

AMERICAN CARPENTER AND BUILDER



THE WORLD'S GREATEST BUILDING PAPER



**Right Now—
While You're BUSY—
Test an**

ATKINS *Silver Steel* **SAW**

Don't wait until your dull season!

Test an Atkins NOW, while you can give it a hard test—an all-around test.

The busier you are, the more you will appreciate the labor-saving Atkins Saw.

Cut a board with the sharpest, easiest-running saw now in your kit.

Then cut it with the Atkins! **NOTE THE DIFFERENCE.**

And to prove that it wasn't an accident, keep that Atkins Saw busy for several days.

Notice how perfectly it holds its edge, how fast and easy it cuts, and how it saves your strength.

An Atkins Saw will make a big difference in the way you feel at the end of a hard day's work.

See if it doesn't! Try it!

If it makes good our claims, you'll be glad you found it out.

If it doesn't make good, simply tell the dealer so when you return the saw. That's all.

You certainly have nothing to lose, and, it may be, a great deal to gain.

So—right now—while your work is hard, while you're BUSY, put the Atkins to the test!

The Up-to-Date Saw

The Atkins Saw, although manufactured for over 50 years, is the only saw that is modern in its design.

E. C. Atkins thought that there was just as much reason to improve upon the old-style saw, as there was to improve upon the old-style stage coach.

There were plenty of folks who thought the old saws were "good enough." Mr. Atkins said, "My saw is going to be BETTER."

So the Atkins Saw has some unique advantages, and you might as well get the benefit.

You'll find Atkins Silver Steel the best steel that was ever put into a saw blade. Better steel than is used in most of the high grade razors. Our own secret formula—used exclusively in Atkins Saws for over fifty years.

When gas-tempered by the Atkins secret process, this Silver Steel blade holds its shape better, stays sharp

If your dealer doesn't handle Atkins Saws, or hasn't the particular saw you wish, ask him to order it for you from his wholesale house. He should be glad to do this—it's no trouble—and he will do it promptly if you make the request. If he is slow about it, write us direct and give us his name. We'll see that you are easily taken care of.



longer, needs less filing, and yet files easier, than any other saw you ever owned.

The blade is taper-ground—thinnest at the back and thickest at the tooth-edge. Not merely beveled a little along the back, but tapers all the way from the tooth-edge to the back. With almost no set, the teeth cut a path through which the rest of the blade follows without a struggle. No binding! No sticking in the wood!

The easiest running, fastest cutting saw you ever touched!

The Atkins Perfection Handle prevents wrist-cram—a great improvement over the old muscle-straining handle. But you can have either style of handle you prefer.

Try an Atkins Under This Strong Guarantee

Go to your dealer and select an Atkins Silver Steel Saw. Take that saw and try it—compare it with the saws you have been using. If the Atkins doesn't prove itself to be the very best saw you ever used, take it back to the dealer and he will refund your money.

Be sure the blade says "Silver Steel"—that's our best saw.

FREE to Carpenters

Write us today (enclosing 10 cents to cover postage) and we'll send you free a good, strong nail apron and two mighty useful books—our Carpenter's Time Book and our popular "Saw Sense" which contains a lot of handy information. Address our Carpenter's Department.

E. C. Atkins & Co., Inc.
INDIANAPOLIS, IND.

Largest Exclusive Saw Manufacturers in the World

\$165⁰⁰

Complete

THIS RIG COMPLETE, strongly crated, ready to start when it reaches you, weighs 550 pounds. With the outfit is included:

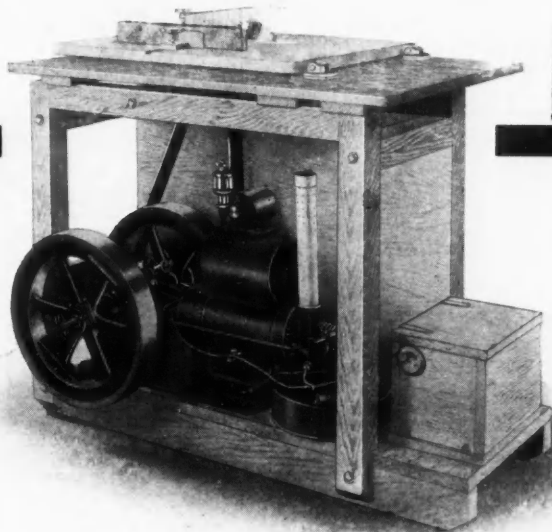
- One eight-inch Rip Saw
- One eight-inch Cross-Cut Saw
- One ten-inch Cross-Cut Saw for Bridging
- One half-inch Dado Head
- One two-inch Jointer Head and Attachments
- One Emery Wheel
- One Extra Spark Plug
- One Wrench and Oil Can
- One Belt Tightener attached to engine

Send us your order today and we will
Ship Quick

Inter-State Equipment & Engineering Co.

1775 Old Colony Bldg.

[Chicago, Ill.]

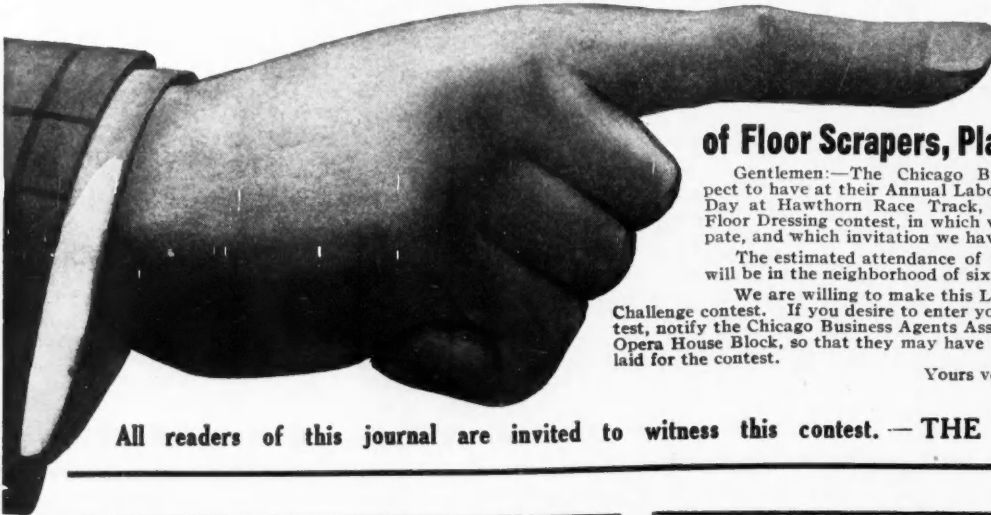


3 H. P.
Hopper Cooled
Engine.

Will Rip Two-
Inch and Cross
Cut Three-
Inch Lumber

Put this Portable Saw Rig On Your Job

This PORTABLE SAW RIG on your job, will do all your millwork and will save you much time and labor. Figure out how much you are paying your five high priced carpenters and the expense of running this rig at 20 cents a day and you have the solution of the problem. We guarantee this rig will do the work of five men. Always on the job and ready to work day or night.



TO the Manufacturers of Floor Scrapers, Planers or Smoothers

Gentlemen:—The Chicago Business Agents Association expect to have at their Annual Labor Lay Demonstration and Field Day at Hawthorn Race Track, on Monday, September 5th, a Floor Dressing contest, in which we have been invited to participate, and which invitation we have accepted.

The estimated attendance of trade employes and employers, will be in the neighborhood of sixty to sixty five thousand people.

We are willing to make this Labor Day contest our \$1,000.00 Challenge contest. If you desire to enter your machine in the above contest, notify the Chicago Business Agents Association, office No. 819 Chicago Opera House Block, so that they may have the required amount of flooring laid for the contest.

Yours very truly,
THE DAISY MFG. CO.

All readers of this journal are invited to witness this contest. — THE DAISY MFG. CO.

MONITOR SASH LOCKS



(PATENTED)

NEVER BREAK

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

In the upper sash drops, the Monitor "Never Break" Sash Lock will pick it up from lower point than any other, adjust the meshes 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

DON'T PUT SASH WEIGHTS IN YOUR WINDOWS—THEY ARE OUT OF DATE

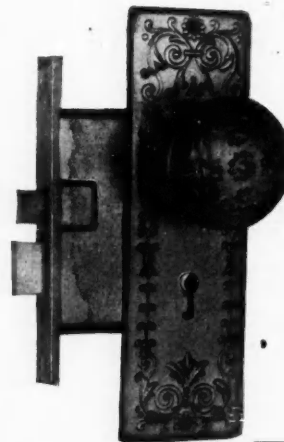
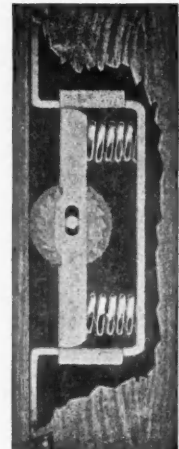
The "AUTOMATIC" SASH HOLDER

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.



IT'S A FACT

That we carry the largest and most complete line of Builders Hardware in the country. No. 1112 Inside Lock Set; Steel; Old copper finish like cut, 40 cents per set.

FREE Our Illustrated Catalog and Net Price List

REHM HARDWARE CO.
1501 Blue Island Avenue
CHICAGO, ILL.

"The Handiest Thing We Ever Struck"

An Unsolicited Testimonial.

"Some time ago we bought one of the Perry Lumber Reckoners from you and today, in showing it to one of our customers he insisted upon buying it from us. We therefore enclose you check for another, as we find them the handiest thing in that line we have ever struck."—*B. U. Taylor Co., Olean, N. Y.*

Saves Cost Many Times

The Perry Lumber Reckoner

Only \$1.00

Thousands of lumbermen use it and save its cost every week. It contains 106 pages, is handsomely bound in red cloth and is of a convenient size to fit the pocket. Only costs \$1.00 and we pay postage. Money refunded to anybody asking—but every purchaser hitherto has valued the book more than the dollar.

It means an end to figuring. It means an end to errors. It means an end to wasted time. For, at one glance, you learn the number of feet in a given number of pieces of lumber—of any size. The answer is positive. It's impossible to figure wrong. The Perry Lumber Reckoner is compiled by practical lumbermen—men who used to make errors and waste time figuring, but who found a better way. A special cut index gives instant access to any desired size of lumber.

