy and cheap. Proper ventilation is all I need to provide for the interior. Most frame houses become unendurable in the summer because with the sun beating upon them they become veritable ovens. How nice and cool the non-conducting hollow tile will make my home.

And the beauty of it all is that the price is within the means of almost anyone who can afford a popular priced home.



Library, Den or Living Room with Extra Heavy Timbered Ceiling; the Paneled Wainscoting, Massive Brick Fireplace and Pictorial Landscape Border are all in Harmony with the Spirit of this Apartment. The Mission Furniture was Very Appropriately Selected. The Outside Wall of This Room, Just Visible at the Extreme Right of the Picture, is Practically all Window Space.



IN a general way it is understood that summer cottage building differs in several important respects from the accepted practice for ordinary residence work. At this time of the year, when the warm weather looms up ahead and the wise ones are planning for vacation time, it is in order to point out briefly some of the leading features of rustic summer building and to present some suggestions and designs that should help the carpenter when called on to do this kind of work.

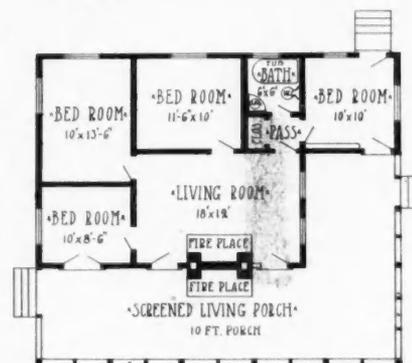
The points to be considered in summer bungalow or cottage building naturally group themselves under four main divisions—design, arrangement, construction and finish.

The location and surroundings of a summer cottage should determine its style and general outward appearance. So first study the building site. The

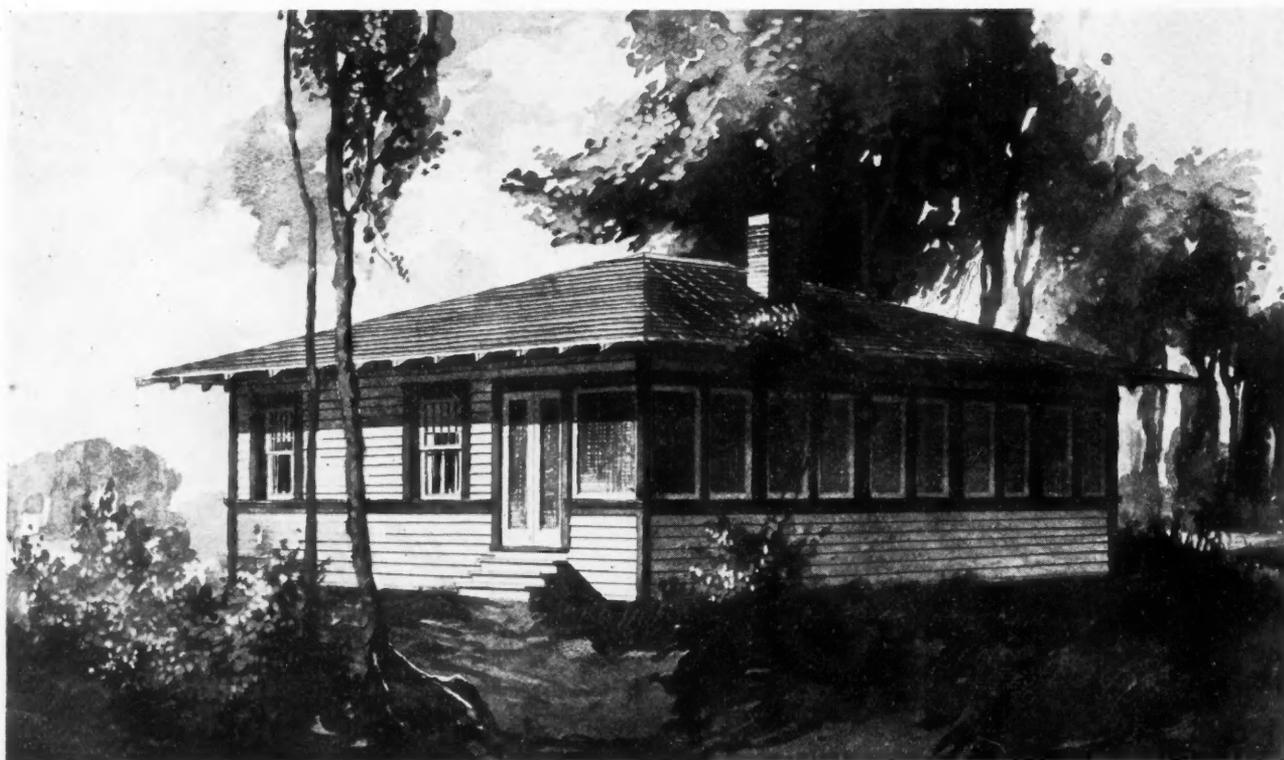
rounding crest of a knoll is the ideal spot, assuring good drainage away from the building and keeping it free from dampness, even when built down close to the ground. Accordingly, for such a site a one-story cottage with the floor only two steps above the ground and with a low, broad roof, is suitable. This is the popular lake-resort cottage, and is usually given a comfortable, rustic look by having the side walls shingled or covered with rough stained boards. For a hilly site, on the other hand, as in mountain resorts, level spaces of any great size are scarce, and two-story "cottages" are accordingly more economical to put up; and when covered with slab siding, pole rafters showing, have a rustic appearance harmonizing well with the natural surroundings.

But no matter where located, summer

cottages should be designed to look comfortable and easy; they are essentially unconventional, being built more for use than for looks. For this reason, the simple, straightforward designs are the best, and anything elaborate is out of place.



Floor Plan, Size 40 by 34 feet.



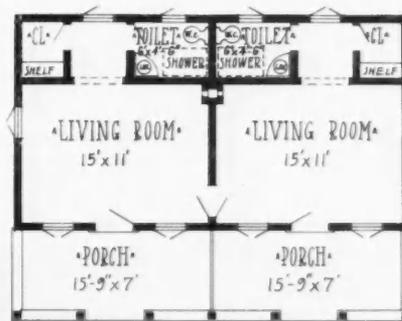
Shore bungalow of square plan. A broad, low hip roof design containing five rooms and bath besides very large screened-in porch. This makes a delightful summer home and can be built very cheaply. This was originally designed for a prominent Chicago advertising man and it is said to be one of the most attractive summer cottages of the western Michigan resort district. Size 40 feet by 34 feet. We can furnish complete set of blue-printed working plans and typewritten specifications for only \$5.00 per set. When ordering, ask for Design No. 6600.



Double cottage of two rooms and big front porch; a very practical design, as it can be used by two separate parties, or thrown together and used as one house. Each living room is large enough for both eating and sleeping. Size of building, exclusive of porch, 31 feet 6 inches by 17 feet. We can furnish complete set of blue-printed working plans and typewritten specifications for only \$5.00 per set. When ordering, ask for Design No. 6599.

As far as the arrangement of space inside the summer cottage is concerned, three things should be provided—a good, roomy porch—preferably screened in—for hammocks and rockers and general outdoor living when the weather is right; a good, big living or assembly room—can also be used as dining-room and should have a good, practical wood grate for use on the rainy and chilly

evenings; and third, plenty of sleeping accommodations. A favorite arrangement for some of the larger cottages is to have a central living hall, with high ceiling formed by the roof, and small bedrooms on each side in a double tier, the upper ones reached from a balcony. If, in addition to these three things, suitable closet space and bathroom with good plumbing can be provided, all the



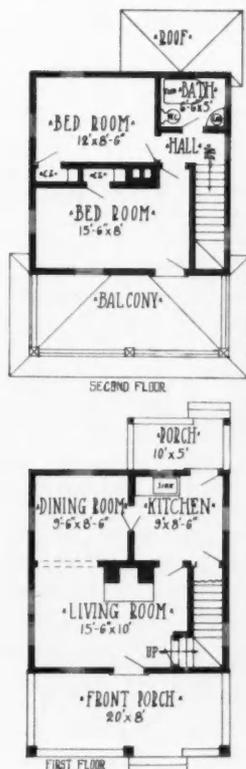
Floor Plan, Size 31 ft. 6 in. by 17 ft.

comforts of an expensive city home are secured.

The construction of a cottage for warm weather use only does not need to be anywhere near so solid and thorough as that ordinarily employed for houses. Cedar posts are the accepted foundation material; drop siding is used alone, without sheathing and building paper; and the inside face of the walls is left unciled except sometimes in bedrooms, bath, etc., where "shiplap" or beaded ceiling is employed.

The first summer cottage design is especially interesting in that the ridge of the hip roof comes exactly at the center of the living room, the ceiling of which is formed by the "shiplap" roof boards, with the rafters showing.

The accompanying views should be interesting and valuable as showing some beautiful examples of rustic finish.



Five-room two story summer home that contains lots of comfort at small cost. This makes a first class suburban home for use the year around, if desired. Size 20 feet by 20 feet, exclusive of porches. We can furnish complete set of blue-printed working plans and typewritten specifications for only \$6.00 per set. When ordering, ask for Design No. 6601.

Comfortable Six-Room Bungalow

There is a charm about a bungalow that appeals to everyone. This design meets the requirements of particular people. There are two features in this plan that are difficult to find in bungalows.

The plan of building a porch and a loggia makes this arrangement possible and adds greatly to the appearance of the building.

The size of the ground is 46 feet 6 inches by 35 feet 6 inches—not large when the amount of room and conveniences are taken into consideration.

A feature about this plan that will appeal to every woman is the number of clothes closets and the manner in which they are placed for convenience. In a bungalow a woman must have places to store things, and a great difficulty has always been to find such conveniences without going upstairs for them. A

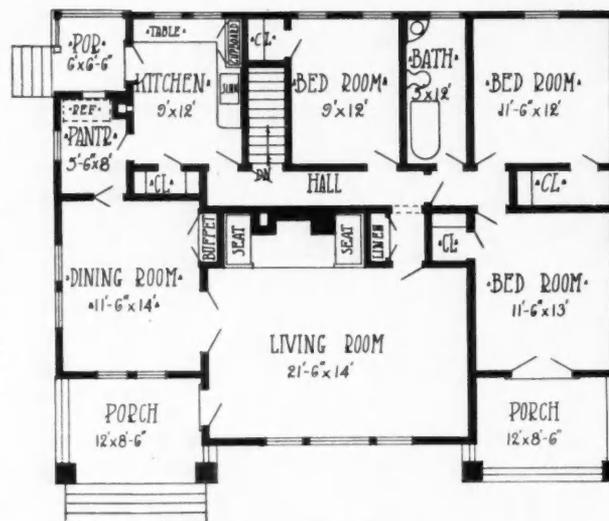


Special six-room bungalow. Size, 46 feet 6 inches by 45 feet 6 inches. We can furnish complete set of blue-printed working plans and typewritten specifications for only \$10. Blue-prints consist of basement plan; first and second floor plans; front, rear, two side elevations; wall sections and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6567.

low plans. One is that there are six good-sized rooms and the bedrooms are entirely separate from the living rooms.

Architects have worked nights and Sundays to incorporate these two features into a medium-priced bungalow, and are now congratulating themselves that it has actually been accomplished. It is easy to build a five-room bungalow, but the sixth room has always been a "Chinese puzzle," and the Chinese have always left it to the Yankee.

There is one especial feature about this bungalow that will appeal to the heart of every woman, and that is the splendid large living room, with a big, cheerful fireplace, and plenty of light in the front. Light is obtained by putting in a triple mullion window, and the light is not obstructed.



Main Floor Plan of Bungalow
Size, 46 ft. 6 in. by 35 ft. 6 in.

Every room is light and of easy access, and each room is large enough for the purpose it is intended for.

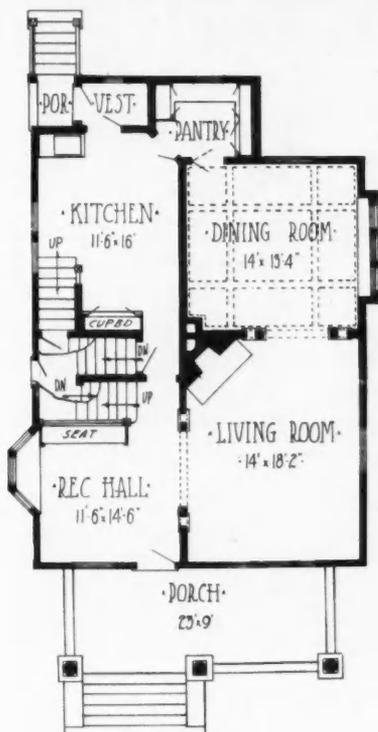
study of this plan will interest everyone who has or can get a building lot suitable for a building of this kind.

The front porch also adds to the house a pleasing approach, besides making a very comfortable outdoor sitting room summer afternoons. The comfort of a porch depends somewhat upon the direction in which it faces, but usually in towns and cities there are convenient shade trees, all of which must be taken into account in choosing a house plan.

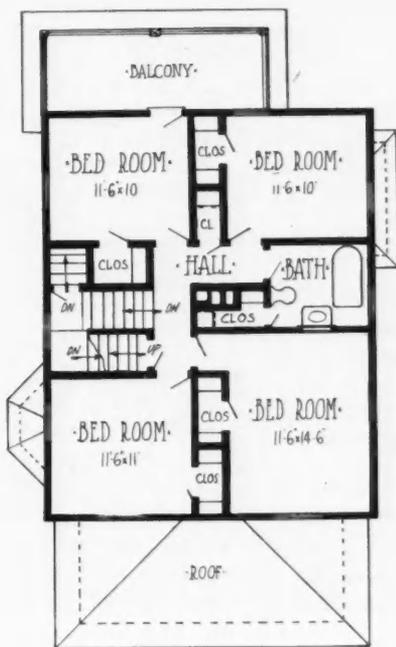
A bungalow 46 feet wide must not be crowded in close between other buildings; it spoils the effect of airy roominess that a bungalow is supposed to typify. There is as much good judgment in selecting a lot for size, shape and outlook as there is in selecting the plan of house to put on it.



Tall, deep, two-story house. Size, 26 feet by 39 feet. We can furnish complete set of blue-printed working plans and typewritten specifications for only \$10 per set. Blue-prints consist of basement plan, roof plan, first and second floor plans, front, rear, two side elevations, wall sections and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6551.



First Floor Plan.



Second Floor Plan.

Elegant Two-Story House

The size and shape of a lot often determine the style of most buildings. This plan is 27 feet wide by 39 feet in depth, which permits rather a narrow lot.

The house is well set up on a rather high cellar wall, which helps to give it a lofty appearance. This plan lends itself well to a good arrangement of rooms. On one side, downstairs, is a large, comfortable living room, and a good-sized dining-room, which is balanced up on the other side by the kitchen, reception hall and stairway.

Upstairs there are four very pleasant bedrooms. The plan is just right for a bathroom between two of the bedrooms on one side and the stairway similarly situated on the other side, while the clothes closets are principally distributed down through the center. It will be noticed that there is very little room taken up by the hallway, the space is in the rooms and a short passageway, which is as light, almost, as the rooms themselves.

Substantial Six-Room House

The design of the house has a great deal to do with the appearance and comfort of a home. A house must not encroach upon either of the adjoining lots and it is better not to come very close to the line either way, because of light, air and appearances. This is a six-room house arranged for convenience in doing the work with comfort, both in winter and summer. As the plan shows, there is no room wasted. The stair from the cellar to the upper rooms, with doors from the front room and the kitchen, is conveniently arranged.

Although the house is not very large, there are three good-sized rooms on the first floor, besides the hall, which really is a part of the parlor, the two together making a pleasing compromise between parlor and living room. A closed stairway in small houses saves room, saves heat in winter, and when the doors are left open, acts as a ventilator in summer; besides, it costs very much less than an open stairway.



First Floor Plan.

Second Floor Plan.

Arrangement of Six-Room Cottage, Size 24 by 30 feet.



Six-room house 24 feet by 30 feet in size. We can furnish complete set of blue-printed working plans and typewritten specifications for only \$7.00 per set. Blue-prints consist of basement plan; roof plan; first and second floor plans; front, rear, two side elevations; wall sections and all necessary details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6571.



A good-sized two-story house and big attic house. Size on ground, 38 feet by 28 feet. We can furnish complete set of blue-printed working plans and typewritten specifications for only \$12 per set. Blue-prints consist of basement plan, roof plan, first and second floor plans, front, rear, two side elevations, wall sections and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for design No. 6576.

[Large Two-Story House

For a family of four or more persons, a large two-story house like this with a good attic is a great comfort. In this plan, there are five rooms downstairs, besides a good-sized reception hall, and there are four good-sized bedrooms upstairs, besides the bathroom, plenty of clothes closets and a dressing-room that comes in very handy for a child's cot when the little folks are young enough to need the mother's care at night.

There is a very attractive stairway in this plan that looks well from the reception hall, and it is convenient of access from the front part of the house or the kitchen; a two-way combination; an invention that has been utilized to advantage to save space and steps. Steps enough are required in doing the housework in a house as big as this, without wasting time and labor hunting for a way to get up or down stairs.

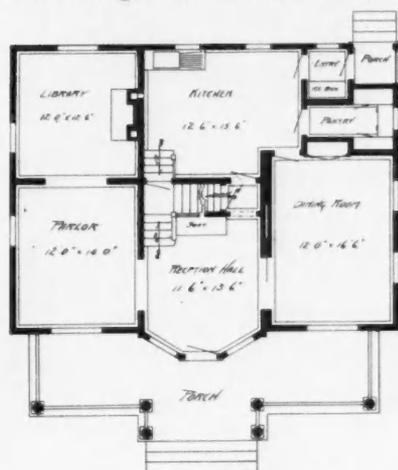
The way to the cellar is under the center part of this stairway, and the cellar landing is made where it is convenient to the heating apparatus. Continuing up is the stairway to the attic,

directly over the main stair, which is another economy. Architects worked a good many years to build this stair, but success has been reached, and we now have the acme of economy and convenience without sacrificing appearance.

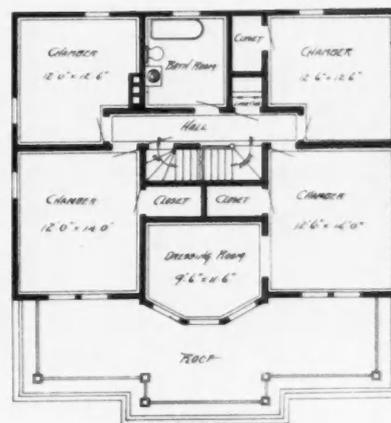
A large two-story house like this requires an imposing veranda and balcony, which have been well worked out in this design. It makes a finish to the

front of the house and adds a great deal to the value of the property.

The library in this plan is the office for the man of the house and a study for children of school age and those of more mature years. This makes a cosy family room, where the "kids" and the parents are likely to spend winter evenings enjoying a pleasant open grate fire.

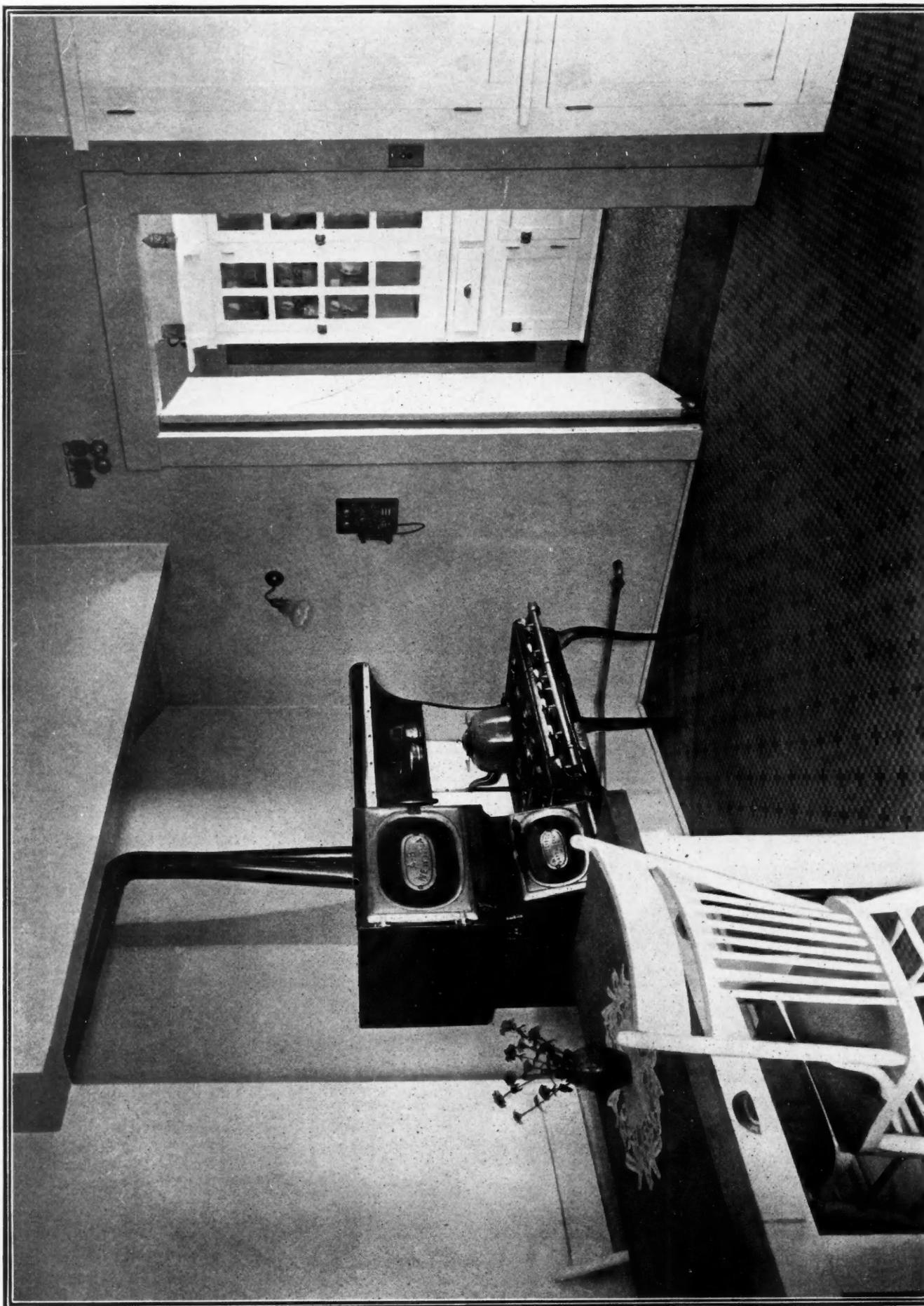


First Floor Plan.



Second Floor Plan.

Arrangement of Nine-Room House. Size 38 by 28 feet.



Corner of Modern Kitchen Finished in White Enamel; the Floor Covered with Inlaid Linoleum. Note Ventilating Hood Over the Stove. This Kitchen has all the Built-in Cabinet Features, Including Built-in Refrigerator. From the Kitchen there is a View of the Butler's Pantry. A Dutch Breakfast Room with Built-in Tables and Benches Adjoins this.



Noon Hour Talks by the Boss Carpenter

Talk No. 23—Stresses in Roof Trusses

THE BOSS EXPLAINS THE PRINCIPLES USED IN FINDING THE AMOUNT OF STRESS IN THE MEMBERS OF A TRUSS

“LAST time,” said the Boss, “I told you that today I would tell you something about the principles upon which the design of trusses is based. I am going to take this proposition up with you from what is called the ‘graphical’ standpoint. That is, I am going to show you how to draw diagrams which will show by the length and direction of the lines just how much effect each member of the truss will feel from the loading on the truss, and whether the member is in tension or compression. This method is simple and does not require the mathematical training which is a necessity in other methods of calculation. Another point in favor of this graphical method is that, if a mistake is made in the construction of the diagrams, it will generally be noticed before the drawing has been carried very far along. In the mathematical calculations, an error might pass without notice unless the work was carefully checked.

“The fundamental principles upon which we will base our graphical work may be summed up briefly as follows: (a) A force or load may be represented

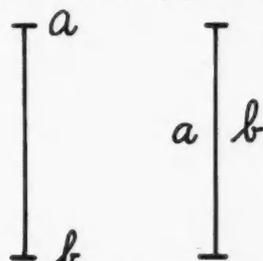


Fig. 8. Method of Lettering Lines in Diagrams.

by a line on our drawing. If, at the start, we choose to let one inch on our rule or scale represent a given number of pounds of force or load, then the length of each line in our drawing will represent a given number of pounds, according to this scale chosen. All loads must be laid off on the drawing on the basis of this scale at the start, and the resulting stresses in the members, when the drawing is completed, will be measured off with this same scale and reduced to their proper value in pounds.

“The direction in which the line is drawn will represent the line of action of the force.

“(b) If two or more forces lying in the same plane act upon the same point, these forces may be represented by lines on the drawing which meet at a point.

If these forces hold the point in a permanent location, then they may be represented in amount and direction of action by drawing a diagram having as many sides as there are forces acting. This diagram is formed by drawing one of the forces to scale and in its proper direction of action, then on the end of this first force draw the next, taken in order about the point, according to scale and direction of action. Keep this up, adding each force in its order and always drawing

the line from the free end of the force just drawn. A check on the correctness of the drawing will be to find that the last force drawn in on the diagram just closes the gap between the free ends of the diagram as it now stands. This principle will be referred to later in

connection with the truss diagrams.

“(c) Each load and each member of a truss must be lettered or numbered so that it may be easily referred to as a separate line or part of the drawing. In some instances the letters will be placed at each end of a given line, while in others the letters will be placed one on each side of the line. Fig. 8 shows this form of notation.

“It is commonly recognized that a framework of members arranged in the form of a triangle cannot change its shape without breaking one of the corner joints or distorting or breaking one of the three members. This can be seen readily by an examination of Fig. 9. This would not be true in the case of a structure of four or more sides, since an unbalanced condition of the loading on a framework similar to

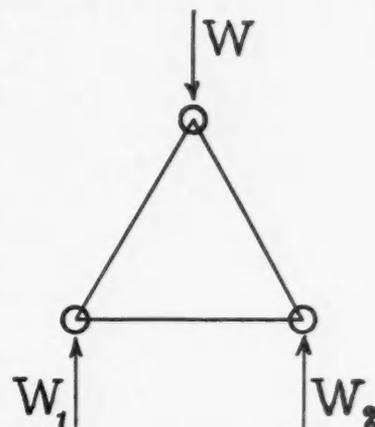


Fig. 9. Triangle as Basis of Truss Design.

that shown in Fig. 10 would allow a movement of the members and a change of shape in the framework. The dotted lines in Fig. 10 show the position which the framework would tend to take.

"Since we must avoid any tendency which would lead to a change in position of the members of a truss when in position and loaded, we must build our

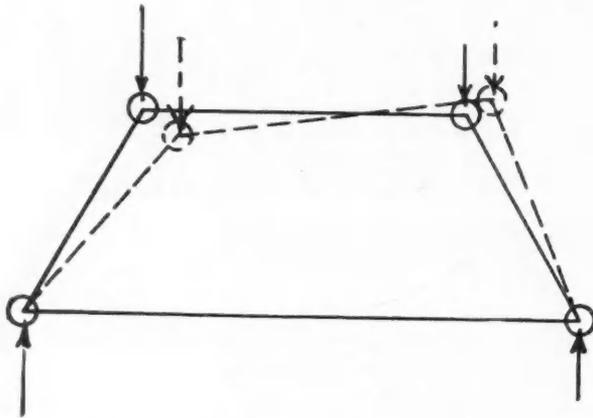


Fig. 10. An Easily Distorted Framework.

trusses in such a manner that they are composed of a number of connected triangles. Then there is no danger of the truss changing when loaded unless some part breaks. The object of these Talks is to show you how to find out the amount of stress which is present in each member of a truss so that you can make these members of a material and size that they will not break under the heaviest loads which are likely to come on the truss.

"A stress diagram of a triangular truss of the simplest form is shown in the right hand part of Fig. 11. The top force, W , is the load on the truss, and R_1 and R_2 are the supporting forces at the ends. Assume, for the purpose of illustration, that the load, W , is 1,000 pounds. This would make R_1 and R_2 each equal to 500 pounds on account of the symmetry of the figure. Beginning at the left hand joint (1), the forces acting to hold this joint where it is, are the supporting force R_1 , the stress in the lower tie member and the stress in the slanting strut, ab . Assume that 1 inch of length in our diagram represents 1,000 pounds of load or stress in a member. Then begin by laying off the load, W , which will be a vertical line 1 inch long. This line is drawn in a vertical direction since W acts downward in a vertical direction. Divide this line into two equal parts, since R_1 and R_2 are both vertical and equal, their sum being equal to

W . Let the line ac represent W ; then ad and dc will represent R_1 and R_2 . Draw a line from a parallel to the direction of the left-hand member, ab , of the truss. Draw a horizontal line from d parallel to the horizontal member, bd , of the truss. These two lines will meet and locate the point b in our stress diagram, shown at the right. A line drawn from b to c will complete the drawing. A check on the accuracy of the construction would be to see that the line bc is exactly parallel to the member, bc , in the truss.

"If the length of the line, ab , is measured and multiplied by the number of pounds which one inch of length of line is assumed as a basis at the start, the result will be the total amount of stress felt by the member ab . For instance, if ab is $1\frac{1}{4}$ inches long and the scale on which we laid off ac is 1,000 pounds per inch of length, then the stress in ab will be $1\frac{1}{4} \times 1,000 = 1,250$ pounds. In the same way, the length of bd , measured on the same scale, may be reduced to pounds, the result being the amount of stress felt by the tie, bd . The stress in cd may be found in the same way.

"Now we will apply these principles to an ordinary king post truss (Fig. 12), similar to that shown in Fig. 2. We have reproduced Fig. 2, putting on a given set of loads and lettering the spaces between the loads and members so that we can refer to them readily. The loads on the truss must be considered as concentrated at the joints, or meeting places, of the different members as shown. The fact that these joints are solidly connected does not interfere with our method of handling the problem.

"Each end load is 500 pounds, and all loads between are 1,000 pounds each, thus making a total of 4,000 pounds on the truss. The weight of the truss is included in the weights given and there are no ceiling loads or other weights suspended from the bottom chord. From the symmetry of the loading, each of the supporting forces at the ends or walls will be one-half of the total load, or 2,000 pounds.

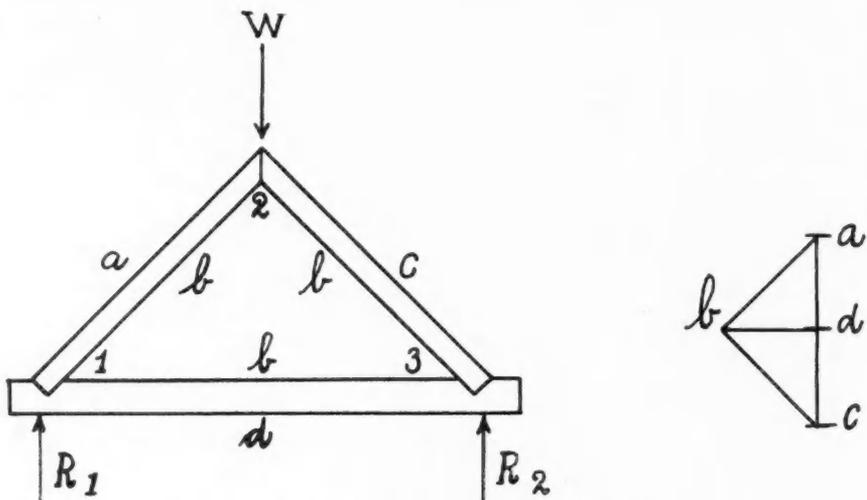


Fig. 11. Graphical Solution Applied to Simple Truss.

"First, lay off a vertical line, as shown at the right of Fig. 12, and beginning at the left hand end of the truss shown at the left in the figure, lay off the loads of 500 pounds, 1,000 pounds, etc., to scale. Suppose that we let 1 inch of length equal 2,000 pounds of load or stress. Then since the load, *ab*, is 500 pounds, lay off a length of $\frac{1}{4}$ -inch on the load line at the extreme right. Then lay off *bc* equal to 1,000 pounds, or $\frac{1}{2}$ -inch, on this same line. Lay off all the other loads which are on the truss in the same way, and on this same line, laying off each load in its order and beginning where the previous one left off. The load, *ef*, 500 pounds, will end the load line. Then lay off *fg* upward on the same line and equal to the right-hand supporting force, according to the same scale. Then *ga*, which is equal to the left-hand supporting force under the truss, should complete the load line by checking back into the point, *a*, where the line was started. Unless this last supporting force reaches

plied by the scale used, will give the total amount of stress in the truss member which corresponds to that line.

"Next time," said the Boss, "I will tell you how to tell whether these stresses are tension or compression."



Refinishing a Crumbling Block Building

To the Editor.

Oakes, N. D.

I have a cement block house which has been built about six years. At this time it has crumbled and cracked considerably. Would it be advisable to stucco the entire building? It would require an average thickness of 1 inch, as the blocks are rock face. Do you think if the bad places are plastered with cement and then all painted with brick and cement coating, that this would prevent further deterioration?

W. H. MCPHERSON.

Answer.—We are hardly in a position to judge such a proposition, since we do not know how far the failure has progressed, or in what condition the walls are at the present time. If there is a tendency for the concrete to crumble and fall away, it would not be good policy to plaster direct onto such an unstable base, but would advise that all plaster work be done on metal lath, which is securely fastened at all points which are firm. We do not think that any surface painting would stop this disintegration, especially if the trouble is in the concrete itself.

EDITOR.

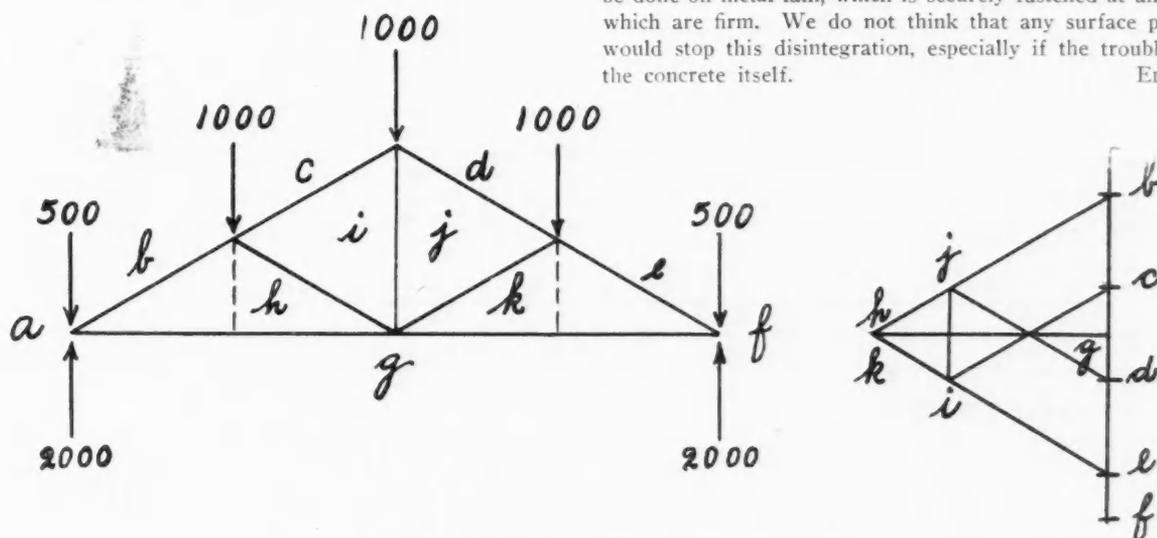


Fig. 12. Stress Diagram for King Post Truss.

back to exactly the point *a*, it will be necessary to check the whole line over and find out where the trouble is.

"If the load line checks back to the starting point, then begin at the end joint at the left side of the truss, and from *b*, on the load line, draw a line parallel to the line *bh*. Then from *g*, on the load line, draw *gh* parallel to *gh*, the bottom chord of the truss. This will locate the point, *h*, where these two lines meet. Then draw *ci* parallel to the member, *ci*, of the truss, and *hi* parallel to *hi* of the truss. This locates the point *i*. Then draw *dj* parallel to *dj* of the truss, and from *i* in the diagram draw a line parallel to the vertical *ij* of the truss. This locates the point *j*. Draw *ek* parallel to the member, *ek*, of the truss. The points *h* and *k* should fall at the same place if the truss and loading are symmetrical. This serves as a check upon the construction of the diagram.

"As in the previous case, the length of each of the lines in the stress diagram at the right, when multi-

Box Beam Ceiling

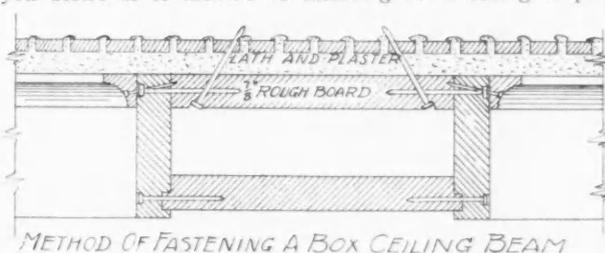
To the Editor:

South Bend, Ind.

I am thinking of putting a box beam ceiling in the dining room of a new residence which I am building, and would be very glad if you would show me by some kind of a sketch just how this construction should be held in place, and how to build up the box beam.

O. E. BENNETT.

Answer.—This illustration will show in detail just what you desire as to method of fastening beam ceiling in place



and method of construction followed in building up a box beam itself. The sizes of the different parts of this beam may be varied as desired to suit the proportions of the room, but the same general plan of joining and nailing may be used.

EDITOR.

Keeping Track of the Time

LABOR COST KEEPING SYSTEM IN SUCCESSFUL USE BY PROMINENT CONTRACTING CONCERN

By **W. W. Betsworth, Supt.**

The Blount Construction Co., Pensacola, Fla.

HERE is a time card which I have got up to keep track easily of our work. The small time card we use where we work several men on one job, and each kind of labor has a different color card, so it is no trouble to sort out the different tradesmen and tell how many different kinds of workmen you have on the job.

The way we handle these cards is very simple. We start by issuing to each workman a card properly filled out with the name of job he is on, then his own name in the blank space; then we punch out the month and also the day of the week.

As you know, every mechanic is not paid the same wages, even if he is doing the same kind of work, so the next step we take is to decide on wages the man is to get. If he is to have three dollars a day, we look

on back of card, and it shows that a man getting three dollars a day receives thirty-three and one-third cents an hour; we then turn back to face of card and punch out thirty-three and one-third. The card is now filled out complete, and as the man works, the hours are punched out each day.

In the upper right-hand corner are the words "Pay off," followed by D. and Q. blocked off in squares. Some of the men think that this means "Pay off damn quick," but that is not what I intended it for! If a man doesn't give satisfaction, the foreman punches out D, which means discharged, and gives him his card and sends him to the office. The bookkeeper knows at once that he has been discharged. Now, lots of times a man will get mad at the foreman and quit work, and wants his money. The foreman then

punches out Q, and gives him his card. He will bring his card to the office and, to his surprise, he will be informed that workmen that quit their jobs will have to wait till regular pay day.

We have used these cards for three years and find they are far ahead of time books. As jobs are finished, the cards are put in a pile together.

Next is a sample of our office time card, which is very useful when one man works on several different jobs during the week. It is almost impossible for a carpenter to keep his time sheet and material on a piece of paper, so I got up this office time card. I have them printed in different colors, so I can easily sort out different kinds of workmen. Having two columns on the right makes it very convenient, as you can refer any time to the amount paid and the amount charged.

No material is put on this card as workmen puts it down on the instruction paper which shows him the number of the house and name of street and exactly what you want done.

In big jobs everything is charged as it leaves the office.

Week Beginning			Blount Construction Company, Inc.														
			Time Card														
Jan.	Dec	21	Job _____														
Feb.	1	11	22	Name _____													
Mar.	2	12	23	Carp't'r-Hrs. _____ \$ _____													
Apr.	3	13	24	Rate Per Hour		Sat.	Mon.	Tues.	Wed.	Thu.	Fri.	Sat.					
May	4	14	25	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM		
June	5	15	26		33½	16½	1	1	1	1	1	1	1	1	1		
July	6	16	27	.56¼	.30½	15	2	2	2	2	2	2	2	2	2		
Aug.	7	17	28	.44½	.27½	13½	3	3	3	3	3	3	3	3	3		
Sept.	8	18	29	.41¾	.25	11½	4	4	4	4	4	4	4	4	4		
Oct.	9	19	30	.38½	.22½	08½	5	5	5	5	5	5	5	5	5		
Nov.	10	20	31	.36½	.19½	05½	½	½	½	½	½	½	½	½	½		

<p>NOTICE. Cards Must be in Office FRIDAY EVENINGS To Receive Week's Pay</p>	Rate 9 Hour Day.		<p>8 Hour Day. \$4.50 per day—per hour, .56¼</p>
	.50 per day—per hour, .05	.08½	
	.75 " " " " " " " "	.11½	
	1.00 " " " " " " " "	.13½	
	1.25 " " " " " " " "	.15	
	1.50 " " " " " " " "	.16½	
	1.75 " " " " " " " "	.19½	
	2.00 " " " " " " " "	.22½	
	2.25 " " " " " " " "	.25	
	2.50 " " " " " " " "	.27½	
	2.75 " " " " " " " "	.30½	
	3.00 " " " " " " " "	.33½	
	3.25 " " " " " " " "	.36½	
	3.50 " " " " " " " "	.38½	
	3.75 " " " " " " " "	.41¾	
4.00 " " " " " " " "	.44½		

Two Sides of Time Card (Exact Size). These Cards are Good Durable Ticket Card-board. There is a Different Color for Each Trade, as Carpenters Red, Masons Yellow, Plumbers Blue, etc. Each Man Receives a Card and Keeps it One Week Unless Shifted to Some Other Job Before the Week is Up; In That Case he Receives New Card.



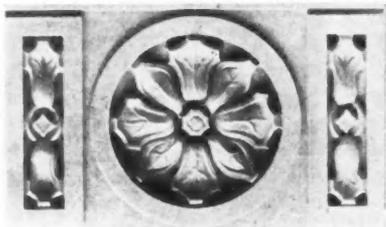
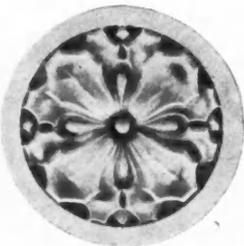
Some Terra Cotta For Every Building

BUILDERS FINE STOCK TERRA COTTA MOST AVAILABLE MATERIAL FOR DOOR AND WINDOW TRIM AND FOR MISCELLANEOUS SMALL USES IN CONNECTION WITH PRACTICALLY EVERY BRICK BUILDING, EVEN WHERE ONLY A LITTLE IS NEEDED

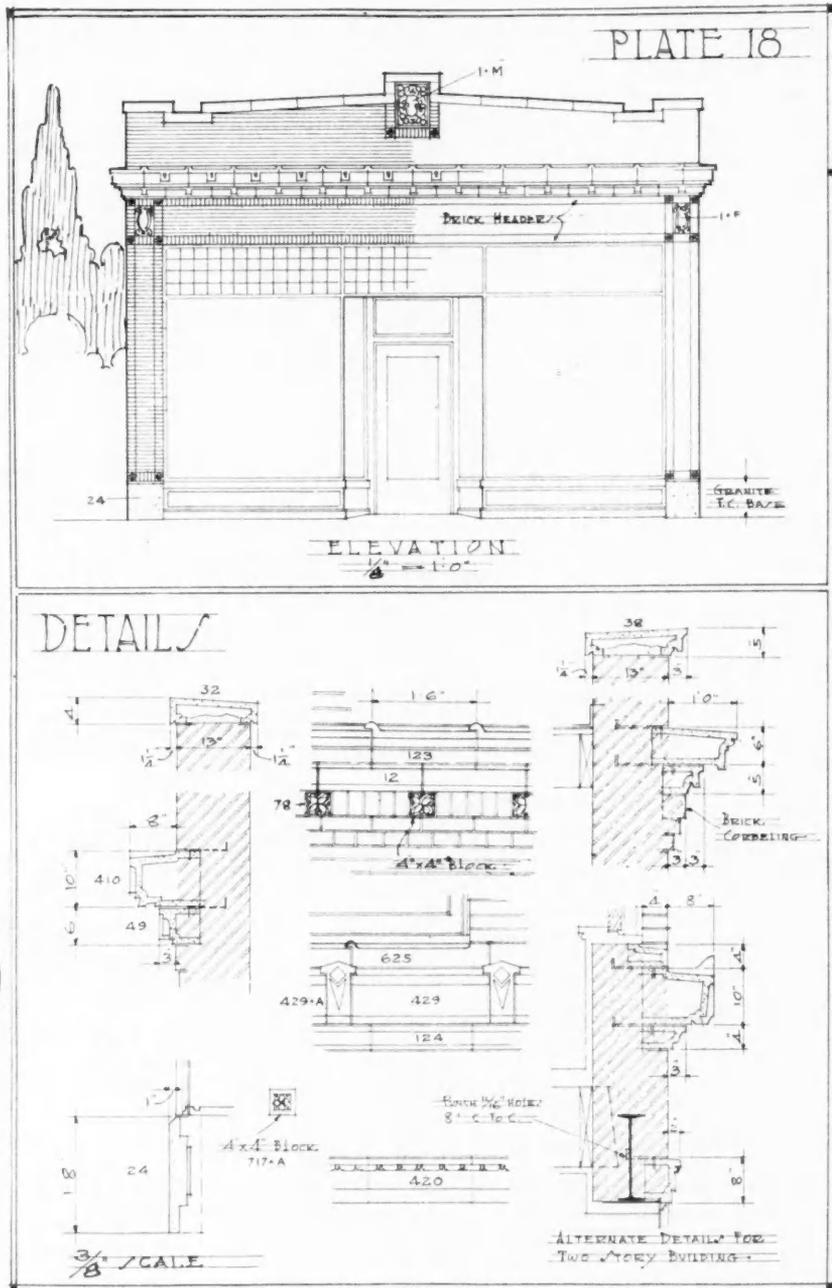
It is surprising how often we see, here and there in all the new buildings going up this year, white enameled terra cotta pieces gleaming forth.

Evidently, architects and builders have discovered the value and the handiness of stock terra cotta trim. Around windows and over entrance doors, for little ornamental inserts (and these are often brightly colored), for chimney caps and wall copings, for sills and belt courses; in fact, for all of the little uses where formerly cut stone was employed, as well as for a good many others for which stone never could be afforded, we now see terra cotta being employed.

Dependable, durable goods; a big selection of attractive designs to choose from; prompt deliveries, even at short notice; satisfactory price—these are the reasons for stock terra cotta's growing popularity among architects and builders for the average run of buildings.

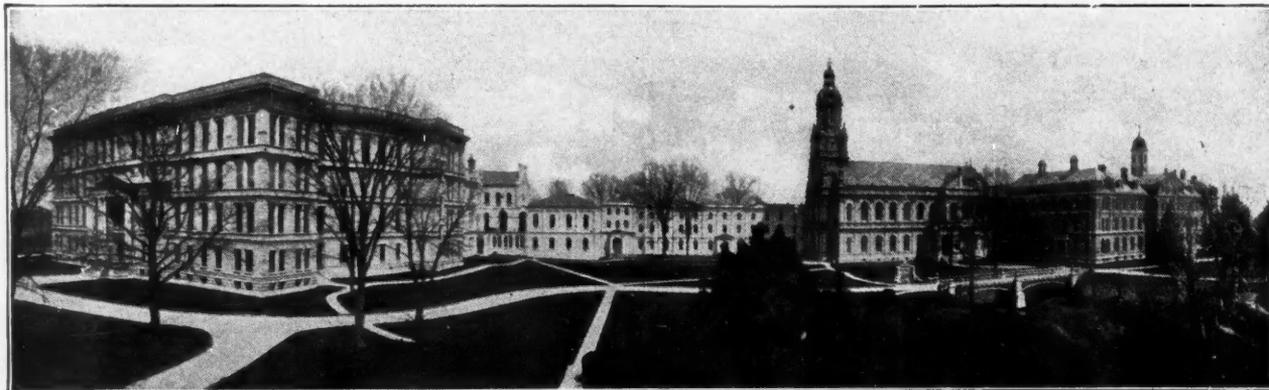


Useful Ornaments.



Front Elevation of Pretty Little One-Story Store Buildings to be Built of Brick, Enameled Terra Cotta, and Plate Glass. Below are Details Drawn to 3/8 inch Scale Showing Proper Construction for This Building and also for a Two-Story Building of Similar Design.

Notable New Buildings at St. Mary-of-the Woods



General View of Campus and Buildings at Saint Mary-of-the-Woods, Ind.

IN the design of the new College Building and Conservatory of Music at St. Mary-of-the-Woods, Ind., a serious attempt has been made to embody in the design the purposes and feeling to which these buildings are dedicated. They make a notable addition to the already magnificent equipment of this leading Catholic institution for the higher education of young women.

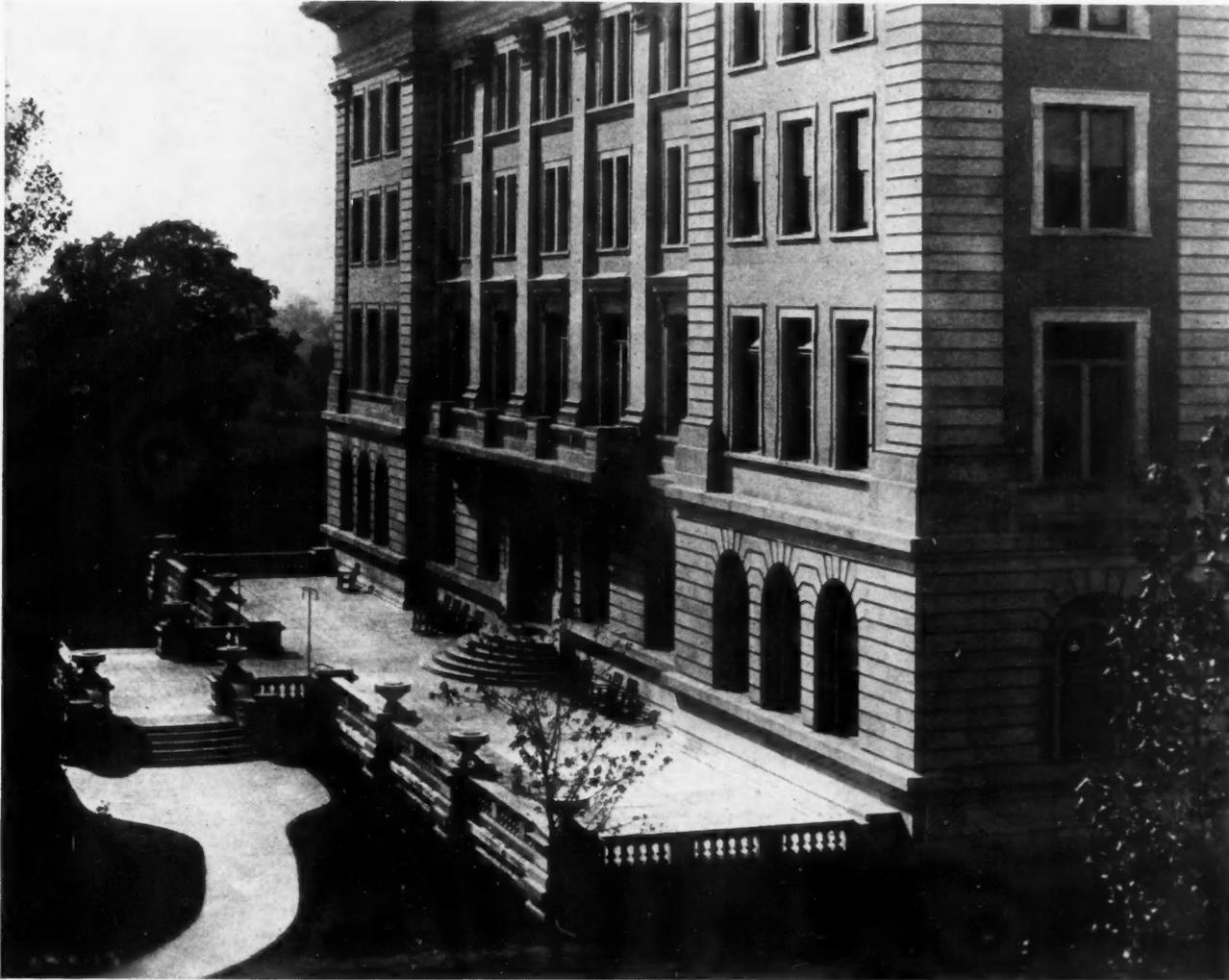
The College Building is treated in a free Renaissance style, using the Corinthian and Doric orders. The entire composition may be divided into the three distinct parts of the classic column; the base, shaft and

entablature. The base is carried through the first story, being designed in a simple, heavy way, to give a secure and solid foundation for the superstructure. The windows are arched with semi-circular heads, and the solidity of the whole is accentuated by the deep shadows of the stone courses and the deep reveals at the windows.

The three upper stories are treated as one motive, the pilasters carrying through from the water table to the hood cornice of the building, to accentuate the intimate relationship of the usages of the rooms on these floors. In the center of the main facade, the light, graceful Corinthian Order has been used to



New Conservatory of Music is a Noble Example of Renaissance Style Architecture.



Detail of Beautiful Stone Paved Terrace Which Forms the Entrance to the Building.

again concentrate the ornate parts of the building, while the heavier and stronger Doric order is used to add strength and support at the corners .

The building is entered through a vestibule into a spacious rotunda, octagonal in shape. This rotunda is carried through two floors, encircled on the second floor by a balcony.

The corridors to the class rooms and the main stairways are on the secondary axis of the rotunda. These corridors are wainscoted similar to the rotunda, and the Venetian Mosaic floors are carried through all the public departments of the building.

