

AMERICAN CARPENTER AND BUILDER



THE WORLD'S GREATEST BUILDING PAPER

SEPTEMBER NUMBER

FLATS, STORES
AND
CITY HOUSES

Would You Break Your Neck for a Dollar?

You would not. Neither would you wish to have members of your household fatally injured or permanently disabled while washing windows by the old method, when this device can be attached at small expense, overcoming all danger; also permitting the entire window to be screened, thereby giving better ventilation, as both sash are swung inward. Also many other advantages.

Easy to install. Never get out of order

So Simple a Child Can Wash the Windows Now

The only cutting done is the stops on right hand side of windows to allow windows to swing in. The attachment with a screw driver is all that is required after sawing stops to swing any sliding window up to 6 x 8 foot



Lower Sash Swung into Building



Both Sashes Swung into Building

No mutilation of sash or frame. They can be installed on any sliding window, old or new. Nothing to break or wear out. Simplicity, economy, safety and comfort

All women have a horror of cleaning windows, and justly so, as without this improvement it could only be done imperfectly and with great danger to life and health, besides being embarrassing and hardly modest.

This device can be applied to old and new windows, and no alteration of the frame or sash is required, nor is there any injury to or defacement of the woodwork. Anyone old enough to clean a window can use it. There is absolutely no interference with screens, shades, curtains, awnings or double windows.

Made of steel and finished in oxidized, dull black, dull brass and nickel plated. Sample set, including screws, with drawing and instruction sheet, will be sent upon receipt of 25 cents to defray expressage.

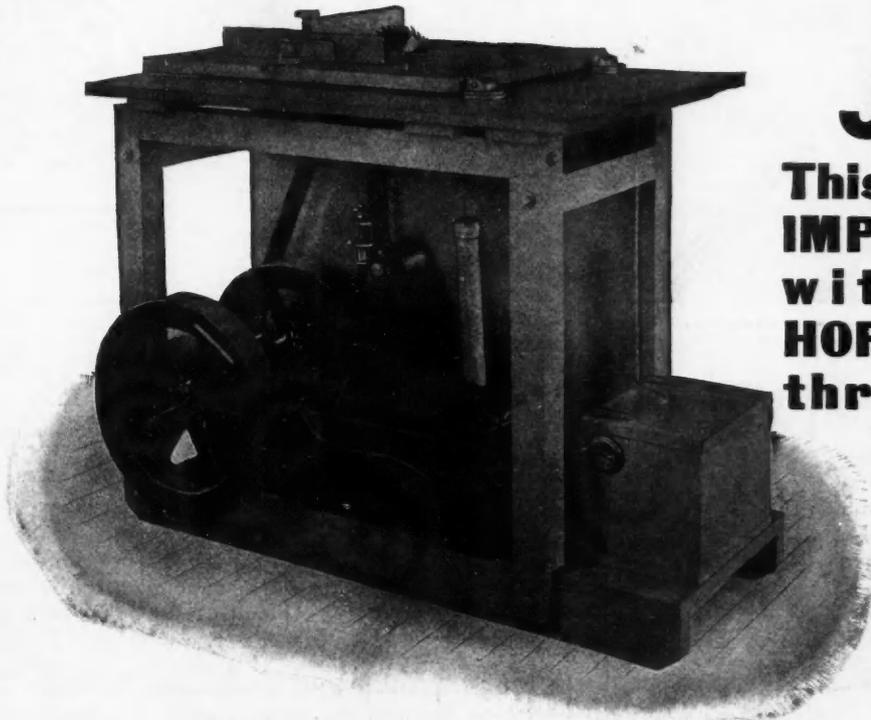
CORRESPONDENCE SOLICITED. AGENTS WANTED.

The Patented Window Attachment Co.

(Not Inc.) W. J. BLAKE, Manager

NEW NO. 443 North State Street :: :: :: CHICAGO

Do Your Own **MILLWORK** ON THE **JOB—**



This is our **NEW IMPROVED RIG** with **WATER HOPPER** Cooled **three HORSE ENGINE.**

The "Little Shaver" Portable Saw Rig

THIS rig, ready to start when it reaches you, weighs 520 pounds crated; includes two saws, cross-cut and rip; dado head for plowing window and door frames, emery wheel for sharpening your tools, wrench, etc. The engine furnished with this outfit is specially built for this kind of a rig, and it has a belt tightener attachment which keeps the belt from getting loose and can be adjusted in a few minutes. It is water hopper cooled and will develop three horse power under continuous brake test, which gives an abundance of power to run the saw.

WRITE
For Our
Folder and
SPECIAL
AUGUST
PRICE



The "Little Shaver" Floor Scraper

THE simplest and best floor scraping machine on the market. Has direct pressure on the knife, the handle having no pressure bearing control, as in other floor scrapers. With the entire weight on the blade gives the knife a uniform pressure at all times, with no possible chance of jumping and making a wavy floor.

Machine weighs 100 lbs. boxed for shipment.

Inter-State Equipment & Engineering Co., Old Colony Bldg.
Chicago, Ill.

"ABOVE ALL OTHERS"

LIGHTNING, FIRE AND WATERPROOF

TRADE MARK
TITELOCK
METAL SHINGLES

SEND FOR SAMPLES AND BOOKLET

VENTILATING
"TORPEDO"
SKYLIGHTS

EMBOSSED
"MILCOR"
CORNICES

"Invisible Joint"
STEEL CEILINGS
Send for Catalog

TITELOCK
PAINTED TIN SHINGLES ARE SUPERIOR TO WOOD
GALVANIZED SHINGLES ARE SUPERIOR TO SLATE.
COPPER SHINGLES ARE SUPERIOR TO TILE.
MILWAUKEE CORRUGATING CO.
MILWAUKEE, WIS. KANSAS CITY, MO.

EAVES TROUGH,
CONDUCTOR PIPE, &
ELBOWS, RIDGE,
ROLL, SHEET METAL
ROOFING and SIDING
Send for Price List.

Miller's Lock Mortiser

IS SCIENTIFIC

The regulation of the feed by the screw in the head is what makes the cutting of hard or soft wood easy.

Head?

The actual use of the tool to cut an opening for a lock is $\frac{1}{2}$ minute. The whole job is done in 3 minutes. Cutters for five sizes of locks $\frac{1}{2}$ " to $1\frac{1}{2}$ " is furnished with each machine. Its merit has been demonstrated thousands of times. *Sent on Trial.*

Butt Mortiser

Cuts the seats for butt hinges in doors, jambs and other work. It does the work in one-third the time and makes a neat, clean, accurate job. Price, including rule gauge, 75 cents.

A. W. Miller Mfg. Co.

Western Office: RIVERSIDE, CALIF. Main Office: CINCINNATI, OHIO.

A NEW MACHINE

THAT WILL NOT ONLY DO THE WORK OF
10 Floor Planers and Scrapers

But will do it more perfectly

We claim and have proven that it has no equal competitor on the market for perfect work. We also manufacture the electric scrubber and polisher.

Floor Sanding and Polishing Machine Co.

Driven by Electricity. Automatic 628 Race Street
Throughout. Ask for Booklet "F." PHILADELPHIA, PA.

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
44 Barclay Street, New York, U. S. A.

THE HAVEN FLOOR PLANER

HERALDS THE NEW ERA IN FLOOR SCRAPING

Eliminates all defects found in other floor machines. Does away with the man-killing toil of the heavy-weight machine. It embodies the mechanical principle of the plane. Planes and scrapes floor at one operation. Does better work than most hand work. Most rapid scraper on the market.

"Wavy" Floors an Impossibility

Makes floor scraping simple and agreeable. Particulars on request.

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

The **ANDERSON
AUTOMATIC
ADJUSTABLE**

—SPRING DRIVEN—

FLOOR SMOOTHER

Very effective on old
as well as new floors

THE AUTOMATIC MOTOR SPRING

Makes Floor Scraping Easier

It PULLS more than half of the load on the cutting stroke.
It permits the use of a heavier and more effective machine.

A floor scraper, to do smooth work, must have weight in proportion to the size of the scraper edge used.
THE A. A. A. FLOOR SMOOTHER has two detachable weights and can be operated at 130 to 150 pounds.

SOME "ADJUSTABLE" FEATURES

TOP WEIGHT ADJUSTABLE to bring any desired pressure upon the scraper knife.

KNIFE CLAMP ADJUSTABLE to right or left shear cutting angle, or up and down, to conform with any style of scraper edge required.

KNIVES POSITIONED IN CLAMP by the turn of

one thumb screw and easily readjusted so as to use all parts of scraper edge before resharping.

Knife Clamp forms ITS OWM SHARPENING DEVICE when machine is tilted back, as shown in cut.

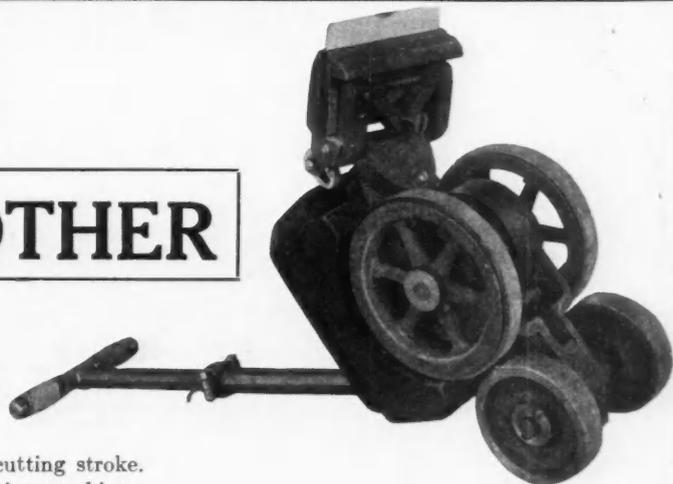
HANDLE ADJUSTABLE to suit height by operation of a lever, and can be telescoped for work in small rooms.

Shipped on approval to responsible parties. Write for more information to

TRIPLE "A" MACHINE COMPANY

Tenth Floor, Chicago Opera House Bldg.

CHICAGO, U. S. A.



ACKERMANN'S "MAKE GOOD" OFFER

"More Work, Easier Work, Better Work than any Other Floor Scraper Made or the Entire Outfit is Free"

You run no risk in ordering Ackermann's Rapid Floor Scraper sent on Free Trial. You don't have to pay a dollar down, not even the express charges.

Besides this you receive free with the machine, a complete Ackermann Knife Sharpening Outfit which insures the successful use of the machine by even an amateur. This knife sharpener practically works automatically and will put an absolutely perfect edge on the knife blade in less than two minutes without removing the blade from the machine.

Ackermann's New Knife Sharpener works perfectly on the blade of any floor scraper. It cures all "Knife Troubles."

Real success in the use of any floor scraper depends largely upon the cutting edge maintained on the knife blade that actually does the work. No machine will do the work well unless the blade is kept constantly sharp. Up to the present time the average operator of any floor scraper made, has had much trouble in doing good work, quick, because sharpening the blades was very difficult.

Send for Booklet and Information.

Great Free Trial Offer

We will ship you on free trial, prepaying all charges, both the Ackermann Rapid Floor Scraper and Ackermann's New Knife Sharpener. If they prove satisfactory, you purchase the machine, and the knife sharpening outfit is given you free. If not, return both at our expense. It costs you nothing to find out whether or not our claims are true. Write today.

J. B. ACKERMANN CO., 100 Pearl Street GRAND RAPIDS, MICHIGAN

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- Jos. Woodwell Co., Pittsburg, Pa.
 - Tallmadge Hdw. Co., Columbus, O.
 - John F. Baker, Dayton, O.
 - Crane & Bliss Hdw. Co., Newark, O.
 - Raymer Hdw. Co., St. Paul, Minn.
 - N. W. Parquet Floor Co., Minneapolis, Minn.
 - C. A. Baerlein Hdw. Co., Winona, Minn.
 - Saginaw Hdw. Co., Saginaw, Mich.
 - Stambaugh-Thompson Co., Youngstown, O.
 - Kelley Hdw. Co., Duluth, Minn.
 - Pinnell-Engler Lumber Co., Franklin, Ind.
 - W. F. Miller & Son, Barberton, O.
 - Holt Lumber Co., Oconto, Wis.
 - Warner Hdw. Co., Minneapolis, Minn.
 - Morley Bros., Saginaw, Mich.
 - Clements & Smith, Minneapolis, Minn.
 - Driscoll Bros. & Co., Ithaca, N. Y.

Machine in position, ready to Sharpen Blade

Arrows

point to the Knife Sharpening outfit which fits compactly into machine, out of the way.

Knife sharpener sold separately if desired. Price, \$5.00.





The American Floor Surfacing Machine

is the original and only two-roll, self-propelling, dust collecting machine, protected by U. S. and Foreign patents, and the only one that will satisfactorily surface any kind of a wood floor, and has been in general use by contractors, hardwood floor companies and others for over five years.

Its work is rapid, regular, smooth and even, because the power that drives the rolls propels the machine at the same ratio of speed.

Its work has established the standard for surfaced floors, and the only machine whose work is specified by leading architects and meets the requirements of contractors, owners and hardwood floor companies for finely finished, smooth, even floors.

It has surfaced and polished millions of square feet of the finest floors in America and Europe.

Don't be fooled with an imitation, but get a machine that does work in paying quantities, and can be operated in small rooms.

The only one whose construction is guaranteed and sold on its merits.

Write for our book "Surfacing Floors as a Business."

Manufactured by

The American Floor Surfacing Machine Company
TOLEDO, OHIO

PLATE GLASS

Bath Room Fixtures

FOR RESIDENCES, HOTELS, OFFICE AND APARTMENT BUILDINGS

Absolutely sanitary, require no cleaning, never wear out or show the effects of use. Not affected by hot or cold water. The modern 20th century toilet and lavatory fittings.

PLATE GLASS TOWEL BAR



Price \$1.50

No. 141 24 inches, adjustable. Also made in 30, 36, 42 and 48 inch lengths at slightly higher prices.

Round glass towel bars, \$2.00

Adjustable glass towel shelves, \$3.50, \$4.00, \$6.00

We also sell plate glass with polished edges for table tops, any size, and glass push plates for use in fine residences and apartments, manufacture and re-silver mirrors, etc.

CATALOGUE SENT FREE ON APPLICATION

Geo. H. Anderson & Co.

Manufacturers and Jobbers of Plate Glass Specialties

281-291 W. Superior Street - - CHICAGO



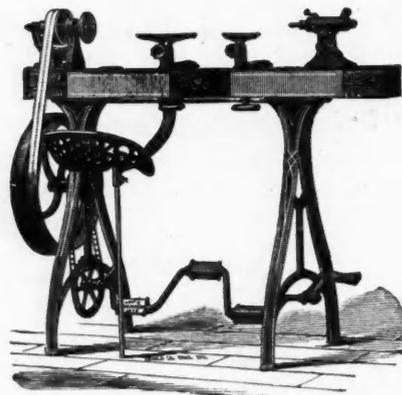
STARRETT

Universal Scraper

Eight sharp cutting edges. Instantly adjusted by ball joint connection. Blade may be instantly set at any angle. Neatest and best scraper made.

Send for free Catalogue No. 186

The L. S. Starrett Co. Athol, Mass. U.S.A.



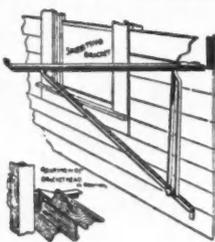
COMPLETE OUTFIT

Hand and Foot-Power MACHINERY

Our No. 3 Wood Turning Lathe can be speeded from 1,000 to 2,000 revolutions a minute with perfect ease. Stopped or reversed at will of operator.

Write for Particulars

W. F. & Jno. Barnes Co. 74 RUBY ST., Rockford, Ill.



Save 1/2 Cost on First Job

Builders' Folding Steel time and lumber, are brackets. Less trouble and are practically

Also Folding Steel

Made entirely of steel. Removed instantly.

Guaranteed to carry all weight necessary for cornice, shingling and other work of like character.



Scaffold Brackets save safer than old style wood to put up and take down unbreakable.

Shingle Brackets.

Can be used forever. Always ready.

Folds up like jack knife.

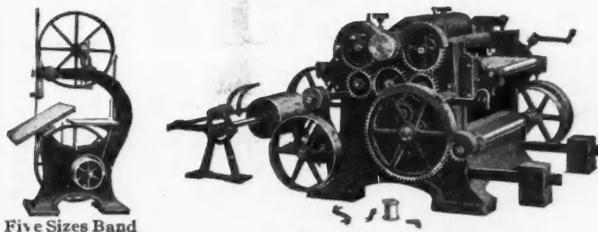
Reasonable in price.

Agents wanted in every town.



Builders' Supply Co., Majestic Bldg., Detroit, Mich.

Agents Wanted



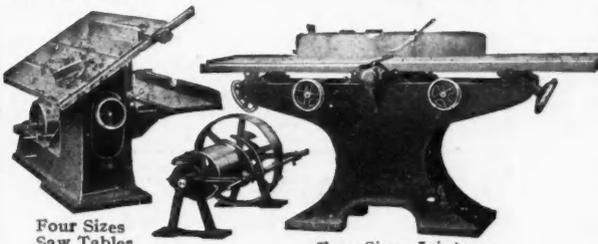
Five Sizes Band Saws.

Three Sizes Planers.

Where rapid, accurate work is required
CRESCENT WOOD-WORKING MACHINES
 always give satisfaction.

Ask for our catalogue of
 Band Saws, Saw Tables, Jointers, Shapers, Borers,
 Swing Saws, Disk Grinders, Planers, Planer
 and Matchers, Variety Wood Workers,
 Band Saw Blades

The Crescent Machine Co.
 224 Main Street Leontia, Ohio, U. S. A.



Four Sizes Saw Tables

Four Sizes Jointers.

Free Trial Weber Floor Scraper

The Weber Double Acting Floor Scraper is guaranteed to do more and better work than any other machine of its kind made. This is not an empty claim. It is **guaranteed**. And so strong is this guarantee that we will send the Weber Double Acting Floor Scraper to you on **free trial**, without one cent down, to try as you like. Let the scraper talk for itself



Weber Cabinet Scraper and Sandpaperer.
 The handiest device of its kind ever made. Operator has perfect control of it at all times and under all conditions. Price \$1.50. For sale by your dealer or direct, postage prepaid.

Send for our latest literature on this subject—it tells you about its many valuable features and how you can prove for yourself that the Weber is the only machine for you.

**JOHN F. WEBER, President,
Weber Manufacturing Co.**

670 71st Ave., West Allis,
Wisconsin.



The Weber Automatic Sharpening Device enables the operator to sharpen a blade without removing it from the machine. The blade can't be sharpened at a wrong angle—so simple a child can use it.

The Floor Scraper

Five Days Free Trial

As a duty to yourselves you are asked to test this machine before you spend a cent on floor scrapers. A postal stating you will use the star for five days brings one to your door. We want you to be the judge of the best floor scraper. We want you to be thoroughly convinced of Star superiority.

***We pay the Freight**
 Particular literature on request

THAT'S ABSOLUTELY PERFECT

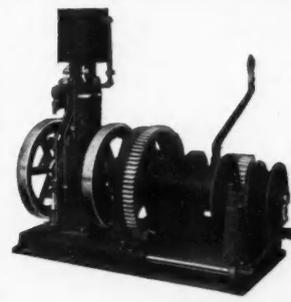
Of all the floor scrapers on the market not one can be quite as good as the Star, because no other embraces such durable features.

There's practically nothing about it to wear out. Consider the benefit obtained by the new mechanical principle. The principle that means better work and quicker.

The Star does **clean** work. A patented Ball and Socket device allows the blade to be set diagonally at any angle. This gives a shearing cut to the machine. It means a finished floor **free from planer marks and "waves."** It works the same on old floors as it does on new.

Star Scraper Co. - Elkhart, Ind.

EVERY CONTRACTOR AND BUILDER

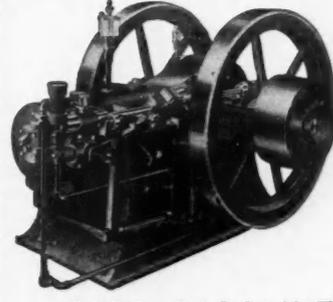


should know about our **Hoist** direct connected with **Gasoline Engine** for use with **Double Platform Material Elevators**. We furnish **Hoist** and **Elevator** complete ready to run. This outfit will elevate more building material at a less cost than by any other known method. Our Bulletin No. 5 will give you all particulars.

BATES & EDMONDS MOTOR CO. LANSING, MICHIGAN

THE FOSS GASOLINE ENGINE

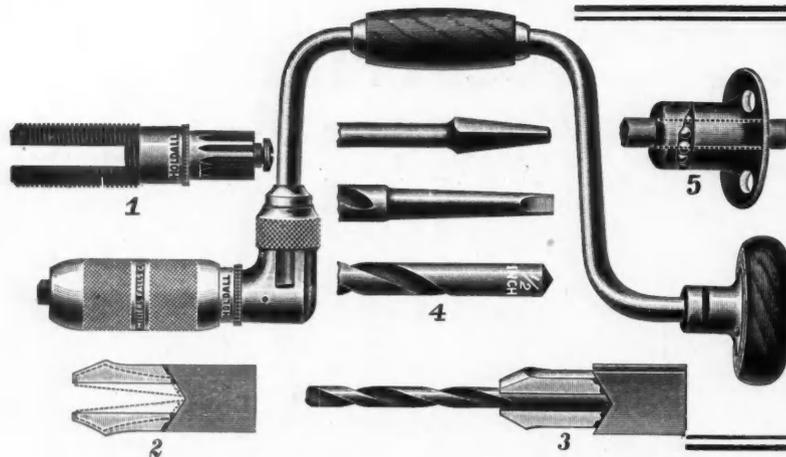
DIRECT TO YOU



We save you from 25 to 40 per cent on the Highest Grade Gas or Gasoline Engine.

Write for Price List and Catalogue.

FOSS GASOLINE ENGINE CO.
 754 Portage Street KALAMAZOO, MICHIGAN, U. S. A.



The HOLDALL BRACE

IT'S NEW and has jaws which adjust themselves to the shape of the shank. They grasp and hold securely straight, tapered, round and square shanks. The sleeve is correct in shape for comfort to the hand and to obtain the firmest grip. Every part of the Brace is made with greatest care. We say without hesitation that the Holdall is the most perfect tool of its kind yet offered. Made in usual sizes, with 8, 10, 12 and 14 inch sweep. Ask for circular giving further description.

Millers Falls Company
28 Warren Street, NEW YORK

CONTRACTORS' Portable Combination Woodworker

GAS, GASOLINE or ELECTRIC POWER

- Rip Saw
- Cut-off Saw
- Jig Saw
- Dado Head
- Molder and Shaper
- Jointer
- Sander
- Boring Machines
- Emery Wheels

A practical machine for every contracting builder, jobbing shop, cabinet maker, etc., combining nine machines, so assembled that they do not conflict. Large table surface. The power, 4-H. P. Engine, is rigid in the frame and machine can be used in the shop or on the job.

We Furnish Machine, Engine and Tools Complete.

Send today for circular fully describing the best combination woodworker ever built.

Used by Contractors, Lumber Yards and Railroads Everywhere

C. A. & F. G. Diffin
Builders' Exchange
PHILADELPHIA, PA.

Hotel Euclid

Euclid Avenue and East 14th Street
Cleveland, Ohio

OFFICIAL HOTEL
of the AMERICAN
MOTOR LEAGUE

300 Rooms ∴ European Plan
Rates \$1 to \$4 Per Day

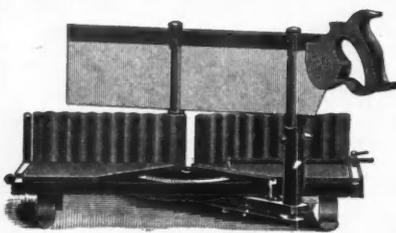
Headquarters for Auto Tourists

Many of the leading garages located
within one block of the Hotel

HOTEL EUCLID CO.

FRED. S. AVERY, President

GOODELL MITRE BOX Made of STEEL - Cannot Break



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

GOODELL MFG. CO., Greenfield, Mass.



This DUMB WAITER

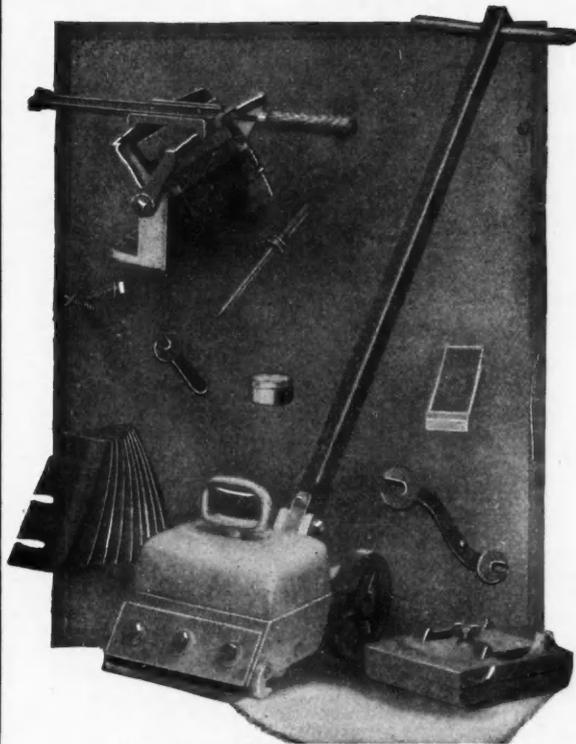
complete ready to erect for - **\$18.50**

SELF RETAINING MACHINE
HARDWOOD CAR
SECTIONAL WEIGHT
ROPE, GUIDES, HARDWARE,
knocked down and shipped with the only complete directions for erecting ever issued

SEND FOR SPECIAL PAMPHLET

R. M. Rodgers & Co.
174 Washington Av., BROOKLYN, N. Y.

WHY BREAK YOUR BACK



THE ACME FLOOR SCRAPING OUTFIT

In scraping a floor by hand when a complete floor scraping outfit can be had that will do the work perfectly and in one quarter of the time?

Let me demonstrate these facts by sending the

ACME FLOOR SCRAPING OUTFIT TO YOU ON A WEEK'S FREE TRIAL

By accepting this offer you will have an opportunity to fully test the merits of the several machines and if the same do not do all that I claim and do not meet with your approval, send them back at my expense. No "if's" or "and's" to this offer. It is simply a proposition which allows you to fully investigate the article you intend to buy before you invest your money.

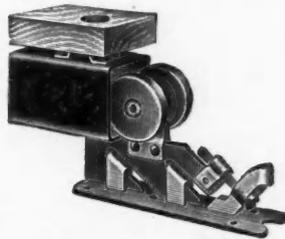
Booklet and further information will be sent on request,

JOSEPH MIOTKE

247 Lake St. MILWAUKEE, WIS.

Richards "Hero"

Trolley House Door Hanger



PROBABLY THE BIGGEST
SELLER ON THE MARKET

Noiseless fibre wheels. Wood header furnished with track and is easily put up. Adjustment in both hanger and track. Track can be taken down after walls are plastered. Runs smoothly and quietly. A favorite with contractors.

SOLD BY THE HARDWARE TRADE

THE RICHARDS MANUFACTURING CO., Aurora, Ill.

Send for Complete Catalog

The Union Floor Scraper

Price \$35.00

A money maker for the contractor and a satisfied customer every time a floor is scraped.

The Union will pay for itself in two days.

SENT ON
APPROVAL

GEO. J. BACHMANN

No. 501 Lyon St.
Grand Rapids, Mich.



WE
PAY THE
FREIGHT

"Little Giant" Floor Scraper

Sent on Free Trial
20,000 "Little Giants" are in use

throughout this country and abroad. These were purchased because they were better; because they did more work—did it quicker, cleaner and cheaper—than any other machine made. So great is our faith in its ability to prove its worth to you that we are making the following liberal proposition.

Special Terms

A request from you brings a "Little Giant" to your door—you send no money and we pay all expenses. After you have tested it as thoroughly as you know how, and have found it satisfactory, pay for it. If you don't consider it the best floor scraper in existence, return it at our expense. That's all. Won't you give it this chance today?

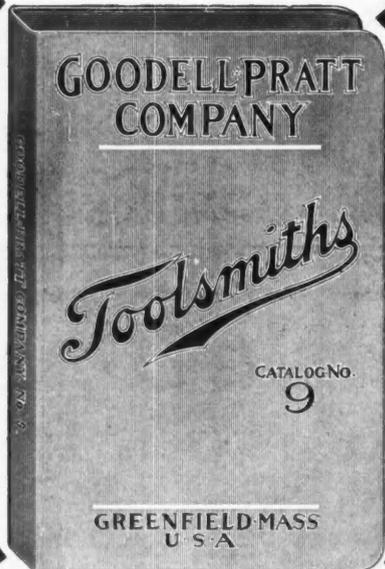
CATALOG AND FURTHER DETAILS ON REQUEST
HURLEY MACHINE COMPANY,

155 South Jefferson Street, CHICAGO
71 First Street, SAN FRANCISCO
1010 Flatiron Bldg., NEW YORK



TOOL CATALOG FREE

Every Carpenter should have one.
A postal brings it.



GOODELL-PRATT'S NEW No. 9.

CATALOG CONTAINS 272 PAGES,
ILLUSTRATING AND DESCRIBING
USEFUL AND LABOR-SAVING TOOLS

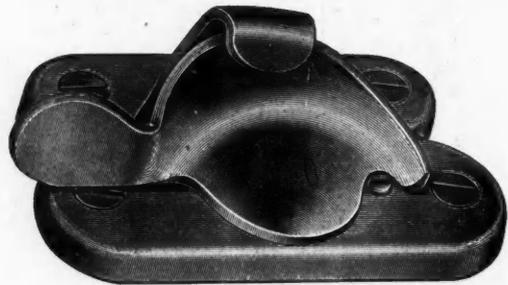
In this edition we are showing a number
of new items which everyone should know
about.

Goodell-Pratt Company

Toolsmiths

Greenfield, Mass., U. S. A.

MONITOR SASH LOCKS



(PATENTED)

NEVER BREAK

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

If the upper sash 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

GRAND RAPIDS

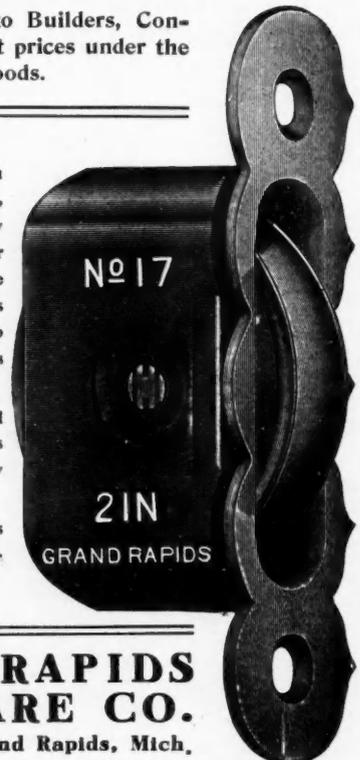
All-Steel Sash Pulleys

Are sold DIRECT to Builders, Contractors and Mills [at prices under the common ordinary goods.

If you make ten or ten thousand window frames, we can save you money and give you a superior sash pulley. We are the largest sash pulley makers in the world. We ship direct, or through dealers and jobbers everywhere.

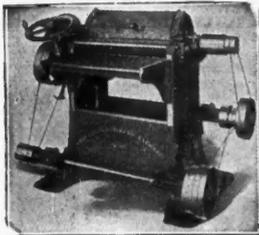
Write for catalogue and free samples and prices on gross, barrel, or any quantity.

Direct from the makers to you. Inquiries welcome.



GRAND RAPIDS HARDWARE CO.

34 Pearl St., Grand Rapids, Mich.



Chicago No. 35 Pony Planer

Machines for Contractors



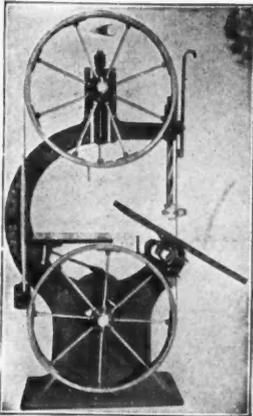
Chicago Hand Jointer
8, 12 and 16 in.

Every carpenter and builder can afford to invest in one, or more, of these machines. From our stock of 500 new and rebuilt machines contractors can obtain sufficient machinery to make them independent of local mills and their attendant delays and high charges. Stop paying somebody else profit—put it in your own pocket. Be in a position to estimate under competitors. You can do this by installing your own machinery. All our machinery is of special construction to secure fine finished surfaces and to reduce sandpapering to a minimum.

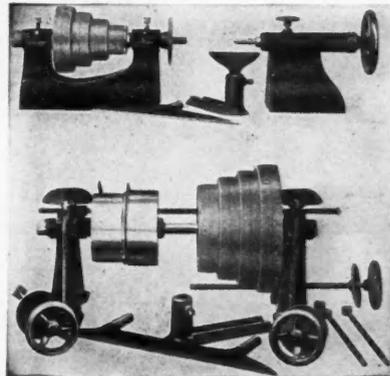
Prices are lower than you think. Send today for our monthly list of rebuilt machines (free to carpenters and builders).

Chicago Machinery Exchange

7-11 No. Canal Street, CHICAGO



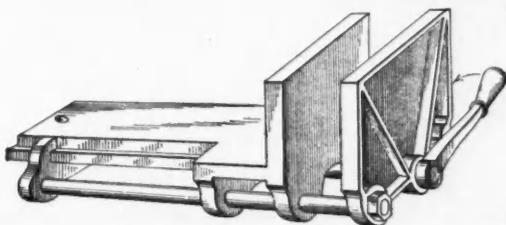
Chicago No. 1 Band Saw
27, 32 and 36 in.



Wood Turning Lathe and Countershaft
16 and 20 in.



Chicago No. 10 Tilting Table
Improved Variety Saw Bench



Massey's Parallel Bar Vises

(Patented)

The sliding bars are supported at their rear ends by a carrier traveling on the ways of the stationary jaw, making the vise rigid and unbreakable. Positive Lightning Grip.

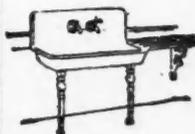
MASSEY VISE CO.

9 & 11 West Michigan St.

Chicago, Illinois

Everything in Plumbing and Steam Goods at Cut Rates to Everybody

SAVE YOU 30 TO 45 PER CENT



\$8.50 and up

This Magnificent Enamel one piece Sink. Latest design.



\$7.50 and up

Artistic Lavatories. Various designs.



\$10.95 and up

Luxurious Enamel Bath Tub of guaranteed quality. Will wear forever.



Superb Bath Room Outfit. None better at any price. **\$35.00**



\$3.00 and up

Laundry Tubs all styles and sizes.



Low-down and high combination Closets. Guaranteed to be equal to the best in the market. Use d in the most palatial homes. **\$11.50**

HEATING PLANTS.

Let us make you an estimate on a heating plant. With instructions from our engineering department, you can install it yourself. Simple and safe as a stove. No expense after once installed. The only healthful economic method of heating your home. Plans free. Tools loaned. Boiler only



\$65.00 and up

JOHN HARDIN CO., One-Quarter Century at **4549 Cottage Grove Avenue, Chicago**

Send for Catalog A, Dept. 13

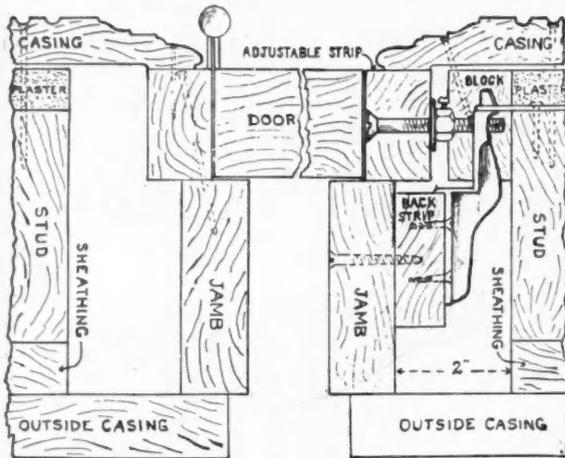
A Swell Head and A Swell Door

are both pretty stiff propositions, but the latter is a mere trifle when you have

The Taylor Door Jamb Adjuster

A few turns of the screws make a perfect fit, whether the door swells or shrinks.

Send for folder explaining this cut.



JAMES L. TAYLOR MFG. CO., - Bloomfield, N. J.

Carry
A Ton,
Last
A LIFETIME—

A pair of our smallest size

Wall Brackets.

There isn't room here to tell you how cheap or how convenient they are.

Write for Catalogue and Special Trial Offer.

ARE YOUR CLAMPS GIVING BEST RESULTS?

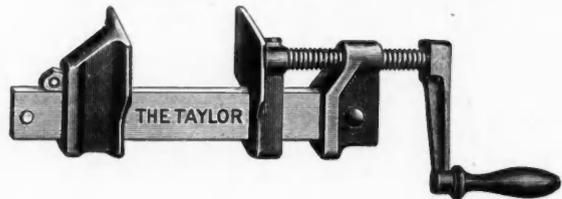
Do you know about our improved gripping device?

It Saves Time;

The special grade of steel we use?

Our Clamps are warranted unbreakable in use!

Catalogue showing 19 styles sent on request.



"OHIO" CHISELS

Are made from a High Grade of Tool Steel, Skillfully Treated, Correctly Tempered, Accurately Ground.



Every "Ohio" Tool is fully warranted. They have been on the market a great many years and the experienced mechanic who does not care to take any chances on tools of doubtful quality always insists on having "Ohio" Tools from his dealer. He knows them to be good tools, with keen and tough cutting edges.

Look for this trade mark when buying Planes, either Iron or Wood, Chisels, Drawing Knives, Auger Bits, Gouges, Spoke Shaves, Bench and Hand Screws, Cabinet Makers' and Manual Training Benches, Etc. Write for our Catalogue No. A, if you are interested in GOOD TOOLS.



Registered **OHIO TOOL CO., Columbus, Ohio**

PARKS' COMBINATION WOODWORKING MACHINES

Make a Complete and Economical Operating Mill for Carpenters and Contractors

Take our No. 410 for instance—here is a Combination of Three Machines in One—

A Table Circular Saw
A Six-Inch Joiner and Boring or Routing Attachment

Ready for Instant Use
No line shafts and large amount of floor space required.

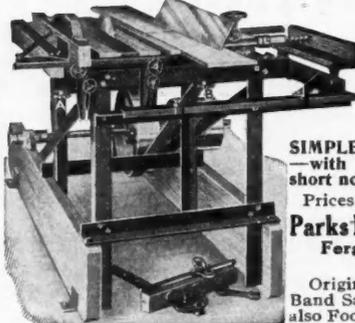
SIMPLE—STRONG and Ready-to-Go—with little power. We deliver on short notice.

Prices and Catalogue on Request.

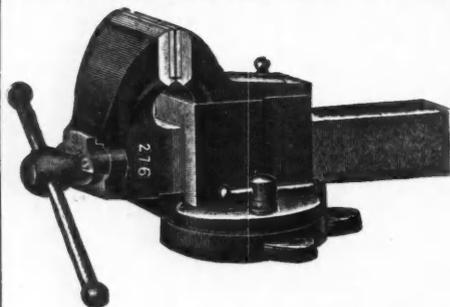
Parks Ball Bearing Machine Co.

Fergus and C. H. & D. Ry., CINCINNATI, O.

Originators of the Circular Saw, Band Saw and Jointer Combination, also Foot and Hand Power Machines.



PARKER VISES



MADE
ESPECIALLY
FOR WOOD
WORKERS

FOR SALE BY
DEALERS

SEND FOR
CATALOG

CHAS. PARKER CO.
MERIDEN, CONN.

SELF-SETTING PLANE

No plane like it. See this paper for December, pages 261, 320 and 322, for facts and large pictures. This advertisement authorizes any dealer to sell

THE BEST IS THE CHEAPEST.

None Cheap but the Best.

All Want the Best

Sent on 30 Days' Trial as per Circular, if Dealers do not keep it



SECTIONAL VIEW—showing ADJUSTABLE IRON THROAT.

return you the entire amount you sent us and the trial won't cost you a nickel. This paper guarantees that we will do as our advertisement says. You run no risk. If there is any, we take it. July 1, 1909.

GAGE TOOL CO., Vineland, N. J.

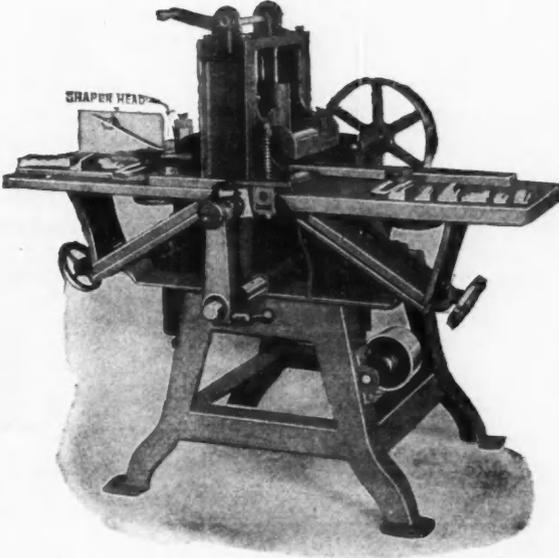


The World's Famous Line of Wood Working Machinery



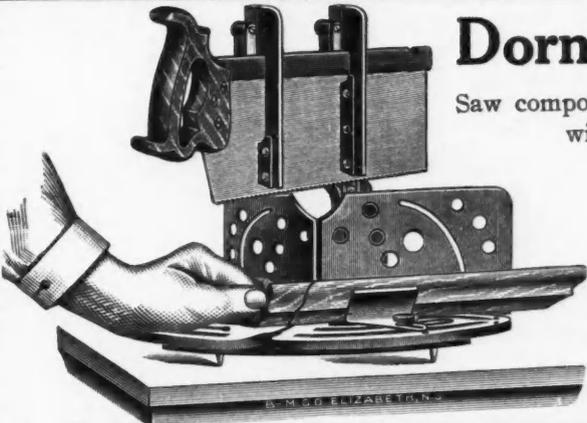
The accompanying cut shows the **FAMOUS UNIVERSAL WOOD WORKER EQUIPPED WITH OUR NEW PATENT APPLIED FOR POWER FEED PLANER**, which is made in both the 10" and 12" sizes. The 10" size will plane to a thickness of 4", and the 12" to a thickness of 6". Will do identically the same work as the regular standard pony planer.

Write us for particulars.



We also build **BAND SAWS, JOINTERS, SAW TABLES, SHAPERS, PLANERS, TURNING LATHES, SWING SAWS, and POST BORERS.**

SIDNEY TOOL COMPANY, Sidney, Ohio, U. S. A.

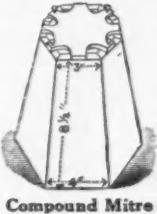


Dorn's Revolving Mitre Box

Saw compound as well as plain mitres any width with a back saw 4 inches wide

SEND FOR BOOKLET
IT TELLS THE STORY

MANUFACTURED BY
Braunsdorf-Mueller Company
1093 E. Grand Street, ELIZABETH, N. J.



Compound Mitre

PUMPS, DOOR-HANGERS, STORE LADDERS

The Pump That Pumps

MYERS

Glass Valve

Myers Stayon Flexible Door Hangers

with steel roller bearings, easy to push and to pull, cannot be thrown off the track — hence its name — "Stayon." Write for descriptive circular and prices. Exclusive agency given to right party who will buy in quantity.

F. E. MYERS & BRO.
Ashland, Ohio.

Double-acting, Lift, Tank and Spray

PUMPS

Store Ladders, Etc.

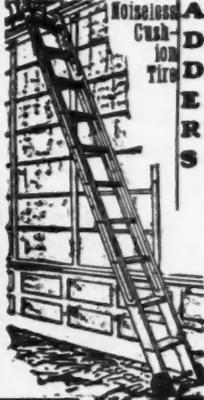
Hay Tools

of all kinds

Write for circulars and prices.

Noiseless Cushion Tire

LADDERS



DUMB WAITERS AND HAND ELEVATORS

OF THE MOST IMPROVED AUTOMATIC CONSTRUCTION

INVALID LIFTS

TRUNK, CARRIAGE, SIDEWALK AND FREIGHT ELEVATORS

SEDGWICK MACHINE WORKS

POUGHKEEPSIE, N. Y.

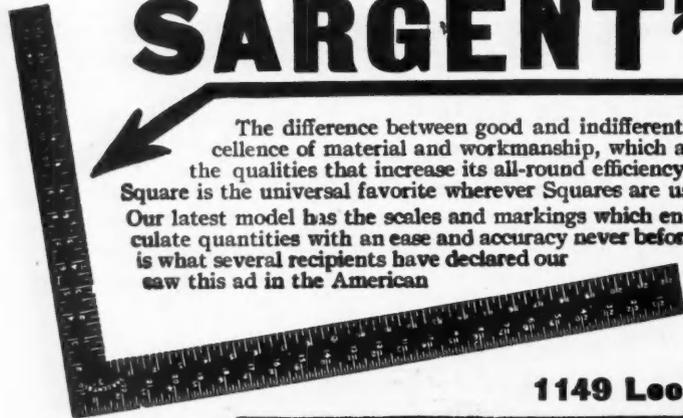
AND

128 LIBERTY ST. NEW YORK

CATALOGS AND ESTIMATES FURNISHED
SEE SWEET'S INDEX



SARGENT'S IMPROVED STEEL SQUARE



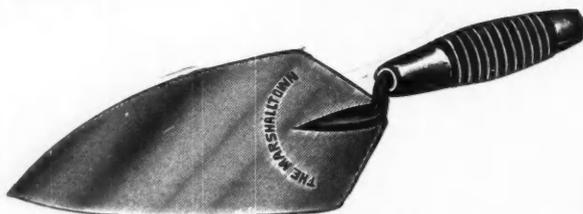
The difference between good and indifferent Carpenters' Squares lies in something more than excellence of material and workmanship, which are, of course, among other "Sargent" features—it is in the qualities that increase its all-round efficiency. That is why the practical "Sargent" Standard Steel Square is the universal favorite wherever Squares are used. Our latest model has the scales and markings which enable the carpenter to lay out all kinds of work and to calculate quantities with an ease and accuracy never before thought possible. "A practical treatise on Steel Square" is what several recipients have declared our little publication. Copy free simply by mentioning you saw this ad in the American Carpenter and Builder.

Sargent & Company
New York

1149 Leonard Street

The Best Ever

You Will Never Regret Buying One

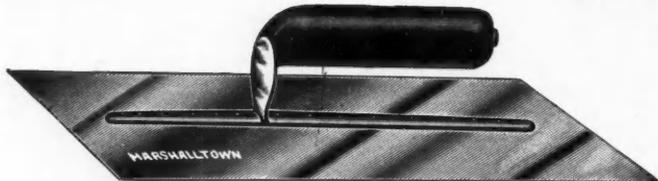


Wide Heel Brick Trowel
Made of Best Quality Crucible Trowel Steel.
Leather Handle.



Philadelphia Pattern
Best Quality Crucible Trowel Steel.
Wood Handle.

Send For
Catalogue



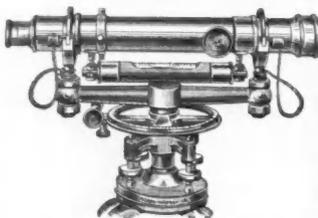
Send An
Order

Genuine Marshalltown Trowel

Straight Edges Always. Best Quality Spring Steel Blade. Hardened Mounting
Ten Rivets. Imitated because they are good.

Marshalltown Trowel Co., - - Marshalltown, Iowa

"Sterling" Transits and Levels



Fully 75 per cent of the Phila. Engineers who have purchased Transits or Levels this season selected "STERLING" Instruments.

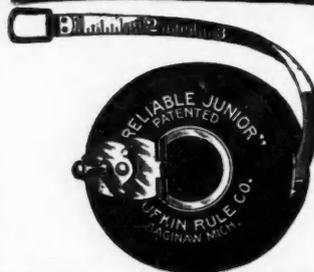
Because, after inspecting our Factory and making a personal field test, they were convinced that "STERLING" Transits and Levels are without a fault.

Send for 225 page Illustrated Catalogue of Surveying Instruments, Engineering and Drafting Supplies.

ISZARD-WARREN CO., INC.

1122 Vine Street. :: Philadelphia, U. S. A.

LUFKIN STEEL TAPES and RULES



ARE INDISPENSABLE FOR ACCURATE WORK

MADE BY
The Lufkin Rule Co.
Saginaw, Mich., U. S. A.
New York London

For Sale Everywhere.
Send for Catalogue.



"DIAMOND"



The Brand to Demand



**No. 4.
Finished
in Gold.**

Pat.
Feb. 5, 1907

"Diamond" Hay Carriers are built for service — are easy to operate and are absolutely positive in action.

They are built of selected material by mechanics having years of experience in this line of work, and before leaving our factory are given severe tests and are carefully inspected.

This not only insures a perfect Carrier, but also a perfect working Carrier, and one that will stay right after it goes in the barn.

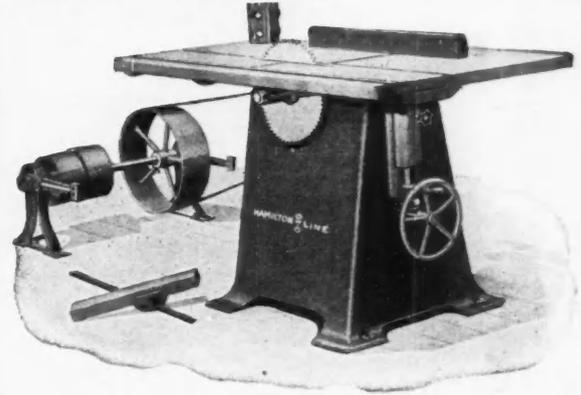
The "Diamond" Hay Tool line is complete and includes Carriers for Steel and Wood Track, Steel Track, Forks, Slings, Pulleys, and other sundries.

Write for Catalogue No. 70, giving complete description, and other useful information.

THE WHITMAN & BARNES MFG. CO.
120th Street, CHICAGO, ILL.

HAMILTON—OHIO—LINE No. 103

This machine, with or without boring table, is especially designed for a great variety of operations, such as joining, smoothing, planing out of wind, squaring, beveling, tapering, rabbetting, gaining, plowing, cornering, beading, mitering, tenoning, panel raising, hand matching, molding rip and crosscut sawing, boring, etc.



Hamilton Universal Jointer and Saw No. 103.

It is quickly arranged without material change for rip and crosscut sawing, planing, matching, joining, panel raising, tenoning and boring, and a variety of other operations, such as above mentioned, conveniently performed.

See our advertisement on page 147, May issue, and page 277, June issue, of this paper.

For further information and prices, address
THE BENTEL & MARGEDANT CO.
HAMILTON, OHIO.

Storm Sash and Screen Hanger No. 1



The time is drawing near at hand when carpenters and builders begin putting up storm sash and it might be well to say that the **best and most convenient** goods are always the cheapest in the end.

We make the only Ball and Socket Hangers on the market. One trial will convince you that they are the best.

Our **No. 1 Fastener** is made of the best steel wire. It holds the Sash firmly against the bling stop and prevents rattling.

MANUFACTURED BY THE
DIEHL NOVELTY CO.
SHEBOYGAN, WIS.

Storm Sash and Screen Hanger No. 2





THE NEW SASGEN Circle Swing Derrick

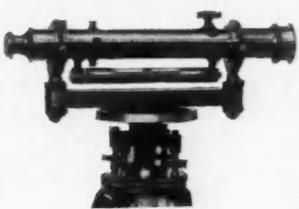
Light in weight, speedy in operation, all malleable castings; weight 250 lbs., CAPACITY 1000 to 1500 LBS.

Manufactured by
SASGEN BROS.
2744 Lincoln Ave.
(Old No. 665.)
CHICAGO, ILL.

\$35.00

Fully equipped. Ready for use
F. O. B. Chicago.
Sold on trial to all reliable contractors. Our catalogue is FREE for the asking.

IMPROVED LEVEL



The newest and most accurate level for Contractors, Engineers, Builders, etc. Every instrument is absolutely guaranteed. **Write Today** for descriptive circular and get details of the special introductory offer we are now making.

DAVID WHITE CO.,
419 East Water St., Milwaukee, Wis.



Here is a Gimlet

Equal in quality and usefulness to any Brace Bit

HANDLE OF
SELECTED
COCOBOLO
WOOD

THREE SIZES ONLY
Cutting 4-32, 6-32, and 8-32 Holes

Price Postpaid **15 cents** each

H. H. MAYHEW COMPANY
SHELBURNE FALLS, MASS.

GRILLES



COLUMNS AND CONSOLS

In quality and price our work is not surpassed.

You will make no mistake in writing us before ordering elsewhere.

Send for 48-Page Catalogue No. 15

It contains many fine designs of modern Grilles Columns and Consols.

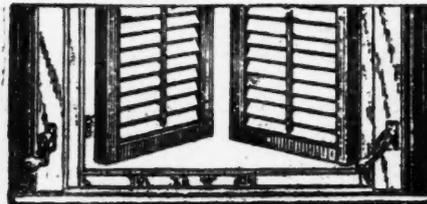


Consol Design No. 1.

Northwestern Grille Works

CHRISTENSEN BROS., Props. 1452 Milwaukee Ave., Chicago

MALLORY'S



Standard Shutter Worker

New and improved patterns and designs.

Opens and closes the blinds without raising the window. Automatically locks the blinds in any position desired. Made of gray and malleable iron. The best and most durable blind hinge. Incomparable for strength, durability and power. Can be applied to old or new houses of brick, stone or frame. Send for Illustrated Circular. If your hardware dealer does not keep them send direct to MALLORY MANUFACTURING CO. 204 Flemington National Bank Building. FLEMINGTON, N. J.

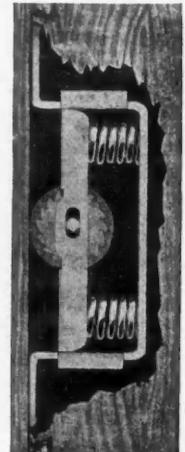
DON'T PUT SASH WEIGHTS IN YOUR WINDOWS—THEY ARE OUT OF DATE The "AUTOMATIC" SASH HOLDER

The "Automatic" Sash Holder is the new, modern, up-to-date device that dispenses with cumbersome sash weights, kinking cords or ribbons, useless weight pockets, misfit pulleys and reluctant balances, and saves all the time, labor and expense of fitting them in place.

Prevent rattling and permit the window to be moved up and down with ease. Hold it safely at any point desired.

A sample set of four sent, postpaid, for \$1.20. Ask your dealer, or write to us direct.

Automatic Sash Holder Company
277 Broadway, New York City.



The "UNIVERSAL" ADJUSTABLE HANGER

can be used anywhere. It forms a perfect, practicable lock; sash hung with it cannot be opened or removed from the outside; it cannot be blown open by storms; makes practicable the only substitute for the half-sash sliding screen; is sold in sets, half sets, or in any other way the trade demands; indestructible; will outwear a dozen screens.

Ask your hardware dealer or write for free sample and catalog.

The ADJUSTABLE HANGER CO.
415 Huron St. Toledo, Ohio, U.S.A



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

"SILVER LAKE"

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



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

BURLINGTON

Venetian and Sliding BLINDS Screens and Screen Doors



Venetian Blind for inside window and outdoor veranda. Any wood; any finish to match trim.

Equal 500 miles northward. Perfect privacy with doors and windows open. Darkness and breezes in sleeping rooms. Write for our catalogue, price list and proposition to you.



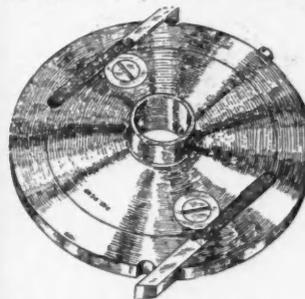
Sliding Blinds for inside use. Require no pockets. Any wood; any finish.

BURLINGTON VENETIAN BLIND COMPANY
341 Lake Street, Burlington, Vermont

THE ROSS IMPROVED

SASH COPING HEAD

SAVES FOUR OPERATIONS



A great labor saving device in making sash, cutting the straight, bevel, or mould mortise by merely adjusting the bits, entirely eliminates the operation of removing Coping opposite Tenon Mortise, thereby saves moving material from one machine to another. Cuts mortise up to 2 1/4 inches. Saves one-half the time in making sash. Used on top coping mandrel.

If you are at all interested send for this head at our expense on ten days' trial. It will pay for itself in that length of time. In ordering state size of mandrel.

UNIVERSAL MFG. CO. 310 Nevada Bldg. Cincinnati, Ohio

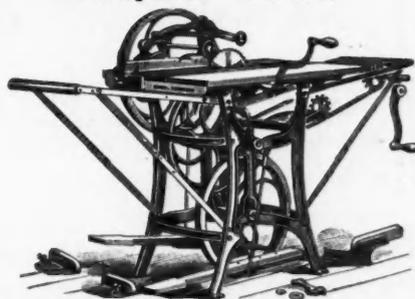
WOOD-WORKING MACHINERY

FOR WORKING WOOD IN ANY MANNER

Complete Outfits



"Victor" Scroll Saw



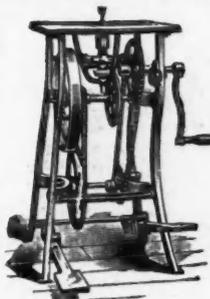
No. 5 "Union" Self Feed Rip and Cross-Cut Saw



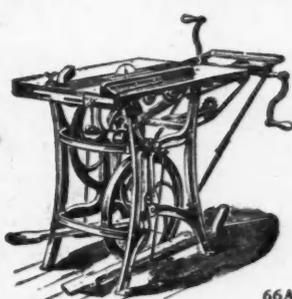
"Diamond" Mortiser



No. 3 "Union" Power Saw



"Rex" Moulder



No. 6 "Union" Combination Saw

Carpenters, builders, cabinet-makers and wood-workers generally can successfully compete with the large shops by using our labor saving machinery. With any one of our machines one man will do the work of four to six men using hand tools.

They are built for hard work, accurate work and long service.

Each machine is carefully tested before leaving factory. We guarantee them to give entire satisfaction, and they may be returned at our expense, if, after ten days' trial you prefer your money back.

Ask for Catalog "A"

THE
Seneca Falls Mfg. Co.,

218 Water Street
SENECA FALLS, N. Y., U. S. A.



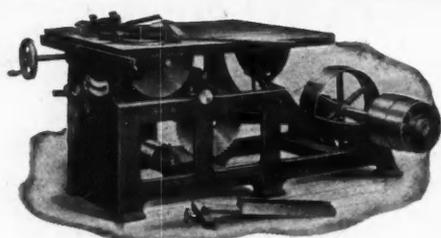
Cast Iron Gutters Last

other gutter. Not affected by acid fumes that in some vicinities play hob with all other metal gutters. They are adaptable to any kind of building or type of construction.

Easily put up. Once up, always up. Do not bend or break by pressure of ladder against them. Will stand greater weight of snow or accumulation of ice than any other gutter. Cast with moulded face to form part of cornice, or rounded to serve as a hanging gutter. Used almost exclusively in England and all over Europe. Supplied in 6 feet lengths. Joints fitted ready to erect. No soldering required. Send at once for circular and prices.



HITCHINGS @ COMPANY, Elizabeth, N. J.



No. 341-A Saw Bench

The Value of a Modern Saw Bench

Take a look over this Saw Bench. It has two arbors—both can be fitted with saws, or one with a dado head. A few turns of a hand wheel will bring either in operation and can be stopped in any desired position. The design of these machines is simple. They are rigid in construction, easily manipulated, have durability of wearing parts and will produce a volume of output and accuracy of work greater than any others. Modern conditions call for modern methods. For full particulars write Smith.

[H. B. Smith Machine Co.

[Smithville, N. J., U. S. A.

New York

Chicago

Atlanta

Memphis

ROTHMOTORS

ARE UP-TO-DATE CREATIONS

Look at this Modern,
Direct Connected

MOTOR DRIVE BAND SAW

Can YOU conceive of
anything bet-
ter?

We have En-
gineers who
KNOW HOW

Can be fitted
to your Band
Saw.