BENJAMIN L. JENKS
Sole Publisher.

908 Williamson Bldg.,
CLEVELAND, OHIO

\$1000.00 CHALLENGE

We herewith challenge the manufacturers of any advertised Floor Scraper, Floor Planer or Floor Smoother to a competitive test.

We will agree to forfeit the \$1000.00 Certified Check, deposited with the American Carpenter and Builder, if any advertised Floor Scraper, Floor Planer or Floor Smoother can do straight-edged (whole hand smooth) floor dressing as perfectly and as rapidly as the "Daisy" Floor Scraper. This challenge is open until Oct. 1st, 1910.

The Daisy Mfg. Co.

A. L. BLODGETT



H. A. LENSING

SOUTH BEND, IND.

American Carpenter and Builder
Chicago, Ill.
Gentlemen:

We challenge the makers of Floor Scrapers, Floor Planers and Floor Smoother to a competitive test. The Test to be made in your city.

We agree to forfeit the inclosed \$1000.00 check to some charitable cause, preferably to the Carpenters' Benevolent and Relief Fund, if any other Floor Scraper, Planer or Smoother can do straightedged or wholehand smooth floor dressing as perfectly and rapidly as The "Daisy" Floor Scraper.

We ask that the maker of any Floor Scraper, Planer or Smoother agrees to compete in test, forfeit or donate any money if the place is to be free to them.

We have selected the following five well known men, who are expert judges of dressed floors, to act as a committee, to decide at any place which section of floor is most perfectly and rapidly dressed.

- Mr. H. B. Barnard, Pres. Carpenters and Builders Ass'n.
- Mr. Wm. McCumber, Sec'y. Carpenters and Builders Ass'n.
- Mr. John A. Meyer, Carpenters Executive Council.
- Mr. John J. Britton, Treas. Carpenters Executive Council.
- Mr. Daniel Galvin, Treas. Carpenters Dis. Council.

Very truly,
The Daisy Mfg. Co.

Per
H. A. Lensing

- The "Daisy" Outfit**
consists of
- 1 "Daisy" Floor Scraper
 - 6 10-inch blades (3 1/2 inch deep)
 - 6 5-inch blades (3 1/2 inch deep)
 - 2 "Daisy" Clamps
 - 1 "Daisy" Triangle
 - 1 "Daisy" Filing Device
 - 1 "Daisy" Edgeturner
 - File, Wrench, Hand Burnisher and Whetstone.

10 DAYS FREE TRIAL OFFER

We will ship a "Daisy" Outfit, freight prepaid, to any responsible contractor who intends purchasing a Floor Scraper, for a ten days free trial. Test it with others, if you do not find it best, ship it back. The trial will not cost you a penny. We have never had a "Daisy" Outfit returned to us.

The "Daisy" Triangle

Makes two machines out of one. With it on Δ shape, double shearing cut, with it off, single shearing cut is made. Triangle is easily put on with two bolts.

THE DAISY MFG. CO. South Bend, Ind.

Gentlemen:— Send me the "Daisy" Floor Scraper Booklet Free.

Name

Street

City and State

Occupation

See Letter and Invitation Top of Opposite Page. The Daisy Mfg. Co.

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 woodfloor. and has been in general use by contractors, hardwood floor companies and others for over 6 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 Co., Toledo, Ohio.



"Held to its work by
muscles of steel."



Every Floor You Scrape by Hand, or with an Inferior Machine, means Money Wasted.

The tempered spring steel arms on the Universal, press down on the blade with a resilient and elastic action which is perfectly controlled by the operator from his standing position.

That is why the Universal cuts smoothly over hard and soft places and DOES NOT JUMP OR TREMBLE. It works on the principle of a workman's arm and his hand scraper.

"HELD TO ITS WORK BY MUSCLES OF STEEL."

Not by a dead weight on the blade.

The Blade Sharpener is a necessity to any carpenter using a scraper of any kind. It files, stones and turns a perfect cutting edge on any scraper blade, and is complete with file, oil stone, and especially designed burnisher. Every machine has an Adjustable Blade Holder and Rubber Bumpers. This complete outfit shipped on approval at our expense.

Universal Floor Scraper Co.

110 EXCHANGE STREET

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WORCESTER, MASS.

Only Perfect Floor Surfacing Machine

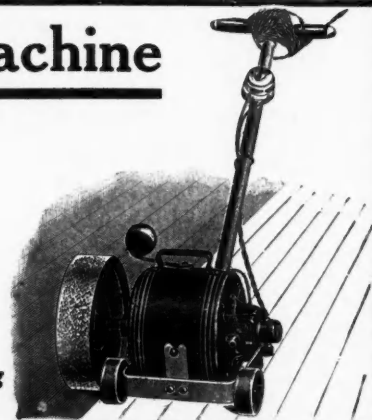
Will do perfect work on any kind of floor, whether even or uneven. Recommended by the best architects and contractors.

A BOY CAN OPERATE IT.

Sold on absolute guarantee. Price, complete with motor switch and 50 feet electric cord ready to connect with light socket, \$125.00.

Write for further information.

**MARSH COMPANY, 970 Old Colony Building
CHICAGO, ILL.**

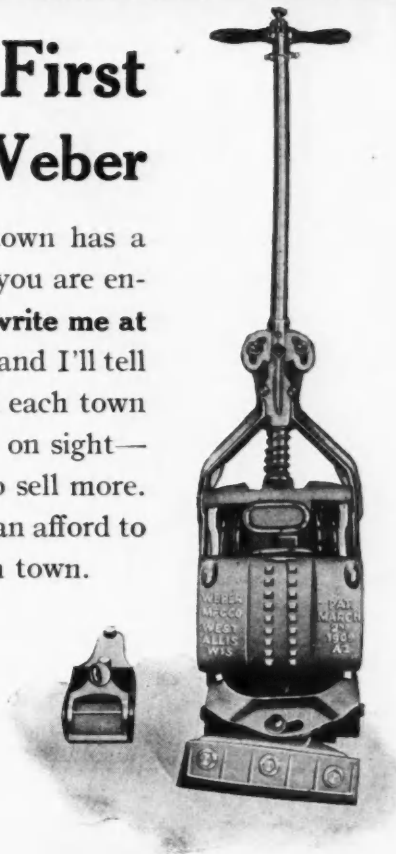


It Will Pay to be the First in Your Town to Try the Weber

Look around and see whether anyone in your town has a Weber Floor Scraper. If no one has bought one, you are entitled to my special introductory price—if—you write me at once. If you can't find this out for yourself, ask me and I'll tell you. I have good reason for wanting one scraper in each town Experience has taught that the Weber sells itself on sight—that if I can just get one out, it is a simple matter to sell more. It means dollars and cents to me—and that's why I can afford to make a liberal discount to the first purchaser in each town.

If you ever intend to buy a floor scraper, now is the time to get the best at a price that will be good for only a short time. I mean just what I say. As soon as my scraper is introduced into your town no one can buy one at a cent below the regular price.

**1 in Your Town
Sells 25 More**



Front view with 3" and 8" shearing cut knives.

The WEBER DOUBLE ACTING Floor Scraper



Side view of Latest Model, showing new adjustable handle.

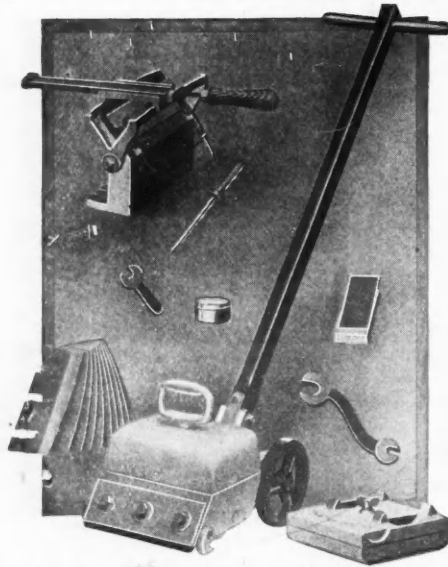
Let me have your order now before someone else gets in ahead of you.

Write me your needs anyway and I'll hold the offer open until you decide whether you want to buy or not. Remember—this offer lasts but a short time.

will do more and better work at a greater saving in time than any other on the market today. But don't take my word for it. Order one and try it yourself for from five to ten days free. Compare it with any other scraper made, and if you don't think it does the best work you ever saw, return it and the trial won't cost you a cent. Every one that leaves my factory **must** do perfect work. It would cost me more to sell you one defective scraper than I could ever hope to make on sales in your neighborhood for a long time to come.

JOHN F. WEBER, Pres.,
Weber Mfg. Co.
670 71st Ave.,
West Allis, Wis.

YOU ARE THE BEST JUDGE



Don't believe everything you see in print. Words are cheap, so are ideas at times.

When you are ready to buy a floor scraper Mr. Contractor, take time and investigate. You are the one that has to pay for the machine, naturally, you personally want to know just what it will do before parting with your money.

Judge the merits of a floor scraper by operating it yourself and you will then know just what it can do.

I am ready to place the **Acme Floor Scraping Outfit** in competition with any floor scraper on the market. All I ask is that the machines be given a fair and impartial trial by a competent and practical judge and for that reason say "you are the best judge."

I offer to send you the **Acme Floor Scraping Outfit** on an absolutely free trial basis for one week, allowing you to work with the machines as much as you please and then to judge, by actual results, whether the same are satisfactory or not. If they are not, simply send them back and the deal is closed. Write to me today and I will give you further particulars, also send you descriptive booklet.

JOS. MIOTKE, 247 Lake Street, Milwaukee, Wis.



Made in three sizes:
18 8x15 and 8x12 in. Roller.

Perfect Results Are Easily Obtained By Using Schlueter Rapid Floor Surfacer

This machine is built on the only correct principle. It is guaranteed to be **The Best** machine with which to produce an even, smooth surface on any kind of large or small wood floor, old or new, hard or soft, and in all buildings: Residences, Stores, Factories, Bowling Alleys, Roller Skating Rinks, Reception and Dance Halls, Etc.