The upper two floors are designed for private apartments, containing study rooms, bed rooms and private baths, designed in such arrangements as would be most convenient for the students. The second story is partially devoted to apartments and partly to the scholastic department. The entire first floor is devoted to study rooms, containing laboratories, domestic science rooms, a lecture hall, with inclined floor and lecture platform, reception rooms and study rooms of various sizes.

In the structural development of the building, care has been taken to make it as fireproof and livable as possible. Due to the character of the sub-soil, the entire building is set upon concrete piles about 30 feet



View of Proscenium Arch and Boxes in Auditorium, Showing Style of Interior Decoration.



Coal Tipple and Shaft-House on the College Grounds at St. Mary-of-the-Woods. The Entire Campus is Underlaid With Coal.

in length to assure a stable foundation. The exterior walls are built of solid masonry, using hard burned shale brick and Bedford stone.

The interior construction consists of cast iron columns, steel girders and reinforced concrete floors of the joist construction type. The interior partitions are made of gypsum blocks, whose open air spaces make them practically sound proof.

In the interior finish and trim, the idea of simplicity and the elimination of all dust collecting projections has been sought.

Conservatory of Music

In its general feeling, the design of this building is similar to the College Building. A free use of the Renaissance style is also used in this composition. But as this building is used for an entirely different purpose, the treatment of the facade has also been attacked in a different manner. The most important room in this building being the large auditorium, in the center of the building, an attempt has been made to show this by projecting the center motive of the facade and ornamenting this portion, while the ends of the building, containing the less important rooms, are treated in a simple, plain manner, with little ornateness.

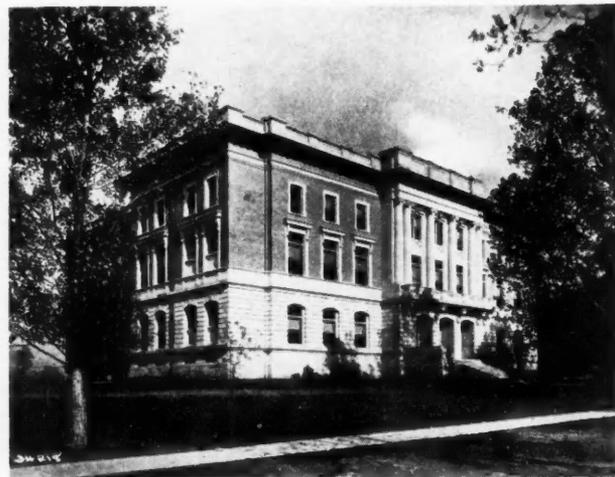
In the design of the auditorium and stage the most modern ideas have been used to make it as complete and perfect as possible. The floor of the auditorium is inclined enough so as to make the line of sight from every seat practically unobstructed. In the balcony this same object has been sought. The balcony is designed as a cantilever, projecting about 30 feet from the rear wall, thus giving a free and open main floor unobstructed by columns. The entire room and also the balcony is wainscoted with a Sienna marble.

handling of scenery. In fact, every detail of the modern stage equipment has been embodied on this stage.

Entirely surrounding the auditorium on the first, second and third floors, are the practice rooms for the students of music. These rooms are divided by means of macalite partitions, making the rooms sound proof. The doors are provided with clear glass panels, so the instructors may watch the students without opening the doors and interrupting the study.

In its structural development, this building is similar to the College Building, being as nearly fire and sound-proof as modern methods can devise.

The heating system employed for this building is a mechanical blast heating and ventilating system. Large fans in the basement force washed warm air into the room through openings in the floor, while an exhaust fan above draws the foul air out of the room, so that the air of the entire room is being constantly changed.



The New College Building is of Brick and Cut Stone in the Renaissance Style.

The stage is carefully designed to meet all the different requirements of such a building. It is provided with all the electrical devices used on modern stages, such as foot lights, border lights, spot lights, dimmers, and combinations, so that any effect desired may be obtained. The gridiron is fully equipped with its many sets of lines and necessary pin rails, etc., for the successful



How to Do Work Fast—Putting Down Base

MAKING EVERY MOVE COUNT IN COPING BASE, LOCATING STUDDING, AND WORKING AROUND CHIMNEYS

By I. P. Hicks

Estimator and Contractor

AS near as we can remember, this subject has not been before the readers of the *AMERICAN CARPENTER AND BUILDER* for some time.

There is always a way to do every kind of work, that makes it easier, speedier and more accurate.

It is best in putting down base to work around the room from left to right as much as possible. This makes it easier to do the coping. One cannot always do this; sometimes conditions are such that it is better to work just the reverse, or even start at one side or end of a room and work both ways. The mechanic needs to have his head working right, so that he can decide at a glance the most advantageous points to work from.

The sketch shows a section and side view of a piece of base. The section shows the profile or outline of the face of the base. In putting down the face, cut the first piece off square and nail it up solid. To fit the next piece to it at an angle, cut the piece off square and about $1\frac{1}{4}$ inches longer than the exact length required. Set this piece in place as near as you can get it to its permanent position, and with a pencil scribe scribe along the side of the base, as shown at A, then with a coping saw cut out the moulded part, finishing the cut across the plain part of the base with a hand saw in the usual manner. Be particular to get the baseboard in proper position before scribing, and be particular with the scribing and cutting. If you learn to get a perfect fit at every cut, you will soon be ahead of the fellow who has to cut every board two or three times before he gets one to fit. Good fitting joints can be cut on base boards as readily as on any work, if you will go at it right and with a little painstaking care and judgment.

Get a good pencil scribe; a clumsy tool is not in it on this kind of work. The scribe mark you make needs to be correct, and to get this, you must learn to place the board in the right position, scribe and cut right; and most of your troubles are over.

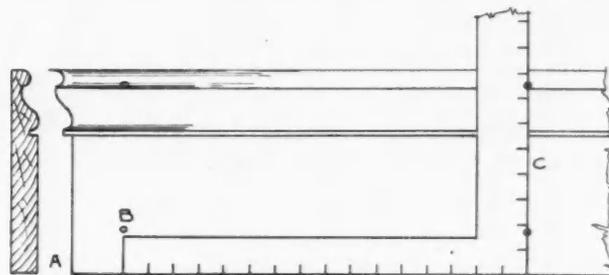
After you have scribed and cut the board, place it in position again to see if it will fit. If it needs a little trimming, cut it off, allowing about $\frac{1}{8}$ of an inch

more than the required length. This will squeeze the joint tight when it is placed in its permanent position. In putting it in place to nail, place the end next to the wall first, and press up the joint end last. The reason for this is that the base, being cut tight, will dig into the plaster on the wall end and sometimes be very difficult to get up. If the wall end is nailed up first you can always push the joint end up along side of the other base easily, for there is nothing to obstruct it; and if the cut has been properly made there will be no difficulty in getting a perfect fit. Of course, the joint cut must be made right and the board cut to just the right length. Do not attempt to make a joint altogether by the squeezing process, for if you do, your work will be a failure. Cut to fit and give just the right amount of squeeze to make a tight joint and you will soon get perfect work in this line as well as any other.

How to Find the Studding

Some experience more or less difficulty in finding studding in plastered walls. With the hardwall plasters now in use, it is difficult to find studding by the sound of hammer blows on the wall unless you strike hard enough to dent the wall, and hammer marks on a plastered wall do not look good.

Before you nail on the base, locate one studding on each side of the room. This you can do with the hammer, striking the wall below where the top of the base will come. A hammer mark here will not disfigure anything. Drive a small nail in to make sure that you have located the stud, then make a small



Locating Nailing Places.

mark on the floor for a starting point, as in the line of B (see sketch). Drive in the nails as shown by the dots, then take a square with a 16-inch tongue and place it on the floor with the end of tongue in line of your first nailing, and the blade will represent the next line of studding and nailing. Slide the square along on the floor 16 inches at a time, the regular studding space, and you do not have to waste any time trying to locate studding with a hammer; you have no walls disfigured with hammer marks, and no extra nail holes in the base, made from extra nail driving to locate studding by guess.

It is a good plan to mark on the rough floor the location of studding when the partitions are set. This helps out the finisher quite a little, but these marks often get so obliterated by the plaster as not to be seen when the finisher gets on the job. If there is any trouble in finding studding, it is best to locate a starting point, as we have already explained, as it will avoid most of the troubles in this line of work.

To Successfully Base a Chimney

This is a task that is usually difficult to the inex-

perienced on account of the trouble of nailing anything to brickwork.

First, fit and nail together all the pieces that go around the chimney, not nailing into the chimney at all, then slide the pieces up around the chimney in their proper position and wedge them tight against the chimney with braces from the base to the floor. Put a small block between the base and the wedge, so as not to mar the base in wedging it up. With the base tight against the chimney, so there is no spring to it, you can usually get a couple of nails to take effect sufficient to hold. If you get two nails to hold, don't try any more, for sometimes a nail too many will spoil the whole works.

Now, while you have the base in position around the chimney, and before you take out the braces, cut in the side pieces of base that come up to the chimney, cutting them in rather tight, and these will hold the chimney base right to the spot. Cut the chimney base in first and the side pieces that come up the chimney, last. You will find this the best method, both for speed and producing good results.—Omaha, Neb.

More Shop Kinks

HELPFUL IDEAS AND SUGGESTIONS FOR CARPENTERS, CABINET MAKERS AND MACHINE WOODWORKERS

By Wm. C. Jasbury

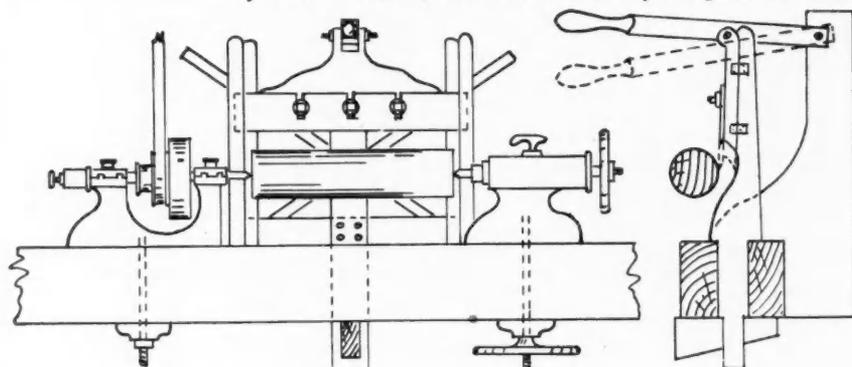
WILFUL WASTE. There is a saying that goes thus: "Wilful waste makes woeful want." I saw a case of this kind about a fortnight ago, while visiting a certain Government reservation, men were cutting down and burning red cedar trees, the real odoriferous red cedar, as used in moth-proof chests, closets, etc. This seems a shame, as this is the only known wood that will keep insects and such from a place where valuable clothing may be stored.

I once heard of mahogany being used for railroad ties in Honduras, as it was the only wood they had at hand in abundance and a railroad had to be built. These are two cases of wood, that is good for something, being wasted. Although I have some quartered oak sheathing on my own home, I bought it at a bargain, after a mill fire, in which it was charred and smoked to checking.

I know of farmers using walnut for fence posts; and think of the gun stock trade, hunting their heads off for gun breech walnut. I know of a two-horse dump cart that has walnut sides and bottom. The country wheel-right had no other boards suitable for size at the time and the cabinet making thought was not for him, he used walnut. There are many of these misplays in wood consumption.

THE MANAGER'S INVENTION. I recall an improvised contrivance in the shape of a semi-automatic turning lathe I once saw in the state of Pennsylvania; the reason for this invention was a small mill that had an order for four thousand chestnut cylinders, diameter five inches and length twenty-two inches. The system of turning them by hand was not altogether satisfactory to the manager, despite the fact that the turner on the premises was a fairly good one. However the manager wished to have his way and put a handy man (mill-wright) to work making a back knife lathe.

The knife part of this contraption was a twenty-four inch discarded planer knife; nearly all of the rest of the makeup was wood. There was considerable difficulty in the production of the cylinders by this method, as some of the young trees were



SIDE VIEW

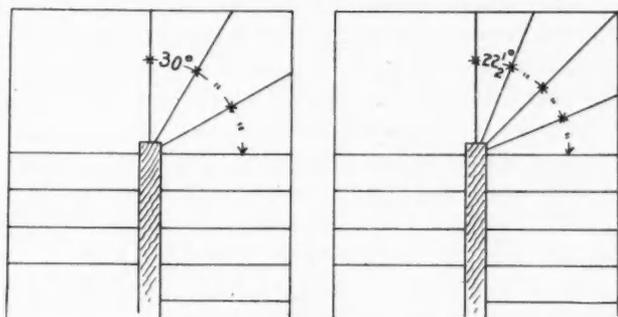
END VIEW.

Sketch of Alleged Labor Saving Machine.

too large in diameter, but by the loss of much perspiration and time this monstrosity of a lathe did the work. I am quite sure a real (human) turner could have made the same product in less time, but that is not what this manager was there for. One thing I will say, the cylinders were all the same diameter when finished; this would have caused the turner some time, but they were not as smooth as though turned by hand, as the knife made a downward scrape cut, not a sheating cut as a turner would. However, this job was completed and shipped.

Of course, I am not prepared to say whether or not any great amount of money was made, but it did make some cheap vaudeville for the shop boys, at any rate. The lathe was an ordinary old three-coned one, the back knife doing its dirty work from the coming-up side of the stick. The lengths were cut on an ordinary cut-off saw so the adjunct of a pair of cutting off tools was not used. These would have made it too complicated. I suppose at any rate when the job had been finally finished the manager handed himself bouquets as large as umbrellas. Why, one would think he had invented a new fire box for an egg beater, or discovered some new grape juice. The boys had been watching the job so long they had really forgotten the beginning. I shall now endeavor to give you a sketch of this labor saving (?) lathe.

HEXAGON AND OCTAGON CUTS IN WINDERS. Here is one I recently ran onto. Mind you, I am not saying it is an original idea, because it might have been both known and used long before



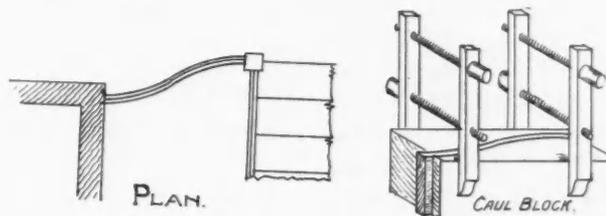
Lay-out of Stairs For Three Winders and For Four Winders.

I built stairs. However, I think it is a good stunt and that settles it as far as I am concerned. So here goes.

Take for instance a stair that has winders which are quite often used in rear stairs. Some of them have three and some have four winder treads, as shown in the illustrations. In the first case, the treads stand at 30 degrees and the second at 22½ degrees, because the quadrant of 90 degrees divided into three parts equals 30 degrees and if in four parts 22½ degrees; 12 and 7 (practically) give the hexagon miter and 12 and 5 (practically) give the

octagon miter. Mark on the side of the square on which the smaller number is taken.

Recently I had a fascia board 7/8 by 12 inches by 3 feet long; and the shape was what might be called in R. R. parlance, a reverse curve; that is, it was curved concave and convex from a newel post, to



Blocks Sawed to the Proper Curve Assures Success in Handling Curved Veneering.

a plastered partition, as shown in the illustration. To do this kind of work I take some spruce, hemlock, yellow pine or any cheap wood block and saw it on band saw to the required shape of the fascia. Then put the thin veneer pieces in the saw, cut block, first giving them a coat of glue and then put on the clamps and squeeze.

AHEAD ONE PERGOLA. I recently had an occasion to visit a very fine residence in course of construction in the burgh; and the porch columns were of cement, fluted and with ornamental capitals. When they arrived on the site, they were 12 inches in diameter, instead of 14 inches, coming from a distance of 60 miles, freight, cartage, etc., to pay. The owner immediately notified the column maker, who shipped a man down, saw the "bull" and said: "Bury them in the back yard somewhere, as they are too heavy to send back, and we will send you the 14-inch columns. The 14-inch columns arrived later and were placed in position. The owner figured if he buried them in the back yard, in some hazy and smokey future, they might be dug up by some excavators, which might cause a panic among prehistoric hunters, professors, and other absent-minded data accumulators. Being a conscientious man, he did not wish to pull off such a joke on posterity, so he decided to build a pergola. The aforesaid pergola is on the job, looking as healthy as pergolas go. No doubt, every time the owner takes a stroll under the spread of vines (not the grape-juice variety) on the pergola, he chuckles to himself. Mr. Column Man was surely in "Dutch" that time, and not only that, I resurrected the poor columns, or better still, saved them from an early grave.

PICKING UP THINGS ON THE SHORE. Now and then some rare specimen will wash ashore on the beach here in New Jersey—thrown or lost from some boat from the tropics. A common trick of our cabinet makers is to walk along the ocean edge and pick up cork to use as sand paper blocks.

Curious Building Laws of Ancient Times

H. B. McMASTER BRINGS TO LIGHT SOME SURPRISING HISTORICAL FACTS

IT has been estimated by the underwriters that 27 per cent of the fire loss in this country comes from fires that extend beyond the buildings in which they originate, so stated Mr. H. B. McMaster, Commissioner of the Associated Metal Lath Manufacturers in a recent paper before the Up-to-Date Club of Youngstown, Ohio.

A reasonable conclusion is that these losses are due to the inflammable construction of our buildings.

To correct this a proper building code should be adopted in every state and municipality.

Mr. V. D. Allen, city inspector of buildings at Cleveland, was good enough to place at my disposal, Mr. McMaster continued, the result of his research into the history and evolution of building laws. Among other things he found that from the Jews came this effort at Code building:

Must Not Keep Broken Ladder

"One who builds a new house must erect a battlement around the roof so that no person shall fall from it. The battlement must be at least ten fist-breadths in height, and must be well constructed so that one may lean upon it without apprehension. To guard against injury, one must not leave a well or a pit on one's premises uncovered, nor must one keep a vicious dog, or a broken ladder. It is forbidden to walk alone at night, to stand under a wall that is like to fall, to walk upon a poorly constructed bridge, to enter a ruin, or to drink in the dark from a well lest some poisonous animal lurk in the water."

It is within the range of reason to expect that a building inspector with small fists must have been popular with builders in Jerusalem.

"Sky Scrapers" Popular B. C.

In the days of Solomon, there were buildings ten stories high; one rabbi tells of climbing 100 feet to his room; Herodotus tells us there were houses in Babylon four stories high and Greek historians report many houses in ancient Tyre ten stories high. Athens had a building law limiting the height of buildings for residences to ten stories.

About the year 325 A. D., when Constantine, the Roman emperor, determined to establish his capital on the Golden Horn, he built a wall across the peninsula as the limits of his city and the dividing line between city and country taxes.

Speculators from all parts of the empire rushed in and bought up land, raising real estate prices over 300 per cent. within a year.

High buildings were the logical outcome of this condition and the capitalists sent to Rome for architects who could design higher buildings, with the result that in ten years the new capital rivaled Rome in this regard.

Constantine, finding the view of the city and bay obstructed by these higher structures before he could complete his palace, issued an edict forbidding buildings more than 100 feet high.

A wail went up from the speculators but the tops of the buildings had to come off and it is recorded that one block lost the four upper stories which would indicate that there were buildings from 125 feet to 135 feet.

They Evaded the Laws Then Same as Now

It is related that one Apothagos built a row of houses between the royal palace and the sea. They were of stone and brick as required by law and within the limits of 100 feet, but on top of this he built frame structures of three stories. The royal "inspector of buildings" ordered these frame superstructures removed, but Apothagos, claiming it was only a temporary structure for housing his workmen while they completed the building, went into court with it. After ten years of litigation, the superstructures were torn down, but all this time royalty was much offended by the unsightly buildings which stood between it and the sea.

It is interesting to learn that every tenant in a Roman tenement had to look to his own security. Therefore, at dark all doors were barred, windows secured, and in the better class buildings a watchman was hired from a common fund. Sometimes two such watchmen were provided, one of whom was chained fast at the front door.

The Incendiary Nero in a New Light

The average person having the belief that Nero was an imperial incendiary will be apt to suffer a shock when he learns that a most comprehensive and practical fire prevention building code was formulated and enforced by this ruler whose name is heard more often in obloquy than in praise.

Some historians say Nero's act of burning Rome in the year 64 A. D. was not without design; that it was, in fact, an efficient way of removing buildings to make way for a great city plan. However this may be, it is a fact that a better order of things resulted. Ruins were hardly cold before the working population of the city were set to work clearing away the debris, and the royal architects, without regard to former ownership, laid out avenues, squares and parks on a grand scale. A law was enacted that no residences should be higher than twice the width of the adjacent street. This seems to be the earliest record of provision for limiting the height of buildings with relation to the width of the street on which they faced. Tenement houses were required to be isolated, and the two or three lower stories had ceilings resting on stone or brick arches, wood construction being permitted in upper stories only.

(Continued to page 77)



A Church Heating Job

DETAILS OF A HEATING PROBLEM THAT IS FREQUENTLY ENCOUNTERED

By Cecil F. Herington

"NEXT to school houses," said the Old Builder, "the most common public building of the smaller class is the church. A church presents problems in heating which are not obtained from any other type of building, this is owing to the fact that its use is intermittent for a short time only and that it is very often difficult, if not absolutely impossible, for a church to employ a person of proper ability and understanding to look after the heating apparatus. Besides this, many country churches are built without cellars, or with a cellar under a small portion, rendering it difficult to use anything but stoves, which are hardly suitable.

"I know of many cases where it has been necessary to place furnaces in a portion of the Sunday-school

room (which is usually located under the auditorium proper), running pipes from the furnace to the floor of the auditorium. Because the registers in the auditorium can not always be located at a particular point, it usually means that the pipes must be run in the Sunday-school room in such a way as seriously to interfere with the arrangement of this room. This practice of heating not only occupies valuable space in the Sunday-school room, but is often unsatisfactory, owing to the difficulty of getting the proper cold air supply to the furnace, the trouble of storing coal, and the objectionable ash and coal handling, with the accompanying dust and dirt adjacent to the Sunday-school room.

"I once had a proposition of this kind put up to

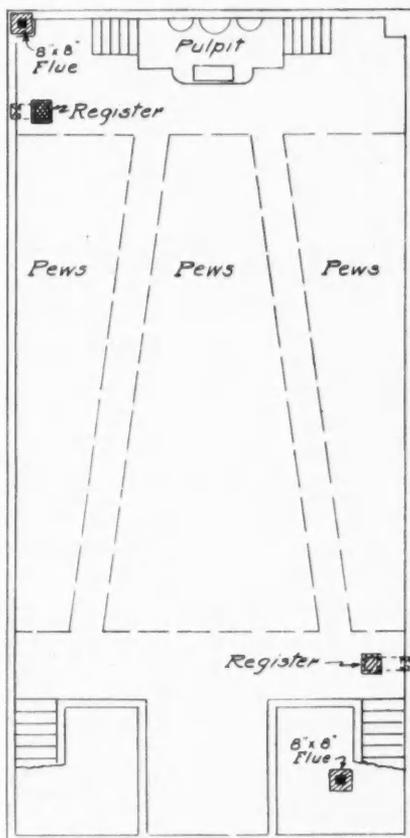


Fig. 1. Plan of Auditorium Floor.

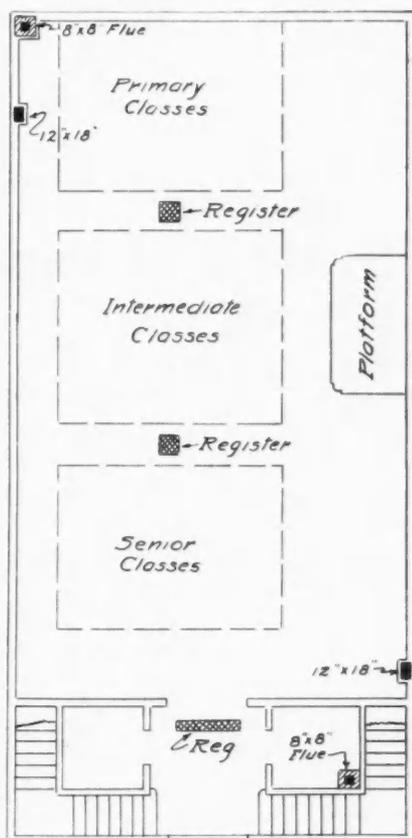


Fig. 2. Plan of Ground Floor.

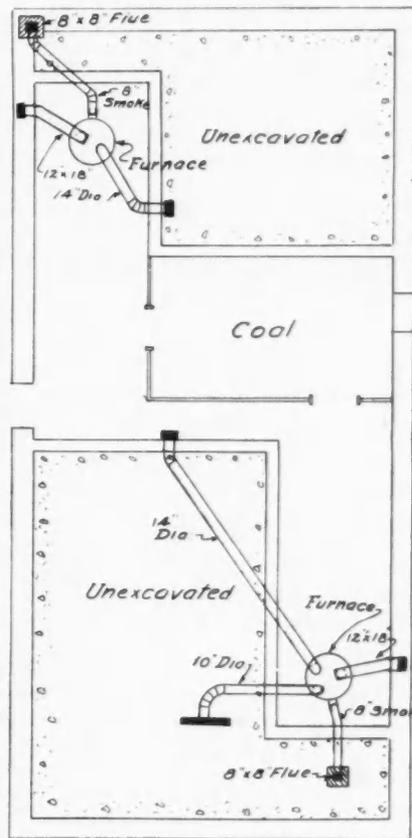


Fig. 3. Plan of Cellar.

me and I arranged it so that the church had the full use of the Sunday-school floor with no objectionable pipes exposed and with a very small additional expense for excavating. In fact, the entire cellar required did not amount to 40 per cent of the area covered by the building.

"Fig. 1 shows a plan of the auditorium and Fig. 2 of the Sunday-school room below, while Fig. 3 gives a foundation plan and indicates the amount of excavated space required for coal storage and the furnaces. There was no entrance to the cellar from the Sunday-school room, although one could have been arranged without a great deal of trouble from the front vestibule. In this particular case access was obtained by a door in the outside wall and a passageway between the two furnace rooms. Above the unexcavated portion there was a distance of some 18 inches between the ground and the bottom of the floor joists. The Sunday-school room was approximately 42 feet by 38 feet, with 11 foot ceiling, and had folding doors between the Sunday-school room and the junior room.

"The main Sunday-school room was heated by two 14-inch pipes, one running from each furnace, while the vestibule was supplied by a 10-inch pipe from the front furnace. The main auditorium on the second floor is supplied by two 12 by 18-inch flues, which rise up along the outside walls and supply one register in the front portion and one in the rear. The furnaces each have an 18½-inch diameter grate, and I understand that the expense for heating for an average year has only been some \$40.00; this, of course, contemplates heating the church only on Sundays, and possibly one or two nights during the week.

"A little computation will show that there is a furnace pipe area running to the first floor of

2 times 14" x 14" x .7854 plus 10" x 10" x .7854, or
2 times 153 sq. in. plus 78 sq. in., or
306 sq. in. plus 78 sq. in., or 384 and
384 sq. in. divided by 144 equals 2.7 sq. ft.
2.7 sq. ft. at 260 velocity equals 702.2 cu. ft.
In one hour 702 cu. ft. times 60 equals 42,120 cu. ft.

"Since each cubic foot at 120 degrees Fahr. supplies about 1 B.T.U., this furnace pipe area will supply about 42,120 B.T.U. to the first floor.

"For the second floor we have a furnace pipe area of 2 times 12" x 18" divided by 144 or 3 sq. ft. At 380 velocity this gives 3 x 380 or 1140 cu. ft. In one hour 1140 x 60 or 68,400 cu. ft. on the second floor, a total of about 68,400 B.T.U. are supplied.

"Of course, if it had been possible to guarantee proper attendance a single steam boiler would have required less excavation, but, as a usual thing, where a building is allowed to stand cold for part of the time it is necessary to drain the system in order to avoid the dangers of freezing. With a hot water system this objection is accentuated, and there is much more water to drain.

"If it had been desired to install a steam plant we could have arranged our radiators as close to the windows as possible and in the vestibule near the door. The amount of surface which would have been required is easily obtained by dividing the B.T.U. supplied by the furnace system by 250 (the efficiency of a square foot of radiator surface), thus:

First Floor,	42,120 divided by 250 equals 168 sq. ft.
Second Floor,	68,400 divided by 250 equals 273 sq. ft.

Total	441 sq. ft.
Piping 20%	88 sq. ft.

Actual boiler load.....	529 sq. ft.
25% to boiler rating.....	132 sq. ft.

Boiler Rating in catalog.....	661 sq. ft.
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Individual Duct System of Ventilation Heating

By Harold L. Alt, M. E.

THE most ideal system of ventilation so far developed with the use of fresh air is known as the "individual duct system." In this scheme every room is supplied through one or more separate and distinct ducts which are carried back to the heater without being connected with each other, so that the air to each room is kept entirely by itself and is not in contact with that of any other room. In this feature the system only follows out the common furnace systems.

When these ducts reach the heater they are separated into two branches, one of which is connected into the hot air chamber beyond the heating coils and the other into the cold air chamber below the heating coils. Each of these branches is controlled by a damper and the respective hot and cold dampers for

each duct are coupled together so as to move in unison; but they are arranged so that when one opens, the other closes, and vice versa.

Thus the exact temperature of the air supplied each room can be regulated within reasonable limits and the room on the sheltered and sunny side will not receive air at as high a temperature as a room on the north

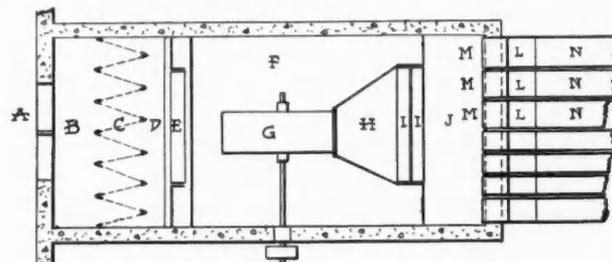


Fig. 1. Plan View of Blower Compartment.

side exposed to the wind.

A better understanding of this system can be obtained by reference to the typical plan and elevation of a system of this kind shown in Figs. 1 and 2. Here the cold fresh air enters through the window at "A," passes into the chamber "B," where it spreads out across the air filter, "C" (which is usually made of cheesecloth on wooden frames), then into the space "D," where it rises up and passes through the heater, "E," and into the fan chamber, "F."

Here it is caught by the fan, "G," and discharged through the metal connection, "H," part of the air passing through the re-heater, "I"- "I," and part passing below the heater into the by-pass chamber, "K," from which it rises through the vertical pipe, "L." The air going through "I"- "I" is heated and passes into the hot air chamber, "J," and then into the duct, "N," through the pipe, "M."

A very important adjunct to the operation of this system is the little thermostat. This, though small, is absolutely necessary to maintain proper temperature in all buildings supplied with ventilation and is, in fact, often used to control direct radiators.

The hot and cold dampers on each duct are in this case controlled from a thermostat located in the room, which the duct supplies. This thermostat opens and closes a miniature air line, which operates a little air motor, shown at "O," which moves the dampers, "P." The arrangement is such that the change of two

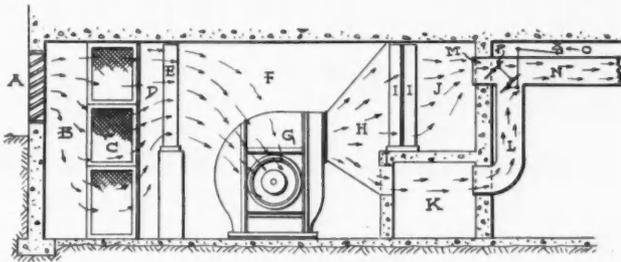


Fig. 2. Elevation of Blower.

degrees in a room will cause a change in the dampers so as to alter the air supply.

The accuracy to which this adjustment can be obtained may be realized when the fact is appreciated that on a recent tour of inspection through a new home erected by one of our greatest millionaires, the writer found but three rooms out of a total of fifty which were not between 68 and 70 degrees Fahr., and these three were only dependent on a slight adjustment to make them line up with the others.



Who Knows About Shingle Thatching?

To the Editor:

Algona, Ia.

Would some Brother of the Woodcraft, through your valuable paper, kindly give me some information on shingle thatched work? I have one to lay and it is a new stunt to me. A little coaching helps one. Have been a subscriber to your valuable paper for a number of years and think it well worth the money.

C. HERMAN.



Ever Need to Climb a Pole?

HERE IS THE WAY TO DO IT

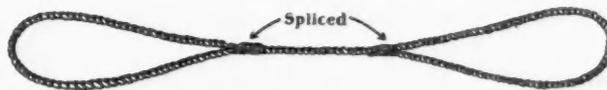
By Edmund Von Kaenel
Expert Steeple Jack

I WANT to tell the boys about the Von Kaenel loop system for climbing poles or stacks, or anything else of fairly small diameter that has to be "clumb."

With two pairs of loops, you can easily work your way to the top of the highest flag staff; and there is no danger of falling or slipping down.

I simply take a piece of inch rope and splice a loop in each end, as shown in the sketch. Make these loops of a size depending on the size of object to be scaled. If you can't splice them, tie them solidly by wrapping.

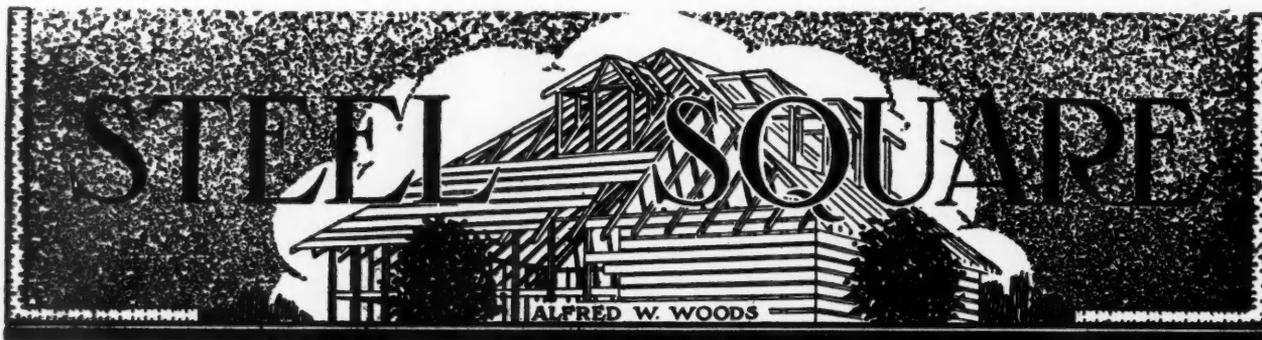
My system requires two sets of these rope loops, one to stand in, and the other to sit in. The sitting loop, of course, has to be larger than the others.



Two of These are the Entire Outfit.

Look at the flag photo and you will see how the loops are put around the pole. The climber pushes up one set of lops while he rests his weight on the other, and so goes up.

It's safer and quicker and cheaper than scaffolding. Try it next time.



Triangles

HOW THEY MAY BE EMPLOYED IN SOLVING ROOF FRAMING BY THE AID OF THE STEEL SQUARE

By A. W. Woods

WE are going to take for our subject this month triangles and the part they play in solving, by the aid of the steel square, seemingly difficult problems in the art of framing. Every carpenter, and we might include everybody else who has had occasion to use the steel square in any of the uses to which it may be applied, has heard that old saying,—that no one is able to solve the depths of its calculating powers hidden within its ridged make-up with only the standard measurement stamped on its face. But the student does not have to go very far in the realm of mathematics to learn that all angles are solvable by reducing same to right angle triangles. The steel square furnishes the right angle corner and the triangle is completed by a line connecting the two sides of the right angle, which are as tangents to a circle.

The steel square, then, is simply an aid in solving

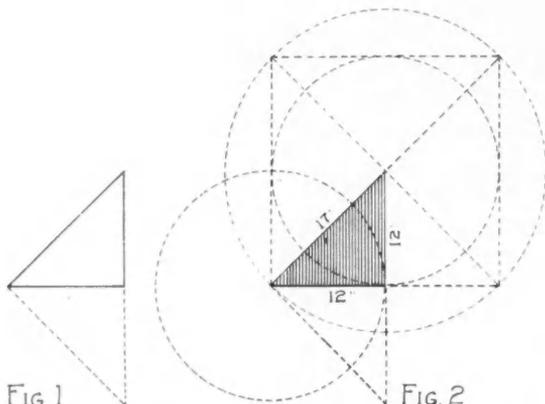


FIG. 1
The Angles and the Part They Occupy in the Plan

a problem based on the divisions of the circle from which the angle emanates. Therefore, the framing of a roof has its beginning in the circle. It takes on the form of polygons. The equilateral triangle being the first, contains within itself the proportions to form all other polygons and all other angles required in the framing of the roof. In short, it is the beginning and the end; it takes on the beginning as it takes on its first shape and the end where it ceases to have shape.

In Fig. 1 is shown the triangle for the square

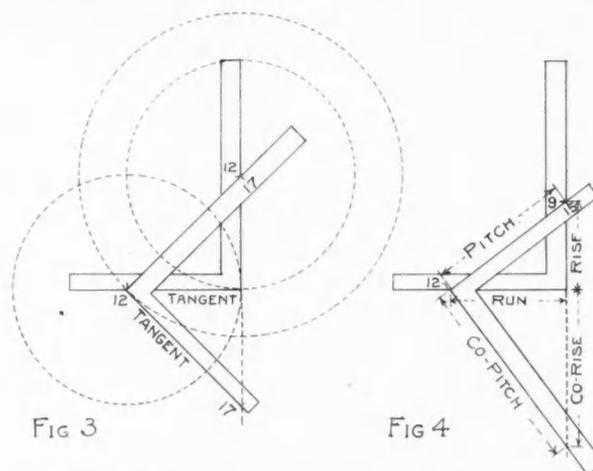


FIG. 3
FIG. 4
The Angles Formed by the Aid of the Steel Square for the plan and Pitches.

cornered building; the angle formed by the solid lines represents the plan, while the angle formed by the dotted lines on two sides represent the length of the tangents which are used in determining the side cuts of the rafters. It will be noticed that these angles are exactly the same, and the question naturally arises,—why do we show two angles? The answer is, because the angle that forms the plan for the square is a 45 degree triangle, and for that reason its complement is of like degree angle, and to carry out the general rule that applies to any other than the square corner, it is necessary that this formula must be thoroughly understood.

Passing on to the second figure, is shown the position of the angle in the roof plan. Of course, it is not necessary that the sides of the building be of equal length; but this is the angle to use for the square

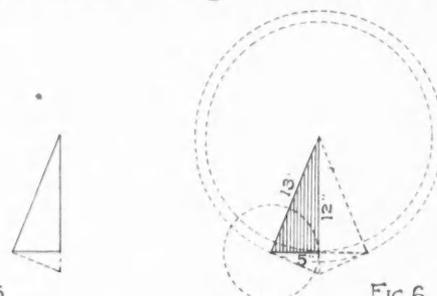


FIG. 5.
FIG. 6.
The Angle for the Plan for the Octagon Corner 16

corner, as shown by the shaded part, regardless of the size of the roof and represents the full scale to one foot run of the common rafter.

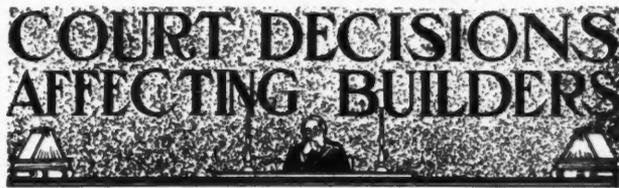
In Fig. 3 is shown the application of the steel square to form the angle, and in connection with same are shown the tangents and what determines them.

So far, we have only dealt with the angles that form the plan and are reckoned as being on a level surface. We are now ready to take up the angles dealing with the pitches.

In Fig. 4 are shown the formation of these angles in connection with the steel square, with their respective parts designated. In this, the angles are shown for the $\frac{3}{8}$ -pitch, or 9 inch rise to the foot run. By letting the heel of the lower square rest at 12 on the tongue of the upper, as shown, it will readily be seen that any angle can be delineated by swinging the blade up or down, thus covering the whole field of angles.

It is not our purpose in this article to illustrate in detail what figures to use in obtaining the cuts, but more to show what determines them, and in this we have shown only what is used almost exclusively to all others, but the rule applies to any other angle the building may have.

In Figs. 4 and 5 are shown the angles for the octagon corner; and what is said of Figs. 1 and 2 answers equally as well as for these figures.



Mr. John Simpson, a well known legal authority, has been engaged to set forth in plain English certain important points of law that concern Builders. He will also through this department answer legal questions for Our Readers.—Editor.

Independent Contractors—Liability for Their Acts

An "independent contractor" is one who, exercising an independent employment, contracts to do a piece of work according to his own methods and without being subject to control of his employer, except as to results of work. The most important indication of an independent contractor is his right to control the details of the work. If that right is retained by his employer, whether it is exercised by him or not, the relation is usually that of master and servant or principal and agent, and not of employer and independent contractor.

The employer of an independent contractor is not liable for the negligence of the independent contractor as such, nor is he liable for the negligence of such independent contractor's servants.

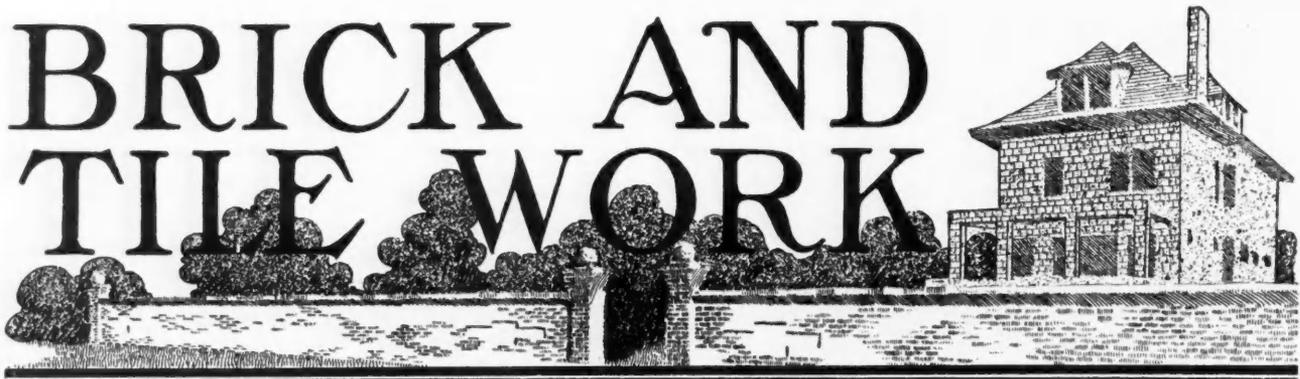
The following is an example of the application of

these principles, taken from a recent decision. A cabinet maker had a contract to construct and install eight storm windows in a restaurant. He manufactured the window frames and sublet to one Munname the work of installing them, and to David Shuldiner, Inc., the work of putting in the glass. In putting in the frames Munname used a scaffold, which was placed upon the sidewalk. While two of Shuldiner's men were attempting to move it, it fell over and struck a passerby, who sued the general contractor, the cabinet maker. Assuming that the men were negligent, it was held that the defendant was not liable. Munname and Shuldiner, Inc., were both independent contractors. Their employees were not hired by the defendant and were in no way subject to his direction or under his control. When the work was sublet, the defendant did not specify how it was to be performed, nor did he reserve to himself the right to interfere in any way in its prosecution. There is an exception to the rule that a general contractor is not liable for the negligence of independent contractors to whom he has sublet work, to the effect that a person who makes a contract necessarily involving the doing of some act inherently dangerous, is bound to see that the act is performed in a proper way. But the installation of the frames and glass was not an act inherently dangerous. It could have been performed with safety. Judgment for the plaintiff was therefore reversed. *Phillips v. Roth*, N. Y. App. Div. 145 N. Y. Supp. 745.

Subcontractors Defined

A subcontractor may be briefly described as "one who has entered into a contract, express or implied, for the performance of an act, with a person who has already contracted for its performance." A., having entered into a contract with the owner of land to erect a house thereon, makes a contract with B., by which B. agrees to do the excavation and mason work. B. sublets to C. the mason work, and C. lets out to D. that part of the mason work which relates to bricks, and to E. that part which relates to stone, each contractor agreeing to furnish the labor and materials necessary for the performance of his contract. A. is the original contractor, who alone is responsible to the owner for the due performance of the original contract, and to whom the owner is responsible for the payment of the original contract price. B. is a subcontractor, and is alone responsible to A. for the performance of his contract with him. But B. also sustains another relation to the work. As between himself and C. he is an original contractor and C. is personally responsible to him alone for the performance of his (C.'s) contract. As it is with B., so it is with C., D., and E. Each is a subcontractor, but there are differences of degree with respect to their remoteness from the parent contract. According to some authorities, B. would be called a subcontractor of the first degree, C. of the second degree, and D. and E. of the third degree.

BRICK AND TILE WORK



Iron Anchors Used in Walls of Masonry

By John S. Edmund

THROUGH the advancing favor of brick and hollow tile as a building material for the exterior and partition walls of houses, garages, stables and such like buildings, more iron work is used in connection with the construction of same, than with the walls of wood.

The main ironwork, other than the iron lintels, which is used with buildings of brick and hollow tile walls, beams and floors of wood, are the anchors.

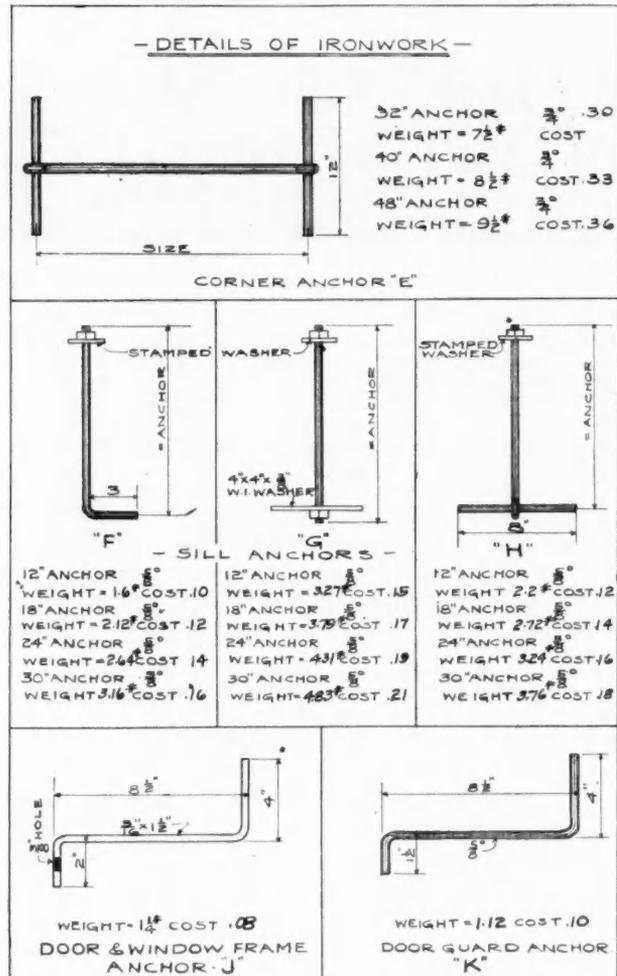
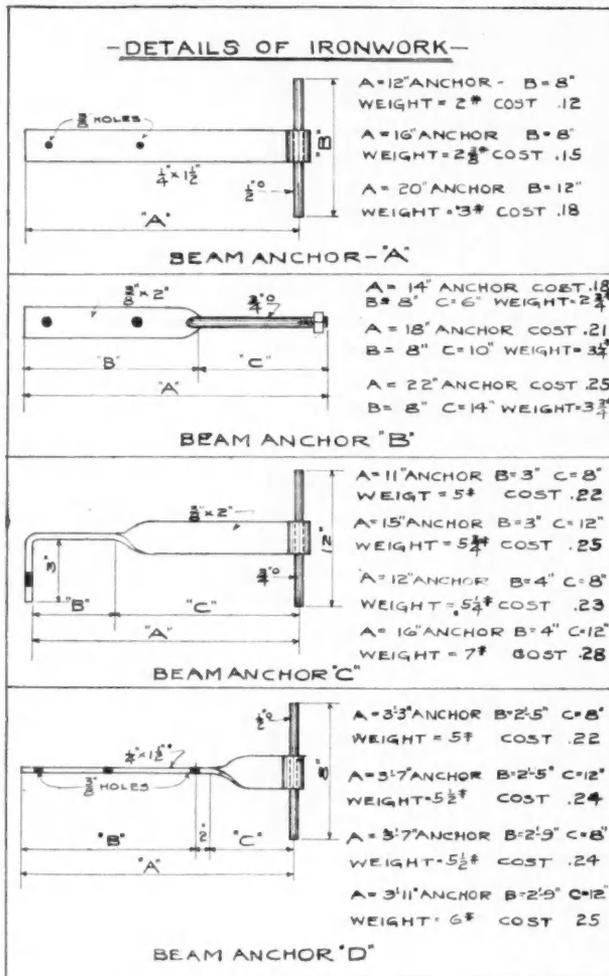
In a structure, with walls of masonry, that is properly constructed, there are no less than four or five different styles of anchors used in the construction—not including the galvanized or copper metal wall-ties,

of which the majority are patented.

The illustrations as given herewith are various styles of beam anchors, corners anchors, sill anchors, door and window frame anchors, and door guard or wheel guard anchors.

The data as given in connection with each anchor is as follows: The size or length of the standard anchors used with various thicknesses of walls, beams, etc., the weight of the different sizes, and the cost of each.

Anchors "A," "B," "C" and "D" are various styles of beam anchors. Detail "A" is the most common



Iron Work Frequently Required in Connection with Brick Construction.

anchor used. It is spiked to the side of beams averaging 2 or 3 inches in thickness which run at right angles to the wall. They are sometimes allowed to project through the wall where the architectural finish of the building is not taken into consideration. They are spaced about 6 feet on centers. Detail "B" is a type of anchor used in heavy construction, such as for the longitudinal girders. They are secured to the beam with 1/2-inch lag screws and allowed to project through the wall, using a star or other ornamental washer on the bolt end. This style is used with every beam or girder. Detail "C" fits over the top of the beam and is secured with a lag screw or heavy spike to the side. This is used with the wall beams that run parallel with the wall. Detail "D" is used in lighter construction with the beams that run parallel with the wall, and is spiked to the top of the first three beams. These anchors are spaced every 6 feet centers.

Anchor "E" is used at the intersection of two walls

where one wall is run up without waiting for the other. This usually occurs with the side and front wall, where the side wall is of common brick and the front wall of face brick or some finished stone construction. The reason this is done is to keep from damaging the front wall; as all the material is generally hoisted up at this point.

Anchors "F," "G" and "H" are types of sill anchors. Style "F" is used the most of these three, as it works equally well with concrete or brick.

Anchor "J" is a window or door frame anchor. These anchors are used in every building of first class construction. They are generally spaced three to a side for the ordinary heights of window and door frames.

Anchor "K" is used for anchoring door guards and wheel guards at corners, flat surfaces and door jambs to the brickwork on stables, garages and gates when the piers are of masonry, etc.

A Problem in Office Building Design—

THREE WINDOWS IN THE BAY OR TWO?

RALPH S. HAWLEY, of the Business Properties Company, Seattle, makes a very clear and helpful analysis of this fundamental proposition in office building arrangement in a recent issue of *Building Management*.

Window arrangement in existing office buildings has proven such a source of difficulty to the manager in his endeavor to subdivide and revise office space to satisfy the requirements of tenants, that it seems appropriate, he writes, if we are to realize the highest net income from a new building, to consider the fundamentals which determine window adaptation for any given office floor layout.

As I conceive this problem, in order to produce the highest dollar efficiency, it is necessary to determine the minimum space acceptable to the several groups of tenants which will use the building, and then to so design the window layout as to make it possible to supply at will those tenant groups with their office needs.

After having established the minimum acceptable offices, and having defined the proper window arrangement to make possible a multiplication at will of acceptable units, it becomes easy to provide any tenant with as much or as little space as he may desire adapted to his peculiar use.

Three Kinds of Tenants

There are three inclusive groups of tenants which any building has to serve, namely: The One-man, the Two-man, the Poly-man, and under these three headings may be classed any usual tenancy, be it individual, partnership, firm or corporation.

A long experience has shown the normal space required by the "One-man" to be a room 12 feet wide by 18 feet deep. Such an office will house, without

crowding, a desk, stenographer's desk, chairs, files and other usual furniture.

Similarly, the normal "Two-man" tenancy requires a room 14½ feet wide by 18 feet deep. This space does for the "Two-man" what 12 feet by 18 feet does for the "One-man"; it allows comfortable accommodation for the average number of pieces of furniture.

Whenever private offices are demanded in addition to general office room, the minimum allotment acceptable to one man is an area 7 feet by 9 feet.

Assume, now, the standard units to be 12 feet by 18 feet for normal "One-man"; 14½ feet by 18 feet for normal "Two-man"; and 7 feet by 9 feet for private one-man use. This 7 by 9 room we will call the "One-man minimum."

Then, by assembling the established standard office units in either extensive open area or numerous small rooms at will, it is easy to office the "Poly-man" with any reasonable desired combination of facilities.