ROTH BROS. & CO.
1422 W. ADAMS ST. CHICAGO
136 LIBERTY ST., NEW YORK

FAR AHEAD for smooth, easy work and holding edge will be YOUR VERDICT ON TRYING

CHAPLIN'S IMPROVED PLANES

Patented Feb. 14, 1899; Dec. 30,
1900; Dec. 24, 1902

We invite the
Severest
Comparative
Tests



We want you to have a copy of
our booklet

"A 'Plane' Talk About
a Good Plane!"

We want you to have a copy,
for it is a booklet you really need
in your business.

We'll gladly send you this
booklet with our compliments,
promptly upon receipt of your
request.

Tower & Lyon Company, 95 Chambers Street, New York

“DEFIANCE” HIGH GRADE

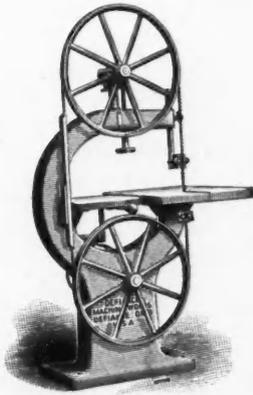
Wood-Working Machinery

Invented and Built By

**The Defiance Machine Works
Defiance, Ohio**

For Manufacturing General Wood-Work

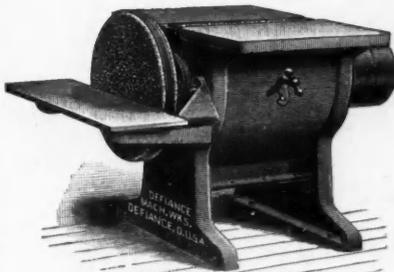
Also Special Machines for making Hubs, Spokes, Wheels, Wagons, Carriages, Automobiles, Rims, Shafts, Poles, Neck-Yokes, Singletrees, Hoops, Handles, Spools, Bobbins, Insulator Pins, Balusters, Table Legs and Wood Dishes.



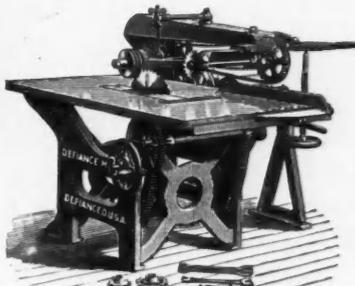
28" Band Saw



12" Hand Feed Planer with or without Boring Attachment



Drum and Disc Sander



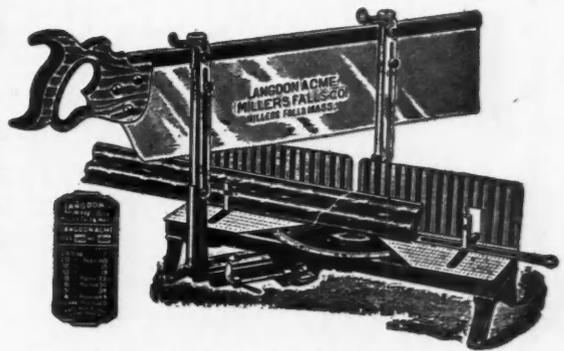
No. 3 Power Feed Rip Saw



24" Single Surface Planer

ARE YOU INTERESTED IN MITRE BOXES?

If you are, it will pay you to investigate the **LANGDON ACME**. It has all of the advantages of any other box and several that others do not have. They are made in three sizes and put up with varying lengths of saws.



MILLERS FALLS COMPANY

28 WARREN ST., NEW YORK, and MILLERS FALL, MASS., U. S. A.

Ask for Catalogue giving full description.



PERFECTION ELEVATORS

ARE "BEST BY EVERY TEST"

For PASSENGER or FREIGHT SERVICE in Factories, Stores and Dwelling Houses.

Our Elevators are noted for their Easy Running and Serviceable Qualities. They are practically self contained and can be erected by any carpenter in a few hours. We furnish Plans for erecting. When writing, state your requirements.

Sidney Elevator & Mfg. Co., Sidney, O.

For Quick Work
“YANKEE” Drill No. 44
With Adjustable Spring—Saves Drill Points



*Have you seen
 all our New Tools?*

Get our Tool Book full of new ideas in reliable time and labor-saving tools for all classes of mechanics. Illustrated with photographic reproductions of the tools in use. It's worth having. FREE to mechanics who mention the "American Carpenter and Builder."

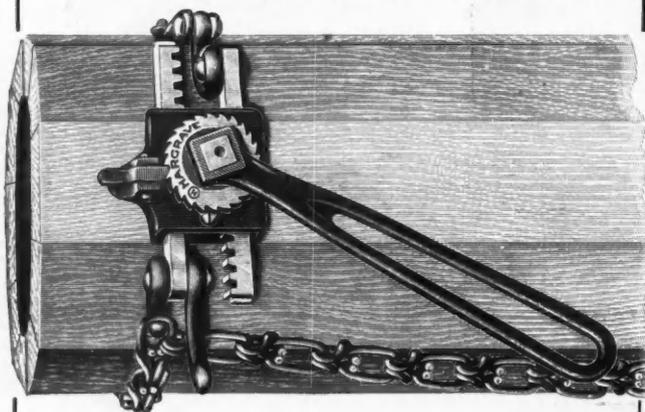
Quickly adjusted to the proper tension for hard or soft woods, or the 8 different Drill Points furnished with each tool. No other Drill made has this feature. A very handy and reliable tool. Just the thing for awkward places. Strong and durable. Weighs only 11 oz.

All hardware dealers sell "Yankee" Tools
NORTH BROS. MFG. CO.
PHILADELPHIA, PA.

Stop! Look! Listen!



COLUMN CLAMP



**MOST PRACTICAL, QUICKEST ADJUSTED
 ON THE MARKET**

Write for Circular Price \$2.00 each

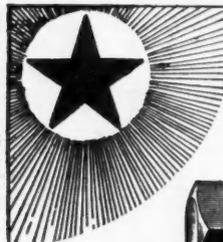
Department H,
The Cincinnati Tool Co.
 NORWOOD, CINCINNATI, OHIO

PHOENIX
 INSIDE SLIDING **BLINDS**

WILKES BARRE, PA.

The Phoenix Sliding Blind Co.
 Enclosed find my check for blinds. I am pleased with them and sorry I did not have them put throughout the whole house.
 C. W. MILLER.

Comfort! The lately improved springs and corrugated steel rods put the "PHOENIX" far in lead of less improved styles. Write for Catalogue "C" and free samples, showing construction.
Economy!
Convenience! PHOENIX SLIDING BLIND CO.
 BRIDGE & CANAL STS. PHOENIX, N. Y.



**EXPANSION
 BOLTS**



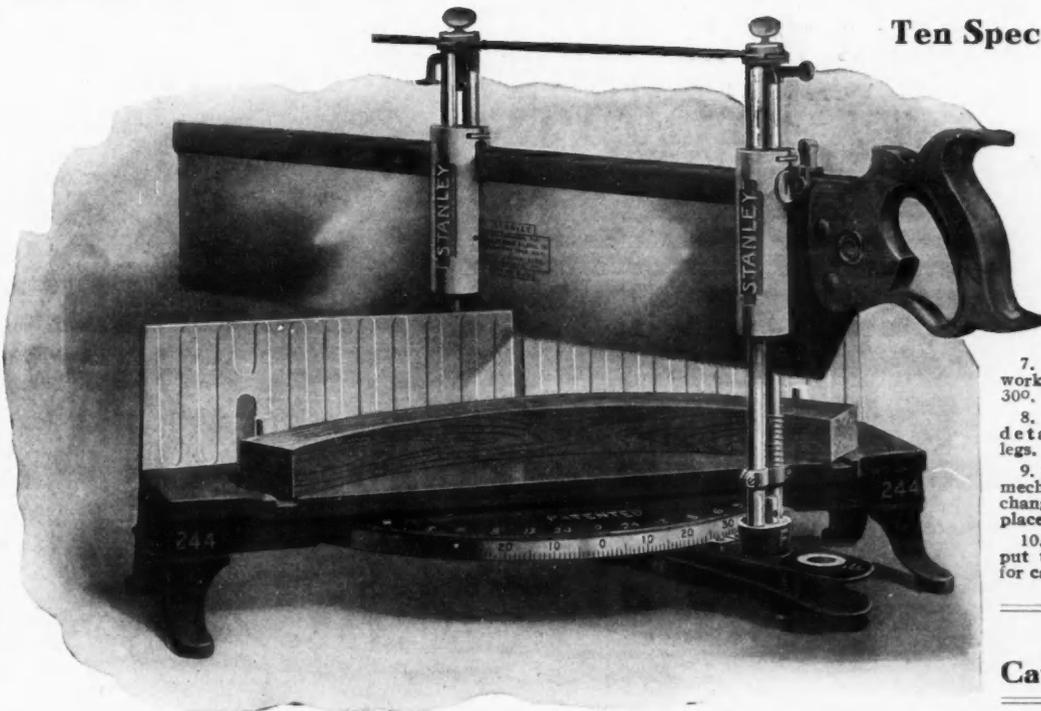
FOR Quick, Labor-Saving Fastenings that HOLD in Brick, Stone and Masonry, Drill hole, place STAR SHIELD within, then put lag screw thro' material to be attached and into STAR SHIELDS and fasten tight. A positive inside lateral expansion insures a fastening PERMANENTLY DEPENDABLE. Catalog, Samples and Prices upon request.

STAR EXPANSION BOLT CO.

Cor. Cedar and Washington Sts.

New York City

STANLEY MITRE BOXES



Ten Special Features:

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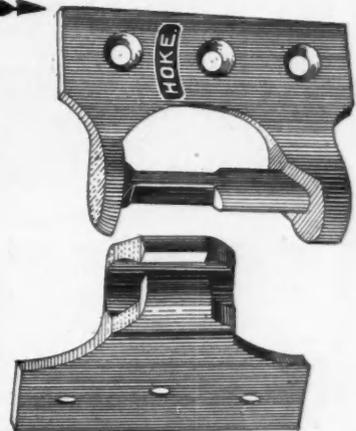
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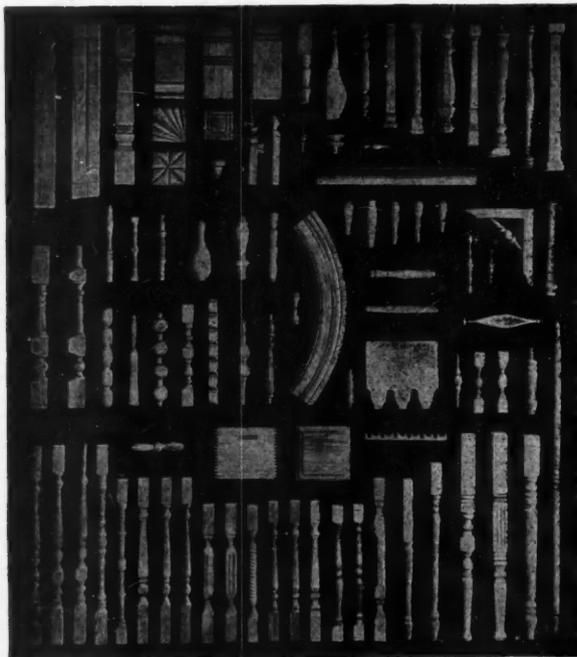


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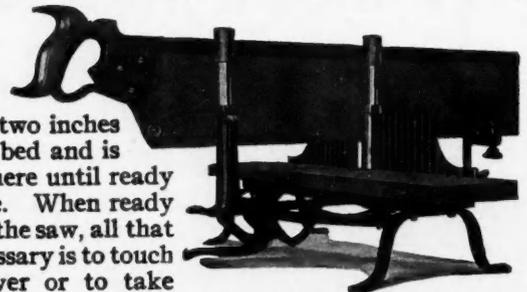
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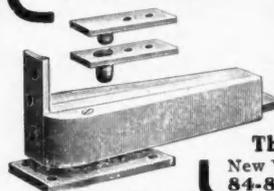
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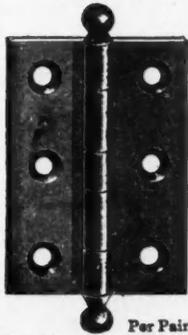
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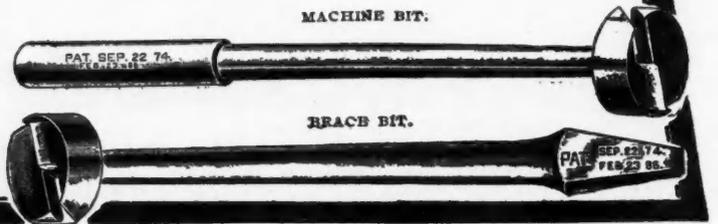
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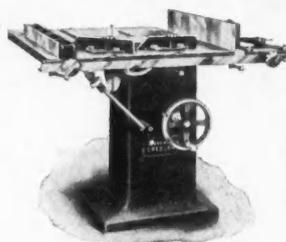
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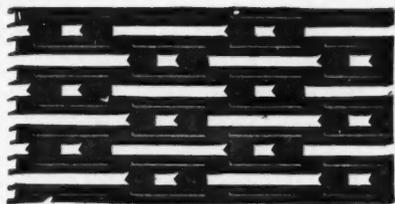


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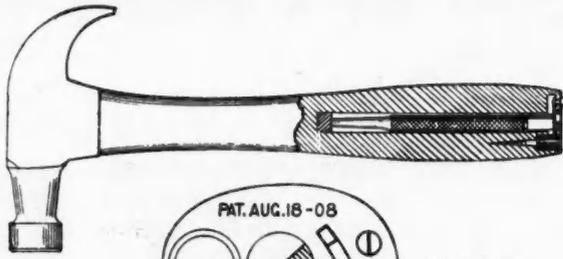
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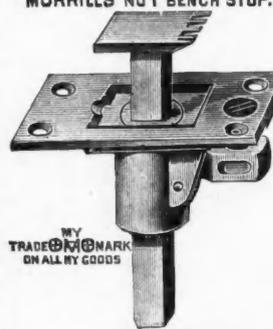
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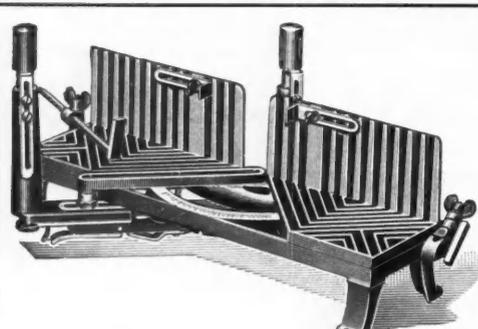


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American Carpenter and Builder

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

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 185 JACKSON BOULEVARD, CHICAGO.

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The AMERICAN CARPENTER AND BUILDER is issued promptly on the first of each month. It aims to furnish the latest and the most practical and authoritative information on all matters relating to the carpentry and building trades.
 Short practical letters and articles on subjects pertaining to the carpentry and building trades are requested.

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ANY man who has a job, has a chance!

TALK good roofing; not how cheap you can put it on.

A CREAKY door and a grumbling man are in the same class—there's something out of order with each of them.

Special October Number

EVERY prospective home builder, as well as every architect and building contractor, will be vitally interested in our coming October number. This is to be our big special "Home Builders'" number. It will contain photographs with floor plans of the most practical, yet artistic, medium-size houses and bungalows built in all parts of the country by our readers this year. The actual cost of each to build will be stated.

This will be one of the most valuable collections of modern residence designs of proven worth ever published. All other departments of this big number will be in keeping—equally as good. Our advice is—do not miss this number.

Cement Production in 1908

THE total production of all kinds of cement in the United States during 1908, as shown by returns received by the United States Geological Survey, from all the cement producers of the country, amounted to 52,775,925 barrels, valued at \$44,376,656. This total was made up as follows:

	Barrels.	Value.
Portland cement	51,002,612	\$43,472,679
Natural cement	1,621,862	808,509
Puzzolan cement	151,451	95,468
	52,775,925	\$44,376,656

The corresponding figures for the calendar year 1907 are given below for purposes of comparison:

	Barrels.	Value.
Portland cement	48,785,390	\$53,992,551
Natural cement	2,887,700	1,467,302
Puzzolan cement	557,252	443,998
	52,230,342	\$55,903,851

The Portland cement production showed a heavy decrease in 1908 as compared with 1907 in most of the Eastern and Southern States, the loss being greatest in Pennsylvania, New Jersey, New York and Michigan. This decrease in the East and South was offset, however, by remarkable gains reported by plants in the Middle West and on the Pacific Coast, returns from Indiana, Illinois and California, showing large increases over the production in 1907.

The average price of the entire Portland cement output in 1908 was only 85 cents a barrel—36 cents below the average price in 1907. The 1908 price is the lowest on record, the previous low price—88 cents a barrel—having been reached in 1904 as the result of business depression in that year.



Glass Bricks

GLASS bricks are not gold bricks. Germany uses them for building purposes with measurable success. In Berlin is constructed a small villa, the walls of which are built of glass bricks of several shades of dark green and blue. The glass bricks are especially adapted to construction where light, cleanliness, and neatness are particularly in demand. In Hamburg they are utilized in place of windows. They admit light in walls which police regulations require to be fireproof and windowless.

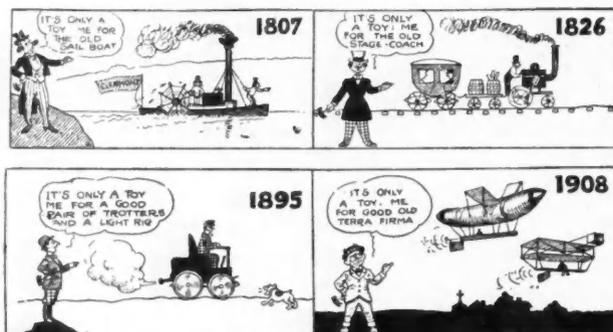
In addition to admitting light to dark hallways, rooms, etc., they are said to possess the same strength as ordinary clay bricks. They are also utilized in walls in yards and in partitions in the interior of houses, salesrooms, offices, workshops, etc., as well as for the construction of verandas, hothouses, kiosks, bathrooms, hospitals, ice factories, butcher shops, railroad stations, breweries, stables, and in other places where cleanliness, light and uniform temperatures are especially desired.

The bricks are also made with a wire coating for fireproof walls. In some of the recently erected buildings in Milan, Italy, bricks made of glass have been adopted for ground and upper floors on account of the light obtained. They are also coming into use for partition work in some of the hospitals on account of hygienic principles.

In one of the leading banking institutions of the city of Turin the lobby office floor, which is about 36 by 58 feet, is entirely paved with glass bricks laid in iron frames for the purpose of admitting light into the basement where are located numerous private boxes or vaults. In the Netherlands hollow green transparent glass bricks are used principally for light giving purposes in machine shops and conservatories.



"It's Only a Toy"



—From the New York Journal.

Strength and Properties of Timbers

THE better grades of timber, weight for weight, are stronger than ordinary structural steel. It is for this reason that the frames of the various flying machines thus far brought out are usually constructed of wood.

Wood has considerable elasticity as well as strength. When the automobile first came into being, the wheels on many cars were made entirely of metal, or with metal spokes and a metal or wooden rim, following the design which had been developed with bicycle practice. It was soon discovered however, that for heavy auto service wood-spoked wheels were far superior, and today wood has practically displaced metal in this field. In like manner some automobile manufacturers are using ash frames for their cars.

Lignum vitae is a material which practically made possible the steam navigation of the ocean by vessels having submerged propellers. The older bearing materials or metals were either too soft to stand the terrific work imposed by a propeller shaft, or they were affected by sea water. Lignum vitae blocks set with the end of the grain toward the shaft make a well-nigh indestructible bearing. The wood is naturally oily and very hard.

The stern bearing of vessels are not the only ones in which wood is used to advantage. In many agricultural implements such as corn planters, hardwood boxes are used for shafting to run in. When this hardwood is soaked with oil it forms an excellent bearing, and will work for a remarkable length of time.

In days gone by practically all the bearings about a grist mill or sawmill ran in wooden boxes, and it is simply owing to the fact that with high-grade machinery of the present day metal bearings can be made more cheaply and accurately, that the old wooden box has been so nearly displaced.

In the case of gearing where quiet running is required, wooden teeth are extensively used in heavy mill drives, just as rawhide pinions are used in smaller gears.

Some of the softer and more pulpy woods, such as basswood and whitewood, are extensively used for brake blocks or friction blocks inside of brake bands or in connection with power clutches. The wood grips the metal face with which it is in contact better than any other substance thus far discovered.

White pine is used for pattern making, on account of its low specific gravity, its close, fine grain, and relatively great strength, the close fine grain and its softness making it easily tooled or machined into a given shape, and at the same time susceptible to a good finish with varnish.

Boxwood is used for wood engraving and measuring scales, on account of its strength and exceedingly fine strong grain, and the ease with which it can be tooled to a given form.

Evolution of the Fireplace

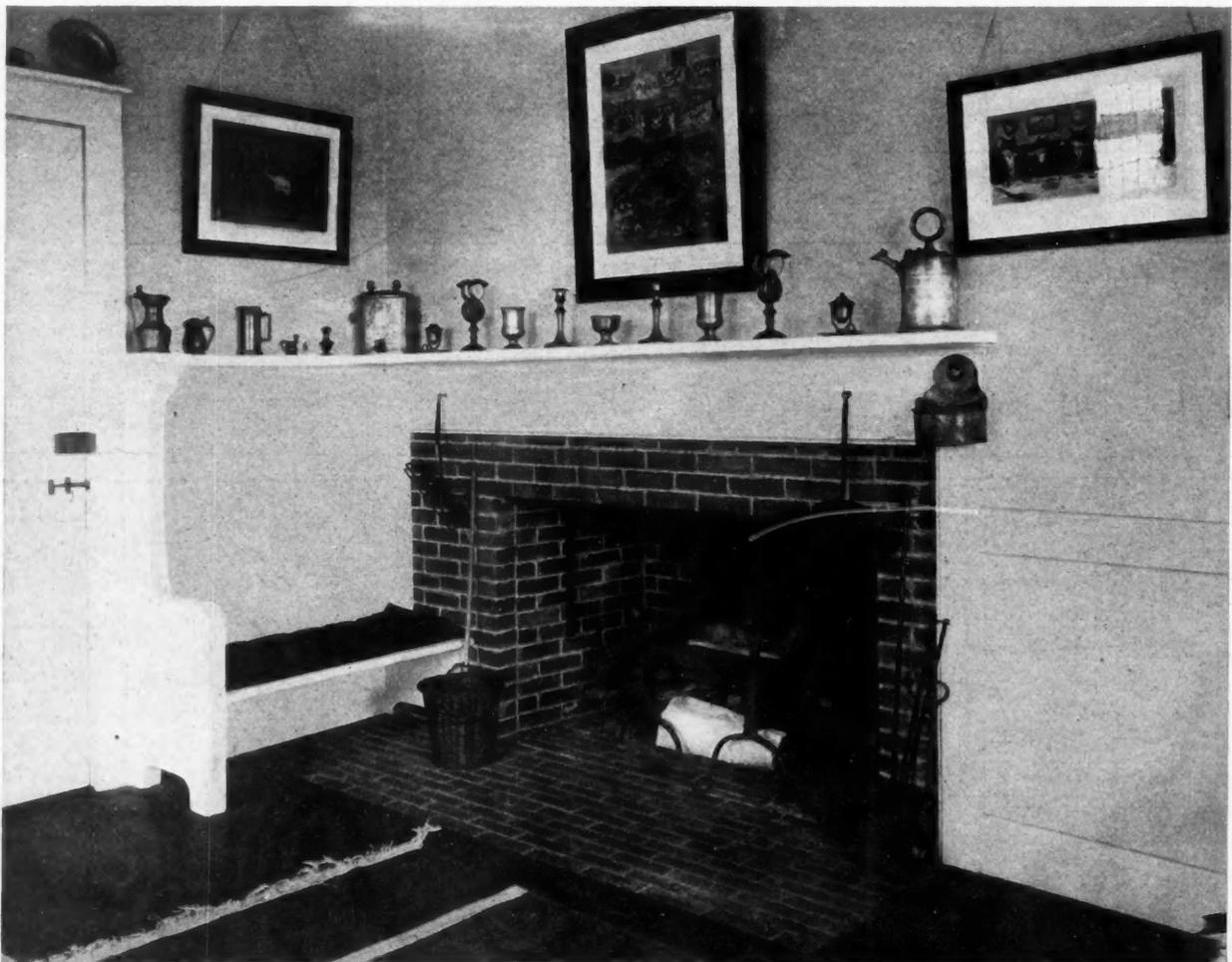
VARIOUS STYLES OF FIREPLACES AND TYPES OF CONSTRUCTION LEADING UP TO THE PRESENT-DAY USE.—DISTINCTIVE DESIGNS SHOWN

By Lynde Claves

THE primitive fireplace was a crude affair, poorly arranged, with but scant attention paid to necessary details; and in consequence it was of little real value. The only facility provided for the escape of the smoke was a rude hole cut in the roof through which it was supposed to pass, but, failing to do this, escaped through the handiest side opening, first choking the apartment with its volume, and generally necessitating the flight of the occupants.

feature of the hall or living room which it graced.

Later still, the fireplace was built directly into the wall, leaving no disturbing break projecting into the room proper, and it is this type which is employed at the present time. Even when this improved form of fireplace was commonly adopted, the Italians, who had clung to the hood device from the date of its inception, still employed it as a decorative feature, and as such it is sometimes used to-day.



Very Cozy and Desirable Fireplace Arrangement

In the Middle Ages, this glaring defect was greatly remedied, and above the hearth, which was now set against the wall, a projecting hood of brick or stone was built, which quite successfully carried off the smoke, and rendered the fireplace a thing of use and beauty. This type remained in favor for a long time until at length it was superseded by the straight chimney breast which came into fashion at a time when heraldic devices were extensively used as decorative features on the fire-breast, and when the fireplace, already an important adjunct, had become the central

At first, the fireplace opening was of small dimensions, but gradually, as it was thought that a larger opening meant an increase of heat, it was enlarged, until, at last, it was of such enormous proportions that it permitted the entrance of considerable cold from the outside; and then it was reduced to smaller dimensions.

The early fireplaces were lined with stone or brick. Later, iron was used for this purpose. Present day homebuilders use brick, tile and iron; but the last named is rarely satisfactory, and a man acts wisely when he builds his fireplace of some other material.

The finest type of the old-time fireplace was the Colonial, at first a huge affair, but, with the passing of time, considerably reduced in volume. It was generally the predominating feature of the crude one-roomed cabin which it heated, and was often built of roughly hewn rock or field stones picked up not far from the clearing where the little home stood. These stones were piled up wall fashion and chinked with mud and clay in place of mortar.

The earliest specimens of this type of fireplace were veritable caverns, built not only to heat the rudely constructed houses, chilled with the penetrating winds that entered through spaces between the logs and around the ill-fitting doors and windows, but also to cook the food which was suspended over the blazing logs in the big kettles and pots hung from the stick of



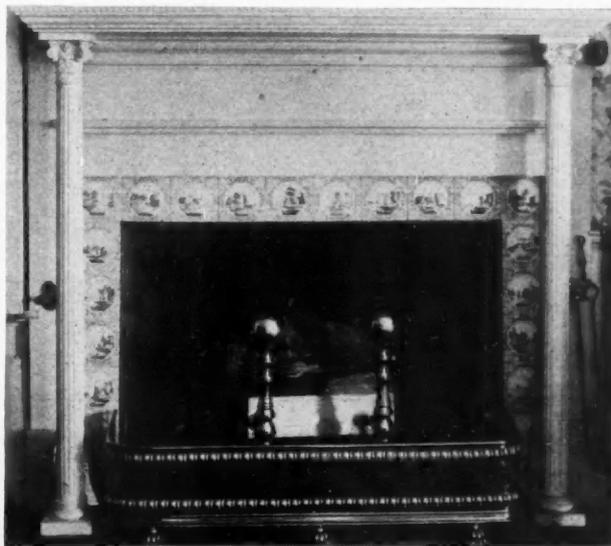
Fireplace for Den or Rustic Lodge

green wood or the iron crane arranged for that purpose.

Huge back-logs, sometimes measuring ten feet in length and two in diameter, occupied the back of the fireplace, and served to throw the heat forward as well as to prevent the stonework from becoming too hot. A smaller log, known as the fore-stick, was placed at the front, slightly elevated from the hearth by fire-dogs, so called because of the grotesque animals' heads which ornamented them, and sticks were laid in between. The kindlings of dry pine and shavings were lighted by means of flint, steel and tinder-box, or coals brought from a neighbor's hearth, and the fire, once started, was rarely allowed to go out. Such fires today would be extravagant luxuries, but in those early times when an abundance of logs was to be

had simply for the chopping, they were looked upon as ordinary, every-day necessity.

As times went on and the colonists became moder-



Colonial Dutch Design

ately prosperous, the number of rooms in their homes increased; likewise the number of fireplaces. The latter, however, were no longer of cavern-like dimensions, for the new houses, solidly built, afforded little chance for the bitter winds to enter, and, then, too, the huge logs were not so plentiful as in the earlier days,

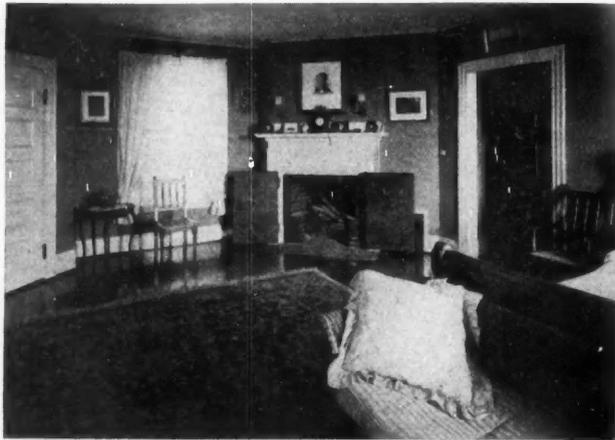


Beautiful Colonial Fireplace

for the constant drain upon the forests had considerably depleted them.

By the middle of the eighteenth century the great yawning fireplaces were superseded by those of more

moderate dimensions, and though some few of the early ones were still in use, they were partially filled in with brick and mortar to conform with the urgent



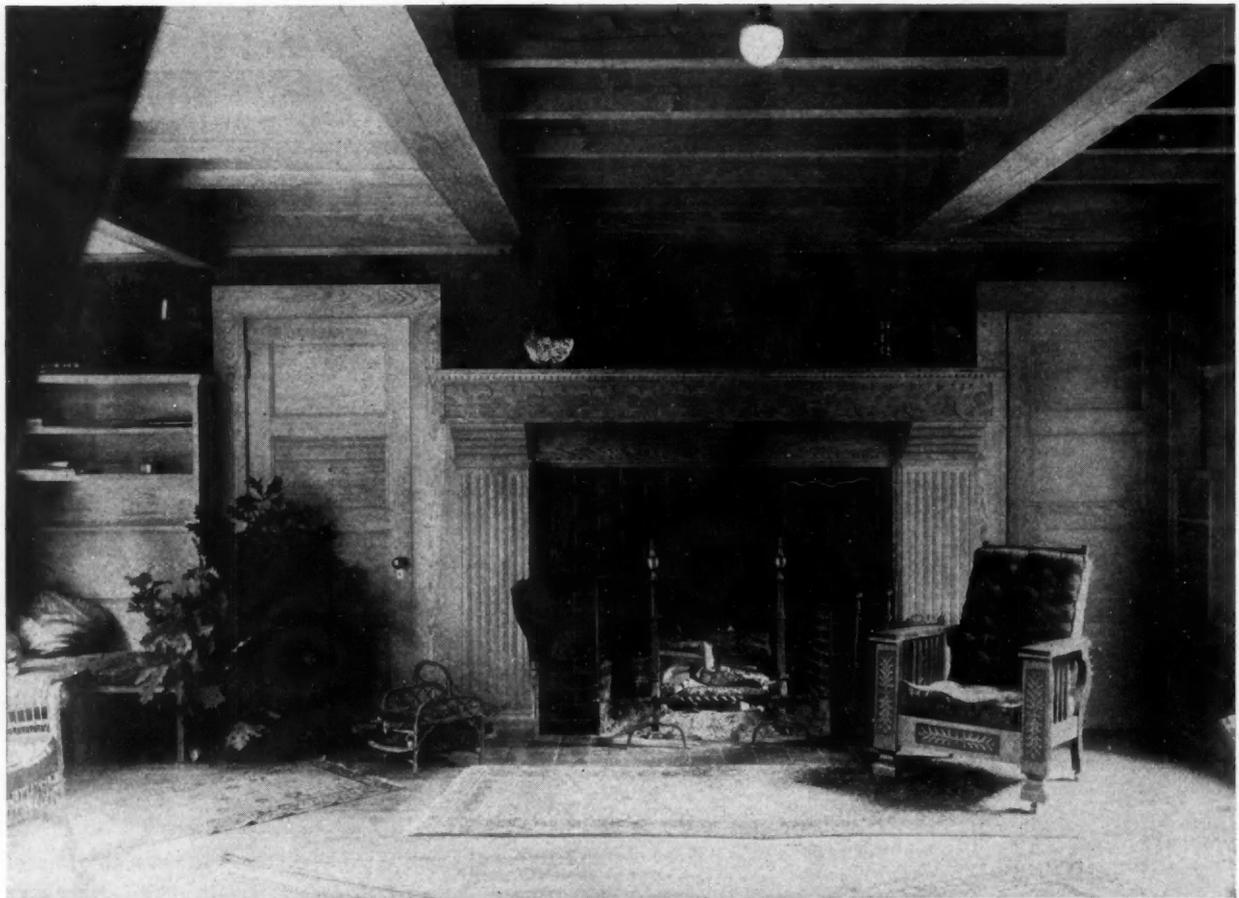
Fireplace with Sheet-Metal Doors

demands of economy. It was at this period that the brick oven was first introduced, and it proved a most valuable asset, doing away as it did with the trying process of cooking by the aid of embers alone. The tin kitchen was a later invention, and other accessories of the old-time fireplace were the long-handled frying pans, the baking pans supplied with legs so that they might be set directly among the embers, and the roasting spits.

With the adoption of the smaller fireplace came the decorative mantel and the more elaborate fittings. The finest of these rare old mantels are found in New England houses, and the beauty of their delicate carvings elicits the admiration of all beholders. Some of them show in the center the figure of an eagle, an emblem which was much in vogue at the close of the Revolutionary War. These are known as Constitution pieces, and are the work of the greatest wood-carver of his day, Samuel McIntire, who made his home at Salem. Horns-of-plenty, and baskets filled with flowers are some of his favorite emblems, and they are always executed with that exquisite care as to detail which was the distinguishing trait of his genius and the greatest asset to his success.

The iron firebacks, in use at this time, were also extensively decorated, frequently with the coat-of-arms of the family, or with a design consisting of a medallion bearing the owner's monogram and surmounted by the family crest. Floral patterns, too, were very popular, and the back of many an old-time fireplace was adorned with pretty flower sprays.

In the year 1750 a quaint innovation known as a hob-grate first made its appearance. It was often fitted into a fireplace that had been partly bricked up, and consisted of iron bars, designed rather for burning coal than wood. These bars were called "cat-stones," in contradiction to the term "fire-dogs," as applied to



Massive Fireplace in Harmony with the Size and Finish of Living Room

andirons used to support wood. Fenders of brass or iron were generally used with these grates, a small one arranged close to the fire to prevent the ashes from scattering over the hearth, and a large one placed around the entire fireplace. These grates are still extensively used in the South.

Towards the middle of the eighteenth century the Franklin stove made its appearance, and in the North superseded the open fireplace to a considerable extent. It was usually constructed of iron with trimmings of polished brass, and in appearance somewhat resembled the small open fireplace, with andirons for burning wood. It was a far greater warmth producer, however, and in addition was much more economical as there was little waste of heat through the pipe connecting it with the chimney.

Later in the century the fireplace was filled in with boards or bricks, and the fire-frame came into fashion. It was similar in appearance to the upper part of the Franklin stove, but unlike this earlier innovation, it rested directly upon the fireplace hearth instead of being raised from the floor on legs and having a hearth of its own.

Following this came the reign of the stove, and the fireplace went quite out of fashion. Gradually, however, its charm won back the hearts of men, and today it is an indispensable feature of every new dwelling house above a certain grade, not interfering in the least with the complete heating system which is installed for general purposes.

In building a present-day fireplace, great care should be exercised as to the type chosen. A good design is the smaller Colonial, for which facings and hearth of brick or tile is most attractive, but of course the type varies according to the apartment which it is to adorn. The fittings likewise should be selected to match the design of the fireplace. Rough stone fireplaces are admirably suited to den or summer camp living-room, but are entirely unsuited to the conventional apartments of a winter home. As regards the fireplace accessories, in addition to the design, the matter of scale should be considered, so that they will not be too large or too small. Wrought iron, brass and bronze are the materials commonly employed in their construction, and while the last named is the handsomest, the first two are really the more desirable, as they are easier to keep clean.

The old-fashioned solid fenders are more artistic than the latter folding-screen pattern, but their weight makes them less desirable than the latter, and then, too, they are less effective against flying sparks. The fire-screen is another attractive accessory, and is especially charming when designed on the lines of the furniture.

As the room in which it is best to install fireplaces, the general opinion seems to be that they are suitable for all available rooms, including chambers. They are the best of ventilators, and in addition serve to remove the chill from the house in the early fall and late spring when the furnace is not going.

Model Pantry to Lessen Domestic Labor

By Bertha Kobelt

A TALL row of shelves with a flour bin and tinware cupboard beneath may constitute a fairly convenient pantry in the eye of the carpenter, but the housewife in her various culinary experiences always finds herself ready to add a few improvements and devices of her own planning.

A neatly-built china closet in the dining room, a kitchen cabinet next to the gas stove, and a refrigerator will render the special pantry conveniences less imperative, but a nicely arranged pantry is essential to the easy and peaceful working of all one's domestic machinery.

Most pantries have too many high shelves that are only accessible with a chair or a stepladder, and while they may come handy for keeping "forbidden fruits" from Johnny or Willie, they are more often a nuisance for their neck-breaking possibilities.

The small, blind, closetlike pantry, in which one must study to get things crowded in right, is quite as objectionable, for it interferes with neatness and order.

The average dimensions for a model pantry are 4 by 7 feet. No matter if your pantry opens next to a well-lighted window, it should have a window of its own, however small, for ventilation is quite as impor-

tant as light. Staple groceries and daily market stuff are apt to acquire a moldy and musty odor in a short time in a pantry that is not properly lighted or ventilated.

North Side Best Location

It is best to have the pantry window on the north side, however, where the hot rays of the sun cannot penetrate. This will help to keep it cool and fresh. The floor should be of oil stained hardwood rather than natural maple, for the latter is likely to blemish easily where food is continually handled.

A pantry that may be described as model has a tier of four short shelves at the narrow end of it, on which are stowed such articles as are kept in boxes, cans, or jars, and should always be within handy reach. All the other shelves extending the length of the pantry and on which china, crockery, and other table service is kept should be closed with glass sliding doors, or the ordinary cupboard folding doors.

It saves much dusting, rewashing and wiping to keep one's dishes behind closed doors, protected against dust and vapor damp. A lower cupboard for tin and enamel ware, skillets, pans, and the like, should have hooks, nails, and racks rather than shelves.

STEEL SQUARE

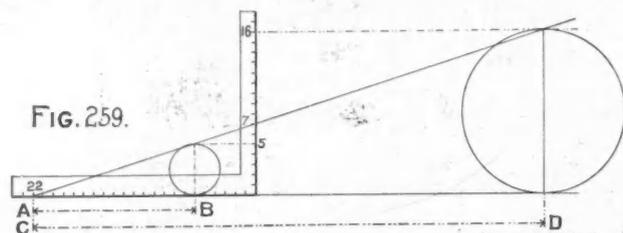
ALFRED W. WOODS

Possibilities of the Steel Square

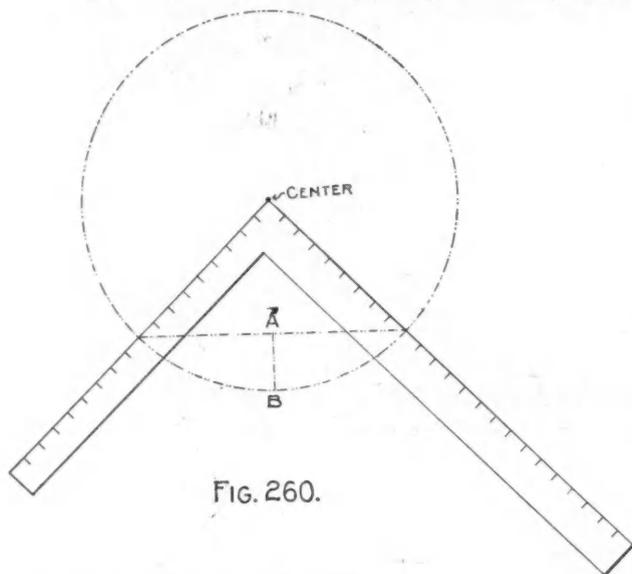
HOW TO USE THE STEEL SQUARE TO SOLVE IN AN EASY WAY SOME DIFFICULT PROBLEMS OFTEN ENCOUNTERED IN EVERY DAY WORK

TO lay off a straight line in length equal to the circumference of a given circle, is one of the things that may be accomplished with the steel square and may be done as follows:

Referring to Fig. 259, a square is shown with a line running from 22 on the blade and passing at 7 on the



tongue. Now, suppose we wish to find the length of a line that will equal the circumference of a circle with a diameter of five inches. Take five inches on the tongue and square out till it intersects with the diagonal line from 22 to 7, thence at right angles to the blade, as shown, and the length of the required line will be as from A to B. If the diameter of the circle be 16 inches, then square out from 16 on the tongue, as before, but in this, the line will run to the right of the tongue instead of the left, because the diameter is



greater than 7 inches. The circumference in this case is found to equal the distance from C to D. From this it will be seen that the circumference of any circle can be measured on a straight line, as the proportions of a

right-angle triangle with 22 base and 7 altitude hold good for the measurement of any sized circle.

Fig. 260 furnishes another interesting problem, showing how the same results may be found as given in the former example but which we believe is more practical on account of its simplicity. Every school boy and girl has been taught that the circumference of the earth is a little more than three times its diameter. Now, since the earth is reckoned to be round, we will apply the solution to a circle on a small scale, as shown

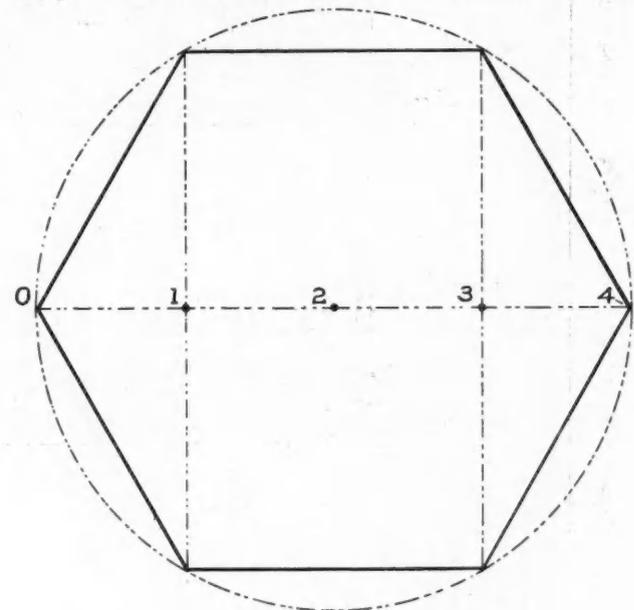


FIG. 261.

in the illustration. Place the heel of the steel square at the center and draw the chord line at the point where the blade and tongue intersect the circle; draw the line A B at right angles from the center of the chord, as shown. The length of the circumference will be three times the diameter of the circle, plus A B. This is a very useful diagram because it is simple and easily remembered. Mathematically it is multiplying the decimal 3.1416 by the diameter.

The hexagon is one of the simplest of all the polygons to draw and there are a number of ways of doing it, some of which we have illustrated before in connection with the steel square problems, but here is one that is simple and worth remembering.

Referring to Fig. 261, suppose it is desired to lay

off a hexagon with sides $2\frac{1}{2}$ inches wide. Set the dividers at one-half of this ($1\frac{1}{4}$ inch) and space off four spaces as at 1-2-3-4 on a straight line, as shown. At 1 and 3 draw lines at right angles to the first line drawn, then set the divider point at 2 and open up to 0 and strike the circle; where the same crosses the lines from 2 and 3 will determine the points for the corners of the hexagon. Connect up these points and the hexagon will be formed.

When a small boy on the farm, it was equal to a

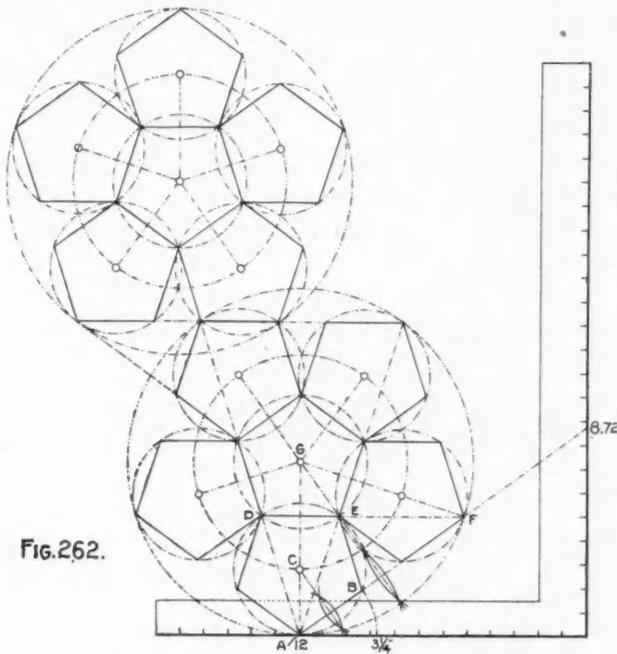


Fig. 262.

summer's vacation to go to town with father; and one of the sights that never failed to catch our attention was a tin shop, the proprietor of which during odd times cut from sheet metal various shaped figures and folded them up, soldered the joints and hung them out in front of his shop. As we remember it now he was considered something of a wonder in this line and he was perfectly willing to have it that way as he never offered any explanations but just looked wise and let the other fellows do the thinking.

One of the objects was a large ball-shaped figure with 12 pentagonal cone-shaped spikes covering same. In after years, we learned that those figures were polyhedrons, one of which we show in Fig. 262, called the dodecahedron, which is composed of twelve pentagons, this formed the base for the pentagonal cones as before mentioned. This can be laid out in one piece, as shown in Fig. 262. The circles are shown in the illustration to locate the centers and otherwise show the accuracy of the work. The starting point on the steel square is at 12 and 8.72 ($8\frac{17}{24}$) which gives the angle from which to start the diagram. After deciding on the length of the sides of the pentagon, as at A B ($3\frac{3}{4}$ inches), bisect the same with a line intersecting the perpendicular line above 12 on the tongue, as at C. Draw the circle with radius C-A, and space off on the circle, the distance A-B which will divide

same into five points forming the pentagon. Twelve pentagons put together will form the dodecahedron. The remainder of this figure shows the layout for cutting the whole out of one piece so that the same will fold up and form a solid figure. After having formed the first pentagon, proceed to lay out the remainder by extending the line D-E, intersecting the angle line on the square at F, then bisect the line A-F with a line at right angles, intersecting the extended line A-C at G which will be the center for one-half of the layout. Then G-C will be the radius that will catch the centers of all of the other sides and is simply a repetition of the first pentagon and is all that is necessary to make as this will furnish a pattern for the other half of the figure.

Framing for Base and Sill

By I. P. HICKS

Last month details were given of a satisfactory bungalow cornice, and the cost of construction was figured according to the lineal foot method of estimating. The accompanying sketch shows the sill and outside base to accompany that cornice.

The base consists of three pieces, a face piece, cap piece and a sprung mold underneath. A 12-inch board ripped will make both the face piece and the cap and cost 4 to 5 cents per lineal foot for the lumber; the molding will cost about $1\frac{1}{4}$ cents per foot, making the total cost of the material $5\frac{1}{4}$ to $6\frac{1}{4}$ cents per lineal foot. The cost of the labor may be figured at $2\frac{1}{2}$ cents per foot for each of the board members and 1 cent for the molding, making 5 cents per lineal foot. Thus the total cost of the base for material would figure from $10\frac{1}{4}$ to $11\frac{1}{4}$ cents.

In the figure is shown a method of framing, the 4 by 6 sills are halved together and spiked at the corners.

The joists, which are 2 by 10, are notched so as to set with about 4 inches of them on top of the sill, then they may be gained into the sills about 1 inch deep and about $1\frac{1}{2}$ inches on the top as shown by the dotted lines which will make a good substantial way of framing.

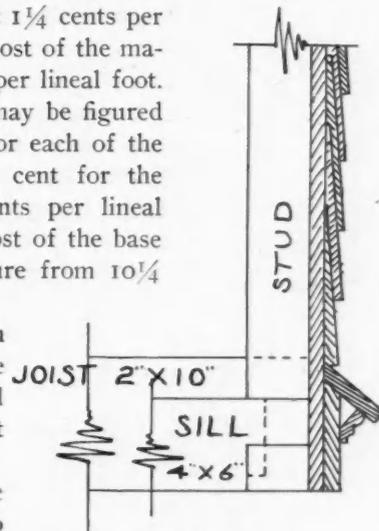


FIG. 2

OUTSIDE BASE

The Reason

Weekle: "So Slipsy is a defaulter, eh?"

Deekle: "So they say."

Weekle: "By George, I always wondered why he said 'Thank you,' so pleasantly every time I made a deposit."—*Bohemian*.

PRACTICAL CARPENTRY

“False Work”

THE USE OF CARPENTRY AND TIMBER FRAMING IN CONNECTION WITH MODERN STEEL, CONCRETE AND MASONRY CONSTRUCTION

By Owen B. Maginnis

IT has been stated that the art and trade of the carpenter is comparatively obsolete and no longer necessary, having been displaced by iron and steel. So it is my purpose in this article to refute this statement and prove that iron and steel construction are dependent for their existence, lives and maintenance on the executed work of the carpenter and framer.

bridge. We find that no matter of what material the superstructure is composed, its permanency depends upon the accuracy and reliability of the carpenters' and framers' skill.

As an instance, I would quote the so-called “false work” used in the construction of the “Washington Bridge” which spans the Harlem River from 181st

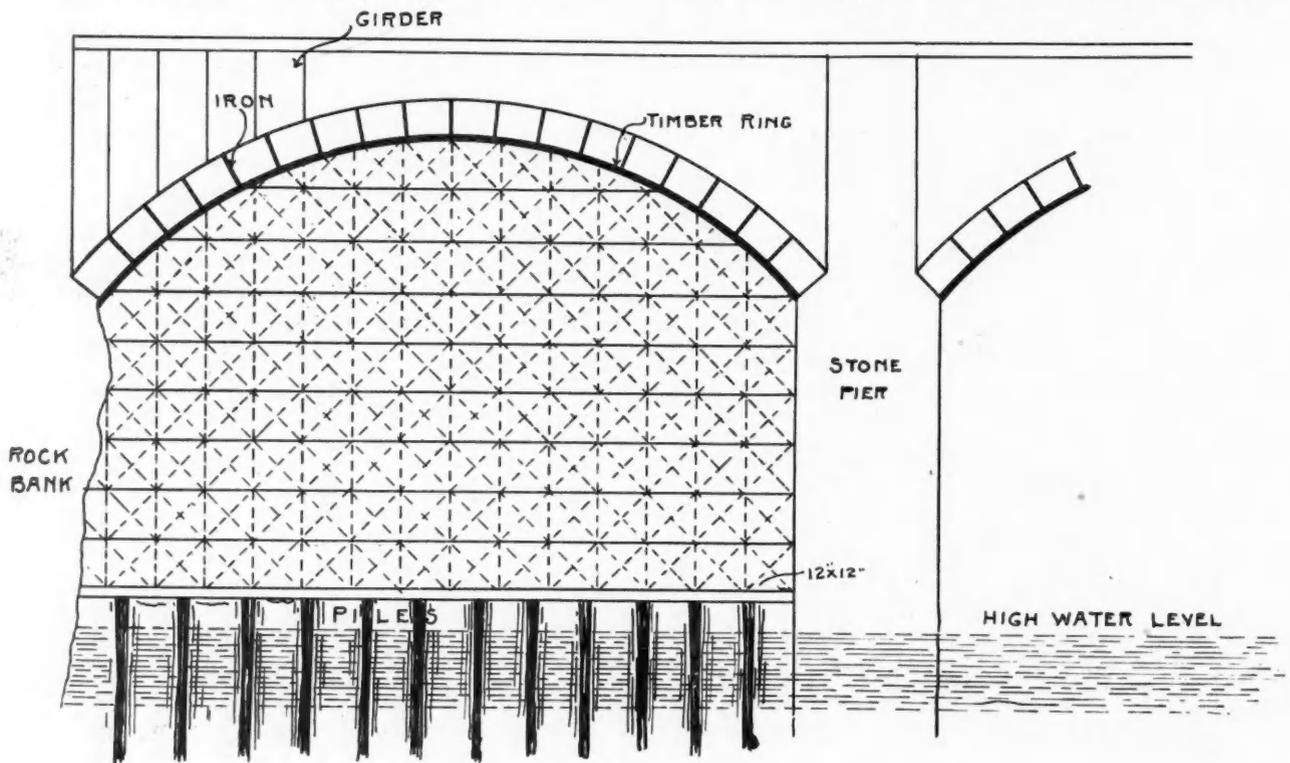


FIG. 1.

To treat the subject in its true sense, it is usual to dub timber constructions “false work,” which is the title of this article. The title is an erroneous one however, because the work is not false; it is real and true, mechanically and scientifically correct. Otherwise the steel masonry or iron structure which is, or is intended to be, erected upon it would subside and collapse.

To illustrate, let us take for example, the simplest center for an arch, of any form, ranging from an ordinary semi-circular opening to widest span of a

street on the Manhattan side to that part of the City of New York known as the “Bronx.” Here the two arches of steel being in compression, had to be carried upon centers which were built up from the river's bed on a foundation of piles driven temporarily to sustain the false work, which was designed to form the framework necessary to gain the semi-circular outline of each arch, of which there were two.

Fig. 1 will convey an idea of the method of construction. I might state, in this connection, that this

method can always judiciously and safely be followed and practiced when erecting centering, scaffolding or any form of "false work" or temporary structure to be

ing entirely on the direct mechanical application of the right-angle triangle and its hypotenuse reversed. Singly one would constitute a bracket reversed; the framing becomes a square or parallelogram or oblong with two braces or diagonals, each member of which has a double value structurally (See Fig. 2).

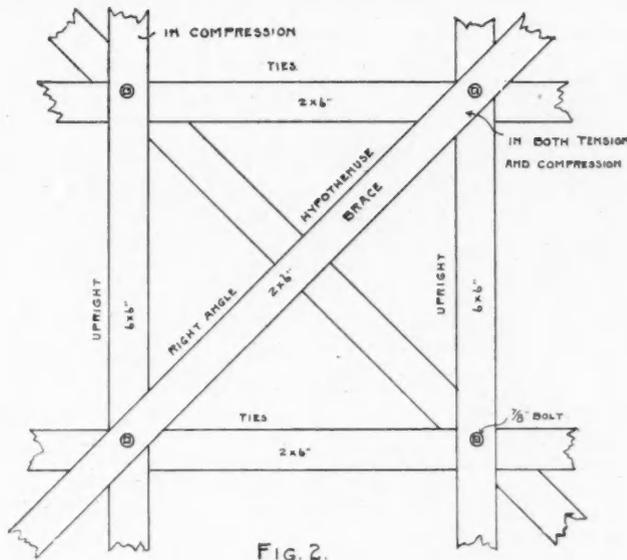


FIG. 2.
DETAIL ELEVATION OF FRAMING.

carried to great heights not only on the exterior of great edifices or public buildings, or edifices such as churches, schools, etc., but for the interior; and it will always be the task of carpenters and framers to erect

In this drawing, which shows the positions of the timbers, employed in Fig. 1, the uprights are abutting end to end as they rise from the base, the joints being cleated together with 2-inch cleats bored and bolted. The uprights are prevented from bending or springing by timber 2 by 6 inch ties, spaced in height equal to the distance apart of the line of uprights; and the whole construction is rendered stiff and stable by the diagonal braces shown in Fig. 2, which are reversed and bolted on opposite sides of the posts or rather uprights. This construction can be run on plan in squares, and if the uprights are set either 7 feet 6 inches or 5 feet 6 inches apart on centers, 16 or 12 foot plank, as the case may be, can be set on the ties, to walk on during construction.

It would not be wise, however, to trust much to the sustaining power of the timbers when only held by bolts, because it must be remembered that every timber bolted or nailed only carries on the timber above the supporting point and below is non-sustaining, except for the cohesion of the fibres of the timber; so that to

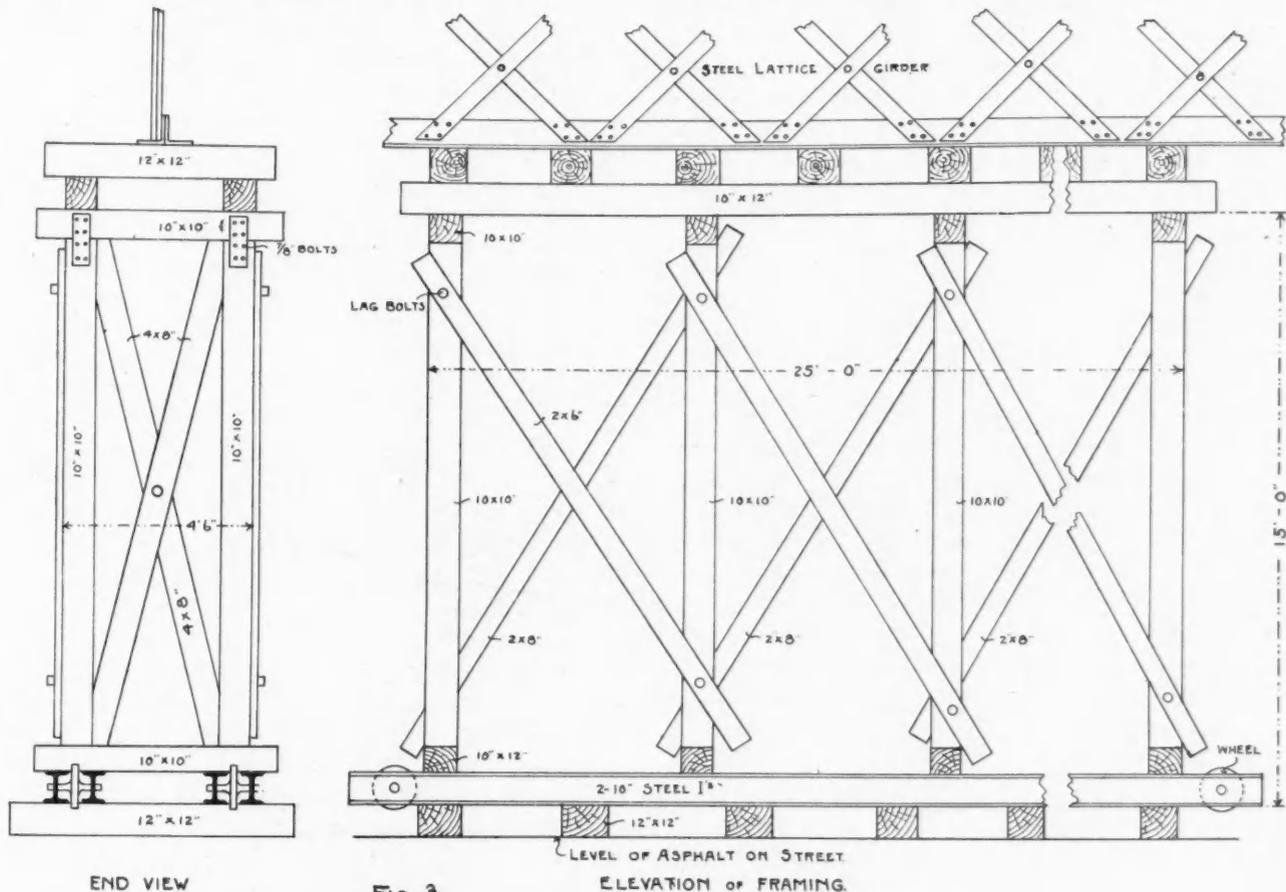


FIG. 3.
ELEVATION OF FRAMING.

them to be fully safe and sustaining without jeopardy to life and limb.