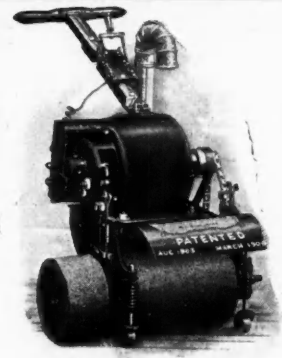
The **Schlueter** will remove all joints or warped edges, and oil, wax, lime stains, or the "muck" from skate wheels, in a most satisfactory manner.

Earning capacity, \$20.00 to \$35.00 per day!

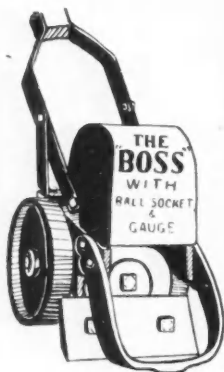
Send for prices and **Free Trial Proposition.**

N. L. SCHLUETER, Chicago, Ill.

108 N. Canal Street



Edge Roller easily adjusted
to either side.



THE BOSS JUNIOR FLOOR SCRAPER

with gage, is the latest. With ball adjustment—it can be set to any shearing cut by loosening one bolt. Right or left gage can be set for any thickness of shaving, and keeps knife from making an uneven impression in Floors. Gives knife double support. Gage on front and wheels at the rear make it like a plane. The weight on top can move it back or forward. This machine lets you be the judge, not me.

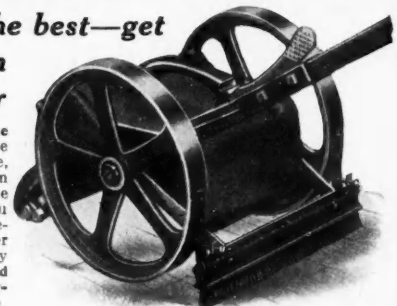
Send for Prices.

G. J. Kepplinger
Dwight, Ill.

Sent on **FREE** Trial—anywhere

If you want the best—get
the **Ackermann**
Floor Scraper

The Ackermann is the best floor scraper. We guarantee it to do more, better and easier work than any other machine on the market. If it doesn't you get one free. Send for details of our offer under which any contractor may test the Ackermann Rapid Floor Scraper and Ackermann's New Knife Sharpener free at our expense.



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

WE CHALLENGE YOU

TO TEST

THE TRIPLE "A" SPRING DRIVEN FLOOR SMOOTHER

In comparison with any other floor surfacing machine.
We want you to be the judge. It will cost you nothing to try the Triple "A" for
WE PAY THE FREIGHT.



Its operation is simple and easily learned. Give it a thorough trial and satisfy yourself that it is the best floor surfacing machine now being manufactured.

Remember the TRIPLE "A" will save you money every day you use it. It will more than pay for itself. These are good reasons why you should buy it.

The TRIPLE "A" AUTOMATIC SANDPAPERING ATTACHMENT is the only practical one made. Instantly attached or removed. Simple and effective. No loose parts to be lost or broken.

The recent addition to our outfit of a lock-corner tool box containing the knives and sharpening tools has met with instant approval.

Write at once for information concerning the most practical and up-to-date floor surfacing outfit on the market.

Triple "A" Machine Co.

114 South Clark Street,
CHICAGO, ILL

TRY BEFORE YOU BUY

Let us send you the "LITTLE GIANT" Floor Scraper—Freight Prepaid. Absolutely FREE of any expense to you whatever

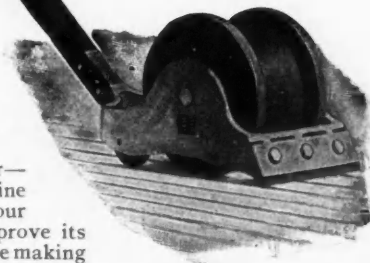
A request from you brings the "Little Giant" Floor Scraper to your door—you send no money and we pay all expenses. After you have given it a fair trial and have tested it as thoroughly as you know how, and have found it satisfactory, pay for it. If you do not think it is the best floor scraper made, return it.

TRY IT ON YOUR OWN FLOOR

You can try the "Little Giant" Floor Scraper on your own floor and the trial costs you nothing. All that we ask is that you give it a fair trial. You be the judge and jury. Every carpenter and contractor can afford to invest in one as the time and money saved will pay for the machine in a very short time. By using the "Little Giant" Floor Scraper you will be in a position to estimate much lower than your competitor and therefore have more work. Can you afford to be without this machine?

25,000
"Little
Giant"
Floor Scrapers

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 above liberal proposition.



Write us for our Special Price

Hurley Machine Company

31 South Clinton Street, CHICAGO
1011 Flatiron Building, NEW YORK
246 Woodward Ave., DETROIT

MURPHY Specials for House Finishings

Transparent Wood Finish

Finest Interior Varnish—Saves 25% to 50% in Covering Power and Labor—Lasts, alive, rich, smooth, a third of a Century.

Nogloss

Most Artistic Interior Varnish—Dries to perfect Dead Finish—No rubbing—Shows Wood more Natural than rubbed Varnish.

Ivory Enamels

Do Not Crack—Do Not Change Color.

Oil Colors

They are Fast and they Last—Go enough farther in tinting to make them cheaper than colors at Half the Price.

Konkreto

Gives Concrete or Cement a Surface like Tiling—Dustless, Dampproof, Sweepable, Sanitary, Easy to Clean and Keep Clean.

“Quality and Economy in Varnish and Varnishing”

Our free book explains them all Address us at 222 McWhorter St., Newark, N. J

MURPHY VARNISH CO.,

FRANKLIN MURPHY,
PRESIDENT

NEWARK, N. J. BOSTON CLEVELAND ST. LOUIS CHICAGO

Associated with Dougall Varnish Company, Limited, Montreal, Canada.

The Varnish That Lasts Longest



SLAP HALF THAT ROOF MONEY INTO THE BANK! And call it PROFITS—not EXPENSE! Roof the homes you build with the famous *Edwards Metal Roofing* at **Manufacturers' Wholesale Factory Prices!**

Edwards Metal Roofing cost but little more than ordinary roofing. And it's the most marvelous home beautifier ever designed for particular

home-owners! It's a **PROVED FACT** that it results in an instant leap in **CASH VALUE** of the home it crowns! **THE EDWARDS SPANISH TILE** gives everything that is desirable about the Spanish Terra Cotta roofing tile without many of the objectionable points.

While it has all the beauty of form and color, the weight, breakage and difficulties of setting have been entirely eliminated.

Our Metal Spanish Tile are made of the best quality of Worcester grade Terne plate furnished painted or galvanized (*regalvanized after formation*) size 10x14 in.

Take advantage of this amazing opportunity in a hurry! Roofing the homes you build with *Edwards Metal Roofing* is the sure, quick route that *Hits The Trail To BIG ROOF PROFITS!*

A business proposition of immense proportions has just opened up for *Builders!* Ask us for confidential information about it when you write for further details about *Edwards Famous Metal Roofing. Act QUICK! TO-DAY!*

THE EDWARDS MANUFACTURING COMPANY

401-417 Eggleston Ave.,

"The Sheet Metal Folks"

CINCINNATI, OHIO

The Worlds Largest Manufacturers of Metal Roofing, Metal Shingles and Metal Ceilings.



Note the construction of patented side lock, the "Lock that Locks," used exclusively on all Edwards Shingles and Tile.

FAMOUS

You Need This Universal Woodworker

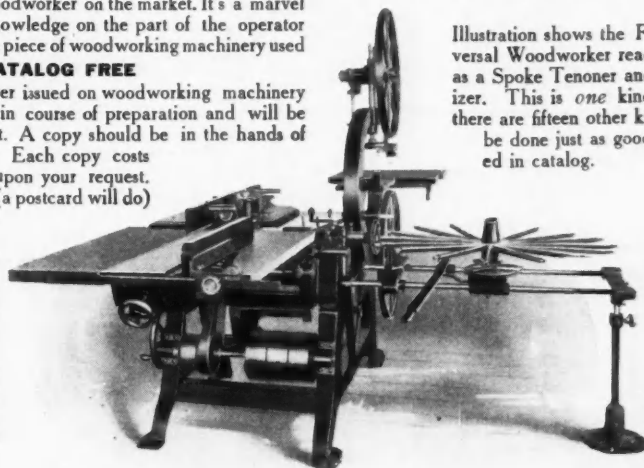
To think of woodworkers is to think of the FAMOUS—the machine that does *sixteen* different kinds of work. There is no machine on earth so particularly suited to the needs of carpenters, builders and contractors. No woodworker made can approach the FAMOUS for doing *so many* kinds of work and for doing the work so *thoroughly, rapidly* and *economically*. On no other woodworker existing can the changes be made so simply and so quickly.

The FAMOUS stands in a class by itself for simplicity. "Sixteen in One," we say. Yet this "Sixteen in One" machine is *easier* to operate and maintain than any other woodworker on the market. It's a marvel of compactness and requires no more knowledge on the part of the operator than is required to operate the most simple piece of woodworking machinery used

IMPORTANT CATALOG FREE

The finest and most complete catalog ever issued on woodworking machinery is the FAMOUS catalog. This is now in course of preparation and will be ready for distribution about October first. A copy should be in the hands of every carpenter, builder and contractor. Each copy costs us 25c, but will be sent free, postpaid, upon your request. Send us your name and address *today* (a postcard will do) and make certain of getting a copy from the first edition.

Illustration shows the FAMOUS Universal Woodworker ready for operation as a Spoke Tenoner and Wheel Equalizer. This is *one* kind of work—but there are fifteen other kinds which can be done just as good. All explained in catalog.



**The
Sidney Tool
Co.
Sidney, Ohio**

SIGN THIS COUPON
Please send Catalog describing the FAMOUS Universal Woodworker to

Name

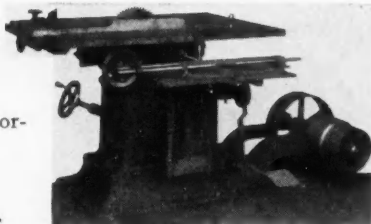
Address

A. C. B. Sept.....

VARIETY SAW

with or without Boring Attachment.

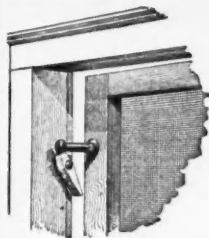
Write for
Catalogue.