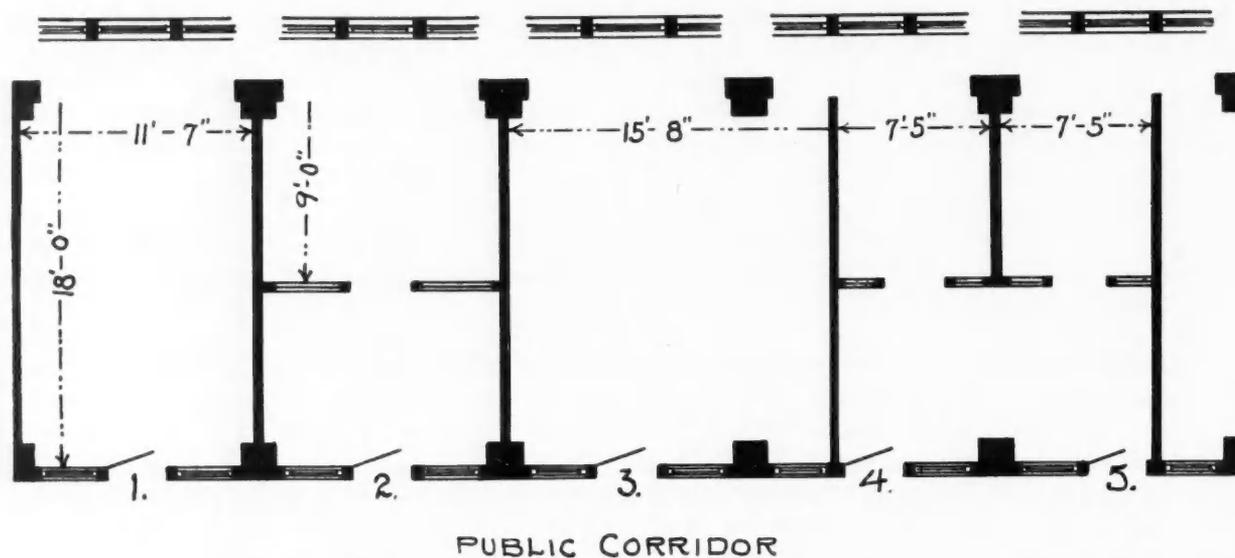
Establishing Normal Minimum Standards

The difficulty in arranging offices arises from the effort to satisfy the want of small office divisions. The larger areas can always be made available. Therefore, for our purposes, it is of primal importance to supply the normal minimum standards.

In the above standards, "One-man," "Two-man" and "Poly-man" are normally space accommodated.

The next step is to adapt the structural steel plan and window arrangement to conform to these divisions. As 12 feet of outer wall face is the standard "One-man" unit, it seems logical that 12 feet should become the width of bay.

Accepting this as proper width, the number of windows per bay must be evolved. To do this graphically, I have prepared the accompanying drawing. This



A Typical Office Building Lay-out, With a Public Corridor Along the Inside and the Bank of Offices Eighteen Feet Through to the Outside Windows. (In this Drawing the Windows Are Set Forward Out of Their True Position.)

drawing shows five standard bays 12 feet on centers, forming five normal "One-man" units. Room (1) is without division of any kind. Room (2) is supplied with a cross partition to provide a private room with ante-room on hall side. Room (3) has added to it a portion of room (4) for the purpose of making a normal "Two-man" office. This office is somewhat wider than called for, but still not enough wider to greatly affect the rental efficiency. The remaining portion of room (4) is joined to an equal portion of room (5). That which is left over of (5) will be assumed to be attached to the next room. A "T" partition divides room (4) into two small rooms which are approximately dimensioned to fit our "One-man minimum," which is 7 feet by 9 feet.

In this drawing, the windows have been detached from their proper place and indicated outside the bay in order to show clearly the desired office divisions without relation to windows.

Why the Two-Window Scheme is Not Advisable

It is evident that two, three, or even four windows will satisfactorily light rooms (1), (2) and (3), provided no longitudinal partitions are used. However, when it is necessary to further divide the space as shown in room (4) for example, window arrangement becomes an obstacle instead of an aid to the rearrangement.

Two windows in the 12-foot bay will not permit of the varied divisions as shown on the drawing. In the first place, a 12-foot room, divided by a "T" partition, leaves private rooms too narrow for acceptable use. In the second place, an office adequate for the "Two-man" tenancy can not be supplied without using one full 12-foot bay and one-half of the next 12-foot bay, thus making a room about 18 feet wide, which is

much too wide for profitable renting and efficient use.

If three windows are set in these 12-foot bays, the office divisions indicated on the drawing, and which are approximately standard, may be readily provided. In fact, all the varied requirements of the several groups of tenancies can be obtained because the normal minimums have been provided.

It is unnecessary to indicate how room (3) can be divided, nor how three or four individuals may be space-accommodated by different partition arrangements.

That the window arrangement here outlined is the most efficient one for a 12-foot bay, does not indicate nor prove the superiority of three windows for bays of all widths. Bays may vary greatly in width, and each different width requires different window treatment.

Of all possible bays, dollar efficiency rigidly limits the width within the range of 12 feet as a minimum and 14½ feet as a maximum. Within these limits, three windows give the most flexible structure, and consequently the most efficient. Again, within these limits, the lower limit, 12 feet, equipped with three windows is the bay most adaptable to subdivision, and the one which will produce the highest net income results.



Uses Bees Wax and Tallow

To the Editor:

Lemoyne, Pa.

In the April issue of the AMERICAN CARPENTER AND BUILDER, Mr. J. C. Werner, of Berlin, Pa., suggests bees wax in a hammer handle, into which points of nails are to be stuck for nailing hardwood. We will agree with Mr. Werner that bees wax is the greatest substance known for nails in nailing hardwood, but it is a little too solid, especially in winter time. If one-fourth, or not more than one-third, tallow is melted with the wax it becomes much softer and easier to use.

F. E. KENNEDY.

New School at North Berwyn, Ill.

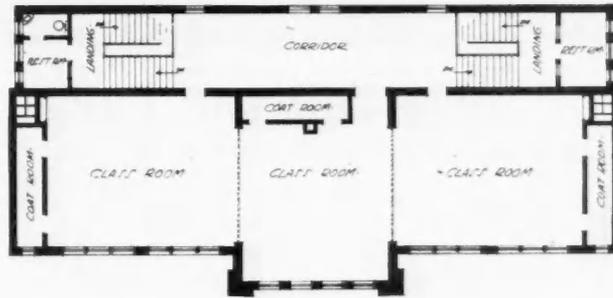
PERSPECTIVE AND BLACK AND WHITE FLOOR PLANS OF ATTRACTIVE MODERN SCHOOL BUILDING RECENTLY COMPLETED IN ONE OF THE WESTERN CHICAGO SUBURBS.

THE Karel Havlicek School at Elmwood and Fifteenth Streets, North Berwyn, Ill., has recently been completed. It is a fine example of modern schoolhouse designing. The exterior appearance is trim and neat, a contrasty combination of dark brick work and white stone trim being employed.

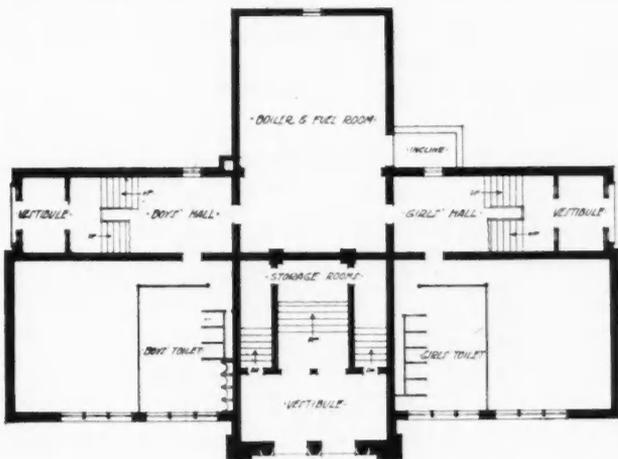
In its interior arrangement, this building provides five standard class rooms on the first and second floors, besides two large, well-lighted rooms in the basement, which can be used for manual training or recreation rooms.

This building is arranged so that an addition at the rear can be built on at any time, which will duplicate the front half.

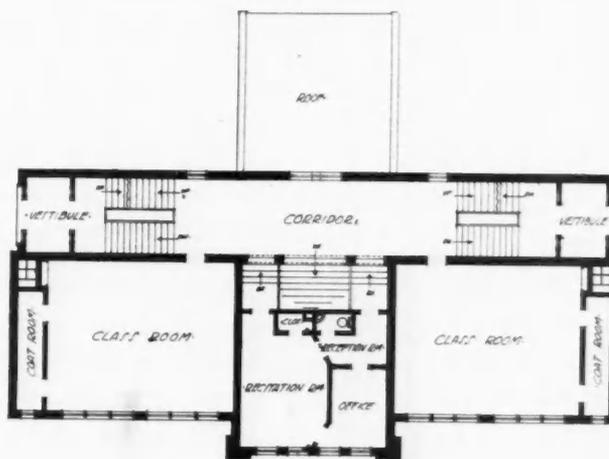
This is one of the many modern school buildings designed by Architect G. W. Ashby, of Chicago, that have been erected during the past few years in Chicago's western suburbs.



Second Floor Plan.



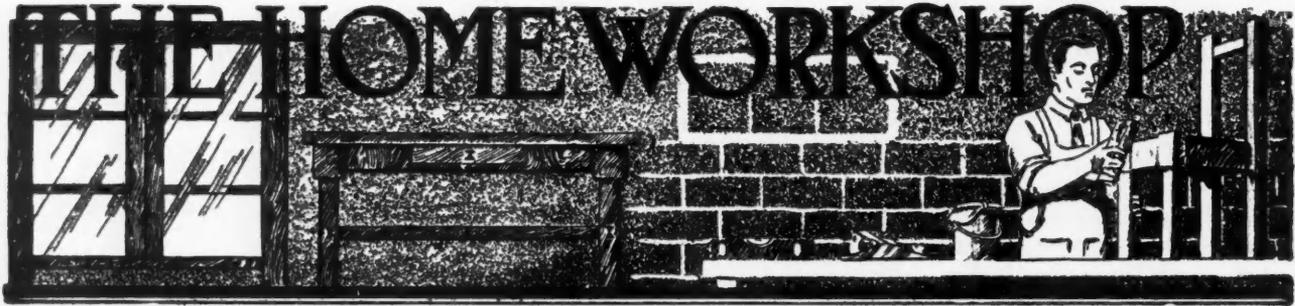
Basement Floor Plan.



First Floor Plan.



The Karel Havlicek School, Recently Built at North Berwyn, Ill., G. W. Ashby of Chicago, Architect.



Design for Large Hand Carved Seat

A PROJECT TO TEST THE METAL AND SPUR ON THE INTEREST OF THE MOST SKILLFUL

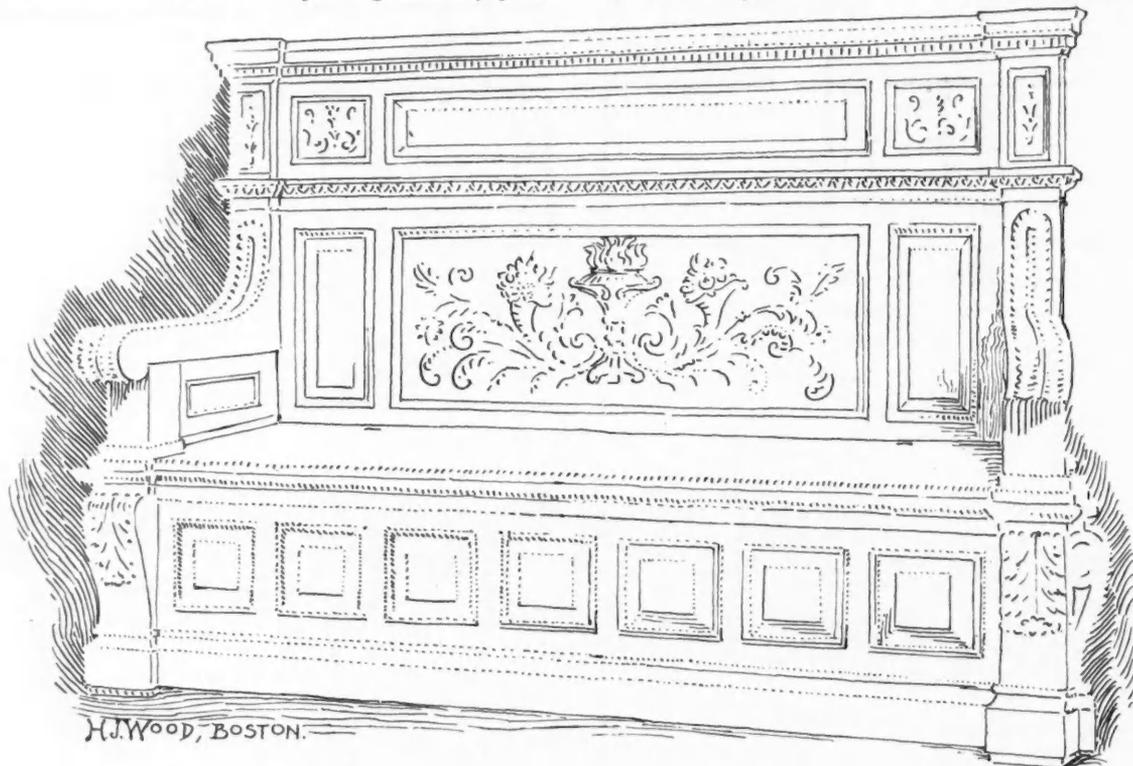
By C. Bryant Schaefer

MOST every good craftsman cultivates a taste for some style of work in which he takes special pleasure. Some fine article is often planned for construction in spare moments. In constantly submitting one's work to the approval of others, whether employers or customers, it is but natural to desire to test one's own judgment and choice in similar matters. Sometimes such a shop-made piece of work is utilized for display purposes or more often it is kept until its fine workmanship brings a fancy price.

Our diagram shows its construction—but of course, the artisan would want to decide the details of that for himself.

The large carved panel in the back is in good proportion with the narrow panel above, but if a back with one group of panels is preferred then the bottom stile can be a great deal wider.

Herein will be found a test of skill in matching the grain of the wood at joints, in making the glued up work the very best which care can secure and having



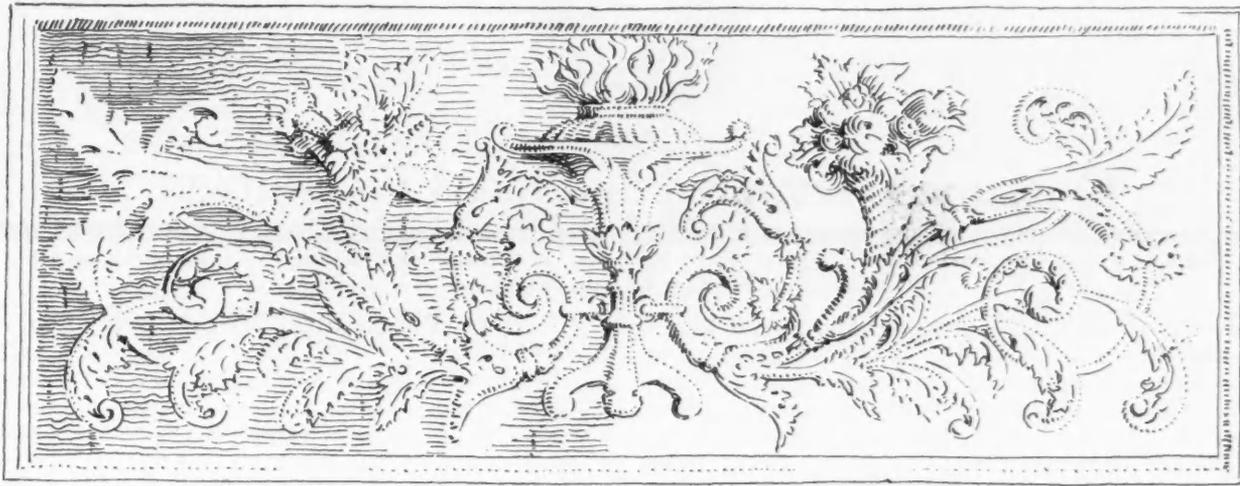
Pen and Ink Sketch of Beautiful and Unusual Hall Seat.

A piece of furniture is a good article to make in this way. It is portable and easily utilized. There is no limit to the refinement and gracefulness with which its different parts may be finished.

Our illustration shows an elegant settee in Renaissance style. Something similar to this would be appreciated by one who has been unable to panel his hallway in wood. It would make an inviting place to lounge by an open fireside.

select grain in the panel centers. The principal parts should, of course, be dowelled together.

The mouldings should be more suitable for furniture than most architectural examples allow. Those at the front part of the seat especially should be well rounded at their top, also those across the middle of the back. The corners of the arm rests should also be softened. Some might like to set the front drop, below the nosing of the seat, back a little. In some styles the seat



Detail of Carved Panel for Seat Back.

itself is tilted upward towards the front, as shown in the section.

A detail is given of the carving on the main panel. It is a composition of classic forms, excellent in execution and finish. The leaves are graceful, flowing and natural. There is none of that wooden stiffness which is found in poor work. The tool marks do not have to be imperceptible to secure this flexibility of appearance.

The sculptured design is not without its significance, which is an additional attraction to many persons. The central feature is an altar upon which burns the flame of desire. From this flows ever-lasting fruition and plenty, represented by the familiar cornucopias at each side. These messages to future ages which artists of the past incorporated in their work make their productions enduring and worthy the painstaking labor bestowed upon them.



Curious Building Laws of Ancient Times

(Continued from page 66.)

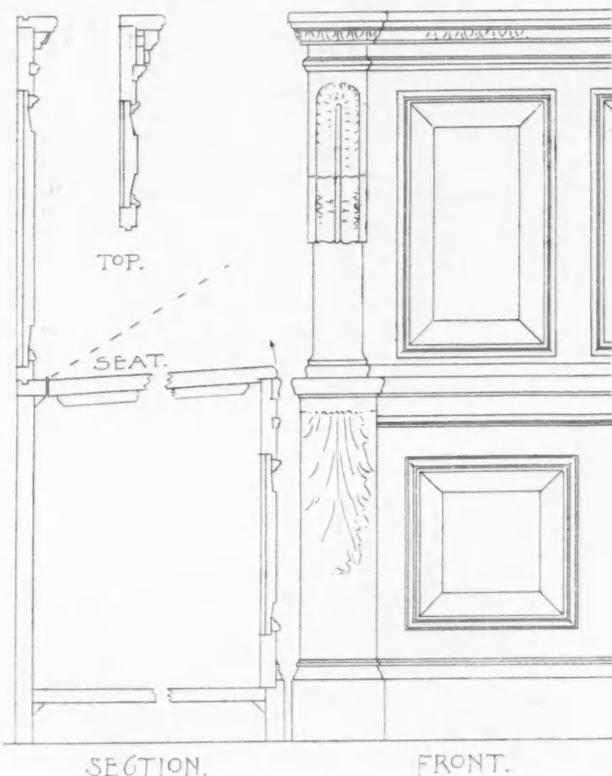
We learn that in front of every home the owner was required to erect a wooden portico to protect the passers-by from the rain and sun.

It was a magnificent city that Nero began, but after his death in the year 68 A. D. his ambitious plans were ignored or forgotten; the public squares were sold to speculators and high tenements along narrow streets again became the order.

In later times we learn that Venice limited the height of buildings to 70 feet, Florence to 100 feet, Paris to 60 feet, and Toledo to 75 feet.

Rheims had a curious law forbidding any structure to be higher than the eaves of the Cathedral, and it was the duty of the sexton to look daily from the port holes of this Cathedral when a building was being constructed to see that it did not rise higher than the level of his eyes.

Practically all ancient and mediaeval building laws dealt with residential structures, since the problems of office and industrial buildings were reserved for this age to deal with.



Details Showing Construction.

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.

Keeps Busy with Power Woodworker

To the Editor:

Pekin, N. D.

It is quite a while since I wrote you, although I have been receiving your most valuable paper regularly and I read everything. My wife says I don't read anything but advertisements. Well, I must admit that I do read them, too, and every reader of this paper ought to. If I find a new one, then I write and find out what it is.

Business in the building line up here is not very rushing so far this season; but I have managed to keep going, making up material for jobs—such as store fronts, window and door frames, screen windows and doors, odd sash and all that kind of stuff. I am not stuck when I have my "Crescent No. 58" woodworker to fall back on. I am enclosing herewith a photo of the interior of my shop, which showed in the January number of your paper. You had the figures 30 by 60 feet; it should have been 50 by 60 feet.

O. S. Houge, Contractor and Builder.

To Patch Fine Woodwork

To the Editor:

Columbus, Ohio.

It frequently happens that a piece of furniture or other woodwork becomes marred, and it is necessary to repair it with a patch. This, if not neatly done, will always show the repaired spot. I have seen many a good piece of work ruined by setting in a square or diamond shaped block that would not match the wood of the original piece. By using this method, the glue joints invariably show.

A better way to do this, and one that is generally used in the car shops and piano factories, is to use a sharp outside gauge and remove a thin amount of wood, just a little larger than the marred portion, and not quite as deep as the veneer to be used.

If the gouged out portion is left elliptical, a better and neater job can be done. Be sure to leave the edges sharp. In preparing the veneer, select a piece that matches the original wood, as to color and grain. Cut the veneer to the con-



Interior of Businesslike Wood Working Shop of O. S. Houge, Contractor and Builder, Pekin, N. D.

tour of, and just a little larger than the gouged out portion, leaving the under side convex and smooth.

Make a caul of either flexible leather or felt, and on top of this place a block, preferably of soft wood, and it is ready for the glue and clamps. If the glue is too dark, it may be whitened with a little flake white, which does not lessen its adhesive power.

After the glue is thoroughly dry, clean the work up in the usual manner.

In patching oak, if a sharp pointed instrument is used to extend the pores from one piece into the other, it will make a better looking job.

Occasionally a piece of burl veneer may be used to good effect when the patch is not too large and the grain of the wood will permit.

J. D. DEBRA,

Instructor in Carpentry and Cabinetwork,
Columbus Trade School.



A Collapsible Work Bench

To the Editor:

White Hall, Ill.

I am sending you a sketch of a six-piece take-down-and-put-together-in-one-minute work bench, one that can be taken up and down stairs or any place where a pair of trestles can be taken.

This bench has a seven-foot top made of yellow pine flooring, screwed to three cross pieces, and has a six-inch base, also a patent vise. The old adage, "poverty is the mother of invention," is how an old bedstead came into use some eight years ago, as the frame work of the bench was once a bedstead. Therefore I believe this is the only bench without a rival.

It is simple to make, as the running gears are already made, except to narrow up for width and bore holes for 1/2-inch pins in top of posts.

The tool box, or chest, is placed in position before the top is set in place.

I find this a very handy rig to take onto the job; and I am sure others could use it to advantage.

JESSE HARRISON.

Saws Wood with Motorcycle

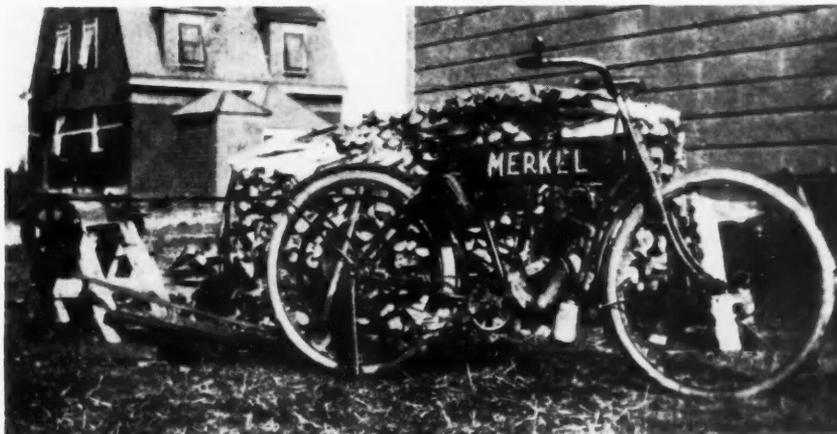
Little Rapids, Wis.

To the Editor:

I make my motorcycle "work its way" by setting it to work at doing certain odd (but heavy) jobs when it is not in use carrying me around the country. Its little engine does the work much easier than I could do it. As a good many of the carpenters and builders are now riding motorcycles, you may want to show them this photograph of my machine hitched up to a buzz saw for sawing up cord wood.

This is a 1907 model Merkel, the later models they are calling "Flying Merkel," made by the Miami Cycle & Mfg. Co. I have given this machine pretty hard service in the last seven years, but it is still in the ring. In my work as lockmaster for the Government at Rock River, Wis., I have had a lot of riding to do. This buzzsaw work is only one of the special stunts I have been setting for my machine. Besides sawing our wood, it turns the washing machine and gives a good account of itself every time.

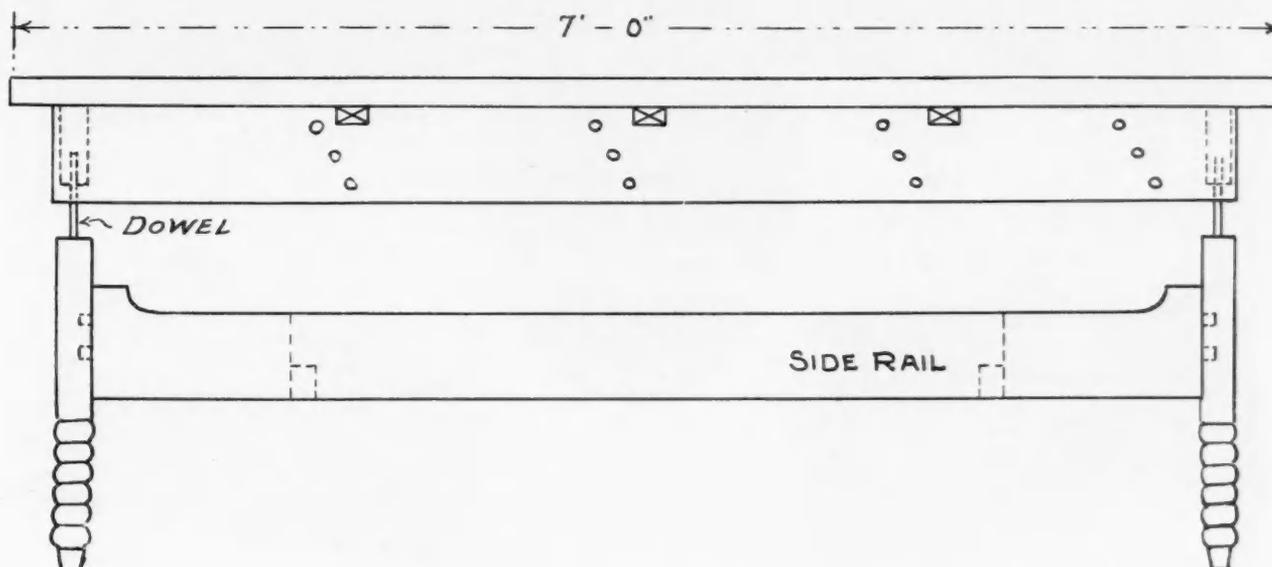
The saw rig that I have fixed up is only a very simple one. Probably most carpenters would make one a good deal



Motorcycle Hitched up to Simple Buzzsaw Rig; an Idea that a Good Many Motorcyclists Could Use in Some Form or Other.

more elaborate than this, so that they could handle a variety of work on it. It's an idea that's worth trying.

L. A. CLARK.



Side Elevation of Collapsible Work Bench. This One was Made Out of An Old Bedstead. Any Stout Frame Work Would Do as Well.

About Level Glasses

To the Editor:

Lemoyné, Pa.

Concerning Mr. B. S. Wickware's comment on Mr. Hick's article pertaining to the accuracy of a quick-acting level, I emphatically say Mr. Wickware is wrong—as knowledge of the mechanism of a level and the experience in using one has taught me. The shape of a level glass is an arc of a circle, and the straighter the glass the more sensitive and quicker-acting is your level. Take for example—a 24-inch level—move one end up or down 1/100 of an inch and a quick-acting level will readily respond, and the bubble will move a distance that is readily seen. Whereas, moving the slow-acting level 1/100 of an inch up or down, the movement of the bubble is so slow and the change in its position is so slight that it can scarcely be detected. Take, for instance, a surveyor's instrument, where accuracy is very essential, they are very sensitive and quick-acting.

Mr. Wickware further states that the glass is warped in cooling, which makes it imperfect, and that the concave side of the glass is up, which causes it to take the center quicker. I will say here that nobody with a wise head would speak in terms like that, as it would be an utter impossibility for a person to make a bubble take a center with the concave side of the glass up.

F. E. KENNEDY.



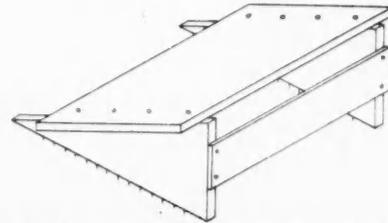
A Shingling Jack

To the Editor:

San Rafael, Cal.

Brother C. F. Maimbourg, in the September number, tells of his shingling seat. Now I think that I have him "beaten to a frazzle." Please don't get mad, Mr. Maimbourg, because you know every man is entitled to a good opinion of "hissself." But seriously; the sketch makes it very plain. I usually use two 10-inch shingles for the top. A couple of about 4-inch width for the "face" piece. For the sides you will want good solid inch stuff. We always use Oregon

pine out here. And be sure to note the way the grain runs! This is important. After it is nailed together like the sketch, turn it over and drive shingle nails into the bottom edge, as shown by the dotted lines. Leave them so the "top" edge of the head just touches the wood. Now when you flop it and place it on the roof, you will find that the Ex-President



An Easily Made Shingler's Seat That Does the Business.

himself, with all his weight, could not make it slip. And remember this; the harder you sit down on it, the tighter it will stick to the roof.

You will find it light, strong, *very* convenient, easy and quick to make, and, in fact, the most generally satisfactory seat that you ever used, all things considered. I have used this style seat for nearly ten years and I would not give it up for any other—except, of course, on a roof more than one-half pitch. But for quarter and third pitch it "can't be beat."

H. J. BLACKLIDGE.



Northwestern Bungalow Building

To the Editor:

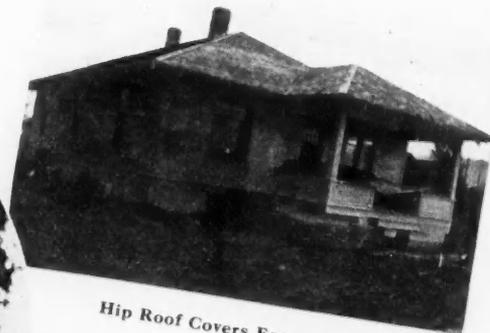
Sedro Woolly, Wash.

Here are photos of some cottages I have built. I have put up three of them in three months; cost about \$1,500.00; size 28 by 44 feet, 9 feet ceilings. They rent for from \$18.00 to \$20.00 per month. They rent faster than they can be put up. Each has three bed rooms, bath, kitchen, dining room, and large living room—all modern and plastered; hard finish.

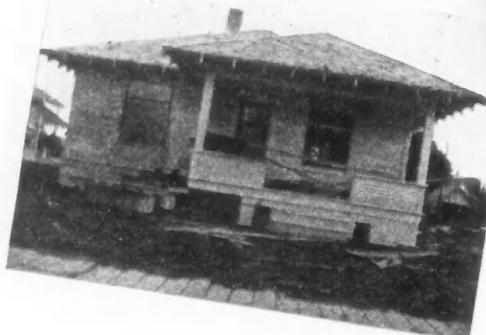
G. L. RUNDQUIST.



Simple Cottage with Bungalow Roof.



Hip Roof Covers Front Porch.



G. L. Rundquist, Bungalow Builder, Sedro Woolly, Wash.



Four Attractive Little Bungalows Built by G. L. Rundquist, That Cost About \$1,500 Each.



Double Corn Crib and Granary at Atkinson, Ill. A Center Driveway Makes a Good Wagon Shed.

Illinois Corn Crib

To the Editor: Atkinson, Ill.
 This picture shows the size and style of corn crib and granary built in this part of the country. The size is 30 by 32 feet, with a 14-foot driveway. It has cement foundation.
 FRANK VAN BUILAERT.



Store Front Details

To the Editor: New York City.
 In accordance with request from "Awkward" I submit herewith sketches of three show window bases and trust they will answer his purpose.

Fig. 1 shows all wood construction, namely: the sill is of rabbeted 2 inch pine with glass bead on the outside and wood panel facing. This is the cheapest kind of construction and is used to a great extent around this section.

Fig. 2 shows the glass set in a patent glass copper moulding and a marble facing. With ornamental marble and well designed this makes a very effective show window. The copper moulding referred to has a ventilating attachment which can be closed to keep out the dust.

Fig. 3 shows the general construction of a show window in a fire-proof building. The exterior frame is ornamental cast iron and the glass moulding copper. Behind the iron

grille there is provision made for a swinging sash to ventilate the cellar. The deck is of concrete or book tile, supported on light T-irons and wood floor laid on bevelled strips. The back can be brick or terra cotta blocks, as shown.
 DAVID SCOTT.



A Jasbury Hard-Luck Yarn

To the Editor:
 Some years ago I worked as a wood-turner in a factory on the West Side of New York City. I got the job through an ad. in the *New York World*. The morning I arrived at the shop, there were enough turners waiting outside to start a full-fledged turnverein society. Well, anyway, I pushed my way through and got the ear of the young foreman; being a young man myself, and American, same as he, I stood a better chance than some of my opponents. I began

telling him about how many van loads of recommendations I had, etc. He told me they were counterfeit in New York; that the work was "IT."

I was started turning duster handles. The first day I made about 30 cents, and 10 hours, too, mind you. There were seven other unfortunates besides yours truly. The work was all piece work and the handles I was turning were known as Common Boston, 25 cents per gross. Boston Commons is a beautiful city park; I have been there and enjoyed it, but when they reverse the name and call it Common Bostons, that is about the finale. There were other grades, such as Boston Special. They were, I presume, after the N. Y., N. H. & H. R. R. R.; in fact, there is not much difference. Then there was the glass duster, feather duster and many other high-falutin names given these poverty-producing poisons in the shape of brush handles.

Anyway, I got so that I could make \$1.75 per day if I worked from 7 A. M. until 9 P. M. The answer to our appeals for better prices, was: "If you don't like it, etc."—that stock stuff a boss pulls off to a disheartened jer. This is a sample of what happens to the woodworker in some of the much-heralded New York shops. The concern, as well as making all kinds of brush and duster handles, made piano legs and panels, which employed some twenty carvers. They were paid as ridiculously low as the rest of us. The pro-

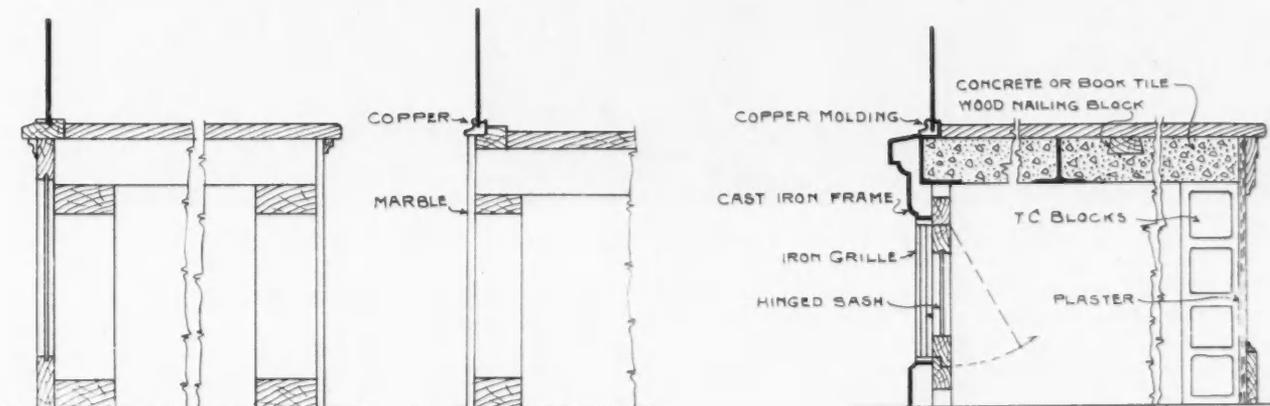


FIG. 1.

FIG. 2.

FIG. 3.

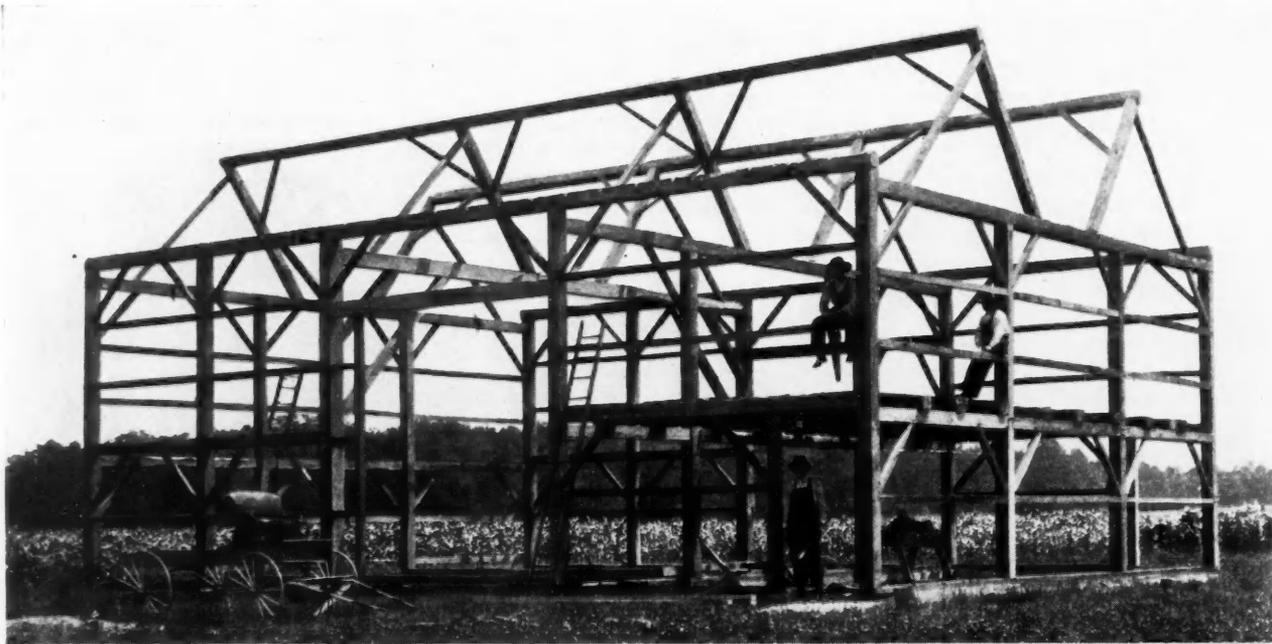
Cross Sections Through Store Front Bases, Showing Three Approved Types of Construction.

prietor was a tall, long-drawn-out, drink of water built man; one of those fellows who talks through his nose in order to save wear and tear to his store teeth; a real full-rigged, reinforced, tight-fisted Yankee. He made the philanthropic crack that any man could live on \$1.50 per day. This man, like many others of his type found on this planet, are only living for the sake of the American bird, called the "Eagle."

Some of the peculiar, or rather new things I saw in that shop was the manner in which broom handles were sandpapered; they were thrown in a revolving cylinder, called a "Tumble Barrel," into which waste pieces of sandpaper were thrown. This contraption, when in motion, sounded like a Mexican revolution. The shop afforded a few automatic handle lathes, which were used on orders principally of hard woods, by the thousands.

I shall never forget one poor old, worn-out turner on the lathe next to mine, who made \$5.10 one week. The prices were so ridiculously low, he could either take that or go out on the street and harvest a crop of snow balls, with the rest of the unemployed of which New York City always has a full complement of woodworkers. This shop had one good feature; one would not get tired of the bunch, because they were coming and going all the time.

The turner next lathe to me on the right, was a Texan; he and I consolidated and afterwards went to California. In various parts of the United States where I have hung up my hat, I have often heard New York lauded by some fellow who was dissatisfied, but believe me, Mr. Reader, New York City for a wood-turner, or machine man, is not the place it is painted, unless you are in some shop that is off the ordinary. I can describe some of the shops there, but will refrain, because I do not know the personnel of all the A. C. & B. readers; it might not sound good.



Heavy Timber Barn, 38 by 50 Feet, Near Jackson Center, Ohio, Constructed by August Ambor, Contractor and Builder.

I have been in wood-working shops from Vermont to Mexico, from Long Island to Frisco. The mill or factory work of today is not the cinch it was fifteen years ago. Nowadays we have such a system of time clocks, time cards, material cards, mistake cards, etc., it is almost necessary for a wood-worker to employ a Burns detective and an expert accountant to keep his day's work straight, or rather it would seem as the manufacturing world has gone system daffy.

The winter I spent in New York was an exceptionally

severe one, from a weather point of view, and a very thread-bare one from a business one. I think I discovered mills that were never before seen by a white man; mills that were so short of work, the interior had the appearance of a vacuum. I followed a load of sawdust on a truck for eight blocks, trying to find out from the Hebrew driver where the shop was located, because I figured they must have had "some" work there, or either that the load represented the entire output of New York's mills.

I struck a job one morning; everything was in my favor, except I could not speak German. I tried to act like a Teuton; even waived my hands and stood parrot-toed, but I could not land.

The shop I worked in on 24th Street, New York, was to a young man learning the woodworking business, as good as a trip to a World's Fair; the walls were covered with carving designs of piano scrolls of years' standing. They were kept, I suppose, for inspiration, as I do a little carving now and then, it appealed to me as very interesting and instructive. One can pick up many good pointers by knocking around from shop to shop, because no one place, no matter how up-to-date, has all the good points. But the wage end of it was so hungry, I could not put up with it for any length of time, without getting myself a mirror so that I could see myself starving to death.

WM. C. JASBURY.



An Ohio Barn

To the Editor:

Jackson Center, Ohio.

This is my second barn for season 1913. This barn is 38 by 50 feet, with posts 18 feet long.

AUGUST AMBOR,

Carpenter and Builder.

The Nonagon Tangent

To the Editor:

Holly, Colo.

If the run of the common rafter for a nine sided building is 12 feet, what will be the length of the tangent of the hip rafter?

C. A. WOOD.

Answer.—The accompanying illustration shows all of the parts in connection with the plan that are necessary for the foundation work of the framing for any pitch the roof may have and represents one-eighteenth of the area to be cov-

ered. The run of the common rafter being 12 feet, that for the hip will be 12 feet 10 inches, while the tangents will be 4 feet 4½ inches and 4 feet 9 inches for the common and hip rafter respectively. However, only one of these dimensions is absolutely correct,—that for the run of the

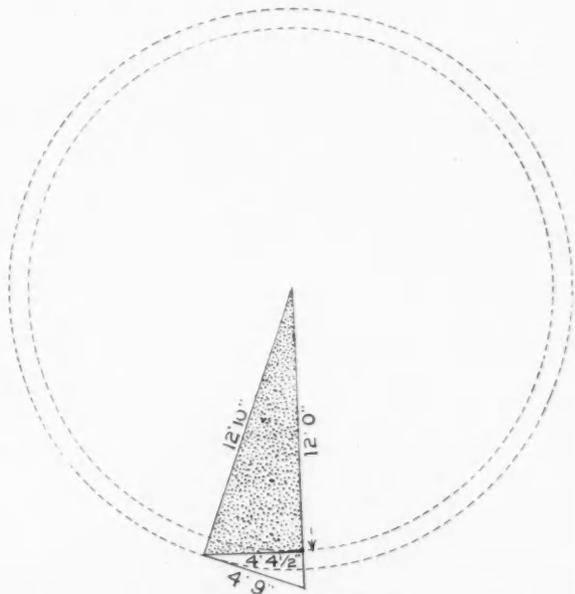


Diagram to Show How Nine Sided building is Figured

common rafter, as they all run off into fractions, but are given as near as can be worked to and, therefore, answer for all practical purposes.

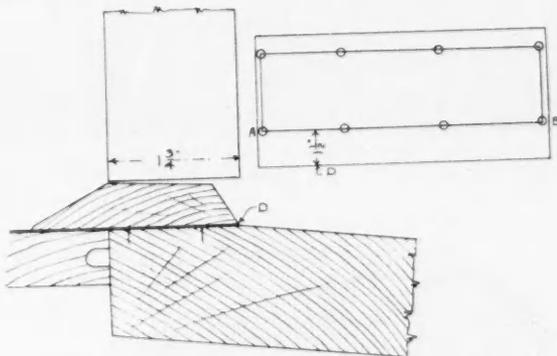
When working to a scale of one inch to the foot, let the number of feet represent so many inches and the inches as so many twelfths of an inch. A. W. Woods.



Still at the Threshold

To the Editor: South Bend, Ind.
Here is my plan for preventing water driving under a threshold, causing a leak.

This is especially valuable on upper floors where the water has a chance to follow out on the ceiling, but should be done on all outside doors. The line drawn from A to B and following the tacks where shown, is a piece of common wrapping cord and tacked 1½ inches from the edge, as shown at D.



Cross Section and Bottom View of Threshold Guaranteed to be Storm-tight.

Fill in between cord with white lead and you will have a job you can feel secure from leaks, providing the threshold is also put in as above.

Would be pleased to hear comments, or any good suggestions on this line; someone may have a better way.

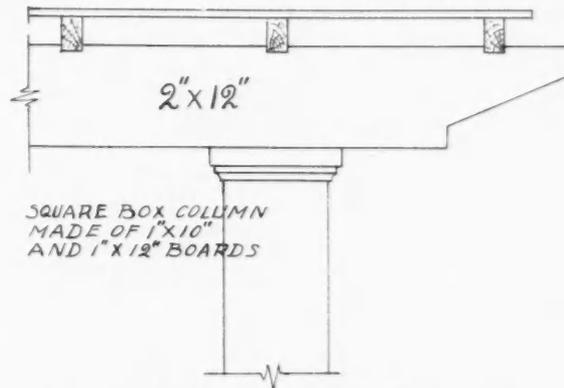
W. A. ODELL.

A "Hurry Up" Porch

To the Editor: Louisiana, Mo.
Last summer a friend of mine wanted a porch built with two provisos. One was that the porch should look massive, and the other it should be built before visitors arrived two days later. The result was a "Hurry Up Job," but the porch



"Massive" Porch Built in Two Days Before the Company Came.



Detail Showing Construction of "Hurry-up" Porch.

was complete when the company arrived. The columns are made of ten and twelve inch boards with a two inch cap, and a column can be nailed together in a few minutes. No scaffold is needed as the 12 by 12 fascia can be placed on top of the columns from a trestle. Each alternate ceiling joist can be cut into the house, the others being spiked to headers. Where the porch goes around a corner the fascia is mitered. If a tight job is wanted at the top instead of the open space, the two by fours can be gained in flush with the top. An upper and lower rail can be added if desired.

MARK STEWART.



Suggestions of a Mill Man

To the Editor: Louisville, Ky.

Am sending you some of my opinions of how to meet some of the difficulties which are encountered in the process of constructing a building. Am a back-sliding Charter Member, but a recent subscriber again, having taken advantage of the offer of last October for subscribers. I enjoy the magazine very much, especially the articles by brother chips, having been engaged for the last twenty years in the planing mill business as carpenter, machine hand and foreman for mill work in general, but frames especially.

I noticed some one explained that most frames are made so as to allow play for the easy running of the sash, or, in other words, instead of plowing the pulley stiles 1 7/16 from the edge and 1 13/16 for 1 3/8 and 1 3/4-inch sash, respectively, that they should be plowed the same distance from the edge as the sash is thick, or 1 3/8 and 1 3/4, not allowing any play whatever. I would say just this, that all sash come to the

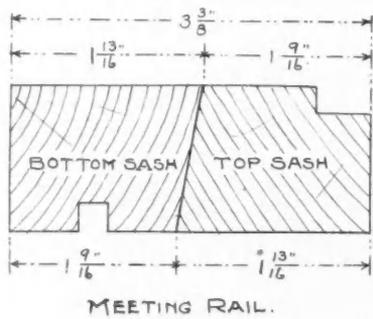


FIG. 1.

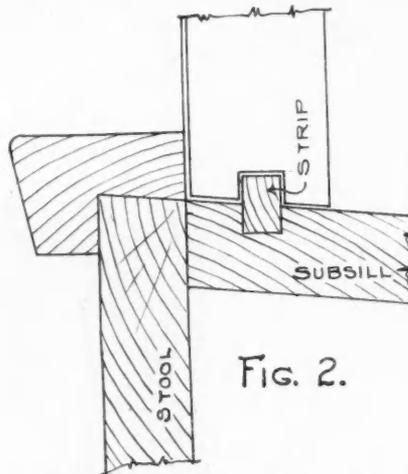


FIG. 2.

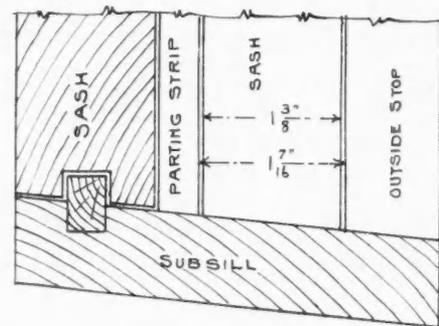


FIG. 3.

Details of Window Framing Offered As an Improvement Over Ordinary Methods.

building smooth and are intended to fit the frames without taking anything from their thickness. The reason for the play is because the stiles are not straight and therefore the distance between the outside stop and the parting strip must be some more than the thickness of the sash, and 1/16 is not too much.

There are other troubles about sash which I think could be remedied; first of these is in the check, or meeting rail, where you almost always find, after the sash are hung, a space 1/8 inch or more, simply because they are not (the meeting rails) wide enough. They should measure, when placed together, not twice the thickness of the sash and thickness of parting strip, but their width should also include the allowance in the frame for the easy running of the sash, which is one-sixteenth more than the thickness of the sash, making the hook rails, when placed together, measure for one and three-eighths sash twice one and seven-sixteenths and one-half inch for parting strip, which in all amount to three and three-eighths inches, as shown in Fig. 1.

To prevent rain from coming in under the bottom sash, there being in this instance no room for the stool to lap (the sub-sill not being wide enough to receive any lap of the stool), the method, as shown in Fig. 2, is sometimes employed. Have the bottom rail of sash plowed to receive strip, which is inserted in sub-sill. This allows for the sash to rest on the strip with at least one-sixteenth space between rail and sub-sill, so as to allow the water to run off freely and also admit air, which will prevent decay.

Fig. 3 shows a section of frame for a building that has for thickness of walls, studs, three and five-eighths, and plaster board, which is three-eighths of an inch, making the wall four inches in thickness.

ALBERT C. WILL.

✦
Were These Architect Planned?

To the Editor: Port Alberni, B. C., Can.

Enclosed please find \$2.50 for which please send the AMERICAN CARPENTER AND BUILDER for one year and "Cement Houses and How to Build Them."

There is so much in it that is good, I can't get along without it. "Noon Hour Talks by the Boss Carpenter," very good; designing and installing wiring for five-room cottage, a store, hotel, etc., would be very appropriate. Also plumbing for residence, hotel, office building, etc.

Enclosed please find cards of three different styles of houses I built here. Please ask the family, "Were any or all of them designed by an architect?" and have them give their reasons.

A great deal may be learned through seeing a building as it is and not as an untrained eye sees it.

A. W. STORY.



Ten-Room House, 32 by 50 feet; Cost \$4,500



Eight-Room Bungalow, 32 by 54 feet; Cost \$3,000.

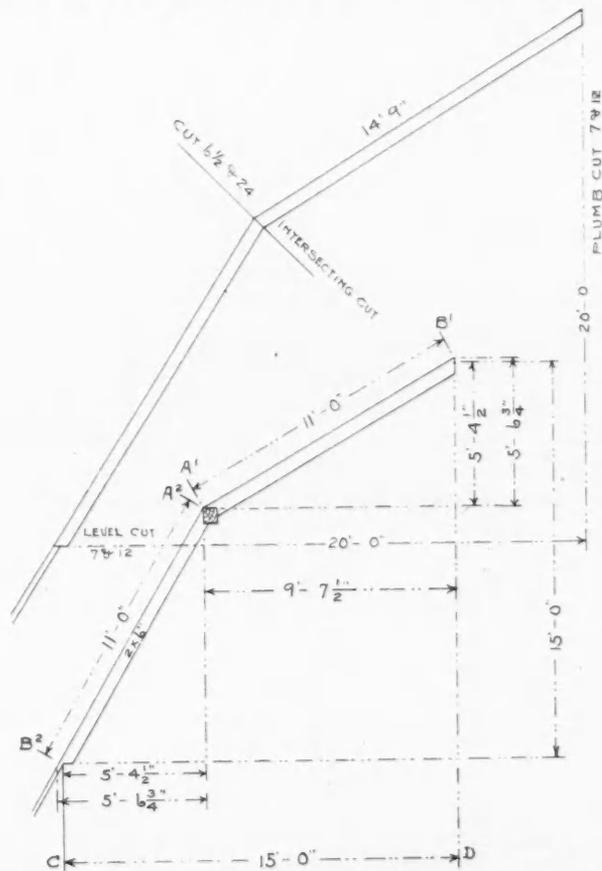


Five-Room Bungalow, 30 by 28 feet; Cost \$1,400.

Scott's Gambrel Roof

To the Editor: Clarksville, Mo.
 In the May issue of your paper, I see an inquiry from L. C. Hanel, Clarkson, Nebr., on gambrel roof framing, and I herewith submit a pencil sketch of my method of framing gambrel roofs, which with the following explanations will make the question clear to Mr. Hanel.

First, the way to get the length of rafters for gambrel roofs of any span,—multiply one-half the width of the building by three and divide by four and subtract 3". This gives you the length B²A² and A¹B¹; for example, the figure in lower cut,—half the width of building CD is 15'0". Multiply this by three and divide by four, brings 11'3". Now, subtract three inches and you have length from point to point 11'0". Now, take 7 on the tongue and 12 on the blade and



Method of Framing Gambrel Roofs Showing Proportions and Cuts.

the tongue gives the plumb cuts at B¹ and the blade gives the seat cut at A¹ on the top section. Now, on the cut you will observe I have, for convenience, used 2 by 6 rafters and 6 by 6 purlins, so I come back 6 inches on my seat cut (A¹) and square down, giving me a good footing for my top section of rafters. Now, turn this pattern over on the bottom section and the plumb cut at B¹ gives you the seat cut at B², then gauge 2" along back of rafter and rip off to length of eave desired and the seat cut A² gives you the plumb cut for A². Now this system of cutting the rafter jaw for the purlin, I consider the strongest feature in framing a gambrel roof with purlins, as the weight of the upper section of roof presses directly into the jaws of bottom section of rafters, thus eliminating the sagging of purlins, where rafters are lapped over purlins.