The principle of the construction is simple, depend-

insure perfect safety when heavy loads are to be placed upon bolted or nailed tie timbers, it would be judicious to bolt or nail cleats below the bottom edges

in order to obtain the full bearing strength of the horizontal tie or timber.

To carpenters and builders of experience, I need not give a word of warning as to selecting good, sound, dry, reliant timber for scaffolding or false work; however, I have seen accidents and failures occur in the course of practice of building construction owing to this cause of faulty timbering, proving regrettable and financially disastrous to all concerned. It is no matter to leave to a tyro, but to a competent judge of timber, who may be able to distinguish between that which is dry or wet hemlock, or oak and such like knowledge.

We will now pass to the matter of mechanical accuracy in building false work. In regard to this, I might state that much skill and care is absolutely essential, in fact, as much so as in the actual permanent building or structure to be afterwards erected and which must until completion depend upon the auxiliary false work.

First, the foundation, or base, must be solid and fully fit to carry the superstructure. If the base be piling, each pile must be driven home until a 1500-lb. hammer will not, from a height of 25 feet, send it down $\frac{1}{4}$ of an inch. If of stone or brick it must be sound and solid; and if on street or soil, same should be covered with heavy timbers to prevent subsidence.

Second, the bolt holes and positions of the timbers either vertically and horizontally on plan, or elevation must be exactly spaced and measured off with a ten-foot pole or tape line, so as to have the workmen execute the framing, square, plumb, level and true. Warped timbers should be laid aside and not used. Holes should be bored square to the sides and edges and not too near the ends of any one stick.

Third, all completed work should be tested as it rises from the bottom up tier by tier.

Fourth, when the outline on soffit of any arch, ceiling or other detail, has been built up to, the architect or engineer should be consulted or brought into advisement in order to verify the architectural accuracy of the details and guarantee the validity of the framing, lest it should fail or some hitch develop to mar the work. I need not say that in large works, this is indispensable, as it is an error, even for the most experienced carpenter, builder or framer, to trust too far to his own judgment, lest there be a possible discrepancy in the plans or specifications. In fact, it is best to keep constantly in touch with the architect from the beginning to the end of any job, to insure success to all concerned—and everyone is concerned from the laborer to the owner.

We might, with a degree of truth, include shoring and needling under the head of the title of this article; but as it is not common in building practice, I will avoid this and proceed to a sketch which might be called portable false work.

The sketch, Fig. 3, will suggest to readers a form of timber framing which they apply for changing stone

fronts, carry walls, girders or such like. An observation of the construction will show that the base is composed of four steel I-beams bolted in pairs, resting on 12 by 12 inch wooden blocks, set and spaced on the sidewalk. On these rest four cross timbers forming sills for four frames, mortised and tenoned together, consisting of two 8 by 8 inch uprights, 4 by 6 inch braces and 10 by 10 inch heads. On these two longitudinal strings each 10 by 10 inch are placed; then 7 12 by 12 inch ties. The four frames are braced lengthwise by 2 by 6 inch diagonal braces reversed on opposite sides.

The entire framing, as will be seen in the illustration, temporarily carries a wrought-iron lattice girder during the repairs of its members. This false work is portable; all that is necessary to take it apart is the unscrewing of the bolts and lowering of the timbers, which are of good solid yellow pine. To my mind the uprights would be better if slightly battered, like spur shores; still the form is excellent and might be copied with advantage.

In concluding this interesting subject, there is a very interesting anecdote apropos of the value and importance of temporary framing or "falsework" which I would like to append.

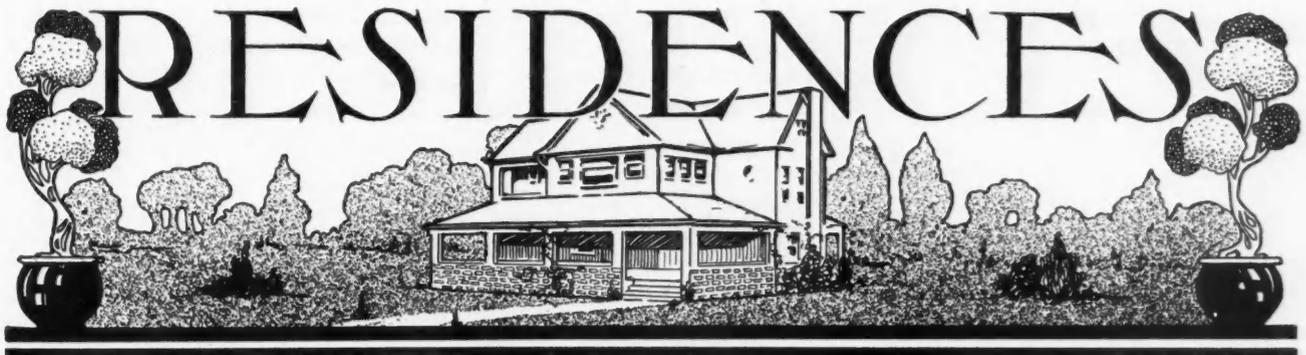
Importance of "False Work"

It is recorded that in the Middle Ages in a country in Germany, there was an architect and engineer, both professions were combined in those days, commissioned to design and superintend a stone bridge spanning a river. This he did and the work was let out, started and in progress, as he thought, to success, when, one evening when revising his calculations, he discovered that they were wrong, the stone materials insufficient and that on the removal of the centering or false work, the bridge would collapse and fall.

The rings of voussoirs were not all set in the arch, a few at the top and the keystone being lacking. Driven to desperation by worry and anxiety, he told his frau, or wife, the story, saying that his reputation, his bonus and perhaps if an accident occurred, his head, depended on the work. At this point the woman's wit came in and saved him.

One stormy night, soon after, when the sky was full of thunder and lightning, my lady stole forth and lighting a brand, set fire to the resinous timbers composing the falsework. The center burned out; the bridge collapsed and the community attributed the disaster to the will of the Almighty through his thunder and lightning. Thus, did this lady, like many another, preserve her husband's honor and reputation, for he built another bridge which, it is said, still stands.

Finally, I might state that the splendid centering for the first arch (parabolic) in the Cathedral of St. John the Divine, in New York City, has long been in position and the second one has now been in three years. So how can it be said that constructive carpentry is even comparatively obsolete?



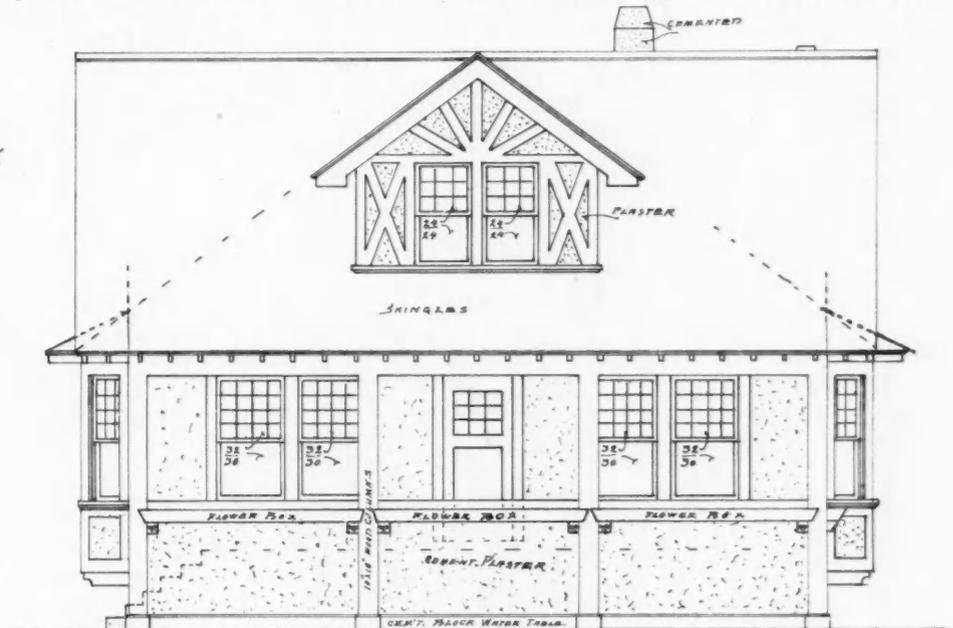
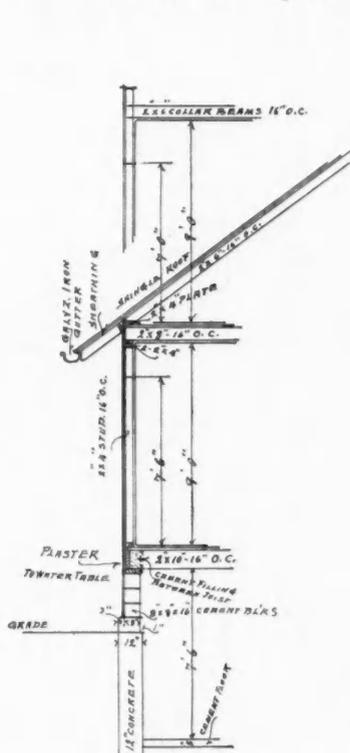
Artistic Bungalow Plans

COMPLETE ARCHITECT'S DRAWINGS OF AN ARTISTIC BUNGALOW WHICH IS THOROUGHLY PRACTICAL AND SATISFACTORY IN CONSTRUCTION AND ARRANGEMENT

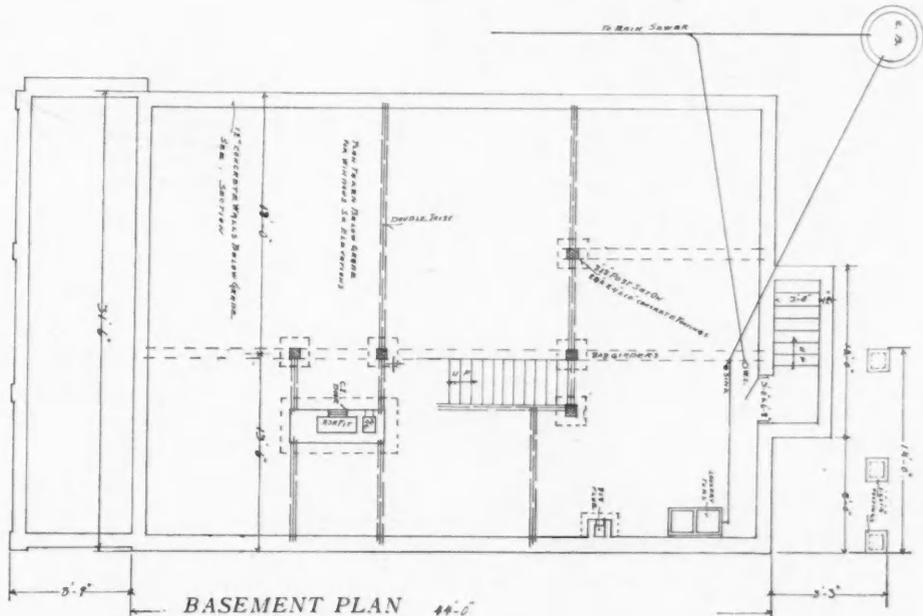
THE accompanying plans were prepared to follow out the ideas of Mr. H. H. Behrens, Chicago, Ill., and an exceptionally artistic and satisfac-

tory little home has been erected from them for him in one of the Chicago suburbs.

As indicated on the drawings the exterior was over-



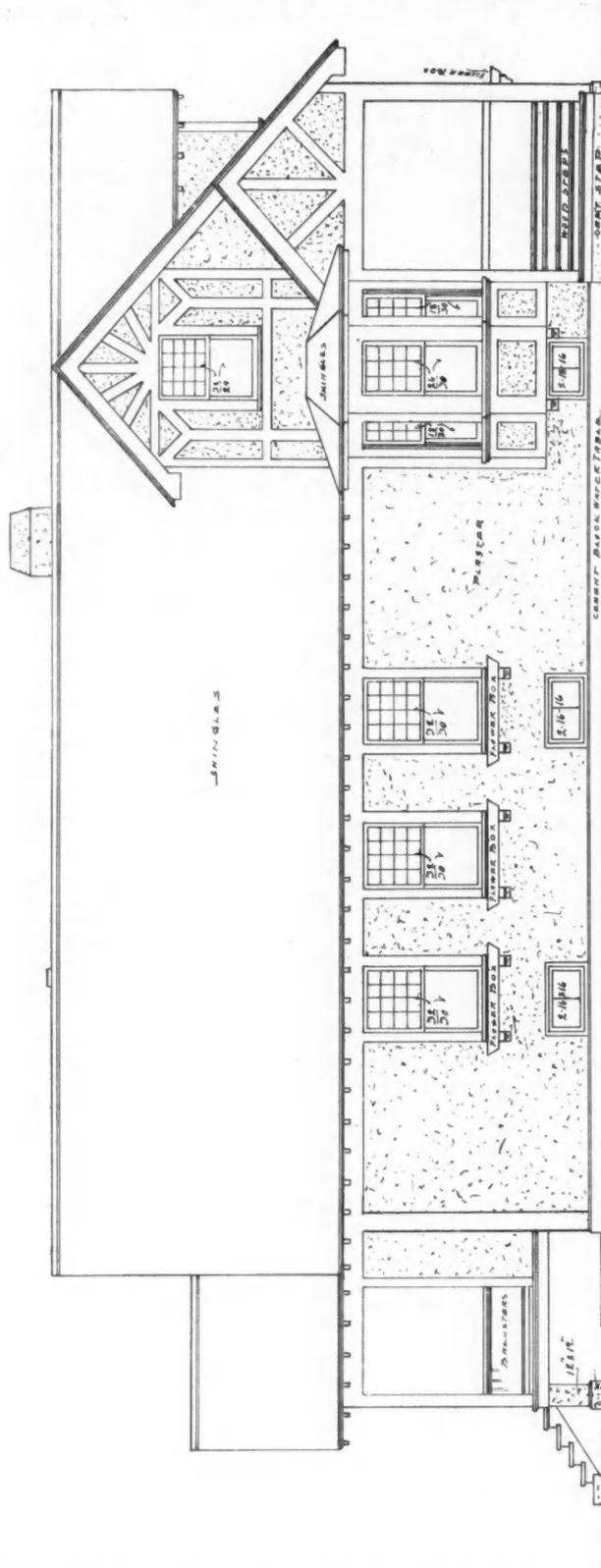
FRONT ELEVATION



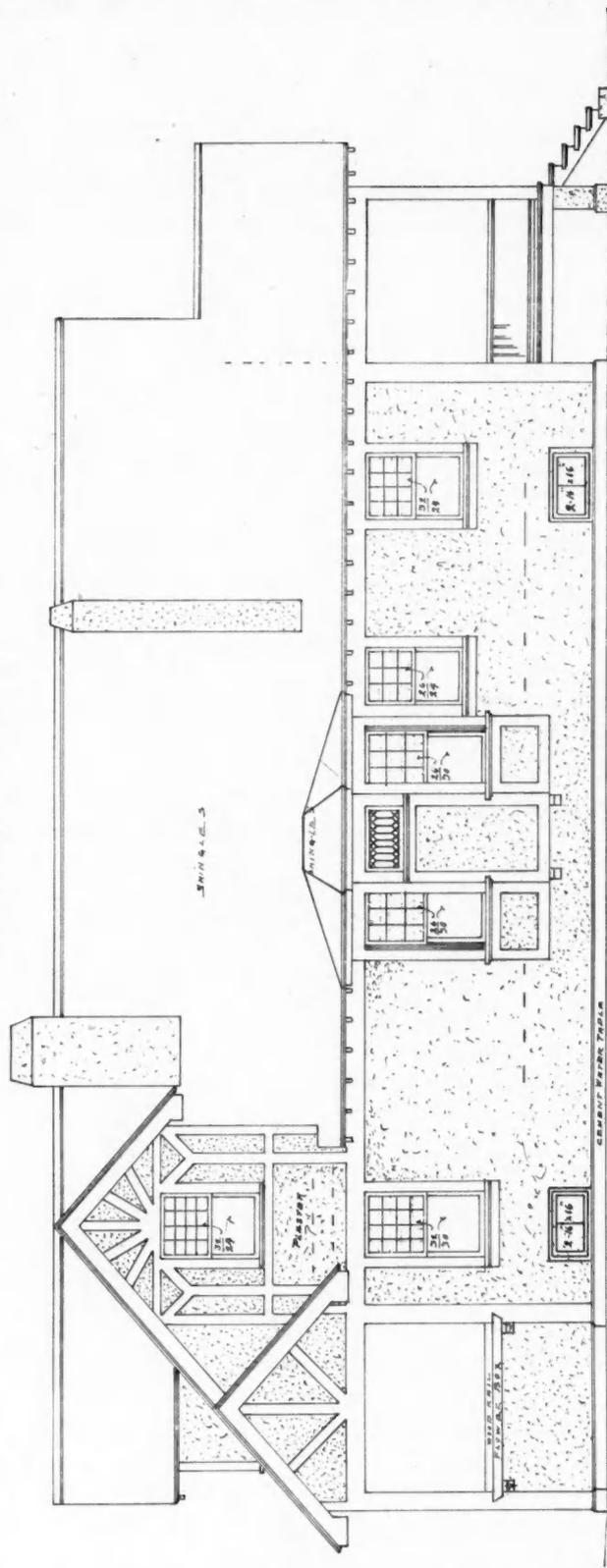
BASEMENT PLAN 44'-0"

coated with cement plaster, rough finished; and in the gable ends and dormers exposed timbering was used—producing a very pleasing effect. A glance at the

up against a wall, but it needs care and a knowledge of a few little essential things or a man may be maimed for life, or the ladder broken. The “footing”



LEFT SIDE ELEVATION



RIGHT SIDE ELEVATION

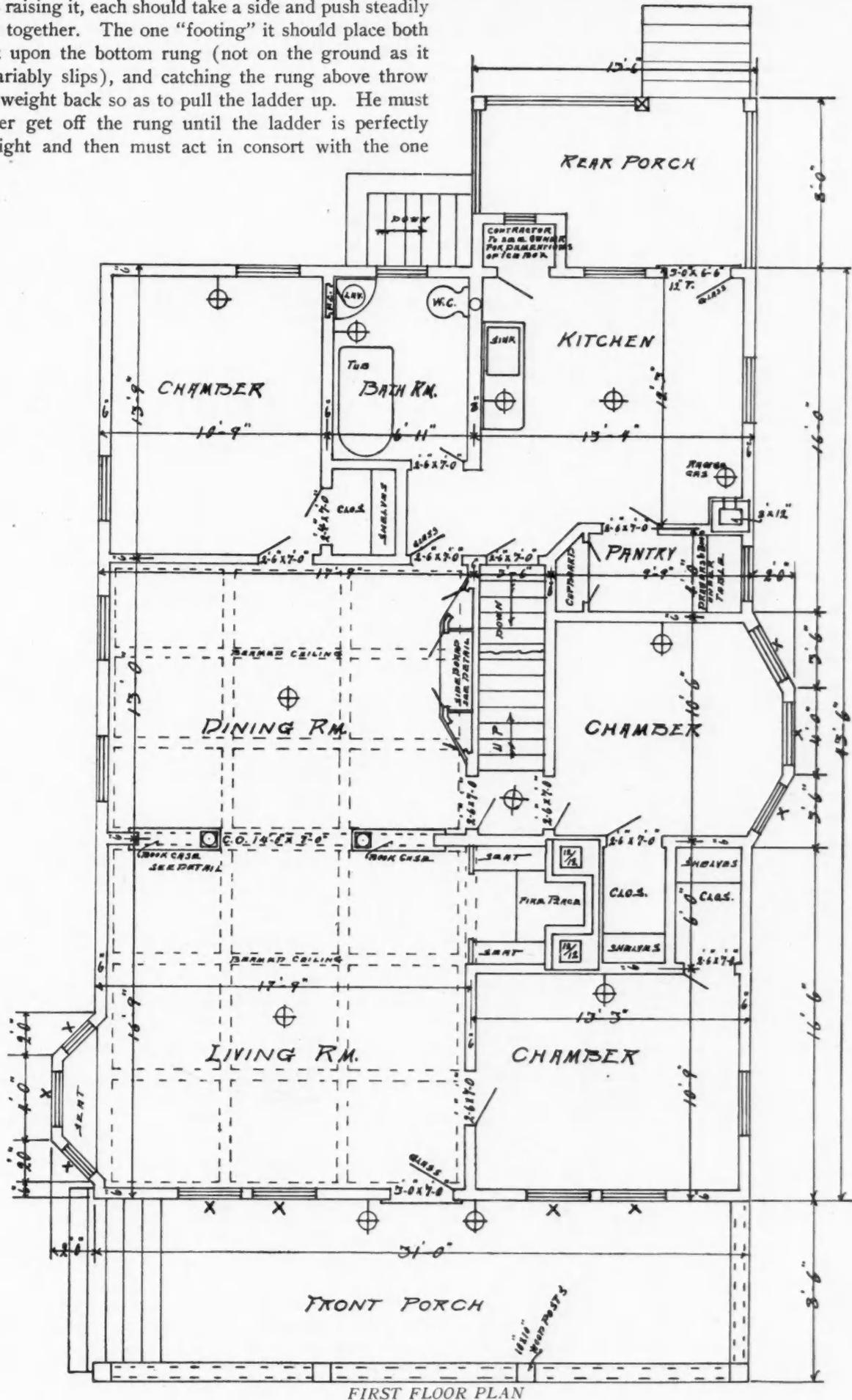
floor plan will show the spacious and at the same time convenient arrangement of the interior. The details show some features worthy of study.

How to Raise a Ladder

It seems very simple to see two men put a ladder

of the ladder is most important. It is better for two to be at the foot and one to raise it if there are only three men, and if two are raising they should be of equal heights or nearly so. The one that is raising should push up from the sides and not from the rungs, and do it steadily and not in jerks. When there are

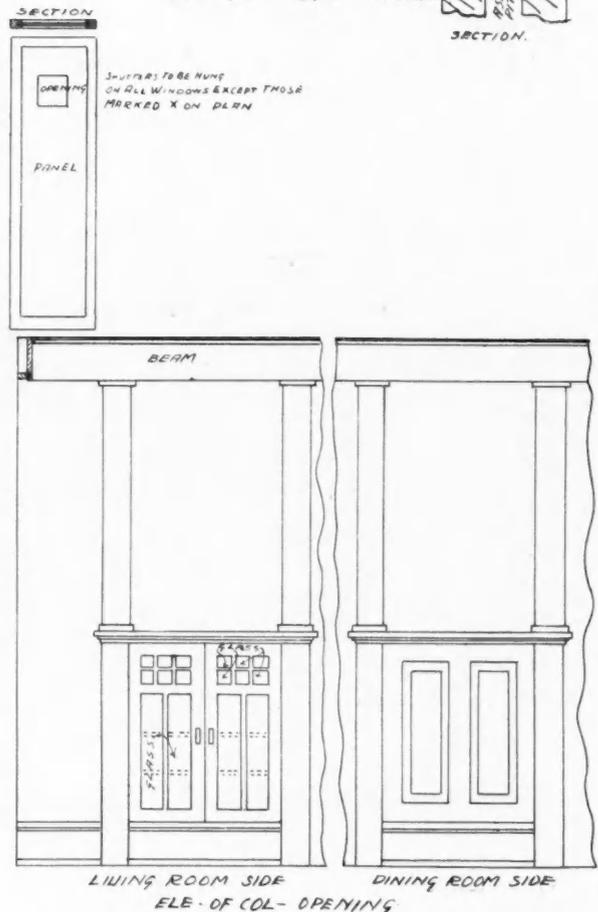
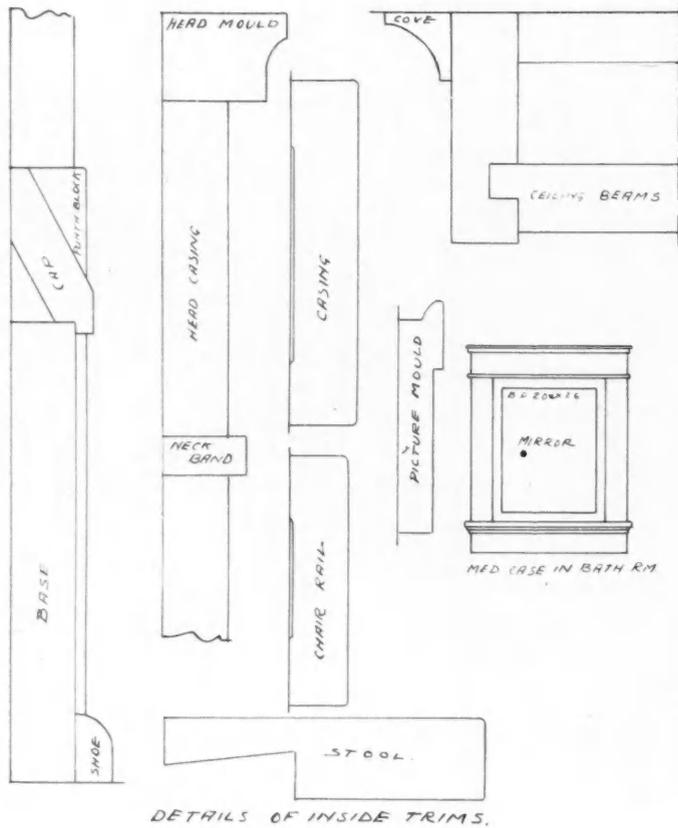
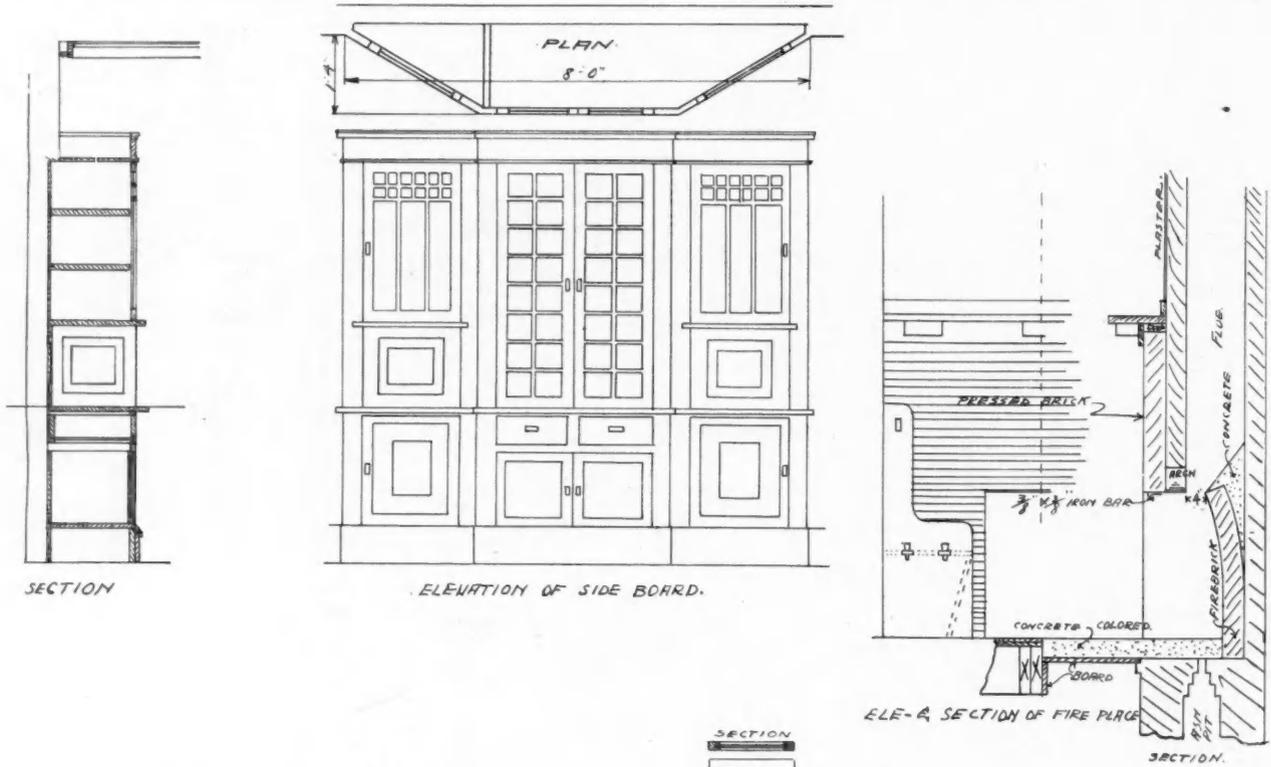
two raising it, each should take a side and push steadily and together. The one "footing" it should place both feet upon the bottom rung (not on the ground as it invariably slips), and catching the rung above throw his weight back so as to pull the ladder up. He must never get off the rung until the ladder is perfectly upright and then must act in consort with the one



FIRST FLOOR PLAN

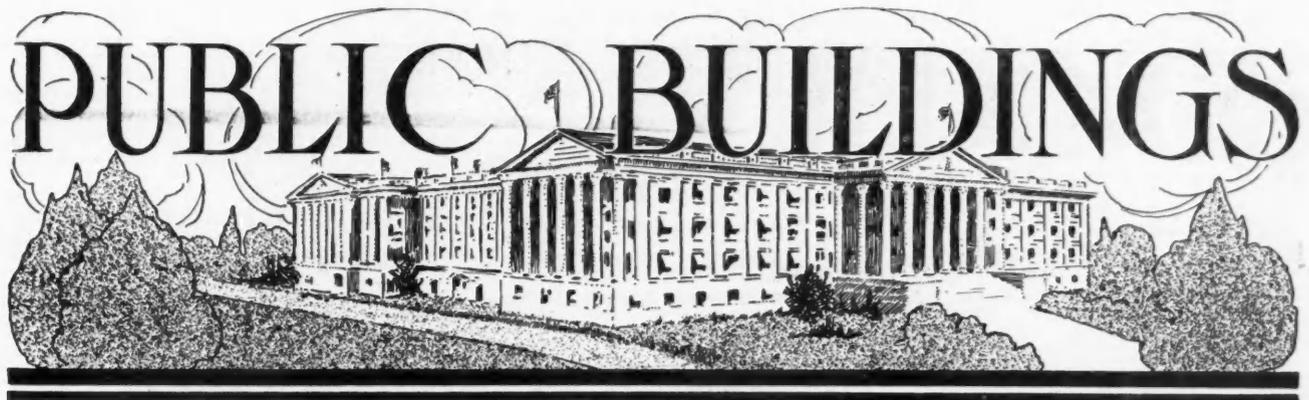
who is raising. When two are "footing" one should put the left and the other the right foot on the bottom rung. When lowering the ladder the footer must not

one room to another. The proper plan is to always pass the top of the steps through a doorway first, because it is generally the top which does the damage



get off until the ladder is right on the ground. Carrying a pair of steps is another small matter which an apprentice cannot be taught too early, especially when it comes to moving steps or trestles from

by coming into contact with the top door jamb or architrave. Therefore keep your eye on the top of the steps and clear it first and the bottom may be depended upon to look after itself.



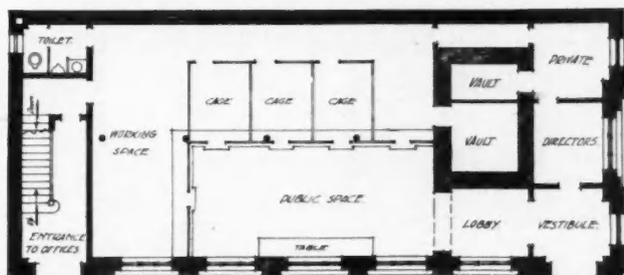
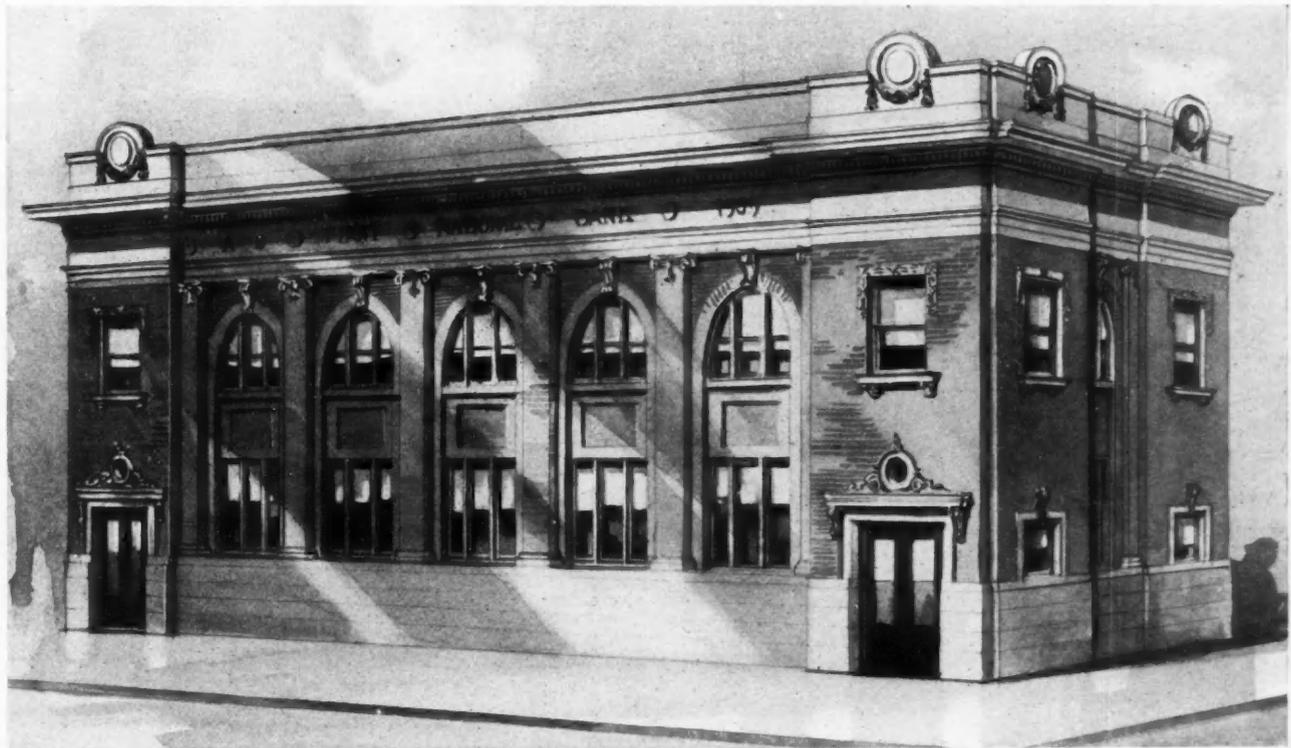
Combined Bank and Office Building

PERSPECTIVE AND PLANS OF A WELL ARRANGED BANK AND OFFICE BUILDING DESIGNED FOR A SMALL CITY

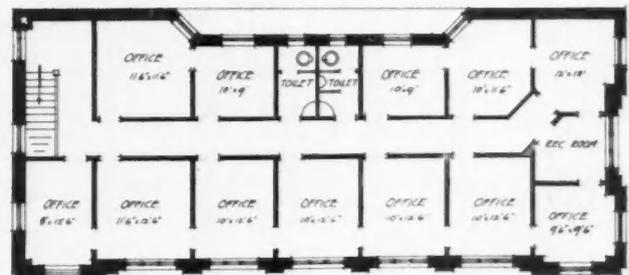
THE ideals of American business life make it exceedingly desirable, if not absolutely necessary, for a responsible banking institution, no matter where it is located, to occupy a building dignified, substantial and harmonious in appearance, a building in keeping with banking principles.

A first floor space, rather broad and well lighted, is

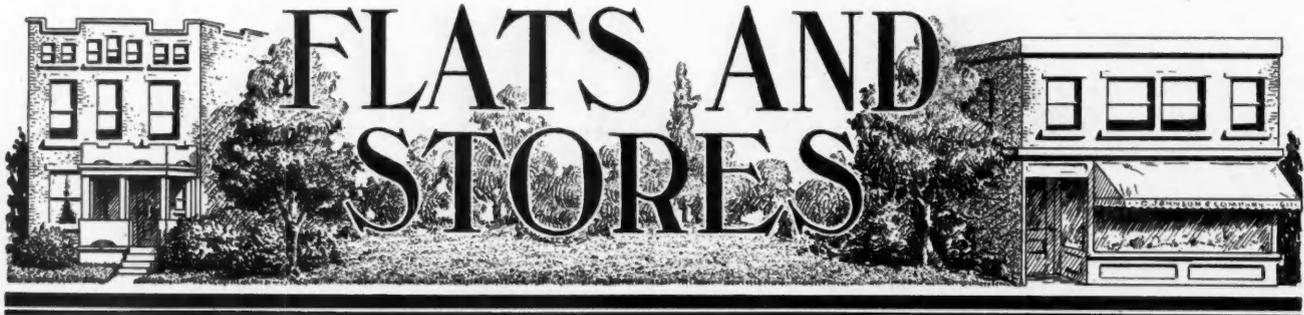
required for the bank itself; and a second story is usually added. This makes a strong architectural effect possible and also secures very desirable office space which is much in demand by doctors, lawyers, etc., at a good rental. The building illustrated, recently designed by G. M. Ashby, architect, shows such a building in its best form.



First Floor - Banking Rooms



Second Floor - Offices



Planning and Design of Modern Flats

A PRACTICAL CONSIDERATION OF THE PROBLEMS CONNECTED WITH THIS FORM OF MODERN RESIDENCES—SOME TYPICAL DESIGNS SHOWN

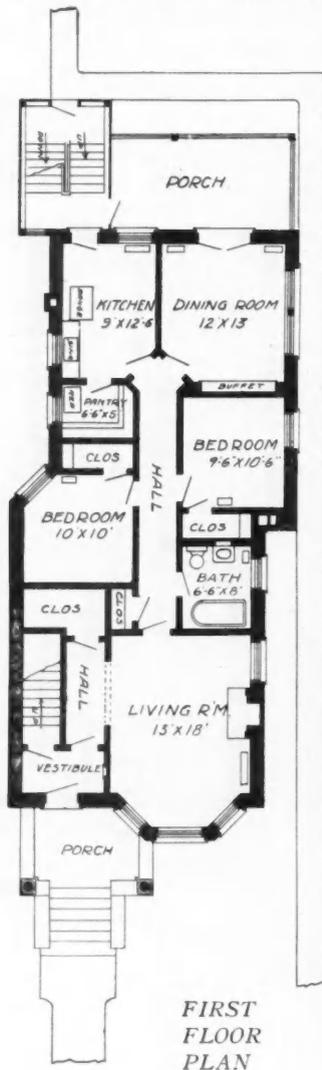
THE popularity and use of the apartment or flat building is no longer confined to our largest cities. Both Chicago and New York claim the honor of having originated and developed this type of city residence; but they can no longer claim a monopoly on its use. Forced partly by the high price of land in the desirable sections within reach of the

city centers, partly by the increasing cost of all the necessities and luxuries of life, as well as the annoyance and difficulty of securing competent help, our American families have

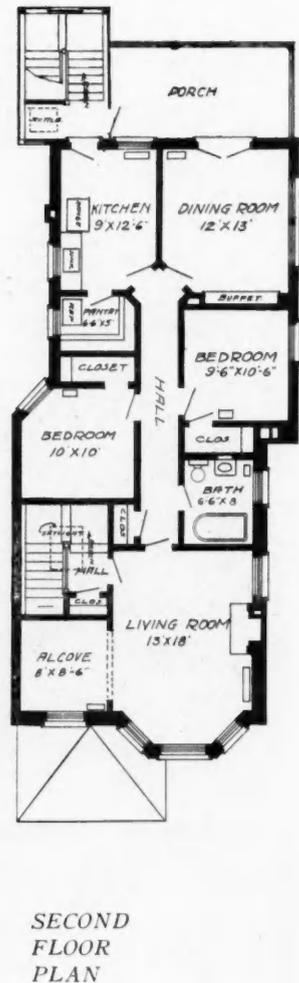
been compelled in many of our cities and suburban towns, to abandon their natural preference for private and individual homes and enter upon what is probably an early phase of co-operative living.

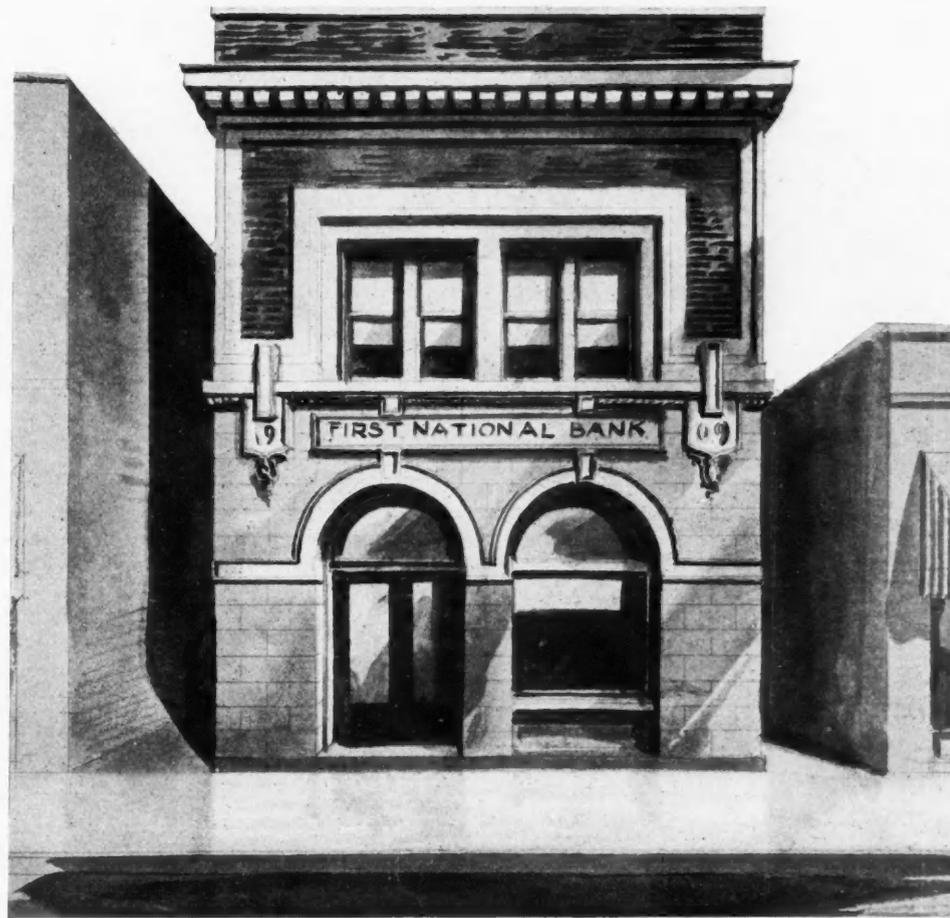
The buildings devoted to this co-operative living may be generally divided into two classes:

The family hotel, in which the co-operative idea is so far developed that the necessary cooking and laundry work are done in common, either in or outside the building, in which case a large dining-room, kitchen and laundry are essential.

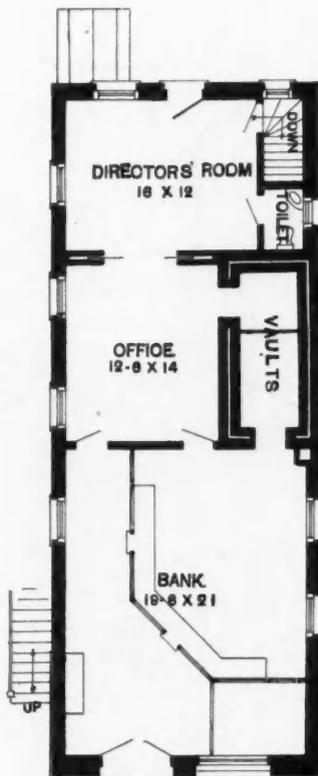


Neat 2-Flat Brick Building on the North Shore, Chicago
Walter S. Church, Architect





Small Bank and Office Building at Shullsburg, Wisconsin
A Very Satisfactory Design



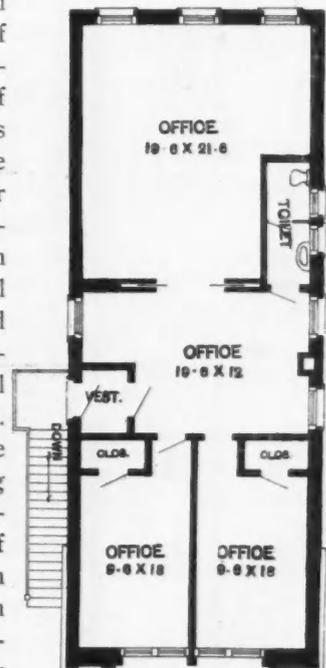
FIRST FLOOR—BANK

The other is the apartment or flat building proper, where each apartment is self-contained and completely equipped for a family home.

For the purposes of this article we have selected a number of designs by the leading architects of Chicago who have made a special study of flat building arrangement and construction. A majority of these designs are of the smaller, medium-priced class of buildings, such as are most often desired; these are the popular two-flat buildings, and apartments or offices combined with business buildings. Three- and four-flat buildings are also shown together with two of the larger city apartment houses for nine and twelve families. All of these designs have proved practical and satisfactory in actual work. They possess special features that recommend them for careful study to all builders interested in this class of work.

Some points worth noting in connection with the proper planning of an apartment or flat building were brought out by Thos. McCall, architect, in discussing this subject. It appears that the planning of an apartment building is much more difficult than planning an ordinary residence. Proper provision must be made for the kitchens, pantries and dining-rooms, and for the convenient housing of help, for the reception of supplies, disposal of garbage, etc.

The requirements as to air and sunshine are very ex-



SECOND FLOOR—OFFICES



Well-Planned 2-Flat Building—Brick with Cut Stone Front
Thos. McCall, Chicago, Architect

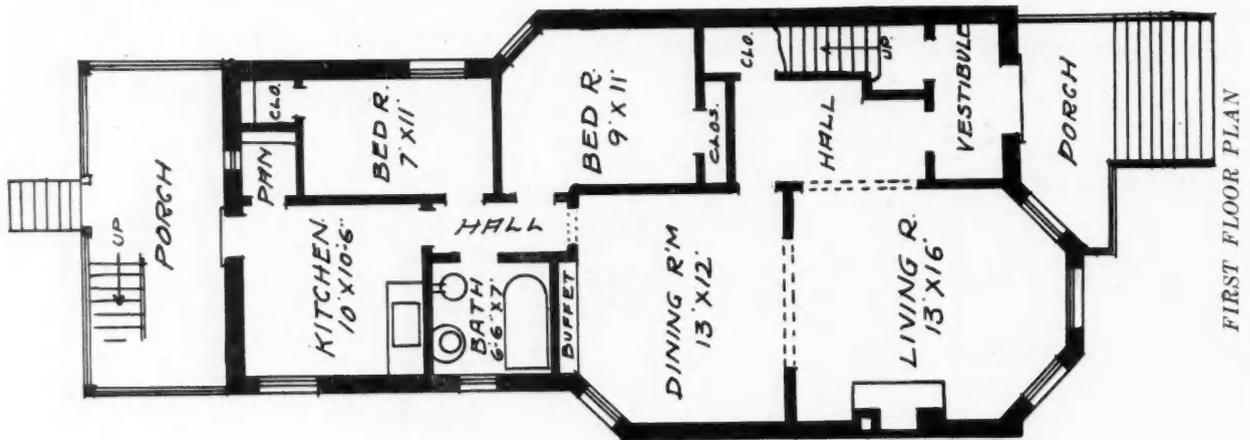
acting. The sense of privacy to each family must be maintained as far as possible. Most city ordinances now require that each apartment be separated by a brick wall, which is an excellent provision.

The latest arrangement in apartments is a great improvement over that of ten years ago; the long, narrow hall is now almost entirely dispensed with, so that in entering an apartment now we step into a square room or reception hall; and from this, through large openings, to the principal rooms. The reception hall is fitted up with fireplace, wall seat, or paneled to present a cozy appearance.

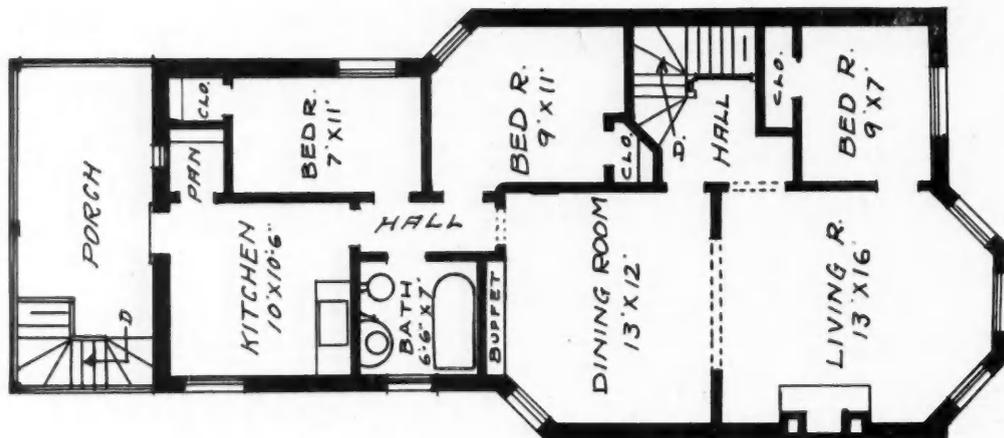
The parlor and library is in the front, commanding a view of the street, and fitted with a fireplace suitable for burning wood, coal or gas.

The dining-room also comes in for considerable attention, with paneled or burlaped dados, plate shelf, side-board and beam ceiling. The location of the dining-room is also a matter of much importance, requiring some thought and study, according to conditions.

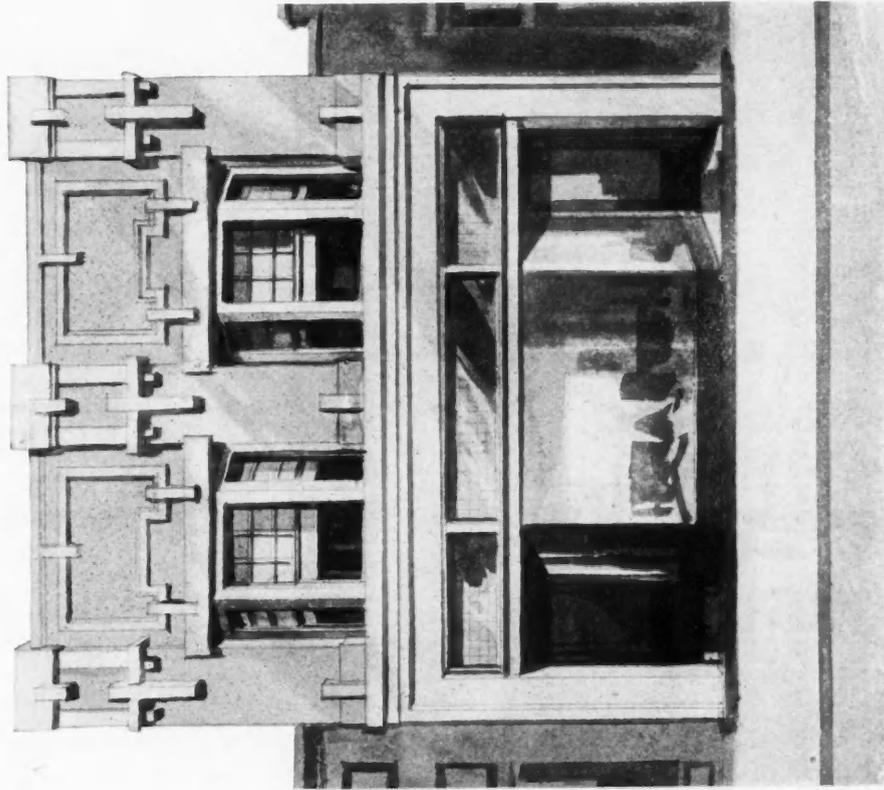
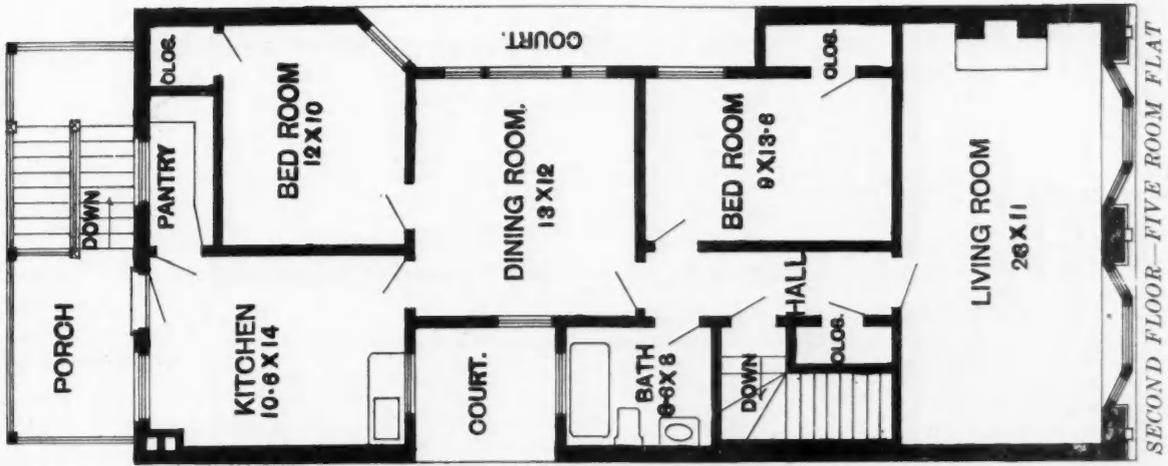
The kitchen must be located conveniently to the dining-room, and of ample size to hold the furniture and equipment without being congested. Then, as to the pantries, bath-rooms, chambers and closets, each requires special attention to make the apartment complete and desirable. Bedrooms must be of ample size and arranged especially to receive the furniture, so that radiators will not come under the beds, or gas



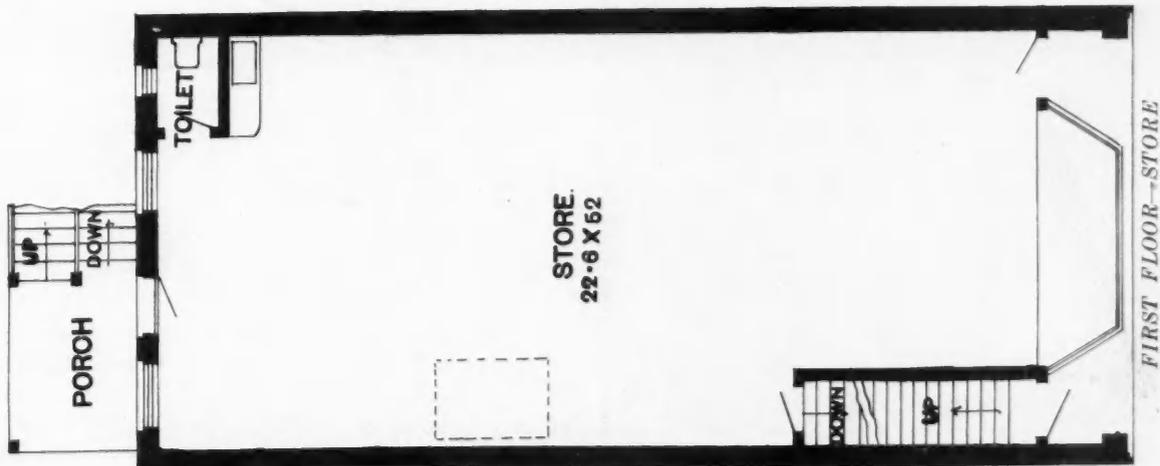
FIRST FLOOR PLAN

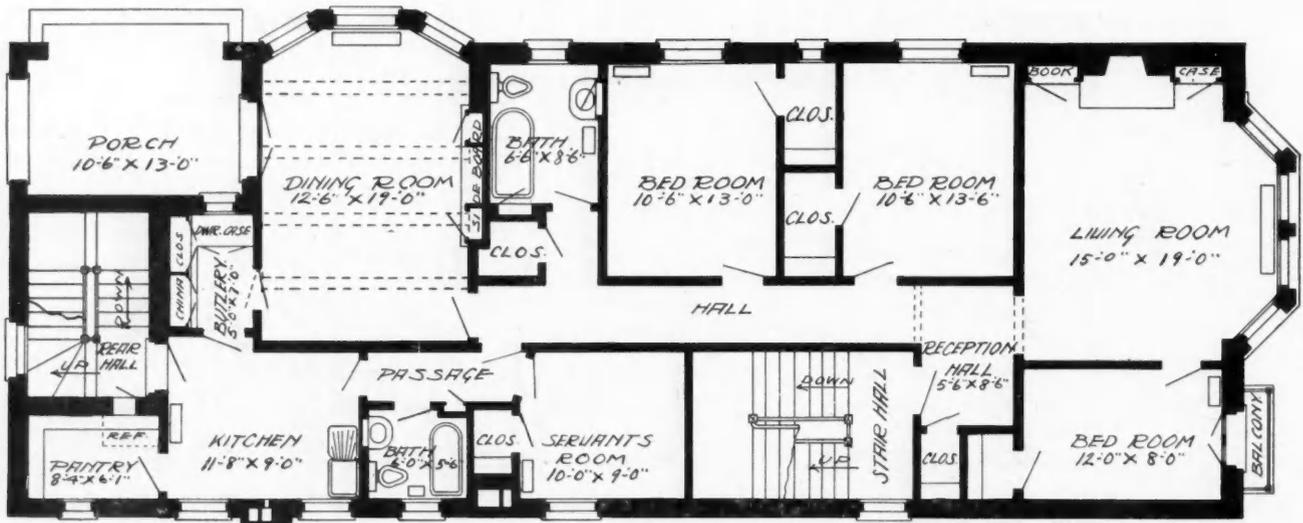


SECOND FLOOR PLAN

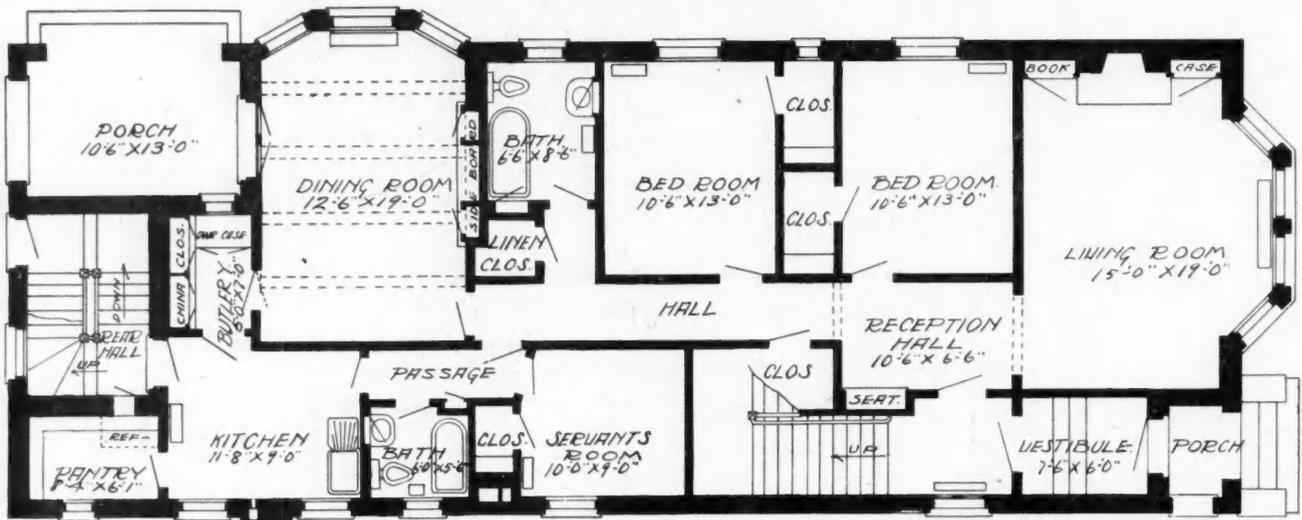


An ornamental design for store and flat building of brick with stone trimmings and plaster panels. There is a large, well-lighted store room on the first floor and a very desirable, nicely arranged 3-room apartment on the second. Estimated cost \$5,000.