B. M. ROOT CO.
Wood Working Machinery

New York Office,
136 LIBERTY STREET

YORK, PA.



Silent Screen Door

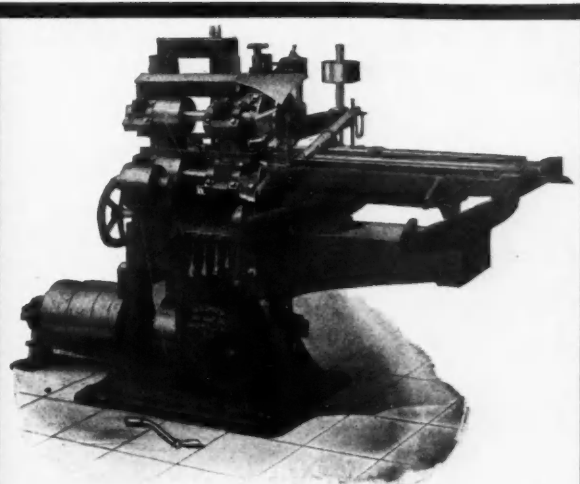
Avoid the nerve-racking slam of the screen door. Stop its banging and jarring—by using

"Dime"

Screen Door Check

At your hardware or house furnishing store, or mailed for 12 cts. in stamps by

Caldwell Mfg. Co., 15 Frank St., Rochester, N. Y.



SMITH'S Original Single End

Tenoning Machines were patented in 1852, since which time many **Improvements** have been made, the annexed engraving representing the latest and best type.

The **Design** is unique with a rack for holding all the wrenches.

The **Carrriage** is fitted with **Roller Bearings** so as to move easily and true across the ways. Made with double or single heads; with or without Copes and Saws

Also Builders of Double-End Tenoners. Address

H. B. Smith Machine Co., Smithville, N. J., U.S.A.

BRANCHES: New York, Chicago, Atlanta, Memphis


WATER-FIRE AND LIGHTNING PROOF

TRADE **TITELOCK** MARK

METAL SHINGLES

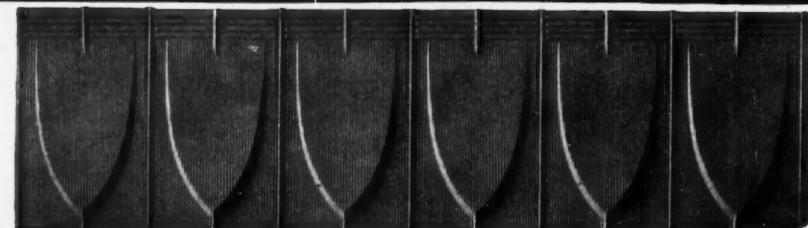
MAKE THE BEST ROOF COVERING

NOTE THIS LOCK-JOINT!



LAYING SHINGLE

SHINGLES LAID IN PLACE



The nature of embossing and the crimping lengthwise of the plates insure rigidity and strength, also provide perfectly for the expansion and contraction of the metal.

SEND FOR SAMPLES AND BOOKLET.

"Invisible Joint"
STEEL CEILINGS
SEND FOR CATALOG.

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MILWAUKEE, WIS. - KANSAS CITY, MO.

EAVES TROUGH, CONDUCTOR PIPE, ELBOWS, RIDGE ROLL, SHEET METAL ROOFING AND SIDING, ETC.
SEND FOR PRICE LIST.

AUGER BIT ESSENTIALS

THE FIRST REASON
why the well-known



"RUSSELL JENNINGS" BITS

are noted for their durability is that they are made of
GENUINE CRUCIBLE STEEL

This steel is made to order, never bought in the open market. It is of uniform density to give uniform temper, and in every way is superior to all other materials for auger bits. It is high in carbon, which means that the bits retains the keen cutting edges we give them. It also means that we do not sacrifice wearing qualities in order to save our dies and cutters.

Russell Jennings Mfg. Co.
CHESTER, CONN., U. S. A. 21-24

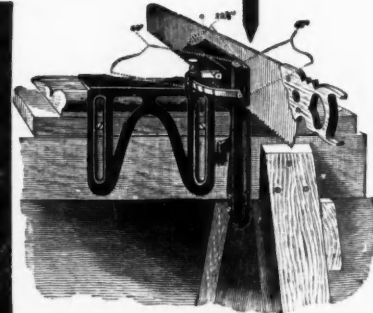
"SEAVEY" MITRE BOX

Cuts
Any
Angle

Meets Every Requirement

Special Offer

On return of this "Ad" and \$2.00 one of these Mitre Boxes will be shipped to any reader of "Carpenter & Builder." Offer good for 30 days from date of issue.



Portable — Can
be carried in
the Tool Kit

Weights

2

SMITH & HEMENWAY CO.
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Pounds

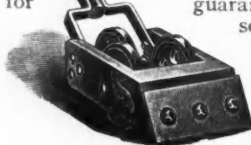
The Fox Will Save You Time Money and Trouble

**Fox
Floor
Scraper
No. 1**

A Perfect
Machine for
Perfect
Work.

SENT ON TRIAL
Built on scientific principles, simple in construction, light running, easy to operate.
Will Last a Life Time

Remember the Fox leads; others follow, and the best is what you want. We guarantee the Fox and back that guarantee by the largest floor scraper factory in the world.



Write for catalog on floor and hand scrapers, it will pay you.

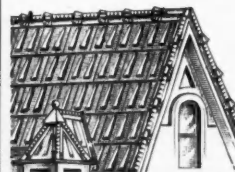
Fox Mfg. Co.
Brooklyn, Wis.

DURABILITY SERVICE ECONOMY

Consider these three Most Important points when you think of roofing and remember that Montross Metal Shingles offer you all three. 21 years test proves it to be so. Carpenters and Builders should recommend



MONTROSS METAL SHINGLES

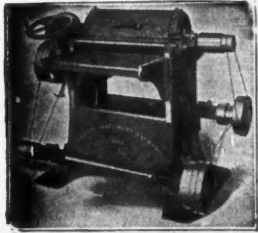


Montross Victor Metal Shingles

They last the life of the building and give first-class service. Are Fire, Lightning, Storm and Wear-Proof. Embossed, then galvanized or painted. Easily laid; no soldering. Outwear wood, shingles and composition roofing. Lighter than slate or tile. Suitable for all kinds of buildings.

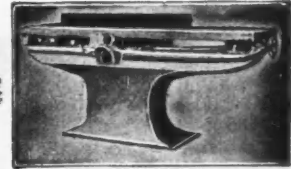
Send for a copy of our illustrated catalogue; it contains prices and testimonials, and explains why it will be to your interest to lay Montross Metal Shingles.

MONTROSS METAL SHINGLE CO., 102 Erie St., CAMDEN, N. J.



Chicago No. 35 Pony Planer

Machines for Contractors



Chicago Hand Jointer
8, 12 and 16 in.

Do Your Own Millwork!!

Stop paying somebody else profit — put it in your own pocket. Be in a position to estimate below your competitors. You can do this by installing your own Machinery.

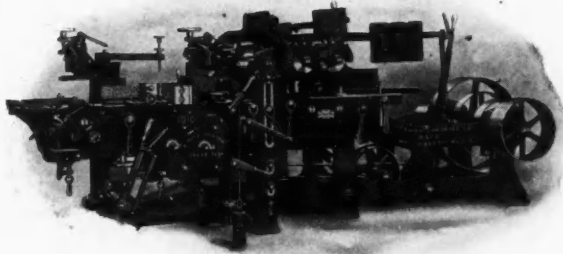
Money Saving Machinery

The contractor and builder who installs his own woodworking machinery can easily estimate under his competitors. Modern economic conditions **demand** it. Money you expend in millwork is profit for somebody else — the profit that rightfully belongs to you.

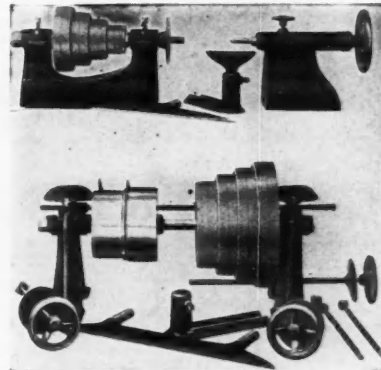
Prices are Favorable Our line is the most complete in the country and our prices are most favorable. All our machinery is of special construction to secure fine finished surfaces and reduce sand-papering to the minimum.

Send for Lists and Circulars Our monthly list (free to contractors) shows just the machines you ought to have. Write today.

Chicago Machinery Exchange, 159-161 North Canal Street Chicago



Hermance New 1910 "Wide-Open" Moulder
Up-to-date and a little ahead.



Wood Turning Lathe and Countershaft
16 and 20 inch



Chicago No. 7
Improved Swing Saw



"A Bit Of Utility"

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

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

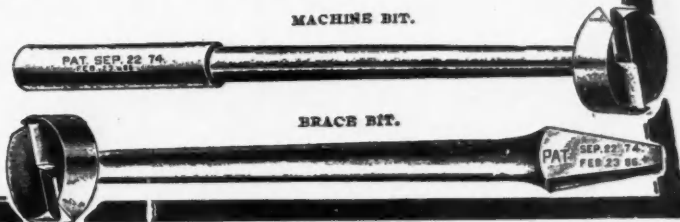
Unequaled for Delicate Work

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


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

The Progressive Mfg. Co.

Torrington, Conn.



WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER




This hook can be inserted or removed through a one-inch hole bored in the sheathing; it hooks around the studding instead of going through it. Where it is desired to plaster inside before scaffold is down, a piece of 2" x 4" turned flatwise may be used to fill in.

Made of best quality angle steel, strictly first-class and fully tested. Arms are notched and brace riveted fast in such a way that the strain is carried entirely on the solid metal instead of on the rivets; a single pair carry a ton easily.
 4 ft. brackets 1 1/2" x 1 1/2" x 3/16"
 5 ft. brackets 1 1/2" x 1 1/2" x 3/16"
 Prices respectively, \$14.85 and \$18.00 per dozen.

Prompt Shipments Guaranteed.

If you wish to try a pair, before ordering in quantity, write for terms of special trial offer.

THE TAYLOR STEEL SCAFFOLD BRACKETS



ABOUT CLAMPS

Isn't it quick work to be able to slide your clamp jaw right against the work operated on, let it lock itself, and then apply the power with about half a turn of the screw?