Second, now to locate the position of purlin post, take one-fifth the width of building and subtract 7 1/2 inches (this will work on any width building), and you have the neat distance from outside of plate to outside, or face, of purlin. Now, the length or height of purlin post is the remaining

distance to center of building, less the thickness of plate. Example, figure on cut is 30'0", span one-fifth of this is 6'0"; subtract 7 1/2 inches and you have 5'4 1/2" to face of purlin post; subtract 5'4 1/2" from 15'0" and you have 9'7 1/2"; subtract from this 6" (thickness of purlin plate) and you have 9'1 1/2" from level of seat of lower rafter to bottom of purlin plate, or shoulder of post, for mortise work. The point of your rafters on this building will be just 2 1/4" higher than half the width of building; this is the same as the measure would be from outside of rafter at B² to center of building.

Third, now for the intersecting cut at hip. If you did not wish to use a purlin, take 6 1/2" on the tongue and 24" on blade of square and tongue gives the cut.

I have been using this system for framing for ten years and on all width buildings and know if above directions are followed closely, your work will fit up neatly.

The pitch on the upper section is 7 inch rise to 12 inch in width, and on the lower section it is reversed, 12 inch rise to 7 inches in width, or practically 17 inch rise to 12 inch width.

Would like to know the best formula for mixing materials for pebble-dash and stucco work; quantities of each material per 100 yds.

MELVILLE SCOTT,
 Contractor and Builder.

Questions to Answer

To the Editor: Darby, Mont.
 I would like to ask two questions for the brothers to answer.

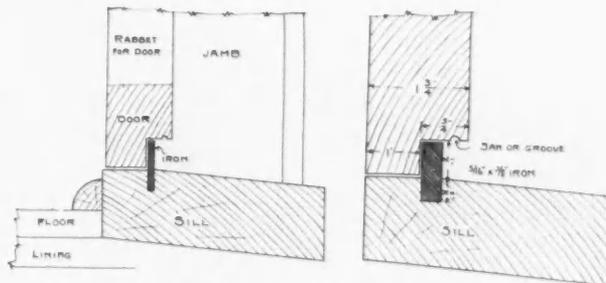
First, what are rules for buffet, or cupboard doors that rabbit together; should the right hand or left hand side lap over?

Second, should cap mouldings of any description be used on the bungalow, or should everything be square? They are both ways here and some of the carpenters hold that anything but square work is of a different school of architecture.

W. E. B.

Hard to Get Over

To the Editor: St.-Pie, Quebec.
 Am enclosing a sketch for a non-leak threshold that may help Jack Leg with his leaky doors. Am using this kind



Door Sills Made Water-tight by Setting in Iron Strips.

of threshold on every job and never have trouble with rain coming inside the house.

L. E. CARPENTIER,
 Contracteur.

Setting Door Jambs

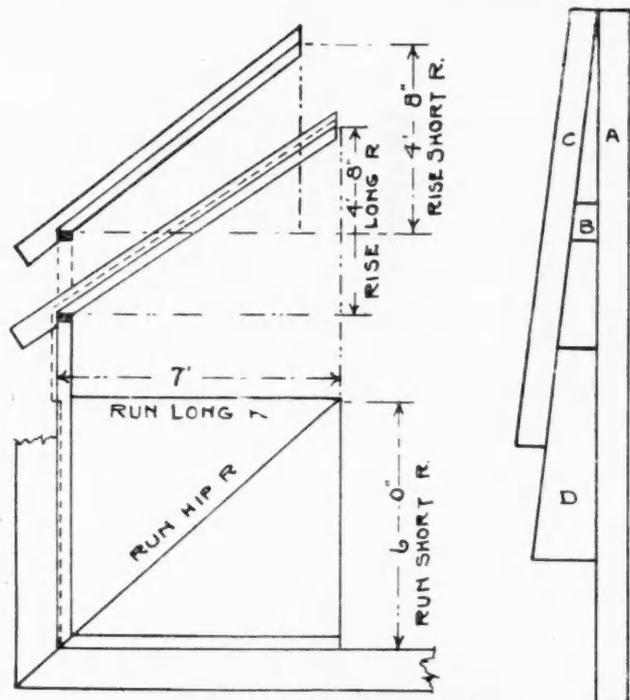
To the Editor: Brunswick, Ohio.
 I see much has been said in recent issues of the magazine in regard to setting door jambs and fitting doors. I will endeavor to tell the readers of the AMERICAN CARPENTER AND BUILDER how I proceed. I may be called old fashioned or behind the times, but I will try and put up with it.

In the first place, I leave the opening in the wall about 3 inches wider than the door itself—that allows 2 inches for jambs and 1 inch for plumbing. Then, after the jambs are made straight and the proper width, I put them together allowing the side jambs to extend below the head jamb; the length of the door and 1 inch besides ($\frac{1}{2}$ inch for the door to clear the floor and $\frac{1}{2}$ inch to scribe the jamb to the floor). Then I lay the frame on the saw horses and nail the side casings on one side of the frame—that straightens the jambs side ways. Then I square the frame and nail on a brace. Next, proceed to set the frame in the opening and plumb it; set my scribe to the $\frac{1}{2}$ -inch mark and scribe the frame to the floor, after which I place the frame in the opening with a piece of board about 6 inches wide, cut the same length as the width of the door, placed on the floor between the side jambs with its straight edge even with the face casings. I then proceed to nail on the other casings, being careful to keep the jambs snug against the guide on the floor. I have fitted and hung many doors in my life, and I find that I have better success with the above mentioned way of setting frames, than with the jambs nailed to studing and then cased afterwards. How Mr. Woodworth can fit his doors to the jambs before he cases them and do a good job, is beyond my knowledge. In conclusion, I wish to say that the man that invented and placed on the market the half-surface butts, conferred a great benefit on builders of my class.

A. G. BROWN, Builder.

Diagram For Uneven Pitches

To the Editor: Loveland, Colo.
 I am sending you a drawing of how to frame rafters for a building with a hip roof that is longer than it is wide, so that the cornice will be the same width all around. Just draw your plan; draw run of hip rafter and where it crosses over the out edge of plate plumb up to the run of the long rafter, as shown by the dotted lines. Transfer the distance to the outside of plate, as shown, measure back the same distance at plumb cut and the same amount to the tail to get the length.
 The dotted line on long common rafter shows the length, or working line. The long common rafter cuts will be 12 and 8 inches, cut on 12-inch for seat cut, 8-inch for plumb cut. For short common rafter, 12 and 9 $\frac{4}{12}$ -inch cut on

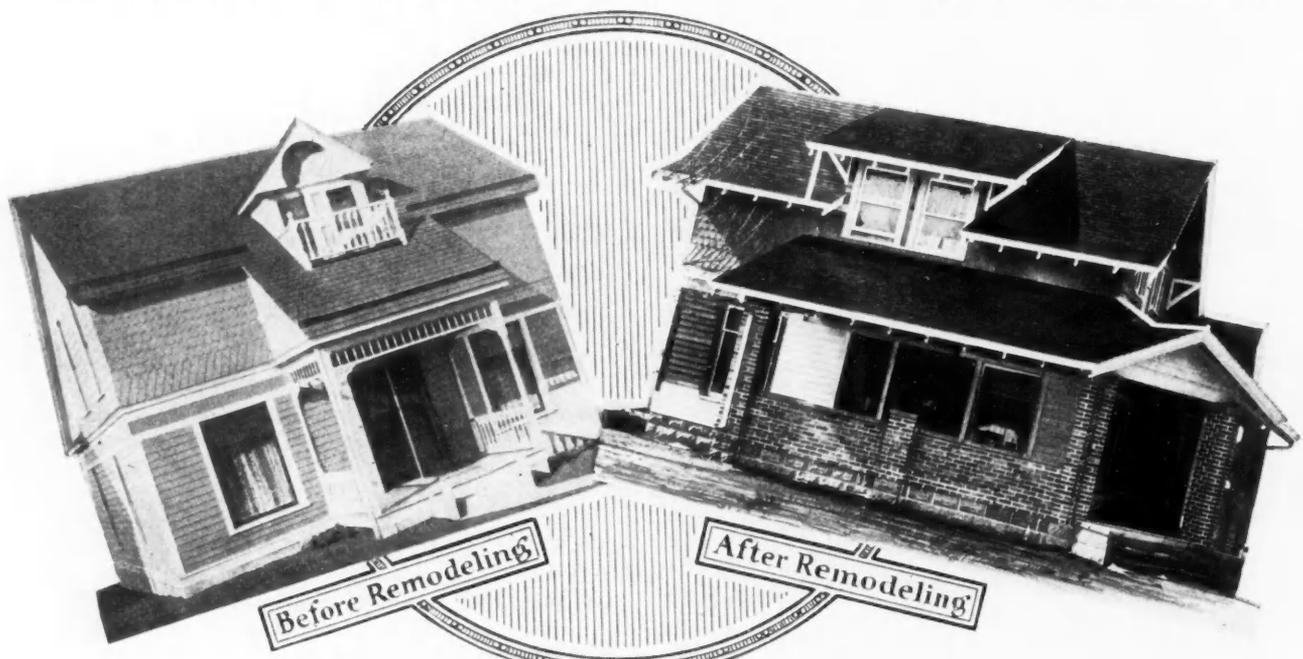


Figuring Rafters for Uneven Pitches

12-inch for seat cut; cut on 9 $\frac{4}{12}$ -inch for plumb cut.
 When you want a "Tom fool thing," just take a board, A; nail cleat, B, and another board, C; put saw between boards A and C; drive key, D; and go to it. It is a make-shift for a saw vise.
 J. S. NOBLE.

Surprising Results by Remodeling

To the Editor: Blockton, Iowa.
 I am enclosing you photos of a house I remodeled for Dr. J. T. Maloy at Blockton last fall. I think these photos show the possibilities of converting the old-style house into a modern bungalow.
 Hoping to see these pictures published in your valuable magazine, which is a great help to me.
 RAY A. KENNEDY, Designer and Builder.



An Old Fashioned Little House Made Over into a Stylish Bungalow by Simply Changing the Roof Dormer, Extending the Cornices and Building on a Brick Porch

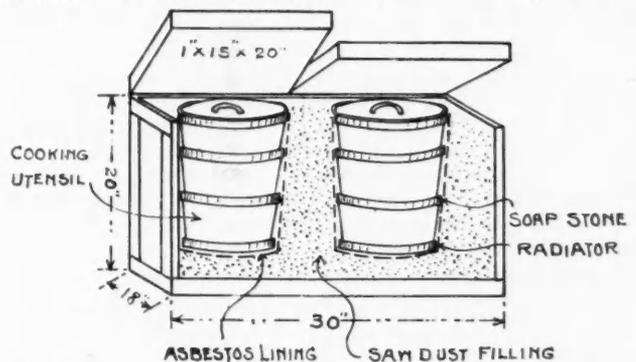
Making a Fireless Cooker

To the Editor: Tonawanda, N. Y.
 Several months ago there appeared in the columns of the AMERICAN CARPENTER AND BUILDER a request as to the construction of an economical, easily constructed fireless cooker, and as up to the present issue this request has not been answered, I will endeavor to give a brief outline and sketch of how I constructed one of these outfits at a very nominal cost, compared with patented articles. Now, as the warm weather season is about to have another inning, some of the brethren may find it convenient in their spare time to construct a few cookers, from some useless stock around the shop, and thereby earn some picnic or vacation money, as at this time of the year it should not be difficult to dispose of several of these equipments.

Now, in the construction of the cooker, the essential feature is "to retain heat," which is generated by the use of coal, gas or oil fire, and the soap stone disks. The principal object in view is that the outside cool air cannot reach the utensils, nor the inside hot air escape.

This sketch shows a two compartment cooker, but only a one compartment cooker may be constructed, just as desired, or even a three or four part one.

The case, or box for cooker is constructed of short pieces of 5/8-inch stock, nailing it together just like making an ordi-



nary box; the cover is constructed in the same manner. Then I got some of the thinnest gauge sheet tin from the hardware store, in sheets sufficient to cover the sides, ends and cover. This I carefully nailed over outside of box and painted and grained it in imitation of quartered oak, then I took some 3/16-inch thick oak strips and nailed around outside edges to give it the panel and frame effect. The inside, or false cover, I made in the same way, after having cut the holes out to size of container that was to be used. After finishing up in this way, I had as nice a looking article as could be found in any store.

Now, I will describe the interior of the cooker. In the first place, the bottom should be covered with the packing material, which may be hay, cork, or sawdust, to a depth of from 3 to 6 inches. Sawdust will be found to be the best for this purpose. Next a lining should be placed in position of sufficient size to hold the utensils, or containers. This lining may be of asbestos, or common tin will also do. The remainder of the box is filled tightly with sawdust or other material used.

The inside cover is next attached.

Next, procure soap stone radiators, or disks of sufficient size for your utensils, four for each one. The eight will cost anywhere from 60 cents to \$1.00. Get your utensils and you have everything required to do fireless cooking. Iron stove lids may be used in place of soap stone disks for heating purpose.

After attaching the outside top with some ordinary flat hinges, everything is complete.

The size and dimensions of cooker are shown in sketch, as also is the mode of placing the soapstone disks, or lids, and

the cooking utensils.

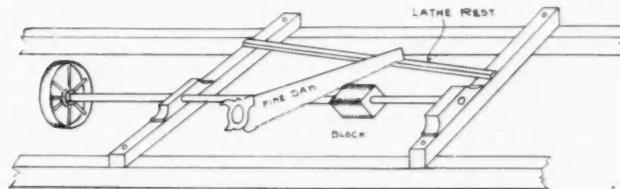
The whole thing, completed, cost me \$1.25 for tin, disks and hinges, and my wife now claims she would not part with it for ten times the amount it cost for material. The advantages of having a fireless cooker is that disks may be heated over oil or gas stoves in warm weather and that such food as cereals, roast chicken and baking may be done with it. It would seem that food so prepared has a more appetizing flavor and seems better cooked if prepared in the home-made fireless cooker as described.

R. O. NEWBECKER.



An Improvised Lathe

To the Editor: Malcom, Ia.
 Am sending you a sketch of a way to make wooden belt pulleys. Since the advent of the gas engine on the farm, nearly every carpenter that does work in the country, is



Rig for Using Hand Saw as Lathe Tool to Make Pulley

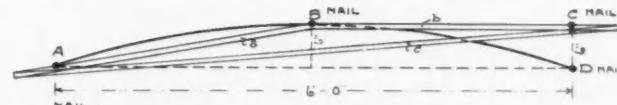
called upon to erect line shafting and make pulleys occasionally, and as I have had a little experience, I will give my method of making a pulley. Take a block of the required size and fit it on the shaft. Then rig up a rest back of the shaft for the point of the saw to rest on; start your shaft in motion; take a fine saw and cut. Kerf as close together as you can, as shown in diagram. After which, take a coarse saw with plenty of set and turn down the kerfs already made and you will be surprised at the nice smooth job you can do. You can make a large built-up pulley nearly as easy as a small one and in a very short time; and it does not make any difference how fast your shaft runs. Maple is about the nicest wood to work, though most anything will do.

A. D. DOUGLASS.



To Describe Segment Without Radius

To the Editor: Madison, Wis.
 Here is a way to make any kind of a segment, without doing any calculations about finding the radius; a thing that I believe not one carpenter in a hundred knows how to do. I have often seen some one, when performing this piece of work, have to use a hundred feet of steel tape and, of course, a hundred feet of some more or less valuable property. Now, it is all unnecessary; all you need is three strips, and three nails. If you have to lay out a segment of a circle, say six feet wide, between A and D, and six inches high, at B, take



Three Sticks, A, B, and C, Nailed Together Properly Will Describe any Segment; no Radius Needed

three strips and three nails and your hammer and a few brads. Place the nails at A, B and C, and nail your strips a and b together at B, and put the brace, c, on also with a couple of brads. Then take your pencil, put it at B and slide your strips toward A, and you have a perfect segment. Then move nail C (which you should have taken away before you begun to slide your strips toward A) down to D, and do the same thing again between B and D as you did between A and B.

Hope this may prove a help to some of the brother carpenters.

LOUIS JENSEN.

Question for House Movers

To the Editor: Lynchburg, Va.
Will some of the readers of your paper kindly give the best way to shore up a brick building? Building is to be raised 6 feet and moved about 100 feet. Building is 28 by 60 feet with two ells. I have never moved any but frame.

GARRETT E. HOWELL.

N. B.—I have two copies of your magazine which I received since the first of the year and would not take \$10.00 apiece for them.

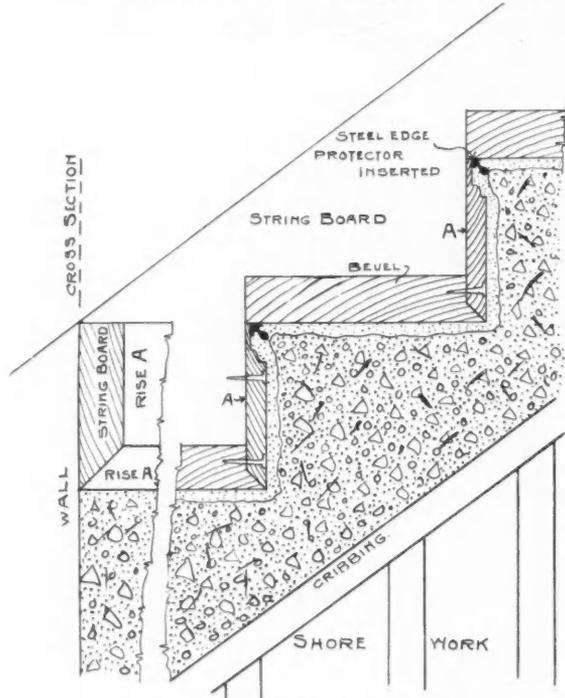
The practical knowledge contained in each issue is worth ten times the subscription price.

GARRETT E. HOWELL.

Stair Forms and Cutting of Bridging

To the Editor: Clearwater, Fla.
Referring to "Karpenter Kinks" in the March number, I wish to offer the following:

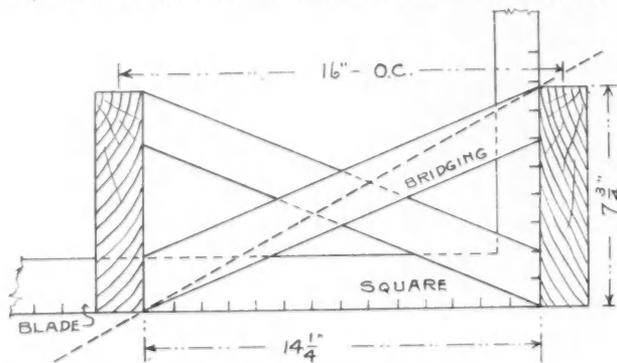
There is no way to leave off the using of a rise board while using a soft concrete and applying the finish cement as



Forms for Making Reinforced Concrete Steps.

you climb. Therefore, the bevel cuts shown are more than useless; but they will assist the trowler if cut on the tread angle, as I have marked "A" in the diagram.

This will work; I have built 'em and therefore I know; but as yet I fail to see how we can build the rise, hold it in position and trowel the finish while it is flowing. If you wish a nose on face of tread, simply plough out back of rise and, to enable the workmen to trowel the entire tread, bevel



How to Mark Bridging Cuts with Steel Square.

the rise board on face, as shown. Also bevel face of string, then there is a clean shot.

As to bridge cutting, it is a joke. In applying the square to a 2 by 2, say, bring side A to the point $14\frac{1}{4}$ inches, then bring side B (which is the reverse) to $7\frac{3}{4}$ inches. Mark and cut on this end, then reverse square and cut the other end likewise, and it will fit 2 by 8-inch 16 inch on centers, sized joist.

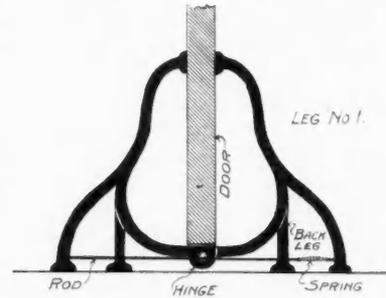
L.R.HOUSE.



A New Door Clamp

To the Editor: Cleveland, Ohio.
I have something new for the brother chips. It is a device for holding a door, or panel work, while being fitted on the job.

It is warranted not to slip, or mar the floor, nor give cause to endanger men's souls in squeezing through the Pearly Gates. Therefore every carpenter should have it. It is made of malleable iron and will last a lifetime. It is a patented article and its commercial success is assured. Anyone in the market for an investment that will insure quick and profitable returns on his capital should write me at once.



Job Door Clamp.

It is made of malleable iron and will last a lifetime. It is a patented article and its commercial success is assured. Anyone in the market for an investment that will insure quick and profitable returns on his capital should write me at once.

JACOB B. JOB,

4478 Werner Road.

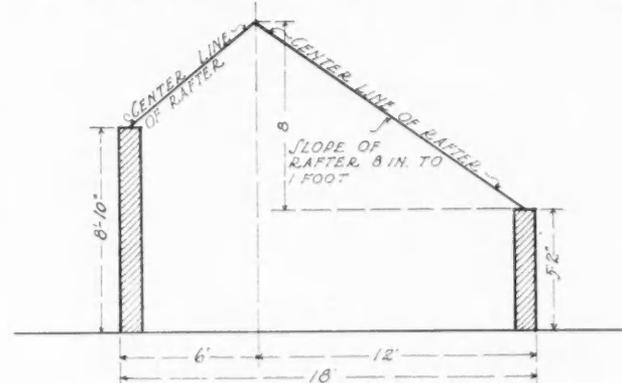


Rafter Length Problem

To the Editor: West Wareham, Mass.
Here is a problem I would like solved. I want to know how to find the exact length of the short and long rafter in roof like sketch, where the back posts are 5 ft. 2 in., including plate, and the front posts are 8 ft. 10 in., including plate, and I wish to have the run for the long rafter two-thirds the width of the building, which is 18 ft. wide. The pitch is 8 inches to the foot.

J. B. TRIPP.

Answer.—The method to be followed is to add together 12 times 12 and 8 times 8, and then take the square root of this quantity. This will give the length of the long rafter from ridge to center of 5 ft. 2 in. wall. Any overhang necessary for eaves should be added to this quantity. The



Figuring Rafter Lengths for Shed Roof.

method of finding the length of center line of shorter rafter is the same. That is, add together 6 times 6 and 4 1-3 times 4 1-3, and take the square root of this quantity. The result will be the length of the center line of shorter rafter. In the above calculations the thickness of the wall is not taken into account, therefore, if exact designs are desired, a plan similar to the one shown should be made, and a similar method applied. The method given above should be accurate enough for all ordinary cases.

EDITOR.

Which is Right?

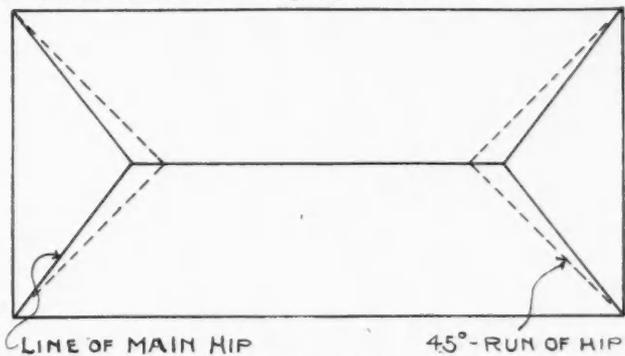
To the Editor:

Mr. "A" states that he has very frequently met with roofs where the run of the hips did not rest at an angle of 45 degrees from the adjoining plates, as shown by the illustration. Mr. "B" contends that such a thing is unknown in building practice.

In your next issue, kindly inform me which is right.

I. F. T.

Answer.—Yes, such things do occur, but in a case like this, there can be no good reason for it. To say the least, it shows bad taste in designing. Such things are usually



Hips Should Run at 45 Degree Angles.

caused by some one wanting to break out of the ordinary; and as far as that goes, he succeeds; but in doing so he largely destroys the symmetry of the roof, because it causes the joining of uneven pitches, which does not look well.

In saying this, we do not mean to convey the idea that we do not favor the joining of uneven pitched roofs, for that is another thing, and in that case the valley cannot rest at the same angle with its respective plates. In a case of this kind, where the two pitches are of the same slope, the run of the valley will rest at an angle of 135 degrees from either plate, but should one of the roofs be steeper than the other, then it will swing nearer to the plate on the lesser pitch.

A. W. WOODS.



Furniture Polish

To the Editor:

Ashland, Ill.

I see in the December number of the AMERICAN CARPENTER AND BUILDER that D. M. asks you about a good furniture polish for pianos and furniture. If you know of one, I wish you would tell me how to make it and what to get, and I will be much obliged to you.

PAT MACGRAW.

Answer.—Have heard that the following recipe has been used to good advantage.

Beeswax, 2,500 parts; potassium carbonate, 25 parts; oil of turpentine, 4,000 parts. Dissolve the potassium carbonate in 1,500 parts of the water and in the solution boil the wax, shaved up, until the latter is partially saponified, replacing the water as it is driven off by evaporation. When this occurs, remove from the fire and stir until cold. Now add little by little and under constant agitation, the turpentine, stirring until a smooth emulsion is formed. Add the remainder of the water under constant stirring. The directions for using are very simple: First, wash the surface to be polished, rinse and dry. Apply the paste as evenly and thinly as possible over a portion of the surface, then rub off with a soft woolen cloth, using plenty of elbow grease.

EDITOR.



Without a Ladder

Allendale, N. J.

To the Editor:

It is often necessary—and difficult—to run cords or ropes over a lofty timber when no ladder is available. The prin-

ciple of the difficulty is illustrated in the operation of placing decorative streamers over the cross-beams of exposed trusses in a hall or barn. It is not so hard to toss a weight over the beam in question and so to carry a string or cord over. But the string usually goes too much to the right or left of the desired position. Then, especially when the cord is of the thin, "invisible" variety, difficulty is experienced in adjusting it. It will cling to a splinter or sink into an abrasion on the timber. There it defies all jiggling attempts at adjustment. The following expedient, however, will serve perfectly under such conditions. Assuming the string to be abundantly long, tie a washer on it anywhere; or a nut, screw or nail will serve equally well. Pull the string along then until the weight can be run back and forth over the top of the timber as the effort is made to bring the string into desired position. The washer or screw will not only lift the cord out of indentations and over splinters; it will also "trip" on the edges of the beam and flop in the direction from which the pull is exerted. Each successive tripping movement, as the string is worked back and forth, will bring the cord quickly and decisively nearer to the desired position.

JAMES WILLIAM JACKSON.



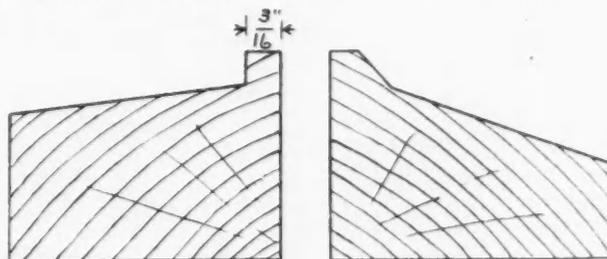
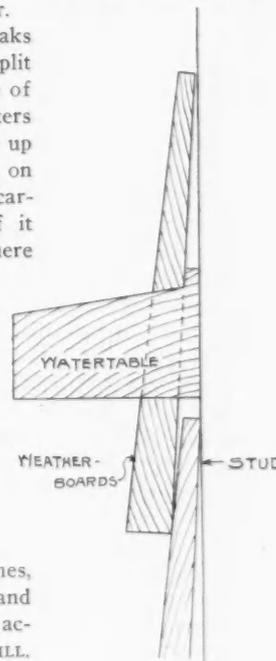
No-Leak Cap

To the Editor:

Louisville, Ky.

Here is cut of watertable for heads of frames, where many leaks are found. The reason No. 1 is the right way, is because the lip is only 3/16-inch wide, which corresponds to the thickness of the weatherboards at the thin edge. I suppose the reason why there is such a watertable on the market as No. 2, is because the man that makes it, or had it made, never did any outside carpenter work, nor did he give very much thought to the matter.

However, the reason for the leaks is because the weather-boards split above the weathertable; the cause of this splitting is that the carpenters do not take the trouble to ease up the lap, and the thicker the lip is on the watertable, the more the carpenter will have to take off of it when he comes to a situation where the lap above the frame comes in the center of the weatherboards, and the weatherboards, being thinner in the center than at the bottom edge, there is not much left to take any off of the weatherboards, as R. Burbridge shows in the April number of the AMERICAN CARPENTER AND BUILDER. Weatherboards do not fit against the studs in straight, perpendicular lines, as his cuts shows, but flare out, and the lap should be as shown in the accompanying sketch.



No. 1

No. 2

No. 1 Correct and No. 2 Incorrect Contour of Watertable.

Roof Areas

To the Editor:

Frost, Tex.

A brother asked in the November issue whether there would be a difference in two roofs: one built plain ridge, the other hipped with four gables built on, it being understood that their dimensions at base are the same and their pitches equal.

In theory it requires the same amount of roofing for each of these roofs, but in practice the hip roof requires a little more covering material because there is some waste in cutting for valleys and hips, and because the covering does not stop under the rake line of built-on gables, but extends to the wall, which is usually 12 inches or more back from the rake.

But to demonstrate that these two forms of roof have the same area, let us suppose a plain ridge roof 32 feet long and 24 feet wide, including extension at eaves and rake, and half pitch. The rafters in this roof will be 17 feet long. Now sup-

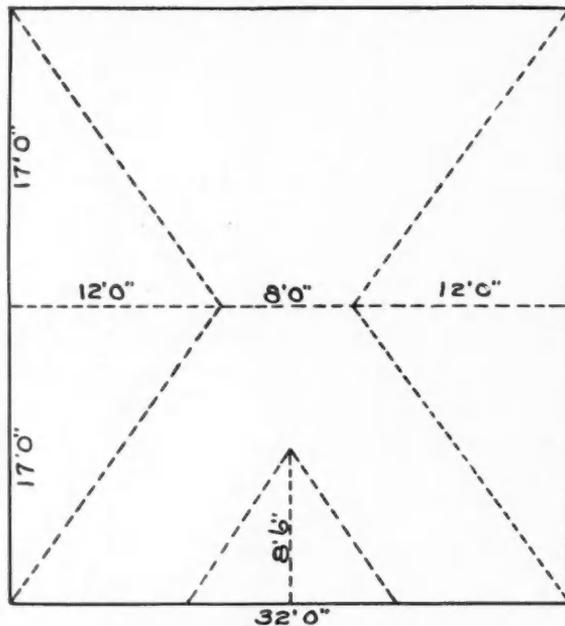


Diagram of Roof—Spread Out Flat.

pose we pry the rafters loose at foot and let roof spread until ridge is level with eaves. Then our roof would be a plane surface 32 by 34 feet, as shown by heavy outer lines in figure. The horizontal dotted line shows ridge; the other dotted lines show hips and valleys if it were a hip roof with one gable built on. The triangle formed by dotted hip lines and 34 feet line represents the area the hips take out of plain roof. Our only problem is to prove that this area is equal to that of one end of hip roof.

Now if a plumb line were let fall from the top of hip in this roof (24 feet wide), it would fall to a point 12 feet from both the sides and end of roof so we know that 12 feet is the distance between rake and where hip would meet ridge. So the area the hips take out of plain roof is represented by a triangle where base is 34 feet and where other two sides are the hips; and the distance between the center of this 34 foot line and the point where the hips meet each other is 12 feet.

Now, referring to the figure again, suppose we cut this triangle in two at the dotted line, which represents the ridge. We will then have two triangles, each having 17 feet for a base, 12 feet for height, and the hip for the other side. Place these standing on their 12 foot sides with their 17 foot sides together and they form a triangle with 24 feet, base 17 feet high and the hips forming the other two sides and this is exactly what the end of hip roof is: a triangle whose base is width of roof (in this case 24 feet), and whose other two sides are the hips, and whose height is always length of common rafter (in this case 17 feet).

It is not necessary to discuss the built on gable since the difference between a hip roof and a plain ridge roof is nothing more nor less than a built on gable whose valleys would fall on the hips. I placed the dotted lines showing the valleys in the figure for purposes of giving those who might wish to try it an ocular demonstration. And here it is, patient reader; try it if you wish. Draw the figure I have given on a piece of stiff card board, on a larger scale than I have used, say not less than $\frac{1}{4}$ inch to the foot. Be careful to make your drawing accurate. Cut out card board at heavy lines and then cut out triangles represented by hips, cutting them in two at the line which represented the ridge. Also cut out the piece between the valley lines, cutting this in two at vertical line. Now bend the remaining piece of card board at what is left of ridge line to an angle of 45 degrees. Take two of the pieces, cut out at the hips, and placing the long edges together, fasten them with strips of card board and mucilage. This gives one end. Proceed with the other two in the same manner. Now take the pieces, cut out at valley lines and, placing their short sides together, paste a strip of paper that will allow them to bend, on them, and we are ready to put them all back together. Fasten your end pieces, thus forming the hips by pasting strips of paper underneath, then take the pieces that are to roof the gable and, bending at the proper joint, form the valleys, and if your work has been accurate you will have hip with one gable in miniature which will be correct in every detail.

The making of this miniature roof will prove interesting pastime for a leisure hour, and it's a study will prove to be profitable to those who are of a thoughtful turn and are not thoroughly conversant with the principles involved in roof framing.

O. A. TRUELOVE.



A Question in Uneven Pitches

To the Editor:

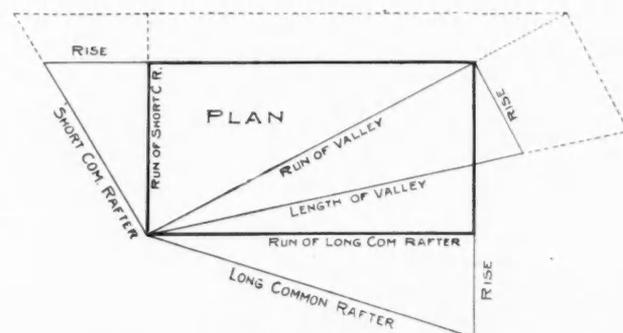
State College, Pa.

Will you please illustrate a method for getting the run and length of valley rafter where the pitches are different and rise the same; also where the rises to the ridge are both different?

PARK R. HOMAN.

Answer.—For convenience in illustrating, we will show this in a simple line drawing and at the same time answer the two questions with the one illustration.

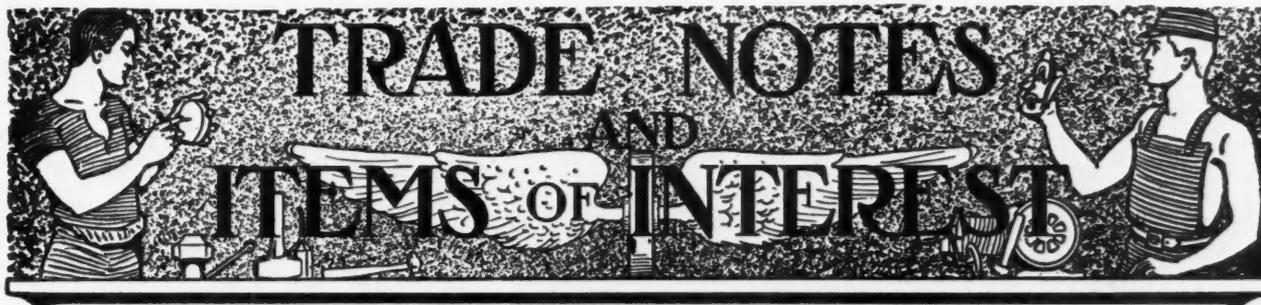
The shaded part of the illustration represents that part of the plan to be covered in the first question. The second question is exemplified in the extended dotted lines of one



Run and Length of Valley Rafters for Uneven Pitches.

of the common rafters and the valley. Thus, in this we have the length of the long and the short valley. No dimensions are given because it can be most anything; lay it off to a scale whatever it is and take measurements from that. Either the bevel square or steel square can be applied to the angles for the seat and plumb cut. Of course, there are other ways of arriving at the lengths,—this is simply one of them.

A. W. WOODS.



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.

A Waterproofing Expert

An interesting narrative is told in the April number of "The Ceresit Waterproofer" about one of the well-known waterproofing experts of the present time.

It relates that in Chicago a few years ago a young man began his career as a mason's helper. He was quick, intelligent, persevering. Due to these traits, he soon learned the trade and became a boss mason. His work was careful and his active mind stirred his ambition. One day he was called to look at a basement where the water, percolating through the walls, covered the floor to a depth of 2 or 3 inches. He didn't know what to do about it, but said he would see what could be done.

He looked in the classified section of the telephone directory, and that afternoon dropped into the Ceresit office. The result was a dry basement for his customer. He soon had other calls to waterproof basements, which he attended to in his naturally thorough way.

One day about two years ago he again dropped into the Ceresit office. His purpose was to become a waterproofing superintendent, and he accomplished it. He was not content to use Ceresit—he wanted to be a part of the Ceresit organization.

That is the story of John Lyons, one of the foremost waterproofing experts in the country. When he superintends the waterproofing of a basement, reservoir or pit, it's safe to say the work will be done right.

"The Ceresit Waterproofer" is a monthly pamphlet issued by the Ceresit Waterproofing Company, 1910 Westminster building, Chicago. All who are interested in waterproofing should write and ask to be placed on their mailing list.



"Century" Asbestos Shingles for All Buildings

One is amazed at looking over an illustrated booklet just issued by the Keasbey & Mattison Company, to see the range of work on which "Century" Asbestos Shingles are now being used. There was a time not very long ago when these

shingles were used only on buildings where low cost and fireproof qualities were important without much regard for appearances; in other words, architects and builders early recognized the practical value of Asbestos "Century" Shingles, but at first their artistic qualities were not appreciated.

It is very gratifying to see that this attitude has gradually changed. Looking through this beautiful illustrated pamphlet we see photographs of buildings roofed with "Century" Shingles—buildings of great architectural beauty designed by leading architects—buildings of all kinds, from little seashore bungalows to large, elaborate, brick and concrete mansions, and public buildings of all kinds, such as churches, school buildings, city halls, railway stations and business buildings.

The evidence is certainly conclusive that the Asbestos "Century" Shingles made by the Keasbey & Mattison Company, Ambler, Pa., have come into their own as a high grade, artistic roofing material. Also as the cost has not been increased and the weather resisting and fireproof qualities of these shingles are just as real as ever before, builders are coming to use this material more and more.

This illustrated pamphlet also contains complete specifications for laying shingles in the three popular styles, namely, French method, Honey-comb effect, and American method. Working drawings illustrate fully the several points of construction. Every one of our readers should have this pamphlet. Address Dept. B, Keasbey & Mattison Co., Factors, Ambler, Pa., and they will mail you a copy, postage prepaid.



"Eureka" Spiral Screwdriver

A moderate-priced spiral screwdriver—in fact, it is claimed to be the cheapest one on the market—is the "Eureka," manufactured and sold by the Decatur Coffin Co., Decatur, Ill. It is made in two sizes, No. 1, 9 inches long, and No. 2, 12 inches long.

This is one of those ingeniously contrived screwdrivers; you simply push on the end and the screw goes in. It can, of course, be used also as an ordinary screwdriver. It is a durable, powerful tool and gives satisfaction.



The Asbestos "Century" Shingle is Admirably Adapted for Seashore Bungalows.

Bovee's Economy Furnaces

The Bovee Furnace Works, 50 Eighth Street, Waterloo, Iowa, are now offering their furnaces at manufacturers' prices, which they claim saves the purchaser about 50 per cent.

The Bovee Furnace is well known to our readers as an honest, well-built furnace, designed for efficient heating service. The accompanying illustration shows very clearly just how their furnaces are built.



Bovee Furnace, Cut Away to Show Construction

These furnaces start with a clean heating surface at the ashpit. They have a heavy cast-iron firebox, made in two sections, surmounted by a combustion chamber eighteen inches high and almost one foot larger than the firepot. This large combustion chamber adds greatly to the capacity of the fuel, also to the durability. It makes the furnace practically indestructible and furnishes a balmy atmosphere.

These furnaces are supplied with Bovee's Hot Blast Ventilating System, as can be seen by examining the picture. This takes the air from the air chamber inside of the casing and discharges it over the fuel, thoroughly mixing the air and oxygen with the gases and smoke passing off of the fuel and causing it to burn, thus securing a great deal of heat that in other furnaces and stoves is lost. With most fuel this adds fully one-fourth to the heating capacity, and with some kinds it adds even more to its value, and always insures absolutely pure air in the entire house without opening doors and windows.

Above this large combustion chamber there is a return circulating radiator which carries the heat clear around, with a sheet of flame between two sheets of cold air and sheet of cold air between two sheets of heat, which secures the greatest possible amount of heat before reaching the chimney.

They have heavy, independent, rocker shaker grates, and are very easy to fire and operate.

Builders should get better acquainted with Bovee's Economy Furnace and with the proposition the Bovee Furnace Works are making at this time. Write them today for full particulars.



The U. S. consul at Aberdeen, Scotland, thinks that American manufacturers may have a chance to compete in furnishing staves for fish barrels. There has been a recent rise in the price of spruce and fir staves from Sweden and Scotland.

Four new state forests have recently been added to those acres. Of this amount, 67 per cent belongs to the territory, the rest being private land administered by the territorial forest officers.

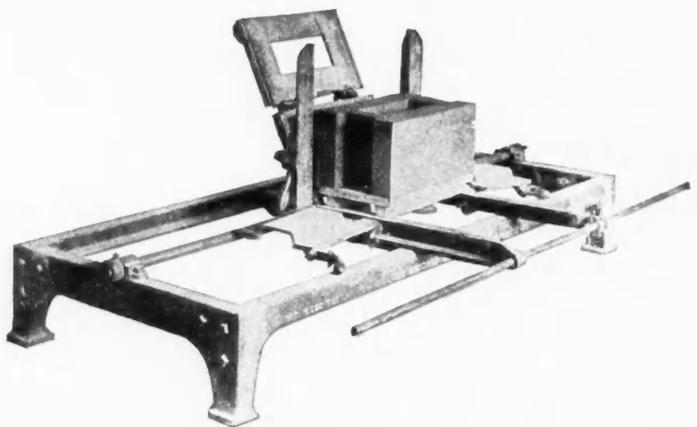


Hercules Block Machines

Builders using concrete blocks for foundations and general construction work are rapidly realizing the wisdom of producing the blocks they use in their own work. There are so many days when the regular man can be employed to advantage making blocks—days when outside work is impossible. The builder who follows this plan of producing his own blocks knows exactly the kind of material he is using. Furthermore, he is making a saving on each block he lays. The cost of the equipment for making the blocks need not be large, especially if he selects a flexible, expansion type of machine like the Hercules machine, manufactured by the Century Cement Machine Company of Rochester, N. Y.

The machines are so built that the builder merely buys at the start what he needs in the way of sizes and designs, later on, if he wishes to make some other size, he orders the necessary plate and produces it. These machines are so simple in construction that only ordinary labor is required to operate them. Every part is perfectly machined so as to insure a perfect product.

The Hercules special machine discharging finished block will allow for attaching plates for the making of blocks from



Hercules Block Machine

4 to 32 inches long—4 to 12 inches high and from 4 to 16 inches on the bed. Different lengths merely require the moving of the arms or uprights and dropping in the proper plate.

A very handsome catalogue, fully descriptive of this well-known line of machines, will be gladly sent to any one interested by the Century Cement Machine Company, 220 Mill Street, Rochester, N. Y.



View of E. C. Atkins & Co. Booth at Forest Products Exposition

E. C. Atkins & Co. at the Forest Products Exposition

We show herewith a picture which does not do justice to the splendid exhibit of Saws made by E. C. Atkins & Co., The Silver Steel Saw People, at the Chicago Forest Products Exposition.

E. C. Atkins & Co. were one of the few manufacturers who seemed to appreciate the fight which the lumber interests are making to promote the timber products industry.

The Atkins Company occupied space A-1 at the very center of the hall on the main aisle, and had a similar space for the Forest Products Exposition at New York City, May 21st.

The space occupied 25 feet square and consisted of a finely finished quarter sawed oak booth, rectangular in shape, and with a door opening at the back which gave a convenient and luxurious rest room on the inside.

One board was devoted to the display of various Saws used about the mill, such as Circular, Band, Gang, Rift, Concave and other Saws. Another board showed a splendid display of Cross-cut Saws of all kinds, including Handles and Saw Fitting Tools. The third space consisted of a very splendid line of small Saws and Specialties, while the fourth was devoted to an exhaustive exhibit of Machine Knives and other Mill Specialties.

A novel feature consisted of a sawing contest, in which Messrs. Zweiky and Pollier, expert sawyers, claiming to be the Champions of the Northwest, made frequent cuts with a Silver Steel Segment Ground Cross Cut Saw against time.

The booth was in charge of Mr. A. C. Fuller, who travels in Wisconsin and Michigan, assisted by Mr. A. T. Marceau, Special Cross-cut Saw Expert.

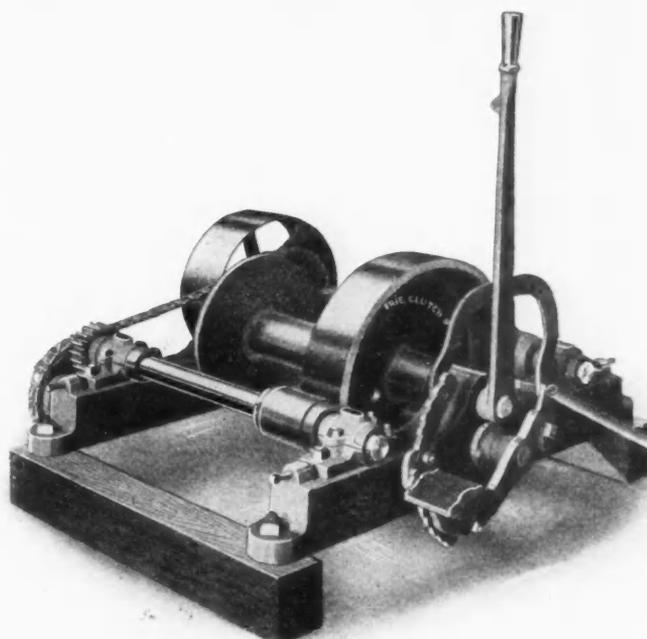
The Atkins Company distributed thousands of souvenirs and unlimited quantities of printed matter.

Their booth was the center of attraction and the lumber interests should certainly congratulate themselves that they have manufacturers supplying their needs who come to their assistance at a time like this, and not only contribute their moral, but their financial support.

New Type "Reliable Erie" Hoist

The Erie Clutch and Pulley Company, Erie, Pa., are calling particular attention to their Hoist No. 3, single-drum reversible, illustrated herewith. It has a capacity of 2,000 pounds and is designed to meet the demand of contractors and builders for a popular, moderate-priced, all-around hoist. Where pulling, hauling or lifting both ways is desired, hauling cars back and forth this reversible hoist can be used.

Investigate this. You will find the specifications satisfactory and the price very interesting. Write the Erie Clutch & Pulley Company, Erie, Pa., for full particulars.



No. 3 "Reliable Erie" Hoist

Northwestern Concrete Machinery

The Northwestern Steel & Iron Works, Eau Claire, Wis., are now entering their ninth year in the concrete field and it is said no manufacturing establishment has in that time, acquired a better or larger assortment of mixing machines and molds than is embraced in the Northwestern line. They have just issued a new catalog featuring their best and most popular equipment of all kinds. They have carefully weeded out all obsolete machines; they say that this "weeding out" process has been made from actual experience as to the best value and the most efficient machines to meet the requirements of the contractor and the cement block manufacturer.

The Northwestern Steel & Iron Works have the utmost confidence in every mixer, mold and appliance they offer in this new catalog, this confidence being based on the experiences of thousands of actual users of these various machines, and they stand ready to guarantee every article to be as represented and to fulfill every requirement for which it is intended. Their guarantee is "Money refunded if not satisfactory."

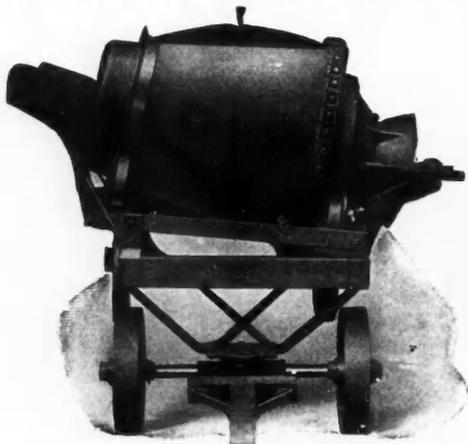
The assortment of concrete mixers in this catalog is especially noteworthy. They range in size from small hand mixers up to big fellows, priced at from \$24 up to \$1,000. For the general run of good-sized construction work, their Cone Batch Mixer is very popular. The illustrations shown here picture the Northwestern's latest addition, an improved cone mixer. It is called the "Northwestern Special." For efficiency, speed, capacity, durability and price, the Northwestern people are ready to enter this mixer in competition with any on the market. They say it is not a cheap machine when you consider quality. It is low in price, but high in quality.

This machine is made rigid and compact, so as to be easily moved from job to job. It is of narrow gage and can be very easily taken from one floor to the one above in the average building in course of construction. It is a utility machine in every sense of the word; can be used on big jobs as well as small jobs; is light in weight; three men can easily haul it around.

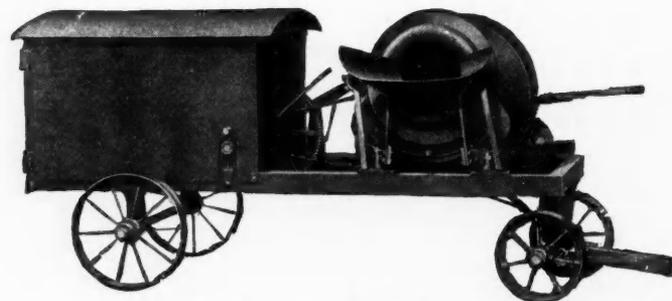
The Northwestern Special has a capacity of from 5 to 6 cubic feet. While it is listed as a 5-foot machine, many contractors are loading it up to 6½ feet, the machine giving excellent results with this capacity. The shape of drum, the tilt, and the arrangement of paddles give this machine its added capacity. The mixture is always in plain sight.

They equip this machine with the Northwestern 2½ H. P. horizontal water-cooled engine. The contractor doesn't have to worry about engine troubles; he knows that his mixer will be kept going constantly.

Every contractor should be familiar with the Northwestern Steel & Iron Works line of batch mixers, block machines, silo molds, sill cap molds, fence post molds, etc. All are illustrated in this new catalog, No. 9. Write for it today.



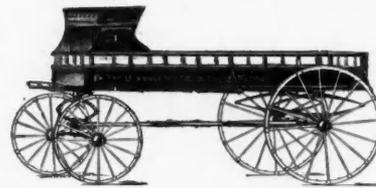
Shape and Tilt of Drum makes capacity. Wide chilled bearings, gives long life.



Low Charging Mix, Always in Plain Sight, Guarded Bearings, No Stopping.

Carpenter's Wagons

A good many carpenters and builders are worrying along on foot when they ought to have a light wagon to help them in their business. What is needed is a light spring



One of the Popular Styles

wagon that can get over the ground at a good rate of speed, and yet carry a heavy load when occasion requires. The Armleder Company, who have been building wagons for thirty-three years, have recently brought out a line of wagons especially designed to meet the needs of carpenters and builders. The wagon illustrated has a capacity of 1,200 pounds. The body is 9 feet long, 45 inches wide and 13 inches deep inside. It is a strong wagon, strongly built and guaranteed for service.

The Armleder Company make 303 other styles and sizes of wagons. These are all illustrated and described in their new catalog, which they will send to any one of our readers free of charge.



Buckeye Metal Shingle

A good metal shingle has much to recommend it. In fact, there are those who see metal shingles as the most satisfactory roofing material of the present time. Certain it is that a heavily embossed metal shingle makes an attractive roof, besides being fire resisting, water-tight, light weight and good for many years of service when properly looked after.

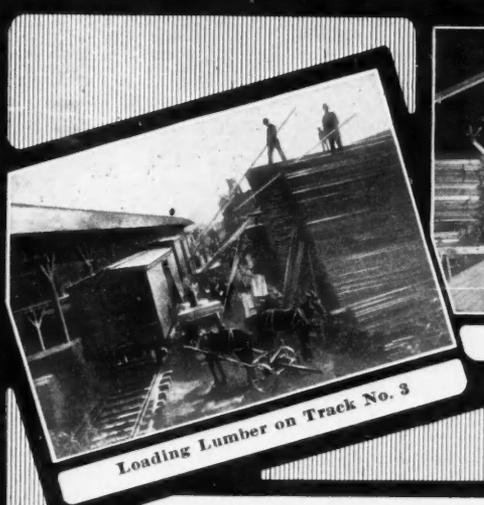


A "Buckeye" Metal Shingle Pattern

"Buckeye" metal shingles, made and sold by the Thomas & Armstrong Co., London, Ohio, are coming to be one of the most popular brands. These shingles have the patented Buckeye Raised Side-Locking Joints, which are formed entirely above the surface of the shingle, so preventing rusting and leaking. These shingles come in three different patterns, all of them beautifully embossed;

they are made of heavy gauge metal.

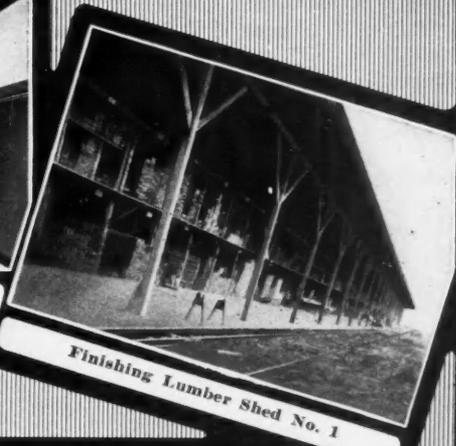
You will find "Buckeye" metal shingles reasonable in price; in fact, the Thomas & Armstrong Co. are now making a special proposition to carpenters and builders. Concerning this, you should address Dept. A, The Thomas & Armstrong Co., London, Ohio.