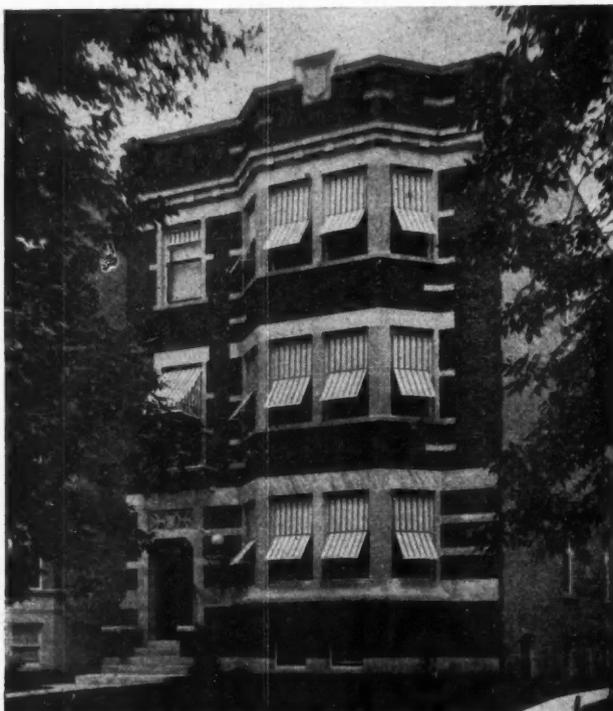




PLAN OF SECOND AND THIRD FLOORS



FIRST FLOOR PLAN



Very High Class Modern 3-Flat Building
Myron H. Church, Chicago, Architect

brackets located so that the doors will bump back onto them, as is the case sometimes where plans are hurriedly drawn.

The bathrooms and sanitary arrangements require very careful attention, as a great deal of needless expense is often incurred by the careless running of pipes and placing of fixtures.

The department of help also requires some thought; the day of the servant sleeping in the basement has gone by, so we must make the proper provision for help in the apartment, if we wish to keep house and enjoy long life with a reasonable amount of happiness, and this arrangement is much more satisfactory to all parties concerned.

The heating apparatus is a very important feature, and requires some careful figuring to arrive at the correct proportions in boiler, radiation and chimney, to insure comfort throughout the building, with the minimum amount of fuel and attention. A poor heating plant in a building frequently tends to a poor investment, as it creates dissatisfaction amongst the tenants and consumes the maximum amount of fuel.

A little care in first adjusting the apparatus is the remedy—prevention is better than cure.

The janitor's rooms should be located in a pleasant part of the building, as an inducement to keep a good man, and of easy access to the tenants and others seeking information about the building.

The arrangement of the basement is a matter of great importance. The lighting and sanitary conditions should be the best possible. The laundry and store rooms should be located so they will not come in contact with coal dust. The coal room should be located for the convenient unloading of coal, with the least handling, and, if possible, in an alley. The garbage crematory, the hot water supply, and in short the whole equipment should be carefully studied out, to combine completeness with simplicity, thus making the care of the building an easy matter.

The planning of such a building can only be done successfully by those who understand this class of work. The public is very exacting in the matter of apartments, and is willing to pay the price, but everything must be modern and up-to-date, and the architect who follows the planning of apartments must know what is going on and keep in touch with public demands, and there is no reason why what the public demands cannot be made to pay, if supplied to

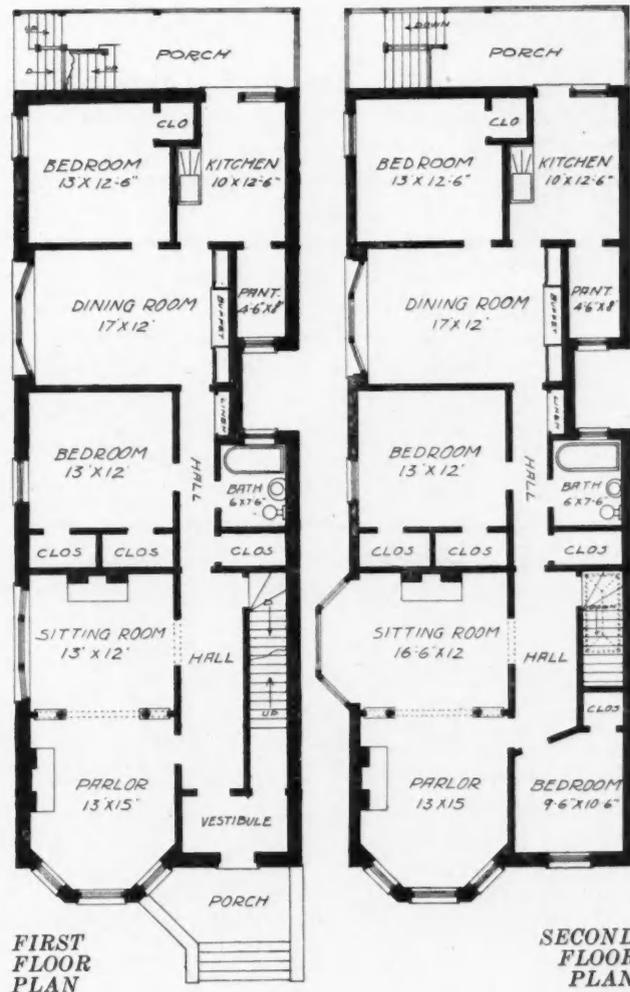
them as they want it in a businesslike manner.

The Two-Flat Building

The two-flat building is very popular as an economical proposition and is especially suited to the



2-Flat Building—Ornamental Design—Thos. McCall, Chicago, Architect



needs of our smaller cities. Rent is always a large item in the monthly bill of expense, and this item can be entirely eliminated by the erection of a two-flat building.

This kind of building is the more desirable for those who prefer privacy, as the entrance or stair to each apartment is strictly private. The owner lives on the first floor and leases the second.

The amount of capital required is small and money is readily loaned on this class of property. It is erected more as a home than for an investment, and at the same time is an excellent investment, as the income from the second flat in most cases pays interest, taxes, coal and other expenses. It has commendable social features, making this plan of living desirable in many ways.

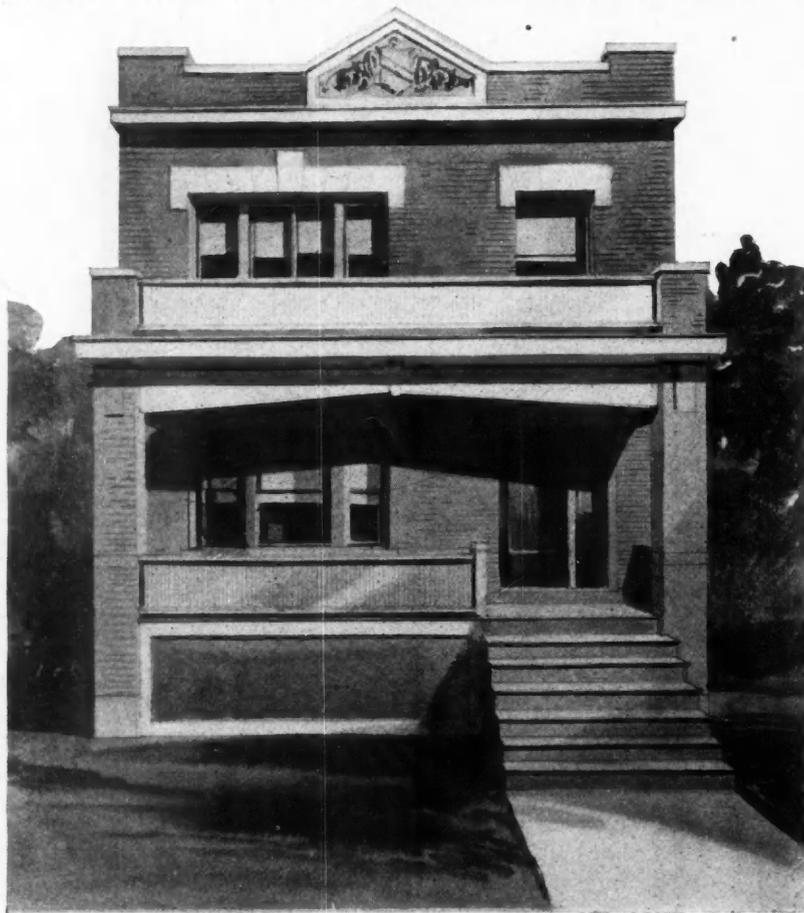
A building for any district should be in good taste—must be well lighted, conveniently arranged, thoroughly equipped, and adapted to the needs of the people. A cheap building in a high grade neighborhood is a public injury, while a high grade building in a poor location is a waste of money and a poor investment. Mistakes through inexperience can be avoided by a little counsel or advice, if taken in time.

Experience counts for much in this twentieth century. Hamilton W. Mabie wisely said, "Practice makes for skill, discipline for character, and the ac-

cumulation of knowledge for intelligence." Tact, skill and judgment are valuable elements in the construction of apartment buildings; then it pays, and pays well—better than any of the stocks or bonds to be found on the market.

♣ **Saw Strikes Horseshoe in Log.**

While sawing through a bitternut hickory log in a mill at Pierpont, Ohio, a horseshoe, embedded nearly



Homelike 2-Flat Building of Very Pleasing Design
Estimated Cost \$4300

4 inches within the wood, was struck and cut through transversely for 3 inches without breaking any of the teeth of the saw, although the friction melted the iron and it attached itself to the plate in six different places. The saw was running at a speed of 600 revolutions per minute.

The shoe was hanging on a nail within the wood, and, according to the rings of growth outside of it, must have been placed there at least 25 years ago.

♣ **Causes of Leaky Slate Roofs and Their Remedy**

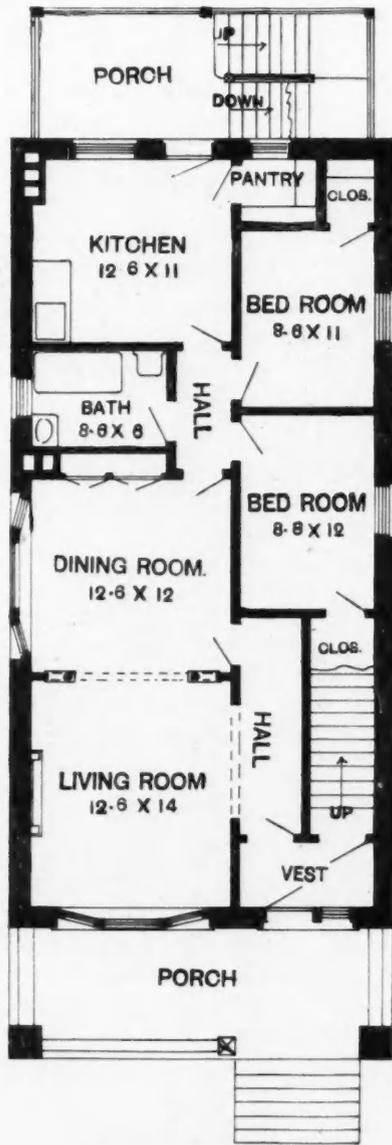
A writer who has had an experience of many years chiefly in connection with slated roofs describes some of the causes of roofs leaking and points out remedies for the trouble in a recent issue of our London contemporary, *The Illustrated Carpenter and Builder*. He intimates that there are few, if any, roofs that do not

at some time or another allow water to enter the interior of a building, staining the ceiling and doing other damage. He states that the two leading principles in connection with roof work are the pitch of the roof and the mode of covering it. He points out that the flatter the pitch the larger the slates and proportionately increase of lap, while the steeper the pitch the smaller the slates and less the lap. What he further says on the subject is of such general interest that we present it herewith.

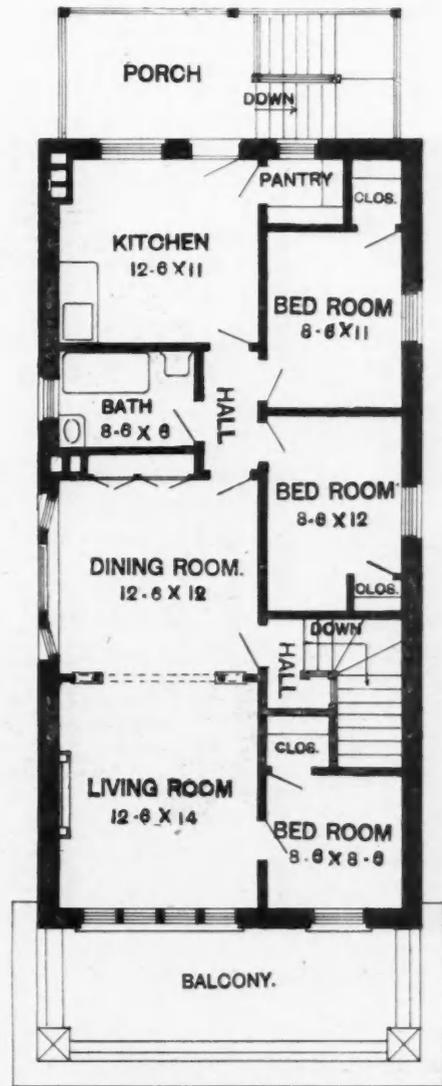
On more than one occasion when the writer has had to repair a roof that looked perfectly sound, he has been told by the tenant that the leak appeared only after very heavy rains, and on removing a few slates over the defective part he has not found any broken or cracked slates to cause the leak. In other words, the roof is flat pitched, the slates are small, and the lap insufficient.

To remedy the defect, and where appearance is no object, an easy way out of the difficulty, and one that does not involve stripping the roof, is as follows: Remove about a dozen slates centrally over the spot where the rain has soaked through. If the existing slates are 16 by 8 inch or 20 by 10 inch procure some larger slates, trim down to the same width as existing slates but not the length, so that the extra length will give an extra lap to that portion of the roof affected. If, however, through weakness of roof timbers, a part of the roof has become concave on the surface the rafters should be firred up and the slates refixed.

Another and very frequent cause of leakage is where the roof abuts against the walls. It should be remembered that a great safeguard against leakage at this point is the insertion of a tilting fillet at the time of constructing the roof previous to covering in. It helps to keep the rain from percolating beneath the slates or flashings. The tilting fillets, though very essential, are in a good many cases omitted. They should be fixed at the junctions of walls and roofs as well as at the under-eaves. There can be little doubt that flashings make the best finish at these points. Cement fillets do not, generally speaking, last long. The vibration of the roof in stormy weather causes the cement to become detached from the slates, leaving a gap for rain to enter, as the fillet has a better key and adheres firmer to the brickwork than the smooth slates. It would be better for the fillet to be oblong rather than angular in section, so that the greater part is on the roof. Were the fillet composed of lime and hair



FIRST FLOOR
TWO-FLAT BUILDING

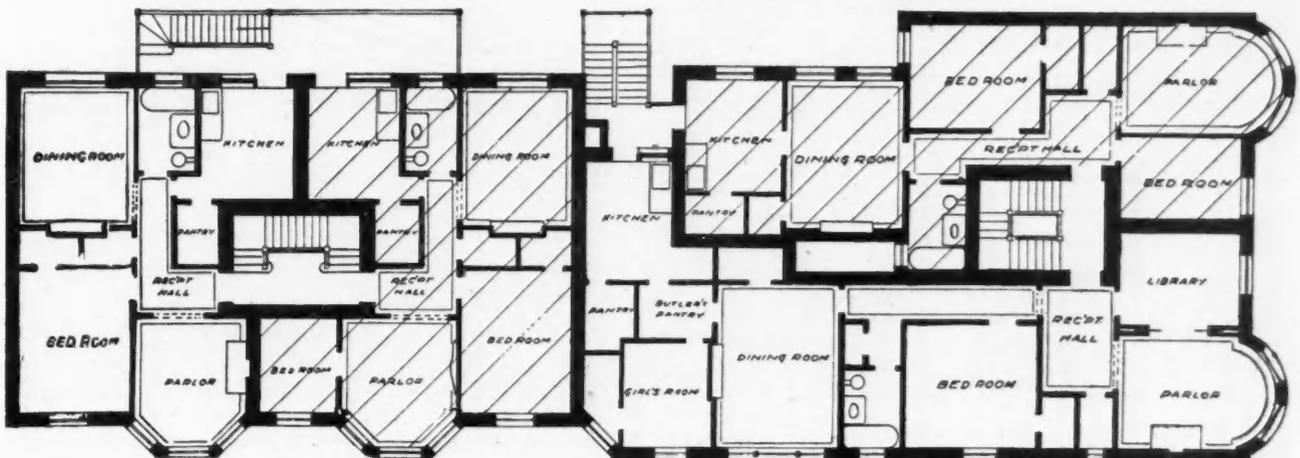


SECOND FLOOR
TWO-FLAT BUILDING

gauged with cement it would be an advantage over the usual cement and sand.

The bond of slating should be regular throughout, as any variation has a tendency to allow rain to enter the roof, especially during heavy storms.

In order to economize slates sometimes the under-eaves are composed of small pieces of slates just sufficient to break the joint, etc., but this should not be allowed. Rain falling on a roof increases in volume as it gets nearer the gutters and consequently the under-eaves course should be composed of full width slates as well as any other part of the roof, for if not



Typical Floor Plan of the 12-Apartment Building Shown on the Next Page



Modern 12-Apartment Building at Jefferson Avenue and 54th Street, Chicago. Thos. McCall, Architect



Beautiful Building Containing 9 Sumptuous Apartments. Andrew Sandegren, Architect

so constructed it is liable to allow the rain to find its way to the interior of the building.

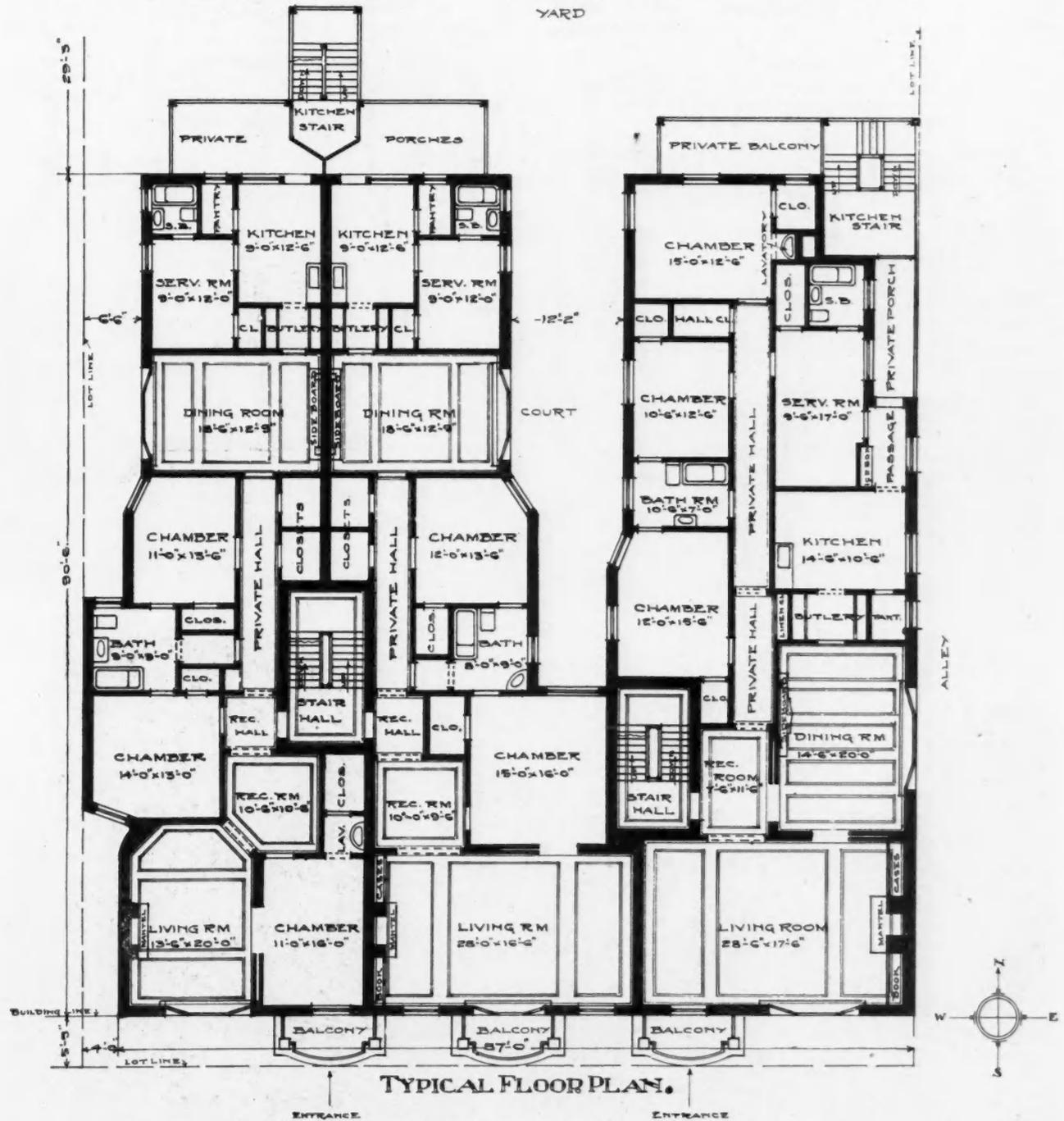
A good, sound slate roof requires:

- (a) Tilting fillets at gutters and at junction of walls.
- (b) No cement fillets but proper flashings wedged and pointed to the brickwork or stonework.
- (c) The bond properly kept throughout.

exposure being equal in cooling effect to 75 cubic feet):

First, obtain the cubic feet by multiplying the length by the width of the room and by multiplying this result by the clear height of the ceiling.

Then multiply 10 per cent of the net wall exposure by 75 and add this amount to the total.



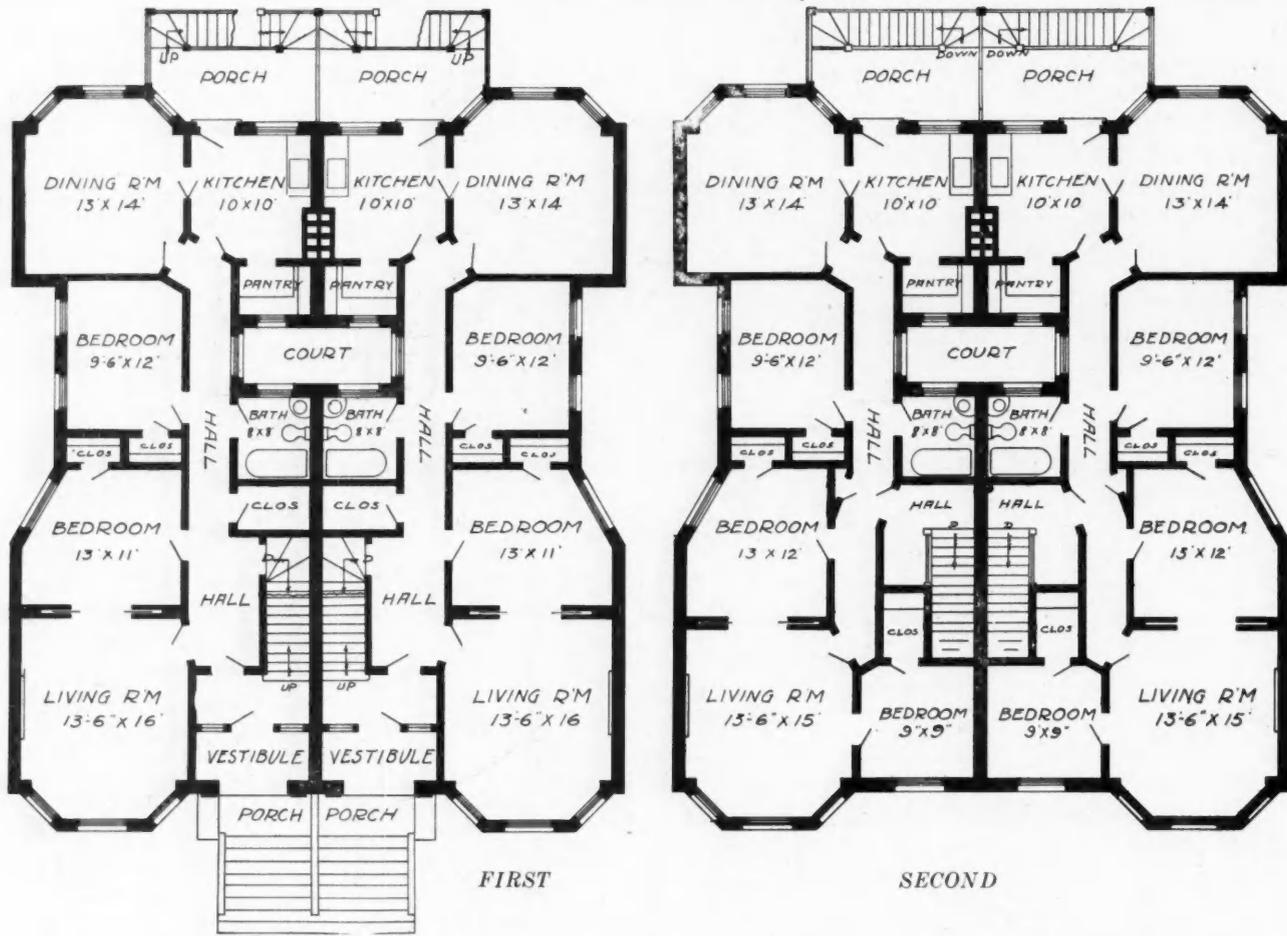
Typical Floor Plan Nine-Apartment Building. There Are Three Expensive Apartments on Each Floor

(d) The lap regulated according to the pitch of the roof.

Easy Rule for Furnace Men

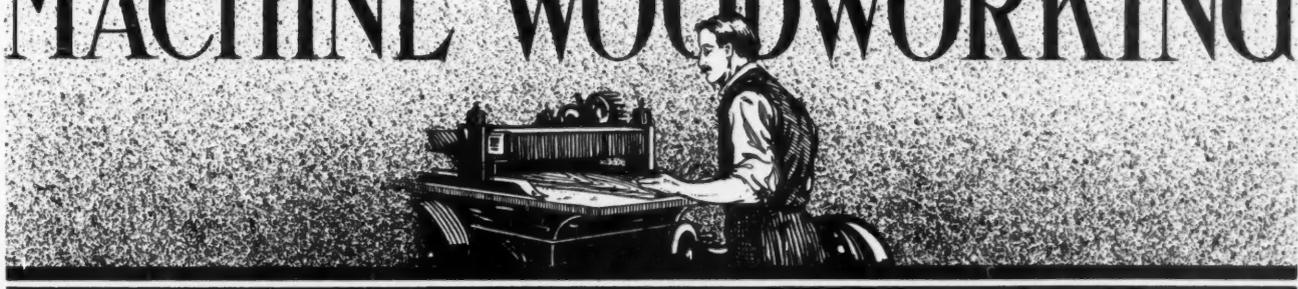
A simple rule for determining the equivalent cubic feet is: To the cubic feet in each room add for wall and glass exposure as follows (one-tenth of each square foot of wall exposure being equal in cooling effect to 75 cubic feet, and one square foot of glass

Then multiply the glass exposure by 75 and add this amount to the total cubic feet, and the cubic feet, the multiplied 10 per cent of the net wall exposure, and the multiplied glass exposure will constitute what may be called equivalent cubic feet; that is to say, the total will be equal to the cubic feet to be considered in determining the size of the furnace, the size of the warm air pipes and the size of the registers that will be required to heat the house.



Satisfactory Design and Arrangement of 4-Flat Building. Thos. McCall, Chicago, Architect

MACHINE WOODWORKING



The Care of Planer Knives

HOW KNIVES AND MACHINE ARE ADJUSTED AND REPAIRED AFTER THEY HAVE BECOME WORN—PRACTICAL ARTICLE CONTINUED FROM THE JULY NUMBER

By J. Crow Taylor

IT IS a comparatively easy job to adjust and care for knives when both the machine and the knives are new, for there are certain well-defined rules to follow, part of which have been laid out heretofore. It is when both machines and knives get worn, strained and battered from use that difficulties arise which are not provided for and thoroughly covered in the general rules and instructions for setting and adjusting knives. It is then that a man begins to realize the limitations of his knowledge, when he comes across conditions that he never counted on and is frequently at loss just what to do. He begins to realize, too, something of the value of experience; what is called book learning or knowing the principles that apply generally is not by any means the whole thing. A man gets the most of his real practical education through experience which leads him into and out of all kinds of puzzling situations.

When Knives Are Sprung

One of the troubles that comes to planer knives quite frequently in the course of time is the springing out a little right at the point of the cutter head lips, so that the chips begin to work their way under the knife. Sometimes the springing out of the knife primarily leads to the chips edging their way in and at other times possibly the wedging in of chips starts the knife springing out. Anyway, no matter which leads to the other, the two combined make a very common and irritating fault in the use of planer knives.

One thing that may induce a knife to spring out easier than it should is excessive tightening of the knife bolts. The man putting on the knives is between two fires on this point. It is decidedly important that he should get the bolts which hold them screwed down firmly so that there is absolutely no danger of the knives coming loose and flying off the head while in motion. When a knife does this, there is damage done and usually quite serious damage. It is regarded as one of the dangerous things about a factory—dangerous to both the man and the machines. A big

knife going out in this way is about as dangerous as the old-time chain shot. It isn't fired with the same velocity, neither does it go as far; but it goes far enough and does damage enough that every possible precaution should be taken against it. Naturally, therefore, the man putting on the planer knives is inclined to screw down the bolts even tighter than is necessary in order to insure safety. It is best that they should do so too, but the result of this straining down tightly on the bolts is to start the knife turning up a little on the edges and in the course of a little while it gets slightly convex on the face side. Then the chips begin working under it and there is danger that they may wedge in tightly enough to break the bolts and tear the knife off and thus cause the same damage they would to come loose and be thrown off.

The novice in planing machine work when first

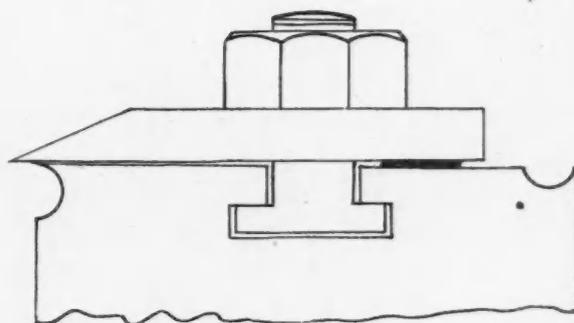


Fig. 1

confronted by this problem of a knife with a convex face side so that chips work under it will be puzzled and will likely be longing for the experience of older men to guide him. Some of these experiences and practices can be set forth here and thus add to the regular rules for the care of planer knives

There are several different methods practiced or different means resorted to by those in charge of planers to correct this fault of planer knives opening at the tip of cutter heads so as to let in shavings. Probably the oldest practice of all is illustrated in Fig. 1; it is to put a sheet iron bushing under the

back edge of the knife, so as to lift it up a little and thus cause the front edge to come down closely at the lip of the cutter head even though it is slightly convex on the face. As a temporary means of curing the trouble this remedy serves very well. But it serves, in time, to aggravate or enlarge the convexity of the knife on the face side. When the heel or back edge is raised for the strip of sheet iron or tin in order to insure raising it enough to let the front come down firmly, it is generally raised a little higher than is absolutely necessary; thus there is created a concave or hollow space under the center of the knives where the bolts tighten down. And with the tightening down of the bolts the knife is sprung down into this. After being kept screwed down tightly until it runs its time it is pretty well fixed in this additional curvature and stays there until in the course of a little time additional bushing must be added to the back. So finally it is found that some other remedy must be resorted to, unless meantime the knife becomes so worn that it needs replacing with a new one.

Another remedy, and a better one, though it takes longer and cannot be applied so quickly, is to straighten or flatten out the knife immediately after any evidence of convexity appears on the face. The average planer knife is made up of a body of iron and laid with steel on the face. This makes it much easier to straighten than if the knife were a solid bar of steel. Probably it strains and gets convexed a little easier, too; but still it is better in this respect than a solid steel knife because it is well-nigh impossible to work a tempered steel knife blade without danger of cracking it, while the iron one can be easily straightened out by different methods.

Some, and probably the majority of millmen, resort to hammering certain knives which have become convexed on the face side. It can be done in this way, too, but one should be careful about it unless the knife becomes kinked and crooked on the edge. Knife hammering for straightening partakes somewhat the nature of saw hammering and calls for a smooth anvil and careful work. Usually a man when hammering a knife to take the hump or convex off the face side will set back a little more than straight and leave the face side a little concave.

Another method of straightening these knives so they will fit down is illustrated by Fig. 2; it is to reverse them on the head and put under both the front and back edge a light strap of iron the full length, so as to raise the knife up a little off the head, then tighten all the bolts down, carefully straightening the knife until it is bent down between the two strap supports. Let them stand this way over night and the chances are that the next day they will be straight enough to lie down on the head.

There is still another method, the method of grinding the face of the knife. There is not a great deal of face grinding done, however, on planer knives. Yet, as on some other knives, occasionally it becomes

necessary to reface them by grinding, so as to get them straight and true all over. Quite a lot of this work has to be done in the veneer trade and there may be times also when it is advisable on a planer knife. It should always be done carefully and sparingly, however. Bear in mind that the face side of the knife has only a thin layer of steel and heavy grinding on it repeated a few times practically cuts away all the steel and then the knife is worthless. So in facing, be careful to grind just barely enough to straighten it up and put the face in order and then

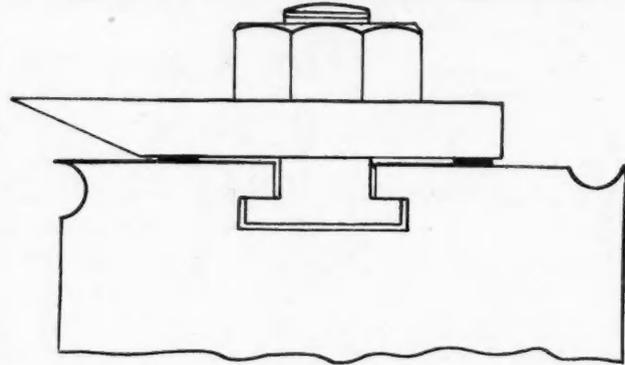


Fig. 2

do it only as often as it is absolutely necessary. When necessary, however, don't hesitate about it at all, because it has been done and can be done again. Where the knife is worn on the under edge or rather on the face side rounding on the edge so that it will have to be ground back an eighth of an inch to get a good straight face again it will pay to save some of the grinding on the bevel by doing a little light facing.

If the cutter head itself gets worn so that it is slightly convex on the face and it is due to this instead of faults in the knife that the knife fails to fit down closely to the lip of the cutter head it may be remedied temporarily by the use of a paper, pasteboard, tin, or sheet metal bushing carefully placed under the back part or wherever it is necessary to improve the fit. But where the cutter head is out of shape in this way the sooner it can be worked on the better. Generally, however, this is a job for the machine shop and not for the planer man and the first opportunity that presents itself the cutter head should be sent off and refaced.



Furnace Heat for the Home

Furnace heat is used in thousands of homes and its efficiency depends very materially upon the location of the furnace and the proper arrangement of its connections. The heating qualities of a furnace can be determined by the purchaser by the radiating surface above the fire pot. A small fire box with a large radiating surface will give more heat than a large fire box with a small radiating surface and, in addition, will allow of economy in the use of fuel.

Having secured the furnace the most important problem for the owner is the selection of its location.

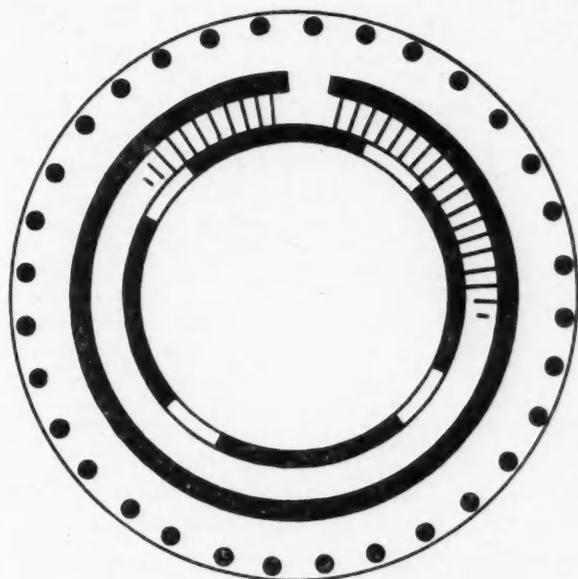
It should be placed as near the center of the building as possible so that its distribution of heat will be equitable in all directions. The owner should make sure that every piece fits smoothly and that all the joints are packed with asbestos cement. The smoke pipe should be of steel or galvanized iron, and should be the full size of the furnace collar. The opening in the chimney should have a heavy iron thimble into which the smoke pipe should fit firmly.

The first and second pipe joints, after leaving the furnace, should be the joints on which the check damper should be placed. This should have a chain attached, running to the floor above, so that the furnace may be regulated without the necessity of descending to the basement. A similar chain attachment should be made with the front draft of the furnace. Round, three-piece elbows should be used on the hot air pipes. Registers should have frames which will leave an air space between the register box and the woodwork, and if piping touches the woodwork at any point it should have at least three thicknesses of asbestos paper wound around it, and over this should be a strip of tightly fitted tin. The registers, of course, should be as close to the furnace as possible. If these precautions are taken the furnace will do its best service in the heating of the home.



The Leaning Tower

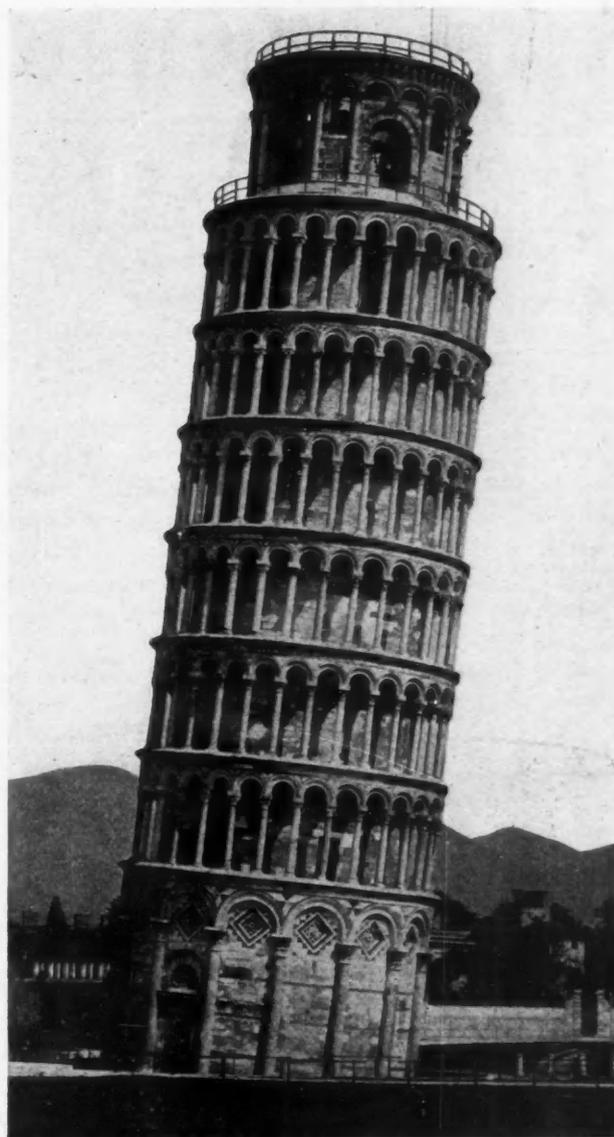
The Leaning Tower of Pisa is one of the wonders of the world, and, from a builder's standpoint, probably the most unusual ever constructed. Various reasons have from time to time been suggested for its peculiar construction, but the theory most generally accepted is that the foundation settled on one side during construction and that the building was then



Typical Floor Plan of Leaning Tower

completed, the columns in the upper stories being made somewhat longer on the lower side to prevent, it is supposed, too great an incline. The tower was

begun in 1174, and was not completed until 1350. It is eight stories high (180 feet) and about 13 feet out of plumb. The circumference at the base is 160 feet. The tower is built entirely of marble. The columns



Famous Leaning Tower of Pisa

number 207. In the belfry there are seven bells, and from the top is one of the most magnificent views in Italy. A circular staircase around an open well leads to the top. It is said that Galileo, whose ideas of the pendulum were suggested by a swinging lamp in the adjoining cathedral, later made his experiment with strings hanging from the inclined side of this tower.



Proper Interpretation

In answer to the question, "What passages in Holy Scripture bear upon cruelty to animals?" one boy said: "Cruel people often cut dogs' tails and ears, but the Bible says, 'What God hath joined together let no man put asunder.'"—*Christian Register*.



Two Pieces of Furniture Worth Making

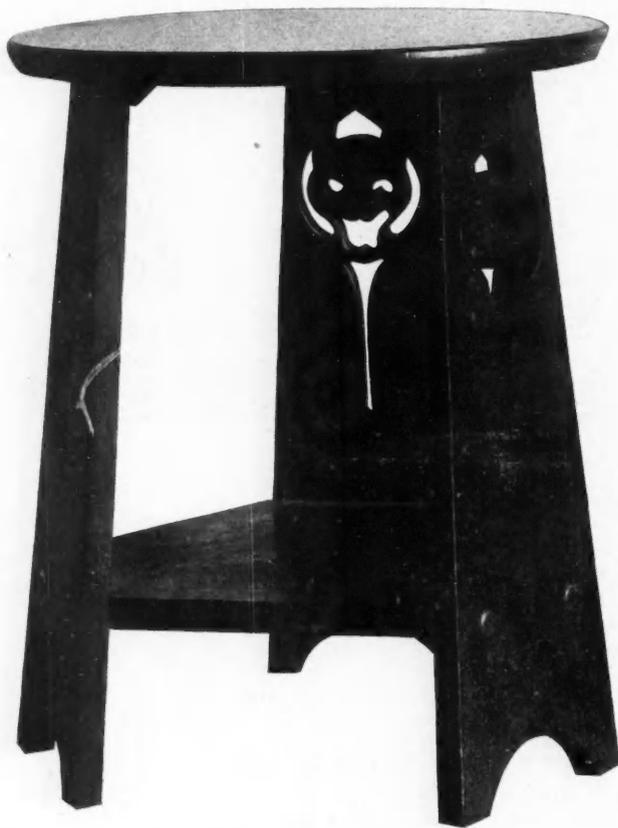
COMPLETE DETAILED INSTRUCTIONS WITH WORKING DRAWINGS SHOWING HOW TO MAKE A TABOURET AND A SETTEE

THE two pieces of furniture described this month are a little different from most of those heretofore given in that they possess pierced ornamentation. This kind of decoration is very effective when properly designed and appropriately used. There is ever a danger that it may develop into mere meaningless "scroll work," such as we used to find—and do occasionally find even today—upon our factory productions, mere ornamentation having no integral part in the design of the piece of furniture and oftentimes with nothing to commend it in the way of good lines or individual attractiveness.

This same extreme we have all observed in the

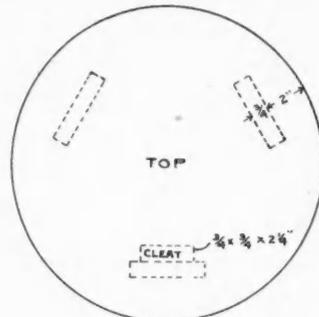
otherwise might appear heavy, clumsy and uninteresting.

To make the tabouret the following pieces are needed. Secure a well-seasoned white oak, quarter-sawn, and have the pieces mill planed and smoothly sandpapered upon the two broad surfaces.

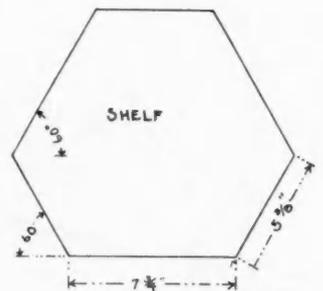
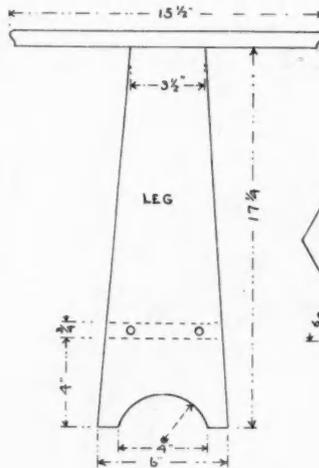


meaningless filligree work which covered the porches and gables of the houses of some fifteen years ago.

However, if such a style of ornamentation be simple and appropriate it oftentimes serves a good purpose in lightening the effect of a piece of furniture which



DETAIL TABOURET PARTS.



MILL BILL FOR TABOURET

Top, 1 piece	3/4 thick	16 wide	16 long
Shelf, 1 piece	3/4 thick	12 wide	14 long
Legs, 3 pieces	3/4 thick	6 1/4 wide	18 long
Cleats, 3 pieces	3/4 thick	3/4 wide	2 1/2 long

With the sweep-arc lay out the circular top. A molding plane will be needed to place the edge as shown. If one is not to be had the edge may be finished rounding with the spokeshave or plane, or it may be left square to the surface.

The shelf is rather odd as to its shape, but it is not difficult to lay out. As easy a way to do this as any is to joint one of the edges of the board straight and square; measure off in the middle of this edge seven

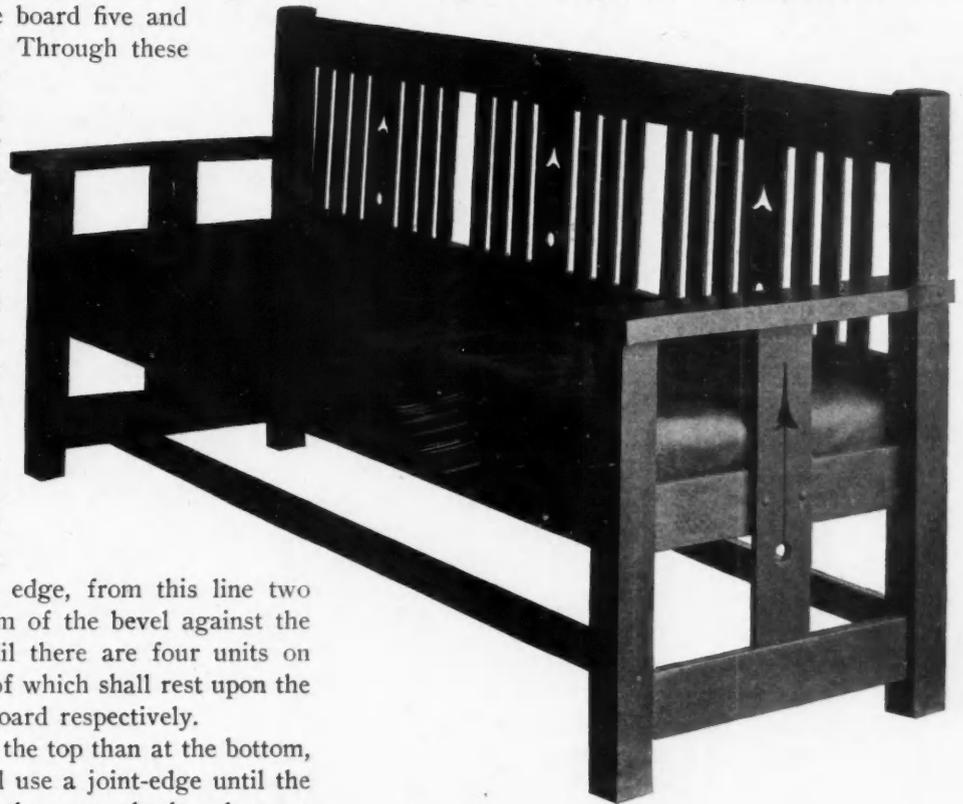
and three-quarters inches. From the extremities of this line, using the bevel set to sixty degrees, lay two lines, as shown in the drawing. Measure up these lines from the edge of the board five and three-eighths inches each. Through these points lay off lines at sixty degrees again, but reversed in their direction. Along these measure seven and three-quarters inches and draw the last line. The edges to which the legs are secured are to be shaped according to the plan. Make a full-sized scale drawing and set the bevel from these lines.

To get the angle of sixty degrees on the bevel, square a line across a board at right angles to a straight edge. Measure along the edge, from this line two units and, placing the beam of the bevel against the edge, adjust the blade until there are four units on the blade the first and last of which shall rest upon the lines and the edge of the board respectively.

The legs are narrower at the top than at the bottom, it will be noted. Make and use a joint-edge until the two ends have been properly squared, then lay out and cut the slopes of the sides. For the curve at the bottom use about a two-inch radius but drop its center one-half an inch below the lower end of the leg that the curve may not show as a complete half-circle.

The decoration shown in the photograph will require a pattern. Draw one-half freehand, full size on a piece of paper; fold over, placing a piece of double-surfaced carbon paper between the parts and complete the design. Transfer this to the wood and bore and saw out the shapes.

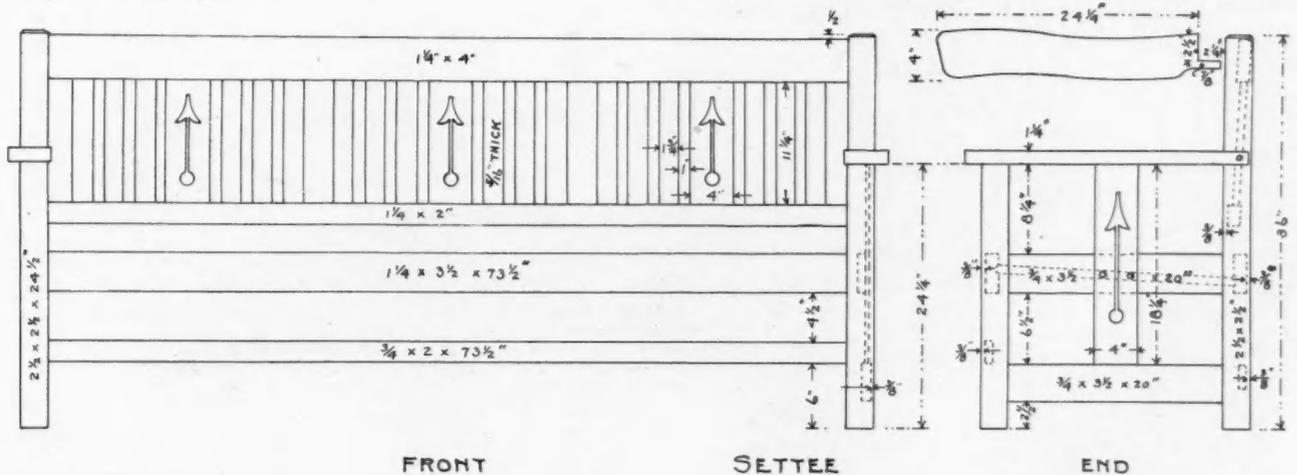
Common screws are used for making the fastenings. In the cleats holes are bored and countersunk, two in each leg and two up into the top in each cleat. For



the lower part, holes are bored large enough to receive the entire head of the screw to a depth of one-quarter of an inch. Round plugs are glued and inserted in these holes after the screws are placed. These plugs project slightly and have their ends slightly rounded.

How to Make the Settee

The settee shown is of the maximum length; it can, of course, be made shorter if desired. As in the tabouret, use well seasoned, quarter-sawed white oak.



The cleats are to be shaped so as to fit the angle made by the sloping legs and the top. Plane off the corner which is not adjacent to top or leg, somewhat. It will be found convenient to stain and fill the parts before they are put together.

Some of the pieces will be specified for mill planing on two sides, but most of them should be got planed and sanded on four surfaces. Where the edges are to be shaped, as in the arms, nothing is gained by having the edges planed.

MILL BILL FOR SETTEE

Back horizontal, 1 piece....	1¼ thick	4 wide	76 long	S-4-S
Back horizontal, 1 piece....	1¼ thick	2 wide	76 long	S-4-S
Back and front, 2 pieces....	1¼ thick	3½ wide	76 long	S-4-S
Back and front, 2 pieces....	¾ thick	2 wide	76 long	S-4-S
End horizontal, 4 pieces....	¾ thick	3½ wide	23 long	S-4-S
Arms, 2 pieces	1¼ thick	4½ wide	27 long	S-2-S
Back slats, 18 pieces	5-16 thick	1¾ wide	12 long	S-4-S
Back slats, 3 pieces	5-16 thick	4 wide	12 long	S-4-S
End slats, 2 pieces	5-16 thick	4 wide	19 long	S-4-S
Bottom slats, 18 pieces	¾ thick	2¾ wide	23 long	S-4-S
Posts, 2 pieces	2½ thick	2½ wide	25 long	S-4-S
Posts, 2 pieces	2½ thick	2½ wide	36½ long	S-4-S

Cut the four posts to the required length and chamfer the tops and bottoms one-quarter inch each. Lay out and cut the tenons on the horizontals, the rails, which enter the posts. It will be best to shoulder these tenons on all four sides.

Cut the mortises in the posts. Note that the back of the settee is inclined by placing the top mortise at the rear of the post and the lower mortise at the front. The drawing shows the positions of the other rails relative to the posts to which they are attached. Forethought and care will be needed in placing these mortises or the parts will not go together properly in making the assembly.

The slats should not be shouldered into the rails but mortises should be cut large enough to take in the whole end. It would be almost impossible, even for the most experienced of workmen to shoulder so many slats and be sure that all of them would fit up properly.

The arrows of the back and end slats have holes one and one-eighths inch in diameter; the slot of the shaft is one-eighth of an inch wide. On the end

arrows, the hole is placed four and one-half inches from the lower end of the slat while the point of the barb is two and one-half inches from the top. The barb is three and one-half inches long and two inches broad at its widest part. In the arrows of the back slats, the hole is one and one-half inches from the lower end of the slat and the point of the barb one and one-quarter inches from the top end. The barb is of the same width as that of the end but is slightly shorter.

Glue up the ends of the settee first. While these are drying put the slats of the back in their rails.

The arms are fastened to the front posts by means of dowels and glue. They are fastened to the rear posts by means of common screws, the heads of which are to be sunk below the surface and covered with round head dowels. The screws that fasten the end slats to the seat rails are similarly covered.

The front rail is grooved on its inner surface three-quarters of an inch wide, one-half an inch deep and one inch from the top edge of the rail. The back rail is similarly grooved except that the groove is placed two inches from the top edge. This is to give the seat a slight slope backward. Glue and brads are used to hold these in place.

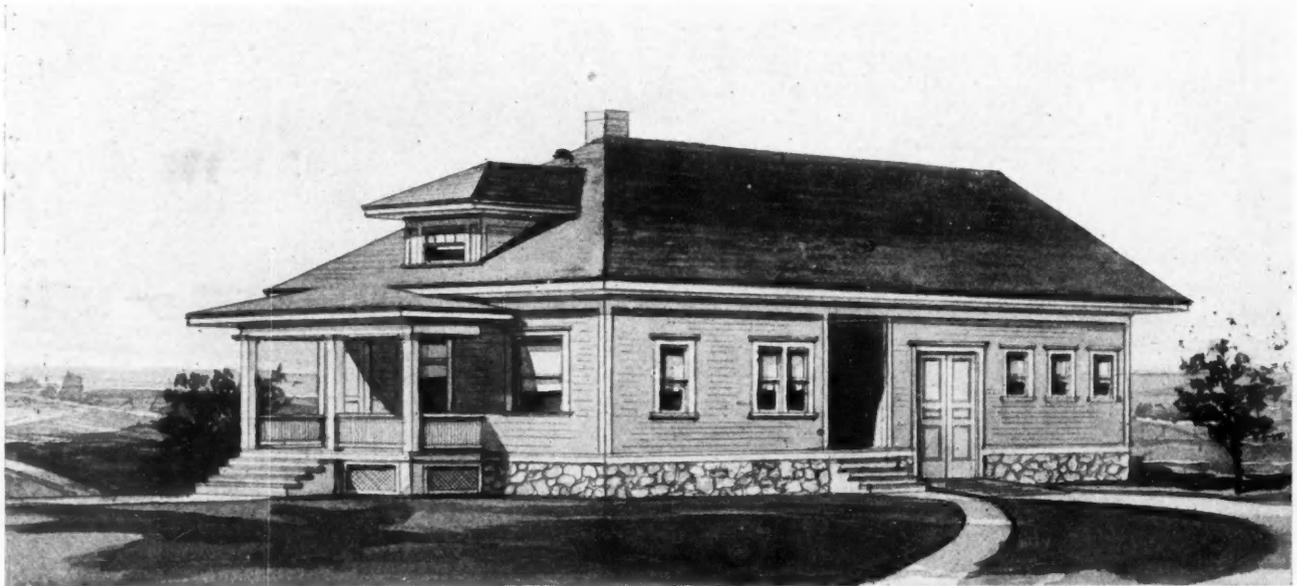
Carefully sand every part before applying any finish. There is always a temptation to slight this part of the operation on the part of amateurs. No other part of the work shows up to so great advantage as this.

Cushions such as the one shown can be purchased in colors to match the finish of the wood. This one is of Spanish roan skin of a soft brown to match the Mission stain. The wood is stained, filled and waxed.