You can do this with the "TAYLOR," and as the grip doesn't depend on friction, there's no danger of the clamp becoming useless in a short time. Each is for its weight the strongest and best clamp made, and with proper use practically unbreakable. The steel bar is of a special grade, more than twice as strong as Bessmer, and the rest of the clamp is even stronger, correspondingly. We make 21 different styles, so you're likely to find one that meets your requirements.

This mitre clamp is a crack-a-jack. It's light, and easy to handle and mars the work very little. The eccentric is a special design that works quickly, but gives great holding power. The jaws are planed true, and hold the work exactly square when closed.

Just ask for a catalogue, and we'll be glad to furnish it and tell you more about these clamps.

JAMES L. TAYLOR MFG. CO., Bloomfield, N. J.
U. S. A.

Huther Bros. Patent Groover or Dado Head
 Will save its cost in three days' time




Can be used on any Circular Saw Mandrel.

For cutting any width groove from 1/4" to 2" or over. Will cut a perfect groove, either with or across the grain, and leave edges smooth. Will ship to any responsible firm on ten days' approval; if not satisfactory you are at liberty to return at our expense. We also make a specialty of groove ground, smooth cutting circular Mitre Saws, for either rip or cross cut; Grooving Saws for all kinds of special work; Lock, Corner Cutters, Groove Saws, etc.

Showing Arrangement of Cutters.

Try our Scraper Blades and you will use no others.

HUTHER BROS. SAW MFG. CO.
 1800 University Ave. ROCHESTER, N. Y.

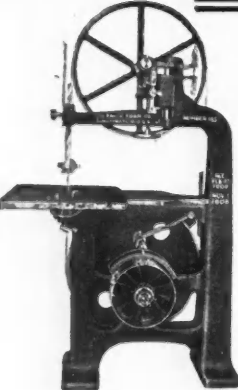


This DUMB WAITER
 complete ready to erect for - **\$18.50**

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.



WE WOULD SUGGEST

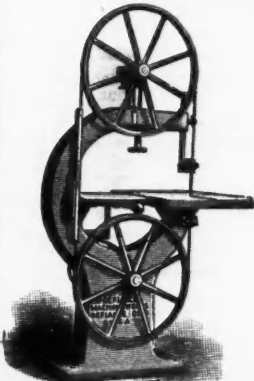
If you are looking for a small Band Saw, that you send for our descriptive circular showing two large half-tone photographs of our No. 155. This machine will be found very valuable to **Carpenters, Contractors and Retail Lumbermen** because of its thin blade and high speed, two essentials to the rapid and economical production of fine work. It is designed, especially for use in shops desiring a small machine that is capable of doing light and medium sawing. With very little power, it will do first-class work.

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J. A. FAY & EGAN COMPANY
 545-565 W. Front Street Cincinnati, Ohio

No. 155 Band Saw

“DEFIANCE” WOOD-WORKING MACHINERY



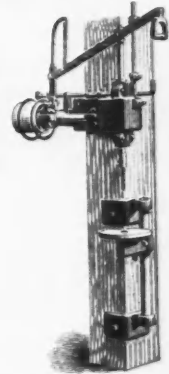
28" Band Saw

For Making:
AUTOMOBILE SPOKES, RIMS, WHEELS, and BODIES. Carriage and Wagon Hubs, Spokes, Rims and Wheels, Wagons, Carriages, Shafts, Poles, Neckyokes, Singletrees, Hoops, Handles, Spools, Bobbins, Insulator Pins, Balusters, Table Legs, Oval Wood Dishes and for GENERAL WOODWORK.

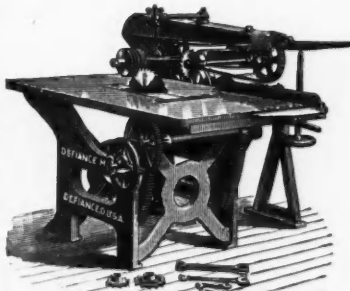
Invented and Built By

The Defiance Machine Works
Defiance, Ohio

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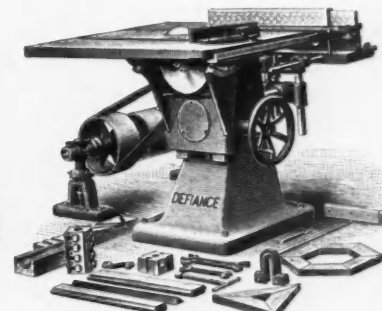
No. 15 Post Borer



No. 3 Power-Feed Rip Saw



24-inch Single Surface Planer

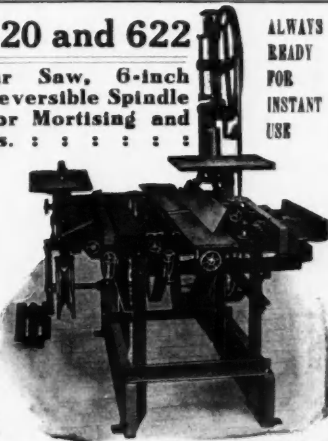


No. 8 Variety Saw

PARKS' No. 620 and 622

Combination Circular Saw, 6-inch Jointer, Band Saw, Reversible Spindle Shaper with Boring or Mortising and Rabbeting attachments. : : : : :

Six Machines in One and all in Plain Sight
No unbolting or bolting is necessary before you can see or use all the attachments. Economical, cheap, and a constant money maker for Carpenters and Contractors.
Write for Circular and Prices.
Parks' Ball Bearing Machine Co.
Fergus & C. H. & D. Ry.
Cincinnati, Ohio
Originators of the Circular Saw, Band Saw and Jointer Combination, also Foot and Hand Power Machine.
Canadian Agents,
Bourival & Co., No. 10 Beaconsfield Ave., Toronto, Ont., also St. Barnabé, P.Q. Can.



ALWAYS READY FOR INSTANT USE

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

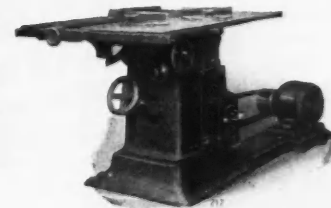
JOSEPH DIXON CRUCIBLE CO.
JERSEY CITY, N. J.

A MODERN UP-TO-DATE PLANT

makes you feel that your efforts are successful.

To individually drive your machines is one of the greatest aids to that successful feeling.

Roth Motors are the best Motors for Individual Drive.



ASK THE MAKERS ABOUT THEM

Roth Bros. & Co.

CHICAGO, ILL.
1422 W. Adams St.

N. Y. OFFICE
136 Liberty St.

THE "LIGHTNING" AUGER BIT

WARRANTED



WARRANTED

It will bore through any kind of wood in common use about twice as quickly as the best and fastest heretofore on the market. The worm has a double thread terminating in two cutting points. The double thread with the specially formed twist secures its double quick work without increase of power. Only by actual test can the great advantages of the lightning bit be fully realized. Secure from your dealer or sent by mail. Price postpaid.

3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
\$0.28	.28	.28	.28	.32	.34	.38	.42	.50	.50	.55	.55	.62	.62	.73	.73	.85	.85

TOWER & LYON CO., 95 Chambers Street, New York, N. Y.

THE FOLDING DRAW KNIFE.

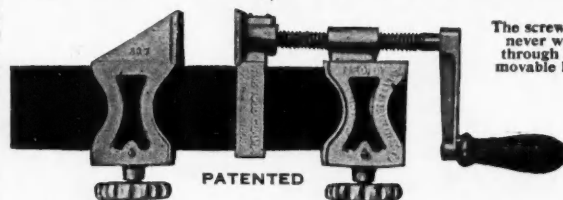
The old draw knife's straight out handles
Wouldn't pack in any chest
And its edge was always knicking
A great bother, long confessed.



If your hardware dealer does not keep it, we will send it to your address postage paid. : :

A. J. WILKINSON & CO., 180 to 188 Washington St., BOSTON, MASS.

The TODD Clamp Will Save You Money



The screw will never wear through the movable head.

Quick adjustment. No steel bars to spring. Clamping range unlimited. No notches to weaken the bar. Heads always square with the work. Send for circular giving full description.

BROWN SPECIALTY MACHINERY CO., Jackson Boulevard and Clinton Street, Chicago

FOREST CITY BIT AND TOOL CO.

Manufacturing Hollow Mortising and Wood Boring Bits and Tools



Our Hollow Chisels made to fit all Mortising Machines
For complete description write for Catalog H.

FOREST CITY BIT AND TOOL CO., Factory and Office, Rockford, Ill.

HESS MEDICINE SANITARY CABINET LOCKER

The only modern **Sanitary** Steel Medicine Cabinet or Locker.

Handsome beveled mirror door. Snow white, everlasting enamel, inside and out.

FOR YOUR BATHROOM

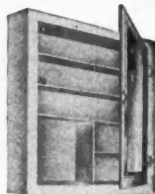
Costs less than wood and is better. Should be in every bathroom.

Is dust, germ and vermin proof and easily cleaned with warm water.

Made in four styles and three sizes. **Price \$7.00 and up.** Send for illustrated circular.

HESS, 920L, Tacoma Bldg., Chicago

Makers of the Hess Steel Furnace. Sold on Approval. Free Booklet.



When You Want Large or Small Quantities of

High Grade Oak Flooring, Oak Parquetry Strips, Field, etc.

—Write to—

R. M. CUNNINGHAM

Cor. Fourth and Market St., LOUISVILLE, KY.

Miller's Lock Mortiser Does The Work

Cuts an opening for a Mortise Lock in any kind of wood, complete in three minutes, thick or thin doors, does not split the doors and cuts true.