Loading Lumber on Track No. 3



Shipping Platform No. 3



Finishing Lumber Shed No. 1

Seasonable Price Offers

Quick Service -- Low Prices -- Quality Goods

More Than 10,000 Contractors, Carpenters and Builders
Are Our Regular Customers

Dressed Lumber Bargains

	Price per 1000 ft.
Shiplap , 1x8 No. 2 Yellow Pine...	\$20.00
Sheathing , 1x6 No. 2 Yellow Pine...	19.00
Bevel Cribbing	
1x6 No. 1 Yellow Pine.....	24.00
Drop Siding	
1x6 No. 1 Yellow Pine.....	24.50
Barn Boards	
1x12 No. 1 Yellow Pine.....	27.00
Flooring , 1x4 Clear Yellow Pine.....	27.00
Flooring	
1x4 Clear, Quarter-Sawed Yellow Pine.....	38.00
Lath , 4 Ft. No. 1 Soft Yellow Pine...	3.20
Shingles	
5 to 2 Extra Clear Red Cedar.....	3.60
Siding , 1x4 Clear White Pine.....	25.00

Write for Free Estimate on Your Lumber Orders

5,000 BARGAINS SHIPPED ANYWHERE

"Quality" Paint—an ideal special Gordon-Van Tine mixed paint for houses. Full measure and full satisfaction guaranteed or new paint free. All colors shown in free catalogue or at our store.

Quarts.....	\$0.35
Half Gallon.....	.65
Gallon Cans.....	1.22
Five-gallon Kits, per gallon.....	1.17

Also Quality Barn Paints at even lower prices; 75c per gallon and up.

All Builders' Hardware

Screen Door Latch.....	.65c to \$0.85
Screen Door Tension Hinge.....	.75
Combination Screen and Storm Sash Hangers, per set.....	.10
Roman Crack Filler, per carton.....	.20
Turned Porch Balusters, each.....	4¢ and up
Turned Porch Spindles, each.....	1¢ and up
Paint Brush, 4-inch, set in rubber.....	.60
Enameling Varnish Brush.....	22c and up
Floor Painting Brushes.....	25c and up
Kalsomine (all shades and tints) per 4-lb. package (enough for any room).....	.24
Decorative Enamel, 1/2 pints, all colors.....	.09
Also 1/2 pints, pints and quarts, 15c, 28c and.....	.48
Putty Knives, each.....	14c and up
"Quality" Floor Brush, 14-inch, with handle.....	.95
Water Closet Brush, trouble saver.....	.35
Flush Sash Lifts, each.....	.06
Electric Bronze Push Buttons (with screws).....	.40
Door Holders, can't slip, rubber cushion.....	.50
Inside Door Knob and Lock Set (complete and screws).....	43c and up
Burglar-proof Window Ventilating Locks.....	.15
Cupboard Catches, each.....	.6c and up
Hinges (small and large, all kinds), each.....	.6c and up
Glass Drawer Knobs.....	16c and up
Sash Pulleys, each.....	.21
Picture Hooks, per dozen.....	.08
Picture Wire, 25 feet.....	.6c and up
Door Bells.....	36c and up
Electric Door Bell Sets, complete.....	.95

House Numbers (Aluminum) per number.....	.04
Letter Box Plates, complete.....	.65c and up
Crucible Steel Hammer ("Long Claw" Brand).....	.55

Also thousands of other wholesale-to-consumer, low-priced, high quality building, remodeling and repairing materials illustrated in our catalogs and delivered direct-to-you anywhere.

Windows

2-Light, 26x28, 1 1/2 check, single strength.....	\$1.24
2-Light, 40x40 and 16, 1 1/2 check, top leaded.....	3.90

Doors

2-8x6-8 1 1/2 One Panel Fir.....	\$2.64
2-8x6-8 1 1/2 Five Cross Panel Yellow Pine.....	2.09

Rough Lumber Bargains

	Price per 1000 ft.
2x 4 16 Ft. No. 1 Yellow Pine.....	\$19.75
2x 6 16 Ft. No. 1 Yellow Pine.....	18.75
2x 8 16 Ft. No. 1 Yellow Pine.....	19.25
2x10 16 Ft. No. 1 Yellow Pine.....	20.00
2x12 16 Ft. No. 1 Yellow Pine.....	21.00
2x 4 16 Ft. No. 2 Yellow Pine.....	17.75
2x 6 16 Ft. No. 2 Yellow Pine.....	16.75
2x 8 16 Ft. No. 2 Yellow Pine.....	17.25
6x 6 16 Ft. No. 1 Yellow Pine.....	23.50
8x 8 16 Ft. No. 1 Yellow Pine.....	23.50

We Guarantee Safe Delivery to Your Station

Write for Our Grand 5,000 Bargain Catalog, NOW!

Get an idea of Gordon-Van Tine Prices. Get an idea of the scope of a 5,000 Bargain Stock. See how many things can be shipped *Anywhere at once*. See how little freight costs. Then remember Gordon-Van Tine guarantee prompt shipment,

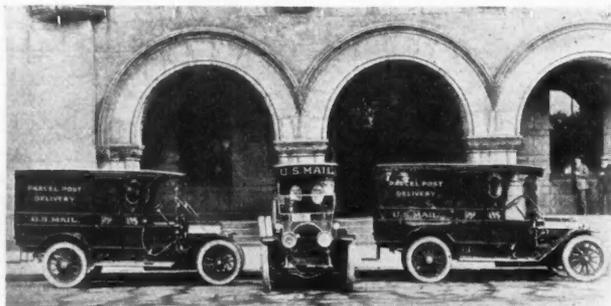
safe delivery and satisfaction, no matter where you live. Write for this catalog—this price guide. Then try a test order. See why there were 1,000 testimonials and 18,000 orders from contractors and carpenters last year.

GORDON-VAN TINE Co.

706 FEDERAL ST. DAVENPORT, IOWA

Motor Trucks to the Front

Reports, regardless of section, indicate that the motor vehicle is making fast headway in short-haul freight traffic and that the most significant strides of the truck industry during the present year will be in the country districts. KisselKar trucks are operated in many of these cross-country enterprises, and statistics in the possession of the Kissel Motor Car



Three Kissel Kar 1500 Pound Deliveries at St. Paul Post Office. Company indicate that, owing to the elimination of delays in loading and unloading, railroad time is usually beaten by many hours. The prospect of higher freight rates for the railroads will add fresh impetus to truck prospects.

Popular Style Transit

Contractors and builders will be interested in the "Media" transit, a new offering of Kolesch & Co., 138 Fulton Street, New York City. This instrument is built on the same substantial lines as their more expensive transits. It should be as important to the average engineer as an abridged edition of the Dictionary. They claim that it will do 90 per cent of the average engineer's field work. Their "Iron-Clad Guarantee" goes with each and every instrument.

Freight Allowed on this Roofing

The Rubber Roofing Mfg. Co., 5 Cortlandt Street, New York, N. Y., are quoting some very low prices on their "Apollo" brand rubber roofing. To introduce this brand to the readers of the AMERICAN CARPENTER AND BUILDER, freight is allowed on all shipments to any part of the United States. Samples of Apollo roofing will be sent on application, with prices.



Business Unhampered by Recent Fire Say Officials of the Heppes Co., Chicago

The fire which broke out in the plant of the Heppes Company, Kilbourne Avenue and Fillmore Street, Chicago, on the night of April 26th, caused little, if any, serious mishap to their business, according to an official statement recently sent out.

Mr. O. A. Heppes, secretary and treasurer of the company, which is universally known as manufacturers of Flex-A-Tile asphalt shingles, asphalt paint, asphalt roofing in any finish and Utility wall board, said that while the total loss approximates \$25,000 the damage was insufficient to affect the operation of business to any appreciable extent.

"Deliveries of Utility wall board will probably be delayed for about ten days from the date of the fire," said Mr. Heppes. "We were unfortunate in losing a good part of our available reserve stock of wall board; but inasmuch as our manufacturing facilities are in no way impaired, we can safely promise deliveries within the ten-day limit I have given."

There will be no interruption whatever in roofing deliveries, as that section of the Heppes Company plant was untouched by the flames. In fact, the day after the fire, one of their biggest orders for Flex-A-Tile giant shingles, their new asphalt shingle of extra weight, strength and thickness, was placed upon the cars for shipment.

**Quality Is
Economy**

*Murphy Q and E Exterior
is a Varnish that Careful
Men are taking note of*

It has unique power of resistance
to both heat and frost.

It is not only waterproof, it is also
hot-waterproof and steamproof.

Nothing turns it white.

Dust grits do not cut or mar it.

Smoke acid does not eat into it
or discolor it.

It cleans off and wares like enamel.

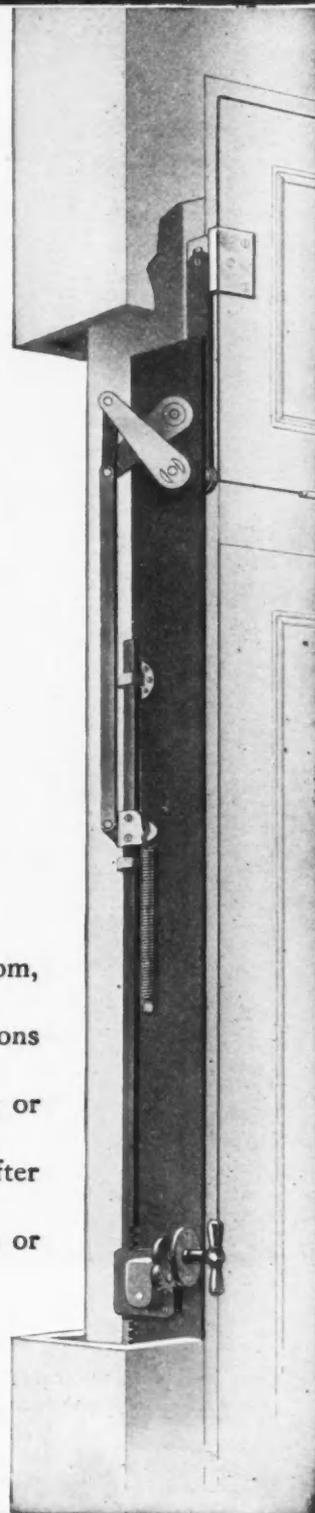
The Varnish
That Lasts
Longest

Murphy Varnish Company

FRANKLIN MURPHY, President
Associated with Dougall Varnish Company, Limited,
Montreal, Canada.

NEWARK,
N. J.
CHICAGO,
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CORBIN CONCEALED TRANSOM LIFTER



This device will operate any style or size of transom, whether bottom, center or top hung, swinging in or out.

It is equally applicable to steel or wood trim, and can be used in partitions as thin as two inches.

It is operated with one hand, the handle turning easily and opening or closing the transom without noise.

It never wears out or gets out of order, requires no adjustment after being installed and costs nothing for upkeep or repairs.

It holds the transom firmly in any position, making the use of catches or other locking devices unnecessary.

It does not interfere with the usual blocking.

It is shipped with all parts mounted on a steel back plate and applied without disturbing the adjustments.

It is provided with an adjustment which permits the handle to be placed in the center of the casing.

It is fully described in Catalog K112. Sent on request.

P. & F. CORBIN

The American Hardware Corporation Successor
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MORGAN DOORS

are the doors the contractor and builder requires for his own handsome bungalow. His home must bear out his experience and house wisdom with the supreme excellence in doors as well as in all other house features.

Every genuine Morgan Door Carries the name "Morgan" on the top rail as a guarantee of detail perfection. The highest door standards of design, stability, and economy are shown in Morgan stock styles and sizes. They simplify selection, estimating, delivery and service. They are appreciatively pictured and described in our free book, "The Door Beautiful." Mailed to your address on request.

Architects see Sweet's Index, Pages 1004 and 1005.

MORGAN SASH & DOOR COMPANY, Dept. C-28, Chicago, U. S. A.

FACTORY:
Morgan Company, Oshkosh, Wis.

DISTRIBUTED:
Morgan Millwork Co., Baltimore, Md.

NEW YORK OFFICE:
6 East 39th St., New York City

Improved Steel-Handled Hammer

The Hawthorne Sales Corporation, 230 West Twenty-second Street, New York City, are offering an improved hammer which has several unusual features that will recommend it to carpenters and builders. The handle is made of steel tubing, smoothly enameled on the outside, so it will not blister the hands. This hammer cannot get broken; it will last as long as the head lasts. It is claimed also that the



handle will never loosen. It is keyed from the outer end with a wooden plug driven through the eye into the handle. Because of its special construction, the handle acts as a shock absorber and prevents jarring of the hand.

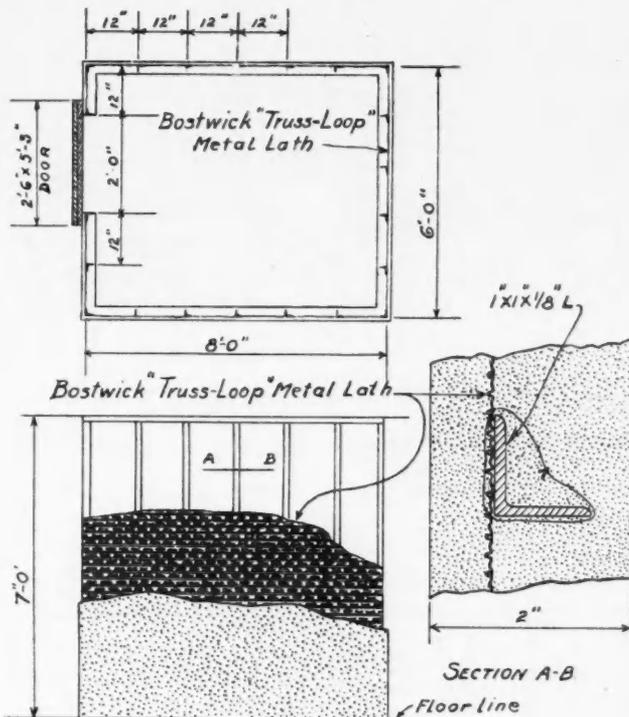
In addition to this improved handle, this hammer also has the "Hynaler" claw head. This is of particular interest to carpenters. An indentation under the claw allows for the insertion of the head of the nail, so that the nail can be held there while being started in a high place.



Metal Lath for Moving Picture Houses

It is said that there are 40,000 moving picture theatres in the United States. Probably in five years' time there will be as many more; anyway, there is a lot of work for builders to do in connection with the movie play houses.

Metal lath is being used very largely in certain parts of almost every moving picture theater, and the results are proving so satisfactory that more will be used as time goes on. The fire ordinances stipulate that the lantern booth shall be fireproof. For this metal lath and cement plaster make an ideal material. The accompanying working drawing shows how Bostwick "Truss-Loop" metal lath is being used in a new theater in Philadelphia. The booth measures 6 by 8 by 7 feet high; the walls are metal lath on 1-inch angle irons,



Construction of Fireproof Lantern Booth for Picture Theatres.

Our "Modern Wood Finishing" Book Will Be Sent FREE

if you are interested in building, refinishing or redecorating a home.

THE wonderful charm of beautifully finished panels, beams, walls, floors and ceilings are an expression of your taste and individuality. Therefore the selection of the proper finishes (with your architect's aid) is vitally important. Be sure, then, to choose

BRIDGEPORT STANDARD WOOD FINISHING PRODUCTS

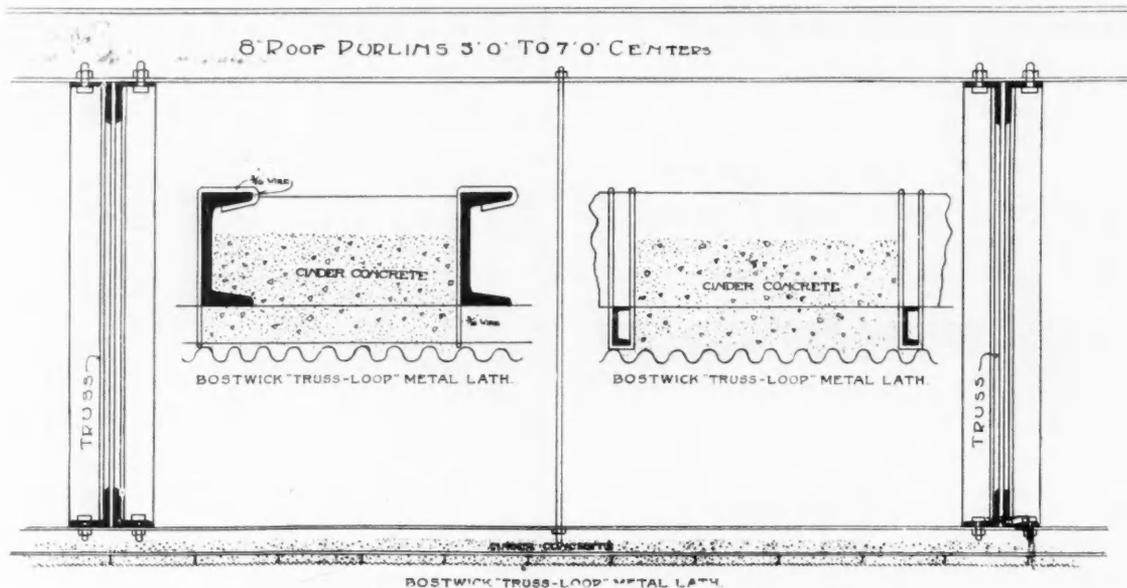
—and see that they are actually used on the work. Don't let the "or equal" clause appear in your specifications.

Bridgeport Standard Wood Finishing Products develop the individual characteristics of different woods to the maximum.

Our "Modern Wood Finishing" Book tells why. Copy free on request. Simply write your name and address on the margin of this ad and mail it to us.

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Box 105. NEW YORK CHICAGO BOSTON 1



Method of Constructing Theatre Ceilings.

set on 12-inch centers. The cement plaster is laid on to completely imbed both lath and angles, making a reinforced concrete wall 2 inches thick. This, of course, makes a perfectly fireproof operator's booth. The expense is moderate and the construction requires a minimum of space.

Another interesting use of Bostwick metal lath was made in this same Philadelphia theater. The ceiling is lath and cement plaster carried on 1-inch steel channels, set 18 inches apart on 3-inch steel channels, set 4 feet apart, which in turn are hung from the lower cords of the ceiling trusses.

They also constructed their balcony floor by using Bost-

wick "Truss-Loop" metal lath and concrete, plastering the under side for the ceiling below.

The Bostwick Steel Lath Company, Niles, Ohio, have some very instructive and interesting material concerning metal lath construction which they will send our readers on request.



Increase Your Profits

You must take advantage of new ideas in saving time and labor and to cut your costs. You are in business to make money. You cannot afford to make mortises in the old fashioned way, when you can do the work in one-fifth

STORE FRONT TREATMENT

PLATE D

Here is just what you have been looking for.
TERRA COTTA WITHOUT THE WAIT.

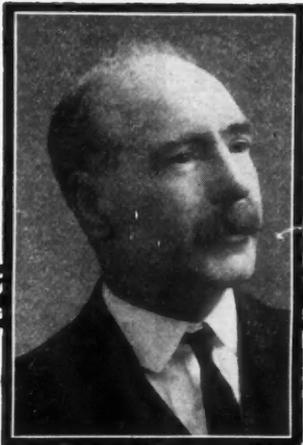
We carry White Enamel Terra Cotta in stock, in designs that are new and interesting. The above Plate illustrates a few of them. The **PORTFOLIO** contains many more--- it is yours for the asking.

MIDLAND TERRA COTTA CO.
 1120 CHAMBER OF COMMERCE, CHICAGO, ILLINOIS

TTA CO - CHICAGO



Harry
Burton
Bryce



John H.
Fleming



Harry
Copley

We hire these men to help you—Use them

Let us introduce you to Mr. Bryce, Mr. Fleming and Mr. Copley. Mr. Bryce is our chief architect, Mr. Fleming is in charge of our special plan department, Mr. Copley is chief of our estimating department. These gentlemen and their large corps of assistants are employed by the Hewitt-Lea-Funck Company to help contractors and carpenters all over America. Each is an expert in his line—ready to give you prompt service and accurate service. No delays—no blunders. It's the business of these men to help *your* business.

Send your lumber lists for a quick price and a low one

Send us *right now*, the material list, for the house, you are figuring on. We will give you quick, by telegraph if necessary, delivered freight-paid price estimate, showing exact quantity and grade that we propose to furnish.

Rapid-fire service Our estimating force is twice as big as last fall—four times as big as last spring. We're ready to give you double-quick service. Simply send us a complete list of the materials to figure on. You get our estimate without a minute's delay and we promise that it will be right in every respect.

Prices that mean double profits Get our estimate and you will then know that we can save you money—big money—an amount as big or bigger than you have been expecting to make up on the whole job. This means that you double your profits by buying Hewitt-Lea-Funck lumber.

Expert plans at small cost

Prize Plan Book—100 good plans, 10c

Our great Plan Book has made a *big hit*. The first edition went like snow on a May day. Get this book—see what thorough and original work we do. You will find at least a dozen plans you want to use. For \$2 you can get complete blue print, plans, specifications, material lists, and delivered freight-paid quotations.

Special plans \$1.50 per room

Give us your rough ideas on plans—our special copyrighted plan sheet, showing reduced size at left, makes this easy—and we'll work up detailed plan for you.

Charges for all plans, stock or special, are refunded when materials are ordered.

Begin NOW making two profits on every job

Make the regular profit you have been in the habit of getting on the jobs that you handle—then make another profit—one just as big or bigger, by buying the lumber at a very great saving.

Buy your lumber direct from Hewitt-Lea-Funck

Our officers own large forests of fir and cedar. We cut and log the lumber, operate our own saw and planing mills. Ship you lumber and millwork of beautiful quality, DIRECT. Not one middleman. Just one profit to pay.

Quick deliveries—Satisfaction guaranteed

We fill all orders within 24 to 48 hours. Seven railroads compete for our business. Deliveries west of Mississippi in two weeks. As to quality we guarantee grades and guarantee better lumber than you can buy locally.

Do This Now

Send along the bills you are now figuring, for guaranteed estimate

Hewitt-Lea-Funck Co.

408 Crary Building
Seattle, Wash.

Hewitt-Lea-Funck Co.,
408 Crary Bldg.,
Seattle, Wash.

(Be sure to write plainly)

Please send me at once:

- Delivered, freight-paid price on enclosed list (no charge for quoting)
- Delivered, freight-paid price on Seattle Silo, diameter _____ ft., height _____ ft.
- Prize Plan Book (10 cents enclosed)
- Special Barn Folder (4 cents enclosed)
- Millwork Catalog and Lumber Price List
- Special Silo Folder and Proposition
- Copyrighted Plan Sheet (free, see illustration)

Name _____

R. F. D. or St. No. _____

Post Office _____ State _____

Business _____

Rush your silo orders

Many contractors have already placed orders for two and three Seattle Silos. This means a fine profit. Get after the silo orders. Get our proposition, if you haven't it, on

Seattle Silos The silo with the wonderful swinging doors

Made of one-piece Douglas fir, tough, strong and ideal for silos—and equipped with patented swinging doors—the handiest of their kind. Write quick for our special silo proposition to contractors and carpenters. Use the coupon.

**Use the Covering that
will save your clients
the most money—**

J-M ASBESTOCEL Pipe Covering

It costs 20 to 30 per cent **less** to heat a building when the pipes are covered with J-M Asbestocel than when they are covered with ordinary covering. This is an actual fact proved by engineering tests.

J-M Asbestocel is the most efficient covering on the market for low pressure steam and hot water pipes because it confines the greatest amount of "dead air"—the greatest known insulator. In this covering the air cells run **around** the pipe and confine the "dead air" to a small space. Ordinary coverings have air cells running **lengthwise**, thereby allowing free circulation and consequent radiation.

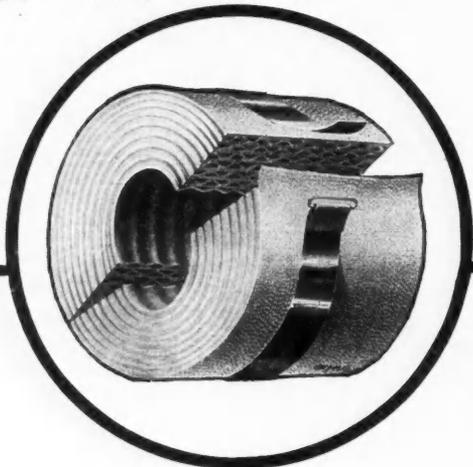
And due to its arch construction J-M Asbestocel withstands vibration and harder usage than any other low pressure covering.

Write nearest branch for sample and booklet

H. W. JOHNS-MANVILLE CO.

Manufacturers of Asbestos Shingles; Roofings; Stucco; Pipe Coverings; Cold Storage Insulation; Waterproofing; Sanitary Specialties; Acoustical Correction; Cork Tiling; etc.

Akron	Columbus	Los Angeles	Milwaukee	St. Paul
Albany	Dallas	Louisville	Minneapolis	St. Louis
Atlanta	Dayton	Memphis	Newark, N. J.	Salt Lake City
Baltimore	Denver		New Orleans	San Francisco
Birmingham	Detroit		New York	Seattle
Boston	Duluth		Omaha	Syracuse
Buffalo	Galveston		Philadelphia	Toledo
Charlotte	Houghton		Pittsburgh	Washington
Chicago	Houston		Portland, Ore.	Wilkesbarre
Cincinnati	Indianapolis		Rochester	Youngstown
Cleveland	Kansas City			



WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

the time with a "Champion" Mortising Machine.

You use a telephone and a typewriter because they save time, labor and energy, yet you have been making mortises in the same old costly, time-consuming, back-breaking manner, with a brace, bit and chisel.

The modern business man is not satisfied with the profits that his father made. He is doing things in a more up-to-date manner and his profits are correspondingly larger.

Because he saves more time.

Don't stay in the old rut. Some people think that by using old fashioned tools and methods they have lost nothing because they have spent nothing.

You do lose the difference between your present costs and what they might be. The loss is there even if you do not see it now and is reducing your bank account.

If a machine will save time and labor and do the work as well, or better, *you need that machine*. An hour saved a day is a full month in a year.

If you need anything, the cheapest way is to get it. You are always paying for what you need whether you realize it or not. Did you ever stop to think of that? You are paying for it in time lost, labor lost, money lost, to say nothing of the loss of business and prestige and the unsatisfactory way of doing your work.

You will never get through paying for the things you need until you get them—then they will begin making money for you. That is the reason you need a Champion Mortising Machine.

Address the Colgan Machinery & Supply Co., 616 Hayden Bld., Columbus, Ohio, for full particulars.



Frank H. Gould Goes with Geo. H. Bishop & Co.

The trade will be interested to learn that Frank H. Gould, who had charge of the selling department of Henry Disston & Sons, Inc., has bought an interest in Geo. H. Bishop & Co., Lawrenceburg, Ind. Mr. Gould has been connected with Disston for a period of thirty-five years and his resignation



Frank H. Gould.

comes as a surprise to his many friends in the trade. Mr. Gould has taken great interest in hardware association work, having served on the executive committee of the American Hardware Manufacturers' Association.

In his new connection he will have charge of the selling department and will visit the trade as in the past.

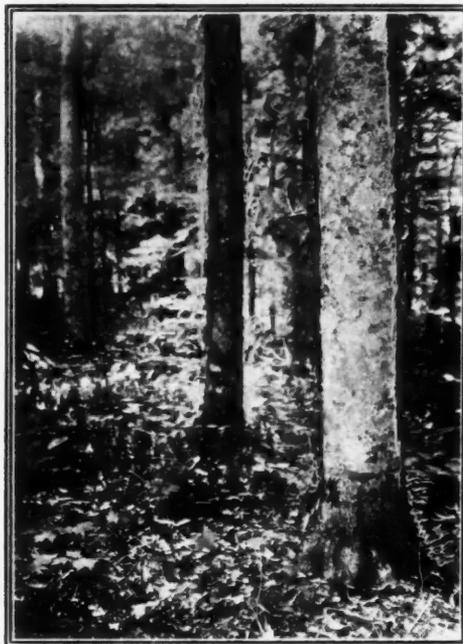
*When you order flooring
be sure it comes from*

CADILLAC

The Home of Quality

MAPLE—BEECH—BIRCH FLOORING

The forests of Northern Michigan yield the best timber for hardwood flooring. The trees are superior in quality and size and produce hardwood flooring of better average quality and lengths than can be procured elsewhere in this country. Cadillac Hardwood Floorings lead



Beech Trees Attain Their Greatest Growth in the Native Forests of the Cadillac Region.

the market, because they are made from the best lumber, properly kiln dried and manufactured. The grades are not mixed to produce a cheap flooring. Regardless of price, if you want the best hardwood flooring, see that you get one of the following brands:

CUMMER-DIGGINS COMPANY

Manufacturers
"CUMMER" Brand

MAPLE and BEECH FLOORING

Let us tell you how
to get less than car
loads at carload prices

Cummer-Diggins Co.
CADILLAC, MICH.

"ROCKHARD" Flooring

When you buy "Rockhard" Flooring, you may be sure you are getting the standard. If you use it once you will find how easy it is to lay and how serviceable.

"Rockhard" Maple Flooring combines Cadillac Quality, good and careful grading, experienced mill work. Attention to these things has made "Rockhard" the flooring you should use.

Our "Rockhard" Beech and Birch Floorings display the same excellent qualities as our Maple Flooring, and on account of their warm color tone, are often preferred for residence floors.

"Modern Hardwood Floors"

A twenty-five cent book, will be sent free of charge to CARPENTERS, Builders and Architects inquiring about "Rockhard" Flooring. A plain guide to the best method of laying hardwood flooring. Write for it.

MITCHELL BROS. COMPANY
Sales Dept.
CADILLAC, MICH.

"ELECTRIC" QUALITY FLOORING--- Maple, Beech and Birch

The best floors to live on or work on are made of wood. The best wood for interior floors is Maple, with Beech and Birch a close second for durability, and particularly desirable for appearance.

Floors made of Maple will last longer than mineral or other substitutes. There is nothing else "just as good" as a Maple, Beech or Birch floor. In addition to our large production of the standard thickness, $\frac{1}{2}$ -inch flooring, we are specialists in manufacturing $\frac{3}{4}$ -inch flooring in various sizes, woods, and selected features. It is not expensive, and a hardwood floor need no longer be considered a luxury.

May we write you why "ELECTRIC" Flooring SAVES Money and Trouble?

COBBS & MITCHELL, Inc. - Sales Dept. - CADILLAC, MICHIGAN

MAPLE

Cadillac Hard Maple is unquestionably of the highest grade. Climatic and soil conditions all tend to make its quality Supreme, and in buying flooring, be sure it is Cadillac Maple. This wood, sometimes called Rock Maple, is unequalled as a flooring material. It represents the highest achievements in modern floor-making.

Our superior character of timber growth, and the thorough and systematic application of superior manufacturing and grading methods produce the famous Cadillac Quality Flooring.

BEECH

Cadillac Beech is a close-grained, hard, strong and tough wood, and its durability is unquestioned. Beech is a close second to Maple in lasting quality and is particularly desirable for appearance.

The grain of Beech slightly resembles Oak. It is an excellent substitute for Oak and will wear longer and is cheaper. It has a natural warm tone and may be stained to produce many artistic effects.

Beech Flooring, made the Cadillac way, is what you should use and specify.

SPECIAL

Our $\frac{3}{8}$ " Maple, Beech and Birch Flooring, only slightly thicker than a carpet, can be easily and quickly laid upon the old floor without inconvenience or large expense, and is equally suited for new buildings, if laid on a smooth sub-floor. Being matched on sides and ends, the nails are concealed and cannot work out to the surface.

Made in different grades and selected colors to meet the varied requirements of the home-builder.

We sell only through your dealer. Send us his name if he does not handle Cadillac Quality Flooring.

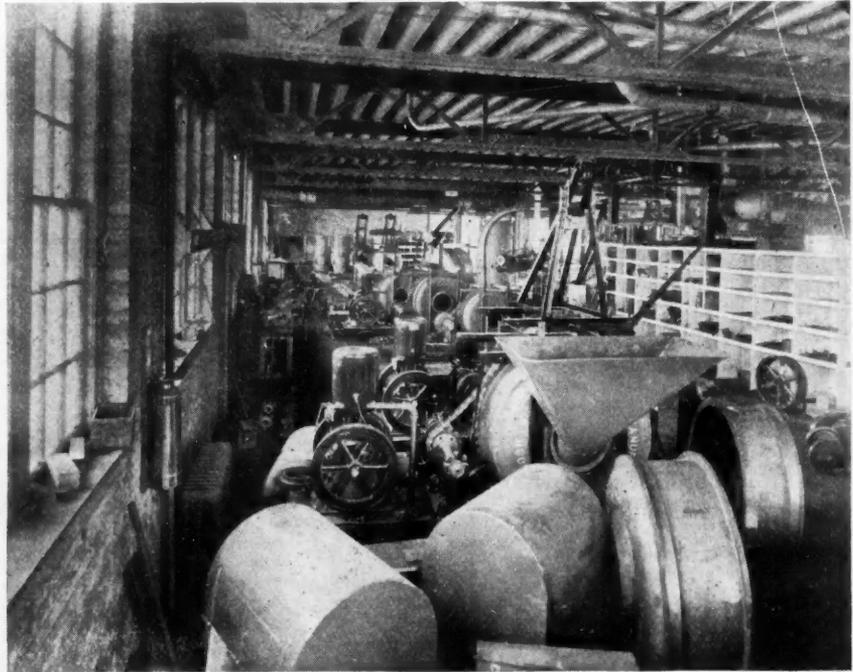
Where They Make the "Eveready"

It is with a great deal of pleasure that we reproduce here-with some interior views of the plant of the Oshkosh Manufacturing Company, 316 South Main Street, Oshkosh, Wis. Many of our readers are well acquainted with this concern by having bought of them their "Eveready Portable Saw Rig" or their "Oshkosh Concrete Mixer," and these will feel almost a personal interest in these photographs that show where their machines were made.

This company has built its success largely by giving value received for every dollar that they have collected. Their plant is complete—and now for their product.

The "Oshkosh Eveready Saw Rig" is enjoying much popularity among contractors and builders, due to the fact that it really does the work that it is intended to do. The frame, table and skids of the "Eveready" are constructed from the very best rock maple, air dried and afterward kiln seasoned. In fact, its entire construction is exceptionally strong and sturdy, so that it will stand every possible demand that can be put upon it. Besides cross-cutting and rip-sawing, the "Eveready" Saw Rig joints, sands, jig-saws, grooves, bores, mitres and grinds tools. It can be easily moved from job

to job and is so simple that any one can operate it. The efficiency of a portable saw rig—its ability to do the work of four to six men—depends largely upon the engine, and this feature of the "Eveready" has received particular



Mixers Assembling Floor at Plant of Oshkosh Manufacturing Company, Oshkosh, Wis.

**The Most Important Item
In This Advertisement**

North American Construction Co.:

Send me your special Carpenters' Plan with full information, as well as your Catalog No. 790 of houses and floor plans.

Name.....

Street.....

Town.....

State.....

WE want carpenters and builders to erect Aladdin Houses—one carpenter in each city—for Aladdin buyers. Would you be willing to do this work?

You may never have another chance—send for the Aladdin Carpenters' and Builders' Plan today. Increase your business, get a better class of business, as well as work with new lumber. Your city may be "closed up"—you may be too late to receive this offer, if you put it off. Send for it today.

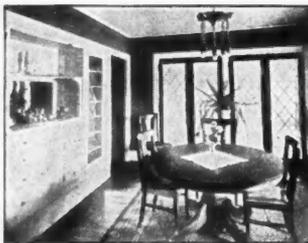
Aladdin Read-Cut \$138 to \$5,000
Dwellings, Bungalows, Garages, Summer Cottages, Barns

Customers want Aladdin Read-Cut Houses—they cost less, are erected quicker, have better lumber (ask about our dollar-a-knot guarantee). Aladdin Dwellings, Bungalows, Garages, Summer Cottages and Barns, \$138 to \$5,000. A complete 5-Room House for \$298. Aladdin Houses save four profits—come direct from the maker, no middlemen. Get the Carpenters' Plan, as well as the Big Catalog, today.

Aladdin Price Includes Everything

All lumber cut to fit, all interior finish, shingles, millwork, lath and plaster or plaster board, all hardware, locks, nails, complete instructions and illustrations for erection. Send today for special Carpenters' Plan and Big Catalog No. 790 of Houses and Bungalows.

NORTH AMERICAN CONSTRUCTION CO., 791 Aladdin Ave., Bay City, Mich.





VANADIUM

WE ARE GOING TO CUT A MELON

And offer—to every Carpenter and Mechanic an opportunity to become interested with us. We are going to present to the working Carpenter and Mechanic, absolutely free, \$25,000.00 worth of the capital stock of the Pennsylvania Saw Company, and why we are doing this, we will tell in a brief statement of facts:

The Pennsylvania Saw Company has ample Capital and Knowledge to manufacture the **Vanadium High Speed Steel Saw**, the Saw that has no equal, but believe by taking the Carpenter and Mechanic into Partnership—having them become Stockholders of the Pennsylvania Saw Company—that they will assist us to maintain the high standard of the **Vanadium Steel Saw**. We have now the most practicable Saw made, but we are always open for suggestions from the man who uses saws, and we **also believe in sharing our profits with the men who help us**. You can therefore earn one, or as many shares of Stock in this Company as you might care to work for.

For every \$4.00 order sent direct to the factory, we will present One Share of Capital Stock—par value \$1.00 per share—and furthermore, this Company GUARANTEES to retire this Stock at the expiration of two years at \$1.25 per share—cash—if the holder wishes to sell.

HERE ARE THE PRICES FOR VANADIUM STEEL SAWS—

16 in.	18 in.	20 in.	22 in.	24 in.	26 in.	28 in.	30 in.	
\$1.40	\$1.50	\$1.60	\$1.75	\$1.90	\$2.00	\$2.25	\$2.50	any style and teeth.

Factory pays parcels post charges at these prices to any place in United States.

Vanadium Steel Saws are guaranteed to be superior to all others.

A defective saw is immediately replaced.

IMPORTANT SUGGESTION

If you cannot use enough Saws to make the \$4.00, get one of your friends to order a Saw as a favor to you. You can then become a Stockholder in

PENNSYLVANIA SAW CO.
FRACKVILLE, PA.

Pennsylvania Saw Co., Frackville, Pa.
Gentlemen:

I enclose \$.....for your A. C. & B. June offer, for which send me by parcel post, prepaid

Length.....in. Teeth..... Wide Blade Straight Back Rip
Narrow Blade Skew Back Cut off

It is distinctly understood that I can return any or all of these Saws if they are not satisfactory after 30 days' trial, and that you will refund the purchase price upon receipt of Saws, in which case I agree to return Stock issued to me.

Name.....

Address.....

The a-b-c of Paint

All paint is composed of one or more pigments and a vehicle or liquid. White Lead is the most widely used white pigment, because it is the only one that can be successfully used by itself for exterior painting. It has a natural and lasting affinity for linseed oil. They unite to form a tough and leathery paint skin, which anchors firmly in the pores of the wood and keeps out the destroying elements. This film stretches in hot weather and shrinks in cold without breaking.

Carter is the *strictly pure* white lead of our forefathers, only whiter, finer and more perfectly made, *due to an improved modern process*. Carter makes the whitest white paint for white houses, and, with the addition of the proper tinting colors, most beautiful and durable colored paints.

Among painters, Carter is known as "The Lead with the Spread," because it has unusual covering and spreading qualities. While there are white leads which cost less by the pound and paints which cost less by the gallon, *none cost less per square yard of surface painted*, except some that would be dear at any price. Instead of cracking and scaling like paints that contain hard and inelastic pigments, pure Carter White Lead and linseed oil paint wears gradually, and though soiled by years of exposure, still fills the pores of the wood, resists moisture, prevents decay, and, what is important, is ready for repainting without burning or scraping or any other expensive preliminary treatment.

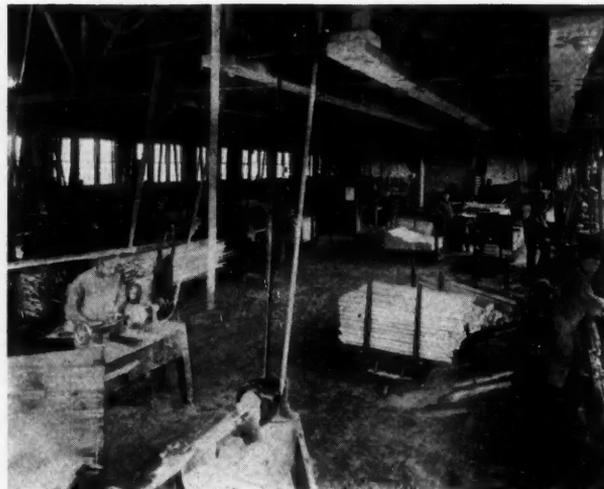
"Pure linseed oil is the life of paint." It absorbs oxygen from the air and becomes hard and elastic. It does not evaporate, but actually increases in weight as it dries. Other oils strike into the wood, entirely or partially evaporate, or never dry at all. There is nothing that is cheaper than pure linseed oil, which can be used safely.

How to estimate the cost of painting, how to treat different surfaces, how to mix Carter White Lead in all colors and for all purposes, how to remedy paint troubles and how to avoid them, is told in "The Carter Paint Calculator." The price of the book is 25c, but a copy will be sent free to any contractor or architect.

Carter White Lead Co.

West Pullman Sta. A. CHICAGO, ILL.

Factories: CHICAGO—OMAHA



Part of Woodworking Shop at Plant of Oshkosh Mfg. Co.

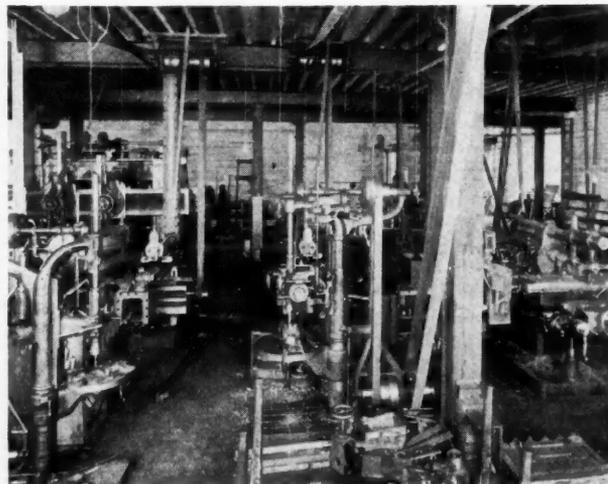
attention. The engine is especially designed and built by the Oshkosh Manufacturing Company particularly for this machine, and the company guarantee that this engine will develop over four actual brake horsepower.

The "Oshkosh Concrete Mixer" is built as a mixer should be built, and the strong claims made for it seem to be fully justified by its service record on many jobs throughout the country. It is simple, strong, durable, efficient and economical of operating power, and has very few parts. However, the strongest claim this company make is for effective mixing. This mixer is known as "the mixer with the effective four-way mix." The mixing projections are so arranged in the drum as to produce a quadruple or four-way mix, which means turning, pouring, kneading and flowing of the batch while it is being mixed. This method insures a perfect mix.

It has ample capacity, combined with speedy mixing arrangement. An idea of the mixing speed and efficiency of the Oshkosh Mixer can be gathered from the fact that the mixture is put through all these operations in one revolution.

THE AMERICAN CARPENTER AND BUILDER wishes that every reader of the paper could visit this plant and see for themselves how complete it is; what facilities they have for turning out good saw rigs and good mixers.

The Oshkosh mill equipment consists of a 20,000 board feet capacity per day, band mill with five-saw gang edger that will rip up a plank into five squares at one run, and the usual complement of smaller rip and cross-cut saws.



View of Machine Shop at Oshkosh Mfg. Co. Plant.

Built with ALPHA

means that the far-sighted owners and builders selected the highest grade Portland Cement that present-day knowledge and the most modern equipment can produce.

“Built with ALPHA” means that the thing on which the life of the building most depends is a cement that represents 23 years of experience—a cement that is tested hourly, day and night, by chemists and chemical engineers whose authority in upholding quality is supreme.

You can be sure that the grip of the concrete will be everlasting, that the structure will be imperishable, when

ALPHA PORTLAND CEMENT

The High-Water Mark of Quality

is specified and handled right, for every bag of ALPHA is guaranteed to more than meet all standard requirements.

Six great ALPHA plants on six trunk-line railroads; one plant with private docks directly on the Hudson River; capacity, 25,000 barrels daily; storage for 2,000,000 barrels. Specify ALPHA and be sure of prompt shipments of properly burned, properly ground, properly aged cement at all times, and a service that is on a par with the high quality of ALPHA Cement.



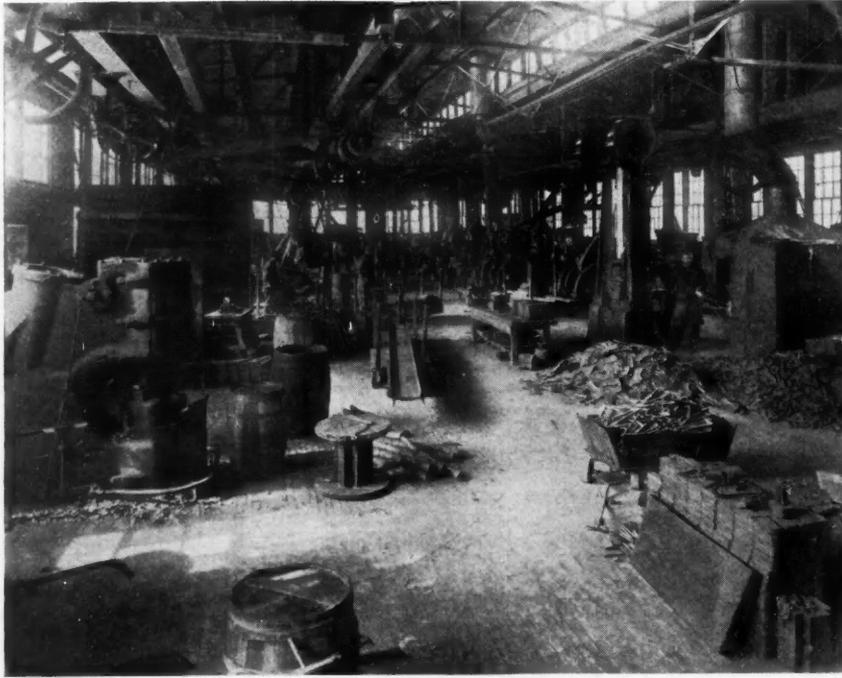
Let us send you, free of charge, valuable literature dealing with the use of ALPHA Portland Cement, with stucco work, concrete houses, and concrete improvements generally. Ask for ALPHA Book No. 10 and ask also for special literature on the kind of concrete work that most interests you.

Alpha Portland Cement Co.

**General Offices:
EASTON. PA.**

Branch Offices: New York, Chicago,
Philadelphia, Boston, Pittsburgh,
Buffalo, Baltimore, Savannah





Interior of Machine Shop at Oshkosh Mfg. Co. Plant.

The wood shop machinery consists of pole lathes, gang lathes, band lathes, dowel machines, broom and mop handle and tent slide machines, sanders, band saws, cross-cut saws, boring mill, DeFiance machines to make insulator pins, planers and jointers, etc.

Steel is purchased in enormous quantities under contract,

Space forbids going further into details of construction of the "Eveready" Portable Saw Rigs and Oshkosh Concrete Mixers. Those who are interested in obtaining full information should write to the Oshkosh Manufacturing Company, 316 South Main Street, Oshkosh, Wis., for their complete catalog.

to secure the best price possible. Mild, crucible, tool and cold rolled steel are used in large volume, as well as several different kinds of much higher grade steel in smaller quantities. As practically all Oshkosh steel is purchased in flat, round or octagon shape, a well-equipped blacksmith shop is necessary. Equipment consists of twenty-one large coke furnaces, fifteen smaller forges, fifteen air, beam, or drop hammers, four "bulldozers" and two large forging machines, as well as all kinds of boring and bending machines, drills, grinders, etc.

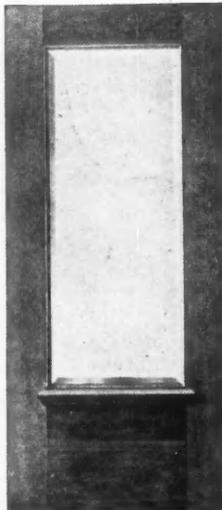
The machine shop equipment consists of a large boring mill and double-head radial drill, and the regular equipment of lathes of Niles-Bement and Pond manufacture, the planer and shaper of the Cincinnati Milling Machine Company's make, and several small millers, etc., as well as the usual complement of saws, drills, etc.

Plant is of steel, brick and concrete construction throughout. Central station electric power is used, and factory is also electrically lighted throughout.

When A Contractor Finds What He Wants— He Gives Us What We Want

What He Wants

A place where he can buy and get **PROMPTLY**, and in good condition **DEPENDABLE MILLWORK**, Stock or Odd—in modern designs and assortment at a **PRICE AS LOW** as good work can be made and handled, allowing for one reasonable profit and only one.



No. 390



Our entire business is to supply Millwork, Paint and Glass to builders, and our plant, stock and systems are adapted, especially to this end, and particularly for the **PRODUCTION OF ODD WORK**, quickly and economically.

We study the needs of the trade and then how to supply them economically and efficiently. If you want that kind of service, we have it.

ONE NEED SUPPLIED and Veneer Troubles Cured. A Solid Mahogany Front Door at Quartered Oak price.

No veneer to blister. Won't shrink or warp. Rich color. Beautiful Grain. Handsome and Durable. Can be stained to match Oak trim.

Send for catalog with prices.

Catalog "B"—Sash & Doors.

Catalog "C"—Paint.

Catalog "D"—Mantels.

Catalog "E"—Art Glass.

What We Want

The trade of up-to-date Progressive contractors who appreciate

**GOOD GOODS
GOOD SERVICE
GOOD PRICES**

and intelligent handling of their orders, and who figure what material is worth to them, as well as what it costs them.



The Cleveland Window Glass & Door Company
CLEVELAND, OHIO



HONEYMOON HOMES

Should be built of Arkansas Soft Pine

It Prevents } the honey from going stale,
 the moon from waning.

It brings back the honeymoons of yesteryear. If from any cause your moon has waned, move into an **Arkansas Soft Pine** home as quickly as you can. You will find the honey again, sweeter and more attractive than ever.

Send for "How to Build"; learn how to make a Honeymoon Home.
Send for our "Trim Book" and learn how to feather the nest.

This advice applies, whether you are architect, contractor or owner.

Arkansas Soft Pine Bureau

1739 Transportation Building

Chicago, Illinois

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER



**Cut Coal Bills \$70 Each
Winter for 9 Years!**

An Underfeed Does It

Performance is proof! When 25,000 users of an article—people who have spent their own good money for it—endorse that article, you can bank on its superior value. You are safe in recommending it. Mr. Garland's letter below is typical of thousands we have on file.

Here's the Proof

"For nine years my Underfeed has given perfect heating results, even when the temperature was from 5 to 25 degrees below zero. I find that coal costing me \$4 a ton gives just as satisfactory results as hard coal costing \$9 a ton."

—J. C. Garland, Dubuque, Iowa.

As Mr. Garland heats his home of eleven rooms, three halls and two bath rooms with fourteen tons of \$4 coal, his saving each winter has averaged \$70.

**WILLIAMSON
UNDERFEED
Furnaces and Boilers**

Cut Coal Bills 1/2 to 2/3

With the Underfeed the coal is fed from below. All the fire is on top causing perfect combustion. Smoke and gases are burned up, making more heat. You can use cheap slack soft coal or pea and buckwheat hard coal and secure same heat as highest-priced coal, with no smoke, soot, smell, clinkers and dirt, and very little ashes. Soon pays for itself through its saving in any home, store, church, school or other building. Adapted to warm air, steam and hot water.

50% Saving Guaranteed With an Underfeed

Every Underfeed that is properly installed and used is guaranteed to effect a saving of at least 50 per cent in coal bills. A \$1,000,000 Corporation is behind this guarantee. On your next job use an Underfeed, it will satisfy you in every way and save your client money. Send the coupon below for full information.

THE WILLIAMSON HEATER COMPANY
233 Fifth Street, Cincinnati, Ohio
Formerly Peck-Williamson Co.

Send Coupon for Facts

THE WILLIAMSON HEATER CO. (23)
233 Fifth Street, Cincinnati, Ohio

I would like to know how and why coal bills can be cut from one-half to two-thirds with an Underfeed.

Warm Air Steam or Hot Water
(Mark an X after system interested in.)

Name

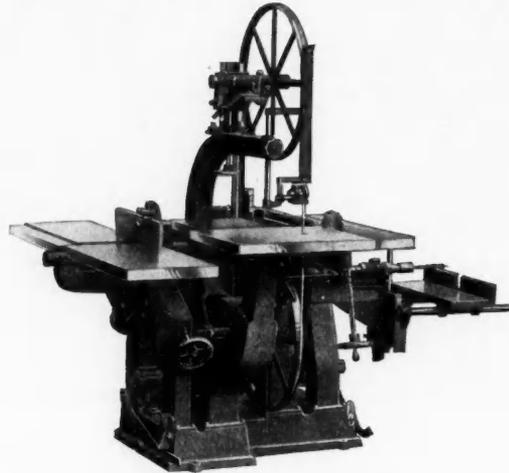
Address

My Business is

**New Model Low-Cost "Crescent"
Universal Woodworker**

The new "Crescent" catalog is just off the press and copies are now being mailed out to those writing in for them. A machine is described that is meeting with general favor—the No. 101 to No. 112 Universal woodworker. This machine combines band saw, jointer, saw table, borer and shaper. The user may buy the machine without band saw and shaper. Other attachments may be added, adapting the machine for mortising, tenoning, making mouldings, grinding tools, sanding.