House and Barn Under One Roof

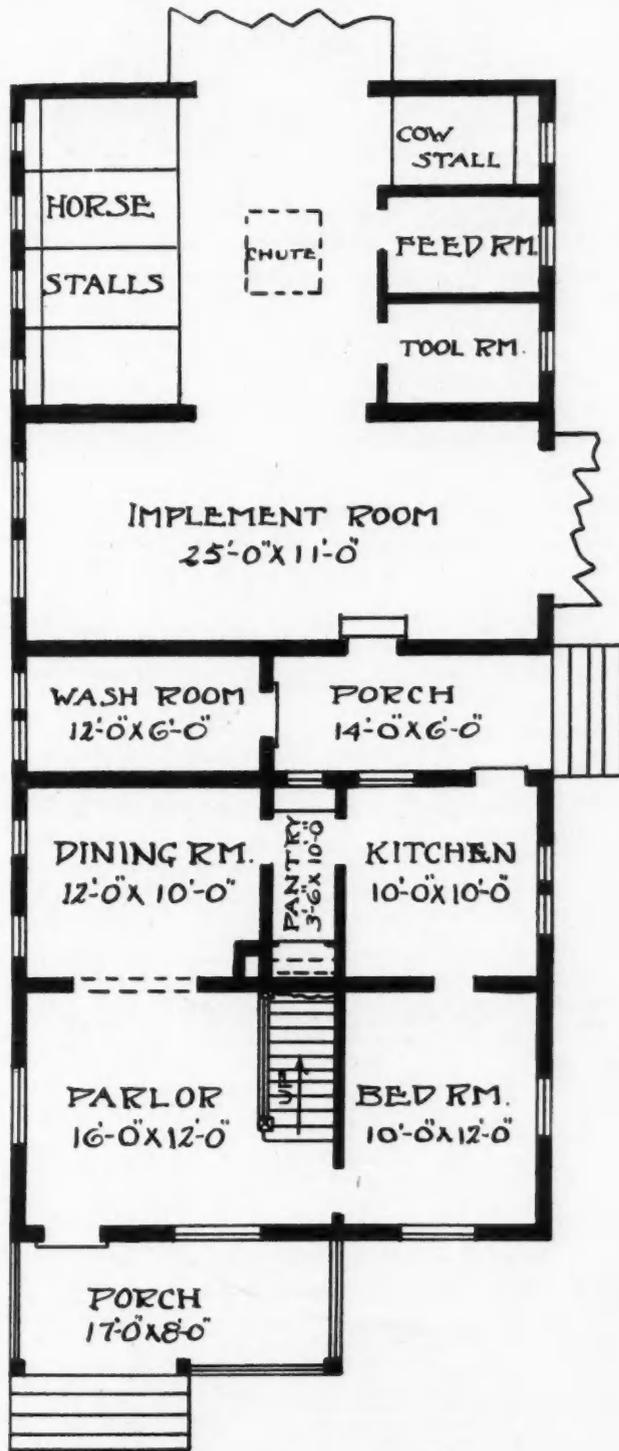
AT THE request of one of our St. Louis (Mo.) readers, who writes that he is going out to Colorado to take up a homestead this fall, we

present plans for an economical combined house and farm building. Part of this letter, stating the conditions, follows:

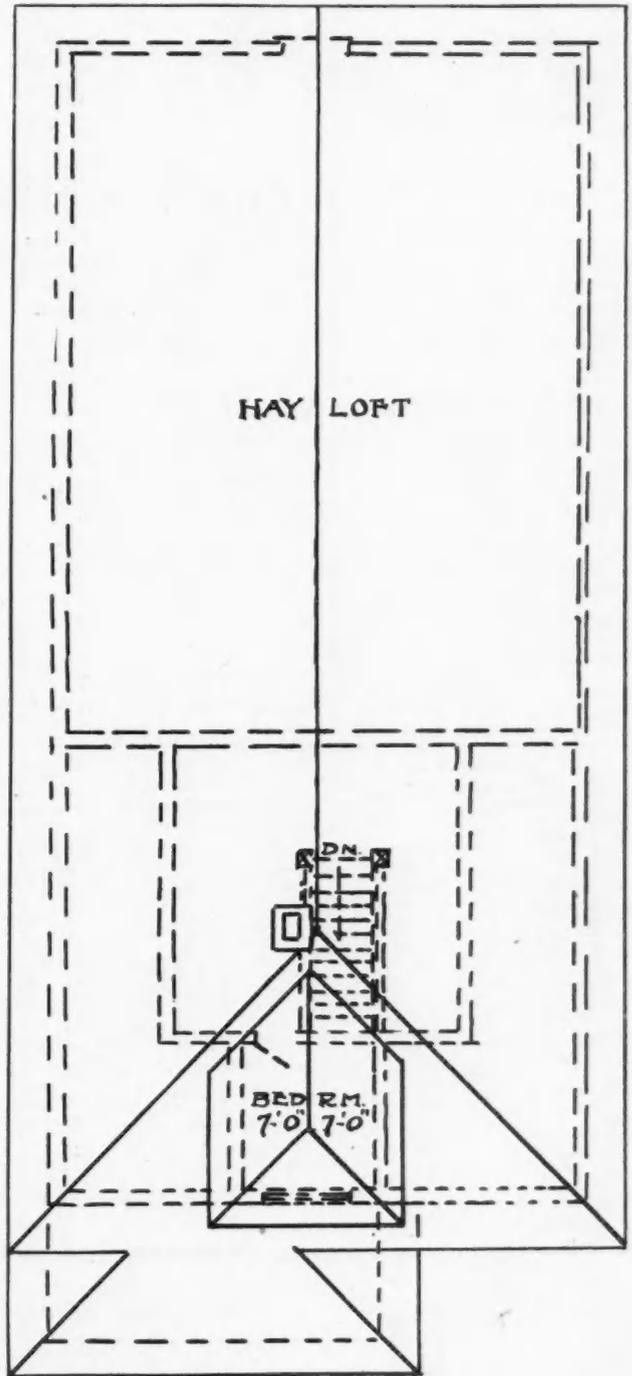


"I am very much pleased to see you giving fellows advice how to make certain buildings. Being myself a bricklayer and only slightly instructed in carpenter work, I'd like to have your advice. I am going this

The accompanying design, which we would offer as a suggestion in this case, seems to meet all these conditions in a very admirable way. The little building certainly presents a good appearance—nothing to



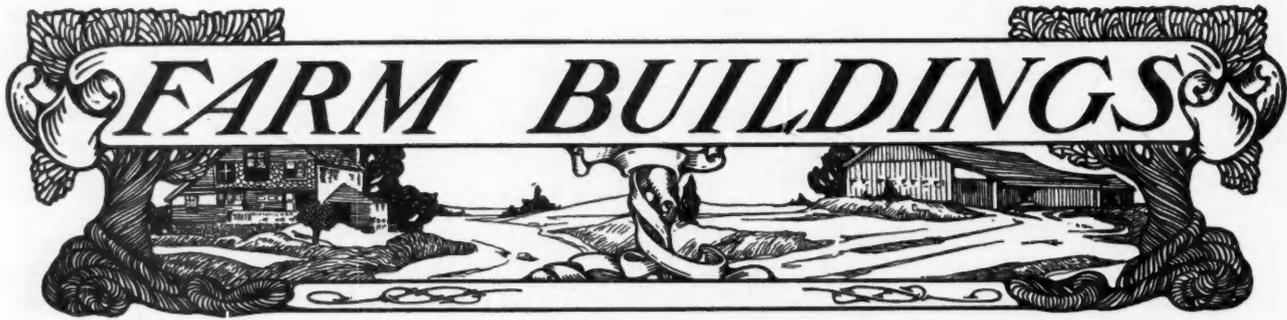
FIRST FLOOR PLAN



SECOND FLOOR • ROOF PLANS

fall to Colorado to take up a homestead. The country is much timbered, so I expect to make a cabin out of wood. There must be room for three people, two teams of horses, one cow and room for farming machinery. Also, the building must look respectable."

be ashamed of; and quite a bit would doubtless be saved by building this way all under one roof. The one point that ought to be carefully attended to in such an arrangement as this is to be sure of proper drainage from the stable.



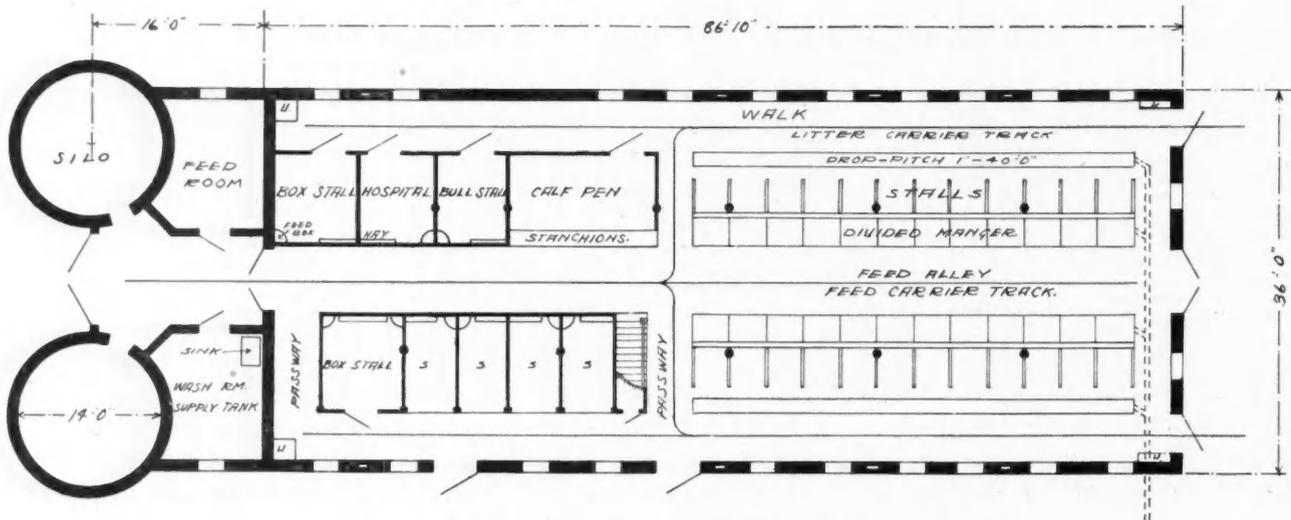
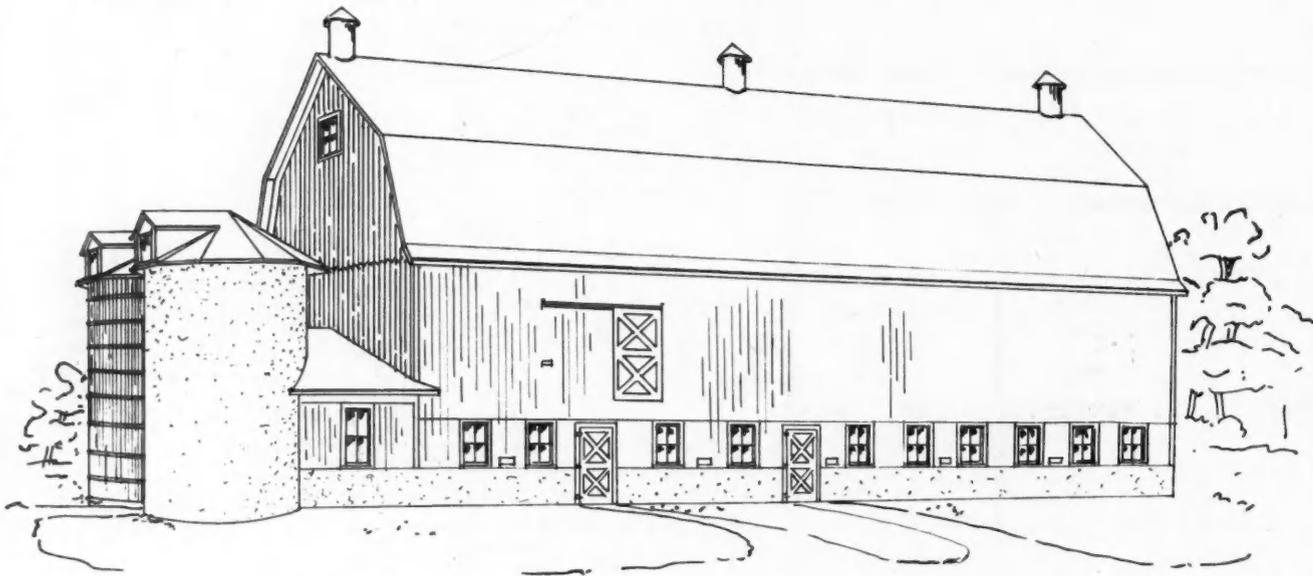
Wisconsin's Model Dairy Barn

COMPLETE PLANS OF THE NEW MODEL DAIRY BARN RECENTLY ERECTED AT THE WISCONSIN STATE FAIR GROUNDS

IT IS our privilege to present herewith the plans of the new model dairy barn recently erected at the Wisconsin State Fair grounds. It is said to be one of the best planned barns in that state. It is convenient, roomy, well arranged for ventilation, light, warmth, cleaning, feeding, etc.

The barn is 30 by 80 feet, plank frame with hip

roof. A look at the end bent will show the method of removing foul air from the basement, and the middle bent illustration shows how pure air is introduced. The barn is provided with two silos, one of brick and the other a stave silo. There is also a washroom wherein a supply tank may be kept. Also a feed room, box stalls, calf pens, cow stalls, horse stalls, etc.

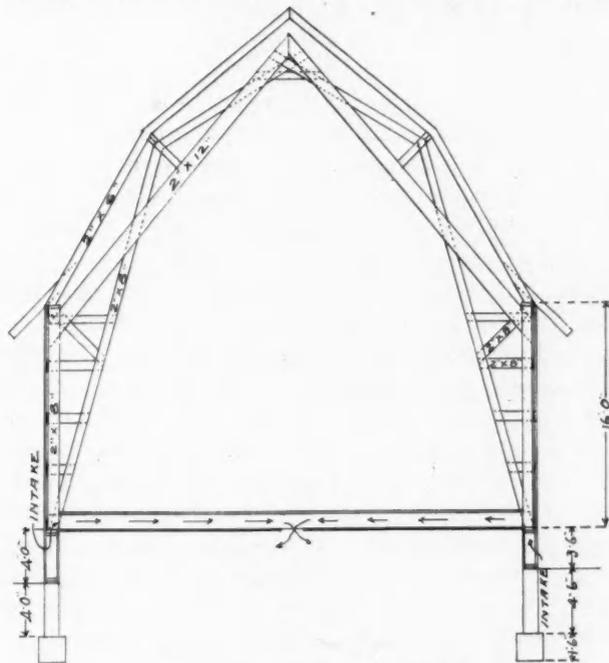


Perspective and Plan of the Wisconsin State Fair Model Dairy Barn

The cattle face the center alley, which is wide and roomy and runs the whole length of the barn, being used for feeding, mainly. A feed and litter carrier runs the entire length of this alley from the silos. It also connects with the track that runs through on each side behind the animals used for cleaning, so that the same car can be used throughout the entire basement, there being three-way switches from one alley to another. All that is required when changing from stable cleaning to feeding is to unhook the manure carrier and hook on the feed carrier.

It will be noticed that there is room for twenty-four cows in this barn, besides the box stalls, calf pen, etc. The cow stalls are 3 feet 6 inches wide, and provided with swing stanchions. On one side is the James stanchions, made by the Kent Manufacturing Company of Ft. Atkinson, and on the other side will be found the Loudon stalls, made by the Loudon Machinery Company, Fairfield, Iowa. The barn is equipped with a hay carrier of the most modern kind; also, the barn is protected with lightning rods put up right.

This barn was put up under the direction of the State Board of Agriculture, and is said to be one of the best projects ever carried out. It is an educator, a complete, convenient, commodious, up-to-date, prac-



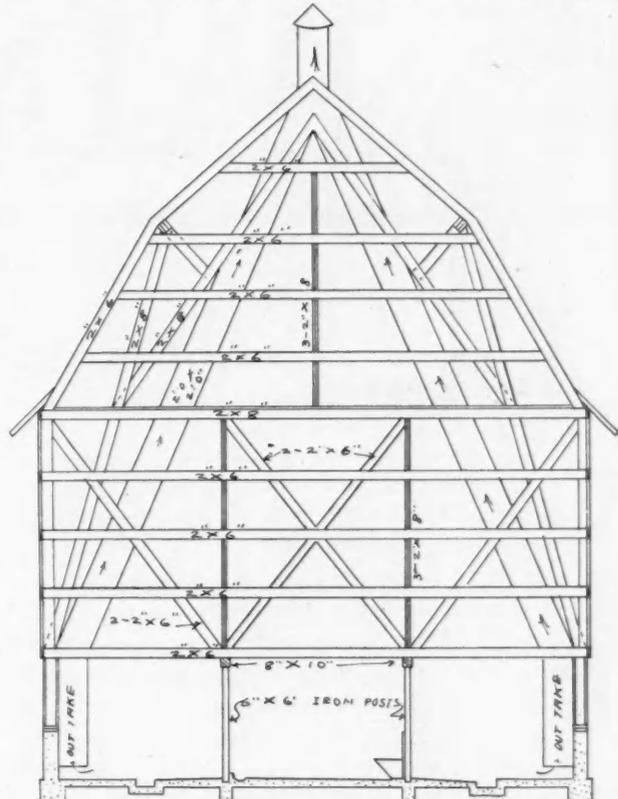
Center-Bent Construction

tical, fine-looking barn, from which anyone desirous of building can pattern. There is no sense in building a tucked-up, unhandy, illy-ventilated and poorly-lighted barn, when one can have a barn that is right for the same price if he only plans it right. That's what this barn is for—to show how to plan a barn and how to build a plank frame, which is cheaper and stronger than a timber frame.

55,000 Ton Brick Building Moved

A notable and extraordinary feat in the line of

building moving was accomplished recently at Springfield, Mass., when the public library building, a 3-story brick structure, was moved 200 feet to make room for the new Carnegie library which is to occupy its



End Framing—Plank Construction

former site. The old building is to be demolished as soon as the other is completed.

The weight of the building is estimated at 55,000 tons, and therefore its moving was rather unusual, although it was accomplished without accident and within the promised time. It was moved the required 200 feet in 20 days by 12 men turning screws.

After the building was jacked up on some hundreds of jack-screws, the foundations were removed, and the weight let down onto twelve 100-foot I-beams which rested on 1,000 steel rollers, 2 inches in diameter, placed as near together as possible.

The rollers rested on 12-inch timbers faced with long strips of iron 1/4 inch by 6 inches.

Horizontal screws pushing against the upper timbers, and held by blocks chained to an anchorage furnished by the substituted under-pinning, moved it back at the rate of 10 feet a day, or about one-quarter of an inch a minute.



Breaking the News

Marion, who had been taught to report her misdeeds promptly, came to her mother one day, sobbing penitently.

"Mother, I—I—broke a brick in the fireplace."

"Well, that is not very hard to remedy. But how on earth did you do it, child?"

"I pounded it with father's watch."—*Success*.



PAINTING

Edward Hurst Brown

Notes on Hardwood Finishing

HOW THE HARDWOOD SURFACE SHOULD BE PREPARED, FILLED AND VARNISHED FOR BEST RESULTS—OTHER FINISHES

VERY often the entire effect of the best grade of interior millwork, put in position by carpenters who understand their business and who take a pride in their work, is spoiled by attempting to save money by using inferior materials for the finishing or perhaps by the inability to obtain skilled mechanics to do the work. Unfortunately, the painting trade, including hardwood finishing, offers less steady work and lower wages than most of the other building trades, and of late years it has become more and more difficult to induce bright American boys to enter it. We are consequently dependent to a very large extent upon the foreign-trained journeyman painter or the inexperienced tramp painters, who have learned (?) the trade by painting bridges or barns with mixed paints, or who have shared the altogether too common belief that "anybody can paint," and have become journeymen painters by purchasing a suit of overalls, a duster and a putty knife, without further apprenticeship.

And this is without any prejudice against the aforesaid mixed paints, with the better grades of which very good and durable work can be done, but the fact must never be lost sight of that the services of a good painter are necessary to produce satisfactory results with any kind of paint, whether a ready mixed or shop mixed; and again, the competent mechanic will produce a good job either with paint that he mixes himself or which is made by machinery in a factory, provided that in either case the paint is properly proportioned and made of good quality pigments and thinners. But to return to our subject of hardwood finishing.

Preparation of Surface

The first thing requisite is that the lumber shall be well finished, clear and free from sappy or loose or ugly knots, and perfectly smooth. The carpenter's standpoint of smoothness is by no means that of the hardwood finisher, and 00 sandpaper, glass or scrapers will usually be required to bring to a perfect surface

the work which the carpenters have regarded as finished. Fine steel wool, if carefully used so as not to cut away the sharp edges of projecting moldings is superior to sandpaper for producing a smooth surface in the shortest time.

The necessity for this extra care in finishing the surface is due to the fact that the varnish brings out every little inequality in the wood, and magnifies it to an extent which it is difficult for the carpenter to appreciate. Where the woodwork is to be painted, the same care is not necessary, but adds very materially to the appearance of a handsome house. Every stray blow of a hammer, which causes an accidental depression of the surface of a piece of trim causes a defect which is almost impossible for the hardwood finisher to remedy; and although nail holes may be puttied up, it is almost impossible to prevent them from showing, because, if the color of the wood is matched today, it will darken so much in a few months that every puttied nail head will show out as a light spot.

This darkening of wood, especially when coated with any varnish containing oil, is impossible to prevent; but it may be minimized on close grained woods that do not require the use of a paste filler by sealing up the pores by the use of bleached shellac as a first coat. This, however, can be used only on interior woodwork, since shellac will not stand exposure to dampness. Moreover, shellac requires considerable skill to apply properly and to produce a smooth even coating, because of the rapid evaporation of the denatured alcohol with which the gum is "cut" or dissolved. In order to make it flow more freely from the brush and to dry less rapidly, the addition of not more than 10 per cent of Venice turpentine to the gum shellac is recommended, but too much of it will cause the shellac to soften under higher temperatures or may cause subsequent coatings to crack.

After the woodwork has been made as smooth as possible, it must be carefully and thoroughly dusted, and the room swept and made perfectly clean before

any subsequent operations are begun. A dust free room is essential to a perfect surface, otherwise floating particles of dust in the air will settle on the freshly varnished surface, producing a fuzz or roughness impossible to entirely remove.

Another thing important to remember is that successful hardwood finishing cannot be done in cold weather, unless the room is kept at an even temperature, and is not allowed to become colder than 70 degrees, night or day, until the varnish has become thoroughly dry. Nor can a good job of varnishing be produced when the carpenters or other mechanics are working in the same room. If a high grade of finish is required, the painters must be given entire possession of the room, and plenty of time must be allowed, for it is impossible to produce permanently satisfactory results if any of the operations involved are hurried in the slightest.

Paste and Liquid Fillers

With all open grained hardwoods, such as oak, ash, chestnut or mahogany, the first operation needed is to fill up the pores of the wood with a hard drying, transparent material termed a paste filler; although if the wood is to be darkened or stained this is usually done first—but as staining is incidental rather than essential, we will consider it briefly later.

A good paste filler is a sort of paint made by grinding together very finely pulverized or ground silex, or ground quartz rock, with a quick-drying varnish to the consistency of a paste. As it requires expensive machinery to manufacture, the painter should buy a good grade of paste filler made by a reputable varnish manufacturer and not attempt to make his own filler. It is thinned for use with pure turpentine to the consistency required. In order to produce certain effects, such as antique oak and the like, the filler should be colored with pure colors in oil to the tint desired. For example, the addition of from $\frac{1}{4}$ to $\frac{1}{2}$ pound of burnt Turkey umber to 10 pounds of paste filler will produce an antique oak effect. For mahogany, burnt Italian sienna is added in the same proportions. The tinting colors employed should be of a transparent nature, the following being those chiefly used: Burnt Turkey umber, Vandyke brown, burnt Italian sienna, rose pink, rose or maroon lake, drop black, lamp black and black asphaltum varnish; and for some of the green shades, chrome yellow or yellow ochre. A good eye for color is needed to produce the exact effect desired.

The filler is first rubbed into the wood with a short, stiff brush; and when it has become fairly dry to the touch, or say in about half an hour, any surplus must be rubbed off with a handful of excelsior or burlaps, rubbing across the grain of the wood to force the filler into the pores, and then carefully wiped off with a soft cloth. Pointed, hardwood sticks must be used to clean out surplus filler from the narrow quirks and moldings, as the use of a steel putty knife or tool will cause discoloration, the ground silex being much harder than steel and cutting away small particles of

it. A day or two should be allowed for the filler to dry thoroughly before the first coat of varnish is applied.

Liquid fillers, so-called, are not fillers at all, but are really surfacers or first coaters and are intended to take the place of an undercoat of shellac or varnish on close grained wood, such as white pine, cherry or maple. The first liquid filler was put on the market by a Philadelphia painter about 1876, and was well made from a good varnish, a mineral pigment and turpentine. It was imitated by other manufacturers and today there are great numbers of liquid fillers on the market, some of them good, some very indifferent, and others, made from cheap rosin varnish and benzine, are worse than useless, so far as durability is concerned, for although they will prevent suction and enable the painter to get along with fewer coats of varnish, they will soon crack and cause the entire finish to perish. Unless the painter is willing to pay a good price (very little less than that of good varnish) and get a genuine mineral pigment and kauri gum varnish liquid filler, he had better use varnish altogether, or use a first coat of shellac as a surfacer. In hardwood finishing it is well to remember that cheap materials will always produce inferior results, and it is no economy to use anything but good materials, for which a good price must be obtained.

Varnish and Varnishing

In the selection of a varnish for interior hardwood finishing, there is little choice between the varnish sold at the same price by any of the reputable varnish manufacturers, the standard grade being sold for about two dollars and a half a gallon, while an extra light varnish of the same quality, but made of gum specially selected for its light color will sell for perhaps half a dollar higher. As a well-known varnish manufacturer recently expressed it to the writer, there is not five cents difference in value between the varnishes made by any of the leading manufacturers. There are, however, differences in the formulas used, or the exact degree of heat used in the cooking or in the other manipulations used in the manufacture, so that although the results obtained by different varnishes will be practically identical, so far as finish and durability are concerned, each one will possess its own peculiarities in working, and the hardwood finisher will find it difficult to change from one varnish to another and get equally satisfactory results, until he has become acquainted with the peculiarities of the second varnish. For this reason the specification of special brands of varnish does not always produce as satisfactory results as the architect anticipates.

Some hardwood finishers and varnish experts recommend the use of a coat of oil under varnish, while others condemn it. In any event, it will materially darken the wood. Tests made by the International Association of Master House Painters and Decorators some years ago on exterior varnishes on oak panels, showed increased durability for those portions of each

panel where a coat of oil had been given over the paste filler; but on account of the darkening effect of the oil, the writer would not recommend its use on interior hardwood trim.

After the filler has thoroughly dried, the first coat of varnish should be flowed on, using a 5-0 to 7-0 chiseled oval, elastic bristle varnish brush. For some classes of straight work, a 2½-inch to 4-inch, double thick flat brush is well adapted. The choice of tools can well be left to the workman, provided the result is an even coat of varnish. It must be flowed on, with the grain of the wood, and not rubbed out, after the manner of paint. While thin coats are necessary in painting, in order to get the best and most durable results and to permit each coat to dry thoroughly, in varnishing the coats must have sufficient depth or body to bring out its full luster and reveal the full beauty of the wood.

To dry properly each coat of varnish should be given from five to ten days, although the painter is usually so pressed for time that only two or three days are given between coats, or he is forced to use quick drying and less durable varnish. The material should be used just as it comes from the can. In winter time, varnish chills and becomes thick in storage, but can be put in a condition for use by standing the can in a pail of hot water.

After the first varnish coat is dry, it should be rubbed with curled hair or excelsior to remove the gloss, and a second coat flowed on in the same manner. This should again be treated the same way, or else lightly rubbed with fine sandpaper or glass paper. While four coats are preferable, the third coat is usually the last, and this may be left with the full gloss, or rubbed with water to a flat dull finish or to an egg shell gloss. Not all varnishes can be rubbed, so it is necessary where the final coat is so specified, to select a varnish which can be. If you are not acquainted with the characteristics of the varnish you are using, or if the label or catalogue does not state that it can be rubbed, it is best to consult the manufacturer before rubbing. Natural gloss is most durable, because rubbing removes part of the varnish, but the dull finish is considered most artistic. Nearly all varnish makers now manufacture special grades of varnish which dry with a dull gloss, producing a very similar effect to rubbed work, although the fine finish of the latter is not exactly imitated. Nevertheless, these varnishes are satisfactory in most cases and, where expense counts, may be used with good effect on the final coat.

For rubbing with pumice, a piece of rubbing felt from a half inch to an inch in thickness is used, usually mounted on a wooden block. This is thoroughly wetted with water—although kerosene is recommended by some finishers in preference, and others use specially prepared rubbing oils—a little powdered pumice is put on the felt and the surface is rubbed in long, even strokes, until the desired effect is obtained, when

the surface is washed off with clean water (or gasoline or naphtha if oil be used), wiped with a piece of clean chamois leather and dried with another chamois.

Wax Finish

Where a soft and very beautiful dull effect is wanted many present-day wood finishers are using wax over the paste filler. In some cases a coat of shellac is first applied. One of the special floor waxes should be used, applied in very thin coats and polished with a soft woolen rag or with a special stiff brush. For vertical trim a good shoe polishing brush can be used.

Stains

Many beautiful effects can be produced by staining the surface. Oak, or other woods containing tannic acid, can be deepened in tone by repeated applications of dilute ammonia, which must be allowed to thoroughly evaporate. Other methods of staining have been described in a recent issue of the AMERICAN CARPENTER AND BUILDER and need not be repeated here.

Many of the varnish manufacturers have placed on the market stains and wood dyes of different kinds with which beautiful effects can be obtained. Some of these are intended for amateurs. The painter should not attempt short cut methods, but should always employ the stains and dyes made specially for painters' use, as these are the only ones with which he can be certain of giving satisfaction to his customers.



Formula for Creosote Shingle Stain

A good grade of shingle stain is made by thinning the oil color required to give the color to the stain with a mixture of 4 gallons of raw linseed oil, 2 gallons of creosote oil and 1 gallon of liquid dryer, says a recent issue of the *Painters' Magazine*. The color should be permanent and nonfading, and it is best to have it of the consistency of house paint before adding the thinners referred to.

If to be used for dipping, 1 gallon of paint to 7 gallons of the thinners referred to is sufficient. For brushing, 2 gallons of paint should be used.

For a cheaper grade, the thinners may be made by mixing 3 gallons water white 150-degree test petroleum oil, 3 gallons creosote oil and 1 gallon liquid drier.

The commercial name of the creosote required is coal tar creosote, but crude carbolic acid may be used in its place. Neither, however, should be too dark in color.



Coming Some

"You Americans don't appreciate art," said the man from abroad.

"We don't, eh?" rejoined the earnest patriot. "Why, we pay some opera singers more than we do baseball players!"



Panel Wainscoting

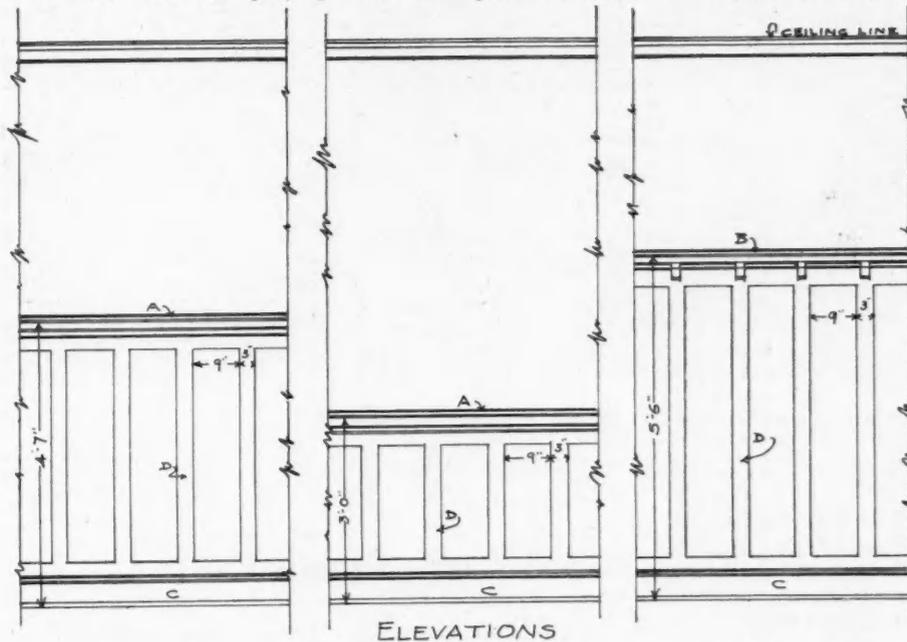
To the Editor:

Maxville, Ont.

I wish to put panel wainscoting in my hall and dining-room, the former Mission effect and the latter to go with dark oak furniture. If not imposing on your good nature will you kindly publish a couple of sketches that I could have my "mill man" work from. I would like panels to be about 4 feet 7 inches high.

E. J. GOODIER.

Answer: The accompanying sketches for panel wainscot-



ing show about what you need. You say you want the panels to be 4 feet 7 inches high. We would suggest as a more appropriate height that of 3 feet for the hall and 5 feet 6 inches for the dining-room. The latter should be capped with a plate rail.

EDITOR.

Dark Stain for Oak Chair

To the Editor:

Deersfield, Kan.

I have been successful in making a rocking chair after the pattern in the June number, but so far have failed to find a stain that would do satisfactory work on the red oak wood. I wish to have a dark oak stain and the stain will not penetrate into the hard wood.

Will you kindly tell me in AMERICAN CARPENTER AND BUILDER how to get a dark mission stain on the oak wood?

F. N. LAROCHE.

Answer: It is customary where a very dark finish on hardwoods is desired to first apply a coat or two of water stain. Oil stains do not penetrate deeply and for that reason are but seldom used alone for that purpose. Water stain roughs up the grain of the wood but this can easily be sanded before applying the filler. The stain should be diluted with water unless an almost black effect is wanted. Use a dark filler after the stain has dried, the directions are on the cans in which it comes. Follow this with wax shellac or varnish.

It is possible the water stain may not affect your chair if you have on the oil stain. If so, a dark filler thinned with benzine applied over your oil stain will probably serve your purpose better, benzine being quite penetrating. IRA S. GRIFFITH.

Theory vs. Practical Knowledge

To the Editor:

Marshalltown, Iowa.

I am becoming more and more pleased with each number of the AMERICAN CARPENTER AND BUILDER and can hardly wait

for the next. I find so many good and practical things in it from practical men. By the way, I want to pat Mr. John Stillians on the back and call him a good fellow, for hitting the nail squarely on the head and driving it home as he did in the August number on pages 594 and 595. The great trouble nowadays is too much theory and very little practice with the majority of carpenters. It makes no difference how much mathematics you may have, if you are not able to make a practical application of the principles involved you are no better equipped than the fellow who has but a smattering of "redin'," "ritin'" and "rithmetic."

It reminds me of the young man that the "boss" sent to the shop to get out a ring post for a hip roof. The boss told him to take a 6 by 6 inch piece and make an octagon of it 8 feet long. Now this young man knew how to extract the square and cube root, could read algebraical formulas and had some knowledge of geometry. But he did not know how to reduce a square to an octagon. The result of his efforts was found to be, when the boss sent for the post, that he had hewed the 6 by 6 down to about 2 by 2 and still no octagon! Now if the boss had sent one of the boys who "knew the steel square" he would have laid his square diagonally across the 6 by 6 from corner to corner and pricked off the points at 7 and 17, which would be the distance from each corner to line up the stick for an octagon. I would like to carry this on

still further, but I must not take up any more of your valuable space.

J. G. WEATHERBY.

Portable Work Bench and Saw

To the Editor: Milton Junction, Wis.

Pardon my neglect in forwarding renewal. I am rushed with work. Do not wish to lose a number of your AMERICAN CARPENTER AND BUILDER.

I take the liberty to send you photo of work bench and

furring down of the tail end of the rafters would show at the ends.

Mr. Wood's last question is regular and the result would be the same as that last mentioned above. Suppose both gables are 18 feet wide with a rise of 10 feet. Then 9 and 10 would represent the run and rise of the common rafter; and 9 the length of the diagonal from 9 to 10 (which represents the length of the common rafter) will give the cut across the face of the board and the side of the square representing the run will give the cut. For the miter, take the length



Handy Arrangement of Work-Bench and Rip Saw on Wheels

rip saw on wheels which I have made for my own convenience. I find it very handy.

You may use the card as you like to help some brother carpenter.

JAMES M. STOCKMAN.

A "Sticker" in Cornice Work

To the Editor: Alton, Ind.

I have a problem that gives me trouble. It is this: What figures on the square must I use to cut the planchers on an ell-shaped building? The width of one of the gables is 18 feet and the other is 16 feet; their heights are the same in each, 9 feet. Also what would be the figures to use if both gables were the same width with a rise of 10 inches in 12?

CHARLES WOOD.

Answer: Mr. Wood's problem is something of a sticker, and we do not wonder at his finding trouble in a problem of this kind. It is the same as the hopper miter with unequal pitches, but it is not practical in a case of this kind, because the roofs being of unequal pitches it is necessary that the plate on the narrow gable be raised higher than the plate on the wide gable which is governed by the difference in the rise of the two roofs in the run or width of the cornice. Therefore, the bed mold would not member; the valley would not intersect the angle of the plates, as it would necessarily have to set off to one side. At best it would be a bad-looking job, one of those kind that look best at night. In a job of this kind, we would advise furring the underside of the tail rafters on the steeper pitch so that they will be of equal pitch of that of the wider gable. Then the cuts will all be regular; but, of course, this can only be done when the ends of the narrow part are hipped in, otherwise the

of the rafter and its rise on the square; and the side on which the rise is taken, will give the cut.

A. W. WOODS.

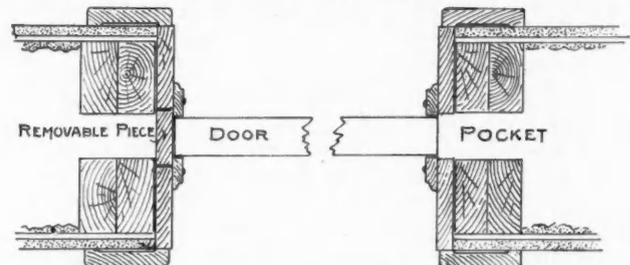
Opening for Single Sliding Door

To the Editor:

Thawville, Ill.

Would like to ask one question: Can a 5-foot sliding door in one piece be hung in an opening so that it will work perfectly? The door to slide one way only.

Answer: Yes; a door of this width can be made to slide all right. The walls should be built as for double-sliding doors; the track, of course, should all be one way, but there should be a little pocket in the jamb on the lock side to admit getting the door in and out. This pocket can be concealed, as shown in the illustration, by setting in a piece of



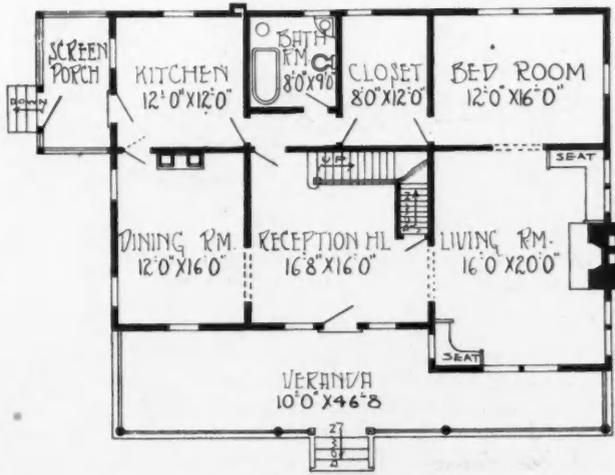
same thickness as the jamb and covering the joints with the stops, as shown. At the top, it is a good idea to let the top of the door be about an eighth of an inch below the stop which should be wide enough to extend in close to the hanger, thus greatly hiding the unsightly opening in the head jamb that would otherwise show when the door is open.

EDITOR.

From a Carpenter's Daughter

To the Editor: Fairfield, Neb.

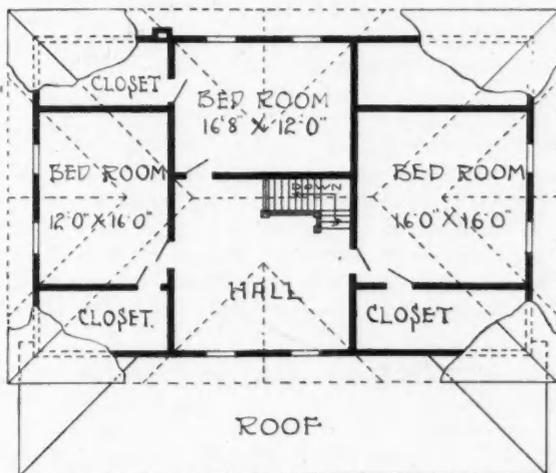
I enjoy your magazine very much as my father was a carpenter and contractor all his life, and I, although a girl, was a great help to him. In those days I delighted to make out estimates and help patrons draw plans, and was a great help



First Floor Plan

to my father. I admire the spaciouly simple in home building—the Craftsman, Mission and Bungalow styles, few rooms and larger; more simplicity in the household machinery—rather “more home making with a little less house-keeping.” The second prize bungalow in the April number was very good—showed some personality—and however simple, yet there should be a certain amount of personality even in a bungalow. Where a family happens to consist of more than four persons a few upstairs chambers prove the cheapest when it comes to building.

I submit a plan that may serve someone. I would make both exteriors as well as interiors in Mission style; build fireplace of common red brick laid in clean white mortar;



Second Floor Plan

use very wide inch and a quarter casings of yellow pine stained or dyed a dark weathered brown, then wax; stain floors the same and apply hot linseed oil, two coats, and repeat once a year. I do enjoy built-in furniture of all kinds, and find that they save a good deal in keeping a home sweet and clean. I have indicated a number of casement windows, as they give more wall space for the placing of furniture.

Nebraska is building some splendid homes the last few years, and her citizens show good taste in the planning, both inside and out. Will send a few photos of some representa-

tive homes soon. Wishing your splendid paper success, I am a farmer's wife. MRS. BELLE TINGLEY HANCOCK.

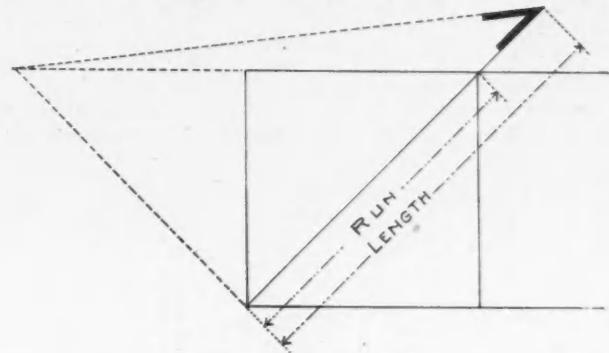
Can Files Be Renovated?

To the Editor: St. Croix Falls, Wis.
Kindly send me receipt for renovating files which are about half worn. I have quite a few files and wood rasps on hand and do not like to throw them away. THOS. PECK.

Mr. Baker Takes Exception

To the Editor: Media, Pa.
I notice in the July number an article on hip roofs by G. W. Manseon in which his method of backing a hip is not correct, though the difference by the right method is not perceptible on a short bevel. Instead of taking the distance from the intersection of the base line and intersection of rafter line, he should take length of line square from line representing length of hip to intersection of line drawn square to run of hip and hip run.

I also take exception of A. Helander's plank cutting problem. While it may look correct we know it cannot be so because we cannot make 65 square inches out of 64 square inches, no matter how we cut or twist it. If this square is drawn out accurately, cut and put together, as directed, the



lines will not coincide and have four square corners. If we put these pieces together forming four perfectly square corners, it will be seen that there is an uncovered space running diagonally through the layout and this space is equal to one square inch, which accounts for the seemingly extra inch.

In regard to finding the top cross cut for a hip rafter, I have read a good many books and papers on roof cutting, but I have never seen one that explained how to get this cut, except when the hip is beveled or the run of hip is at an angle of 45 degrees. Now, since one hip out of fifty is beveled, this is generally a sticker for the carpenter. It is generally known that, on a hip where the run is at an angle of 45 degrees, by measuring out square from the plumb cut the thickness of the hip, and by squaring this point across the top of hip and connecting this point with the plumb cut, the required top cut will be given. But when the roof on each side of the hip has a different pitch this will not work. If we take the length of hip and length of line drawn square with run of hip until it intersects with the prolonged center line, it will give the cut, as shown in the illustration.

WILMER W. BAKER.

Stair Information Wanted

To the Editor: Passaic, N. Y.
I wish some of your experienced stair builders would give a layout of a stair, with a winder and the newels, indicating the riser placed at the newel and the nosing of the step and the height of the rail, as well as the panel work thereunder. P. B.

A Device for Dipping Shingles

To the Editor:

Turon, Kan.

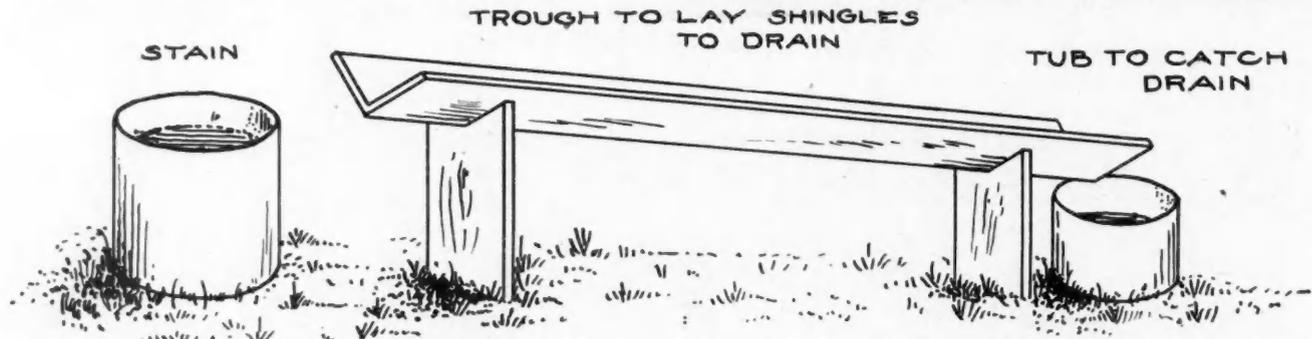
In answer to J. R. Kemp of San Carlos, Arizona, I am sending a sketch of method we have used to dip shingles. It is simple yet does the work very satisfactorily.

Dip the shingles in the stain $\frac{2}{3}$ their length, and place in

of a hip rafter and the main rafter, but I cannot get the length of a valley rafter. The cut of the main rafter is 10 and 12 inches, but it does not tell what I should take for the valley. It says, take 17 and 10 so many times and that will give the length of the hip.

WM. REICHART.

Answer: Yes, there are a lot of books on the market, and



trough to drain for a few minutes; rebail and let dry for a few days. If they are not rebailed, place them where the wind will not blow them away.

FLOYD LOWE.

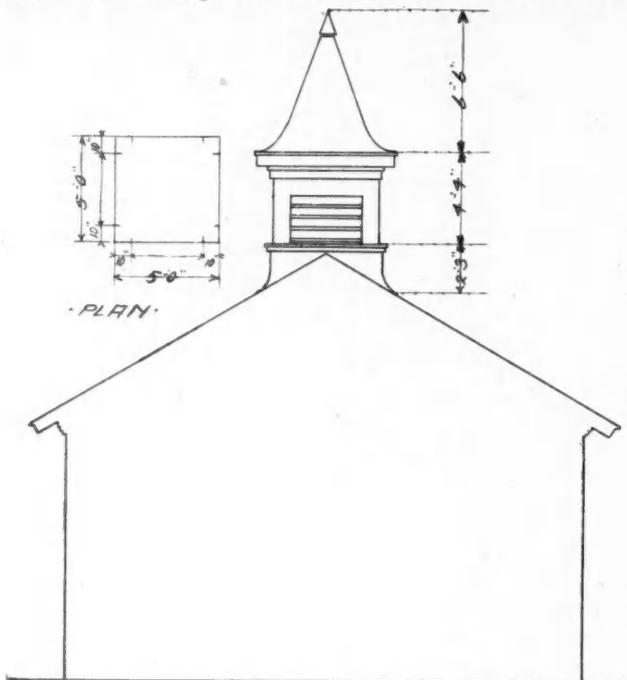
Belfry Design for School House

To the Editor:

Wagon Mound, N. M.

Will you kindly publish in your next AMERICAN CARPENTER AND BUILDER the proper dimension and style of a belfry for a country school house 24 by 32 by 12 feet high, the roof being one-third pitch. I do not know the size of the bell.

I am a charter subscriber to the AMERICAN CARPENTER AND BUILDER and I am proud of it. I look for it each month and



I always find something new and of great value in every issue.

M. P. SUND.

Answer: The attached sketch shows a very neat belfry design appropriate for a small country school house. It is of ample size for the size bells ordinarily used.

EDITOR.

He Doesn't Understand the Books

To the Editor:

Greenport, L. I.

There are a lot of books published to help the carpenter in his work, but as a rule they are very hard for many of us. I have two books. In one I find how to get the length

we believe all of them in the main are correct, though of course errors will slip in now and then with the best of writers. They have different ways of arriving at or explaining things, and this to the would-be learner when comparing different writers often throws him off the track. We cannot all look through the same eyes, therefore to some the same object looks different when in reality there is no difference.

In the case of the hip and valley rafter, one rests on an external corner and the other on an internal corner. Their position in the roof are identical as to pitch, consequently their lengths are the same. The measurement line should be along the center of the back in either case. This is a point not generally understood and especially so when the rafters are backed. However, this is not very often done or rather not as often done as should be for first-class work.

Then again, many times the hip alone is backed and the valley is left unbacked or rather grooved out. In that case the center of the level back should just touch the internal corner of the plates, provided there is no tail to the rafter. If there is a tail, then the exact length or depth to cut the seat cut is all the more complicated and is a "sticker" that sometimes catches the best of them and all because of the little variation of the backing, whether one or both are backed. In fact it requires practice to keep these vexing little points clear in the mind ready to apply the steel square where it should be for absolute correctness. However, the difference is so little that it is generally lost sight of; besides the plates are as liable to be as much out of square anyway and the little variations are as a rule looked upon as a matter of course, and are passed by only to be run up against in the next job. This should not be. Look up, study up, maintain the highest standard or get off of the perch.

EDITOR.

Design for Large Hen House

To the Editor:

Derby Line, Vt.

As I am about to build a hen house I would like to ask if you could give me any information on it in regard to plans? It is to be 200 feet long and 30 feet wide.

GEO. E. BROOKS.

Answer: The plans shown on the opposite page illustrate an arrangement for a large poultry establishment which has proven practical, convenient and in every way satisfactory. These plans provide for a structure twice as wide as the space you mention. The arrangement is such, however, that half could be built now, leaving the other half to be added at some future time. The space is divided up into the "unit" system, making separate parks, 10 by 25 feet each, with coop attached. The sectional drawing shows the construction and arrangement of one of these.

EDITOR.

Boat Building Help Wanted

To the Editor:

Verdun, Que.

I desire to thank you for your courtesy and consideration; it gives me pleasure to be a member of the AMERICAN CARPENTER AND BUILDER and to renew my subscription. I would like one of your able correspondents to give me a few hints on building a flat-bottom row boat to hold four persons. The points that trouble me are width at the rowlocks and the joint of the bottom and side to make the boat watertight. Would basswood be suitable or is cedar better? I want it plain and light. I hope to see this answered through the very valuable correspondence column. ROBT. H. MATTHEWS.



The Handspike Problem Again

To the Editor:

Milwaukee, Wis.

The solution given by Mr. C. W. Talbot in the August number is not correct. The principle of the "steelyards" cannot be applied in the carrying of timbers, because the weight of the timber in the problem is equally distributed from one end to the other, and cannot be shifted from one place to another as on steelyards. The three men must not necessarily be of equal weight in order to carry the timber or to find out where the two at a handspike have to place it so that each will carry one-third of the stick. The problem given by Mr. J. G. Weatherby in the July number is this: Three men, A, B, and C, carrying a stick of timber of uniform size, 30 feet long, A and B at a handspike and C at the end; how far from the front end must the handspike be placed so that each will carry one-third of the stick? Now suppose A would weigh 226 pounds, B 174 pounds and C only 123 pounds but is strong enough to carry his share; where would Mr. Talbot have them place the handspike then?

It will be easily seen that A and B must carry 20 feet, and C 10 feet, if each is to carry one-third of the stick; but where must A and B place the handspike to accomplish this?

It must be remarked here that A and B will have to carry any length of the timber alone which would balance upon their handspike, whether cut off from the rest or not, because this piece does neither increase nor diminish the length or weight of the remaining part. C has only to carry one-half of the part which is connected with the balancing piece, and A and B the other half together with the balancing piece upon their handspike.

The question is now for any length of timbers of uniform sizes. Where must the two men place their handspike in order to carry twice as much as the man at the other end? If they don't know I should tell them to place it one-sixth of the length of the timber from the end, which, in this case, will be 5 feet. These 5 feet, in balance with 5 feet on the other side of the handspike, make one-third of the timber which A and B have to carry alone, leaving two-thirds, one-third to C and one-third to themselves. Each will then carry one-third of the stick of timber.

P. SCHNEIDER.



To Find the Hypotenuse of a Right Angle

To the Editor:

Doniphan, Neb.

I am a new subscriber to your paper and am well pleased with it. I will ask my first questions: What is the simplest and shortest way to find the hypotenuse of a right angle? That is, where it is not necessary to get an accurate length, just for an estimate, as for rafters. Also which is the best and easiest way to miter siding, and which is the best way to nail them to keep them closed?

H. E. CLARA.

Answer: The simplest way is to take to scale, if the full size is not convenient, the base and altitude on a right angle and then measure directly across. This will be the length of the hypotenuse. But for accuracy, it should be arrived at

mathematically by extracting the square root of the sum of the squares contained in the other two sides.

As to the question of mitering siding, this can be done in a miter box by putting in a small piece of the siding at one side of the box so that the siding when inserted in the box will rest at the same angle as when on the house; then cut in the regular 45-degree angle, which will give the required miter. Nail in the regular way and brad the corners at the miters.

A. W. WOODS.



Resurfacing Old Stone Building

To the Editor:

Allenburg, Mo.

I would like to ask you a question in regard to an old stone building; same is about 40 by 40 feet, 18 feet high, built in 1854. It is used for a school building. It is built out of small rocks picked up in the neighborhood. The wall is 20 inches thick. Rocks are laid in clay mortar and then plastered on the outside with lime. The walls are all in good condition, but the lime plastering on outside is mostly all gone and some of the little rocks have fallen out.

Now I would like to plaster same with Portland cement. I ask you what you think the best would be; to use same for plastering on the outside, or would it not be advisable to use same and lay off in stone fashion?

G. LOHMANN.

Answer: Your idea of resurfacing the exterior walls of this old cobble-stone building is practical and all right. A good cement plaster should be used, applied in two coats, and thick enough so that a flat exterior surface is secured. The chinks between the cobblestone, where the old plaster has fallen away, ought to provide sufficient clinches for your new cement plaster coat.

Instead of the imitation squared stone effect which you propose by ruling off the surface, we would suggest a rough pebble-dash finish as being in keeping with the character of the building. This finish will be durable and make a very good appearance.

EDITOR.



Square Planing

To the Editor:

Mexico, Me.

I see in the July number of AMERICAN CARPENTER AND BUILDER Clarence H. Taylor asks how to plane a board square on the edge. When I began my foreman showed me this way, which I have found to work all right. Hold the fingers of the left hand under the face of the plane, letting the finger nails run against the side of the board; thus gauging the plane in its course. If either side needs more taken off than the other, move the fingers, giving more weight of the plane on that side. Keeping the plane centered so it will balance of itself on the work is the easy secret of keeping the work square.

D. A. LEAVITT.



Rotting Sills and Shingle Nailing

To the Editor:

Browns Valley, Minn.

It has been our policy in building good houses to make a box sill and fill in between the sill and joist with stone and mortar flush with the tops of the joist. Will this mortar be liable to rot the wood or not? If this method is not advisable I wish to know what is the most economical material to use for this purpose.

In regard to nailing shingles I wish to know how close cedar shingles, from three to sixteen inches wide, should be nailed? We nail them about every four inches. Some carpenters say it is not good to nail them more than two or three nails, as they will swell, warp and crack. We use heavy galvanized nails.

I would like to have the advice of architects and experts on these questions.

GEORGE NOVOTNY.

Fast Barn Framing

To the Editor:

Strawberry Point, Iowa.

I herewith send you two pictures of a full frame barn which I would like you to give space in your valuable paper if I am not too late or too troublesome. View No. 1 shows the barn site as it appeared at 10 o'clock a. m., and No. 2 shows it as it was at 4 p. m. This barn is a structure 36 by 62 feet, 18 feet high above basement, and is framed out of 8 by 8 inch stuff for main timbers, 4 by 4 and 4 by 6 for nailing girts,

namely, hickory, elm, hard maple, and pin oak. No. 1 shows three men besides the working crew, just as we started to put the bents together, at 10 a. m., and at 2:35 p. m. the first bent was started from its resting blocks, and at 4 o'clock the raising was completed, as shown on No. 2. G. E. GRATKE.

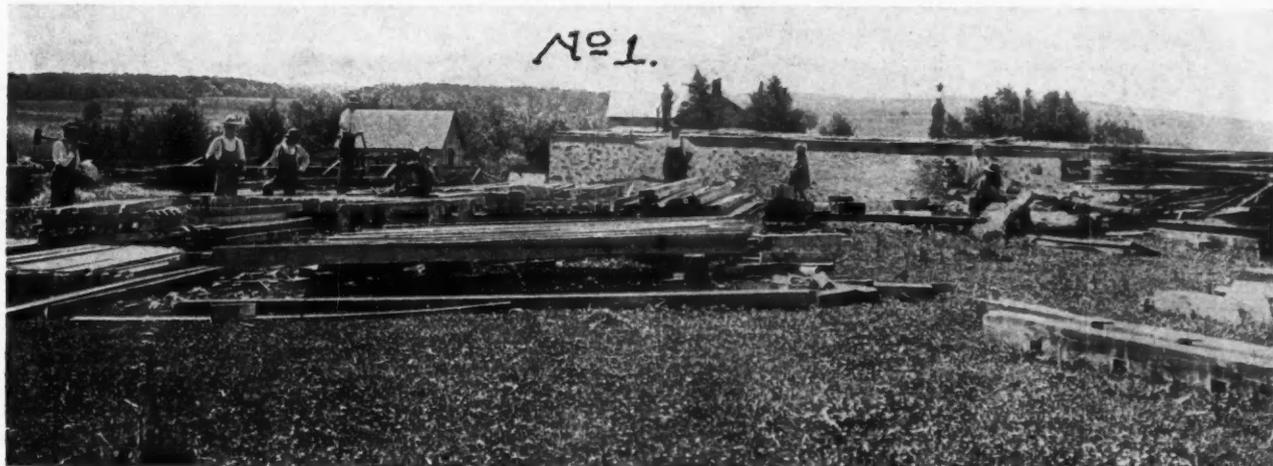
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Information That Does Not Inform

To the Editor:

Greencastle, Pa.

Have just been reading in the present August number an

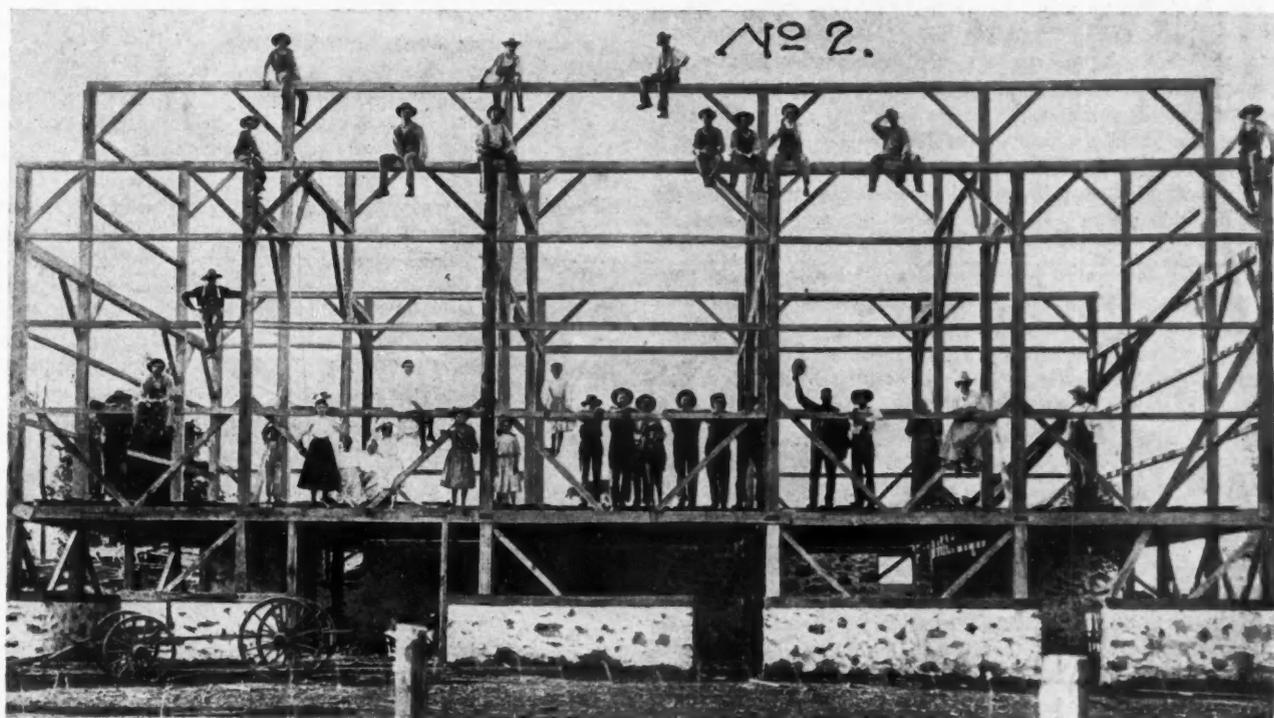


Barn as It Appeared at 10 O'Clock A. M.

and 4 by 4 for braces. It will be enclosed with D. & M. perpendicular white pine.