5000 Mortisers Sold Mean Something
Complete Job in 3 Minutes
Actual Use of Tool 1/2 Minute

READ, BUILDER, WHAT THE OTHER FELLOW SAYS:

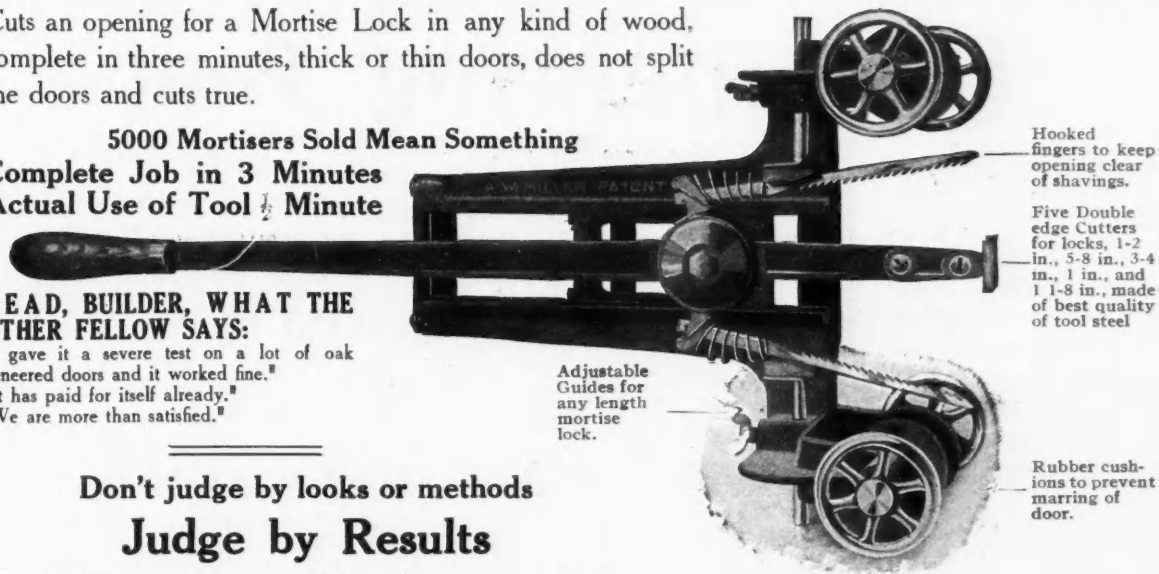
"I gave it a severe test on a lot of oak veneered doors and it worked fine."
 "It has paid for itself already."
 "We are more than satisfied."

Don't judge by looks or methods
Judge by Results

We will allow you to prove our claims. Sent subject to 30 days trial to any reliable contractor or builder. Write to us. We mean business.

A. W. MILLER MFG. CO., Main Office **Cincinnati, Ohio**

Our Butt Mortiser and Rule Gauge is a useful present for any Carpenter. Seventy-five cents brings them, if your dealer does not have it



"Victor" Scroll Saw.

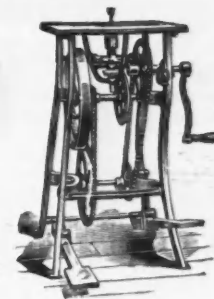


"Diamond" Mortiser.

FOOT, HAND AND POWER WOOD-WORKING MACHINERY

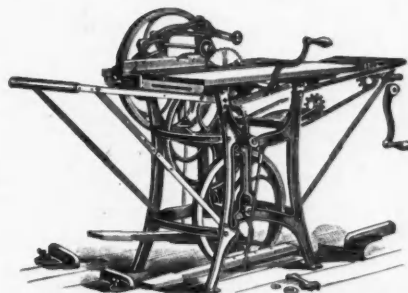
For Carpenters, Builders, Cabinet-Makers, and Other Wood-Workers

Built For Hard Work, Accurate Work And Long Service



"Rex" Moulder.

ONE MAN with one of these machines will do the work of four to six men using hand tools; will do it easier, will do it better.



"Union" Combination Self-Feed Rip and Cross-Cut Saw

WE GUARANTEE each machine to be thoroughly practical and accurate. Machines sent on trial, and if not found entirely satisfactory, may be returned at our expense.



No. 8 "Union" Power Saw.

Enterprising mechanics are quick to see the superior merits of our machines. It will pay you to investigate these advantages.

SEND FOR CATALOG "A"

**THE SENECA FALLS
 Manufacturing Co.**

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



No. 6 "Union" Combination Saw. (96)

NOT A FOLDING BED
NOT A WALL BED

ADDS TO RENTAL VALUE
DECREASES COST OF BUILDING

HOLMES' PATENT SELF-AIRING Disappearing Bed

*Perfectly ventilated
Thoroughly sanitary
Gives large closets
Is detached*

*Can be moved anywhere
No sham furniture
Free from dust*

*Makes three rooms answer for five
Occupies no valuable floor space
No lifting or folding*

*Child can manipulate it
Saves labor, time, rooms, money
Will revolutionize building
A scientific sleeping arrangement*

UNLIKE ANY OTHER PATENTED BED

Beds are installed in apartment houses, hotels, dormitories and residences.
Send for Catalogue. See our Exhibition Rooms

HOLMES DISAPPEARING BED COMPANY
PACIFIC ELECTRIC BUILDING, LOS ANGELES

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C. R. Brigg, Spokane, Wash.
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OFFICES IN NEW YORK, BOSTON, ST. PAUL AND OTHER CITIES WILL BE OPENED SOON

SHULTZ Modern Store Fronts
of Steel and Brass CORK BEDDED
CORNER POSTS, MULLIONS AND TRANSOM BARS

Handsomest, 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 Chute. All Steel Cork Bedded and Ventilated Bottom Bar.

C. H. SHULTZ, MANUFACTURER, ST. JOSEPH, MO.

A LIGHT BASEMENT

With all the conveniences of the coal chute, can be obtained by using the Window-Chute—"the one with the glass." It's different from all others because it's a window and a chute all in one. Saves the cost of a frame and sash otherwise necessary. Saves another opening through the wall—You've sometimes found it difficult to locate another.

Notice the plate at the top of the frame? That covers the glass when the chute is open. It swings at the outer end and drops down, forming the bottom of the chute.

Beware of Infringement.
We also manufacture the famous "Holland Furnace." "The Holland Furnace makes Warm Friends."
Write for Booklet
HOLLAND FURNACE CO.
Dept. "A" Holland, Mich.
Clare Bros. & Co., (Ltd.) Preston, Ont.

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.



PERFECTION ELEVATORS

The Best Value for the Money in the World
— Mechanically Correct —

Dumb Waiters, Carriage and Store Elevators, Sidewalk Hoists, Etc., Etc.

Our Elevators are noted for their **EASY RUNNING** and **SERVICE-ABLE QUALITIES**. They are practically self-contained, and can be erected by any carpenter in a few hours. We furnish plans for erecting.

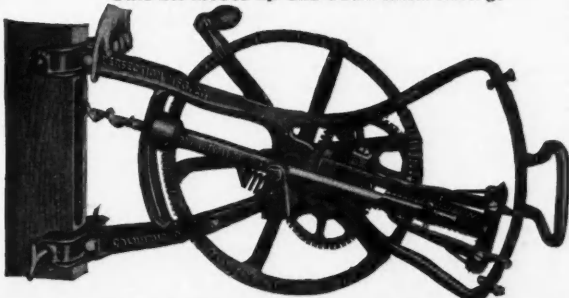
The Low Cost Will Surprise You

State your requirements, giving capacity, size of platform and number of feet to travel and we will name our lowest money saving estimate.

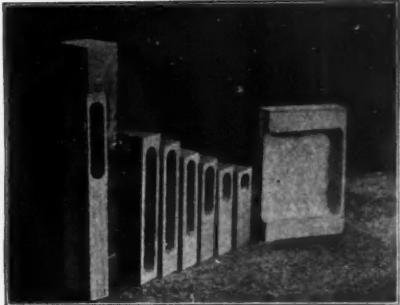
SIDNEY ELEVATOR MFG. COMPANY, SIDNEY, OHIO

The Perfection Universal Mortiser

This bit moves up and down while boring.



For Door Locks, Sash, Sash Pullies, Screen Frames and Cabinet work. Instantly changed with screw driver, from round hole to ANY size mortise up to 6 1/2". Finished perfect, WITHOUT THE USE OF BRACE OR CHISEL. Made of Malleable. Automatic and ball bearing.



**MANUFACTURED BY PERFECTION MFG. CO.
COLUMBUS, OHIO**



EVERSON VACUUM CLEANER

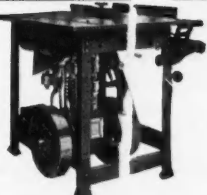
WHAT YOU HAVE BEEN WAITING FOR

A high grade, noiseless type, non-vibrating vacuum cleaner. Conceded by experts to be the most perfect type of a portable (weight 35 lbs.) vacuum cleaner yet invented. Price \$80.00 complete, which includes a full set of tools for every purpose of cleaning.

FULLY GUARANTEED

Our principle of dust separation maintains **efficiency from start to finish of cleaning**. Something unusual in other makes of vacuum cleaners. We use Holtzer-Cabot Motors **exclusively**. Agents wanted. You can clear \$0.50 per hour with it. Write the nearest office for circulars and information.

EVERSON MANUFACTURING COMPANY
706-709 Marquette Bldg., CHICAGO, ILL.
Main Office and Factory 34 Oliver Street, BOSTON, MASS.



THE GRIMM WOODWORKER

PORTABLE

NINE MACHINES IN ONE, with its own "Built In" Power-Plant - - - - Gasoline Engine or Electric Motor

— WRITE FOR BOOKLET —

LITTLEFIELD & CLARK - 46 Erie Street, BUFFALO, N. Y.

CHAMPION FLOOR SCRAPERS

WHY PAY EXORBITANT PRICES?

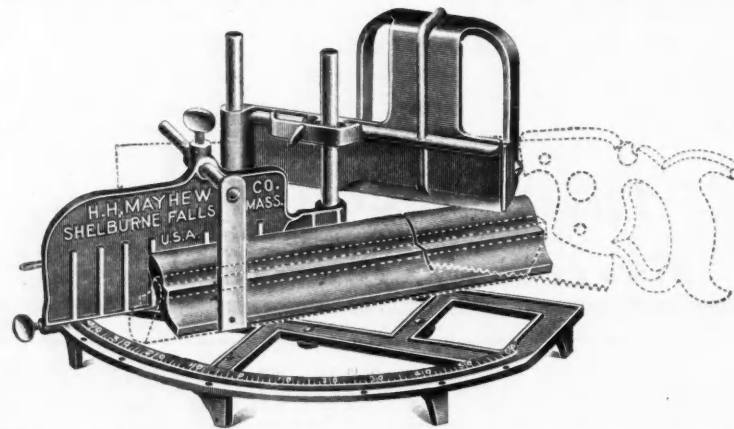
Don't give double what anything is worth. We have a machine that does the same kind and quantity of work as the highest priced.