The machine is intended particularly for these users of wood-working machines who feel that they cannot afford a com-



New Model "Crescent" Woodworker.

plete outfit of individual machines, and at the same time hesitate to make the investment required for the "Crescent" No. 51 to No. 59 Universal woodworkers.

Wherever the machine is introduced, it is meeting with general favor, and from present indications it is going to prove to be a very popular tool.

Write the Crescent Machine Company, 224 Main Street, Leetonia, Ohio, for a copy of this new catalog, giving complete specifications.



A Remarkable Book on Flat Slate Roofs

A new pamphlet, 32 pages, handsomely illustrated, issued by the Bangor Slate Association, Bangor, Pa., gives a remarkable evidence of the popularity of this well known slate, not only for steep roofs, but also for flat roofs.

Come to think of it, there is no reason why the merits of this standard slate should not commend it for flat surfaces as well.

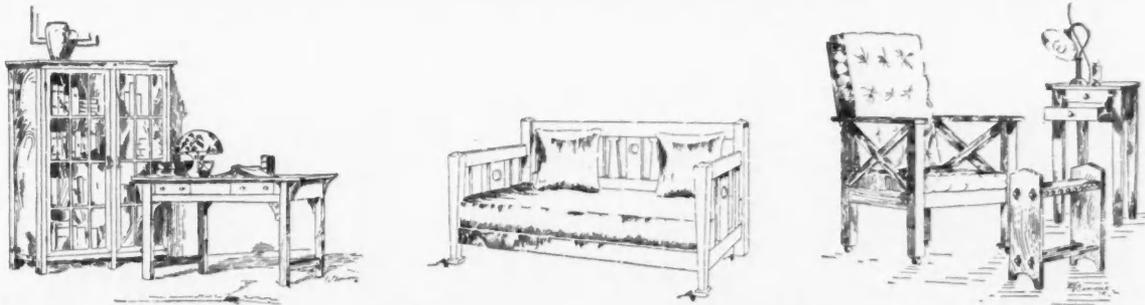
The only reason we are not aware of it, is because on a flat surface the roofing is out of sight; whereas, it is very much in evidence on a steep roof.

The booklet is handsomely illustrated with a variety of buildings that include a million dollar skyscraper, a half-million dollar city school, a \$5,000 store building, a \$500 shed.

One of the most remarkable features about this pamphlet is the policy that governs its publication.

Although some of the roofs illustrated have been in service for thirty years, this is the first time the Bangor Slate Association has published a booklet on the subject, has gone on record in black and white, recommending flat slate roofs.

The reason for this "thirty year triumph of silence" is due to their policy to make sure of the only test that counts—the test of time—before recommending their goods to the public.



Furniture Making Made Easy—

A FINE RECREATION FOR ALL HOME LOVERS

You know enough about tools and how they are used, to make some pretty nice things. You have the ability; these books give you the working drawings, designs, mill bills and instructions. Why not fit up a little shop for yourself and the boys where you can make some handcraft furniture and have real pleasure in doing it?

HAVE THE FUN OF FURNISHING YOUR OWN HOME

Your home can be made more comfortable and beautiful. Hand-made furniture is all the rage. It's so substantial; and your pride in it will be doubled because you made it yourself. There's no end to the work you can do if you follow our instructions. You simply can't make mistakes. You can make beautiful, sturdy pieces of furniture at a trifling cost.

READ THE TABLE OF CONTENTS OF THESE USEFUL BOOKS

VOLUME I

EQUIPMENT OF THE HOME SHOP

Value of Good Tools—The Bench—Rapid-Acting Vise—Outfit of Tools (Planes, Chisels, Saws, Gauge, Screwdriver, Try-Square, Bevel, Hammer, Brace, Bits, etc.)—Grindstone—Miter Box, etc.

USE AND CARE OF TOOLS

Uses of Try-Square—Working Face—Joint-Edge—Testing for Squareness, Uniform Width or Thickness, etc.—Marking Gauge—How to Gauge Lines—Saws (Crosscut, Rip)—Position in Sawing—How to Hold Saw—How to Hold Work—Accurate Sawing—Ripping—Good and Bad Sawing—Modern Plane and its Parts—Smooth-Plane—Jack-Plane—Setting the Blade—Adjusting Cap and Plane Irons—Planing and Finishing Surfaces, Edges and Ends—Free End Planing—Chamfers—Chisels and Chiseling—Grinding Beveled-Edge Tools—Use of Grindstone—How to Sharpen Chisel on Whetstone—Grinding and Whetting—Sharpening Plane-Irons—How to Tell Whether a Tool is Sharp or Not—Use of Scraper.

MODELS FOR HOME WORKSHOP CONSTRUCTION

Furniture Designs—Itemized Stock Bills—Working Drawings—Simple Bookcase or Magazine Stand—Convenient Book-shelves—Six-Sided Tabouret—Eight-Sided Tabouret—A Book Rack—Three-Part Screen—Footstool—Library Table of Mission Design—Heavy Six-Sided Table—Drawing Board and T-Square—Folding Porch Chair—Porch Swing—Set of Porch Furniture—Arm-Chair—How to Make a Steam Box—Settee—Side Chair—Piano Bench—Mission Chair—Settle of Mission Design—Pierced Ornamentation—Tabouret and Settee of Pierced Ornamental Design—Morris Chair—Simple Morris Chair Design—Leather-Upholstered Arm-Chair and Rocking Chair—Large Mission Rocker—Writing Desk—Bookcase with Paneled Glass Door—Linen Chest—India Stool—Weaving Stool Seat of Rush Fiber—Hanging Clock of Mission Design—Hall Clock—Hall Clock of Mission Design—Hall Tree—Umbrella Stand for Hall—Plant Stand for Pedestal—Use of "Winding Stick"—Electric Light Pendant Fixture—Carpenter's Workbench—Workbench Vise—Cabinet-Maker's Bench.

VOLUME II

MANUAL TRAINING IN EDUCATION HANDCRAFT FURNITURE MAKING

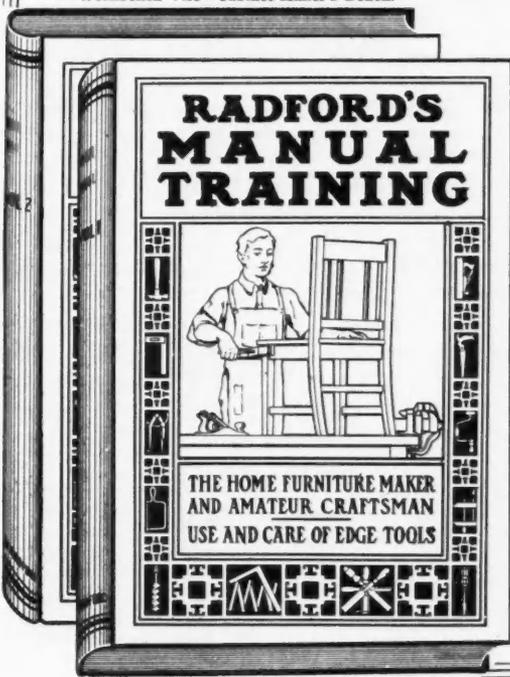
Ornamental Plant Stand—Hat Rack and Key Rack—How to Make a Necktie Rack—A Tea Pot Mat—Decorated Foot Stool—Foot Stool With Keyed Tenons—Leg-Rest—Tabourets with Pierced Ornamentation—Stools with Pierced Ornamentation—Tabouret with Straight Legs—Telephone Table or Stand—Plant-Stand—Simple Umbrella Stand—Enclosed Umbrella Stand, Ornamental—Coat and Hat Rack—Mirror Shelf—Hall Rack with Mirror—Umbrella Rack for Hall—How to Make a Fireless Cooker—Sewing Cabinet and Folding Table—A Strong Utility Chair—Dutch Chair with Rush Seat—A Sewing Room Rocker—Mission Rocker with Cobbler's Seat—Leather Upholstered Rocker—Big Morris Chair—Library Easy Chair—Mission Settle with Diagonal Back Pieces—Heavy Mission Settle—Straight Line Mission Settle—Davenport, Leather Upholstered—Piano Bench with Hinged Top—Piano Bench with Keyed Tenons—Kitchen or Side Table—General Utility Table—A Large Library Table—Library Table with Leather Top—Flat-Top Desk or Desk-Table—A Square Dining Table—A Serving Table—A Plate Rack—Magazine Stand with Cabinet Top—A Writing Desk—Crafterman Bed of Wood—How to Make a Chiffonier—Writing Desk of Plain Design—A Table Book Rack—A Porch Swing—Electric Table Light—Electric Chandelier—To Make a Book Trough—A Dictionary Stand—A Picture Frame with Shell—Round Top Table—Mission Candlestick—Massive Arm Chair—Side Chair of Straight Line Design—Morris Chair—How to Make the Mission Rocker—Carved Book Rack for Table—Library Table with Book Shelves—Big Easy Rocker—Electric Drop Lights—Heavy Mission Library Table—Art Craft Bedstead—Wood Screen for Bedroom.

SUGGESTIONS FOR FURNITURE DESIGNING

Kitchen Furniture—Kitchen Table—Wood-Box—Cottage Chair—Cottage Serving Table—Chain Cabinet—Extension Table—Dressing Table—Round-Top Table—Table—Twin Beds—Mirror—Library or Den Furniture—Morris Chair—Foot or Leg Rest—Light-Stand—Bookcase—Library Table—Settle—Chair—Sewing Table—Well-Furnished Hall—Settle—Umbrella Stand.

OTHER POPULAR HANDCRAFT WORK

Hammered Metal Work for the Home Shop—Stenciling—Stenciling with Flat Oil Paints—Single-Color Stenciling, Two-Color Stencils—Modeled or Art Leather Work—How to Build a Canoe—Retrospective.



Complete Designs, Clear Drawings and Full Instructions

These books describe the article to be made and tell you how to do it in a simple, understandable way. They tell you how to lay out the work; how to work it; how to put it together; and how to finish it. Everything is complete and made still plainer by very clear drawings and illustrations.

Art Work, Tooled Leather, Hammered Brass and Copper

In addition to the largest assortment of beautifully-designed handcraft furniture ever put into book form, RADFORD'S MANUAL TRAINING books contain special departments devoted to the home arts, working with leather, brass and copper. The designs of the furniture and other articles shown throughout these books are original, serviceable and pleasing. The value of this guide for the home-craftsman is worth many, many times its price.

RADFORD'S MANUAL TRAINING in 2 Volumes (622 pages, size 6 by 9 inches), thoroughly indexed, Cloth Bound, printed on good heavy paper and thoroughly illustrated with drawings and full-page half-tone engravings, will be sent, prepaid, on receipt of check, money-order or currency.

Price, \$3.00 Per Set, Postpaid

Radford Architectural Co.

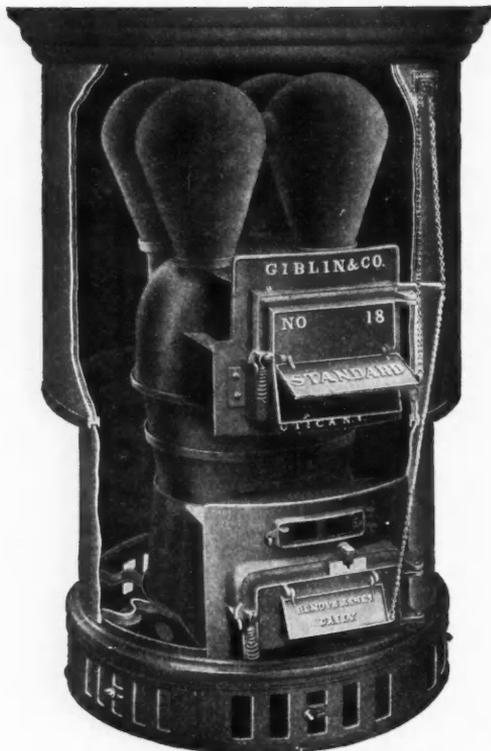
1827 Prairie Avenue

CHICAGO, ILL.

Giblin Standard School Room Heater

The first necessity of a schoolroom is good ventilation. There has been a great awakening in this respect, and all over the country school boards are recognizing the necessity of discarding their old stoves and room heaters, which fail to heat and ventilate properly, and are looking for an apparatus which will not only work well, but will do it with economy in operation and labor attendance, and freedom from repairs. For this reason, Giblin & Co., 501 Broad street, Utica, N. Y., have placed on the market their all-cast-iron Giblin Standard School Room Heater, illustrated

This School Room Heater is designed to heat the room and thoroughly ventilate it. A concrete foundation is provided, 2 inches in thickness, on which the heater will stand.



Giblin School House Heater. It Heats and Ventilates.

This foundation effectually prevents any possibility of fire. This heater provides for heating not only the air in the room, but also air taken from outside.

In the panels in the base of the heater are openings furnished with slides so that one or all the openings may be used as desired. When these slides are open, the air is admitted from the room to the heater chamber, heated and sent upwards in the room, and descends to the floor as it cools. In this way, the circulation of the air is continuous.

Write today for free book.



Tailor-Made Millwork at Ready-Made Prices

SPEEDING UP THE DELIVERY ON SPECIAL WORK SO AS TO GIVE PROMPT SERVICE ON ALL ORDERS

Nine years ago the Cleveland Window Glass & Door Co., of Cleveland, Ohio, decided on a radical and far-reaching

change of policy; to change from wholesale exclusively to dealers, and on their out-of-town woodwork to extend to all out-of-town builders the full facilities of their extensive woodworking mill and stock, also to give them net wholesale prices on their entire line of woodwork, glass and paint.

This new policy proved at once so popular that it has been continued, and thousands of contractors and builders all through the eastern and central states have had the benefit of it.

This policy gives to all builders east of the Mississippi River the opportunity to buy supplies of the highest grade at prices far below those ruling in most of their home markets, and to get service on special millwork in most cases much more promptly than they could obtain through their local mills; and especially so where the home dealers depend on out-of-town sources of supply.

To accomplish this quick service new methods and systems in millwork had to be invented or adopted.

As far as possible all material is kept partly made up, so that the final operation requires but a fraction of the usual time.

For example, for hardwood veneered doors in oak and birch the stiles and rails are cored, veneered, and edged ready to machine. By this method an odd size hardwood veneered door can on special occasions be finished in a day or two—which would require 4 to 6 weeks in many mills.

An odd sash with this system of having all the parts cut and machined can be finished in an hour, that would take days or weeks in the average mill.

Throughout the mill extra power machines, room and stock are provided so as to round out a uniform quick service.

Combined with this is a warehouse 200 by 100, 3 stories, filled to the roof with stock doors, sash, frames, finish, and porch material, together with shops for art glass, mirrors, bevel and prism glass, and full wholesale stocks of plate and window glass and paint supplies.

To make dealing easy to all, liberal terms of credit are extended to all responsible parties with large cash discounts to those who prefer to buy in that way.

The trade sought for and solicited is that of the best class of contractors, who demand and appreciate good work, modern designs and prompt service.

Free Trip to Cleveland

To establish personal relations with these customers and to show them what they can depend upon in the matter of quality and delivery of special millwork and all goods used in connection, an offer is being made to all builders in this territory (see their advertisement) whereby railroad fare both ways is paid, providing the builder will go to Cleveland and inspect their mill, warehouse and other facilities, and purchase woodwork to the amount of \$100.00 or over. This offer has been accepted by hundreds of builders who have become permanent and enthusiastic customers.

That the liberal dealing, high standards and progressive policy so long maintained by the Cleveland Window Glass and Door Co., are appreciated by the best builders is evidenced by the constant growth of their business and the large territory from which trade flows to them.



HERCULES CONCRETE BLOCK MACHINES

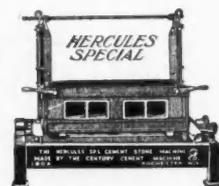
Are the ONLY machines that meet every requirement of the architect and builder

They are simple in construction, easy to operate and do not require skilled labor. You can install them with small equipment and add to it from time to time, according to your needs. The output from **One Hercules** exceeds the combined production of from **Two to Four** machines of other makes.

Hercules machines make stronger and more durable blocks because they use a **Coarse Wet** mixture—other machines do not.

For the man who wants to make 16-inch blocks, there is nothing to equal our new **Hercules Junior** machine with complete equipment, for it is the best block-machine value ever offered. Investigate—send for illustrated catalogue. It's Free.

CENTURY CEMENT MACHINE COMPANY, 220 MILL STREET, ROCHESTER, N. Y., U. S. A.

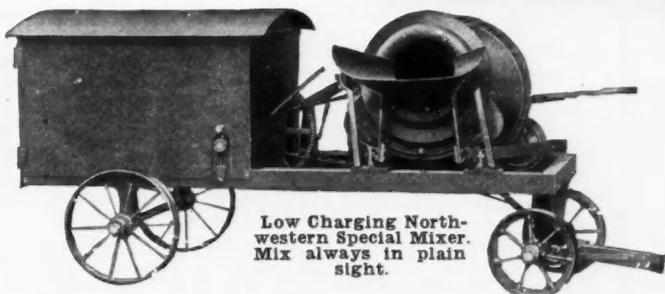


HEADQUARTERS

**LOWEST
PRICES**

**FOR
CONCRETE
MACHINERY**

**GUARANTEED
QUALITY**

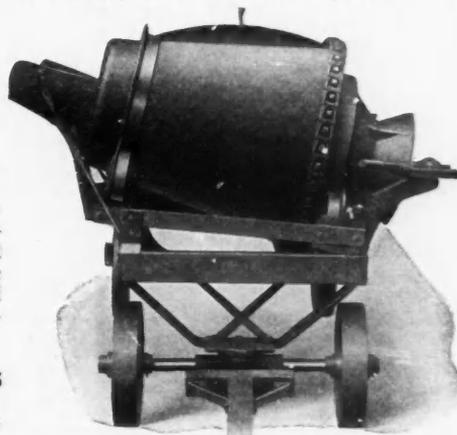


Low Charging North-western Special Mixer. Mix always in plain sight.

Northwestern Machines are sold direct from the factory to the user. You get the *wholesale price*. We make them; we sell them and we know just how good they are—what fine values at exceptionally low prices. We can supply you with any machine of guaranteed quality at a rock-bottom price.

Northwestern Special Concrete Mixer

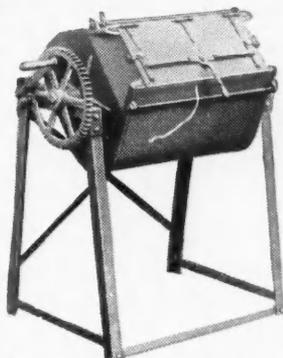
Five cubic feet per batch. Combined mixing principle of cone and cylindrical shaped drum. Low charging. High discharge. Drop and whirl-pool mix always in plain sight. Light, strong and portable. Wide faced truck wheels. Hot riveted and steel braced truck frame. This is the biggest offer ever made. A mixer that is first class in every way and the price will save you \$200 or more. Get full description of the Northwestern Special before you place your mixer order elsewhere.



Shape and Tilt of the Drum gives greatest capacity.

Carpenters Hand Batch Mixers

A dandy little mixer for Carpenters, Masons or Farmers. Big improvement over all other hand mixers. Made of best steel and cast iron. Weight, 220 lbs. Easily turned. Drum makes 15 revolutions per minute. Will handle 3 cu. ft. of loose material and requires only from 1½ to 2 minutes to thoroughly mix a batch. If you want an inexpensive machine, investigate this mixer. It's a big bargain at the price..... **\$23.00**



Inexpensive Carpenter's Hand Power Mixer. Easily operated.

Improved Face-Down Block Machine

combines the three advantages of Speed, Large Output, and Low Price. Makes *all styles* of blocks that are of perfect design and finish. Simple in operation. Cores when withdrawn swing clear of the mould. No broken blocks. Made of heavy gray iron. Strongly braced, rigid frame. Perfectly balanced tamper. Improved device makes it easy to lock or unlock the mould *instantly*. This is an ideal machine for the Contractor or for Block Plants. Order one now. Complete description of this Block Machine, outfit, capacity, construction, etc., on pages 24 and 25 of our new Catalog. Write for this Free Book now.

Northwestern Six Brick Machine \$26.00

Capacity 1,500 to 2,000 brick per day. The least expensive and handiest outfit for making perfect cement brick. Cast iron stand. Steel and iron mould box. Absolutely perfect in mechanical construction and designed to give the

A Hand Power Brick Machine of great capacity and strength.



strongest, clean-cut product with the least amount of labor. Greatest variety of faces. Very simple to operate. Weight, 170 lbs. Full description sent on request.

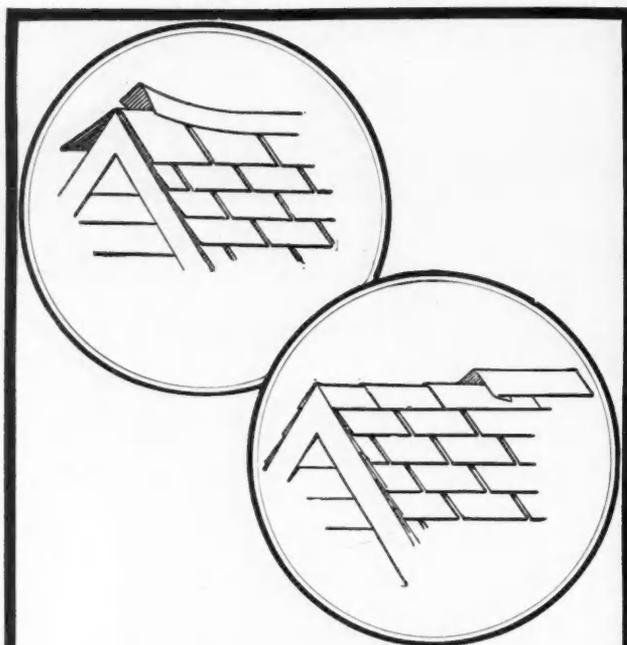
SEND FOR BIG ILLUSTRATED CATALOG OF THE COMPLETE NORTHWESTERN LINE Mixers, Hoists, Brick and Block Machines, Moulds of all kinds, Wheelbarrows, Crushers, Forms, etc.



Improved Block Machine. Cores swing clear of the mould box.

Northwestern Steel & Iron Works,

625 Spring Street,
EAU CLAIRE, WIS.



Finishing the Ridge

In laying Rex-tile Shingles there is a choice of two methods for the completion of the ridge.

Carry the last row of shingles over the ridge and nail carefully.

Then lay a straight piece of Rex Valley and Ridge Strip along the ridge, as shown in the upper illustration. Or, a tile effect can be obtained with the use of the shingles alone, as in the lower picture.

Start on the ridge at the gable end and lay the shingles along the ridge, lapping each one 5 inches to the weather and nailing on the outside edge.

In figuring on a job, Mr. Builder, tell the prospective house-owner about

Rex-tile
TRADE-MARK
"THE SCIENTIFIC SHINGLE"

Tell him of their economy as compared with wooden shingles. Tell him of their durability, their weather-resisting and fire-resisting qualities. Show him samples, so he can see for himself what a handsome appearance they will give to the new home.

Call his attention to the turned-under fold, that prevents flapping, or warping. Emphasize that colors are permanent—a part of the shingles—no painting necessary.

If you persuade him to have a Rex-tile roof he will always thank you, and your advantage is plain in the ease of handling and laying.

We are conducting a national advertising campaign now, to acquaint owners and builders with Rex-tile Shingles and back up your recommendations.

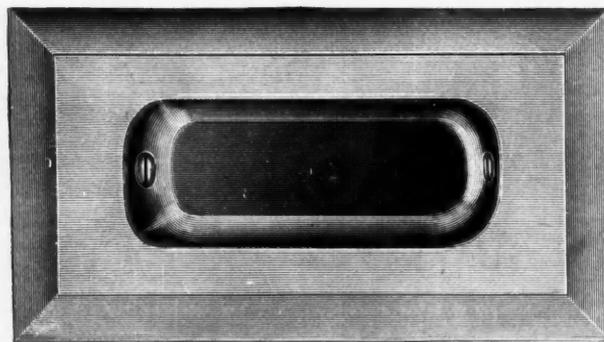
Write today for sample shingles and full information.

Flintkote Manufacturing Co.

90 Pearl St., BOSTON, MASS.

659 Peoples Gas Building, Chicago

Manufacturers of the Famous Rex Flintkote Roofing for factories, warehouses, farm buildings, etc.



Shelby Broad Bevel Flush Sash Lift

The Shelby Spring Hinge Co., Shelby, Ohio, recently added to their extensive line of builders' hardware, a new Flush Sash Lift, which is meeting the demand for a high-class sash lift.

The broad beveled edges give it a very massive appearance.

It is made from wrought steel—real bronze—or brass, finished to match any interior hardware.

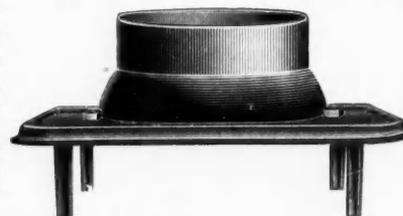
Packed $\frac{1}{4}$ gross in box with screws to match.



The "Best" Chimney Cap

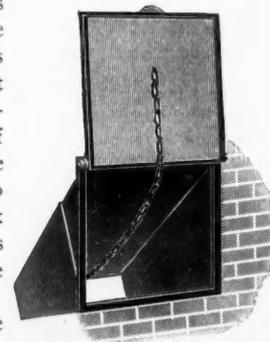
The Sterling Foundry Co. are offering a neat appearing cap made of cast iron and guaranteed to last for years. This cap, as illustrated, is designed to replace the old style galvanized sheet iron hood.

The average life of sheet iron is from one to two years. The "Best" will last for years, for cast iron will last longer than any other form of iron or steel when exposed to the weather.



It is made in three sizes and the legs have a radial adjustment so that each size will fit any chimney up to the largest size for which it is designed. The legs project inside the chimney to prevent the cap from blowing off. It is not necessary to use mortar or cement to fasten this cap to the chimney as the legs will keep it in place. To put cap on chimney adjust the legs to the size of the flue and set it on.

Another popular item in the Sterling Foundry Co.'s line is the "Best" Fuel Chute. The accompanying illustration shows the chute set in the wall. It sits flush with the wall, on the outside of building and is 28 inches long on top. The frame and door are cast iron, the tube is made of No. 16 steel. When not in use, draw chain tight and attach it to the hook at bottom of tube, which securely locks the door, making it burglar proof. To open the door, attach the last link to the hook and when door is open, it holds chain to top of tube out of the way.



Fuel Chute Open

The cover is held open by the hook on door engaging with hook on top of frame, the door opening up protects the siding. "The Best" has a flange overlapping the top of door, thus preventing the rain from running down the chute and rusting it out.

Address the Sterling Foundry Co., 888 Wallace St., Sterling, Ill., for illustrated catalog.

UTILITY

the only five-ply wall board on the market

meaning 5 layers of fibre board and 4 layers of asphalt

—additional **H** EYWOOD BROTHERS AND WAKEFIELD of Chicago, internationally famous as makers of fine cane-seated furniture, line their lumber dry kilns as well as their varnish dry rooms with **UTILITY** Wall Board exclusively. To date, their **UTILITY** orders approximate 40,000 square feet.

proof

They chose **UTILITY** as best only after careful comparisons and severest tests. In their dry kilns alone, the wall board is subjected to the extremes of dampness, heat and dryness—and these conditions change from one to the other every fifteen days.

It's the "Stuff" That Goes Into UTILITY

Concerns like Heywood Brothers and Wakefield, the Packard Motor Car Company and hundreds of others in scores of different lines prefer **UTILITY** Wall Board because it meets their most exacting requirements best in every way.

We now make **UTILITY** five-ply, because the five layers of high-quality fibre board in addition to the four layers of asphalt give that much more strength and stiffness than the usual two or three layers.

It's a *much more moisture-proof* wall board too, because now there are *four layers* of asphalt—but besides this we cover the entire outer surface with a specially prepared moisture-proofing.

Once properly applied, **UTILITY** is on to *stay on*—won't check, chip, crack or fall off.

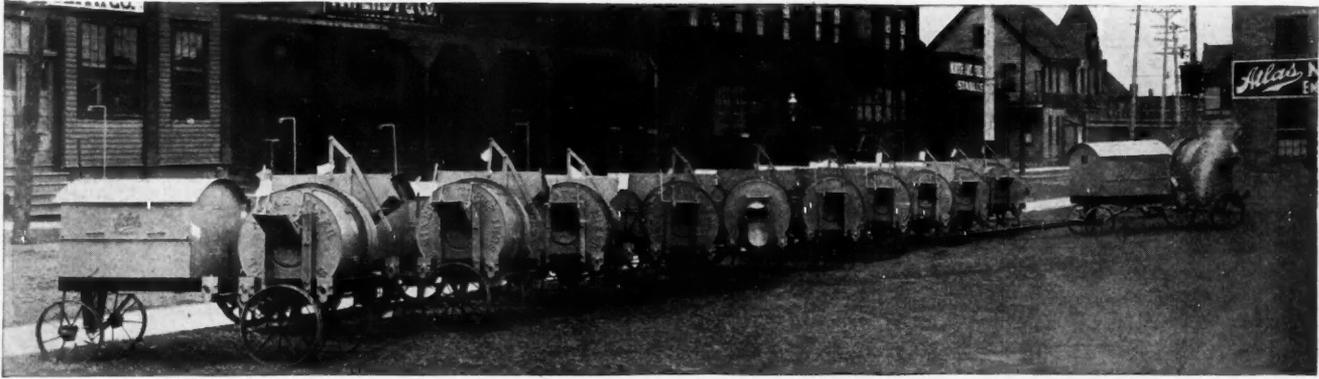
Samples Free—Write Us

Judge for yourself; make your own comparisons; get actual proof of **UTILITY** quality in your own hands. Just write saying, "*Send UTILITY samples and literature.*" Address, The Heppes Co., 4503 Fillmore Street, Chicago, Ill.

***Manufacturers also of Flex-a-Tile Asphalt Shingles,
Asphalt Paint and Asphalt Roofing in Any Finish.***

4503 Fillmore Street

THE HEPPE'S CO.
CHICAGO **U. S. A.**



Shipment of Atlas Mixers all Ready to go to a Large New York Contractor.

Mixers by the Wholesale

When we looked at this photograph showing a shipment of eleven concrete mixers all ready to go to a single contractor we couldn't help but think of the thousands of other contractors who are still debating and wondering and everlastingly talking about buying one mixer.

They wonder if it will pay, and if it will do the work right, and if it would really save them any money—and all the time the building season is flitting by, while somehow they never get around to trying out the concrete mixer proposition for themselves.

This contractor, and he is a large one operating in New York City, orders eleven "Atlas" mixers at one time. He has tried them out before and knows what he is getting. It's a pretty good testimonial, we think, for concrete mixers in general, and for the "Atlas" mixers in particular.

The Atlas Engineering Company, 780 Thirtieth Street, Milwaukee, Wis., have just issued a new catalog illustrating their line of concrete mixers. Our readers will be interested to see it. Copies will be sent to all who will write the company for them.



"Wife's Joy" Dumbwaiter

Truly a real joy to the housewife is the ball-bearing, disappearing dumbwaiter made by the American Elevator Company, Bloomsburg, Pa. This is a very simply arranged dumbwaiter; can be installed complete in two hours' time. It takes up no room in the kitchen, as the top lies flush with the floor; when in its lowered position it can be walked on.

Carpenters and builders are doing well acting as agents for this elevator, installing them. Write the company for full particulars.

**Ornamental
Economical
Durable**

J-M Asbestos Stucco is free from sand and foreign matter. Less subject to stains and discolorations than other stuccos.



Residence of Mr. Irving Blumenthal, Far Rockaway, L. I. Covered with J-M ASBESTOS STUCCO. Emery Roth, Architect, New York

**Fireproof
Weatherproof
Impervious to
Heat and Cold**

Composed of pure asbestos rock and fibres. A stone stucco—not a plaster. Contains nothing to deteriorate.

J-M Asbestos Stucco

Is entirely different from ordinary sand-and-cement stuccos. It is easily and economically applied, because it is much lighter than other stuccos and has a greater covering capacity. It dries a pleasing gray-white which is permanent, and is

not affected by moisture, heat, cold or atmospheric conditions. And it is thoroughly fireproof. In prepared form J-M Asbestos Stucco can be furnished in various shades of gray, buff and brown.

Write our nearest Branch for illustrated booklet.

H. W. JOHNS-MANVILLE CO.

Manufacturers of Asbestos Shingles; Roofings; Pipe Coverings; Cold Storage Insulation; Waterproofing; Sanitary Specialties; Acoustical Correction; Cork Tiling, etc.

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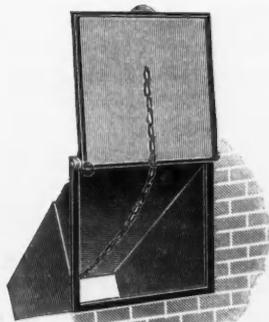
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THE CANADIAN H. W. JOHNS-MANVILLE CO., Toronto Montreal Winnipeg Vancouver 1468



Chute Set in Wall.

"Best"
FUEL CHUTE

A strong Steel and Cast Iron Chute that is easily set in the wall and will last as long as the building. Burglar proof lock. Special device for holding door open when chute is in use. Flange overlaps top of door, preventing rain from running down and rusting the chute.

THREE SIZES
No. 1—18x18" No. 2—18x24"
No. 3 20x26"

Prices Extremely Moderate
Send for Catalog

We also make Chimney Caps, Chimney Tops, Flue Thimbles, Chimney Copping, Clean-out Doors, Door Holders, Cistern and Coal Hole Covers, Cess Pools, Door Pulls, Latches, Sash Hangers, etc.



Chute closed ready for shipment.

Fine Illustrated Catalog Free

Sterling Foundry Company
No. 888 Wallace St., Sterling, Illinois

LOOK!

**Carpenters -- Builders
and Contractors**

SEE

What The
UNITED FACTORIES
Offer You During
**JUNE - JULY
AND AUGUST**

Geo. A. Bottger,
Pres.



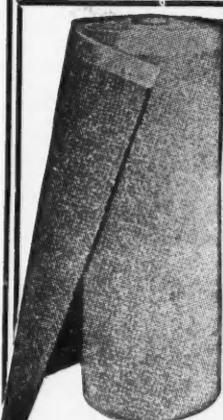
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Big Book
is FREE

Write
a Postal
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Today

Quotes lowest prices on all kinds of Roofing
Paint, Gasoline Engines, Buggies, Harness,
Fencing, Furniture, Planos, etc.

**Money Saving Prices On
WALL
BOARD**

Get our prices on Plain Wall Board, also on Grained Oak Finish Wall Board for interior finishing and Water-proof Wall Board for siding small out-buildings, such as poultry houses, etc. Samples Free. Write for them.



Factory No. 1 Pays the Freight!

During the next 3 months you get Unito Ready Roofing laid down at your own freight depot for the price usually asked at the factory. For example:

90c PER ROLL buys our famous Unito Challenge and Two-in-One Roofings. We also make Double Flint Coat, Unito Rubber Roofing, and Unito Diamond Coat (The very Best Ready Roofing made) all at low prices—all fully guaranteed and shipped prepaid on 30 days' free trial, without a cent in advance. Get our prices also on Slate and Granite Coated Asphalt Shingles, cut separately or put up in easy-to-lay continuous strips.

**PRICES
SLASHED**

By Factory No. 2

If you are in the market for any kind of Metal Roofing, Metal Shingles, Metal Ceilings, Eaves Troughs, etc., be sure to send at once for our new cut price list. Never before such prices. They will help you under-bid your competitor. Get in your specifications now and take advantage of this big saving. Remember we sell

No "Wrecked" Goods—No Seconds

Everything from absolutely new, freshly rolled and heavily galvanized stock, carefully inspected and guaranteed the best you can buy. All shipped on 30 days approval, with privilege of return at our expense if you are not pleased. No money asked in advance. We take all the risk. Send in your orders now.

Write for
Catalog

THE UNITED FACTORIES CO. 1820 Factories Bldg., CLEVELAND, O.



Guaranteed
5
Yrs.

**FREIGHT
PAID**

By Factory No. 3

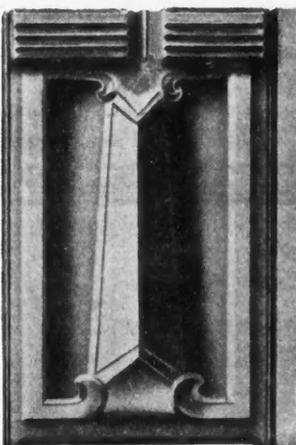
The more particular you are about the paint you buy, the more anxious we are to send you as much Unito Ready Mixed Paint as you need without a penny of pay in advance and let you use one-fifth of it. Then if you don't say it spreads as nicely, looks as well, and goes as far as any \$2 to \$2.50 per gallon paint you ever used, send back what is left and no charge will be made for part used.

House Paint, \$1.20 per gal.
Barn Paint, .70 per gal.
Roof Paint, .35 per gal.

Freight paid by us.

Our guarantee and 30 days' trial offer without pay in advance make Unito Paint SAFEST for you to use, and you save almost half the usual price. Try it at our risk.

Write for FREE Sample Color
Cards



"Tamco Metal"

TILE OR SHINGLES

Durable and Artistic.
For Residences, Barns,
etc. Send for "Tile"
Catalogue

**THE TIFFIN ART
METAL CO.**

TIFFIN OHIO
Manufacturers
Metal Roofings, Ceilings, Etc.

GET ORDERS

for the
**UNIVERSAL
RAT CATCHER**



EVERY farmer, merchant and lumber dealer in your locality will buy one of these Rat Traps. It's a sure and quick way to rid all buildings of the pests. One of these Catchers placed in a livery stable in Scranton, Pa. caught over 100 rats in ONE MONTH. Trap made of galvanized iron; can't get out of order; lasts for years; always clean. 18 inches high, 10 inches diameter. One delivered prepaid upon receipt of \$3. Rats and mice die; no marks left on them.

My proposition requires no time from your work. I can show you how to make money easily. Don't be afraid to ask how. Cost you nothing to find out. I'll guarantee you can sell these Universal Rat Catchers easily.

WRITE TO ME AT ONCE.

H. D. Swarts, Inventor and Manufacturer, Scranton, Pa.



KisselKar Truck operated by Brubaker Bros.,
San Dimas, California.

We have a KisselKar Truck that will exactly meet your needs

The business man who has been doubtful about motor trucks meeting the demands of his particular business, should investigate the new series of KisselKar Trucks.

There are six sizes—1500 lbs., 1, 1½, 2½, 3½ and 6 tons. Bodies are built to order, so there is no delivery duty into which a KisselKar Truck will not fit.

You are not asked to readjust your delivery system to the truck—just tell us what you want to haul and we'll furnish a truck that will do the work expeditiously and economically.

Mechanically, no trucks are better than KisselKar Trucks. Compare them, point by point, with others, and then ask present owners for their experiences.

Send for the new truck book with 350 illustrations of KisselKar Trucks in actual use—it's free to you for the asking. Write now, while it is on your mind.

KISSEL MOTOR CAR CO.

546 Kissel Avenue HARTFORD, WISCONSIN

New York, Boston, Minneapolis, St. Paul, Chicago, St. Louis, Philadelphia, Pittsburgh, Kansas City, Los Angeles, San Francisco, Oakland, Dallas and 350 other American and Canadian points.

KISSELKAR TRUCKS

The Cost of Scraping Floors

In order to determine definitely the relative costs of scraping floors by the old method of making the workman get down on his knees and scrape with a hand blade, and the more modern system of using a Machine, the Fox Supply Company of Brooklyn, Wis., has secured some very valuable information. Mr. Campion, manager of the Company, sent out 50 letters to carpenters who had bought Fox Machines and requested them to answer the following questions:—

How many square feet of average flooring can a man scrape in one day by hand?

How many square feet of average flooring can a man scrape in one day with a Fox Floor Scraper?

Can a man do better work with a Fox Floor Scraper than by hand?

What daily wages do Contractors pay journeymen carpenters in your community?

Replies were received from every section of the country. By averaging the figures submitted, it was found that 146 square feet is the average daily space covered by hand work, while 662 square feet represents the average area which the Fox Scraper will surface in a nine hour day, or 4½ times as much. It was also found that the average wages paid is \$3.16 per nine hour day. In other words, the cost of scraping 662 square feet of average flooring by hand is \$14.22. When a Fox Scraper is used the cost is \$3.16, a difference of \$11.06.



Example of Fine Floor Finishing.

The answers to the third question were particularly gratifying to Mr. Campion. Only one carpenter of the 50 said that the work was just as good when done with a Fox. The others all maintained that the results were decidedly more satisfactory when the Fox Machine was used. A contractor from Vermont said: "Certainly much better with the Fox. Shouldn't think that there would be any question about that with any one that ever used one."

The photograph shows a floor scraped with a Fox Scraper by Mr. V. Denick, Miles, Iowa.



Johnston's Patent Shelf Pin

These pins are used for supporting movable shelves in bookcases, cabinets and all other places where movable shelves are used. They are neat, easily put in place by anyone, require no tools to remove or replace them; they cannot sag down or fall out; two pins can come directly opposite in a division of less than ¼ of an inch in thickness. The best way to see how nicely this pin works is to send for a sample and examine it. The manufacturers, J. D. Johnston, Newport, R. I., will send one to any address. Architects specifying this pin will find their clients more than pleased with it. Cabinet makers will find it the most economical to use.



Uniform Mixing an Asset

A very recent example of just how much superior some concrete is to other concrete in regard to high grade and uniformity of mixing, is shown in the work done by the R. L. Whipple Co., Worcester, Mass., on the quarter-million-gallon



Exposition Chief Buys Haynes Car

Chas. C. Moore, President of the Panama-Pacific International Exposition, has purchased a Haynes four-cylinder car equipped with the Vulcan Electric Gear Shift.

Worthy of note is the fact that this car is the twenty-seventh owned by Mr. Moore. It is in constant use—much more so than were any of its twenty-six predecessors, and, due largely to its simplicity of control, Mr. Moore frankly admits that only now is he deriving the real pleasures of motoring. No doubt about it—the hand shift method suffers by comparison.

Before you buy, look over other cars at the price you want to pay, compare the specifications, part for part with those of the Haynes. Here are a few facts regarding the

HAYNES

America's First Car

The Haynes motor has a bore of $4\frac{1}{4}$ in. and a stroke of $5\frac{1}{2}$ in.; cylinders cast in pairs; L-head design; valves enclosed; with a dynamometer rating of 65 and 48 horsepower on the "six" and "four," respectively. Ignition is provided by the American Simms Dual High Tension Magneto; carburetion, by the Stromberg device; electric lighting and starting, by the Leece-Neville dust-proof separate unit system; and cooling by centrifugal pump, pressed steel fan and cellular radiator.

Other Haynes specifications are the splash and gravity lubrication system; contracting band clutch; Timken and McCue full floating rear axles; twenty-one gallon gas tank on rear of chassis; motor-driven tire pump; extra demountable rim; and Collins curtains. Shock absorbers on the "six."

The Haynes "Four," 48 dynamometer horsepower, 118-inch wheelbase... \$1785 and \$1985

The Haynes "Six," 65 dynamometer horsepower, 130-inch wheelbase... 2500 and 2700

The Haynes "Six," 65 dynamometer horsepower, 136-inch wheelbase... 2585 and 2785

"The Complete Motorist" by Elwood Haynes, Father of the American Automobile Industry, fully describing the Vulcan Electric Gear Shift, will be mailed upon receipt of ten cents in stamps. Write to

THE HAYNES AUTOMOBILE COMPANY, 14 Main St., Kokomo, Ind.

Builders of America's First Car

The Haynes car is handled by Direct Factory Branches at 1715 Broadway, New York City, N. Y.; 1702 Michigan Ave., Chicago, Ill., and by dealers in every state in the Union.

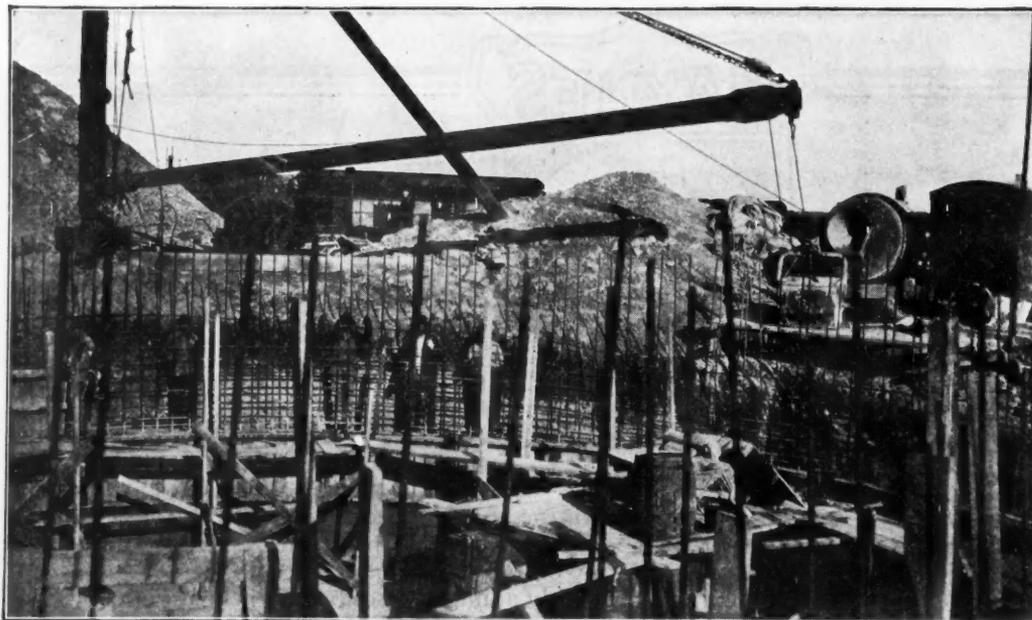
Dealers: The Haynes sells readily because of its mechanical features. You may be in open territory—send for catalog and four pages of detailed specifications, giving over 500 items which comprise the Haynes. Write us right now!

THE HAYNES AUTOMOBILE CO., 14 Main St., Kokomo, Ind.

Enclosed find 10 cents in stamps. Please send me Elwood Haynes' Book, "The Complete Motorist."

Name Address

I expect to buy a car about.....



Reinforced Concrete Water-Tank Under Construction for Artillery Post at Fort Strong, Boston Harbor. Capacity, 250,000 Gallons; "Standard" Low-Charging Mixer Used.

reinforced concrete water-tank at Ft. Strong, Boston Harbor. This tank was built for use of the artillery post at Ft. Strong, and was constructed under supervision of the Quartermaster Department, U. S. Army.

The tank is circular, having an inside diameter of 50 ft., and a depth of 16 ft. The thickness of the walls was only 8 inches; it is very noteworthy, that, in spite of this comparatively thin section, no difficulty was experienced in securing a water-tight construction with an addition of only

"The Standard" machines meant uniformity, but because, on account of the simplicity of construction of these machines, the men were able to set the mixer close to the side of the embankment and in a narrow space, and discharge the batch into buckets hung on a stiff-leg derrick. The derrick, being set in the center, gave full swing and poured the entire forms without the necessity of moving the mixer.

A flat slab, supported by beams and columns, is used to cover the tank. An important fact is noted here, that the

5 per cent hydrated lime to the weight of the cement in a 1:4½ mix.

In view of the fact that the concrete had to be of the very highest quality and most uniform mix to give the walls sufficient strength to withstand the test of extreme low temperature to which they were subjected shortly after being poured, the contractors used "The Standard" Low-Charging Mixer, manufactured by the Standard Scale & Supply Co.

In selecting this mixer, they did so not only because the mixing principle of

Quality The Distinguishing Trade Mark DICKELMAN EXTRA Metal Tile and Shingles

It means an end to ROOFING EXPENSE, ROOFING DANGER and ROOFING TROUBLES.

When you put it on your buildings you are putting on INSURANCE. Every sheet means "MORE PROTECTION."

Fire, Lightning, Storm, Rain and Wind Proof.

Cheaper than wood Shingles or Slate and 100 per cent better.



THE MOST BEAUTIFUL ROOF IN THE WORLD.—Ornamental and Lasting.

Many different designs in painted tin, galvanized or copper. Easy to lay, economical, beautiful. If you are a builder and contractor, let us know, for we have a profit-sharing arrangement which we make with builders, and it would pay you to ask us about it.

Consist of 99.9% pure, open hearth iron. This, combined with perfect galvanizing, enables us to give you a roof that will last! Over a quarter century experience is back of all our products, which include corrugated, v-crimped and roll Roofing besides shingles and other metal specialties.

DEFIES THE DESTRUCTIVENESS OF TIME

Here is an investment that pays unusually large dividends to

Carpenters and Builders

Galvanized Shingles can be laid by a Carpenter or Roofer quicker than any other material.

No Soldering required, just nails; the lock and flange take care of the rest. Under no condition can any of our DICKELMAN EXTRA Metal Shingles or Tile ever blow off.

No little bills to pay for Soldering and Painting on account of Leaking. Once on, on for a life-time.

Reduce the cost of insurance, being both fire and lightning proof. Lightning was never known to strike or injure a building covered with a metal roof.

Can be successfully laid by any workman who will read and follow our printed instructions. No solder is used; only a pair of snips and a hammer are needed.

Write for FREE CATALOG.

Offers many valuable roofing suggestions. Explains "Dickelman Quality" and guarantee.

The Dickelman Manufacturing Co. Department "C" Forest, Ohio

Asbestos "Century" Shingles

The Patented "Century" Process in Making Artificial Roofing Slate

THE contractor who wants to supply a roofing material of reliable durability should have the facts about Artificial Roofing Slates named Asbestos "Century" Shingles.

These shingles are made of Portland cement and long-fibre asbestos by the *Patented "Century" Process*, the only process ever invented that makes a uniform mixture of cement with asbestos. Asbestos "Century" Shingles are tougher, more elastic and more uniform than any natural roofing slate or composite shingle.

Write for terms and trade prices, and Booklet; "Roofing: a Practical Talk."

KEASBEY & MATTISON CO., Factors
Dept. B., Ambler, Pa.

Branch Offices in Principal Cities of the United States



For Beauty and Protection—Use

HUDSON ASPHALT SHINGLES

They add greatly to the value and good looks of your houses. Require no painting or staining. They are durably surfaced with Red and Green Crushed Slate. Positively fire-resisting. Easily laid.

Ask for Samples and Booklet Both FREE.

Let us tell you about our "Protection Brand" Roofing, laid with all nails covered.

ASPHALT READY ROOFING CO.
9 Church St. New York, N. Y.



An Economical Roof Can be Artistic

You cannot improve upon a good shingle roof, but you should as soon think of having it unstained as you would think of leaving your house unpainted. You can save the cost and muss of staining-on-the-job by using

"CREO-DIPT" STAINED SHINGLES

14 Grades, 16,-18,-24-inch. 25 Different Colors

They come in bundles, ready-to-lay—one even stain, perfectly dry, ready for the job. We preserve them in Creosote against wet or dry rot or worms. We use only selected Red Cedar Shingles. You pay for no waste in either shingles or stains.

Most pleasing effects obtained by using one color on side walls and a darker tone on roof. They are being used by architects, builders and owners all over the country.

Write us for catalog of CREO-DIPT Houses and Pad of Colors on Wood. CREO-DIPT Shingles last a lifetime and never need restaining.

STANDARD STAINED SHINGLE CO., 1028 Oliver St., N. Tonawanda, N. Y.



*Residence of John Miller, Shaker Heights, Cleveland
Note the softened roof lines*

The Stormproof Roof

ABSOLUTE protection from the elements is assured the house roofed with Cortright Metal Shingles.

They interlock and overlap so that no snow or rain, spark or ember, can penetrate.

There's no solder used on a Cortright roof, and not a nail exposed to the weather. No expansion or contraction from heat or cold can pull it apart, or lightning harm the house under it.

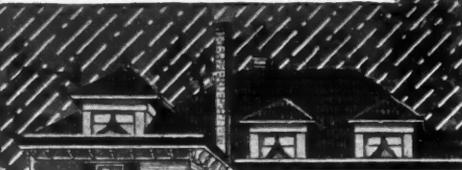
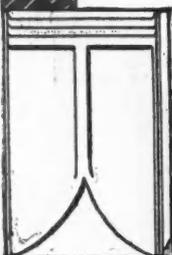
CORTRIGHT Metal Shingles

have all the virtues of other roofings with none of their defects. They last indefinitely and never need repairs.

Contractors and Builders everywhere are recognizing that wood shingles are rapidly becoming obsolete and are dropping them for the stormproof, fireproof, handsome, durable and inexpensive Cortright Metal Shingles.

There's more money for you in Cortright than in wood shingles, and you do your client a real service in recommending them. Easy to lay, expert help not necessary. Write today for samples, prices and our interesting new catalog.

Cortright Metal Roofing Co.
PHILADELPHIA
AND
CHICAGO



low heat conductivity of concrete was apparent during the unusually cold week in January last, soon after the tank was filled. While the temperature hovered around 15 degrees below zero for three or four days, yet no trouble was experienced with the action of the float-valve. In fact it is doubtful whether the temperature ever reached freezing.

The Standard Scale & Supply Co., of 1345-47 Wabash Ave., Chicago, Ill., with offices also in Pittsburgh and Philadelphia, Pa., and New York City, have considerable data regarding the thorough mixing principles of their mixers, and will be glad to mail free to any one interested a copy of their complete mixer book No. 44.



"Faultless Pit" Acetylene Generator

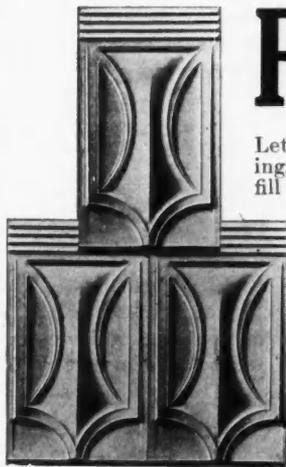
The Gem City Acetylene Generator Company, Dayton, Ohio, has developed an improved lighting system which has the generator placed outside the building in a pit. This generator, known as the "Faultless Pit" Acetylene Generator, was carefully planned and built to meet the particular requirements of pit installation. The manufacturers, who are well known in the lighting field, have tested their pit generator very thoroughly before placing it on the market. They stand back of it with a positive guarantee.