You will see a few temporary braces to the right on No. 2, while the man near by with pinch bar just started to take them off. As the structure is braced sufficiently to withstand any wind (cyclone excepted) without temporary braces, those braces were placed when the first bent was raised.

article by John Stillians, Fort Smith, Ark., to which I would like to attach a large O. K. He discusses the "Sticker Solved," or rafter problem. My experience has been along the same lines. I likewise have spent many dollars and midnight oil in fruitless search for the very information that the volumes and authors claim to give and yet conceal, purposely or otherwise. What the mechanical and industrial world is



Barn as It Appeared at 4 O'Clock P. M.

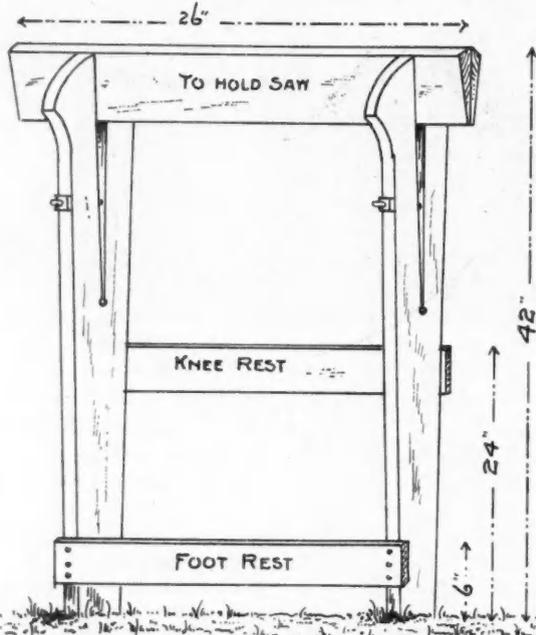
This barn was framed by myself and five boys in six days. One boy was 13 years old, one 16, two 17, and one 18; and the three hardest woods are represented in the structure;

seeking for is education that educates, information that informs. It is easy to build castles in the air in which no one lives, and in which no one can expect to live; in other words,

education shot high over our heads. I have here two volumes on the steel square which I have shown to a number of skilled mechanics and they all say that the work may be all right if we could understand it. Now, Mr. Editor, I would like to thank the brother from Fort Smith for his article and ask him to come again, and I hope the other writers will take the suggestion up and follow along the same lines. A. J. LOHR.

Handy Saw Clamp

To the Editor: Malcom, Iowa.
I am sending you a rough sketch of a favorite saw clamp which might interest some of your readers. It was probably invented before cast-iron saw clamps came into use. It is, nevertheless, the best thing for the purpose that I have ever



run across, as it will hold a saw without any chatter or vibration which makes it so hard on the eyes when using a common cast-iron clamp.

The side pieces are made of a piece of 2 by 4 inch, about 4 feet long, ripped to form the shape. The jaws are made of two pieces of 1 by 4 inch, 26 inches long, and are shaped to fit into the side pieces. The bolts are to adjust the opening in side pieces so that the jaws will not slide down too far. If it is properly made, the jaws will slip out and in easily with proper adjustment, but I prefer bolts, as they are always there when wanted. If the device is properly made, the jaws seldom have to be adjusted. The farther down the jaws go the tighter they will be. If you can use the drawing to any advantage, you and your readers are entirely welcome to it. A. D. DOUGLASS.

To Figure Strength of Timbers

To the Editor: Zanesville, Ohio.
As I have become a subscriber to your valuable paper I have a question here to ask you. The question is concerning the correct way to figure the strength of timbers. That is, suppose I had a girder that was to be put up to support a floor; it is made up of five 2 by 10 by 12-foot pieces (bolted every 3 feet) made out of Norway pine. Please give me a way to figure the strength of it and the load it will carry. Also tell me a short way to figure the safe load a joist will carry, size 2 by 10 by 16 feet, or such as are in use in the construction of buildings, warehouses and storerooms. Give me a short way to figure these out in figures, just as you would figure it in your own work. C. A. HANDSHY.

Answer: The simplest formula for finding the strength of a beam is the well-known one:

$$B W = \frac{c b d^2}{l}$$

In this, B W is the breaking weight for a central load; C is a constant or figure representing the strength of the particular kind of wood in question; b is the breadth of the piece, d² is the depth squared (multiplied by itself), and l is the length or clear span of opening. In a series of articles in former numbers of this magazine, the present writer endeavored to show that no particular mathematical skill or knowledge is required to solve questions of the strength of beams, etc., by this little formula. As space does not permit of reproducing these articles we would refer our correspondent to them. They are to be found in the numbers for June, August, September, October and November, 1907. In them the strength of beams under varying loads was worked out in a plain and easy manner.

In calculating joists, however, there is another important matter to be taken into consideration; namely, the deflection or bending of the piece. For, while a joist may, when tested by the foregoing formula, be quite strong enough to carry a given load safely, yet the amount of sag or deflection with that load would be such as would crack a ceiling carried by the joist. It is therefore customary to apply another formula for the deflection, in addition to the one for strength as given above. Most engineering pocket books give a combined strength and deflection formula, made by putting the two together, somewhat as follows:

$$W = \frac{S \times b \times d^2}{9 L}$$

In this, W is the safe distributed load; S is the safe unit fiber stress in pounds per square inch (one-fifth the ultimate or breaking stress); b is the breadth; d² is the depth squared; 9 is a constant, and L is the length (clear span).

To apply this to the girder made of five pieces of 2 by 10 inch Norway pine given by our correspondent, one must first find the safe unit fibre stress of that wood; namely 800 pounds. As the piece to be calculated is 2 by 10 inches by 12 feet, the sum would be worked out as follows:

$$\frac{800 \times 2 \times 100}{9 \times 12} = 1481 \frac{13}{27} \text{ or say } 1481 \frac{1}{2}$$

As five of these pieces are to be bolted together to form the girder, this result must be multiplied by five to give its strength.

To apply this to any kind of timber, it is merely necessary to know its safe unit fiber stress. The following table gives this for a few of the woods generally used for floor timbers; a factor of safety of 5 (one-fifth the breaking load) being allowed:

White oak	1200 pounds ..
White pine	800 pounds
Georgia pitch pine (long leaf)	1400 pounds
Norway pine	800 pounds
Spruce	800 pounds ..
Hemlock	700 pounds

It should be noted that these figures are for use with the combined formula for strength and deflection, and not for the simple formula for strength only. For the latter, the table given in the series of articles referred to above is the correct one. T. B. KIDNER.

The Handspike Problem Not Solved

To the Editor: Marshalltown, Iowa.
Mr. C. W. Talbot has another "guess" coming on the "Handspike Problem." He says 7½ feet is correct. Now 7½ feet from the end will balance 7½ feet on the other side of the handspike, which equals 15 feet of the stick carried by

the two men at the handspike, and they also carry one-half of the remainder, as they carry one end of it, and the man at the end carries the other half. According to this solution the two men at the handspike carry three-fourths of the stick and the one man at the end carries one-fourth. He should carry one-third. Mr. Talbot must have gotten the "hooks" on the wrong side of his "steelyard" supposition.

J. G. WEATHERBY.

To Fix a Leaky Bay

To the Editor:

Urbana, Ill.

I think I can give Mr. Knowlton some light on the bay window question. I once had a similar trouble with a bay window; I removed the old frame and found the water came in at the joint of the jamb and subsill at the parting stop groove. There not being much show for fixing that I covered the space under the window sill with tin turned up a little at the inner edge and at ends and turned the outer edge down over the siding; then I reset the frame, and afterward I had no more trouble.

IRA F. McMINDS.

Mission Cabinet Design Wanted

To the Editor:

Salt Lake City, Utah.

I have been taking your paper since the first of the year and would not be without it. I would like to have some drawings of a music cabinet built in the mission style and using the following dimensions, 2 feet 10 inches wide inside, 15 inches deep inside and 5 feet high over all. I would be very much pleased to have some of the readers help me out on this.

HARRY C. LEWIS.

More About Jib Head Windows

To the Editor:

Leakesville, Miss.

Will you, or some of your competent staff, give me the information I wish in an early number of the magazine?

The information is the same as I asked for in the June number in regard to jib-head windows.

Mr. V. Denick answered the question for a single sash, which I understand, but the window in question is a cottage window, 48 by 20 inches for the upper glass and 48 by 50 inches for the lower.

I wish the lower sash to raise up through the head of the frame. I understand the construction of the frame, except the head, which must have an opening in same, so that the lower sash will raise up. Now, here is the point I wish to know: The top of the head should be fixed in some way so that when the sash is down the opening will close automatically. I would think that a light shutter fastened with spring in some manner would be the proper way, but have never seen any springs suitable for the purpose. O. E. BAIRD.

Answer: Mr. Baird will probably come as near finding what he wants in Mr. F. J. Case's answer in the last number of the AMERICAN CARPENTER AND BUILDER, as he is liable to get, which is simple in construction, no springs to get out of order and always ready for use.

EDITOR.

Comment From a Reader

To the Editor:

Gorham, N. H.

In the few months I have been a subscriber to your paper I have found much of interest in its columns and have taken quite an interest in the questions asked and answered.

As an old timer, who did not have the advantages of a higher education, but have picked up what little knowledge I possess largely from actual experience I can feel quite a lively sympathy with John Stillians, of Fort Smith, Ark., in the position he takes in his article in the August number.

As he says, mathematics is a science that one can not know too much about; but a little careful thought will sometimes

take the place of quite an array of figures.

As an instance, let us take the question asked in the March number by S. W. Hays, of Enfield, N. H., which is so easy it seems to me that any practical man who gives it a careful thought does not need a pencil and paper to solve it. His length being 12 feet (the number of inches in a foot) it follows that the width in inches multiplied by the thickness in inches will give the number of feet board measure in the stick. Now it is to be supposed that his stick is a true taper; and, if it is, and is 12 inches square at one end and 6 inches square at the other, then the middle or average of the stick must be 9 inches square; 9 times 9 equals 81, the number of feet board measure in the stick.

Now let us take that "Timberman" problem. Of course any solution to be accurate depends on considering the matter as one of lines in a perfect triangle and not of the actual condition of the average tree and river bank.

Now your old mechanic marks out many problems by scale draft instead of figures; and let us suppose he did not know the rules in regard to triangles, but had a good steel square and a rule; he would solve the problem as follows: To accommodate the dimensions of the square he will have to reduce the problem to a scale of $\frac{1}{4}$ inch equals 1 foot.

Now, 50 feet, the width of the stream, divided by 4 equals $12\frac{1}{2}$; which take on one side of the square. Next 100, the height of tree, divided by 4 equals 25, which must be the sum of the other two sides. Now hold the end of rule at $12\frac{1}{2}$ on one side of the square and raise the rule against the other until the figures represented by the rise on the other side of the square, and the hypotenuse, represented by the rule, equal 25. This you will find at $15\frac{3}{8}$ on the rule and $9\frac{3}{8}$ on the square, which multiplied by 4 to reduce back to feet gives $9\frac{3}{8}$ times 4 equals $37\frac{1}{2}$, height of stump, and $15\frac{3}{8}$ times 4 equals $62\frac{1}{2}$, length of piece broken off. The sum equals 100, whole height of tree.

All this is done several times quicker than I can tell about it, and with little geometrical knowledge, but by a simple working method.

I was much pleased to see in the July number the method of obtaining the side cut of jack rafters used by Reed H. Deming, New Milford, Ohio. This is a method I have used for more than 30 years, and it is absolutely correct on any pitch and is so easy that anyone who uses it once will never forget it, as he may a combination of figures.

I lay off the rise on any piece of lumber 2 inches thick with two parallel lines, squaring across one of them on the edge and correcting the corners by a diagonal line. I then set a large bevel to this angle and am ready to mark any of my side cuts. Instead of using a heavy pattern I find a piece of board the width of the rafters and about 4 feet long with the lower end framing for cornice. Carefully cut on one end and the top cut or the other. This is very convenient; while the length is easily layed off with a sliding pole or two light-edgings.

I would be much pleased to see in your paper an article on the shrinking of wood in seasoning, by someone who is thoroughly competent to give us actual facts by careful measurements, and along lines which a few questions I will ask will lead up to.

Does wood in seasoning shrink equally in all directions? If a small log is taken and the heart bored out and then kiln dried will the hole be larger or smaller after drying than when made; also, what would be the effect if a hole was bored crossways through the log? Would a hole bored crossways through either a sap or heart plank be round after drying, or elliptical? Given a rift sawed board from the bark to the heart and nailed to a seasoned plank by a line of nails through the center, mark the edges and dry it; will the shrinkage be much more on one side the nails than the other? I believe such an article would be of interest to many of your readers.

W. P. HUBBARD.



PRACTICAL TRADE APPLIANCES

A Contract That Paid a Profit

The building of Squire Reynolds' house was a big job and brought forth very keen competition among the local builders. The plans called for the erection of a remarkable handsome home, complete in every detail and beautifully finished throughout.

Clem Windsor figured on the job just as low as he knew how all the way through. He was a young man and the securing of this contract together with its successful completion would go far toward adding to the reputation he was endeavoring to build. When the day came for the opening of the tenders most of those who had put in bids were on hand. One by one the envelopes were broken open and the amounts read off. Windsor could hardly conceal his satisfaction as he listened to the reading of the figures. So far he was below everyone else. He did not see how he could help securing the job, for he had figured his profits down to the very lowest margin. Already in his own mind he had commenced to scheme out little ways by which he could economize to make something out of the work besides reputation.

And suddenly his face fell.

George Stevenson's bid was read and the gross figures were

actually below the bare costs that Windsor had estimated.

Although Windsor could not understand where he expected to make a profit, Stevenson got the job. Work on the building progressed rapidly, and from time to time as he passed it Windsor cast curious glances at it. That Stevenson must be losing money he felt absolutely sure. Finally, as the building approached completion, he could not restrain his curiosity any longer, and one day instead of passing the place as usual, he turned in, and with a show of nonchalance sauntered carelessly up the steps.

Stevenson, who was standing inside, was in no way deceived by Windsor's assumed air. He met the unsuccessful bidder in the hall with a grin.

"Well, Clem," he said, "have you come in to see me lose money?"

"I'm not sure yet," laughed Windsor non-committally. "But what I would like to know is where you're going to make any money?"

This time Stevenson laughed outright.

"Come with me," he said, taking Windsor by the arm, "and I'll let you into the secret."

Together they ascended the broad staircase and entered the big sitting-room on the second floor. As he went in Windsor



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SEE SWEET'S INDEX PAGES 650-651

The Pulling Power of a Good Store Front

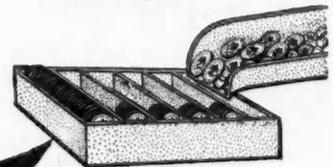
MR. ARCHITECT: When you specify the Kawneer System Store Front you provide for your client a fully paid-up **Advertising** contract, available 365 days in the year in addition to a policy insuring against rotting of sills and a permanent injunction against painting.

The merchant pays high rent for a desirable location in order to sell his goods to the largest number of people. Why not help him to larger returns without increasing the amount of his investment?

Good merchandise cannot be properly displayed in poor show windows. In a **Kawneer System** Store Front goods can be displayed to the best advantage every day, winter and summer. **Goods well displayed**

are half sold and sales are what the merchant is looking for.

Kawneer Store Fronts mean better Store Front Construction, larger sales and more of them without adding to fixed expenses.



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**Instead of
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**Time
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**DOES
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**The board
that made
plaster
boards
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**First used
in 1891
Perfected
in 1908**

Sackett Plaster Board Company

**17 Battery Place
NEW YORK**

could not help noting the remarkable finish of the beautiful hardwood floor. It was this floor that had been one of the sticking points in his estimate, for particular stress had been laid on the fact in the specifications that the work must be done in first-class style, and to do it the way Stevenson had done it Windsor knew must have cost considerable money. Stevenson watched him closely with ill-concealed satisfaction.

"Isn't that pretty fine," he questioned. Then he led Windsor to the next room where one of his men was busily engaged in polishing the floor. He stopped him at his work and took hold of the scraper himself.

"Here," he said, "is the secret of my low bid, and here also are my profits. You know as well as I do what it would cost to have scraped all the floors in this big house by hand in the old way. It would have cost a tremendous price. And it was right there that all you fellows fell down. It was because I had a Weber double-acting floor scraper that I was able to get this job. The Weber double-acting floor scraper is probably the most complete machine of its kind made, and will plane, scrape, sandpaper and polish a floor to perfection. Perhaps the chief advantage which the Weber possesses over other floor scrapers lies in the fact that it can be operated both forward and backward and that it can be used in confined spaces where ordinary scrapers are worthless. There is no other scraper on the market that I could have used for the halls and vestibules and for the interiors of closets. Then if you will watch the man over there you will see that by setting the spring board on the side of the machine down one inch, and by also setting down a set screw on the opposite side, he can use the machine along close to the base board. That little change he made brought the knives down $\frac{5}{8}$ of an inch; also on the side nearest the base at the same time also brought the handle away from the wall, thus giving him ample room in which to operate the machine."

"Don't they wear out," asked Windsor, "and don't they cost lots of money?"

"Wear out, nothing," replied Stevenson. "This machine is built practically all together of malleable iron, and ordinary

usage will not wear it out. As to the cost, I would hesitate to say how many times over this machine has already paid for itself. But the Weber has other advantages, for instance, you can sharpen the blades without removing them from the machine by the Weber automatic sharpening device. Again, the flexible frame prevents the Weber from jamming and chatter or leave waves and creases in the floor. I tell you the machine is perfection itself. With its several attachments it will do practically anything that anybody wants done."

"Where do you get this machine," asked Windsor, now thoroughly aroused.

"Write to John F. Weber, president of the Weber Manufacturing Company, 670 71st avenue, West Allis, Wis.," replied Stevenson, "and ask him about his free trial offer. He has so much confidence in the value of his machine that he doesn't ask anybody to buy it until they have tried it, and he will send one to you or any other carpenter or contractor on free trial."

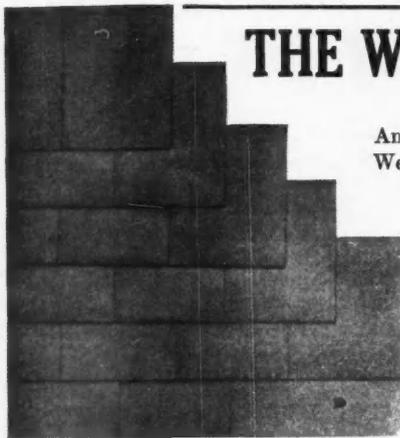
Windsor jammed his hat down over his ears and started for the door.

"I will write tonight," Stevenson heard him say.

Derrick Holst for Buildings

This is an age of progress and advancement. During the past twenty years our methods of living and working have been revolutionized, and there is no business or branch of human activities that has not benefited by the changes which have been introduced. The scientist and the inventor have made the burdens of mankind lighter and contributed to the material well being of high and low. Today the individual or firm succeeds in the largest degree who is most keen to take advantage of the improved processes of handling their particular line.

A single point will illustrate our thought. In the building world it is necessary to make use of the most modern methods and processes for handling the operations on an economical and profitable basis. Quickness and ease of handling material



THE WINTHROP SOLID TAPERED ASPHALT SHINGLES

ARE OF A COOL, GRAY SLATE COLOR

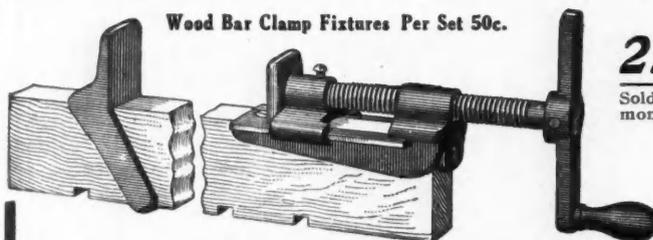
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Yours truly,
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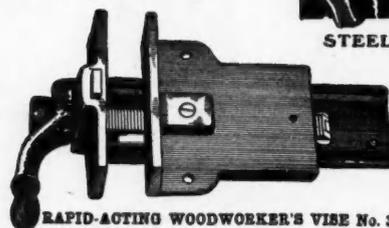
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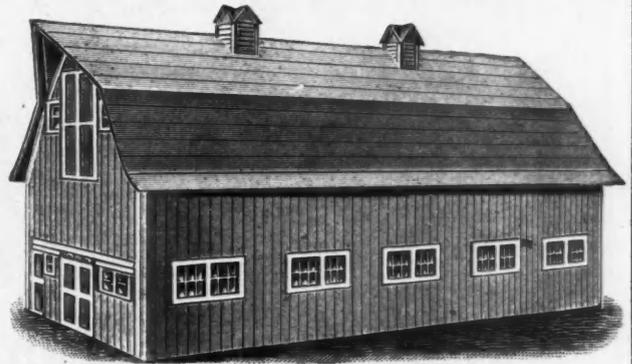


OUR HOUSE DESIGN No. 6

This is our leader, the best seller of any house ever designed anywhere, by anybody, at any price. Why? Because it comes nearer to filling the requirements of a home than any house of its size ever built. It is 23 ft. wide and 33 ft. 6 in. long, not including the porch. It has seven rooms, bath, pantry and a large front porch. It is of handsome appearance and symmetrical proportions. It is magnificently lighted and perfectly ventilated. Embodies every modern comfort and convenience. Our extremely low price makes it the best bargain proposition on the market. We cannot recommend this design too highly. Even if you don't need a home, build this house for an investment. You can sell it ten times over before it is finished.

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BUYS THE MATERIAL TO BUILD this Modern BARN



READ EVERY WORD OF THIS REMARKABLE OFFER

OUR JOIST FRAME BARN No. 221

The above is an illustration of our famous Joist Frame Barn. It is the most practical and serviceable barn ever designed. It may be built at a price very much cheaper, and has more available space than any other style. We can supply this barn in six different sizes, all of the uniform width of 36 ft. The above quotation covers a barn 36 ft. wide by 48 ft. long and 18 ft. high. The roof is of the self supporting type, there being no posts in the bay loft. There are 6 windows on each side, 3 in each end, and 2 in each eave, so the barn is thoroughly ventilated. Our price covers all the lumber, mill work, hardware and nails required to complete this building from the ground up.

WE HAVE HOUSES RANGING FROM \$290 TO \$1300, BARNs FROM \$200 UP

Of all the wonderful offers advertised, this unquestionably is the greatest. The Chicago House Wrecking Company offers to sell to you at a saving of from 25 to 50 per cent all the building material needed to construct the house and barn shown above. This means we are absolutely leaving out all middlemen's profits and are dealing direct with the consumer. Our ideas are absolutely original and no other firm in the world has ever before advertised to completely supply the material such as is offered herewith. We are the largest concern in the world selling lumber and building material direct to the consumer. We propose to furnish you everything for the construction of these buildings as outlined in our offer. It will be in accordance

with specifications which are so clear that there can be no possible misunderstanding. Our prices as given above mean for the material all correctly laid out in accordance with our plans and specifications.

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As to our terms: they are as liberal as any one can ask for. If you do not want to send money in ad-

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We furnish you blue prints for either of these designs or for any of the designs shown in our "Book of Plans" without one cent of cost to you, provided you place the order for the bill of material with us. It will be accompanied by working plans and material list. The itemized material list accompanying same is complete, both in the description of the material used and also in describing the purpose for which each item is intended. If purchased in the usual way from the architect, these plans would cost from \$25.00 to \$75.00. With the aid of our plans, specifications and material list, anyone reasonably familiar with building construction can

superintend the erection of his own house or barn at a great saving.

Our Plan Book, a description of which is shown below, illustrates many other designs in houses and barns. You will find that our houses can be built for such purposes as will bring you in good returns for your money, even if you have no intention of living in the house yourself.

We will furnish you with a set complete or either of the buildings above for any of the buildings shown in our "Book of Plans" referred to elsewhere in this

advertisement for the sum of \$2.00, which amount you can remit to us and the complete set will be sent to you, all carrying charges prepaid by us. Upon receipt of them, if you decide to make the purchase of the full bill from us, then we will allow you \$2.00 to apply towards our price. If for any reason you decide not to use the plans and prefer to return them to us within thirty days after receipt, then we will refund you \$1.50, thus making the information cost you only 50 cents. We assure you this does not pay for the expense involved.

HOT WATER HEATING PLANTS! STEAM HEATING PLANTS! PLUMBING MATERIAL!

We will furnish a complete Hot Water Heating Plant for the design No. 6 shown above, consisting of Sectional Hot Water Heater, handsome Cast Iron Radiators, all necessary pipe, valves and fittings, including a complete set of blue prints, working draw-

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tion as above, for the sum of \$180.50. Every bit of material used in these plants is guaranteed brand new and first-class in every particular.

We furnish all needed Plumbing Fixtures for House No. 6, shown in this advertisement, and consisting of Bath Tub, Closet, Washstand, Kitchen Sink, and including all necessary pipe and trimmings complete to install everything needed above the ground, for the sum of \$97.50.

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(Check off such literature as you desire.)] Send me free of all charges:

- Your complete General Catalog No. 914.
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If you desire to send for plans at once, fill in this space.

Enclosed find \$2.00 in..... for which send me your complete set of blue prints, plans and specifications for design No.

I am interested in the following items:.....

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FREE, OUR BOOK OF PLANS

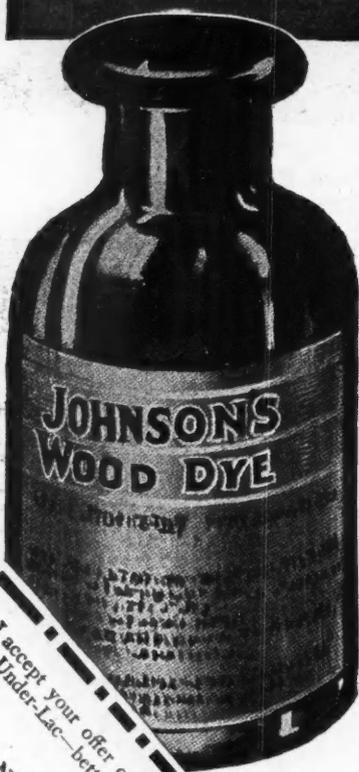
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Made in 14 Standard Shades

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| No. 123 Dark Oak | No. 129 Dark Mahogany | No. 122 Forest Green |
| No. 125 Mission Oak | No. 130 Weathered Oak | No. 172 Flemish Oak |
| No. 140 Manilla Oak | No. 131 Brown Weathered Oak | No. 178 Brown Flemish Oak |
| No. 110 Bog Oak | No. 132 Green Weathered Oak | |

Price—(All Shades)— $\frac{1}{2}$ -gallon size, \$1.50

When you once use Johnson's Plasto-Filler, putty or plaster of paris will never satisfy you for filling cracks, holes, crevices or depressions in walls, woodwork or floors. Comes in a handy carton.

Mix Johnson's Plasto-Filler with water to the proper consistency, and apply with a putty knife.

S. C. Johnson & Son

"The Wood Finishing

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Painters, Decorators
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YOU have a perfect, non-shrinking, adhesive filler that will not shrink, crack or come out of place. Johnson's Plasto-Filler retails at 20c per pound for the one and two-pound packages and in bulk at 15c per pound. It costs less per pound than other fillers and a pound will go twice as far.

Johnson's Plasto-Filler

is entirely different from any filler on the market. Try it and see. We want you to know, too, how much better Johnson's Under-Lac is than shellac or varnish. It forms a thin, hard, glossy, elastic veneer over the wood, which will not show scratches, water-stains or heel-marks. One coat of

Johnson's Under-Lac

and one coat of varnish will give a higher gloss and more durable finish than three coats of varnish without the Under-Lac. *For a higher gloss* we recommend a coat of Under-Lac over Wood Dye or Paste Wood Filler, and then one coat of Johnson's Prepared Wax, for that "hand-rubbed" effect. Price \$2.50 per gallon.

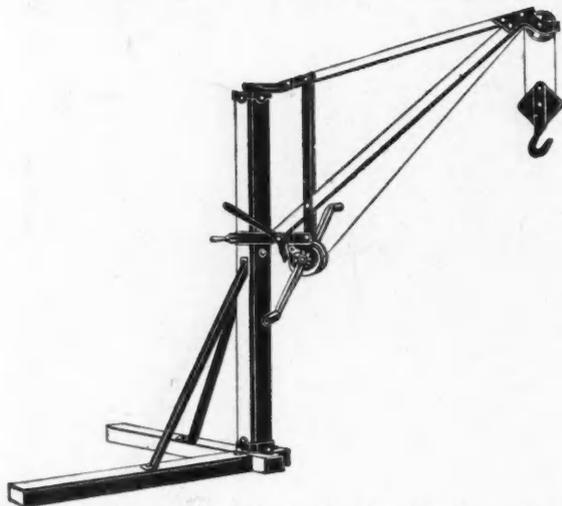
Now, it is a generous sample of these three articles which we send you, entirely free and post-paid; also our text book on the proper treatment of floors, woodwork and furniture. Don't forget to mention the color of Dye you want.



Racine, Wis.

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

is a vital element, and so there is an increasing demand for builders' derricks that will do the work that was previously



done by laborious and costly handwork. In this connection we would direct special attention to the Sasgen Builders' derrick which has recently been placed on the market and demands consideration on account of many strong points.

In the first place the Sasgen derrick is light, portable and easily moved and set in place. It is strongly built and powerful in operation. It is intended for hand power and is on the circle swing principle so that it is adapted for hoisting stone, iron, timbers, joist, flooring, door and window frames and other material used in building operations. The Sasgen derrick has rapidly gained in popularity since it was first introduced to the contractors of the west, and we are informed that there are over three hundred of them in use at the

present time in this city. Contractors speak most highly of the derrick for it is constructed for hard use, made of selected wood, finest malleable castings and high-grade steel hoisting cable. It is so simple in operation that by removing two nuts and one bolt it becomes compact enough for one man to handle readily. It is manufactured and sold by Sasgen Bros., 665 Lincoln Avenue, Chicago. They are comparatively newcomers in this field and are establishing a trade that reflects credit on their business methods. Those who are interested can obtain prices and further information by addressing the company as given above.

9-Inch Universal Woodworker

The Bentel & Margedant Company, Hamilton, Ohio, have a woodworking machine in their 9-inch "Economy" which they claim to be the latest and best of their well-known Universal woodworkers, notwithstanding the fact that it is the least expensive. It is a machine that they have brought out to meet the requirements of those wanting a strictly first-class machine at a minimum cost.

It is suitable for performing a great variety of work. With each machine there is a direction sheet on which many different operations are illustrated and more fully explained.

The frame of the machine is cast in one piece with the base large and well spread on the floor, and with broad incline supports for the table brackets on which they are adjusted to and from the cutter head obliquely by means of the hand-wheels shown in V slides provided for the purpose, with ample means for taking up any natural wear that may ensue.

The table tops proper rest in slides on the top of the brackets and can be moved and set horizontally to any required distance from the cutter-head or mandrel. They are each 36 inches long and are 12½ inches wide including the recess in front, which is 3 inches in width for receiving the gaining

**We
Want
To Tell
You
How**

**You Can Put Every Cent of the Dealer's
Profit Into Your Own Pocket**

You can save not only the dealer's profits but his excessive charges for installation and repairs.

You can deal direct with the manufacturers.

The Jahant Down-Draft Furnace

**Only Ten Dollars Down and Ten Dollars a Month With
Freight Prepaid East of the Mississippi River.**

This wonderful furnace has proven its superiority over others during the last thirty years. It is without a doubt the best heating system ever devised.

It saves from one-third to one-half in fuel bills, because the patented down-draft burns hard or soft coal, wood or lignite, without cinders or clinkers, giving the full heating value of every particle of fuel.

THE JAHANT DOWN-DRAFT FURNACE

is scientifically correct. Every part is cast of the best New Gray Pig Iron; no sheet steel is used; the fire pot will last a lifetime; **cracking is impossible.**

A strong "Guaranty Bond" goes with every JAHANT, which allows a **three hundred and sixty day free use of the furnace.**

You run no risk, as we supply special plans, full instructions and give free, all necessary tools, so that any man who can drive a nail can successfully install a JAHANT.

Let us tell you something about the conveniences and good points of our furnace, its economy, its healthfulness and how you can save money.

We have an interesting and money-making proposition to make to every carpenter and builder.

Write today for our book.

THE JAHANT HEATING COMPANY

"Building furnaces for thirty years".

100 Main Street, AKRON, OHIO





*Carey Roof Quality
is best understood by
seeing the Roof itself.
May we Mail You
this Sample?*

WE want you to know about Carey's Roofing—and why it is in a class by itself—*different and better*. Every architect, every builder, every dealer will *profit* by this knowledge.

We want you to understand why this famous roofing has given *perfect protection* on buildings for eighteen and twenty years;

And, on inspection, proved to be in *better* condition than when first applied—the outer surface a more efficient resistant to wear and weather.

The wonderful inner compound is so prepared and tempered by our special process that it is permanently live and flexible.

Extreme heat will not melt The Carey Roof. No tar to run, no paper to crack and crumble. Cold, wind, ice, snow, and soaking rain—and sparks and burning brands—will not affect it.



has been the highest type of roof-construction for a quarter-of-a-century.

A compact, indivisible sheet of high-grade materials, scientifically combined. Absolutely *standardized*—uniform in manufacture, quality, thickness and weight.

The most skilled workman cannot produce a roof upon a building with the same degree of accuracy—and quality. And with a "Built-up" roof there is no determining how the job will turn out until it is too late to change it.

You can prove Carey's Roofing *before* it is applied. Anyone can lay it. The Carey Patented Wide Lap insures one perfect, smooth and watertight covering that outlasts the building itself.

It's easy to buy Carey's Roofing—we have 46 distributing points; sold by leading dealers everywhere.

Let us send you a large sample of Carey's Roofing to prove its quality. Compare it with every other roofing material.

Judge of its strength and elasticity. And, remember, that Carey's Roofing actually *improves with age*.

We'll gladly send, also, our book about The Carey Roof Standard, illustrated with photographs of factories, business blocks and other buildings—Carey-roofed. It's full of valuable information.

We suggest that you use the coupon, and mail it today to—

The Philip Carey Manufacturing Co.

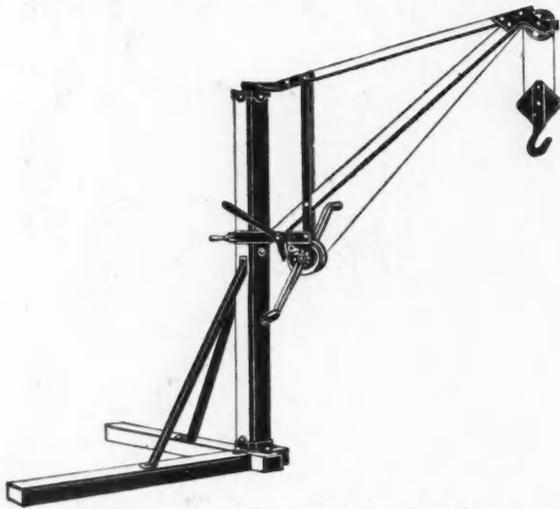
30 Wayne Avenue, Cincinnati, Ohio

COUPON
The Philip Carey Mfg. Co.
30 Wayne Ave., Cincinnati, Ohio

You may send me your book about The Carey Roof Standard; also a large, free sample, postpaid, of Carey's Flexible Cement Roofing.

My name.....
Firm name.....
Address.....

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It is suitable for performing a great variety of work. With each machine there is a direction sheet on which many different operations are illustrated and more fully explained.

The frame of the machine is cast in one piece with the base large and well spread on the floor, and with broad incline supports for the table brackets on which they are adjusted to and from the cutter head obliquely by means of the hand-wheels shown in V slides provided for the purpose, with ample means for taking up any natural wear that may ensue.

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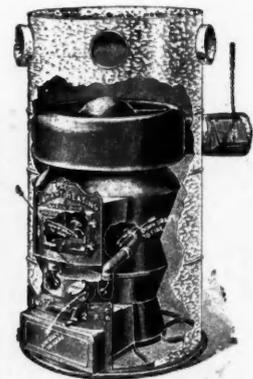
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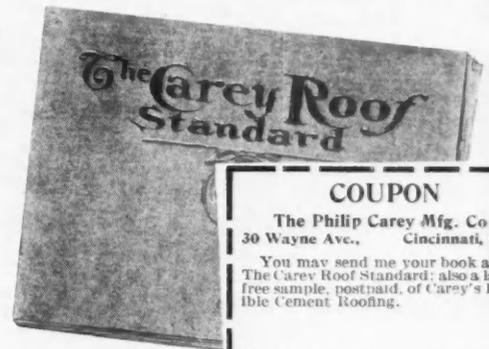
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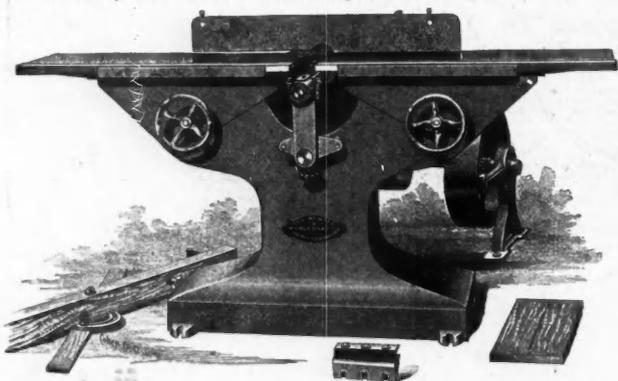
COUPON
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My name.....
Firm name.....
Address.....

or cross-cutting frame. The adjustable fence and bevel rest furnished with the machine is adjustable in and out across the full width of the table and can be set to any bevel.

The machine is also furnished with the saw board and with the adjustable cross-cutting and gaining frame shown in the illustration, and with a rabbeting iron and panel steel. It



will take a cutter-head up to 9 inches long, one of this size being furnished with the machine, same being either the company's patent triangular shear knife head or a slotted head as may be preferred. Other heads for any required purpose are furnished upon order.

The mandrel is made of the best tool steel, is 1½ inches in diameter and is carried in long boxes, the outer box having a strong and rigid outside bearing resting on three taper supports and quickly and conveniently removable for change of heads by loosening the hand screw shown beneath.

An adjustable boring and routing table similar to that supplied on the other Universal woodworkers is furnished when ordered, but is not shown in the illustration. It is mounted

on the reverse side of the machine, is convenient and well arranged, the mandrel having a shank hole to receive the bits and also being threaded to receive a universal chuck.

Ready Reference Book

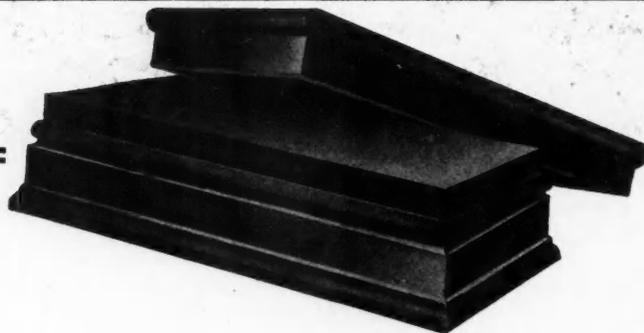
The "Ready Reference Book" on roof framing, published by E. Ochrlé, of 2567 Dodge street, Omaha, Neb., is meeting with great favor among the carpenters who have purchased it. Its size is such that it can be readily carried in the pocket ready for use at any time. It is accurate and a very big help to those not thoroughly familiar with roof framing and to those who use it is a big time-saver.

In this book the length of rafters of the various pitches, *i. e.*, ¼, 1/3, ½, ¾, ⅝ and ¾ are given, and also a scale for polygons showing figures to be used on square to get the different cuts. Better write for one today.

Would You Break Your Neck for \$1.00?

"Would you break your neck for a dollar?" That was the rather startling query made by one of our prominent advertisers last month. The Patented Window Attachment Company, 51-53 North State street, Chicago, Ill., are demonstrating to the satisfaction of many large builders that this query, startling though it is, does not exaggerate. They are proving that their window saves times and money and may save life.

It is interesting to note that this company has recently installed and got contracts for such buildings as the Illinois Eastern Hospital for the Insane, City National Bank building, the Wm. H. Radike residence, The Fair store, J. G. Knecht & Co. department store, Dr. A. J. Lauch's residence, all at Kankakee, Ill. Also from all elevated stations of the Philadelphia Rapid Transit Company, of Philadelphia, Pa., and the following apartment buildings in Chicago: Jos. Duplissis, 54th street and Lexington avenue; W. K. Gore, 59th street and Wabash avenue; Nels Jensen, on Pemberton



We Want to Send to Every Carpenter
an interesting little book illustrating and describing

CARBORUNDUM SHARPENING STONES

You need the book—and after you get it you'll realize your need for
Carborundum Stones.

Write for the Book—

Better also send 15 cents for a little Pocket Stone, in Cardboard Case.

THE CARBORUNDUM COMPANY

Niagara Falls, N. Y.

4620 SATISFIED Hess Furnace Customers In the United States

Bought Our Heating Outfits on the Same Conditions We Now Offer You

If the Furnaces and Outfits had not been all we claim, and had they not been easily and properly installed under our simple, clear plans and directions,

We Would Have Lost a Fortune
and Been forced to Quit Business Years Ago

WE BACK OUR GUARANTEE WITH A FREE TRIAL UNTIL JAN. 1910

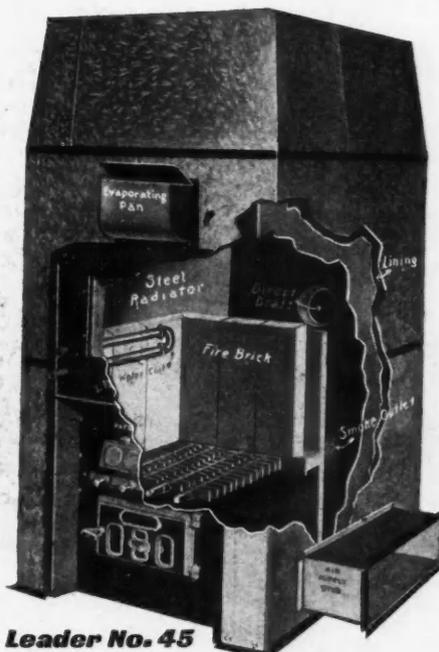


This Free Booklet,

which bears the title: "Modern Furnace Heating," clearly explains principles that cannot be ignored if the heating of any building is to be accomplished perfectly and, at the same time, economically. This booklet is written so anyone can easily understand the diagram illustrations and principles involved. It covers the entire heating proposition thoroughly and contains heating information of much value.

Burns Any Fuel

Besides any kind of coal, gas or wood, any other fuel, such as chips, twisted straw, corn cobs, etc., may be utilized and money saved.



Leader No. 45

HESS STEEL FURNACE
PRICE, — \$ 49⁰⁰

Delivered any station East of Omaha and North of Ohio River.

PIPES AND REGISTERS EXTRA



This Free Booklet

is named "These Bear Witness" and gives the names and addresses of hundreds of people in every state and territory (many of them, perhaps, your neighbors) who have, and are using, the Hess Steel Furnace and outfit, and to whom we refer as having found our furnace the best in heating capacity and most inexpensive in first cost and fuel consumption.

Heats 7 or 8 Rooms

It's an economical furnace. The Leader No. 45 will heat seven or eight rooms, a small church, store, school or similar building.

We Give a FREE TRIAL Which Insures a REAL TEST of the Complete Outfit After It Is Installed

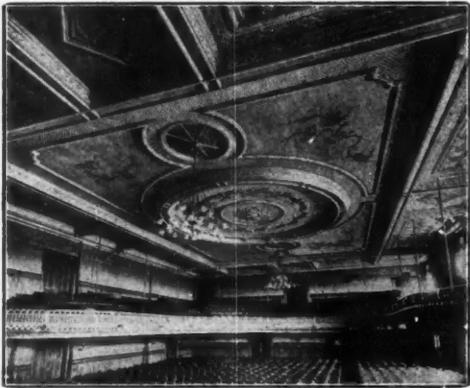
Buy Direct of Us—the Real Manufacturers—and Save All Middlemen's Profits

ON FREE TRIAL UNTIL JANUARY, 1910

We will send you a Hess Steel Furnace and complete heating outfit, including pipes, registers, fittings and everything needed, for from \$25 to \$100 less than you can buy from dealers, and deliver it at your station, freight prepaid. You may place the purchase price in the hands of your local banker, who will hold the money until January, 1910, while you test the heater.

If the test is not satisfactory to you in every way, you may return the goods at our expense and the banker will return your money. Send us a rough sketch of any building that you wish to heat and—without any charge or obligation on your part, we will have our experts prepare a simple, clear plan, which you can easily understand, showing every detail of the furnace, pipes, registers, etc., in their proper places, with the exact cost to you of the complete equipment.

Hess Warming and Ventilating Co., 920 Tacoma Bldg. **CHICAGO, ILL.**



There's Money for You in Steel Ceiling Work

And you can easily handle it. Our construction is planned to simplify erection and reduce number of pieces to handle, thus saving time, labor and expense. Any good mechanic with the aid of our working drawings can easily do the work and secure a neat, snug-fitting, workmanlike job.

We help you by preparing free suggestion drawings and estimates. Send sketch and dimensions of room or rooms to be covered and we will submit suggestions and quote exact prices on the material delivered at your depot.

Berger's "CLASSIK"

is the most complete line of artistic Steel Ceilings in existence AND OUR CATALOG PROVES IT.

Write for it TODAY. Ask for No. D-55.

THE BERGER MFG. CO., Canton, O.

New York Philadelphia Boston Chicago
Atlanta Minneapolis San Francisco St. Louis

Amatite ROOFING

THE day for painting roofs has gone by. A roof that needs constant looking after in order to keep it from leaking is a *makeshift*. It isn't the kind of roofing that the thrifty, up-to-date man wants.

The idea back of Amatite was the insistent demand for something better than the "smooth surfaced" or so-called "rubber roofings," which were always needing painting.

Amatite meets this demand. You do not have to spend one cent on Amatite after it is on the building. It needs no painting, because

it has a *real mineral surface* on top.

Amatite is easy to lay. The nails and liquid cement for laps are furnished free, and are enclosed along with directions for laying, in each roll.

The work of putting it down can be done by anyone, as it requires no experience

Now, a roofing that is as durable as Amatite, that is proof against everything but time itself, is surely worth investigating.

Any one of the offices below will take pleasure in supplying further information and prices.

BARRETT MANUFACTURING CO.

New York Chicago Philadelphia Boston
Cincinnati Minneapolis Cleveland St. Louis
Pittsburg New Orleans Kansas City London, Eng.

avenue, and many others. This gives an idea as to its salability and the wonderful success it is meeting all over the United States.

Turnbull Universal Window

The Turnbull Company, 263 La Salle street, Chicago, Ill., have patented and placed upon the market a simple, practical and ingeniously contrived window which fills a long-felt want. The special features of this kindow arrangement are illustrated in the accompanying photograph.

This sash is so arranged that both upper and lower sections can be opened into the room by simply standing on the floor as you open and shut them, like a door, and when closed they slide up and down in the usual way.

This sash can be placed in any frame with small expense.

It can be used in the French type of windows.

The mystery is that the ideas embodied in this window have eluded the inventive ingenuity of the builder so long.

In cleaning the window in wet or cold weather, the cleaner stands inside the room and is not exposed.

Leading architects are now specifying this window and are glad to acknowledge that it is a desideratum and fills a long felt want.

This window is raised and lowered with cords and weights, the same as any ordinary window sash. Then the inner part of the upper and lower sash is fitted with a part that opens on a pivot or hinge, just the same as a door is opened and shut, so that the outside of either the upper or lower sash can be cleaned while you are standing on the floor. When these parts are closed the window assumes the appearance of an ordinary window. Both inner sashes open and shut like a door without any interference with the cords or weights.



The special advantages claimed for the "Turnbull Universal Window" are as follows:

- 1—This window can be washed outside and in, the cleaner standing on the floor.
- 2—It is dust proof, also air tight and water proof.
- 3—There is no danger to life or limb in cleaning this window, as the cleaner stands on the floor inside the building.
- 4—This is the window people have been looking for, for years.
- 5—It can be made both in sheet steel and wood.
- 6—It is cheap and durable.
- 7—This window slides up and down the same as any ordinary window.

Every reader of the *AMERICAN CARPENTER AND BUILDER* should write and investigate this proposition. You cannot afford to let any such developments and improvements in building practice go by unnoticed.

Sharpening Stones for Carpenters

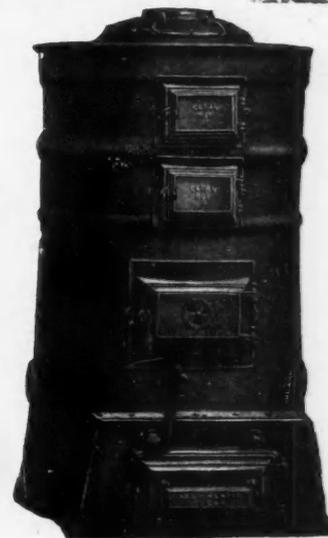
A sharpening stone made exclusively for the use of the carpenter is decidedly a novelty, but when the stone has all of the advantages and characteristics of the new Carborundum round combination bench stone, it becomes more than a

Here is a demonstration that demonstrates “Double the Heating Surface with only the same Grate Area”

ANDREWS LOCOMOTIVE
 STEEL BOILERS



1. Long Fire Travel
2. Easy to Clean
3. Double Heating Surface
4. Made of Steel



\$55.50
 buys
 this
 Boiler
 for an
 8-room
 house

WE ARE UNPREJUDICED—these two boilers are our own make; one is the *Andrews Locomotive Steel Boiler*, made substantially as strong and durable as the standard steam-power boiler; the other is *our make of Cast Iron Boiler*, as good a boiler as can be made of cast iron and recognized in the heating trade as standard. We sell both as you may order, *but we tell you the truth about how much better is the steel boiler—*

Better—Costs More—and Worth It—Saves Coal

A Heating Plant that Pays for Itself

Hard coal used by other heaters, 11 tons at \$8.75 per ton (the cost at Minneapolis), equals	\$96.25
Hard coal used by the Andrews Locomotive Steel Boiler and Hot Water Plant, 7 tons at \$8.75 per ton equals.....	61.25
Saving per winter, 4 tons at \$8.75 per ton equals...	\$35.00
35x10 equals \$350.00 saved—the cost of an Andrews Hot Water Plant.	
In ten years you have saved coal enough to pay for the plant.	

H. A. Argue, Winnipeg, Can., says:

“The Andrews System I deem a great saver of fuel. In 1907 in my 9-room house I burned 7 tons of coal, while my neighbors in the same size house burned from 11 to 13 tons.”

SEND US YOUR PLANS (OR A ROUGH SKETCH WITH MEASUREMENTS)
 OF YOUR HOUSE FOR FREE ESTIMATE OF COST

ANDREWS HEATING CO.

1061 Heating Building, Minneapolis

1061 Marine Building, Chicago



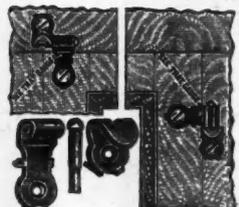
BIGGER PROFITS

FOR THE CONTRACTOR Who Uses The

WATROUS NO. 17 SCREEN HANGER

The same pieces, arranged to suit, will hang either a full or a half screen from either the top or side. Storm sash should be hung from the top, but this is the only way to hang a screen.

Only four screws to set instead of twelve, a saving in labor of two-thirds. A gauge mark locates the piece instantly, and makes mistakes impossible. A carpenter who has bought other hangers, could afford to throw them away, buy the Watrous No. 17, and make more money on the job. Mounted working model sent free postpaid to dealers or carpenters. Write to-day. Finish either japanned or galvanized, with galvanized screws.



E. L. WATROUS MFG. CO.

DES MOINES : : IOWA

Granite Roofing

TRADE MARK



This great pier was roofed nine years ago with **Granite Roofing**. At the present time it shows no signs of wear, and is expected to give excellent satisfaction, without attention or repairs, for at least ten years longer. Unlike the ordinary ready roofing, which is adapted only for temporary buildings and sheds, **Granite Roofing** may be economically used on all kinds of structures. Its unusual weight, 140 lbs. to the roll, gives to this roofing unparalleled durability. It can be laid by any one who can handle a hammer. **Granite Roofing** has a surface of sea-grit, thoroughly imbedded into its composition, which makes it fireproof and takes the place of the paint or coating.

Send for free Sample and Booklet, and learn about this best of all roofings.

EASTERN GRANITE ROOFING CO.

1 Hudson St., NEW YORK CHICAGO ST. LOUIS

novelty—it becomes almost a practical necessity. The new round bench stone is just being put on the market by the Carborundum Company, the only manufacturers in the United States of carborundum, the hardest, sharpest abrasive material, and no doubt will soon be in big demand.

Aside from the fact that the stone is made from carborundum and especially for the carpenter, there are several original and practical features about it which will appeal at once to the workman. The ordinary oil stone used by carpenters is not over two inches wide and four or six inches long, and the result has always been that when he used the rotary motion necessary in sharpening chisels, planer iron, etc., that he can use only about two square inches of the stone. The rest he scarcely ever touches, and the stone of course soon presents an uneven wavy surface.

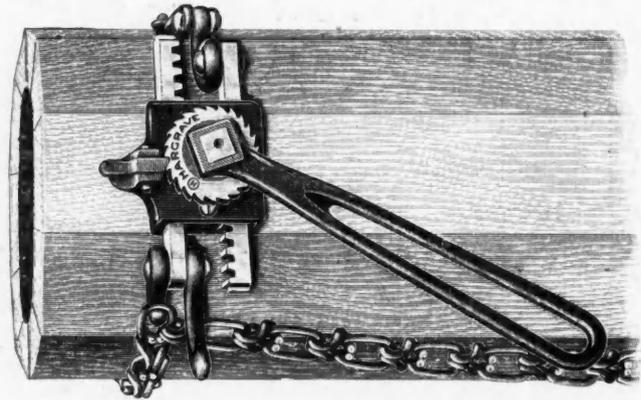
The new stone is perfectly round, four inches in diameter and one inch thick. The sharpening area contains about twelve square inches, plenty of room for the largest tools the carpenter uses. All of this surface is brought into play during the process of sharpening the tool. There is plenty of room for a long sweeping circular motion and there is absolutely no uneven wearing of the stone, as every part of the surface of the stone is used.

One side of the stone is made in the coarse grit for taking out nicks and the other side is made in the fine grit for bringing the tool to the desired, keen finished edge. Like all Carborundum stones, it is absolutely uniform as to grit, and it embodies all of the Carborundum fast cutting qualities.

The new stone can be ordered with or without the quartered oak box holder from any hardware dealer or direct from the Carborundum Company, Niagara Falls, N. Y.

Hargrave Column Clamp

The above cut is an illustration of Hargrave's column clamp, made by the Cincinnati Tool Company, Norwood, Cincinnati, Ohio. As will be seen, this clamp is distinctly different from others on the market in the method of operation. It works on the principle of a double rack and pinion with a pawl and ratchet to hold the clamp engaged. By this



method you engage and disengage the clamp on the work quicker than by any other way, saving the cost of the clamp in a few days' work. The parts throughout are made of malleable iron and steel, with the lightest and strongest chain on the market. The clamps are put up with four feet of chain, but other lengths can be furnished. Six clamps can be put on a column by two men in one minute, and can be released, ready for the next column in thirty seconds. Descriptive circulars may be had by writing to the Cincinnati Tool Company, Norwood, Cincinnati, Ohio.

An Adjustable Rabbit Strip

In a new house, one of the greatest annoyances is that of swollen doors. Exercising the greatest care, it seems impossible to prevent this, and particularly in the case of an outside door it frequently becomes necessary to remove the door

SUCCESSFUL DRAFTSMEN

Draw Good Plans Draw Good Money

If You are Tired Being
— a Hard Working —
Carpenter or Builder
then Make Yourself the
Highest Grade and Highest
Priced Man in Your Place

To do this you must be a good *Draftsman*, not one of those "would be" ones, no, but a first-class man, with actual, practical *drafting room experience*.

It will pay you well to learn this right from a practical man with twenty years' experience who will instruct *you* personally —individually on high-class *architectural* drawing, complete building designing and detailing in all branches;

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Genasco Ready Roofing

is made of Trinidad Lake asphalt and gives lasting resistance to sun, air, rain, heat, cold, and fire. It is mighty important to know what your roofing is made of.

Be sure you see the Genasco trademark and get the roofing with a thirty-two-million-dollar guarantee. Mineral and smooth surface. Write for the Good Roof Guide Book and samples.

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Direct from the Factory
AND SAVE \$50.00 TO \$100.00
ON YOUR HEATING PLANT
They Actually Save from One-third to
One-half of the Fuel

We have one of the best equipped furnace factories in the west and make more than 30 different furnaces of seven leading styles and can furnish our customers with practically any size or style of furnace they may desire, either Upright or Horizontal, sufficient to heat a large church or school house, down to a cottage heating plant complete with all pipe, registers and fittings for \$55.00.

Our furnaces are the only furnaces having a perfect ventilating system for every part of the house.

We ship our furnaces cut to fit. Any handy man can install them without the aid of a tinner.

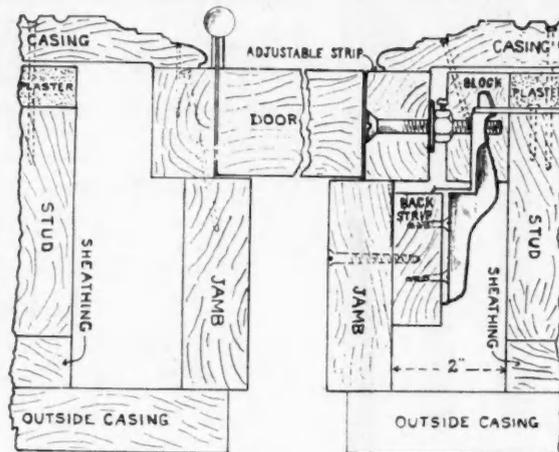
Catalogue and full specifications free.

Bovee Grinder & Furnace Works
50, 8th Street Waterloo, Ia.



from the hinges, plane it, and deepen the hinge recesses in order to make it close. This causes considerable extra work for the builder, as well as bother to the householder, and the trouble does not end here, for if the door swells again, the operation has to be repeated, and finally when it shrinks back, a space is left between the door and jamb, which makes necessary the use of weather strips.

All of this trouble can be overcome by preparing an adjustable rabbet strip to take the place of the usual rabbet or jamb; this must be $1\frac{1}{8}$ inch thick, and the ends of it have to be flush with top and bottom edges of the door. The strip is bored and countersunk for five adjusting screws which measure $2\frac{1}{2}$ inches over all; one of these is put in 4 inches from the top, one 4 inches from the bottom, and the remain-



ing three at equal spaces between. After the screws have been inserted so that the tops of the heads are even with the front of the rabbet strip, a washer and nut is run on the end of each screw; the nut is tightened with the fingers, and when in position is fastened with a small set screw as shown in the diagram. The end of the screw is then put in an iron bracket, the other end of which is fastened to the back strip. Up to this point the work can be done on a bench.

The rabbet is then placed in position, and fastened by screws which are run through the jamb into the back strip; it is also held by a small flat casing—one end of this has a hole which fits over the end of the bracket, and the other end is nailed to the studding. Blocks of wood are nailed to the studding in spaces between the five adjusting screws, and the casing may be nailed to these.

It takes perhaps half an hour longer to fix rabbet strips this way, and costs a little more, but when compared with the amount of time and trouble saved, to say nothing of probably ruining the door, the extra expense is insignificant. Each time the door swells a few turns of the screws with an ordinary screw driver makes room for the door to close, without taking it from the hinges and planing, and when the door shrinks, the rabbet strip is just as easily moved back; so there is always a perfect fit.

This arrangement is not an untried one; it was designed by a practical architect and builder, and has been used with great success for several years. One householder said he would rather lose quite a little money than have a house built without door jamb adjusters—for the outside doors anyway. The fixtures are now being manufactured by the James L. Taylor Manufacturing Company, Bloomfield, N. J., who will be glad to furnish any further information desired.

Read and Think This Over

The carpenter making the most shavings usually gets the smallest pay, and the contractor doing the most sweating, usually is the lowest bidder and loser.

There is a reason for this carpenter to be out of a job, and



Asbestos "Century" Shingle Roof
Residence of W. A. McGonagle, Duluth, Minnesota
A. H. Krieger Company, Duluth, Contractors

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"The Roof that Outlives the Building"

Figure out the cost of various roofings to your client. Allow for painting and repairs.