We Can Save You Money Both first cost and every day machine is used.
SEND FOR OUR CIRCULAR.

THE DOSCH MFG. CO. Bridgeport, Conn.



MAYHEW 60° MITRE BOX



This box embodies more distinctive features than any other made.

Designed for Simplicity, Accuracy, and Durability.

Strictly a right hand tool for mitering.

Box embodies a new feature in reversing the principle commonly used on other boxes.

Any of three saws may be used—Panel—Hand or Back saw.

Saw guide adjustable for any thickness of saw.

Extreme mitre to 60° without makeshift. May be used as a stationary or pivot box by use of the pin posts.

In mitering duplicate cuts there is no restriction on length.

Will cut compound mitre.

Parts take down into space 10x10x4 inches.

Weight 15 lbs. complete.

Box contains full directions for use

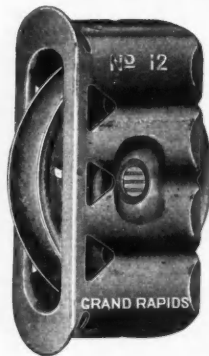
PRICE EACH, \$10.00

H. H. MAYHEW COMPANY, SHELburne FALLS, MASS.

If You Have Power

You cannot afford to use any but the

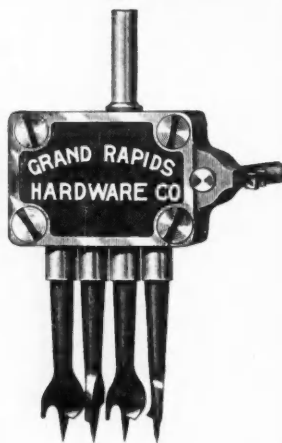
Grand Rapids All-Steel Sash Pulleys



and the Grand Rapids Mortising Bit. Bores mortise at one punch. Used in common boring machines. We make boring machines too. Write for sample pulleys and prices.

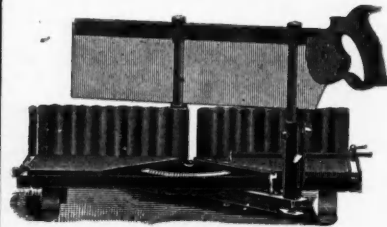
Grand Rapids Hardware Co.

35 Pearl Street,
GRAND RAPIDS, MICH.



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 "C"

GOODELL MFG. CO., Greenfield, Mass.

GOOD FOR ONE DOLLAR

ONLY SELF-SETTING PLANE

Introductory Offer—During September—We will receive this Advertisement as \$1.00 if it is sent us from where the Self-Setting Planes are not sold, with a Money Order for the balance of the list price of any Beechwood Self-Setting Plane and 10 addresses of plane users, to whom we can send circulars—no matter where they live.

Highest in price.
Highest in quality.
Easiest to work.
Quickest to set.



If in other places, so much the better

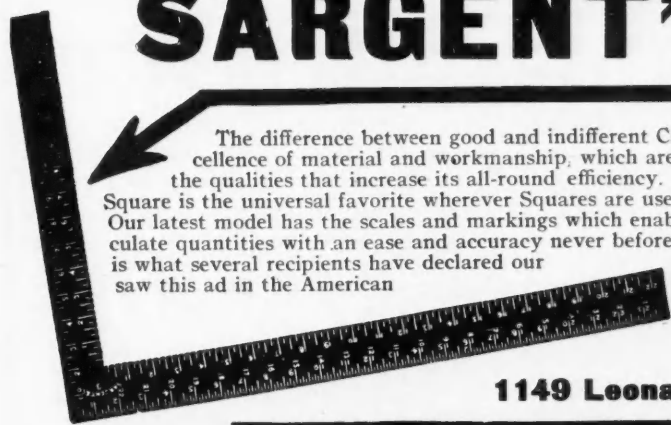
If the plane is not satisfactory, return it to us at our expense, within 30 days of receipt and we will refund the amount of the Money Order sent us and \$1.00 more to pay for your trouble, etc. This shows the confidence we have in our planes.

If you send only the ten addresses, no matter where they live, we will send you circulars and a carpenter's hard, tough pencil. If you send a two-cent stamp we will send you another pencil.

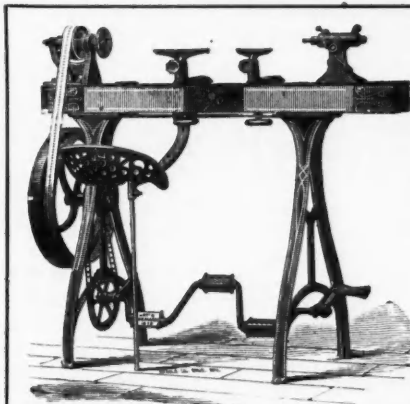
GAGE TOOL CO. - Vineland, N. J.

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
 1149 Leonard Street
 New York



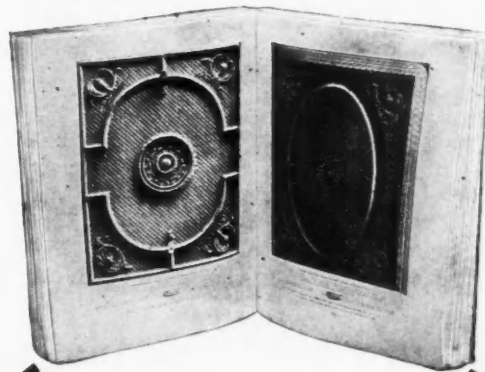
COMPLETE OUTFIT

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.



Do You Go After Business?

It is *not* sufficient to say that you can get good metal ceilings. Get a handsome illustrated catalogue of

BERGER'S
Classik
 METAL CEILINGS

and Show your people a picture of just what you can give them.

Write today for Catalog

THE BERGER MFG. CO., = Canton, O.

New York, N. Y. Atlanta, Ga. Kansas City, Mo.
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The Builder Who Knows: vs The Builder Who Guesses

It is easy to tell which wins out. Stop guessing. Learn to estimate safely and rapidly.

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THE LIGHTNING ESTIMATOR

shows you how

SIMPLE RAPID ACCURATE RELIABLE PRACTICAL SYSTEMATIC

Easily adjusted to any locality. Based on experience not theory. Ample Illustrated and Bound in CLOTH. This is **Your Opportunity** to get on to the road to Success. Don't let it go by, but send \$1.00 TO-DAY, for a copy of this interesting book.

BRADT PUB. CO.

1260 Michigan Ave. JACKSON, MICH.

HARGRAVE

STANDARD CLAMP



This clamp is thoroughly made of the best refined malleable iron, and is provided with a button tip. It has a very deep, square thread in both the screw and frame, and is in every way the strongest and best clamp in the market. Each size is numbered by inches the thickness of the work it will take in.

Cut one-quarter size of 5 inch
THE CINCINNATI TOOL CO., - - - **Norwood, Cincinnati, Ohio**

Write for circular. Dept. H

DON'T FORGET IT



When you go into your dealer's store to buy tools ask to see GOODELL-PRATT'S.

It will pay you to do this because in buying GOODELL-PRATT'S you are sure of getting your money's worth of skillful designing, first-class materials and expert workmanship.

Further than this you will have an everlasting satisfaction in their use.

Our 208-page Catalog is free.

GOODELL-PRATT COMPANY

Toolsmiths

Greenfield, Mass., U. S. A.

Give Us the Chance to Tell You How Carpenters

can pay for the

IDEAL

In Thirty Days Profit.



HUNDREDS of carpenters and builders write us every season telling of profits

on Ideal Concrete Machinery, that pay for the investment in thirty days. They write us of clearing from \$10.00 to \$15.00 a day with one Ideal machine operated by one or two men.

Let us tell you how you can do the same—how you or your helper can operate the Ideal without previous experience and make big money.

Let us tell you of the fifteen reasons why The Ideal is the only machine on which you can do this,—such reasons as the face-down principle, the horizontally-movable cores, the absence of any wheel, cog, gear, chain, sprocket, belt, crank or spring, nothing to get out of order, the speedy operation brought about by the fact that you need scarcely move from one position throughout the process of block manufacture, the saving in material because of accurate construction etc., etc.,—reasons why The Ideal is "the most profitable machine in a most profitable business."

A postal from you brings our literature—gives us the chance to tell you how to get in line for big profits.

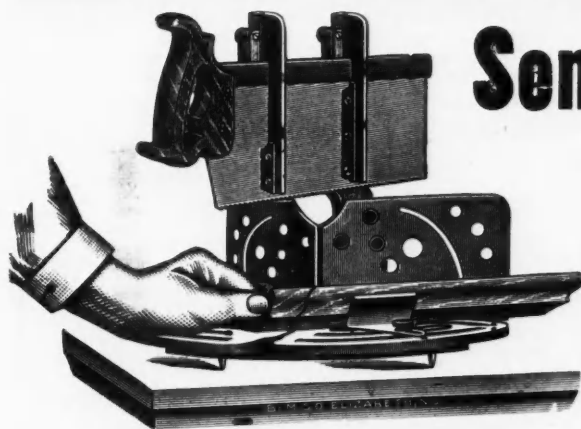
IDEAL CONCRETE MACHINERY CO.
London, Ontario 416 N. Emerick St., South Bend, Ind.

Ten
Substantial
Reasons
Why You
Should
Purchase the
Climax
Line of
Furnaces,
Stoves and
Ranges—
and no other.



1. Because the line has been well and favorably known in every City, Village, and Cross-roads in the United States, for more than forty years.
2. Because the line we sell directly, or indirectly, and have field Agencies to look after, and take care of our business, as well as that of our customers.
3. Because you get a Factory Guarantee on your whole outfit.
4. Because your heater is made by, and installed by practical men—ones WHO KNOW HOW TO DO IT.
5. Because you can burn any kind of fuel in the CLIMAX—even the refuse from other Furnaces.
6. Because the furnaces are made by stove-plate Molders, of stove-plate material; all brand new, and not half old junk.
7. Because of improved principle of combustion, giving you over-draft, down-draft—any kind of draft.
8. Because equipped with large double feed doors—big enough to drive in pony and cart.
9. Because has a Cast Iron Smoke Pipe.
10. Because we sell all our heaters under the strongest guarantee, that they will do the work—or no pay:—BEWARE OF TRAPS FOR THE UNWARY.