The advantages of this generator are quickly appreciated. Being entirely outside the building, it is absolutely safe; no odor from it can possibly get into the house; no valuable room in the basement is occupied; and yet the generator is easy to get at any time for recharging.

The accompanying illustration shows the interior mechanism and the position of the different parts of a "Faultless Pit" Acetylene Generator. All those who are posted on the acetylene business will see at once from this sketch the merits of this generator. Those who are not so well posted should send at once to the Gem City Acetylene Generator Company for their descriptive literature. There is good money in acetylene lighting systems, and more of our readers might just as well be getting their share of it. There is nothing difficult about it and it works in nicely with a builder's regular business.



Interior mechanism of "Faultless Pit" Acetylene Generator.



A New Design in Foster Metal Shingles. Very Popular.

FOSTER SHEET METAL GOODS

LOW PRICES - SATISFACTION

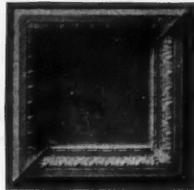
Let us supply you with the sheet metal goods for your buildings. It will save you money. Our prices are lowest and we fill orders promptly. There are no delays or disappointments. The quality of our products is away above the average. We want your orders because we know we can satisfy the most exacting builder in Quality, Service and Price.

**FIREPROOF WINDOWS, METAL SHINGLES
CEILINGS, SIDING, SKYLIGHTS, CORNICES
VENTILATORS, CONDUCTOR PIPE**

These are a few of our products that you can use and save money on. They are made from high grade material and are warranted to give excellent service. Your orders will be shipped immediately from our large stock always on hand. Special designs made to order when requested.

We guarantee satisfaction, promptness and low prices. Tell us what you want and let us give you a bid. Circulars sent free.

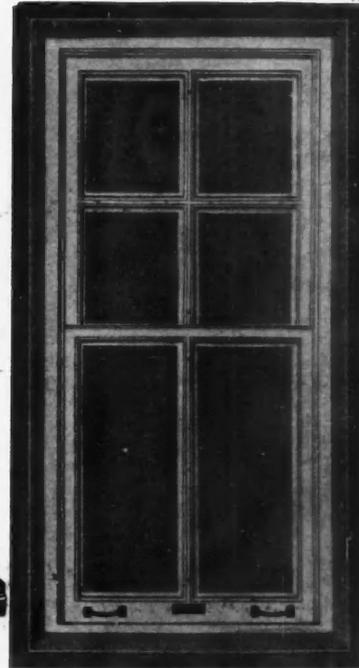
FOSTER SHEET METAL WORKS, 530 N. 10th St., SPRINGFIELD, ILL.



Foster Metal Ceilings are Beautiful and Serviceable.



Foster Hipped Skylight. Unusually Good Value at a Low Price.



Double Hung Fireproof Window, Approved by the Underwriters' Laboratory.



When You Specify Kellastone You're Absolutely Safe

You'll never have any "come-backs" from your clients, because of the discolored, cracked, dilapidated appearance of their buildings. Kellastone contains no Portland cement or lime. It is weatherproof and fireproof. Its elasticity enables it to "give" with the settling of buildings instead of cracking.

KELLASTONE
IMPERISHABLE STUCCO

is a non-conductor of heat, cold and dampness. As an interior finish, its elasticity prevents cracks and its hardness resists knocks without marring. Kellastone Composition Flooring for sun parlors, bathrooms, kitchens, etc., is absolutely sanitary, waterproof, fireproof and abrasion proof. It is not slippery and can be easily cleaned.

Send for the Kellastone Books.
Mailed free to any Address.

Sold by leading Lumber and Building Material Dealers.

THE NATIONAL KELLASTONE CO.

Room 504, Association Bldg. CHICAGO, ILLINOIS

FLAT SLATE ROOFS

A New Book That Every Builder Ought to Have



A Flat Genuine Bangor Slate Roof Covers This Building.

When you come to think of it, there is no reason of course, why the same intrinsic merit that has made Genuine Bangor Slate the standard of roofdom should not prove true on flat slate roofs as well as steep ones.

Most of those versed in building matters know it.

We have known it for years. But before recommending this form of roofing on a large scale for all kinds of buildings, we wanted to be absolutely sure of the fact.

Theory does not count. The only test is the test of time.

A Generation of satisfactory, economical and efficient service on all kinds of buildings is back of flat slate roofs. This record of satisfaction is evidenced by a handsome pamphlet.

Every builder who wants to keep in the vanguard of progress — which also means in the vanguard of profit makers — should send for his copy. Use the attached coupon for your convenience. Fill it out, sign it and send it today.

Genuine Bangor Slate Co.
EASTON, PA.

June, 1914

Genuine Bangor Slate Co.
Easton, Pa.

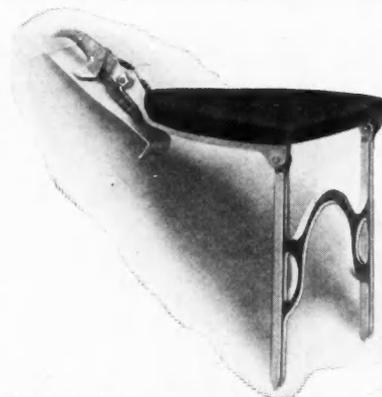
Please send Flat Slate Roof booklet.

Signed

Address

City State

"TITGRIP" SHINGLER'S CHAIR



A modern necessity for fast, easy shingling

YOU can easily lay 5,000 shingles a day if you have the "TITGRIP"

Chair in position on roof. Claw grips shingles already laid. Quickly released when shifted. **A positive foe to "That tired feeling"**

FINE for painting jobs, too. It makes the day's work easier. Does away with all chalk lines, straight edges, footholds and scaffolds. No need to drive nails in the roof. The "Titgrip" can be easily changed from place to place and can't slip. Grips like a vise. Light and easy to handle.

Try the Titgrip Shingler's Chair once and you'll never be content to go back to the old way of sprawling all over the roof and ache in every bone after the day's work.

AGENTS WANTED

Send \$2.50 today for Sample Chair

C. & E. Mfg. Co. 107 N. Center St. Marshalltown, Io w

Montana Carpenter Builds Model Home

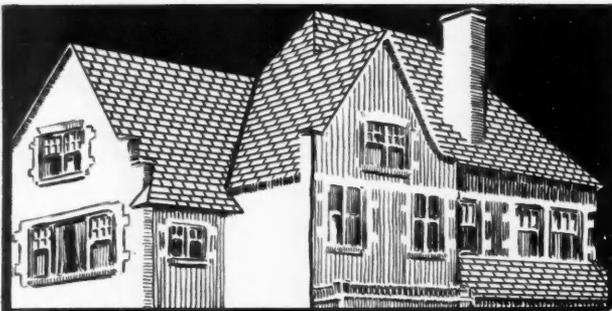
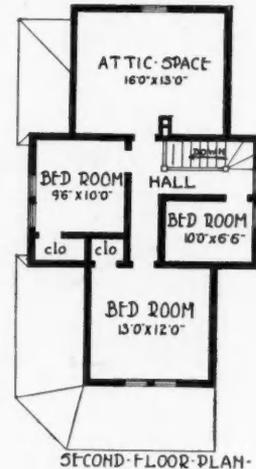
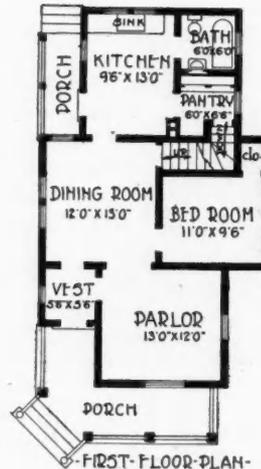
It is expected that when a contractor builds a home for himself he will put into it the very best ideas that he has gathered during his years of experience.

When Andrew Espey, of Ismay, Montana, wanted to build a house for himself, he chose a style of construction which would result in a house that would be not only nice looking, but very convenient and desirable in every way.

You see the house in the picture. It was designed by Hewitt-Lea-Funck Company, whose architects worked out the plans from a rough draft submitted by Mr. Espey.

It will be very interesting for our readers to study this plan. In the first place you will note the broad veranda, which gives a favorable first impression that increases as the visitor enters the vestibule through the handsome door.

This vestibule is convenient to both living room and parlor.



West Bangor Slate

Incomparable for Beauty and Fire-Protection

A fireproof roof lessens insurance rates. A roof that cannot possibly catch fire is a feature that appeals to every house owner.

West Bangor Slate needs no special treatment to make it fireproof. Other roofs may afford a certain amount of fire-protection for a short time, but they have to be renewed. West Bangor Slate lasts always. Long after wood, steel, and prepared products have rotted and worn out, West Bangor Slate remains in evidence as the roof of greatest beauty and service.

Our FREE SAMPLES and Prices will do a lot toward convincing you that WEST BANGOR SLATE is the logical, medium-priced material for your buildings. Let us talk it over. WRITE US.

BANGOR SLATE MINING CO.

Trust Bldg.

BANGOR, PENNA.

Both of these rooms are good size and nearly square in shape.

The kitchen has been given particular attention. With bath and pantry it occupies an area taking about one-third of the house.

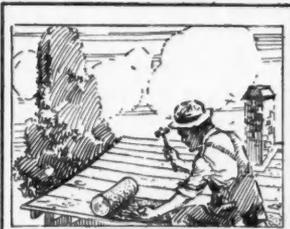
One whole end of the kitchen is devoted to the sink, with drain boards at either side, and cupboards and shelves beneath.

The layout of this house without long halls makes it so compact that it is both easier to heat and easier to keep house in, and on that account particularly attractive to the women who have to do the work.

The second floor has three bed rooms and a big store room.

This house is one of more than a hundred that are contained in the very interesting and practical plan book issued by the Hewitt-Lea-Funck Company and obtainable by any of our readers by sending 10 cents to cover cost of mailing to 408 Cray Building, Seattle, Wash.

WHY CON-SER-TEX IS USED



EASY TO LAY



PERFECT PORCH COVERING



MAKES RAIN NOISELESS



NEAT AND ARTISTIC APPEARANCE

CON-SER-TEX SOLVES ALL ROOFING PROBLEMS

WHAT IS CON-SER-TEX? It is a canvas roofing, chemically treated to preserve the fibre from mildew and the detrimental action of the oil in paint.

WHAT ARE ITS USES? It is used for porch and house roofs, piazza floors, sleeping balconies, bathroom walls and floors, kitchen floors and all other places where a serviceable fabric is required.

DOES IT DO THE WORK? It never rots or stretches. It hugs the porch or roof surface tightly. Neat and artistic appearance. It deadens sound, is waterproof and weatherproof. Defies treading, coal gas, or any other wearing influence.

DOES IT COST MUCH? Con-ser-tex is very inexpensive. Cheaper than most other roofing materials. It is easy to put on—thus saving time and eliminating trouble for the carpenter.

ANYTHING ELSE? Yes! We will send you a sample of this wonderful fabric. A moment's investigation will show you its superiority over cotton duck and other roofing fabrics. We will also send you descriptive folder and price list.

WM. L. BARRELL COMPANY
8 Thomas Street, New York

Chicago Distributor:
Geo. B. Carpenter & Co.
Wells and Michigan Sts.

California Distributor:
Pacific Building Materials Co.
523 Market St., San Francisco, Calif.



G F T

THE ONLY ROOF THAT REALLY WEARS IS GENUINE Franklin Tunnel Slate

Rock hard; non-fading. No weather condition affects it. Absolutely fireproof. Never shows signs of wear or decay even after generations of service.

The price of G. F. T. SLATE is so reasonable that you will be interested. For cottage or mansion, it is the roof that will please builder and owner more than any other roof known.

Samples, Prices and Handsome Book Free.

SLATINGTON SLATE CO.
Slatington, Pennsylvania

G F T

BUCKEYE METAL SHINGLES

Represent the latest, best and most practical of all modern roofing materials. Patented Buckeye Raised Side Locking Joints, formed entirely above the surface, prevent rusting and leaking. Made of heavy gauge metal.

Come in three highly embossed patterns. Write for illustrated Catalog and prices, today.

The Thomas & Armstrong Co.
Dept. A LONDON, OHIO

REYNOLDS ASPHALT SHINGLES

Guaranteed for 10 Years

will last many years longer—Natural colors of garnet, red, gray and green, which never fade.

We are the ORIGINAL MAKERS of Flexible Asphalt Slate Shingles and tested our product for ten years before putting it on the market. Let us send you a booklet.

H. M. Reynolds Asphalt Shingle Co.
Established 1868
West Grant St. GRAND RAPIDS, MICH.

Change of Corbin's New York Offices

P. & F. Corbin have consolidated their New York up-town and down-town offices and have installed them in commodious quarters in the new Architects' Building at No. 101 Park Avenue. The change was made primarily to secure a closer connection between the businesses of the two stores, and also to gain the advantages of a more central location and of more convenient quarters, neither of the two former offices being susceptible of expansion to contain the forces of both. The new offices are within two minutes' walk of the entrance to the Grand Central Station, where the subway, surface and elevated lines meet. The location could hardly be easier of access from all parts of the city. They are lifted above the street level away from the noise and dust caused by the traffic, and into the light and air, the rooms fronting Park Avenue and on Fortieth Street. The display rooms are models of convenience and artistic arrangement.

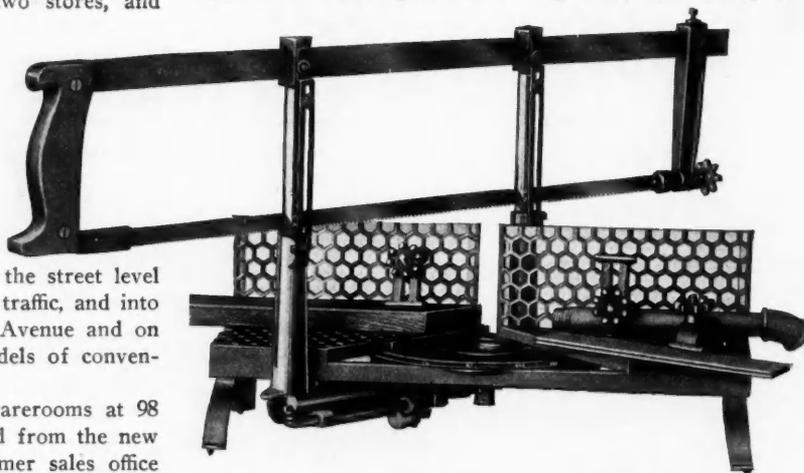
Deliveries of goods are made from the warerooms at 98 Lafayette Street, but all business is conducted from the new offices in the Architects' Building. The former sales office at 106 Lafayette Street and the Contract Department office at 39 West Thirty-eighth Street have been vacated, and the transfer to the new location has been made.



The Honeycomb Mitre Box

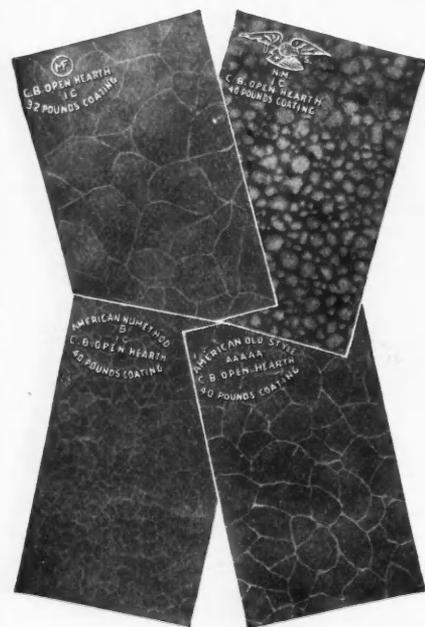
The jobbing carpenter and builder is always bumping up against some new proposition which requires careful cutting and calculating to make the joints fit just right. It may be patching up old buildings, finishing or making some complicated mitre which must be done perfectly accurate the first time.

The adjustments of the Honeycomb Mitre Box, made by the Rockford Mitre Box Company, 252 Mill St., Rockford, Ill., make one of the best devices for all ordinary as well as the most particular work. Not only will it work accurately and closely at the start or when new, but there are adjustments which provide for any wear which may take



Honeycomb Mitre Box fitted with a Metal Cutting Saw.

place. This company furnishes every mitre box with their new no-set saw, on which they have recently received a patent. A user of the Honeycomb can at any time get a saw for cutting metal, it is well to keep this in mind as the demand for metal trim is rapidly increasing. The descriptive circulars sent out by the manufacturers show the construction and many good features of these boxes, as well as giving prices on the different sizes. Our readers should investigate and see the advantages of this guaranteed Mitre Box.



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gives greatest service and satisfaction for roofing purposes. A series of actual service tests with uncoated sheets, have proved conclusively the superiority of this material for

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Copper Bearing terne plates are carefully manufactured, uniformly coated, and high quality in every respect. Each plate is stamped "C. B. OPEN HEARTH" in addition to brand and weight of coating, as indicated by accompanying well known brands. You should use no other.

We also manufacture Apollo Best Bloom Galvanized Sheets, Black Sheets of every description, Copper Bearing Sheets, Formed Metal Roofing and Siding Products, Tin Plates, etc. Write for information and booklet "Copper in Steel." Every roofer and builder should read it.

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The Bennett is serviceable and easily carried as a book. Weighs but 4 1/2 lbs. Does work of \$100 machine—you save \$82. Low price because only 250 parts—other typewriters have 1700 to 3000. Built in Elliott-Fisher Billing and Adding Machine factory. Standard keyboard, reversible ribbon, marginal release, etc. Writes perfectly straight, visible writing. Sold on money-back-unless-satisfied guarantee. Ask for catalog. Get our agent's proposition.

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Don't forget that when plaster is used your work ceases—when wall board is used your work continues and increases.

PLASTERGON WALL-BOARD

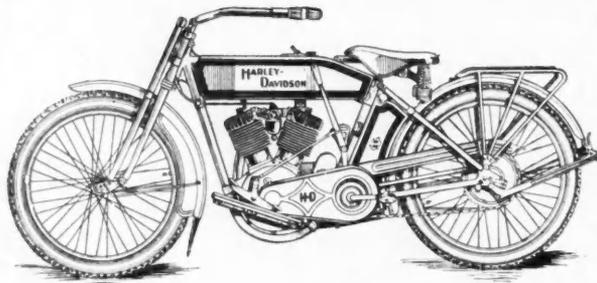
Only Guaranteed Wall Board

Plastergon, especially, turns the plasterer's profit to the contractor and builds up increased business for him because of its dependability.

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There are several boards but only one PLASTERGON. If you haven't samples and literature to show your customers, you're losing business every day. They're free—SEND FOR THEM TODAY.

Plastergon Wall Board Company, Dept. A, Tonawanda, N.Y.



One Builder's HARLEY-DAVIDSON

saved more than its cost the first three months. Saved it by providing a quick, economical means of travel from job to job, quick trips for small supplies, etc., as well as evening trips looking up more work. Hundreds of carpenters and builders testify to this.

What the Harley-Davidson has done for them, it will do for you. Write for our illustrated catalog and read about its many features. Read about the wonderful patented Step-Starter, that does away with running along side or hard pedaling to start, instead a simple downward push, on either pedal, engages the Step-Starter and starts the Motor.

Read about its double brake and double clutch control, as well as its Ful-Floteing Seat, a comfort device that does away with all jolts, jars and vibration. These and many other features make it the machine you should buy.

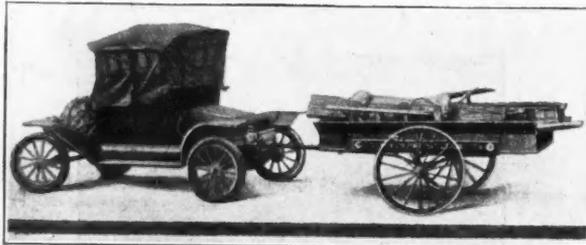
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Short, Quick Hauls are mighty important at times in the busy seasons. The time lost by your workmen in waiting for tools and materials on contract jobs costs you a lot of money. Save that money by hitching a Campbell Trailer to your automobile—and

Get There in a Jiffy with the needed supplies. Don't wait for the return of your delivery wagon, nor spend more money for outside cartage. Use an inexpensive Campbell Trailer on that machine of yours—and do

General Hauling of All Kinds quicker and cheaper than with a horse or motor truck. The Campbell Trailer is built for hard knocks and rapid service. It is strong, compact, safe and durable—and

Mighty Soon Pays for Itself in time saving and convenience. It's a small fraction of the money invested in your car and it increases beyond measure the service you can get out of it.

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Photographs and Detailed Specifications are yours for the asking. Write today.

Campbell Manufacturing Co.
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Daylighting Scribner's Book Store

The remarkable daylight effect produced in Scribner's new store on Fifth Avenue, New York, is a startling revelation of what can be done through the proper application of laws governing scientific illumination.

The arched ceiling effect, which forms the principal architectural features of this store, is a soft cream white color, and is embellished with a series of simple but rich panel designs.

The surface of these arches forms one of the most perfect light-reflecting mediums possible to obtain in architectural construction. At the base of each arch is installed a powerful reflector that throws a strong white light upward. This light spreads over walls and ceiling and is reflected downward, diffusing a mellow glow of pure white light over the innumerable tables, shelves and cabinets filled with many colored volumes.

The light produced by this system is practically a reproduction of daylight, with the result that the finest details are plainly visible, while the most delicate colors can be seen in their true values. This is particularly noticeable when inspecting some of the rare old volumes found in the store. For Scribners have quite a collection of first editions and originals, a few of which are, one of the earliest Shakespearean folios, a first edition of "Gulliver's Travels," Napoleonic manuscripts in French and English, and letters of Mary, Queen of Scots. Another interesting rarity on view is a first edition of Goldsmith's "Vicar of Wakefield."



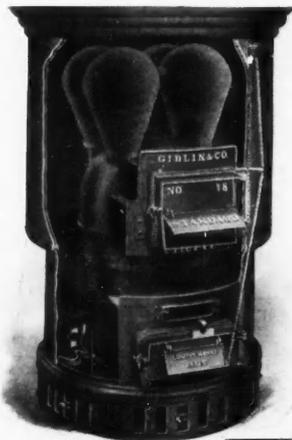
Interior of Scribner's New York Store. Showing Combined Effect of Semi-Indirect and Concealed Methods of Illumination.

The illuminating scheme of this beautiful store is finished with a series of elaborate lamps that hang from the ceiling on chain drops at a distance of about fifteen or twenty feet apart.

The powerful lamps used at the base of the arches for indirect or cove lighting are known as J-M Linolite lamps. They are about a foot long and an inch in diameter, and have a straight Tungsten filament that runs from end to end. This filament produces a continuous "line of light" that diffuses the illumination evenly over the entire surface to be lighted—in marked contrast to the spotty effect produced by the bulb type of lamp.

It is estimated that they are nine times as efficient as ordinary bulb lamps, because, so it is claimed, they consume only one-third as much current and give three times as much light. It is also said that the useful life of these lamps is three times as long as that of ordinary bulb lamps, because they have a larger glass area, and, therefore, take longer to carbonize.

The manufacturer of these lamps, the H. W. Johns-Manville Company, New York, claim that more than 90 per cent of all the art galleries in this country, together with 25,000 churches and over 30,000 stores, are equipped with J-M Lino-



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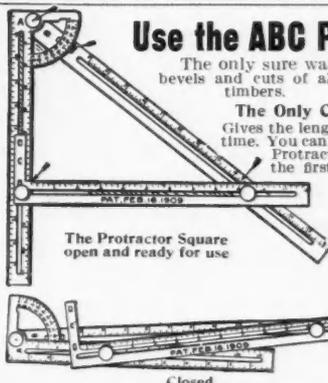
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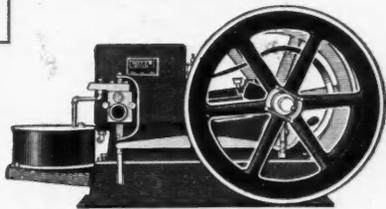


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Send the Coupon for 2 Big Free Books on Mantels and Millwork



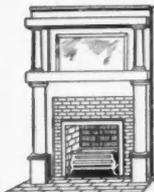
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lite lamps in conjunction with Frink reflectors, for which they are the sole selling agents.

This concern has published an interesting series of brochures, covering every phase of illumination, and will be pleased to send copies to anyone who has a lighting problem to solve.



New Construction for Slate Roofs

Here is shown an actual photograph of framing method advocated by the Slatington Slate Co. It shows their Genuine Franklin Tunnel Slate laid on a roof covered with lath.

By reference to this photograph you will note how slate are put on, how the roof is started and finished. Also note that the slate along the gable end have one corner clipped off so the water will run back on the other slate.

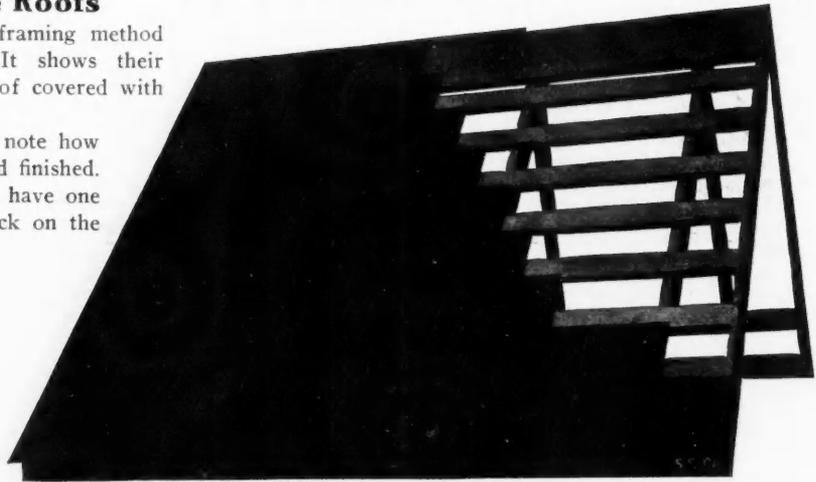
The slate at the eaves project one and one-half inches beyond the edge of the eave and along the gable ends the projection is also about one and one-half inches.

You will note that a slate roof is formed of independent and separate units, therefore it is unaffected by expansion or contraction of the roof structure. There are no seams that can open or any possibility of a leak. Each slate is a separate unit and it need not be soldered or cemented to an adjoining piece or fit into any groove, lock or seam.

Note that a roof lathed instead of sheathed with boards laid close together is strong enough for slate; the Slatington people claim that such a roof will be just as durable and the cost of sheathing will be reduced almost two-thirds by using lath.

Any building that is strong enough for any other roofing material is strong enough for slate.

Slate are put on sheathing boards laid close together exactly the same as they are put on lath as shown in the photograph. When sheathing boards are used they should be nailed at both edges on the rafters, which should not be over two feet apart. Wide boards, when used for sheathing, are liable to warp and curl up at the edges when only one



Open Boarding for Slate Roofs Recommended by the Slatington Slate Co.

nail is used, thereby raising the slate. While it may not break the slate, it raises the courses, marring the appearance of the roof.

The Catalog and Price List for 1914 of Genuine Franklin Tunnel Slate, which has just been issued, goes on to tell all about slate roofing. Write for a copy of this, addressing the Slatington Slate Co., Slatington, Pa.

The Architects of Europe Endorse the Decision of Their American Brothers

The masters among the architects of Continental Europe—of Great Britain—even of Asia—have accepted the verdict of the majority of American architects relative to the question of hot water heating systems.

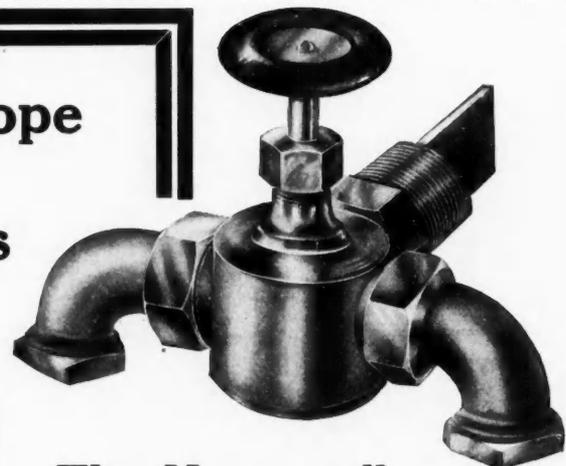
Today—in practically every important city of "The Continent" and "The Tight Little Isle," the architects in the forefront of progress are specifying

The Honeywell System of Hot Water Heating

And this preference has been won simply and solely because of the performances of the Honeywell System wherever installed. Its remarkable elasticity in responding to sudden and severe weather changes—its low fuel consumption in comparison to heat radiated—its ease of operation and control—have won it advocates among the very highest rank in the world of architects.

Every Architect's Office Library Should Possess a Copy of The Manual. 5,000 Architects Prize Their Copies. A Complimentary Copy Will Be Sent You on Request.

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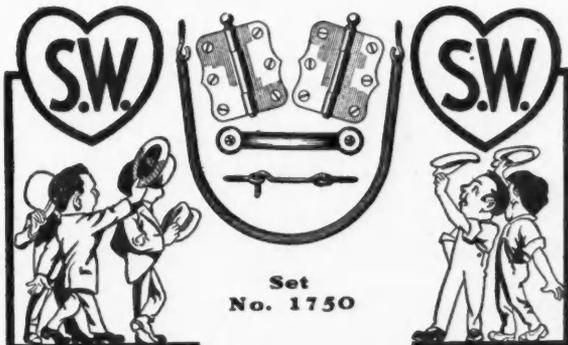


The Honeywell Unique Hot Water Radiator Valve

Designed especially for the small pipe Honeywell System. Performs a most important part in making the Honeywell System superior to all others in both efficiency and sightliness. With this valve it is only necessary to connect to one end of the radiator. This eliminates necessity for return pipes running through floor at other end of radiators. The result is a saving in pipe and the avoidance of floor-cutting, weakening the joists, danger of leak stains in ceilings, and a score more of the many unpleasant features of the old-fashioned systems.

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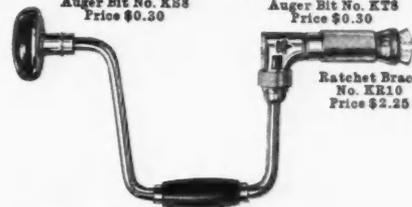
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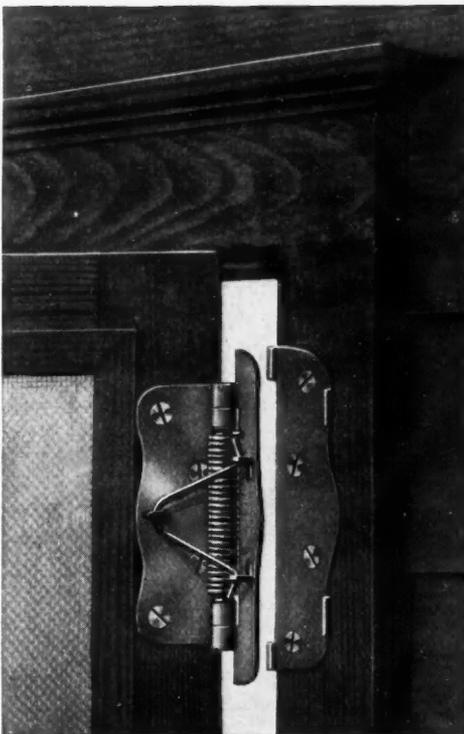
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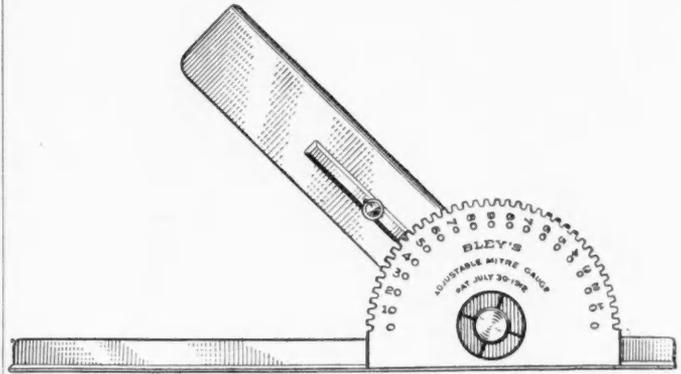
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Bley Mitre Gauge

C. E. Jennings & Co., 71-73 Murray St., New York, are placing on the market the Bley patent adjustable mitre gauge, a well-made, durable, accurate tool which may be carried in the pocket or tool chest. With this tool all angles from 0 to 90 degrees, by 5-degree jumps, may be obtained instantly and accurately on either side. By setting the trigger to 45 degrees, a perfect mitre may be cut on either side, right or



Handy Mitre Gauge.

left hand, and a mitre box dispensed with for every purpose. It is made of steel, machine finished and guaranteed accurate.

For particulars address C. E. Jennings & Co., 71 Murray St., New York.



Plan Interesting Exhibit for Frisco Fair

The iron and steel industry will be given a prominent place among the various attractions at the coming Panama Pacific International Exposition at San Francisco next year by the comprehensive exhibit of the United States Steel Corporation and subsidiary companies.

A general committee, headed by A. T. De Forest, of the United States Steel Products Company, of San Francisco, has been directing the work, and H. V. Jamison, advertising manager of the American Sheet & Tin Plate Company, of Pittsburgh, has just been appointed director of exhibits for the entire corporation and at present is busily engaged mapping out plans for the exhibits of the various companies.

Among the features which will be shown will be the process of manufacturing iron and steel products, from the mines where the ore is taken out of the ground to the production of the hundreds of products of the corporation. It is intended to show how the ore is transported both by rail and water, the dock operations, the production of coal, coke and pig-iron and thence to the specialized lines of manufacture. The exhibit will even go so far as to show how the by-products are produced and will show many of the products in practical use.

A motion picture show will be part of the exhibit and through this medium will be portrayed the operations of the corporation throughout all its departments. In the pictures will also be shown the great benefit to the social world brought about by the United States Steel Corporation, as no other institution does more to further the social welfare of its employes. The corporation's many devices for insuring safety of employes will be exhibited and data will be given as to the enormous amounts expended for this purpose.

This is the first time in the history of the steel industry that the United States Steel Corporation has planned a comprehensive exhibit or display of any kind embracing all of the subsidiary companies. It is certain that this feature of the coming exposition will make a strong appeal to visitors at San Francisco in 1915.

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We carry everything you need, including roofing and mill work—all guaranteed high quality.
Remember: We pay all freight charges, no matter how small your order.

If you're in the market for a carload, come to Dubuque and let's talk it over. We'll refund your railroad fare both ways and you select what you want. BESIDES, we have a special proposition in which you'll be interested.

OUR DUX BAK ROOFING has no equal in the market for the money. Sells for less and is backed by a longer guarantee than any other standard goods.

We'll save you money on small orders, and guarantee satisfaction.

Write us at once. Place yourself in position to make more money during this building season. Orders solicited only from Iowa, Illinois, Southern Wisconsin, Indiana, Northern Missouri, Southern Minnesota, Southeastern South Dakota.

PETER J. SEIPPEL LUMBER COMPANY
212 S. Locust Street DUBUQUE, IOWA

This is the Standard Take Down Square.

It makes good with the user.

Send and know more about it.

Southington Hardware Co.
Southington, Conn.

WATERLOO CAST IRON Coal Chutes

Protect the house from careless coal men. They are burglar proof—unlock only from the inside.

Being made of cast iron, are not affected by the weather.

Wire glass in door furnishes light to cellar. When door is open, the glass is protected by heavy steel, which operates automatically.

The watertable at the top of chute protects the inside of foundation from moisture. Doors are extra heavy, with three hinges at top, and are made with a beaded edge which extends over the border opening, making a tight joint. Are made to fit any depth wall.

Send for catalog, which quotes special prices to contractors.

The Waterloo Register Co.
114 Rath Street Waterloo, Iowa

THE ENTERPRISE Coal and Fuel SHUTE

will absolutely protect the foundations of your buildings. It saves battered and disfigured walls and broken windows. It is the **cheapest** burglar-proof Fuel Shute on the market at the price for stores, churches, schools, offices and homes. All iron, wonderfully strong.

Price \$7.50. Special Discount to Builders

Write for Special Builders' Discount
Enterprise Iron Works Albert Lea, Minnesota

LEAVITT Coal Chutes

are becoming popular with contractors and builders—made of cast iron with the exception of steel apron to protect the wall at the bottom.

Protect Your Buildings

Leavitt Coal Chutes protect the side of the building from becoming damaged by careless coal drivers—no dust and dirt to disfigure building or premises—closes tight and locks from inside—absolutely burglar proof.

Compare Our Prices

The extremely low price for which we offer these serviceable coal chutes will surprise you. Write us today, get our literature and prices on these coal chutes and other building accessories. We can save you money.

LEAVITT Manufacturing Co.
110 Griggs St., URBANA ILLINOIS



Huber Mantels

A catalog of more than usual interest for carpenters and builders is being distributed by the Huber Builders' Material Company, 45-49 Vine Street, Cincinnati, Ohio. It illustrates a very complete line of mantels. Looking through this book, one cannot help but wonder how it is that such an elaborate book can be given away free. The mantel illustrations are all large size, so that one can tell to the smallest detail exactly what each design is like. Several of the illustrations are printed in colors.

Mr. Huber evidently understands what the people want in mantels. At any rate, designs selected for this Mantel Book are of the kind that will certainly be in great demand. The accompanying illustration shows one of these designs.

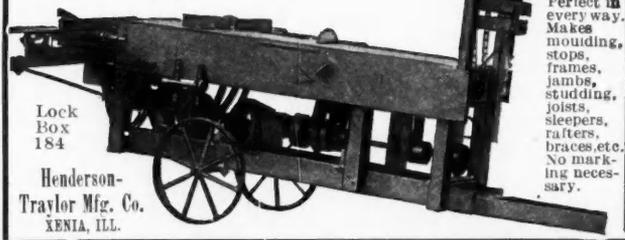
Every AMERICAN CARPENTER AND BUILDER reader should have a good mantel catalog which he can refer to quickly any time he needs anything in that line. Home builders like to have a good selection of designs to choose from, and we know of no better book than this one. The Huber Builders' Material Company will send a copy, postage prepaid, to anyone who will write them.



Dow Wire & Iron Works have recently secured the contract for screening the entire Tuberculosis Hospital at Hazelwood, near Louisville.

Henderson House and Barn Builder

The best designed machine for framing all material for any building. All material, including bridging braces for a two-story, hip roof residence 16'x32' was prepared in 3 hours and 20 minutes. 4 h.-p. engine gives necessary power to run all the machines at the same time. Hand jointer, rip saw, swing saw, boring machine and work bench 9' long x 32" high, all complete. Handles heavy or light timber. Write for description and price.



Lock Box 184

Henderson-Traylor Mfg. Co. XENIA, ILL.

Perfect in every way. Makes moulding, stops, frames, jamps, studding, joists, sleepers, rafters, braces, etc. No marking necessary.

IRWIN Stamped on a Bit means QUALITY

The IRWIN Bit

is imitated as regards pattern, but Irwin Quality cannot be imitated. Look for the trademark (illustrated below) stamped on the shank of every genuine Irwin Bit.

The IRWIN Bit
Reg. U.S. Pat. Office

You users of tools must have tools of sterling quality. Your work demands it. That's why Irwin Bits should be included in your tool outfit.

For the jobs that must be just right, for boring in the hard, knotty woods, the Irwin is the one best bit. And it's the quickest boring bit made.

You've known many a bit to break where the twist joins the shank. This is impossible with the solid-centre Irwin Bit. It is trip-hammer forged out of one solid piece of Irwin Crucible Steel and tempered to just the right degree.

But be sure you get the genuine Irwin—look for the trademark.

The Irwin Auger Bit Co.
Wilmington Ohio

IVES PATENT
WINDOW STOP ADJUSTER
Prevents Drafts, Dust and Window Rattling



The only stop adjuster made from one piece of metal with solid ribs and heavy bed that will not cup or turn in tightening the screw

Descriptive circular mailed on application

THE H. B. IVES CO.

Manufacturers of Builders' Hardware
NEW HAVEN ::: CONN., U. S. A.

Houses, Flats and Apartments

Buy a Plan Book of Flat Buildings and plan an income in

your old age. Our book gives you ideas from two-family flats to twelve families, and our prices are reasonable.

First edition (right off the press) 50c
Also a book for residences 25c
Both 65c

H. O. Cook & Company

722 Ashton Building Grand Rapids, Mich.

The Window Chute



Ready for the Coal Man

For Your Coal Bin

The Window Chute is a selling feature for any Residence or Building.

THOUSANDS IN USE—THE VERY BEST

If You Build, Buy, Own

Be up to date and Have the World's Best



Write for Booklet C

A Light Basement

HOLLAND FURNACE CO. :: Holland, Mich.

World's Largest Direct Installers of Furnaces.

You Take No Chances
When You Put on Guaranteed
Queen Cupolas

They are made right from heavy galvanized steel. Put together by experts. They look right because they are thoroughly finished. They give service and satisfaction. Last a lifetime without painting or repairs.

Don't Experiment—Get the Cupola That Has a Reputation Back of It

On the market 15 years. Thousands now in use. That's the kind for you to use. To prove that the Queen is the best we will ship you one for examination and 30 days' trial.

WRITE FOR CATALOG AND PRICES

Find out what we have and you will not be satisfied with ordinary kind. Address
QUEEN CUPOLA CO., 405 Peck St., Cresco, Ia.



MONITOR
Cupola Ventilator

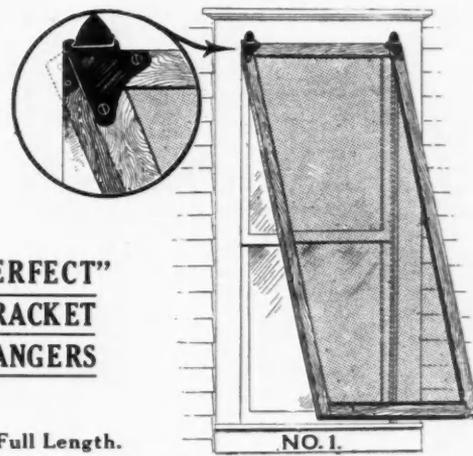


Comes all put together, no frame to build on the roof, can be erected in five minutes, looks fine, is absolutely bird proof.

Exclusive Territory Given
Write for Special Proposition to Agents

B. F. LICHTY & SONS CO.
Waterloo Iowa

PERFECT BRACKET HANGER



"PERFECT" BRACKET HANGERS

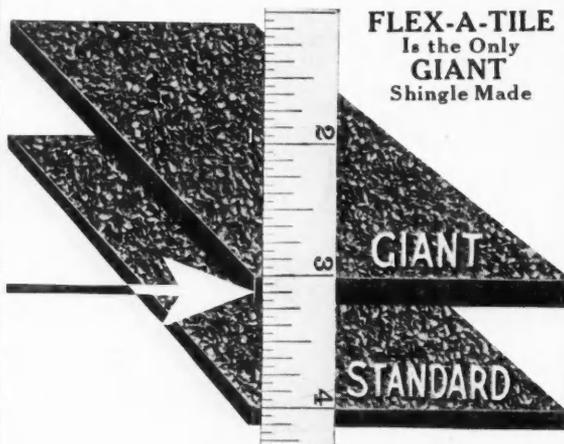
No. 1 Full Length.
No. 2 Half Screens.
Best for Knock-down Screens.
They Brace the Frame.

Watrous - Acme Mfg. Co.
DES MOINES, IOWA

CHICAGO SALES OFFICE
180 N. Dearborn St. Chicago, Ill.

50% thicker than any standard shingle by actual measurement

50% thicker — 50% heavier — 100% stronger



MAKE this convincing test yourself—actually *measure* the thickness of the Flex-a-Tile GIANT. Weigh it, too—it's *50 per cent heavier* than any standard asphalt shingle. It's *100 per cent stronger*—the biggest, heaviest, strongest asphalt shingle ever made.

Flex-a-Tile Shingles

Shrewd buyers of roofing materials have placed their unqualified stamp of approval on this *new* Flex-a-Tile GIANT Shingle. They like its sturdy ruggedness—its wear-and weather-proof *quality* from the core straight through. It's the careful way we make this Flex-a-Tile GIANT combined with finest materials, that gives it this super-strength

First come the long, strong, *giant* strands of pure wool felt heavily saturated *with twice their own weight* of high-melt-point, oil-free asphalt. Then we apply a coating of gilsonite—the top quality asphalt that can't melt at a heat less than 290° Fahrenheit. Into this, while still hot, we compress *under tons of pressure* the outer surfacing of *stone or slate*—whose beautiful natural, lasting colors of emerald and red simply can't stain, fade or rust.

But with all its other advantages this Flex-a-Tile GIANT is also an economical shingle. It can be laid in far less time than other shingles—that means decrease in labor cost, and a quicker finished job. Before you think of using *any* roofing material, get all the facts about the Flex-a-Tile GIANT.

Send for Specimen Today

Just drop us a post card saying, "Send full particulars about the Flex-a-Tile GIANT." Specimen shingle and interesting literature will be sent gladly. Be sure you write today.

The Heppes Co., 1010 S. Kilbourne Ave., Chicago

Manufacturers also of Asphalt Paint, Asphalt Roofing in any Finish, and Utility Wall Board.

Surfaces and Polishes Hardwood Floors in Paying Quantities

The Automatic Ball Bearing Electric Floor Surfacing Machine, manufactured by Waywell Chappell & Co., 4847 Ravenswood Ave., Chicago, Ill., not only rapidly refinishes old floors, taking off old varnish, paint, shellac, etc., but building contractors and floor layers are finding it to be a machine that will dress in paying quantities quartersawed oak, maple, etc., the way they want it. This is because it is solidly built with heavy parts accurately assembled—has heavy steel ball bearings on all running parts so cutting roller and the two 9 in. dia. suction fans (the outlets for which are shown in the illustration and to which the dust sack is attached) spin true and easy. The roller may be either flexible for easy adjust-



Electric Floor Surfer.

ment to the floor inequalities, or rigid to level the floor quickly, being held by a pair of heavy, centrally-pivoted arms, adjustable at both ends by thumbscrews pressing against cushions. It is claimed to be the only machine having a mechanism (which this illustration clearly shows) to both brake the machine for easy work and to gauge the depth of the roller cut. This is why so many leading building contractors and floor layers want the machine. This brake-gauge, the bottom of which is of polished wood, of a length to span two ordinary floor boards, slides on the high edges, steadying the machine, and gauges the depth of cut by firmly holding the handle in any position it has been tilted and locked by the small level shown on the handle. It also brakes the forward pull of the machine (which is self-propelling in operation), making continuous work easy, either when roughing with the roller flexible and using coarse sandpaper or in finishing up last time over the boards with the roller rigid and using fine paper, when it is of most value to get quickly the class of work the floor contractor wants.

Machines are made in several sizes: for small rooms or large areas. Surfaces to base with edge roller (also shown), which is quickly adjustable to either side of the main roller as its shaft is slipped through the hollow surfacing roller shaft from either side.

Birch Panels Birch Book FREE

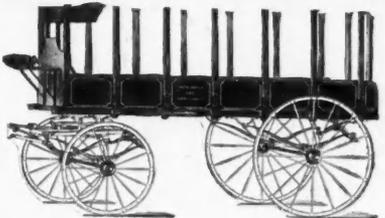
Panels of Birch in natural, mahogany, white enamel, and other colors; also our beautiful Birch Book "C", sent postpaid.

They will get business for you.

The Northern Hemlock and Hardwood Manufacturers Association

Dept. C

Wausau, Wisconsin

HERE IS VALUE—ARMLEDER

 Style No. **504**
\$139.41
 2500 lbs. Capacity

Body 10 ft. long, 4 ft. wide; removable sides, 1½ inch axle gear.
Prompt shipment **Convenient terms**
 Our free catalog shows 303 other styles and sizes.

Address, ARMLEDER, Cincinnati, Ohio
 World's Largest Builder of High-Grade Wagons.

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DRAFTSMAN'S WORKING OUTFIT

Complete Draftsman's Working Outfit—just like I use myself, that you couldn't duplicate for less than \$15.00, given to you absolutely **FREE** as soon as you enroll. Handsome set of imported instruments. T-square, French curve, triangle, etc., all given away absolutely **Free** to my students. This offer is limited. Write today.

\$125 TO \$175 A MONTH TO START

That's the ordinary salary for a draftsman. Thousands of positions open. Be the man who gets the fat pay envelope. I will teach you drafting in your own home—during your spare time. I will give you practical instruction—the kind that the men must have who make the big money. I am Chief Draftsman of a large and well known company. Let me help you. Write to me today.

WRITE FOR FREE BOOK. Your name and address on a postal is enough. I will send you free and prepaid my big new book "Successful Draftsmanship." No obligation. Find out about your opportunity in the drafting profession. Send me your name and address—today—now.

CHIEF DRAFTSMAN DOBE, Div. 265X, Engineer's Equip. Co., Inc., Chicago.



"Lead-and-Oil"—the elastic paint—made of Dutch Boy White Lead

and Dutch Boy Linseed Oil, withstands wood and weather changes, without cracking or scaling. It stretches with wood in summer's heat and shrinks with wood in winter's cold.

Dutch Boy White Lead is white in the keg but it may be tinted any color. Folder "A" shows 39 color combinations with formulas and directions. Ask our nearest branch for a copy

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

"Many-a-Use" GAUGE

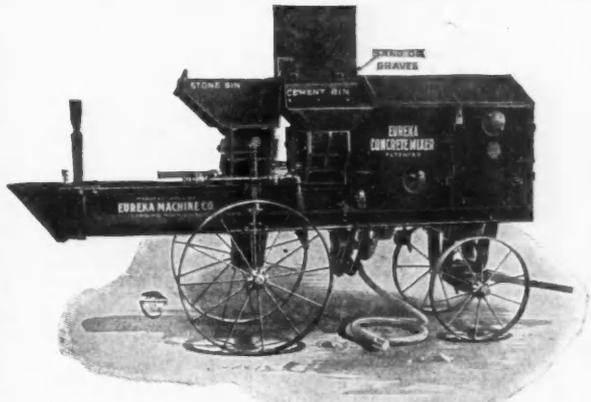
provides a sure way of measuring openings; cutting thresholds in door frames; setting door jambs; cutting siding in between window frames, etc. It is the only accurate gauge that will enable you to correctly mark and square any work for cutting.

The "Many-a-Use" Gauge can be used on any length pole. You simply set the lower gauge at the required distance from the floor and the upper gauge at the desired height of window or other opening. Thumb screws hold gauges firmly on pole. No chance of slipping. No measuring mistakes.

Price Per Pair \$1.25

If your dealer cannot supply you, send us the price and get a pair of gauges by mail. If you think they are not worth the price, return them and get your money back.

FOX & STANLEY
 815 Erie Street
 KENOSHA, WISCONSIN



We have some mighty interesting facts for you about the

EUREKA SELF MEASURING MIXER
 "WHERE GUESS WORK ENDS"

May we show you these things in a clean cut way—one business man to another—no extravagant claims, no glittering generalities, **JUST PROOFS AND FACTS THAT HAVE AN IMPORTANT BEARING ON YOUR WORK.**

GASOLINE, STEAM OR ELECTRIC POWER

It costs you less than half as much to buy it!
 It costs you less than a third as much to run it!
 It costs you less than a fifth as much to move it!

The Eureka Mixer, capacity for capacity, with any standard batch mixer, weighs less than half as much.

Powerful, Simple, Easy to Operate. Its Cost is Surprisingly Low. Send for the Facts Now.

EUREKA MACHINE CO., 12 Case Street, Lansing, Michigan



\$5,000.00 Net Profit a Year



can be made by replacing the old wood shingle roofs in your town with Walter's and Cooper's Metal Shingles; this aside from the work you do on new buildings which should make your profits as much more. Others are doing it, why not you?



Handling W. & C. Metal Shingles is the fastest road to quick, easy profits there is and the least you can do is to investigate and get in; while you can.

This picture shows the application of Walter's and Cooper's Interlocking Metal Shingles over an old wood shingle roof; your town is full of this kind of work and it is work that pays an unusually good profit. Get to it.

Walters and Coopers Metal Shingles

Find out about the profitable possibilities of the famous W. & C. Shingles, even if you don't take on the agency. It won't hurt you to know about them.



National Sheet Metal Roofing Co. Ask for selling plan and cat. A. C.
339 88 Grand Street, Jersey City, N. J.



OAK FLOORING "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.

Contractors and carpenters find it very profitable to lay 3/4 inch stock over old floors in old homes during dull periods. A little canvassing is all that is necessary to secure jobs. A carpenter or handy man can lay OAK FLOORING successfully.

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

Write for Booklet

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

In Position

"SAFETY FIRST"

Fold Compactly

Wheeler Safety Scaffold Brackets

Save Lumber—Save Labor—Save Nails—Save Accidents

Pay for themselves on two jobs and last a lifetime. Lock automatically. Men cannot be careless putting them up. Are rigid and firm when in place. Scaffold cannot swing. Write for our FREE TRIAL OFFER

AMERICAN STEEL SCAFFOLD CO., Dept. 7, DETROIT, MICH.

WE have issued Very Interesting Catalogues containing valuable information for the Architect, Carpenter and Builder regarding wood columns for exterior and interior use. Catalogue "U. 40" for Exterior and Interior Columns. Catalogue "U. 50" for Interior Columned Openings. (Above will be sent FREE on request)

HARTMANN-SANDERS CO.