Where does he come out on a cost-per-year basis? In convenience and comfort—in security from roof troubles?

Asbestos "Century" Shingles make an absolutely permanent roof—weather-proof—time-proof—fire-proof. No painting—no repairs. The first cost is the final cost.

Made in numerous shapes and sizes, in three colors—Newport Gray (silver gray), Slate (blue-black) and Indian Red.

Ask your Roofer for new quotations. Write for Booklet "Roofing 1909."

The KEASBEY & MATTISON COMPANY, Factors, Ambler, Pennsylvania

TIME WILL TELL—BUT NOT ON

"First Cost
is
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Gal-va-nite Roofing

"Easy To
Lay."



The very name "GAL-VA-NITE" carries with it a positive feeling of satisfaction. The carpenter or builder who either specifies or uses this high grade ready roofing on a building can rest assured that the owner will be satisfied. GAL-VA-NITE marks that degree of perfection among roofing materials which characterizes it as the "STANDARD" of moderate priced ready roofings. It has made good in all climates and under all conditions. The fact that it needs no painting or after attention when once on the building, makes it especially in demand by house owners who have long since tired of the expense and trouble of patching up leaky roofs.

GAL-VA-NITE is waterproofed with a triple coating of mineral asphalt and weatherproofed with a heavy "armor-plating" of flaked mica, which makes it impervious to the ravages of rust and the dangers of flying sparks and fire-brands.

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ORNAMENTAL SHAPES

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WHO BOUGHT THEM.
Or
The Bricklayer
WHO LAID THEM.

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BRADFORD, PA.

I never saw
a saw, saw
the way this
saw, saws.



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Protect yourself against imposition in buying saws by looking for Simonds trade mark. Whatever saw you find that on you are safe in buying, and *don't buy any other* unless you are prepared to be disappointed.

If your dealer does not keep the Simonds, let us know and we will see that you are supplied.

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for the sweating and swearing contractor to be out of money. It is a fact that more contractors go broke than survive on the first job, and more money is lost than made by using the old foggy guess rule, or thumb measure.

At this age of competition only the *best* will survive; the most successful man, whether carpenter or contractor, is only the best educated, trained and experienced man.

A carpenter or contractor that is not a first-class draftsman is soon a "dead one," and passed by as not up-to-date or competent to handle the best work with the most money in it. What's the use being a "dead one" while being alive?

Mr. F. V. Dobe, of the Engineers' Equipment Company, Chicago, Ill., who has been at the head of a large business in this field for nearly twenty years, is now giving personally a practical drafting room instruction, of an exceptionally high grade kind and quality; not the kind of "hash" furnished by some schools that teach from printed plates for all alike, but special individual instruction applying to the requirements of each man in his particular line. His instruction is given by mail, and the work can be done at leisure at home. His announcement appears on another page and should be carefully read by any ambitious man who is anxious to be something better than the average.

It Stays and Pays

The editor of the AMERICAN CARPENTER AND BUILDER has just received an exceedingly interesting and valuable book from the Kawneer Manufacturing Company, Niles, Mich., containing working drawings and details of construction of the Kawneer system of store fronts adapted to all conditions. This book is being distributed to architects and builders, and should be in the reference case of every reader of this journal.

From a structural standpoint the nature and quality of the materials entering into the store front of a business building will determine the cost of maintenance and measure the percentage of interest on the investment. In fact, records compiled during the past few years have proven the show window to be the greatest trade pulling factor in the life of a retail business.

To the architect, the client's interests are paramount. It is the earning power of the sum invested, whether the client be owner or tenant, that is to be seriously considered in the selection of a store front construction. If in design the construction is architecturally correct; if it is thoroughly adaptable to the architect's originality in design; if it is durable and all the finishes of the various parts are brilliant and attractive, it will force upon you the conviction that here is an up-to-the-minute store; a store filled with dependable and trustworthy merchandise. Such a store front can never fail to strengthen the display and draw new customers.

If, on the other hand, the materials are heavy and unsightly, and in design are indicative of methods and materials employed for many years past, it will have a tendency to repulse, and stamps the establishment as one generally behind-the-times.

The Kawneer system of store fronts was designed by an architect who had long practiced his profession and the vital characteristics—trade pulling power, low cost of maintenance and permanency—have always been held as the most important points in its development. It offers relief from the old cumbersome construction, which is made up of such materials as will quickly rot and rust, that consume many inches of valuable display space, and that year after year call for constant repairs.

The engineering and drafting department of this company is ready at any time to give information concerning the installation or use of the Kawneer system of store fronts, whether the case be a special one requiring detail drawings or an ordinary one. Estimates of Kawneer material complete for any store front will be sent upon request for same.



These pencils are made for all around office use. Soft, smooth, strong graphite and selected, straight, grained cedar. Smooth writers, long wearers, easy sharpeners. Supplied with good rubber erasers that erase without smudging or scratching.

E. C. Simmons Office Pencils

Sold by leading dealers; one dozen in a package, 50 cents. If not at your dealer's, write us for free sample and we will tell you where you can find them.

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Simmons Hardware Company (Inc.),
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COSTS NO MORE THAN A GOOD TIN ROOF

Artistic and Ornamental in appearance and is positively guaranteed to be Fire, Lightning, Rain, Storm and Wind proof.

Its extreme lightness (about one-eighth that of slate), durability and moderate cost commend it to those wishing something out of the ordinary in roofing.

Manufactured from best quality Worcester Grade Terne Plate, furnished painted or galvanized (galvanized after being formed) size 10 x 14 inches.

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WE SHALL BE GLAD to send you a copy of the bond without charge. We will also send you at the same time a sample of Congo, so that you will see the reason for our confidence.

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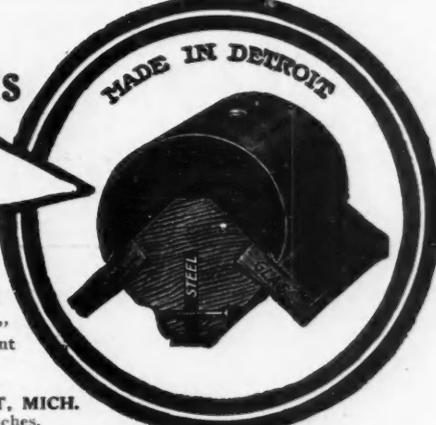
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This wonder worker in building construction is used as a substitute for sheathing as well as lath and plaster. It is made of kiln-dried, dressed lath, imbedded in hot Asphalt Mastic, and surfaced with sized card board. It is cut at the factory in 4 x 4 ft. sheets, which are nailed to studs all ready for wall paper or paint.

Bishopric Wall Board is clean, sanitary and odorless; is guaranteed not to shrink, warp, crack, flake or blister; is proof against moisture, vermin, heat or cold. Being a non-conductor, it saves fuel in winter and keeps the building cool in summer. It also deadens sound.

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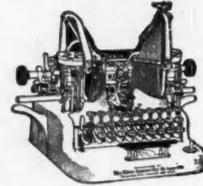
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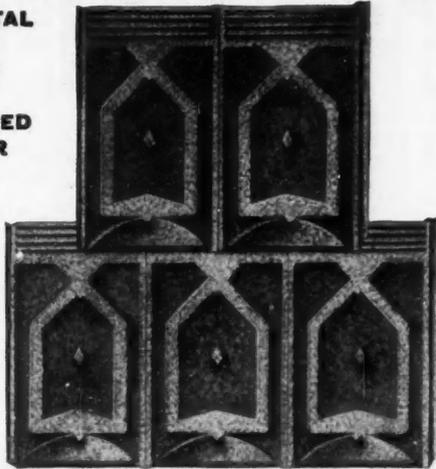
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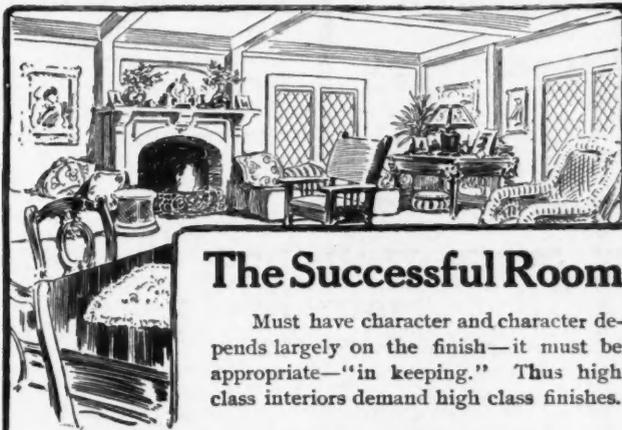


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Write for our practical booklets, "Hints to Architects," and "High Standard Specifications." They will help you solve your paint problems.

Consult Sweet's Index (1909) pages 1282-1283.

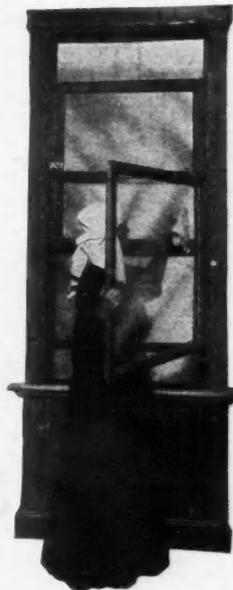
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THE LADIES ALL APPROVE IT



This window can be washed outside and in, the cleaner standing on the floor

It is dust-proof, also air-tight and waterproof.

There is no danger to life or limb in cleaning this window, as the cleaner stands on the floor inside the building.

This is the window people have been looking for, for years.

It can be made both in sheet steel and wood.

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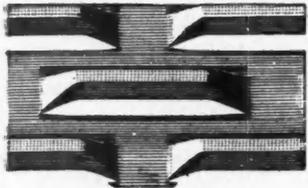
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We make two kinds—Sykes Expanded Cup Lath, and Sykes Trough Lath. Both are supreme for their own purpose.

The top illustration shows Trough Lath, bottom cut depicts Cup Lath.

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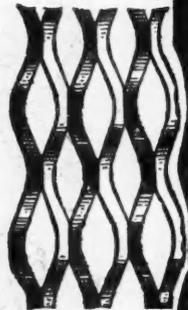
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It has been approved by U. S. Government and by leading architects, carpenters and builders throughout the country. In fact, when we say it is the best ever made we are simply stating a proven fact.

Samples and prices mailed upon request.

Sykes Metal Lath & Roofing Co.
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to take up Slate Roofing in unoccupied territory everywhere. Only a few inexpensive tools needed. Slating easy to learn.

Sea Green and Purple Slate Roofs

outlast any building. They won't wear out, rust or decay. Are fire-proof. Afford clean cistern water and don't require constant repairs and attention. A profitable, growing Slate Roofing business can be established anywhere. Besides new work, there are hundreds of wornout tin, shingle, metal and composition roofs to be replaced. Your neighbors are tired of paying out good money for short-lived roofings. Furnish them with handsome, sanitary, fire-proof "Never-wear-out" Slate Roofs.

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This proposition only applies to territories not now covered by a Slate Roofer.

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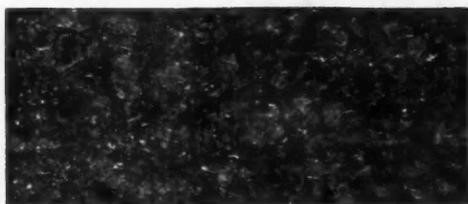
Hundreds of contractors, carpenters and builders have met with success selling Mastic Roofing during the spring and summer. Most of them were our selling agents. To these, and to every man interested on the subject of good roofing, we say:

The success of Mastic Roofing will be doubled and trebled during the coming fall. Orders are pouring in and our manufacturing facilities are being extended to meet the increased demand.

The contractor is the man who knows good roofing and who is in a natural position to impart his knowledge, consequently it is through him that roofing should be sold. Therefore:

We will appoint contractors and builders as our selling agents. We have appreciated their co-operation and now offer our further appreciation in more concrete form. Every reader of this paper should at least send for details about our proposition.

We offer special inducement to contractors and builders putting on the first Mastic roof in every locality where it has not yet been introduced.



THE ABOVE CUT IS AN EXACT REPRODUCTION OF A PIECE OF MASTIC ROOFING 2½x1½ INCHES AND SHOWS THE SLIGHTLY SURFACE FINISH.

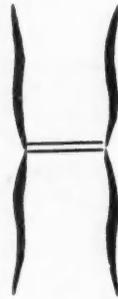
Send for Free Sample

We will send a free sample of Mastic Roofing when you send for the booklet. Write today.

National Roofing Materials Co.
Edwardsville, Illinois



**Metal Ceilings
With
Punched Nail
Holes**



**Perfect Alignment
Tight Joints,
½ cost of erecting,
Double Profits.**

Particulars on Request.

The Canton Art Metal Co.

Canton, Ohio.

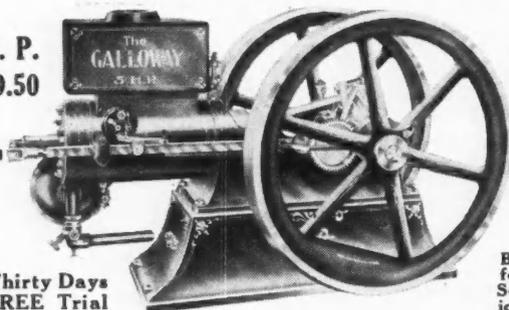
Eastern Branch.

**525 West 25th Street,
New York City.**

Western Branch.

**206 South Third Street,
Minneapolis, Minn.**

**5 H. P.
\$119.50**



**2-28
H. P.**

**Thirty Days
FREE Trial**

**Built
for
Service**

The Galloway Gasoline Engine

**Owned and made exclusively by the
William Galloway Co., Waterloo, Iowa.**

will run your shop at several times its present capacity and enable you to take lots of jobs that you have to turn down now because you have not the capacity.

Only four things to do:

Turn on the switch, turn on the oil, turn on the gasoline, give the fly wheel a start, and the Galloway will go right along all day without further attention. It is ideal power for a small shop, and it's got the capacity to take care of your growing needs.

The Galloway has been classed as a standard, high-grade engine for fifteen years. Over 4,000 in use in Iowa alone. Thousands in every other State and Territory.

If you try the Galloway engine, you will find that it is not overspeeded. Remember the bore and stroke count, and you don't have to drive your engine faster than you ought to drive it to get the rated horse power. Rated by actual brake tests.

On the larger sizes, if it is not entirely convenient for you to pay all cash, we will take your note for the balance at the regular rate of interest for six months.

The price given is for the five-horse power only, but we make these engines in seven sizes.

Ask for free information on stationary and portable gasoline engines from two to twenty-eight horse power. We make the best, and we price them at a reasonable figure. Write today.

The William Galloway Co.

1145 Galloway Station

WATERLOO, IOWA



\$25.85

For this elegant, massive selected oak or birch, mahogany finished mantel.

**"From Factory
to You"**

Price includes our "Queen" Coal Grate with best quality enameled tile for facing and hearth. Gas Grate \$2.50 extra. Mantel is 82 inches high, 5 feet wide. Furnished with round or square

"Reputation and Quality Count"

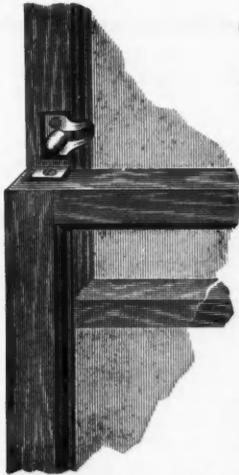
columns, full length or double as shown in cut. Dealer's price not less than \$40.

CENTRAL MANTELS

are distinctive in workmanship, finish and style. Twenty years' experience enables us to know and satisfy the needs of those who want mantels of quality, different from the rest. We build all styles—Colonial to Mission.

CATALOGUE FREE—Will send our 112 page catalogue, the finest ever issued, free, to carpenters, builders, and those building a home.

**CENTRAL MANTEL COMPANY,
1247 Olive Street,
St. Louis, Mo.**



Ventilation Without Risk

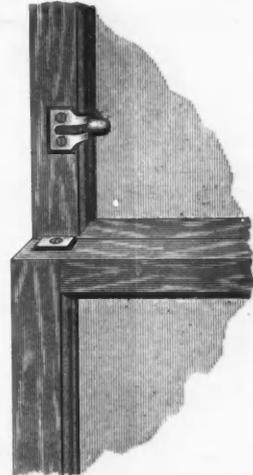
IVES PATENT VENTILATING LOCK

A safeguard for ventilating rooms, allowing windows to be left open at the top, the bottom, or both top and bottom with entire security against intrusion, a permanent fixture easily applied and quickly operated, affording three times more protection to the window than the ordinary sash fastener.

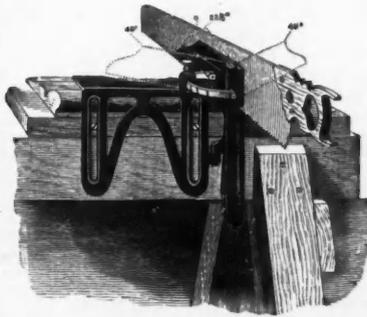
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Needs no special saw.

Lightest box made

Can be instantly applied.

The *only* Mitre Box.

Made so that it is attachable to inside or outside work without a special attachment.

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NEW YORK ∴ U. S. A.



We tell you to put on a "Pioneer Roof," and forget it. Needs no paint or repairs. Sun-proof and rain-proof. Not affected by extremes of heat or cold. Suitable for all kinds of buildings—pitched or flat roofs. Comes in handy rolls. Easy to lay—anybody can do it—no special tools needed.

Now, then—Let us send you samples, a copy of our 32-page Roofing Booklet "A," and the name of our nearest agent

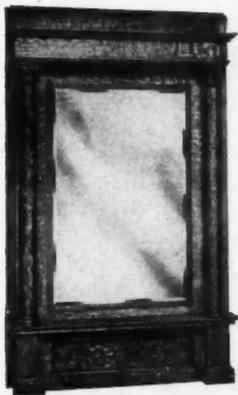
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The Pioneer Roll Paper Company are refiners of Asphalt and manufacturers of Asphalt Paint—which they supply direct from their factories in Los Angeles

California Agents for Northwestern Compo-Board Company

PIONEER ROLL PAPER COMPANY

Department 21, LOS ANGELES, CALIFORNIA



Console No. 4851

OUR CATALOG SAVES MONEY

To Contractors, Builders and Owners

There are economic reasons why we can save money to contractors, builders and owners on millwork specialties. We have a combination of years of experience and a plant equipped to save money in manufacturing. You get the benefit in better goods for less money.

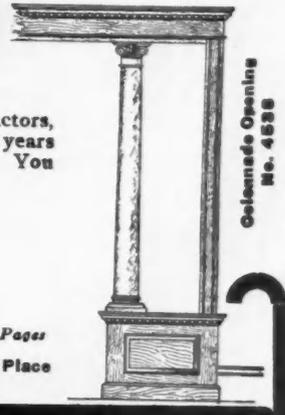
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Colonnade Oeculus No. 4836

32 REASONS Why you should USE Pittston Roofing Slate
 WRITE FOR ONE—IT IS ENOUGH
THE PITTSTON SLATE CO. Miners and Manufacturers
 J. M. ARMSTRONG Mgr. **SLATINGTON, PA.**

CLASSIFIED DEPARTMENT

**Do You Want Help?
 Do You Want a Situation?
 Have You Anything for Sale?
 Do You Want Machinery or Supplies?**

An advertisement in the "Classified Department" of the American Carpenter and Builder will be the least expensive and the most thorough way of letting your desires be known.

Rates: 5 cents a word each insertion.

CASH MUST ALWAYS ACCOMPANY ORDER

For Sale.

"EUREKA" Specifications for Brick Dwellings, with heating and plumbing, postpaid 50 cents; Specifications for Frame Dwellings, with heating and plumbing, postpaid 40 cents. Copyrighted 1909. Every builder saves time by using. Prevents forgetting something. E. G. SOLTSMANN, 121 E. 42d St., New York.

CONNECTICUT ARCHITECTURAL STUDIO—Artistic, inexpensive and exquisite designs prepared for bungalows, residences, stores and perspectives in sepia. Good detail, prompt attention. Address ARCHITECT, STUDIO, 50 White St., New Haven, Conn.

Patents.

C. L. PARKER, Solicitor of Patents, McGill Bldg., Washington, D. C. Handbook for investors sent free upon request.

Wanted.

WANTED—Foreman for planing mill doing mostly special work; must be capable of estimating from plans and specifications, make cutting bills for mill. State age, experience, salary expected, married or single. Address E, No. 8, care American Carpenter and Builder.

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*In Roofing Slate, Slate Blackboards
 Structural and Plumbers' Slate*
SATISFACTION GUARANTEED IN QUALITY AND PRICE
ASK FOR DELIVERED PRICES
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Send us a sketch plan of your building, tell us whether you are interested in hot air, hot water or steam heating and we will send you free a detailed estimate and on receipt of your order a heating plan by means of which you can install your own outfit, save one-third to one-half and take no risk whatever.

Our two-year guarantee is absolute.

SEARS, ROEBUCK & CO., CHICAGO

CARPENTERS' Ready Reference for Roof Framing

Is a copyrighted book that gives lengths of common, hip valley and jack rafters, and the figures to use on square for all cuts for the following **1 1 3 5 3** pitches: Also octagon rafters for same pitches **4 3 2 8 8 4** and a scale for polygon miters up to ten sides. Can be carried in vest pocket. A handy and time-saving book for anyone to have. Sent postpaid for 25c. Address Dept. A. C. B.

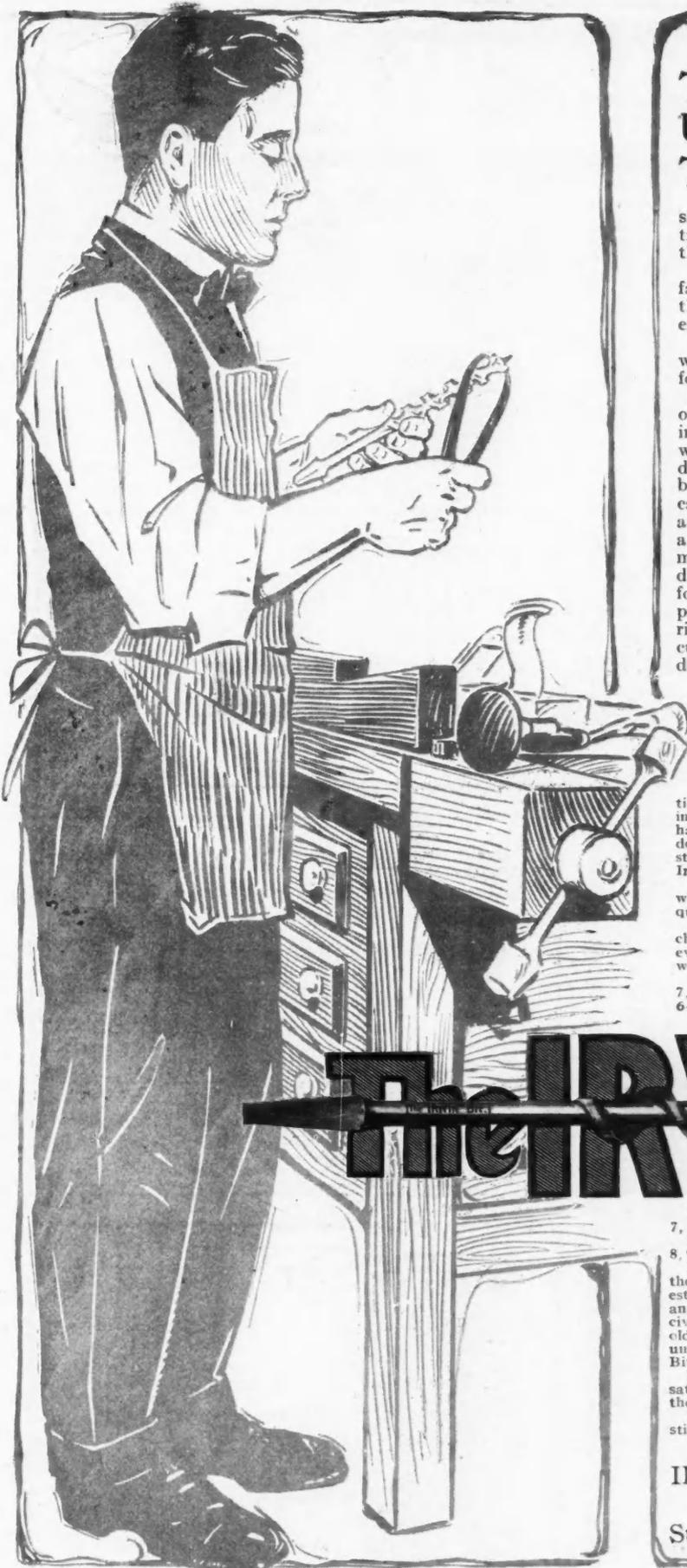
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"Oreole"
 "Etowah"
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THE GEORGIA MARBLE CO., - - TATE, GA.

RIDER AGENTS WANTED
 in each town to ride and exhibit sample 1910 model. Write for Special Offer. **FINEST GUARANTEED 1910 Models \$10 to \$27** with Coaster-Brakes and Puncture-Proof tires. **1908 and 1909 MODELS \$7 to \$12** ALL OF BEST MAKES..... **500 Second-Hand Wheels** All makes and models, good as new **Great Factory Clearing Sale. \$3 to \$8** We Ship on Approval without a cent deposit, pay the **10 Days' Free Trial** **TIRES** coaster-brakes, parts, repairs and sundries, half usual prices. **DO NOT BUY** till you get our catalogue and offer. Write now. **MEAD CYCLE CO., Dept. T-122 CHICAGO**

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GEM ADDING MACHINE.
Free 10 day Trial at Our Expense
 NOT AN EXPERIMENT. OVER 20,000 IN USE.
 THE GEM HAS AN AUTOMATIC CARRIER AND A RESETTING DEVICE THAT
 CLEARS THE DIALS TO ZERO. COLLAPSIBLE HOLDER AND VISIBLE TOTAL.
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 Address **M. A. GANCHER**
AUTOMATIC ADDING MACHINE CO.
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 ORDER NOW
USE YOUR BRAINS FOR SOMETHING BETTER

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER



The "Irwin" is the Universal Auger Bit

THE Irwin Auger Bits depend for their supremacy on the good work which they do. They will do good work for the shop worker or amateur as well as for the trained carpenter or cabinet maker. And there's an Irwin Auger Bit for every purpose.

The Irwin Auger Bit is for the home, the farm, the factory and the shop. The "Irwin" is the only solid-center-stem auger bit made in every style and size.

The "Irwin" is the only auger bit that will give you absolutely satisfactory service for every purpose.

The "Irwin" Brand, stamped on the stem of the genuine, guarantees absolute satisfaction in the only complete line of augers and bits—which includes all sizes in solid-center-stem, double or single-cutter car bits, ship auger bits, with or without screw point, ship-auger car bits, with or without screw point, ship augers with special cutters, extra length ship augers, double or single-cutter derrick augers, machine bits of all kinds for power boring, double or single-cutter boring machine augers for hand boring, double or single-cutter carpenter's nut augers, double or single-cutter ring augers, rafting augers, double or single-cutter sugar tree bits, brace dowel-bits, screw-driver bits, hub augers, hollow chisel bits, etc.

Irwin Auger Bits are made from special quality of tool steel, tested for temper-taking qualities—for tensile strength—straining or stretching; for torsion—turning or twisting; for boring qualities in lignum-vitae—a wood so hard that it will turn the edge of an ordinary wood working tool.

They are drop-forged under a thousand pounds pressure, lathe-turned by hand to one-thousandth of an inch, tempered by a secret process in molten tin, oil and brine, heads and cutters finished by hand-filing, polished from tip to tip. They pass through 50 hands before reaching the inspector, whose final test determines whether or not they are worthy of the stamp "Irwin," found on the stem of every genuine Irwin Auger Bit.

There has never been a wood-working tool made which could compare in quality with the exacting requirements of the "Irwin" standard.

Sets sold in cases or rolls, as desired, without extra charge. Cases are the handsomest, handiest bit cases ever made. Quarter-sawed hardwood, finely polished, with folding lid and sliding drawer.

Each set of 20 $\frac{1}{2}$ quarters contains one each 4, 5, 6, 7, 8, 10, 12, 14 and 16 sixteenths Auger Bits and one 6-inch screwdriver bit.

THE IRWIN

THE IRWIN

Each set of 25 $\frac{1}{2}$ quarters contains one each 4, 5, 6, 7, 8, 9, 10, 11, 12, 14 and 16 sixteenths Auger Bit.

Each set of 32 $\frac{1}{2}$ quarters contains one each 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15 and 16 sixteenths Auger Bits.

Irwin Auger Bits are recognized everywhere as being the strongest, finest finished, most accurate—the fastest and easiest cutting, and the least liable to choke of any bits made. They are used in every part of the civilized world. They are of uniform strength. All old style bits are weakest where the twist and shank unite, and that is where they usually break. Irwin Bits are guaranteed not to break there or any other place.

Irwin quality is guaranteed. Price refunded if not satisfactory. If a bit is not branded "Irwin" it is not the genuine Irwin Bit.

If your dealer does not keep Irwin Bits, accept no substitute, write us and we will see that you are supplied.

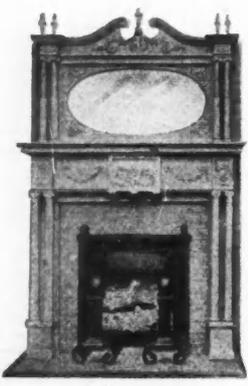
**THE
IRWIN AUGER BIT COMPANY**

Largest in the World

Station J 18, Wilmington, Ohio

Great Variety of Designs

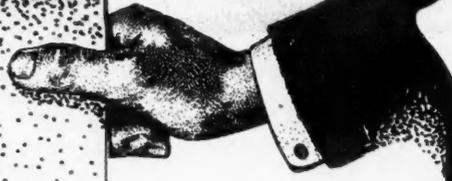
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Corinthian
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KING MANTELS

\$5000.00

Worth of Proof



In our magnificent catalog—including the art supplement “Colonial Beauties”—is shown the greatest variety of beautiful and serviceable mantels ever catalogued. Illustrates the graceful outlines—the artistic conceptions that were designed to match every style of furniture made. Gives reasons why King Mantels have no equal on earth. Explains the points that you have read about. Backs up every claim we make with solid proof. Although this catalog actually costs us 50 cents to deliver, we will send it absolutely free to any builder who names the probable number of mantels that will be required.

Artistic and Durable

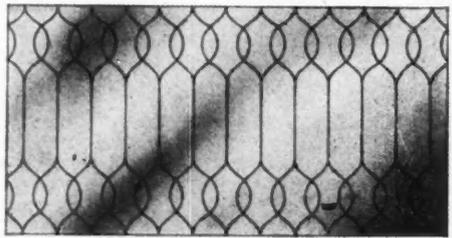
Although King Mantels are superior to anything made for durability and unique appearance, the price is just as low as the other kind. Of course our large output makes this possible. Get the catalog before the first edition is exhausted.

King Mantel Company, 551-553 West Jackson Avenue, KNOXVILLE, TENN.

Fine Arts in Glass

Special Attention Given to Memorial Work for Churches and Lodges.

Loaded
Plain
Double
Strength
Glass





Cut, Ground, Beveled,
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GLASS

For all Purposes.

*Write for our new
Catalog and estimates*

W. H. HELMERICH & CO.
MANUFACTURERS OF ART GLASS. Chicago.
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With which Carpenters, Builders, Farmers and in fact anyone who has occasion to frame a roof, it doesn't matter how complicated, can accomplish it at once, even though they were unable to do so before. All building mechanics should have it. We claim ours is the only correct system, and we guarantee that with our Simplified System anyone can quickly and accurately obtain all lengths and bevels required for any Hip Roof—or any Roof. We will send our plan with a complete explanation upon receipt of \$2.50. We guarantee a satisfactory explanation or money refunded.

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Makers of Memorial Figures and plain Decorative Windows, also residence work in L'Art Nouveau styles and beveled plate in metal copper finish. Designs submitted on application. Grand Prize Louisiana Exposition. Correspondence solicited. Established in 1883.

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NO-CO-DO Advertising is national, not local or sectional. You see it in all the leading monthly and weekly general magazines, home, building magazines and trade papers.

NOCODO Steel Products are not only the best made—irrespective of price—but they are also the best known, the most widely used throughout the world. AND THE ONLY LINE OF THE KIND THAT IS NATIONALLY AND HEAVILY ADVERTISED to Architects, Building Contractors, Home Builders and large Real Estate Owners.

The 1909 Advertising Campaign of Nocodo Steel Products is larger and stronger than ever before, reaching, each month, not hundreds or thousands, but millions of possible purchasers.

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NORTHROP, COBURN & DODGE CO.

ESTABLISHED 1884

Largest exclusive manufacturers in the world of Stamped Steel Ceilings, Walls and Tiling
45 CHERRY ST., NEW YORK, U. S. A.

fill out, sign and mail the coupon for Trade Catalog, Price Lists, our booklet, "How We Help the Dealer," and full particulars.

THE Nocodo line includes a complete line of Stamped Steel Ceilings and Side Walls in all the necessary sizes, made in a wide variety of patterns suitable for every type of building and for every room in each building.

We also make a complete line of stamped steel Tiling, in sheets, for use in Bath Rooms, Kitchens, Lavatories, Laundries, Refrigerators and all other rooms and types of buildings where an inexpensive but high grade substitute for Porcelain or Ceramic Tiling is desired.

You can stock our material and run a special Nocodo Steel Department in your

store or shop—or, if you prefer, you need only buy as you sell for each individual job.

Hundreds of Plumbers, Hardware Dealers, Tinsmiths, etc., are making big, easy money every season through their Nocodo Steel Agency.

But you must act—and act at once—in order to get your full share of the profits possible on this Fall's building and remodeling, and of the inquiries which will follow the starting of our Fall and Winter Consumer Advertising Campaign in the leading magazines, beginning with September issues.

NORTHROP, COBURN & DODGE CO.

45 Cherry Street, New York, U. S. A.

As per your Ad. in the AM. CARPENTER & BUILDER for Sept. please send full particulars.

My Name
 Full Firm Name
 Street Address
 City
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 What kind of business?
 Have you a shop or store of your own?
 Do you now buy metal ceilings or walls?

Be sure to attach your business card or letter head to this coupon.



Daylight in Dark Places

LUXFER PRISMS focus daylight. The light rays from the sky are drawn to basements or any dark place. The use of artificial light is minimized.

LUXFER PRISMS are best for all buildings. They are the most practical for Transoms, Canopies, Skylights, Floors and Sidewalks.

Our free booklet, "Daylighting," explains facts that every contractor and owner should know. Write for it.

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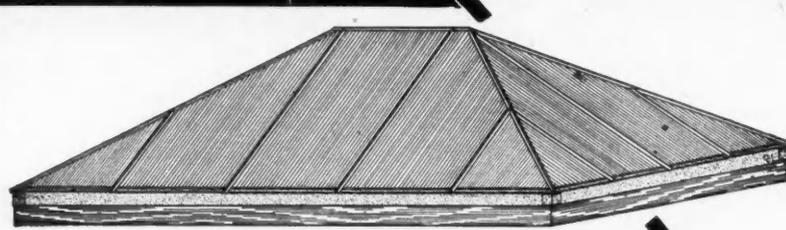
AMERICAN Luxfer Prism COMPANY
1600 HEYWORTH BLDG., CHICAGO



"LET THERE BE LIGHT"

OUR KNOCK-DOWN SKYLIGHTS
with metal frames and glazing bars
GIVE SATISFACTION
They won't leak. Are easily installed by anyone with screw-driver and hammer.

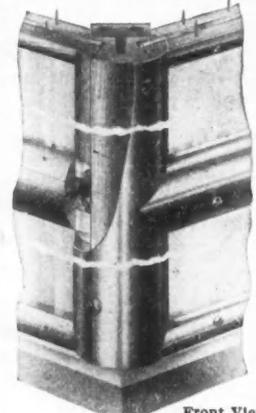
**NO SOLDERING:
NO PUTTY:
LOWEST FREIGHT RATE**



"AND THERE WAS LIGHT"

Ask for "MORE LIGHT" on the subject.

**GALESBURG CORNICICE WORKS, EAST FERRIS STREET
GALESBURG, ILLINOIS**

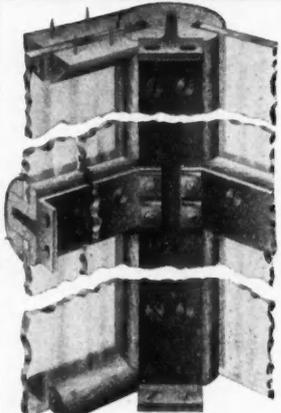


COULSON

Patent Store Front Construction

Of course you have heard of it, but let us tell you more about it. We will be glad to send you our complete illustrated catalogue, upon receipt of request. Brief description given on pages 643-645 in Sweet's Index for 1909.
When writing for catalogue, ask for D-800.

J. W. Coulson & Co.
Sole Owners and Manufacturers
234 North 3rd Street - - COLUMBUS, OHIO



WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

Is There ONE BEST Style of Roofing?

There is an old saying that a wise man will change his mind, a fool never.

The firm that manufactures only *one kind of roofing* cannot be expected to admit good points in any other kind. They are *bound* to say their kind is the best and the least they can do is to claim it is "just as good."

That is *something to think about*.

Can the jobber, the dealer, the contractor or the consumer *rely* on a roofing which *must* be proclaimed the best because the manufacturers *have nothing else to offer*, no matter what advantages they know another style of roofing possesses? If they admitted the *facts* they would *lose a sale*. They cannot afford to say: "Yes, Mr. Dealer, another style of roofing would be better adapted to the requirements of your customers."

No progressive retailer can afford to confine his operations to a *one-roofing-power concern*. There never was and never will be one style of roofing adapted *to all conditions*.

Forty years experience has made the Ford line extensive.

We can supply you with the roofing to meet *your customers' requirements*.

The Ford Roofings are *not secret* process roofings. They are *special* process roofings, honestly put together from the *best materials* obtainable. Their reputation for past service is the best proof of what they will do in the future.

Look over the following brands and tell us which ones interest you, or tell us the conditions, and we will quote you on the roofing best adapted to your trade.

Roofbestos Roofing

A Smooth Surface Roofing of the highest quality possible to make. Singularly attractive in appearance and exceptionally durable. This is an ideal roofing for Bungalows and other high class residences and buildings. Made in three weights.

Galvanized Rubber Roofing

The Standard Rubber Roofing. A grade that has given satisfaction under the most exacting conditions. Wool Felt and Natural Asphalt combined with modern methods. Made in three weights.

Sparkote Roofing

A Mineral Surfaced Roofing with the appearance and wearing qualities of the heavily constructed grades. Requires no painting—fire retardant—attractive. Weight 90 to 95 lbs. per Square.

Gritkote Roofing

Different from other Roofings of this kind, in that it is mineral surfaced both sides. Crushed Feldspar is embedded in the weather side of the roofing, while the other side is similarly treated with fine flint sand. The Roof with the Double Protection. Weatherproof and fire retardant. Weight 70 to 75 lbs. per Square.

Silverkote Roofing

Fills the requirement for extra heavy smooth surface roofing of highest quality and attractive appearance. Nothing better made for high class buildings. Weight 65 lbs. per Square.

Sanded Asphalt Roofing

Is made of extra heavy felt, saturated and coated with Natural Asphalt, protected on both sides with white flint sand that is embedded in the coating under heavy pressure. Made in three weights.

Cement and special roofing nails are included with all these roofings.

Ford Manufacturing Company

2333 LaSalle Street,
CHICAGO, ILLINOIS, U. S. A.



We Sell to Dealers Only.

Inquiries from home builders will
be referred to nearest dealer.



Architectural Sheet Metal Work

Large stock of our catalog designs on hand for prompt shipment of orders.

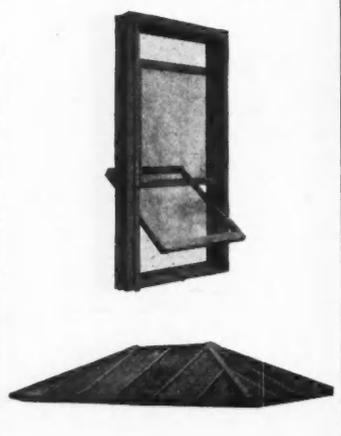
We have a large assortment of garlands, modillions, enriched mouldings, capitals, finials, tympanum panels, rosettes, faces, etc., which can be readily applied to wood or metal work.

Catalogue No. 12 K, just issued, shows full line of above lines, also cornices, building fronts, skylights, fire-proof windows, metal tile roofing and steel ceilings.

If you have not received a copy of this catalog write us today and we will mail you one.

Our prices are low. Our work is strictly first-class.

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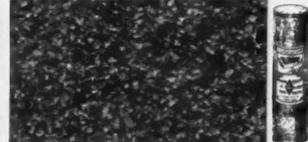
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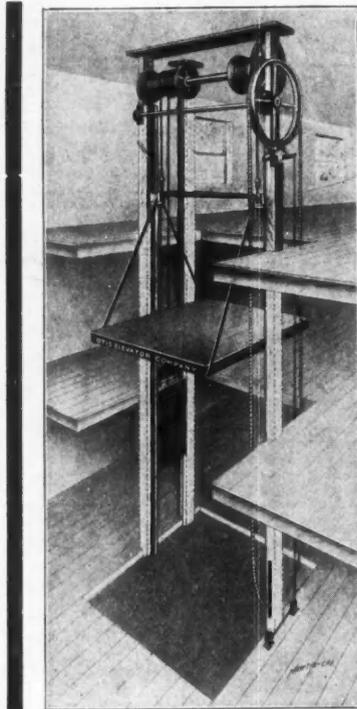
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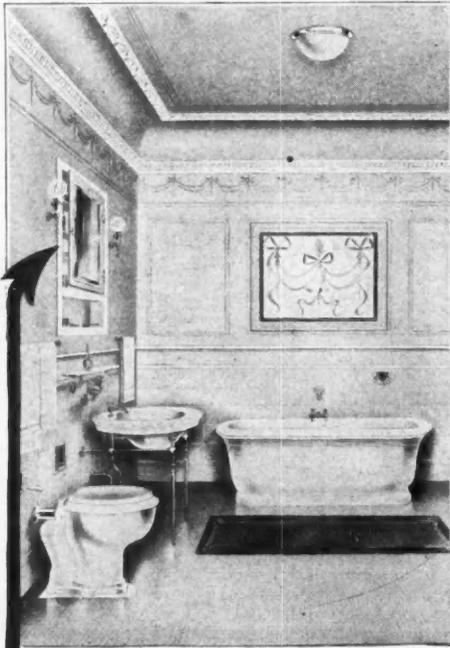
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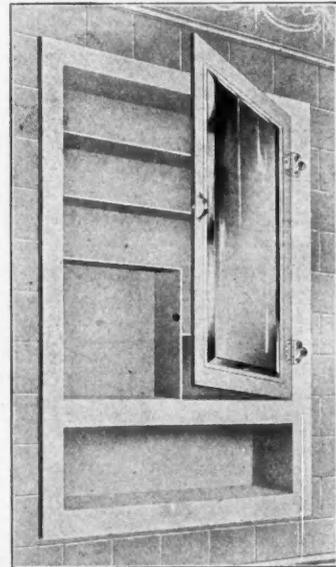
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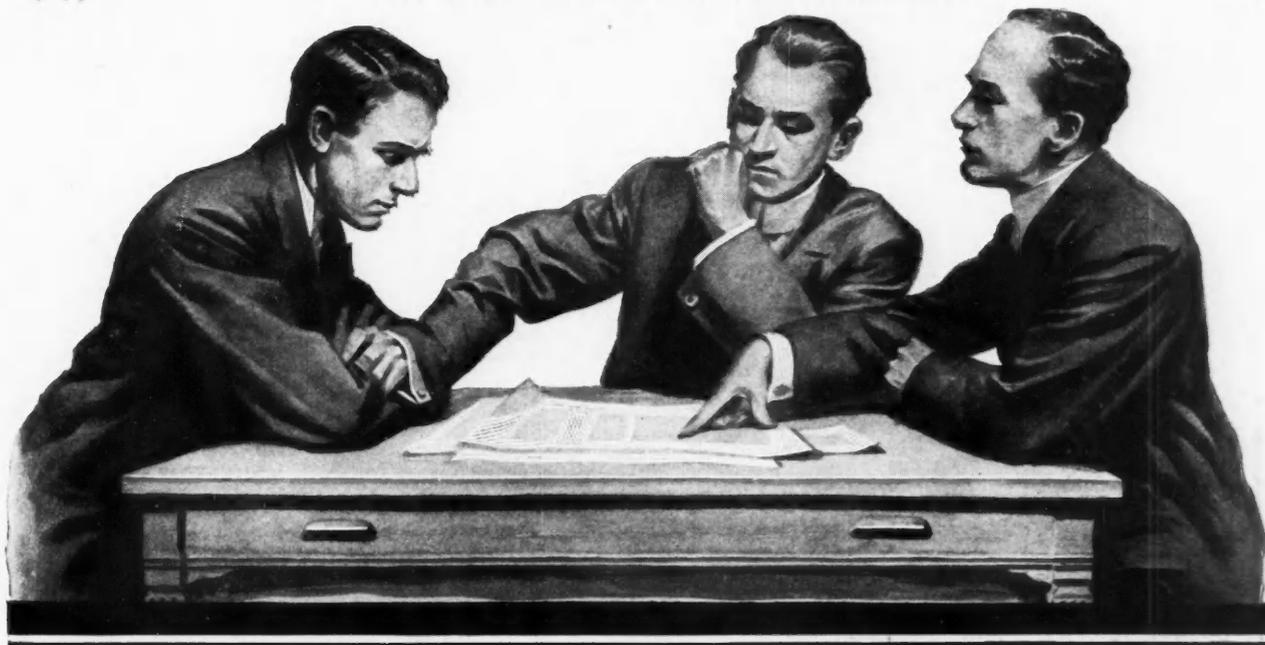
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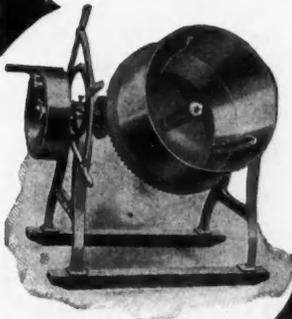
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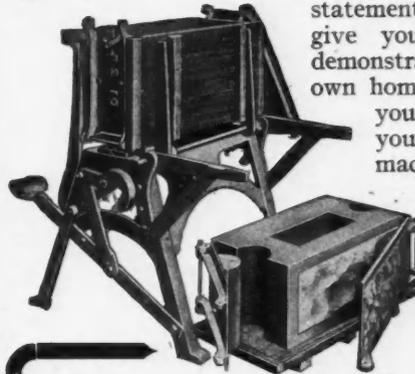
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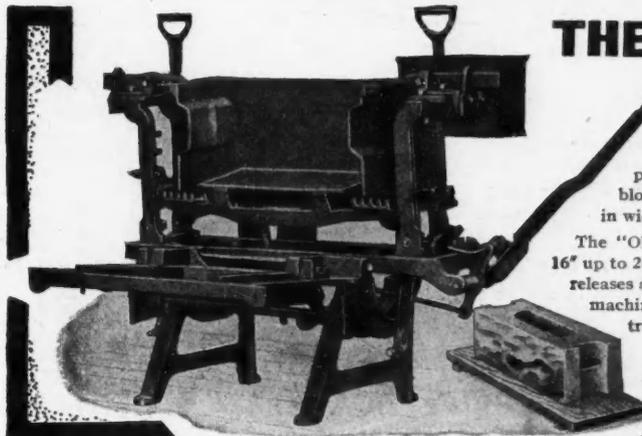
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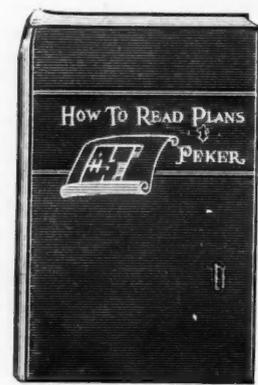
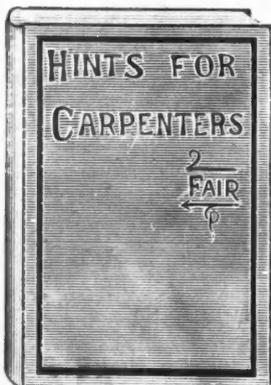
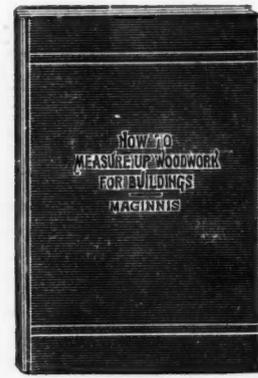
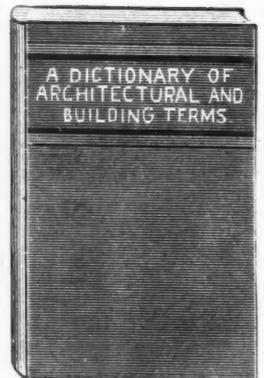
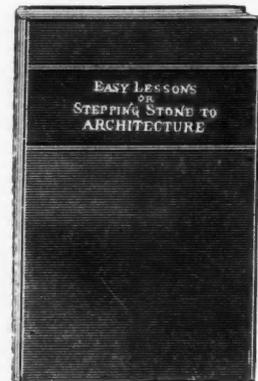
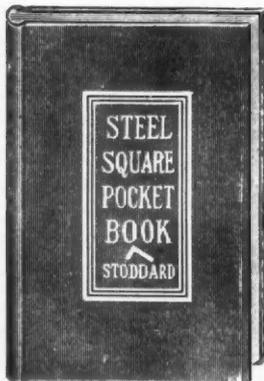
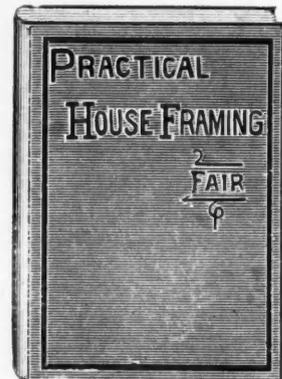
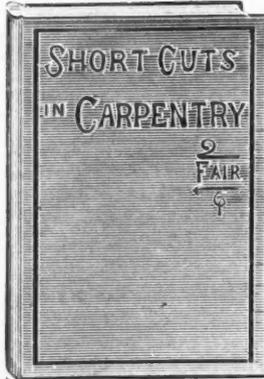
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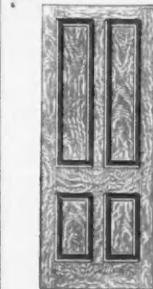
Let us prove to you that we can save you from 25 to 50 per cent and furnish you a quality of mill work and Lumber that is far superior to the kind that is generally sold.

WE HAVE SATISFIED OVER 50,000 MILL WORK AND LUMBER BUYERS DURING THE PAST YEAR. We have saved money, furnished bright, clean materials of the very highest grade and filled orders in less time than would be possible from any other source of supply.

We Can Satisfy You and Save You Money. If we fail to satisfy you, if we fail to save you money, if we fail to furnish you the highest grades of material and if we fail to ship in less time than your local dealer, then return the shipment to us. WE WILL RETURN YOUR MONEY AND PAY THE FREIGHT CHARGES BOTH WAYS.

Compare these prices with the prices you are now paying, then bear in mind our special Building Materials and Mill Work Catalog contains from five to six thousand special bargains. Every piece is at least as low or lower than the average wholesale prices.

\$2.80 for this handsome Sash Door, made of White Western Pine. Cat. No. 63A777



Four-Panel Door
No. 63A6877. Yellow Pine, size 2x6, 1/2 inch thick. Price... **75c**



Cross Panel Door
No. 63A6882. Yellow Pine, size 2x6 feet, 1 1/2 in. thick. Price **\$1.42**

\$1.01 for this 24x28, 2-lt. check rail window, glazed with A quality glass. Cat. No. 63A7186. Size. 24x28.



This special Building Materials and Mill Work Catalog will be mailed free on request; it illustrates and describes, and names the lowest prices on all the material that is required in building a modern building. This catalog fully explains how the average carpenter or builder who uses our prices as a basis of cost invariably gets the job and satisfies his customers.

This special catalog has valuable tables, explaining how to cut sizes, window frames, storm sash, etc. This catalog also explains how to get valuable building plans, blue prints of specifications with an itemized bill of materials of any one of sixty modern homes, free of charge.

No live, up-to-date carpenter, contractor or builder can afford to be without this special Building Materials and Mill Work Catalog.

On request we will send you by return mail this beautiful Mill Work Catalog, our wholesale lumber price list and our Book of Modern Homes, all valuable books, which will enable you to increase your business by the way of lowering your cost as well as offering suggestions which it would be hard to get in any other way. Send today for catalog No. 592.

O. G. Base. Size, 1 1/2x7 1/2 in. Per 100 lineal feet in random lengths.
No. 63A7565. Clear Soft Wood... **\$2.57**
No. 63A7566. Nona White Pine... **\$3.21**
No. 63A7567. Yellow Pine... **\$2.77**



Casing. Size 1 1/2x4 1/2 in. Price per 100 lineal feet in random lengths.

No. 63A7559. Clear Soft Wood... **\$1.54**



Quarter Round Moulding.

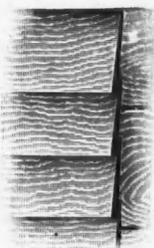
Prices are for 100 lineal feet in random lengths.

No. 63A7784. Soft Wood, size 1 1/2x1 in. Price... **23c**

LUMBER

SHIPPED DIRECT FROM THE BIG SAW MILLS TO YOU, HIGHEST GRADE AT WHOLESALE CARLOAD PRICES.

\$14.40 per 1,000 feet for Clean Soft Wood Siding.
No. 63A7386



SEND FOR SAMPLES

WE CAN SAVE YOU \$100.00 ON THE AVERAGE CARLOAD OF LUMBER

AND FURNISH YOU A BETTER GRADE THAN IS SOLD BY THE AVERAGE LUMBER DEALER

Do not order a dollar's worth of lumber without first getting our Wholesale Price List and order blank, the simplest and earliest list published which will enable you to order any size, order from us in less time than you could order in any other way; no possible chance for mistakes. The list contains 157 different sizes and kinds of the best grades of lumber.

To prove that we sell lumber at less than wholesale prices, we print here below a few items picked at random from our lumber price list. Compare these prices with the prices asked by your local dealer and see how easy it is to save \$100,000 on the average carload of lumber.

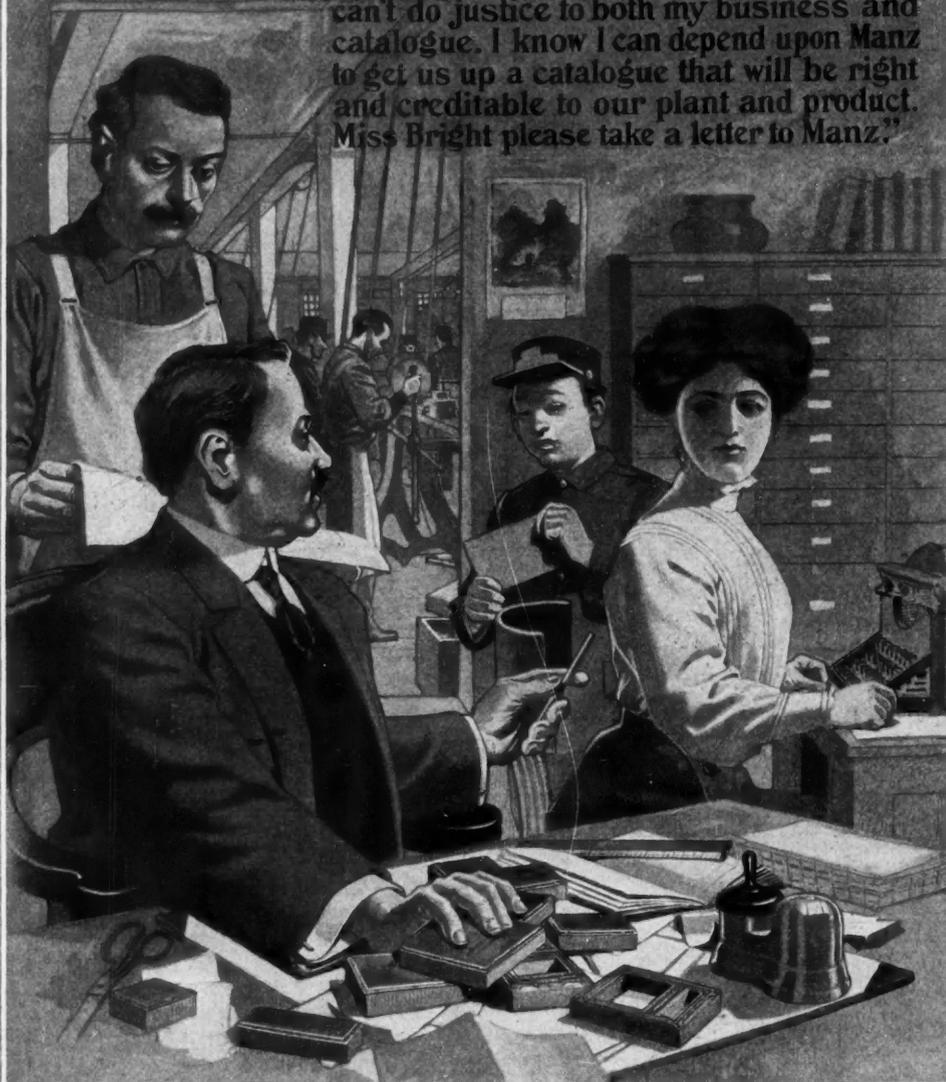
2x4 — 8 feet long No. 1 grade Pine.	Price, each piece.....	\$0.08
2x4 — 12 feet long No. 1 grade Pine.	Price, each piece.....	.13
2x4 — 16 feet long No. 1 grade Pine.	Price, each piece.....	.15
1x6 — 16 feet long No. 2 grade Pine.	Price, each piece.....	.08
1x12 — 10 feet long No. 1 grade Pine.	Price, each piece.....	.21
1x12 — 10 feet long No. 1 grade Pine.	Price, each piece.....	.14%
1x6 No. 3 Sheathing.	Price per 1000 Ft. Board measure.....	9.00
No. 2 lath 1/2 inch by 1 1/2 inches, 4 ft.	Price, per bundle of 50 pieces.....	.04

Don't delay, but write for this new lumber price list today! Simply say: "Mail me your Wholesale Lumber Price List" and we will send it to you by return mail, postage prepaid.

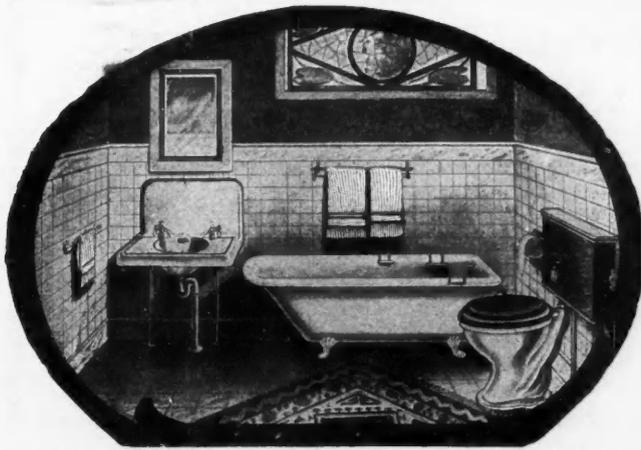
SEARS, ROEBUCK & CO., CHICAGO

WRITE TO MANZ

"Here - Pack up all these cuts and this copy and send them to Manz at once. With the necessary business interruptions here I can't do justice to both my business and catalogue. I know I can depend upon Manz to get us up a catalogue that will be right and creditable to our plant and product. Miss Bright please take a letter to Manz?"



MANZ ENGRAVING COMPANY, CHICAGO.



\$50.00 Buys This High Grade Bathroom Outfit!

Clean—Sanitary—Odorless—Newest Designs—Best Appliances—Finest Nickel Trimmings

Here is an example of our ability to save you from 40 to 60 per cent. in the purchase of high grade plumbing fixtures. We guarantee that every article used in this outfit is absolutely brand new and first-class in every particular.

THE BATH TUB is spotless white porcelain enameled, with heavy roll rim and of very graceful shape.

THE LAVATORY is beautiful, spotless white porcelain enameled with full set of nickel plated trimmings.

THE CLOSET is the latest and most sanitary, vitreous syphon jet; polished solid oak seat and tank.

THE ACCESSORIES include bath seat, nickel plated soap cup, two towel bars and toilet paper holder.

NO JOINTS TO WIPE, all threaded pipe connections. This is our No. 3 1/2 outfit, and our price of \$50.00 absolutely includes all of the plumbing fixtures shown in the illustration, properly crated and packed for shipment.

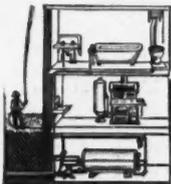
This is but a sample of the many different styles that we offer for sale. Fifteen different combinations ranging in price from \$25.00 to \$200.00. Our prices will save you one-half of what your plumber would ordinarily charge you. We furnish a written binding guarantee with every outfit that we sell. If any material is not fully up to our representation of your expectation we will exchange at our freight expense or refund your money.



OUR BOOK ON PLUMBING MATERIAL contains charts, drawings and diagrams; shows how any ordinary mechanic can install plumbing fixtures without wiping joint, also tells how to secure perfect sanitation. We send it free if you mention where you have seen this advertisement.



\$48.00 Buys a Modern Air Pressure Water Supply System



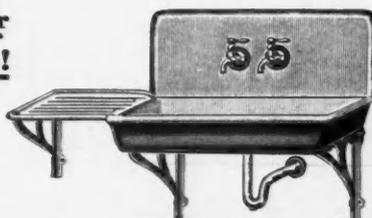
You can live in city comfort even though your home be on a farm. From \$48.00 upwards you can buy a complete outfit needed to give you these comforts. With our comprehensive instruction book you can install the outfit yourself. Let's tell you more about it. Our interesting book on water works systems is free for the asking. Remember it gives ample fire protection and reduces your rate of insurance. Other systems at prices lower than you can duplicate elsewhere. Write for prices.

INSTANTANEOUS WATER HEATER AT \$20.50

Solid brass heavily N. P. Instantaneous Water Heater. Heats the water as fast as it flows through it. Capacity 2 1/2 gallons per minute. From 50 to 120 F. H. Economical; most rapid heater on the market. Automatic valves; reversible spout; guaranteed brand new and perfect in every way. Put through two rigid inspection tests before shipment. Running water the moment you turn on the gas.

\$185 Buys Complete Hot Water Heating System For This House!

For \$185.00 we can supply the complete hot water heating system for the house shown in the accompanying illustration. Perhaps this low price will surprise you, as it has thousands of others who have sent us their specifications for our estimate on a heating system for their homes. What is your idea of cost for a system that would be adaptable to the requirements of your home? Are you like thousands of others who labor under the delusion that a heating system is expensive, and a luxury entirely beyond the means of an ordinary person? If so, we urge that you write us for specifications on the complete cost for a hot air or water heating system for your home. Our astonishingly low prices will surprise you. We will sell you a plant that will pay for itself within a few years in the economical consumption of fuel alone.



KITCHEN SINK. Genuine white porcelain enameled heavy cast iron roll-rim; modern design; complete with heavy cast iron brackets, enameled iron roll rim drain board, Fuller hanged faucets and lead trap to wall. Size of sink 18x30. Only \$11.50.



Names of these customers furnished upon request.

Chicago House Wrecking Co., Chicago, Ill.
Dear Sirs:—
The heating plant you sent me is installed and working fine. Everything is entirely satisfactory in every way.
Wishing you entire success,
I remain
Yours truly,
Nome, Alaska

Iowa City, Ia., April 6, 1909.
Chicago House Wrecking Co., Chicago, Ill.
Dear Sir:—
Please send me one of your catalogs. I have one of your Hot Water Heating plants installed in my house since 1906 and it gives fine satisfaction. I am more than pleased with it all the way through. Yours very truly.

Syracuse, Ind., March 5, 1909.
Chicago House Wrecking Co., Chicago, Ill.
Dear Sir:—
I have my heating plant installed and it works fine. Can heat my place red hot if I want to.
Yours very truly.

Garrett, Ind., Feb. 6, 1909.
Chicago House Wrecking Co., Chicago, Ill.
Gentlemen:—
You will remember me buying a Hot Water Heating Plant of you last fall. I wish to state that it has given perfect satisfaction and I am sure you will sell many more plants in this place. Yours very truly.

Spickard, Mo., Dec. 9, 1909.
Chicago House Wrecking Co., Chicago, Ill.
Gentlemen:—
Will you please send me your complete instruction book? The Hot Water Heating plant I bought of you this fall is absolutely perfect beyond question.
Yours respectfully.



No matter how large or small your home, you should install a hot water heating system. It is more economical than a stove and will give you the comforts of an up-to-date home. We sell you the material and furnish complete plans and instructions and you can install the plant yourself or hire an ordinary mechanic. Thousands of persons have done it, you can do likewise and save 75 per cent.

Every heating plant we sell is backed with an absolute guarantee of satisfaction. When you install one of our plants in your home you are sure of receiving an outfit that will maintain an even amount of heat in all rooms of your home, condition to which you eliminate the ordinary nuisance and bother of smoke, soot and ashes customary where stoves are used. A home equipped with a hot water heating system is up-to-date and will sell much more readily than an unheated house.

Get our estimate on a plant for your home.



Write for Free Bargain Catalog No. 742

We publish a book of some 500 pages, containing a general record of our goods and showing millions of dollars worth of merchandise secured by us at Sheriff's Sales, Receivers' Sales and Manufacturers' Sales. It is a friend to every economical person. You cannot afford to be without it. It lists Building Materials and Supplies, Machinery, Roofing and Wire, Structural Material, Hardware of all kinds, Furniture and Office Fixtures, Belting and Rubber Hose, Plumbing and Heating Apparatus, Pipe, Valves and Fittings, Wire and Manila Rope, Electrical Apparatus, Safes and Vault Doors, Tanks, etc., etc. With this catalog we also mail to all who request it our special book on "How to Install Plumbing", etc. It's a book every home owner should possess.

Chicago House Wrecking Co. 35th and Iron Sts. Chicago, Ill.

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

Walter's Metal Shingles



WALTER'S
Shingles That Last. Never Leak. Never Need Repairs. Made in Painted Tin, Galvanized Tin and Copper.

**Won't Rot Like Wood
Won't Crack Like Slate**

1883 1909

It is a superlative article that increases in demand after 26 years in use.



The only absolutely protected or covered Lock.
No chance here for the lock to flood and leak.

NATIONAL SHEET METAL ROOFING CO.
JERSEY CITY, N. J.

We want an Agent in every city and town. A profitable business and satisfied customers is the experience of the man who handles WALTER'S Shingles and Tiles. Write for Catalogue, Samples and Price.



"The Miles" Improved Block Machines

Make the Best Block Face down, Adjustable, Rigid, no Springs or Cogs to bother. Wet mix used. Prices right. Ask about our Metal Lined Universal Adjustable Sill, Cap and Step Mold.

The Miles Mfg. Co. (Inc.)
109 Cortland Street, Jackson, Mich.



Annual Output
Six Million Barrels

The uniform high quality, the regular setting properties and good popular color of Universal Portland Cement recommend it to the building contractor for concrete work of all kinds.

30 Tons' Pressure
EGUARANTEES
UNIFORMITY OF PRODUCT

THE SOMERS
uses the "wettest" mix of any block machine on the market.

The Somers Makes Money

We can prove it

OUR CATALOG IS FREE

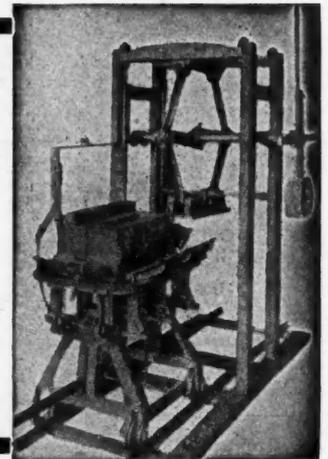
2 Blocks Per Minute
FASTEST MACHINE MANUFACTURED

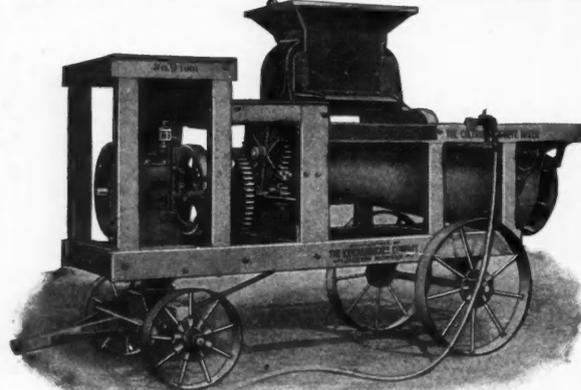
The machine does the work, not the man

It makes an absolutely damp-proof wall

You can guarantee it

SOMERS BROS., Urbana, Ill.





"The Surest and Best"

Eaton, Colo., July 19, 1909

The Cement Machinery Supply Co.,
Denver, Colo.

Dear Sirs:—

I want to say that the No. 9 Coltrin Mixer bought of you on May 4th, this year, has given absolute satisfaction, doing all you claim for it. This is my reason for ordering the second No. 9 Mixer, a few days past, within two and one half month's time. Those who have seen my mixer say it is the best and surest in my locality, and I find it works equally well on all classes of work. Its worth every cent you ask for it.

Yours very respectfully,
O. J. BLANDIN

COLTRIN CONCRETE MIXERS
Shipped on trial to any part of the
UNITED STATES

THE KNICKERBOCKER CO.
JACKSON, MICHIGAN



**Miracle
One-Man
Brick
Machine
Price
\$100**

**Rapid,
Durable,
Strong,
Everlast-
ing.**

Ask for our Catalogue "K" covering full line of Concrete Tools, Machinery, Pipe Molds, Culvert Forms, Concrete Mixers (batch and continuous), and all kinds of equipment for Cement workers everywhere.

Miracle Pressed Stone Co.
Minneapolis, Minn.

Largest Mfrs. of Concrete Machinery in the World.

HERCULES

BLOCK MACHINES

ARE THE FASTEST, SIMPLEST, STRONGEST AND

BEST MACHINES BUILT

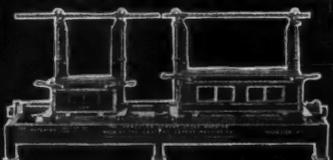
AND WE CAN PROVE IT.

THEY EXPAND TO MEET EVERY DEMAND

THE ONLY machine making any size of stone from a 3 inch block to a 6 foot water table.

THE ONLY face down machine that allows for a really coarse WET mixture with fine facing.

THE ONLY machine on which four 16 inch stone can be made at ONE time, or two 20 inch, 24 inch or 32 inch stone at one time.



THE HERCULES IS AN OLD ESTABLISHED MACHINE

built along correct lines and endorsed by the leading contractors and builders. They are used in all parts of the world.

Used by the progressive, up to date and successful Contractors and Builders everywhere—

By the United States Government.

By the British Government.

The leading Railroads and large Engineering Concerns.

They use—

HERCULES MACHINES

Because:—

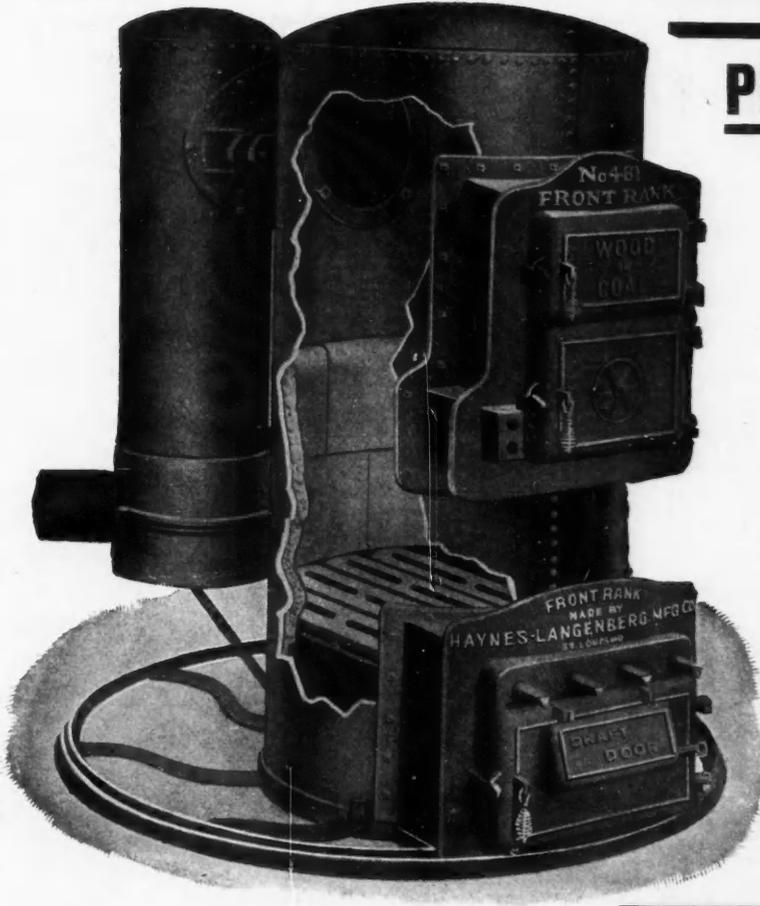
They make sizes of blocks other machines cannot make, and make them better by making them WET.

It will pay you to investigate.

Send for catalogue.

Century Cement Machine Co.

279-289 St. Paul St., ROCHESTER, N. Y.



PEOPLE WILL TALK

When a man builds a house, all his friends call. Every caller looks over the FURNACE, looks for the NAME, asks all about it. The first Winter that man has lots of company; it's a New House and a New Furnace, and people like to see how new things "go." If the furnace only half heats the house, they "go" and talk about it; he "says things" too. That's one kind of "free advertising." Now, suppose the owner of the house buys a "Front Rank" Steel Furnace of you; some questions are asked: "Where did it come from?" "How does it work?" etc. Mighty good ad for you when the owner says: "That furnace is all right; it heats fine and doesn't burn much coal." And all his company go and talk: "How nice and comfortable that house was." Over 12,000 "Front Rank" Steel Furnaces in use in our own city, St. Louis; other cities in proportion. There's been lots of building; Summer will soon be over and Winter will be here. See the point? Want the Agency?

**Haynes-Langenberg
Manufacturing Company**

4045-4057 Forest Park Boul., ST. LOUIS, MO.



**By NATURE "PEERLESS"
By NAME**

THE WONDER OF THE PRESENT DAY :

By use of the "Peerless" with material mixed,
one man can turn out over

12,000 Brick Per Day

The Sensation of ALL the Shows

THIS machine is a marvel of simplicity and durability. It has been brought to the highest standard of labor-saving and profit-sharing efficiency, and stands alone and in a class by itself.

No other machine of like character has ever been invented, so far as we know, that can produce one-quarter the number of brick in the same time as the Peerless.

The Peerless is in general use throughout the United States, and its friends are numbered by the thousand.

WHY? BECAUSE Brick are made face down and delivered face up. Brick are of uniform size with sharp edges and true to the square. Brick are more firm and durable than pressed brick. Brick are tamped, not pressed. The Peerless makes ten bricks at one operation.

Our catalogue tells you all about it. Write for one to-day.

Peerless Brick Machine Co. 7 North Sixth St. Minneapolis, Minn.

**Anchor Machines Make
Continuous Air
Space Blocks**

The wall that's
guaranteed
frost and mois-
ture proof.



A perfect dead air space from cellar to garret.
Standard Machine makes blocks 8x24 in.—any width from 8 to 12 in.

Junior Machine makes blocks 8x16 in.—any width from 8 to 12 in.
All blocks tied together in construction by four quarter-inch galvanized iron rods 8 in. long and turned 1 in. at each end, guaranteed rust proof and everlasting.

Write for Catalogue and Special Prices.
All Machines sold direct to the trade.

Anchor Concrete Stone Co., Rock Rapids, Ia.

"TRUS-CON"

JOIST HANGERS

Strongest

as shown by
University Tests.

Made from OPEN
HEARTH STEEL.

SAVES cutting and weaken-
ing of timber. :: :: ::

SAVES labor in installation.

LOWEST FIRST COST.

All styles and sizes for brick
and Concrete Walls, Steel and
Wooden Beams. :: :: ::



**WRITE TODAY FOR PRICES
TO SPECIALTY DEPT.**

TRUSSED CONCRETE STEEL CO.

624 Trussed Concrete Bldg., DETROIT, MICH.

SHULTZ'S Modern Store Fronts
 of Steel and Brass CORNER POSTS, MULLIONS AND TRANSOM BARS

Handiest, Strongest and Most Practical Bar on the Market. Long Life—nothing to rot out. Glass Bedded on Spanish Cork, preventing cracking or crushing of glass. No putty, yet ABSOLUTELY WATER AND DUST PROOF. Simply incomparable with old fashioned styles. They add immensely to the Beauty, Utility and Rental Value of Buildings.

ARE LOW IN COST. Architects, Contractors and Owners are invited to write me for descriptive literature, prices or estimates. Also Shultz Patent Burglar Proof Coal Chutes. All Steel Cork Bedded and Ventilated Bottom Bar.

C. H. SHULTZ, MANUFACTURER, ST. JOSEPH, MO.

ALL-STEEL BURGLAR-PROOF COAL CHUTE
 The Neatest, Strongest and Most Convenient Coal Chute Made. Prices also Lowest. No modern residence complete without it. Locks itself when closed up. Can only be opened from inside. Architects, Contractors and Owners are invited to write for descriptive circular.

C. H. SHULTZ, Manufacturer, St. Joseph, Mo., U. S. A.

Interior and Exterior
CAPITALS AND ORNAMENTS

Detroit Decorative Supply Co. Limited
 810 14th Avenue, DETROIT, MICH.
 Most Complete Catalogues Ever Issued.

Practical Art Metal Ceilings

Quickly and easily applied. We are the only manufacturers who cut the beads in the dies after casting. Result—Square and accurate plates—which will save you time and labor in cost of erection.

Send for Catalogue No. 2 which shows 200 new and original designs.

Manufactured by
Wm. Foster & Sons Co., Inc.
 Springfield, Illinois

Also manufacturers of Radiator Shields, Fire Proof Window Frames and Sash, Gal. Iron Fronts, Hip Shingles, Cornice, Skylights



A Failure at Fifty

Out of a job at fifty—is the fate of the untrained man.

Business requires not only natural ability but special training.

The Trained Man Can Defy Old Age

The American School of Correspondence can fit YOU for congenial, well paid positions, in your early years, and make your services valuable in your old age. Training only can compensate for the energy of youth.

For thirteen years the School's ENGINEERING COURSES have set the standard for thoroughness and practicalness in correspondence instruction. The School has trained thousands of men for the technical profession, or advanced them to higher positions. Today these courses represent the highest development of correspondence teaching.

The Courses in Commerce, Accountancy and Business Administration

set the same high standard in the commercial world. They prepare for the best paid business positions; they are prepared by practical business men who have "made good" by practicing what they teach; they are planned to meet the needs of both the young man who is just starting in and the older man who has almost "arrived."

Get your training now, while you have the time and energy to study. Mail the coupon today.

American School of Correspondence, Chicago, U. S. A.

FREE INFORMATION COUPON

American School of Correspondence:
 Please send me your Bulletin and advise me how I can qualify for position marked "X"

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|-------------------------|--------------------------|
| ... Book-keeper | ... Draftsman |
| ... Stenographer | ... Architect |
| ... Accountant | ... Civil Engineer |
| ... Cost Accountant | ... Electrical Engineer |
| ... Systematizer | ... Mechanical Engineer |
| ... Cert'd Public Acc't | ... Sanitary Engineer |
| ... Auditor | ... Steam Engineer |
| ... Business Manager | ... Fire Insurance Eng'r |
| ... Commercial Law | ... College Preparatory |

Name

Address

Occupation

Amer. Carp. & Bldr. 9-09.

OLDEST

Concrete Roofing Tile Machinery

Manufacturers in United States

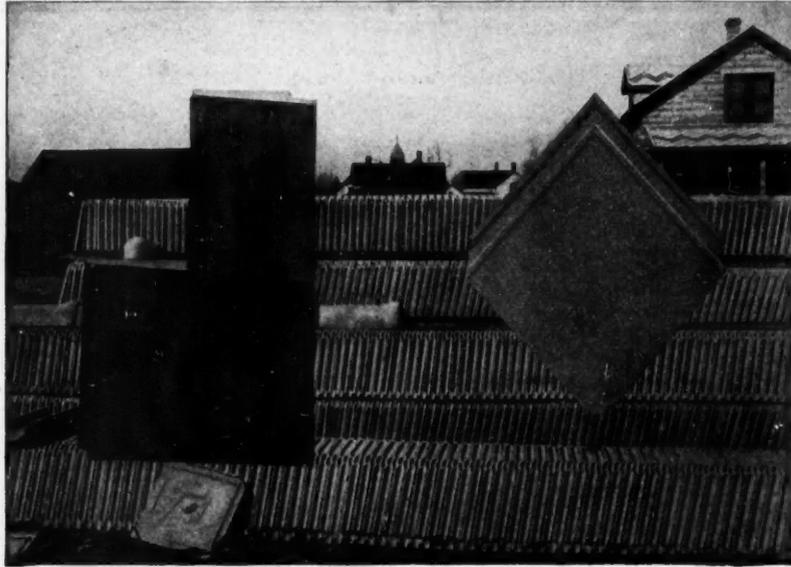
Europa and New Era Concrete Roofing Tile

Handsome, Sanitary, Enduring, Economical

The crowning triumph of mechanical skill and genius

Costs less than any other Roofing Material, presents a much handsomer appearance; outwears all other Roofing.

"THE ROOFING TILE WITH ARCHITECTURAL STYLE"



Europa and New Era Concrete Roofing Tile, Showing Different Size and Form of Tile

Made in practical sizes; all colors; not affected by heat or cold; does not absorb the carbonic acid of the atmosphere; will not radiate heat. Lowers Insurance Rates. *The Manufacturing of Concrete Roofing Tile* is one of the most profitable industries in the country. We Build Roofing Tile Machinery. Information cheerfully furnished. Write for catalogues.

THE AMERICAN CEMENT ROOFING CO.

623 Columbus Savings & Trust Building

COLUMBUS, OHIO

MONEY MAKING CONCRETE

Mr. Block-Maker

Wet Process is Right.
Face down is Right.
Three blocks at a time is Right.
Triple Tiering is Right.
Damp Curing is Right.

The Mogul Invincible Block Machine
COMBINES ALL THESE

IT IS RIGHT

It is 48 inches long and will make three 16" or two 24" blocks at one operation. It makes sills, caps, copings, rails and steps, faster and better than a special sill machine. It has every adjustment that any other machine has and many that no other machine has.

PRICE—Machine and Outfit, \$75.00

WRITE FOR CATALOG

THE PETTYJOHN COMPANY
634 No. 6th St., TERRE HAUTE, IND.

What kind of a Cement Block Machine do you expect to buy?

If you want a machine which builds the best and strongest hollow blocks, 6", 8", 10" and 12" thick, veneer blocks 3", 4", 5" and 6" thick, all of these rock bevel and plain face, 4" and 8" high, and all lengths up to 24", a machine which builds circular blocks, angle blocks of any desired degree, porch piers 12" to 24" square chimney blocks of all sizes, gable blocks, joist blocks, in fact everything in the block line, then drop us a line and we will acquaint you with the most complete machine ever made.

Send for Descriptive Catalogue No. A

The U. S. Standard Continuous Concrete Mixer

ACCURATE AUTOMATIC **CONVENIENT CONTINUOUS** **REASONABLE RELIABLE**

For bridges, abutments, culverts, retaining walls, sidewalks, basements, foundations, block and tile factories it has no equal. Absolutely accurate in measuring the ingredients. Built with two or three hoppers. Mechanical principles essentially new and patented.

MANUFACTURED BY

The Ashland Steel Range & Mfg. Co.,
ASHLAND, OHIO, U. S. A.

Government & Foreign Sales Department.
B21 Produce Exchange, N. Y., U. S. A.

METALLIC WEATHER STRIP

MEANS "SNUG-FIT WINDOWS"

Keep Out the Cold this Winter



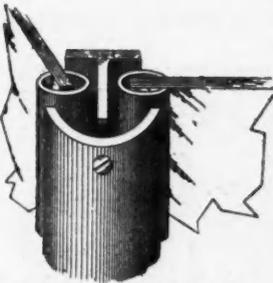
By equipping doors and windows with the patent Metallic Weather Strip. Insures solid comfort for home, shop and office. Durable, effective, inexpensive.

Live agents wanted in every locality. Limited number of State and County Rights for sale.

Write at once for particulars.

Metallic Weather Strip Co.

211 Mercantile Place, LOS ANGELES, CALIF.



The Universal Sash Bar

Makes any angle, allows for setting of building, keeps windows from frosting.

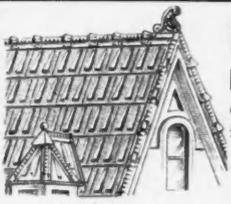
Standard Store Front Construction of the World

Glass set from the outside

Write for latest catalogue

Voltz Manufacturing Co.

1101-1103 S. 8th St. - - - St. Joseph, Mo.



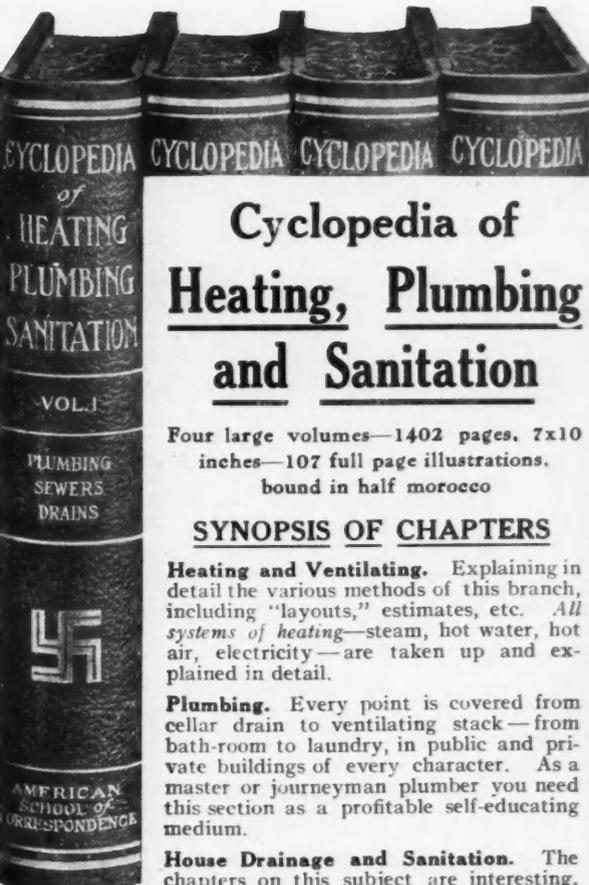
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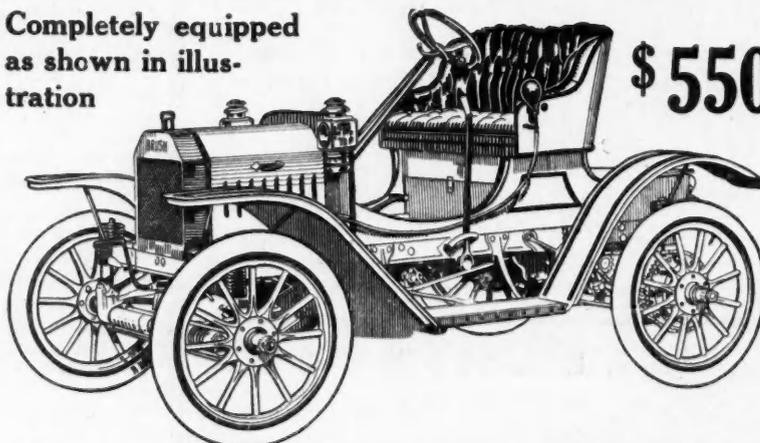
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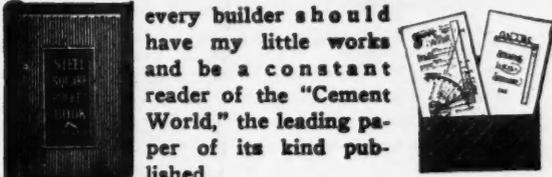
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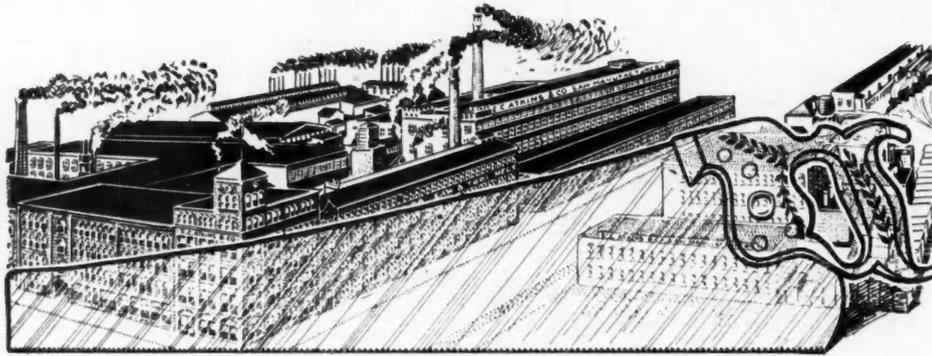
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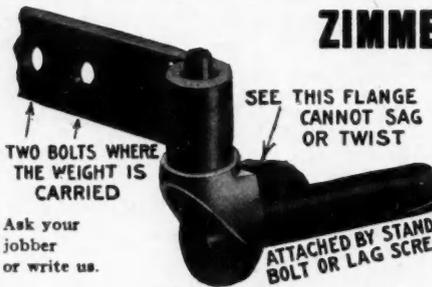
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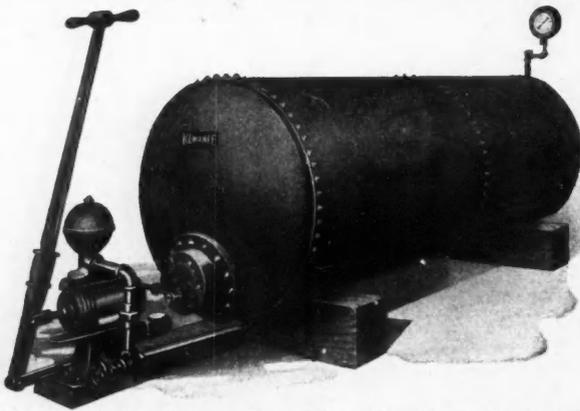
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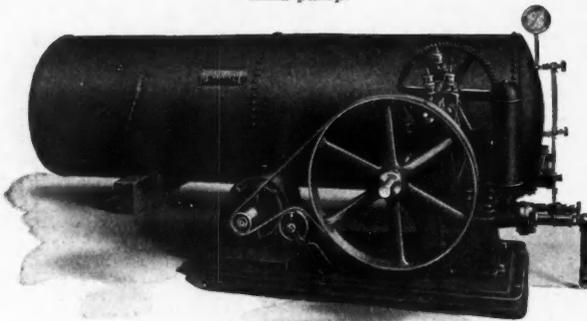
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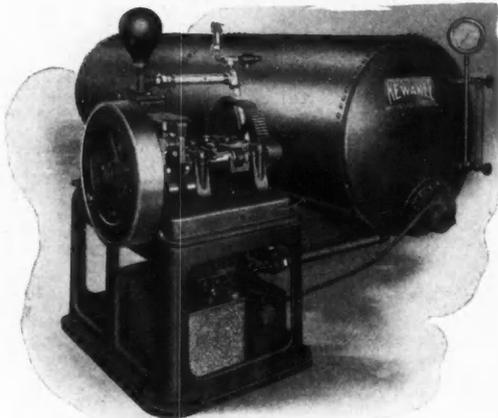
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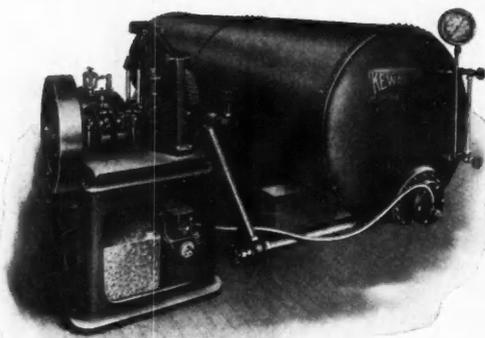
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The MAN Who Stood Still!



THE man who stood still! You **pass** him on the street every day. If you take one moment now, you can easily recall at least **one man** who reminds you of this picture. Day after day he **follows** in the same **groove**. In good health and in bad he has **got to** work. Growing older and older, he sees ahead no relief from the ceaseless toil that he has known all through his life. There is no opportunity for him to cease for a **single day** the everlasting "humdrum" that he has known for so long. **He is the man who stood still.**

¶ When he had the chance he failed to seize it. He allowed other men, no smarter, no abler, no better than he, to **crowd him out**. One by one his fellow workers passed him by to better and more profitable work. They left him **always standing** on the threshold of success. But they left him **behind**. He heeded not the beckonings of opportunity. **He is the man who stood still.**

¶ And now at sixty, at seventy or at eighty years **you** may see him any day if you care to look—a good carpenter, a good builder, a good contractor perhaps—but **that's all**; good in the sense that he can do certain things simply because he has done the same thing **over and over again**—but not good enough to try the new difficult work, the modern up-to-date jobs; the kind that **pay good money**. No, he cannot do these things—he **never learned how**. **He is the man who stood still.**

¶ You don't want to stick to the plane, the saw and the hammer all your life. If you are a contractor or a builder don't you want **bigger** work than just barns, sheds and now and then a house or two?

¶ If you are a draftsman, an apprentice or assistant in an architect's office you don't want to remain in your present position any longer than you have to; you want to make your present work the stepping stone to a **bigger position**, which will be your **life's work**.

¶ You don't want to **stand still** and see your friends step ahead to enjoyable, well paid, **independent** work, simply because they "snap up" the same opportunities, the same chances that are **offered you**. **It is the natural ambition of man to want to keep up with his fellows.**

¶ The only way that you or any other man **can keep up** is through **study**—study of your chosen work. If there is a certain part of your work that you don't thoroughly understand then some time when that kind of work **has got to be done** some other man is going to **step up ahead of you** and do it. **He learned how. KNOWLEDGE IS THE GREAT LEVELER.** There is no true independence where there is lack of training.

¶ You have the chance **now** within your grasp to get this necessary training. This advertisement is an absolutely direct appeal to **you**. No matter how good a position you hold now—no matter how much work you are getting—no matter how well you are paid for it—this advertisement holds as much interest for you as the man who is actually **looking for work**.

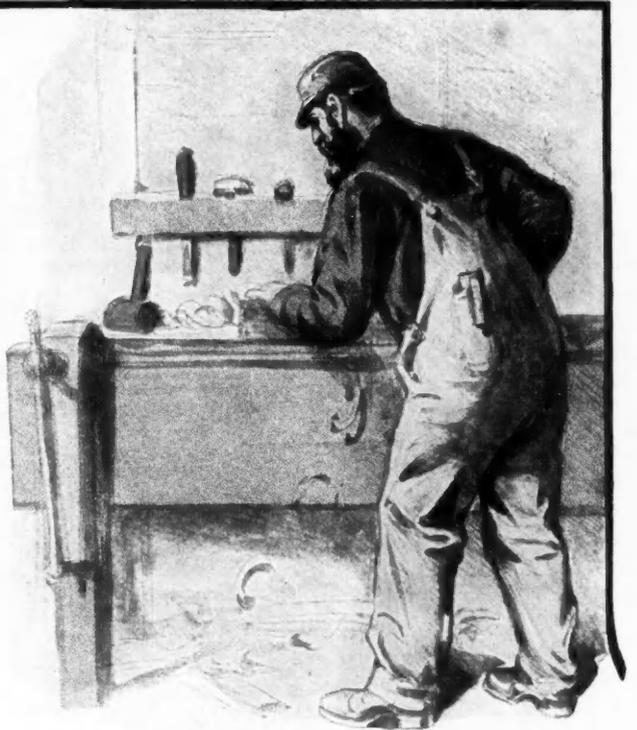
¶ **At no risk to you**—without the slightest obligation on your part—we offer you the really great opportunity of perfecting yourself in your life's chosen work. Don't pass this page by until you have made up your mind to give the rest of this advertisement careful study. Look at the picture again at the top of this page—look at it carefully. You owe it to yourself and to those who may be dependent upon you to take advantage of every possible chance for bettering yourself.

¶ **You cannot afford to be the man who stood still.**

☞ The up-to-date mechanic in every kind of work trains his **brain** even more carefully than he ever trained his hand. That is the slogan of Twentieth Century Success—the **trained mind in a trained body**.

☞ The man who uses the compass, the steel square, the chisel or the saw has got to have a true eye and steady hand. He learns in his apprenticeship how to train his eye and hand to the top notch of efficiency. Too often, however, this same man of the **trained body** forgets to **train the mind** that **directs** the work of the body. This kind of a man with the **untrained mind**, while he may be able to do **mechanical** work well enough, cannot do **brain work** and is bound to get in a rut in the **long run**. It takes a trained mind to read plans and blue prints; that's why so many workers live and die in the same kind of a position. You have seen the result on the first page of this advertisement. **The untrained man becomes THE MAN WHO STOOD STILL**.

☞ At the cost of thousands of dollars and years of experience of hundreds of the best known practical building experts, architects and construction engineers, we have collected and prepared the material for the greatest, most comprehensive, the most practical, thorough and understandable



CYCLOPEDIA of CONSTRUCTION, CARPENTRY, BUILDING, and ARCHITECTURE ever before even conceived.

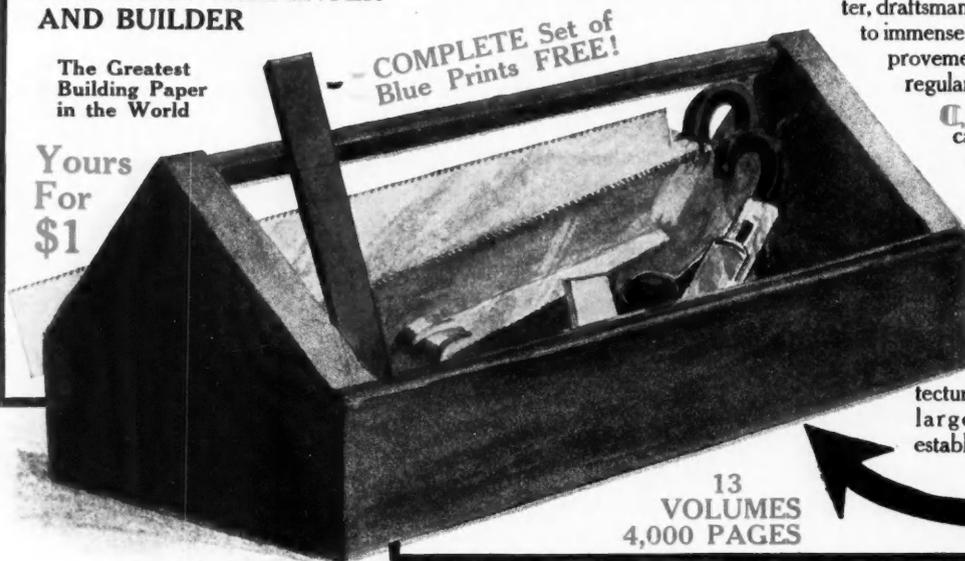
Twelve Great Big Massive Volumes
and one extra large volume of 350 pages of
actual plans, drawn by foremost architects.

Selected for their excellence, economy
of design and popularity along
the building classes. The vol-
ume of plans is portfolio size,
and is in itself worth the
special price asked
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— COMPLETE Set of
Blue Prints FREE!

13
VOLUMES
4,000 PAGES

Two Kinds of Two Kinds

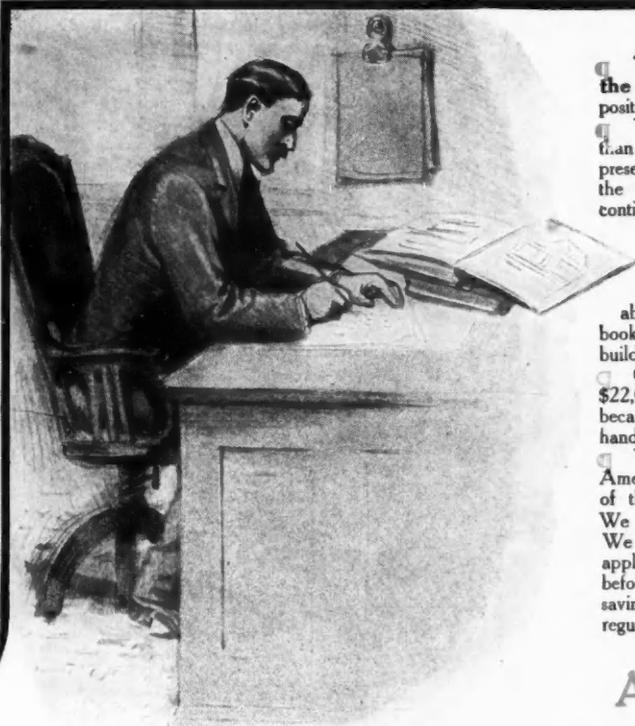
THAT IS NOT ALL YOU GET

We positively guarantee to furnish, free of all extra cost, one complete set of working blue prints, to be selected from any of the 350 plans shown in the thirteenth volume—the appendix of plans. These blue prints are guaranteed in every way for accuracy in printing, measurement and design.

☞ The contractor and builder can use these plans to get business by showing them to **prospective** builders. The man who intends to build will find exactly what he wants, saving time, money and expense. The carpenter, draftsman and apprentice can use them to immense advantage for study and improvement in connection with the regular features of the Cyclopaedia.

☞ The only reason that we can make you an offer like this is because The Radford Architectural Company, publishers of the Cyclopaedia, are the largest publishers of architectural and building books in the world and in addition the Radford Architectural Company is the largest architectural establishment in the world.

DO YOUR THINKING WITH



☐ The difference between the man at the desk and the man at the bench is training—the kind of training that demands well paid positions of dignity and importance.

☐ We don't mean by this that the desk job is always better than the bench job. We don't mean that you should change your present work. We do mean, however, that you must combine more of the desk man's kind of training with your work if you want to continue a live factor in your trade.

☐ The desk man uses one kind of tool that too often the bench man neglects entirely. That tool—the best one in the whole kit—is books; practical books that tell how to do your work in the easiest, the best and latest ways; books that tell you all about each and every feature of your work to the smallest detail; books that keep you in touch with the biggest and smallest details of building construction.

☐ Government Statistics prove that the average desk man earns \$22,000.00 more in a lifetime than the average bench man simply because of this main fact—he trains the brain as well as the eye and hand.

☐ We have made special arrangements with the publishers of the American Carpenter and Builder so that we can offer one thousand sets of the Cyclopaedia to readers of the paper simply as an advertisement. We have further arranged to include the paper in our offer. We know that you will be interested in this stupendous work which applies so particularly to you. This set of books has not been advertised before anywhere and is not advertised in any other publication. We are saving the cost of advertising the first edition and deducting it from the regular price of the books, so we can make

A Bargain Advance Sale

☐ One thousand sets, the first from the press, go to the first applicants who use the coupon on the next page.

Workers and of Tools

ONE THOUSAND SETS AT TWENTY-ONE CENTS ON THE DOLLAR

☐ We are about to go to press with this mammoth Construction Cyclopaedia. The cost of getting together this set of books has been incalculable. The task of preparing it has been gigantic. It has taken the entire time of hundreds of writers and editors. Our entire organization has had a hand in preparing it and we have picked outside help here and there from the best and most practical material available. We want to help here and there from the best and most practical material available. We want to help here and there from the best and most practical material available.

advertise this set of books at the first edition if necessary at a loss for the sake of the advertising it will give future editions. You can reserve a complete set now for

\$18.80 instead of \$79.00

Free on five days approval---No risk to you---No obligation
No expense

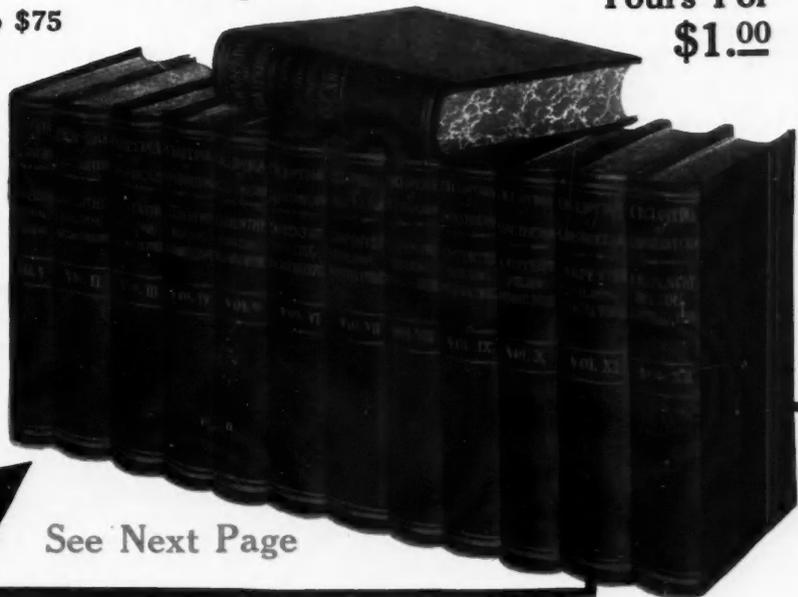
Blue Prints Alone Worth \$50 to \$75

Yours For
\$1.00

☐ We do this simply because we know you will advertise the books—you will recommend them to your friends if you find them as good as we say they are. We are willing to put out the first one thousand sets at a loss simply for the sake of your good will. Any printer friend of yours will tell you that thirteen such volumes and a complete set of blue prints (regular price of blue prints \$50 to \$75) cannot be sold for \$18.80 at any profit.

☐ 4,000 pages—thousands of illustrations, diagrams, charts, plans and working drawings; handsomely and durably bound; de luxe books in every particular.

MASSIVE
PORTFOLIO SIZE
VOLUME OF
PLANS



See Next Page

THE BOOKS BEFORE YOU

That's MY Tool Chest



You can almost hear the man at the desk say: "Kelly, this job has got to be done **right**. I haven't anyone else to send and you will have to do. If you had ever studied that set of books **there** you would know how to do this work now. But there is no time now to find out; do the best you can and let this be a lesson to you to learn more about **your own work**. Why, man, I am finding out new things every day; finding them out through these books. It is the way I hold my job—**THAT'S MY TOOL CHEST.**"

SMALL LIST OF CONTENTS

To Realize their Tremendous Scope You Must See the Books

Carpentry
Stair Building
Steel Square

Correct Measurements
How to Test Steel Square
Key to Steel Square

Possibilities of Steel Square
Test Questions, Practical
Problems, Reviews

Framing
Roof Construction
Roof Trusses and Mill
Building Construction
Strength of Material
Shingling—All Kinds
Roofing Materials
Foundations, Retaining
Walls, etc.
Piles and Caissons

Excavating
Masonry
Brick Laying
Stone Cutting
Mortars, Limes, Cement, etc.
Sewers and Drains
House Drainage and Sanitation

Estimating and Superintendence
Laws of Building Contracts
Painting and Glazing
Plastering Hardware
Blue Printing
Handicraft Work in the Home
Finishing Wood of all Kinds

This set of books is built from the ground up. It's for the practical man. It tells the how and why of everything pertaining to building construction without difficult mathematics. "Be practical, thorough, self-explanatory"; that's the instructions under which every page of this stupendous work was written.

C. C.
No. 1

Radford
Architectural
Company
11th Floor, Medinah
Buildings, Chicago

Please reserve set of your 13 volume Cyclopaedia of Construction for me for five days free examination, under the terms of your Advance Offer. I enclose \$1.00 deposit which you agree to return if I decide not to buy the books after examination. If I keep the books I will pay \$2.00 a month until the special price \$18.80 is paid (including year subscription to Am. Carp. & Bldr.); otherwise I will notify you within five days after receipt of them. You also agree to furnish set of blue prints, if ordered within 2 months after acceptance of books.

We are going to press NOW with the first edition. **CUT THE COUPON AND MAIL IT NOW; YOU CANNOT LOSE ANYTHING.** You will save \$60.20 if you finally buy after you have seen the books and have them in your possession for five days; you will doubtless buy LATER anyway, but you will not be able to buy at this BARGAIN ADVANCE PRICE. Why hesitate—why delay—when we take all the risk? Read the coupon—you don't risk even one cent.

Specifications for Portland Cement
How to Test Cement
Standard Specifications for Concrete Blocks
Establishing a Concrete Block Business
Concrete Block Systems
Proportions—Sand, Stone, Gravel and Water
How to Overcome Concrete Troubles
Curing Stone by Steam
Color of Concrete Blocks
Waterproofing
Cement Plaster Work
Cement Mortar

General Principles
Practical Applications
Practical Problems in Construction
Fireproofing
Use of Tiles
Ventilation and Plumbing
Heating—Steam, Hot Air, Hot Water, Furnace

Reinforced Concrete

Never before has this subject been so completely treated

Monolithic Concrete Construction
Sidewalks, Pavements and Floors
Expansion Joints
Concrete Floors
Walls and Foundations
Steps and Stairs
Concrete on the Farm
Concrete Tanks and Cisterns
Roofings, Chimneys, etc.
Reinforced Concrete Bridges
Railroad Work, Concrete Ties, Abutments, Culverts

Steel Construction

This subject is handled thoroughly

Placing Radiators
Placing Flues, etc.
Steam Fitting, Gas Fitting, etc.
Architectural, Mechanical, Free Hand and Perspective Drawing

Concrete Dams
Retaining Walls
Reinforced Concrete Various Systems, Tables
Showing How to Reinforce
Lawn Ornaments—Fountains, Seats, Vases, Sun Dials
Cement Ornamentation—Porches, Columns, Fences, Capitals
Farm Buildings
Hundreds of Perspective Views and Floor Plans of Cement, Plaster and Concrete Block Houses

Rendering in Pen and Ink and Wash
Lettering
Practical Problems in Mensuration
Water Color Effects
The Five Orders

The addition of the American Carpenter and Builder insures complete "up-to-dateness," coming as it does every month, describing the latest and newest features of building construction.

RADFORD ARCHITECTURAL CO.
ENTIRE 11TH FLOOR, MEDINAH BLDG., CHICAGO

Name _____
Address _____
Employer _____

NATIONAL

"National" Butts and Hinges have four distinct points of superiority over the old style products. Four tangible reasons why most carpenters and contractors insist on seeing the name "National" on every hinge and butt they use.

The first reason is because they save labor. A highly paid mechanic is entirely unnecessary. Any carpenter of ordinary ability can hang *twice* as many doors, using **"National" Butts and Hinges**, as a first class man could using common ones. There is absolutely no chance of anything going wrong—the method of hanging the **"National Way"** is simplified to the last degree.

How Strength is Increased

The second reason is an important one. The screws used in the ornamental leaf of "National" Butts are subjected to a shearing strain—not a drawing strain. This alone enables them to sustain enormous weight, far greater than common butts can possibly do.

Slot in False Tip

The third reason lies in the fact that the lower tip has a slot for a screw driver. This slot enables the contractor to tell at a glance which is the false tip. Then the ease of removing pin from butt is a point much admired.

"National" Individuality

The fourth reason is their artistic appearance—their individuality. **"National" Butts and Hinges** are furnished in steel, brass, bronze, etc., in all the standard finishes—or we can match any special finish desired. Plated to match finish of wood gives fine results.

Made in sizes from 1 1-2 to 4 1-2 inches inclusive;—a size for every purpose. Suitable for exteriors and interiors of public and private buildings.

The simple principle, real practicability, and the thousands already in use, have proven them to be the standard in butt construction.

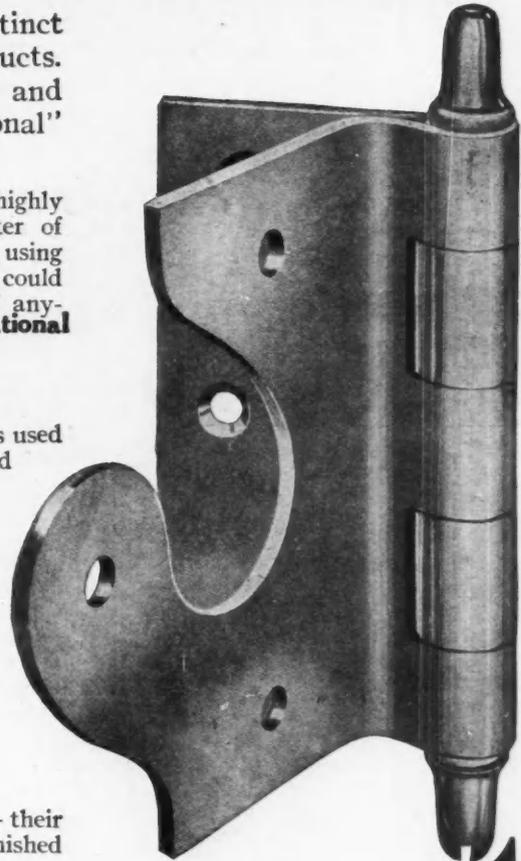
Send for Free Booklet

"Ornamental Ideas" is the booklet that gives useful pointers on the butt and hinge question. Carpenters can obtain it free simply by mentioning their dealer's name.

National Mfg. Co.

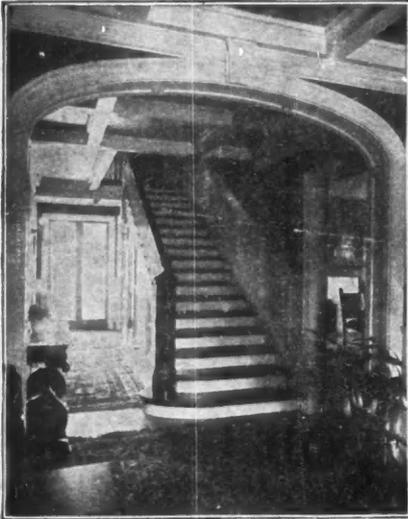
Sterling

Illinois



You Can Buy Material for Complete Flight of Stairs

See Itemized List for **\$23.33** Complete
 Right Hand Half of This Page

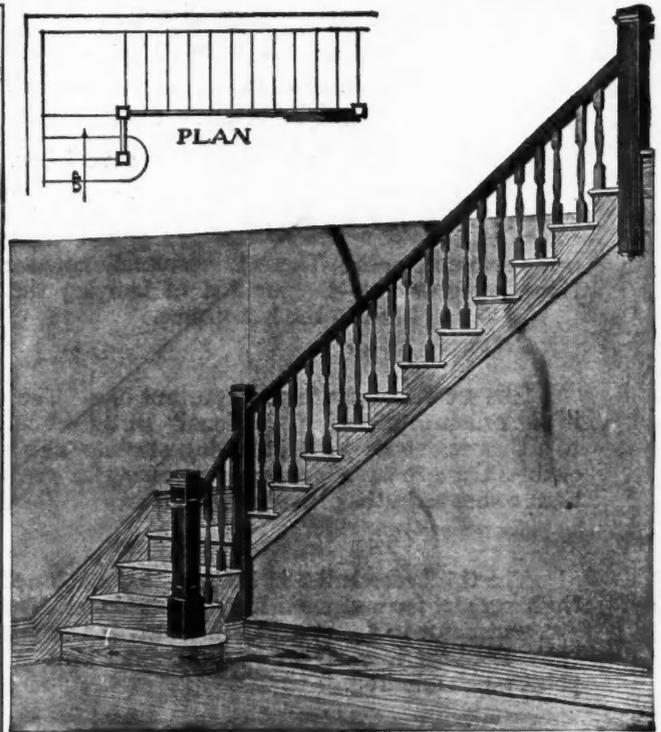
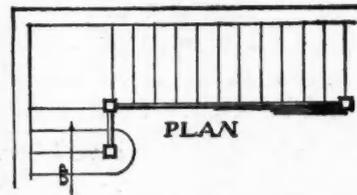


Our Stock Designs Admit of Numerous Variations

WE have made the question of stair business a careful study, and illustrate on this page a line which is at once adaptable to the small and modest cottage as well as to the more elaborate home. When we say study, we refer particularly to the style of construction, for instance of our posts, the correct size of all mouldings, in order that the assembled effect may be harmonious and complete. Likewise, the turning of the balusters and shape of rails are especially adaptable for these specific purposes.

With the many styles illustrated in our Millwork Catalog an infinite variety of arrangements of stairs are permissible, and it is a very rare exception when special work will be required for any particular purpose.

WRITE FOR ESTIMATES ON YOUR STAIR WORK



List of Material Required for Stairs Shown Above

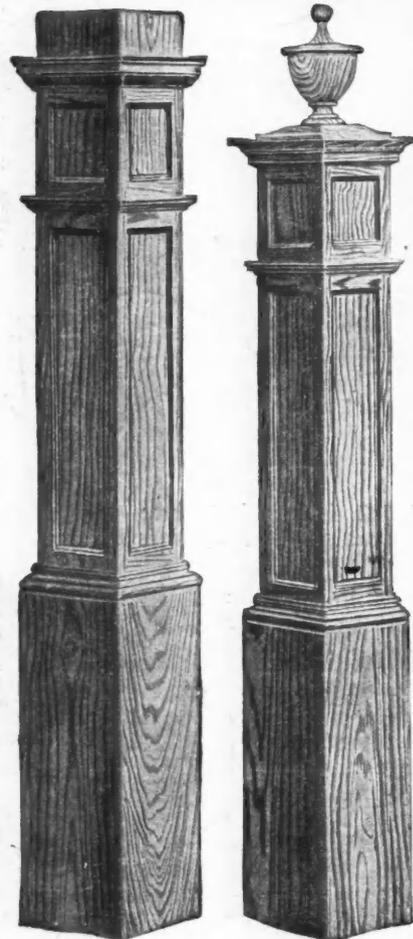
B 349	16 feet Face Stringer.....	@	\$0.06	\$1.04
B 731	18 feet Wall Stringer.....	@	.05	.90
A 8421	8 feet Base.....	@	2.80	.22
B 725	18 feet Wall Stringer Extension.....	@	.01	.27
B 8420	26 feet Base Moulding.....	@	.88	.23
B 347	13 Steps.....	@	.40	5.20
B 961	2 Landing Steps.....	@	.15	.30
B 726	1 Round End Step.....	@	2.90	2.90
B 727	14 feet Return Nosing.....	@	.02	.28
B 348	15 Risers.....	@	.20	3.00
B 8060	75 feet Scotia.....	@	.30	.23
B 336	1 Newel.....	@	2.83	2.83
B 341	2 Angle Newels.....	@	1.80	3.20
B 343	14 feet Rail.....	@	.10	1.40
B 974	14 feet Sub-Fillet for 1 1/2 Balusters.....	@	.01	.14
A 975	16 feet Fillet for Sub-Fillet.....	@	.00	.08
B 969	37 Balusters.....	@	.03	1.11
Total Cost.....			\$23.33	
Dealers' Prices.....			90.00	
Saving to You.....			\$66.67	

This Saving of \$66.00 Should Appeal to You

You get a high standard of workmanship, superior quality of lumber, choice designs, prompt shipments and **guaranteed safe delivery**. You get low freight rates and quick delivery. These are facts, and should appeal to you at once. Send us your order for Stairs to-day.

YOU WILL BE SATISFIED AND SAVE \$66.00 OR MORE.

Catalog of 5000 Bargains in Millwork and Lumber Free



STAIR NEWEL

No. B 366

Yellow Pine . . . \$2.83
 Plain Red Oak . . . 2.95

STAIR NEWEL

No. B 338

Yellow Pine . . . \$2.86
 Plain Red Oak . . . 3.15

GORDON-VAN TINE CO.
 487 FEDERAL STREET, DAVENPORT, IOWA