Exclusive Manufacturers of

Kolls
Lock
Joint

Patent
Stave
Column

Suitable for Pergolas, Porches or Interior Use.
Main Office and Factory
Elston and Webster Aves., Chicago, Ill.
Eastern Office: 1123 Broadway, New York City, N. Y.
Pacific Coast Branch, A. J. Koll Planing Mill Co.,
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Here's Our Latest Addition=It's A "Baby"

The big Edwards' Metal Shingle family is growing fast. Our latest arrival is the best yet. Look it over. Did you ever see a more handsome, novel design, or more clean cut embossing? We've christened this "Baby" after our own great State—

Edwards "Ohio" Metal Shingle

This stunning pattern is made in one size only, 14 x 20 inches. Manufactured from the best quality Worcester Grade Terne Plate, painted or "Tightcote" galvanized. Every good Edwards Shingle feature—and there's a big bunch of them, including our famous patent interlocking device—is in the "Ohio," of which we are justly proud.

Let Us Send Samples and Agent's Proposition

The high quality of the former will please you and the low prices will surprise you. You ought to see the "Ohio" and you ought to see it now. Act!

THE EDWARDS MANUFACTURING COMPANY

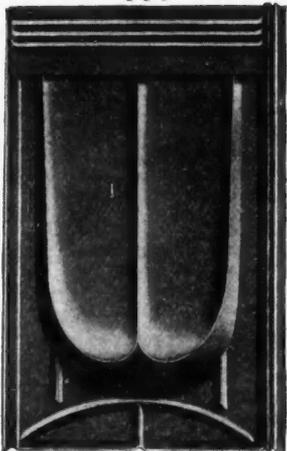
"The Sheet Metal Folks"

401-417 Eggleston Ave., Cincinnati, O.

Largest Manufacturers of Metal Ceilings, Metal Shingles, Steel Roofing and Siding in the World.

NEW YORK OFFICE: 81-83 Fulton St.

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HIPPED TURRET SKYLIGHT



with swinging sash. Sides 24" high; all windows on each side made to open at the same time. Operating device securely locks them open or closed.

The Skylight is of guaranteed quality. You can use it on any of your buildings with the assurance that it will stand the wear. Watertight. Can be set up in a moment by an inexperienced man.

Write for our Skylight Catalog and Prices

Galesburg Sheet Metal Works - Galesburg, Ill.



WILLIS SKYLIGHTS

exactly fill the bill for every requirement, no matter what it is. They are made in all styles for all purposes where a skylight is wanted.

MR. CONTRACTOR

Willis Skylights are especially fine for you, as any ordinary workman can erect one in a very short time. A screw driver and hammer are the only tools needed. No solder; no putty; no experience. Largest glass area possible, and guaranteed watertight. Can't sag, buckle, or spread.

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WILLIS MANUFACTURING CO.

Manufacturers of Fireproof Windows, Doors, Ventilators, etc. GALESBURG, ILLINOIS

MONEY FOR YOU

By Our Plan

UNIVERSAL CLOTHES DRIER

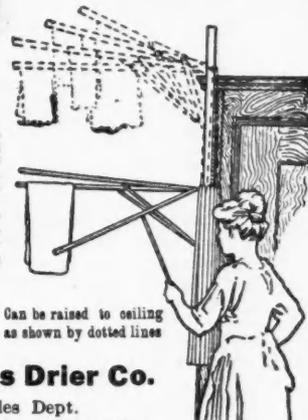
The kitchen wonder.—Indispensable to every housewife. Can be attached to wall or casing. Easily removed. Contains 30 feet of drying surface. Adjustable to suit convenience of operator. Does away with lines and the cumbersome clotheshorse. No kitchen or laundry complete without a UNIVERSAL-DRIER. Neat, durable, irresistible. Every demonstration a sale.

Retails for \$1.50. Big commissions to reliable men.

WE WANT AGENTS

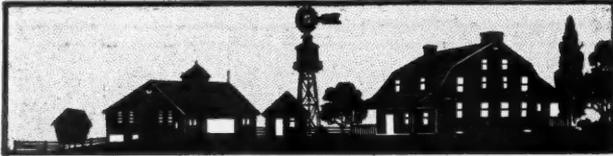
Write today for our liberal offer that will make money for you during the dull season.

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.



Well Lighted Homes

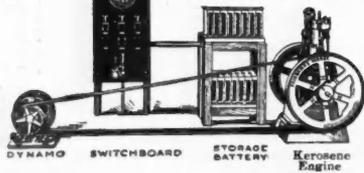
are permanent advertisements for the designer and builder. Good lighting is as important as substantial construction and proper design. Provide for the best by specifying

Fairbanks-Morse Electric Light Plants

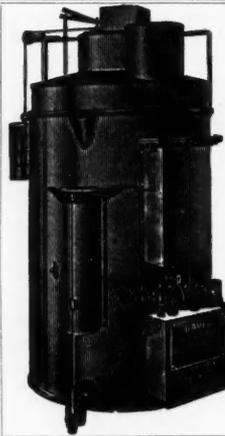
in the homes you plan and build. Set includes kerosene engine, dynamo, switchboard, and storage batteries. A complete independent plant. Fifty-light set supplies current for all needs of large country or suburban home.

Write for Catalog 21D1409

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New York Chicago San Francisco



Anyone can operate this plant. No knowledge of electricity needed.



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.

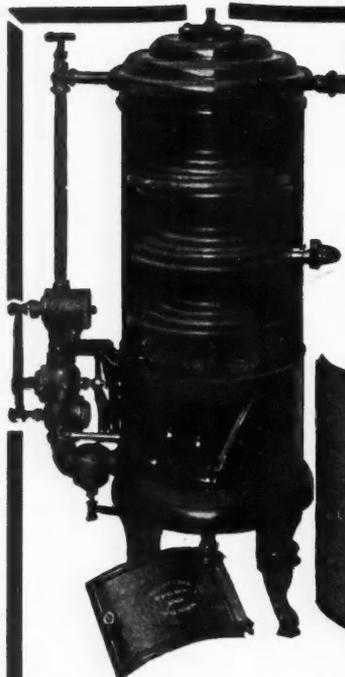
Make \$1000 this Summer

Add this extra money to your season's profits. Before winter sets in you can make \$1000 extra by our Co-operative Plan. We don't ask you to take time from your regular work. Our carefully thought-out plan makes that unnecessary and yet gives you a big chance to make extra money.

BUILDERS

become well-paid representatives, without a cent of cost or a moment's wasted time. Look after our interests in your locality. When a man needs a private lighting plant, hand him our catalog and he'll give you the order. Let us send you a full description of the Faultless Pit Generator. Let us make you an offer. Send your name and address quickly.

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HOT WATER

Absolutely Without Labor
Supply Unlimited
Water Heated on the Run
with

PERFECT SAFETY

No building is complete without hot water the year 'round. The

Radke "Safety" Instantaneous Automatic Gas Water Heater

- For Residences
- Stores
- Schools
- Churches
- Apartments
- Garages
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- Laundries
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- Armories



THE "SAFETY" IS ALWAYS SAFE

because it automatically shuts off all gas from the heater in case the pilot light should accidentally go out. Your customer expects you to furnish the best article on the market. *Send for Catalog* and let us tell you wherein this heater excels.

RADKE MANUFACTURING CO.
173 West Jackson Boulevard
CHICAGO, ILL.



The Parrot says—
"Contractors! Equip your houses with the

PARROTT (Hot Water) HEATER

10 Gallons of water heated for one cent

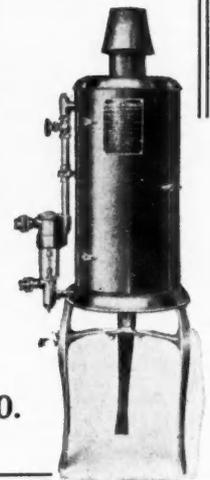
Put a Parrott Heater in the basement, light the pilot light and all inconvenience is past. Opening any hot water faucet in the house automatically turns on the gas in the heater. The water is heated "on the run". In a few seconds it is rushing from the faucet.

Supply the Demand

for Hot Water Heaters. The Parrott gives the best service at the lowest price. Clean and convenient. All home owners now want a Parrott Heater. Take up practically no room. Capacity unlimited. Easy to install. Requires no attention. Positively supplies hot water for any purpose at any time.

Your Clients will want a Parrott. Learn more about the Parrott Heater from our literature. Money for you. Write for FREE CATALOG.

MICHIGAN GAS APPLIANCE CO.
JACKSON, MICHIGAN



Lots of Cottages and Summer Homes

Near Your Town are Now a Quick Market for

KAUSTINE CLOSETS

NO WATER

NO SEWER

Bear Creek Township School District No. 10

Bear Creek, Mich., March 14, 1914.

TO WHOM IT MAY CONCERN:

In October, 1913 our School District installed one of the Sanitary Chemical Systems, and we are pleased to state that it has proved a complete success, and has more than met what was claimed for it. There is positively no odor, and no trouble whatever from freezing. We most gladly recommend the system to anyone, but especially to school officers who desire a clean, sanitary closet for the children.

The Sanitary Chemical Closet meets every requirement of the Sanitary Laws of the State.

Yours truly,

MAURICE P. GILL, DIRECTOR.
H. J. SMITH, TREAS.
W. W. STARR.

Live builders are grasping this new field, and find it a source of fine added profit.

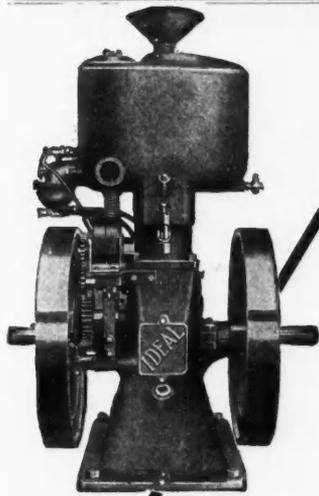
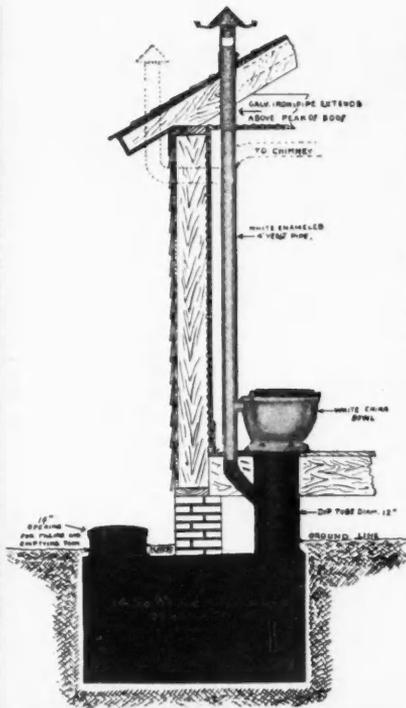
And don't miss the public comfort stations, either—nor the schools, factories and rural homes.

Now is the time

Write today for our special offer.

KAUSTINE COMPANY, Inc.

Ellicott Square, BUFFALO, N. Y.



As we couldn't use all this space we want you to help us out

We feel sure that you are interested in "constant service" on your power question so we want to show you why contractors who want "constant service" use

Ideal Type M Engines

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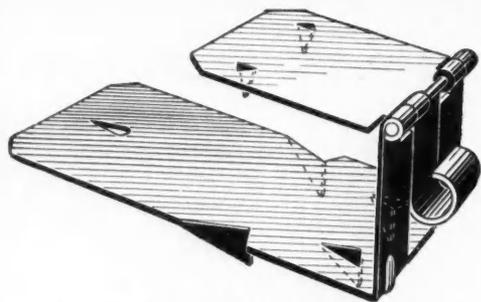
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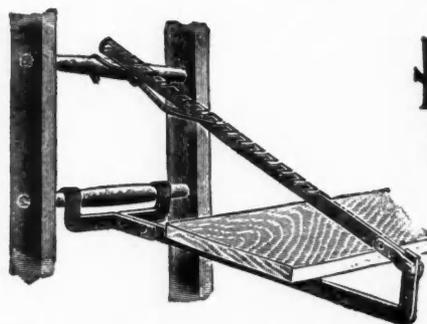
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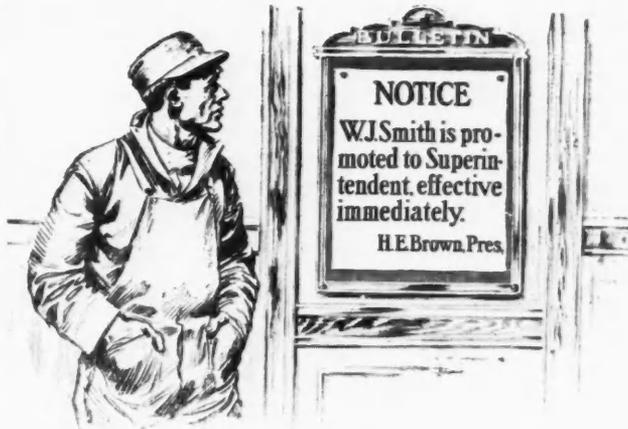
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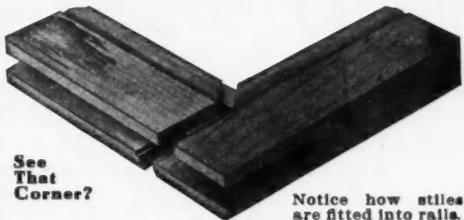
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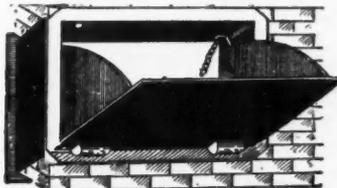
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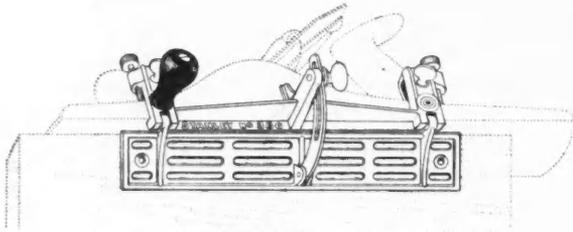
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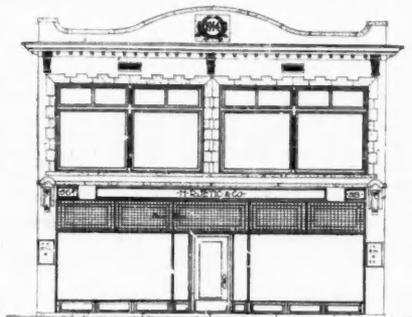
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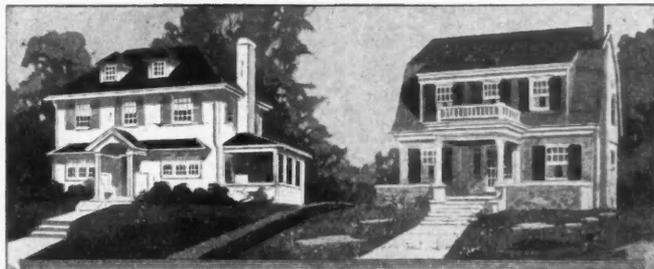
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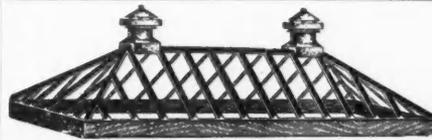
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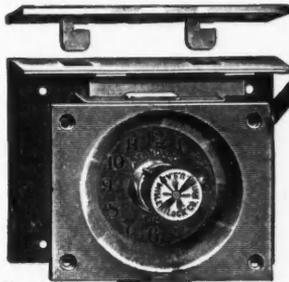


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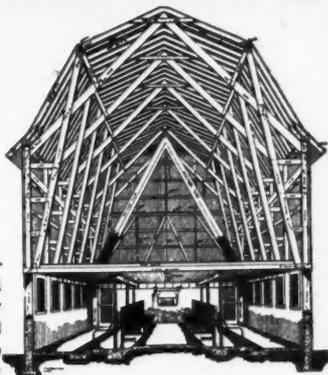
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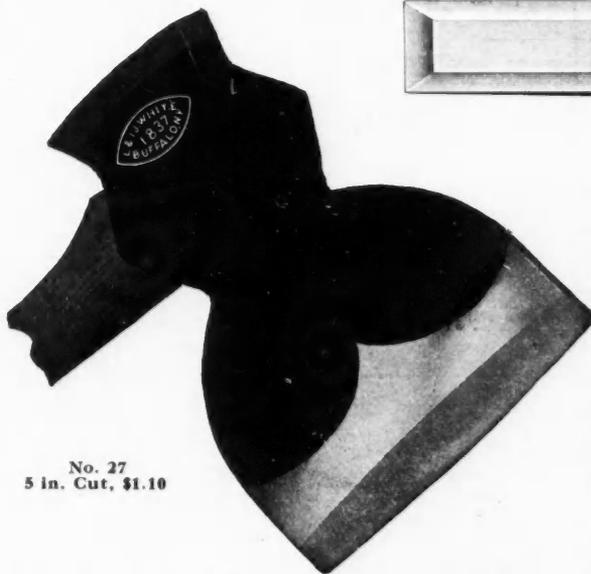
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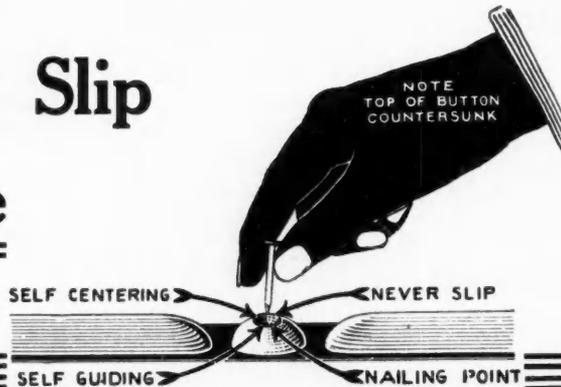
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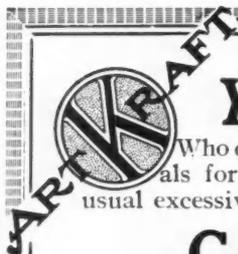
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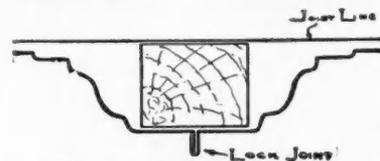
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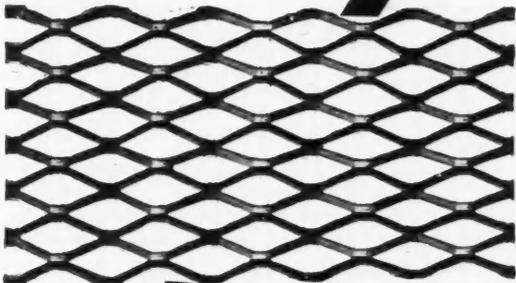
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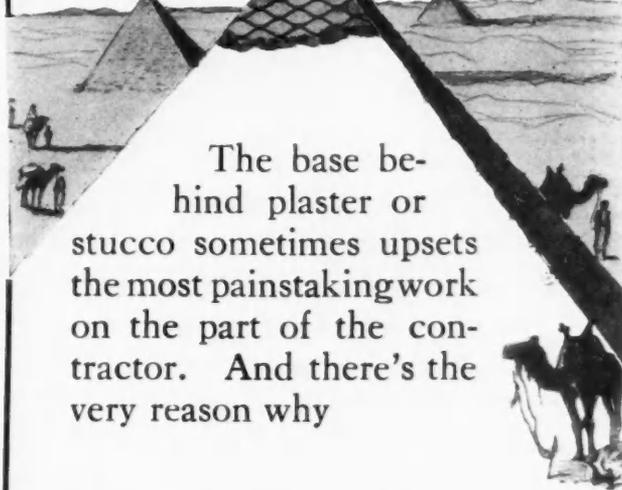
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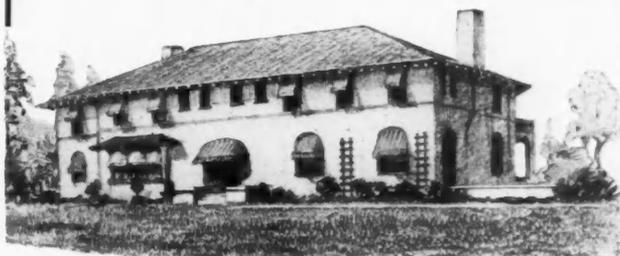
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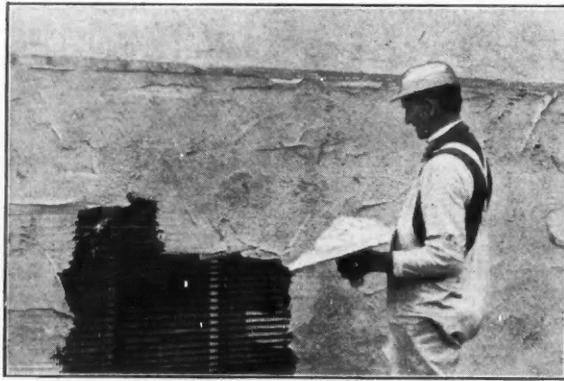
"Standardized" Wall Construction is explained in our new book for builders and contractors, "Stucco Specifications" (36). The information it contains is authentic, right up to the minute, and mighty valuable. If you have not received your copy, write for booklet 36.

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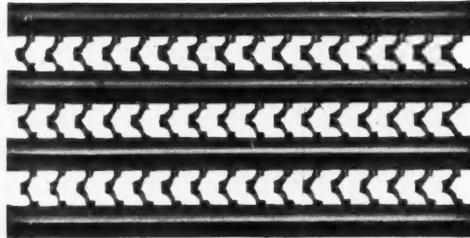




Note Heavy Scratch Coat, Due Entirely to Stiffness of RIB LATH.

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are assured by the use of RIB LATH. Plaster cannot streak or crack, as with wood lath. Improved method of manufacture provides a perfect clinch for the plaster. RIB LATH provides a most rigid surface so that plaster can be compacted against it without loosening surrounding plaster.



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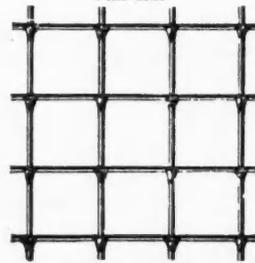


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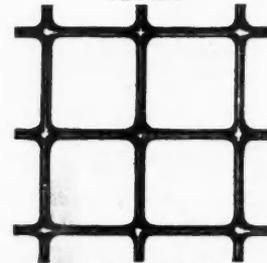
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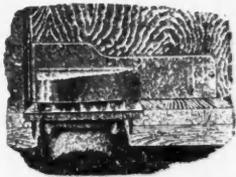
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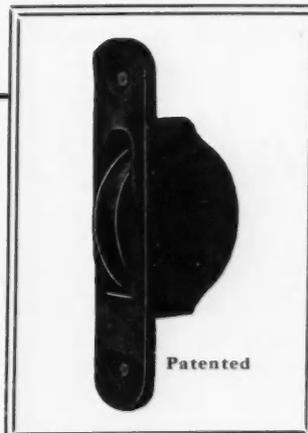
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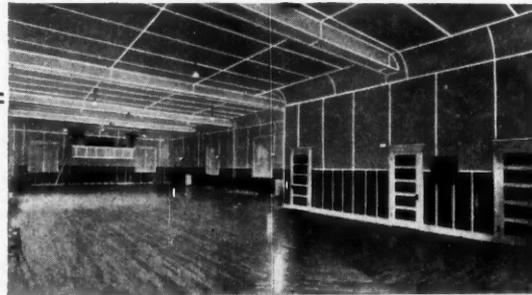
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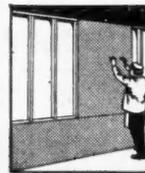
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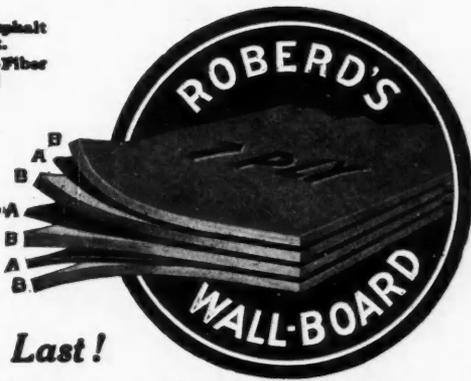
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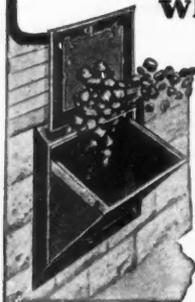
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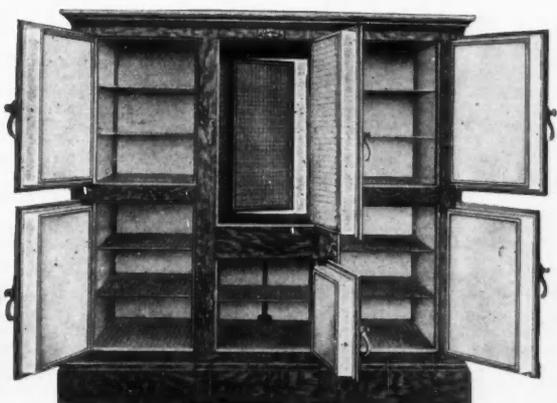
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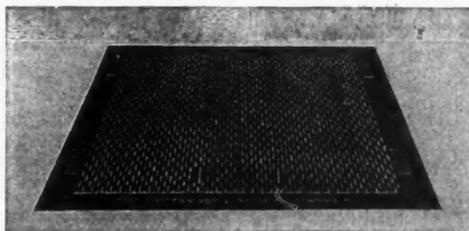
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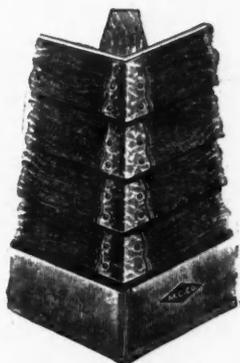
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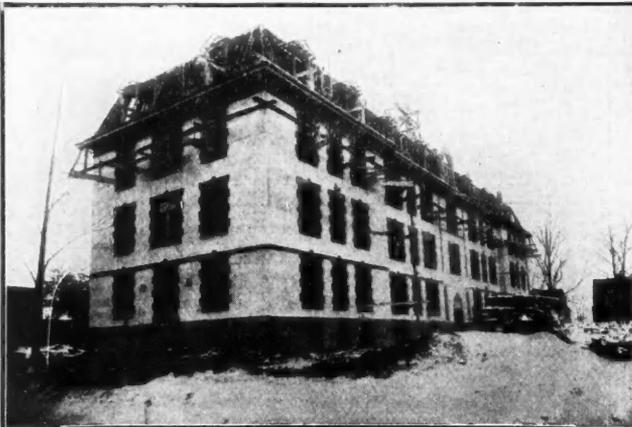
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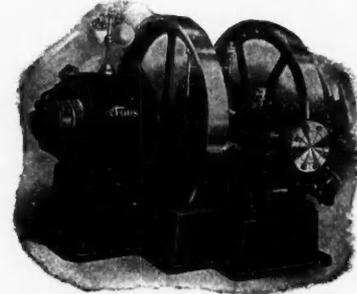
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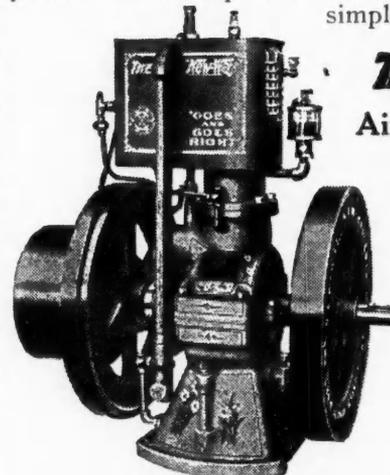
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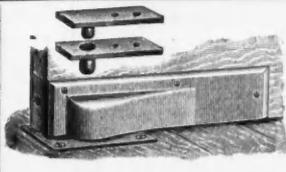
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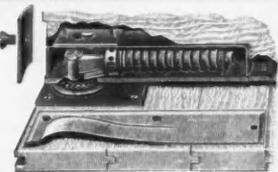
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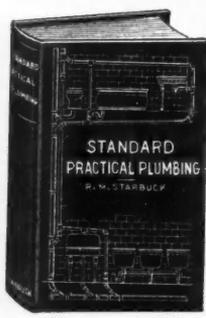
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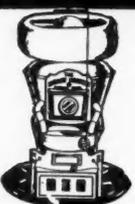
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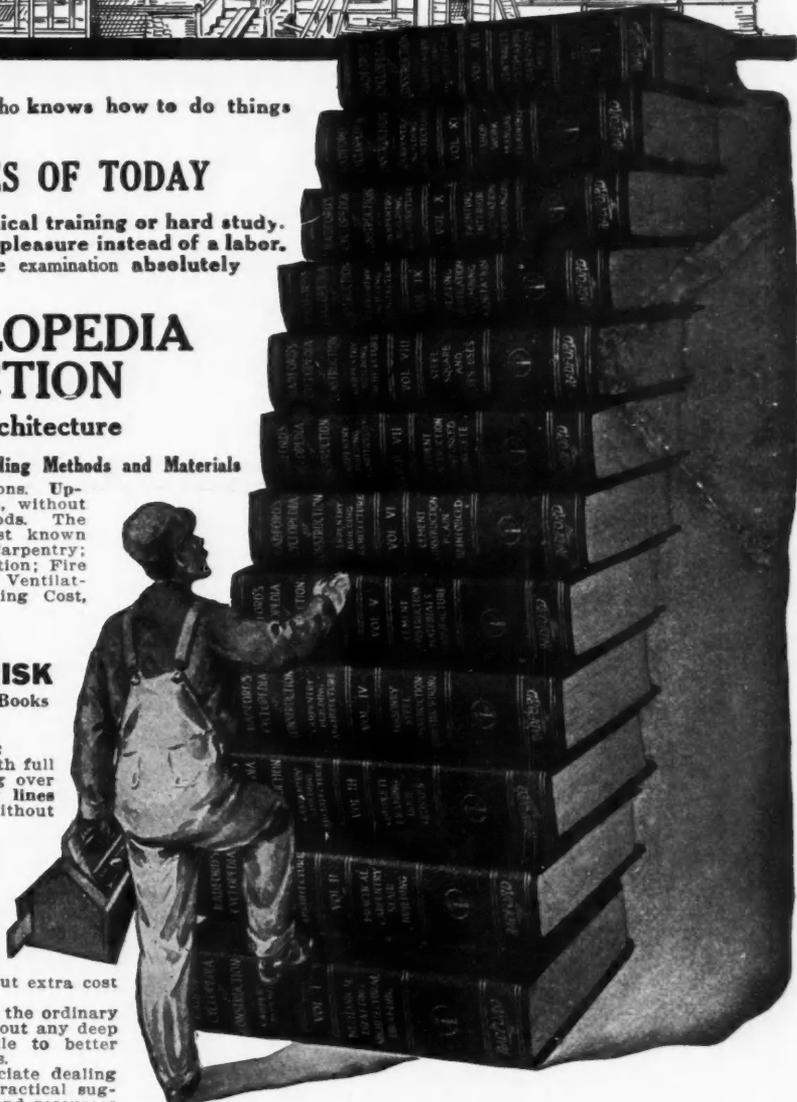
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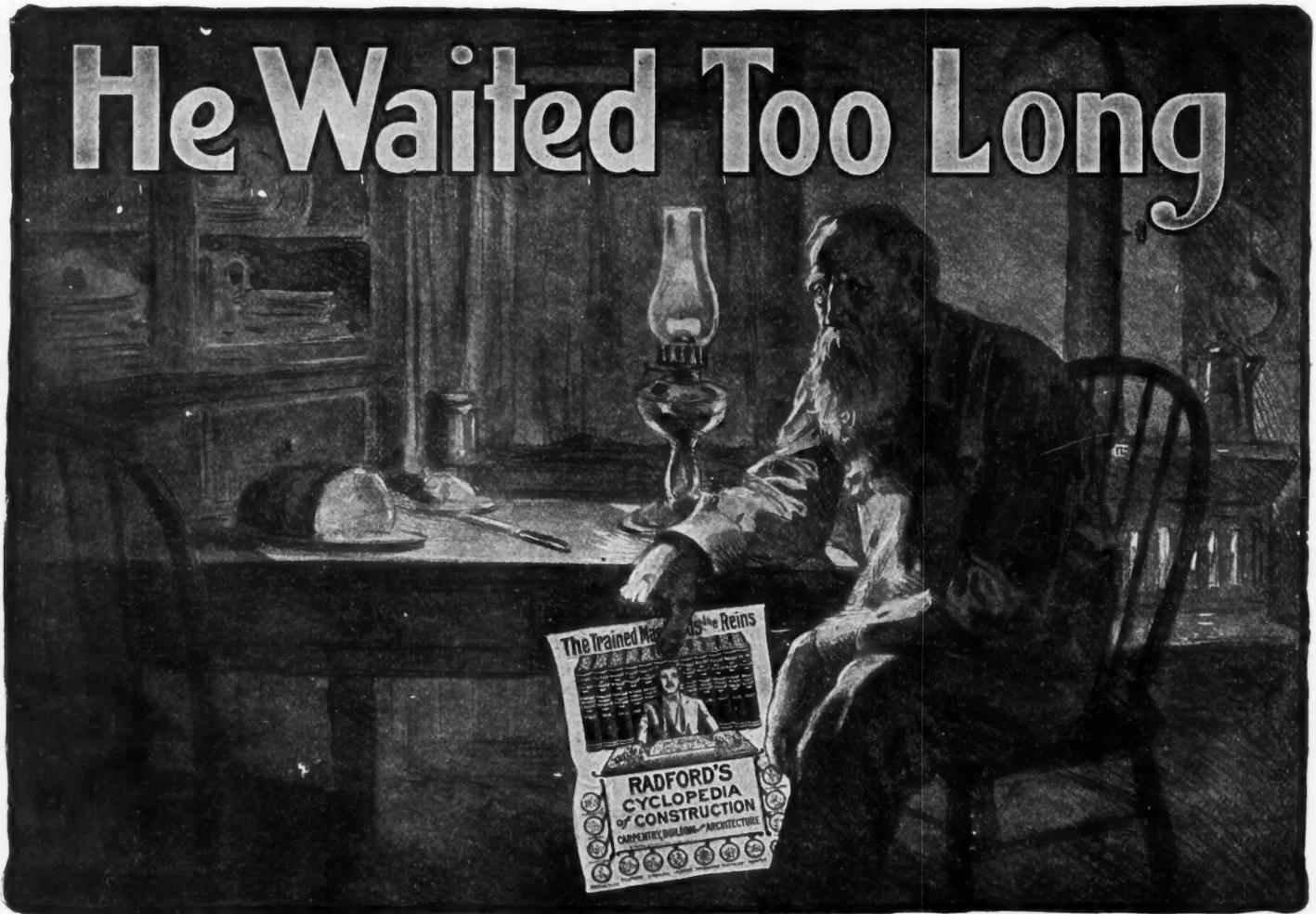
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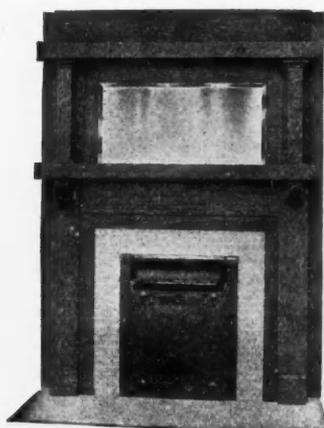
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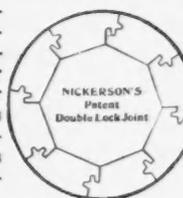
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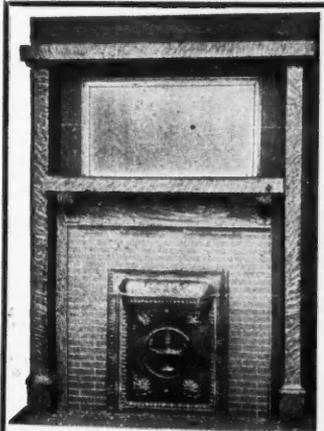
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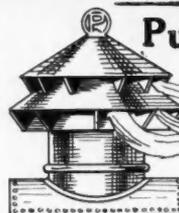
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This new 100 to 700 candle power light turns up and down like gas. One-third cost of electricity, gas or kerosene. For home, church or store. Anyone can operate. Perfection guaranteed or money back. Write for catalog. (A. C. B.) Dept. 20. Agents Wanted. **BRILLIANT GAS LAMP COMPANY 1009 S. Wabash Av., Chicago, Illinois**



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.

13¢ a Day!



Don't pay rent; don't buy a "blind," out-of-date typewriter when you can own this genuine Oliver Visible for only 13c a day. We save you \$41.50. No agents. Sent on Free Trial. Write for book, facts and low price. Typewriters Distributing Syndicate, 166 S-60 N. Michigan Blvd., Chicago

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.

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JOHNSTON'S Patent SHELF PIN

1 DOZ 15¢
1 GROSS 85¢

These pins are used for supporting movable shelves in Book Cases. Cannot fall out or sag down. The best shelf pin made. Easily put in place by any one.

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ONLY SELF-SETTING PLANE

Sent on trial as per circular

Our \$1.00 certificate if you mention this paper.

GAGE TOOL CO. Vineland N. J.

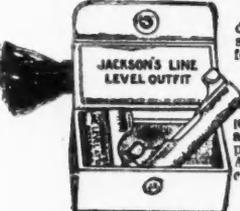


A UNIQUE TIME SAVER.

The Jackson Aluminum Line Level is a mighty small device; it brings about a tremendous saving of both time and labor. It takes the place of the old-fashioned sixteen foot straight edge, yet it can be carried in your vest pocket.

No contractor, builder, carpenter, mason, bricklayer, architect or plasterer, etc. can afford to be without one. Just stretch your line and hang the level on it—It's positively accurate. The complete outfit is put up in a neat leatherette case and consists of the level with a 40-ft. line also a spring clamp for attaching the level to a steel square or pocket rule, thereby serving as a plumb rule or bench level. Ask your hardware dealer or send \$1.00 for the Level outfit complete post paid. Send for our Catalogue of Tools.

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BUILD YOUR HOME "THE NEW WAY"

10 per cent Larger Bedrooms
50 per cent Larger Wardrobe capacity and you can save from \$100 to \$300 in building a home.

Send 50c for Plan Book which shows 22 designs—ranging in price from \$1200 to \$12,000.

JOHN THOMAS BATTS Grand Rapids, Mich.



SLATE WE HAVE WHAT YOU WANT

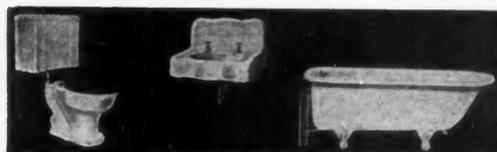
*In Roofing Slate. Slate Blackboards
Structural and Plumbers' Slate*

SATISFACTION GUARANTEED IN QUALITY AND PRICE

ASK FOR DELIVERED PRICES

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EVERYTHING in Guaranteed Plumbing and Heating Supplies at wholesale. Our \$200,000 establishment behind our Guarantee. Send for complete CATALOG 41.

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BYERS

HOISTING ENGINES

Specially Designed for Builders

Write for Catalogue No. 20

The John F. Byers Machine Co. Ravenna, O.

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 prevents the base of column and floor from rotting.

See "SWEET'S" page 958.

S. CHENEY & SON, MANLIUS, N. Y.



Bottom View Showing Center Bearing

The Eau Claire Chalk Line Reel

Always ready; holds chalk and line together; uses solid chalk, no powder. We furnish no line. Sent to any address prepaid, 75c. We handle Eau Claire chalk. Agents wanted.

THE MILLER-LAUT CO., 916 Monomonia St., Eau Claire, Wis.



A SHINGLING HATCHET

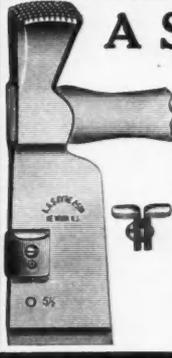
WITH POSITIVE GAUGE

CARPENTERS and BUILDERS

Here is a hatchet you can do some fast shingling with—No. 144 (oval head, 169 points.) Gauge is positive—it cannot slip. Clamps on with screw, gauge is readily changed. This hatchet is also made with flat head No. 44, 81 points, milled. Price of either is \$1.75 prepaid.

We make a complete line—and the best—of Lathing Hatchets, from 64 to 225 points. Prices \$1.40 to \$1.75. You get your full money value in a Sayre Shingling or Lathing Hatchet. You can be positive of that. Find them at your dealers or send direct.

L. A. SAYRE & SON
8 Oliver St. Newark, N. J.



THIS 1914 Model 30 DAYS Free Trial

Ranger's

EXTRAORDINARY OFFER 30 days (one month's) free trial on this finest of bicycles—the "Ranger." We will ship it to you on approval, freight prepaid, without a cent deposit in advance. This offer is genuine.

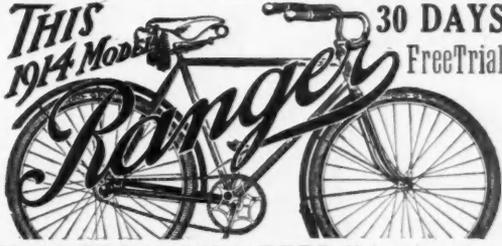
WRITE TODAY for our big catalog showing our full line of bicycles for men and women, boys and girls at prices never before equaled for like quality. It is a cyclopedia of bicycles, sundries and useful bicycle information. It's free.

TIRES, COASTER-BRAKE rear wheels, inner tubes, lamps, cyclometers, equipment and parts for all bicycles at half usual prices. A limited number of second hand bicycles taken in trade by our retail stores will be closed out at once, at \$3 to \$8 each.

RIDER AGENTS wanted in each town and district to ride and exhibit a sample 1914 model Ranger furnished by us.

It Costs You Nothing to learn what we offer you and how we can do it. You will be astonished and convinced. Do not buy a bicycle, tires or sundries until you get our catalog and new low prices and marvelous offers. Write today.

MEAD CYCLE CO., Dept. W-122, CHICAGO, ILL.





A Quicker Step!

A business man recently told us, "I bought our three Reo Motor Trucks primarily because I saw that they would save money over the old method of hauling. But I am delighted to find another advantage. They have keyed up our entire business, in every department, to a quicker step."

Doesn't that give you a big idea for your own business? Contractors and builders know the value of getting their materials on the spot at the right time. It is better to make the workmen hurry to keep up with the materials, than to hurry the materials to keep up with the men. With a Reo, you can cut out costly delays of any kind, and bring your entire organization up to a faster, busier scale of efficiency.

Users of Reo Trucks say there has never been another truck built to equal it.

The American Sash & Door Co., Kansas City, Mo., recently wrote: "Our hauls are approximately 40 miles per day, full capacity loads, and our truck is averaging 5½ miles per gallon, over a variety of road surfaces. We have spent absolutely nothing for repair parts, and the ease with which the truck takes its load has been a revelation, in the ability of a truck of its price to keep up its end with the higher-priced trucks in our fleet."

We are getting this kind of evidence from all parts of the country, and in all lines of business. The remarkably low price of the Reo makes business men more critical of its performance than they would otherwise



be, yet a careful inspection of this splendid truck never fails to win the highest praise.

Here are some of the features that mark the Reo as the most advanced type of medium heavy-duty motor trucks now on the market: Reo Sectional Radiator, of 24 separate interchangeable units, may be repaired on the road anywhere; motor, clutch and transmission are cushioned on a sub-frame, away from jars and road shocks; left-side drive, and the best and handiest center control ever brought out; big armored front frame; demountable driver's cab; gas headlights and Prest-O-Lite tank, and many other details of design and construction that mark the utmost advance in modern engineering practice.

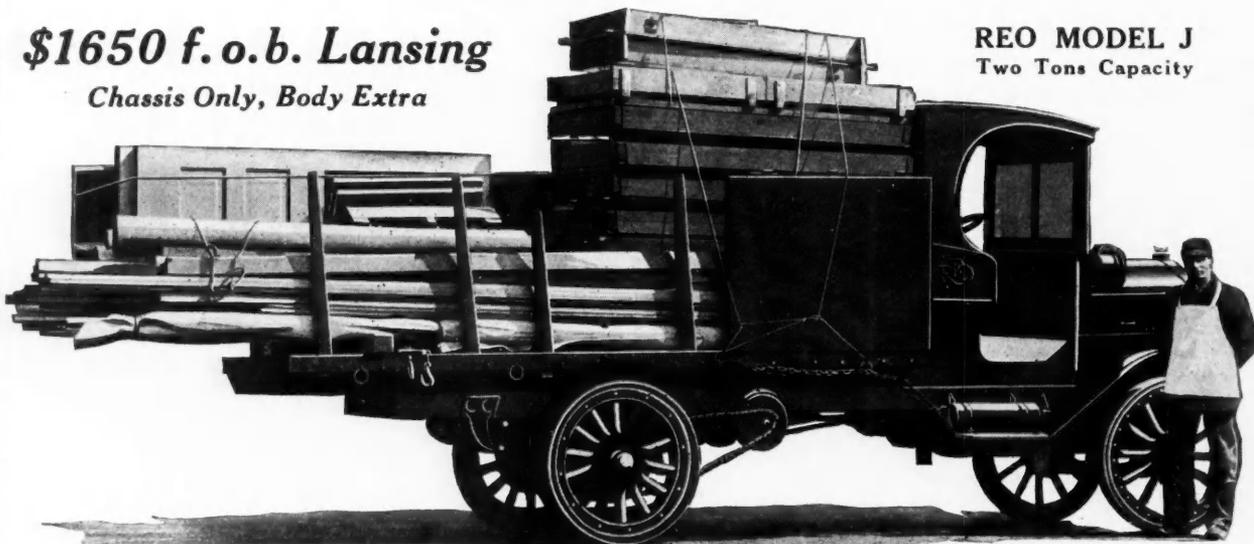
These features mean sure, unbroken service, low upkeep cost, and that wide margin of safety that a motor truck must have to meet the frequent emergencies of extra service, bad roads and overloading, that cannot be otherwise forestalled.

Write us about your hauling conditions, and we will gladly offer you our advice, whether or not you can use Reo Trucks to advantage. A Reo Motor Truck Catalog, and other useful information at your disposal. Write today.

REO MOTOR TRUCK COMPANY LANSING, MICHIGAN

\$1650 f. o. b. Lansing
Chassis Only, Body Extra

REO MODEL J
Two Tons Capacity



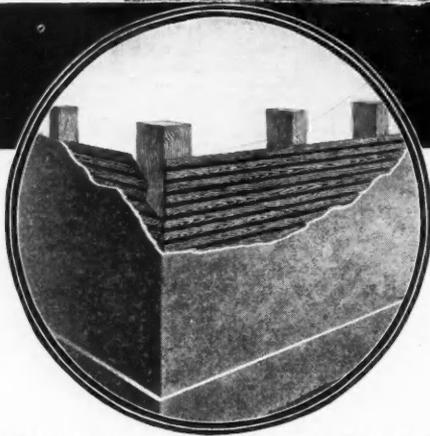
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Farmers Supply Co.	10	North American Construction Co.	104		
Flintkote Mfg. Co.	114	North Bros.	7		
Foos Gas Engine Co.	158				
Foster Sheet Metal Works	123				
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Built by
John J.
Randall Co.
Real Estate
and Builders,
Freeport,
L. I.,
New York



Bishopric
Stucco
or Plaster
Board
Used on this
Building



Bishopric Stucco or Plaster Board Nailed to Studding and Stucco Applied to Stucco Board

Durability is the Keynote of All Good Building

John J. Randall Company used Bishopric Stucco or Plaster Board on the house illustrated above to their entire satisfaction. The testimonial below is only one of the hundreds received proving our claims of the superiority of Bishopric Stucco or Plaster Board over all other plaster board.

Read This Letter

TEWS LIME & CEMENT CO. Freeport, N. Y., March 11, 1914.
Mr. Frank Piphorn, 895 Buffum Street, Milwaukee, Wis.
Dear Sir: We have used Bishopric Stucco Board on two houses which we have built during the past fall and winter. We are very well satisfied with the board, and think that it is superior to any metal-lath which can be used. The house which is completed has stood during the winter, and shows no effects whatever from either heat or cold. There are no cracks, nor any signs of dampness.
Yours very truly,
JOHN J. RANDALL COMPANY,
By E. S. Randall, Treasurer.

Mr. Builder: Investigate the merits of Bishopric Stucco or Plaster Board. You cannot help but be convinced of the simplicity, economy and practicability of Bishopric Stucco or Plaster Board. Note carefully the application of Stucco on Bishopric Stucco or Plaster Board in circular illustration. Then study the diagram below

and you will begin to really appreciate the great superiority of Bishopric Stucco or Plaster Board.

Bishopric Stucco or Plaster Board makes plaster and cement walls permanent—they can't crack, crumble or disintegrate when this time-defying stucco board is used. For five long years we have tested Bishopric Stucco or Plaster Board. Every test that a score of building experts know has been



"Dampness Can't Penetrate"

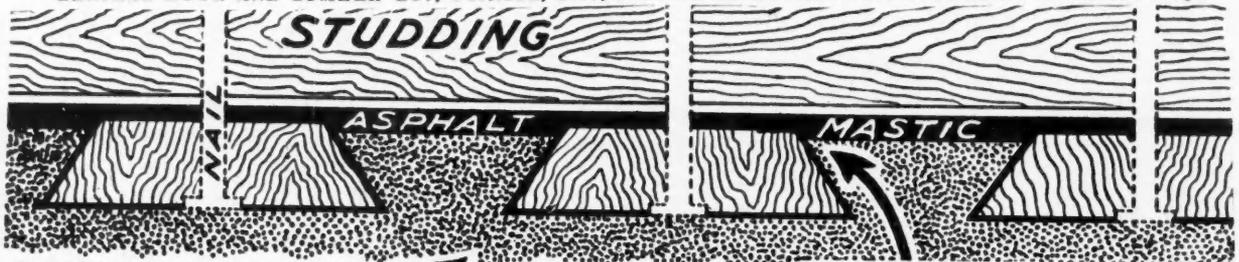
the slightest hesitation or fear of endangering your reputation. We guarantee Bishopric Stucco or Plaster Board to be as represented.

Don't delay—write today for free samples and free handsome illustrated book, just out, "Durable Homes by the Bishopric System." Contains latest information on stucco work. Every builder should have a copy. Get yours now.

used upon it and it has always "stood up"—always made good. Its recent introduction and service already rendered have won it hundreds of friends. It will win you, once you investigate and know its many merit points over other backgrounds.

You can recommend and use Bishopric Stucco or Plaster Board without

THE MASTIC WALL BOARD AND ROOFING COMPANY, 530 Este Ave., Cincinnati, Ohio
CENTRAL DOOR AND LUMBER CO., Portland, Ore., Licensed Manufacturers and Distributors for Pacific Slope



STUCCO FINISH →

NOTE THE UNDER-CUT.
THIS IS THE KEY THAT MAKES STUCCO STICK



On all woodwork where a filled grain effect is desired use Johnson's Paste Wood Filler

Floors finished with Johnson's Paste Wood Filler are sure to give satisfaction



1 lb. of Johnson's Paste Wood Filler—FREE

Johnson's Paste Wood Filler is unquestionably the best on the market. All classes of trade, including furniture manufacturers, prefer it.

It will not harden in the cans, and may be wiped with equal ease in ten minutes or two hours after being applied. It does not settle after thinning.

Johnson's Paste Wood Filler is made in several shades—*Natural, Dark Oak, Golden Oak, Antwerp, Mahogany*, etc. The Natural is slightly tinted with Ochre so it will not show white in the grain of oak, maple and other woods.

Mail the coupon and secure free and postpaid a pound of Johnson's Paste Wood Filler for trial. We will also send you a free copy of our 25c book "The Proper Treatment for Floors, Woodwork and Furniture," which gives detailed information on finishing wood—soft or hard—old or new.

Johnson's Prepared Wax

is a complete finish and polish for all wood—floors, woodwork and furniture. Apply with a cloth and in five or ten minutes polish with a dry cloth. Gives perfect results over any finish—varnish, shellac or oil. For polishing **automobile bodies** and bar tops it has no equal.

Johnson's Flat Wood Finish enables you to get hand rubbed effects with little labor and extra profit

Johnson's Flat Wood Finish

gives that artistic, hand-rubbed effect at one-third the expense. Does not require rubbing or polishing. Remember—for any work on any wood, Johnson's Finishes are best.



Johnson's Prepared Wax is a lasting artistic finish for floors—new or old—soft or hard

Please send me free and postpaid a pound sample of Johnson's Paste Wood Filler. I agree to try it and report results to you.

I buy paints from.....

Name

Address

City

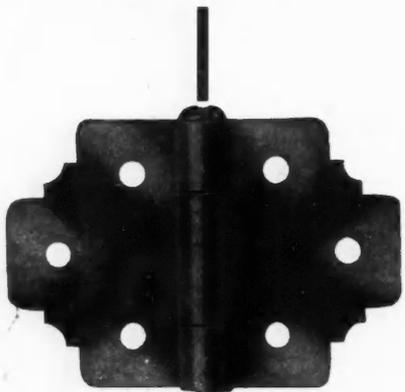
State..... To

S. C. Johnson & Son
"The Wood Finishing Authorities"
Racine, Wis.
A. C. B. 6



**A Few
Of the Reasons
Why
You Should Use
NATIONAL
ORNAMENTAL
BUTTS AND HINGES**

**In Preference To the
Common Sort**



BECAUSE an ordinary workman will correctly hang two doors with NATIONAL ORNAMENTAL BUTTS, while an expert laboriously attaches one door with the old style butts.

NATIONAL BUTTS are packed one pair to a dozen pairs (according to size) in a box, with screws of the proper size.

NATIONAL BUTTS hang the door in such manner that the screws are subjected to a shearing strain rather than a drawing strain, as with ordinary butts. The advantage in greater weight-carrying ability is easy to understand.

All sizes from 2-inch to 4½-inch are made with double tips. The false tip (having slot for screw driver) gives easy access to the pin and its withdrawal, even if the threads become corroded.

**NATIONAL ORNAMENTAL
BUTTS AND HINGES ADD
DISTINCTIVE BEAUTY TO
THE FINISHED JOB**

**Send for Booklet. "Ornamental Ideas." Give Dealer's Name
NATIONAL MFG. CO., Sterling, Illinois**