THE TAPLIN, RICE-CLERKIN CO., MFRS., AKRON, OHIO
The Only Stove and Furnace Folks Send for Catalogues



Sent on 10 Days Trial

The Famous Dorn Revolving Miter Box. Will saw compound as well as plain miters any width with a back saw 4 inches wide.



Compound Miter

Send for Booklet Called "Tools That Last"

OUR "CHISEL" GUARANTEE

We guarantee that our chisels will hold their edge all day with one sharpening, even if used on quartered oak across the grain

Chisels look simple, but there is no tool of which such hard work and varied service is required. Recognizing this we have given the choice of the steel, regardless of cost, and the design of these chisels, the most extensive study and experimentation, and in their manufacture the greatest care and highest order of skill is employed

SPECIAL OFFER

To further increase the number of carpenters who insist on having B. M. Co. Chisels we will sell direct to readers of the American Carpenter and Builder, express prepaid any chisel or set of chisels with privilege of returning after ten days trial if they do not prove to be the BEST EVER USED.



BEVELED EDGE BUTT CHISEL



SOCKET BUTT CHISEL

BRAUNSDORF-MUELLER CO., - Elizabeth, N. J.



**The Carpenters Ever Ready
DOOR CLAMP**

Durable, Efficient and Inexpensive

Saves cost in time and labor on one job. Holds doors firmly on edge while hinges, lock and other attachments are being fitted. Adjustable to any width of door. Clamping faces padded to prevent injury

**SATISFACTION GUARANTEED
OR MONEY REFUNDED**

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Price so low you can't afford to be without one.

**WILLSHIRE CLAMP CO.
WILLSHIRE, OHIO**

THE NEW SASGEN CIRCLE SWING DERRICK

No Stiff Legs
No Guy Lines



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

Fully equipped. Ready for
F. O. B. Chicago
\$35.00

Sold on trial to all reliable contractors. Catalogue FREE.

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SASGEN BROS.,
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CHICAGO, ILL.
New York Office: 103 Park Ave., N. Y.

"Sterling" Convertible Level

Two Instruments in One



The only perfect Builders' Level made that can be converted into an Instrument for Vertical Sighting.

Price complete \$68.00

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Sole Manufacturers
Iszard-Warren Co., Inc.
136 N. 12th St. PHILADELPHIA, U. S. A.

LUFKIN

Tapes & Rules

are Standards of Accuracy, Durability and Workmanship.



SEND FOR CATALOG
THE LUFKIN RULE CO.
NEW YORK LONDON, ENG. WINDSOR, CAN
SAGINAW, MICH.

STAR HACK SAWS

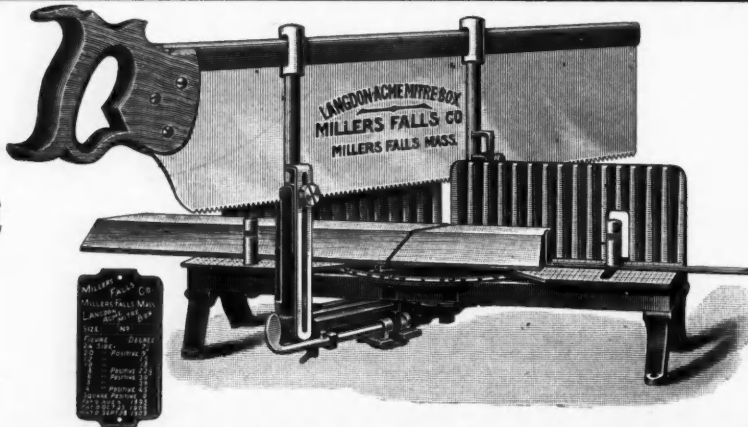


No one, minister, doctor, carpenter or farmer can afford to be without a Hack Saw. They cut everything from chalk to steel and are as useful about the home as a hammer. No tool kit is complete without one. We are headquarters for the famous Star Hack Saw Blade and make Frames for them in a great variety of styles, all of which are illustrated in our catalog.

Ask for a catalog and it will be sent to you.

MILLERS FALLS COMPANY, 28 Warren St., NEW YORK, N.Y.

THIS IS THE MITRE BOX YOU WANT

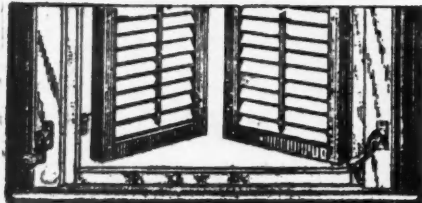


It's a LANGDON ACME and is made in three sizes put up with varying lengths of saws.

The advantage over other styles are too numerous to mention in this advertisement, but our pocket catalogue tells the whole story. You can have one of the catalogues by asking for it. It illustrates our full line of tools.

Millers Falls Company
28 Warren St., New York, N. Y.

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.

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



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 blind stop and prevents rattling.

MANUFACTURED BY THE

DIEHL NOVELTY CO. WISCONSIN

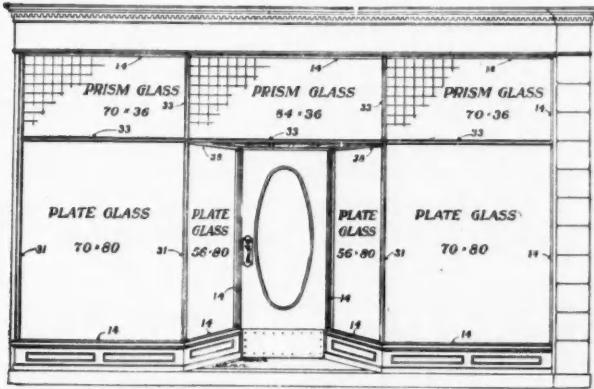
Just Out—Standard HANDBOOK OF ESTIMATING DATA

invaluable for Architects, Estimators, Contractors, Carpenters, Masons, Plumbers, Tinsmiths, Painters, and all others engaged in the building trade. Full of facts, not formulas and so simple that every item can be readily understood by anyone who can read. No useless padding to make the book look bigger. Every page worth the price of the book.

PRICE ONE DOLLAR

The Builders' Auxiliary Co., 325 Old South Bldg. BOSTON, MASS.

Ask for particulars of the "Builders' Auxiliary" the latest and most efficient system of recording estimates and keeping cost accounts, for building contractors.



ARTISTIC STORE FRONTS

The most artistic are those in which the Petz System has been used. It not only is the most artistic, but what is more important, it is the strongest, most rigid and permanent device for the purpose.

Hundreds of architects always specify "Petz Bar" and builders who give the matter study insist upon its use.

If you are interested, write to us today for our booklet, "Modern Store Front Construction," which illustrates its various forms.

DETROIT SHOW CASE CO.,

Sole Makers,

491 West Fort St., Detroit, Mich.

ON INLAND SEAS



YOUR VACATION TRIP

ALL the important ports on the Great Lakes are reached regularly by the excellent service of the D. & C. Lake Lines. The ten large steamers of the fleet are of modern steel construction and have all the qualities of speed, safety and comfort.

The D. & C. Lake Lines operate daily service between Detroit and Cleveland, and Detroit and Buffalo, four trips per week between Toledo, Detroit, Mackinac and way ports, and two trips per week between Detroit, Bay City, Saginaw and way ports.

About June 25 a special steamer will leave Cleveland twice a week direct for Mackinac, stopping only at Detroit every trip and Goderich, Ont., every other trip.

Send two-cent stamp for illustrated pamphlet and Great Lakes map.

Rail Tickets available on steamers.
Address L. G. LEWIS, G. P. A., Detroit, Mich.
P. H. McMILLAN, Pres. A. A. SCHANTZ, Gen. Mgr.

Detroit & Cleveland Nav. Co.



**DO
YOU**

*Consider
The COST
of GRINDING*

WHEN BUYING EDGE TOOLS? Did You ever stop, consider and *FIGURE* that *TIME, MONEY, and PATIENCE SPENT* on *INFERIOR TOOLS* requiring continual sharpening is greater than the purchase price? Do you add the grinding expense to the price paid for your tools, or do you make the mistake of judging the cost only by the price you pay the dealer?

Save Money BY LESS GRINDING Make your first cost the last cost. Buy *WHITE'S Edge Tools* and they'll save enough in grinding to pay for themselves. They're **GUARANTEED PERFECT** in *quality, shape, material and temper*, for any wood, any job, at any time, always ready, sharp, accurate and perfect. The **BEST TOOLS** for **BEST WORK**. It'll pay you to buy **White's Edge Tools**. If not at your dealer, furnish us his name and secure our latest catalogue.

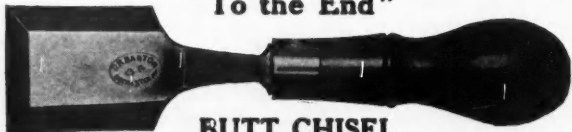
The L. & I. J. WHITE CO

143 Perry Street, Buffalo, N. Y.

LOOK FOR IT
DEMAND IT
ACCEPT NO
OTHER



"Last a Lifetime and Give Satisfaction To the End"



BUTT CHISEL

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

TRADE MARK



THE CELEBRATED BARTON TOOLS

send direct for catalogue. Be sure to specify "CARPENTER'S CATALOG."

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

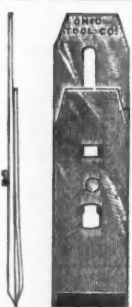
Don't Ask the Dealer for Sash Cord. Ask for

"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.



SEE THAT IRON

It prevents chattering and trembling when used on hard or knotty timber, works equally well in soft wood.

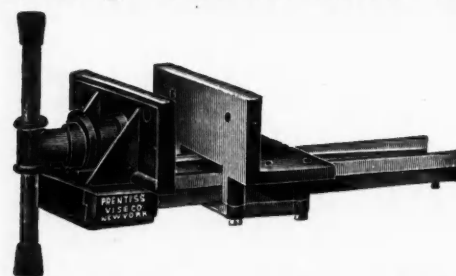


Mechanics will find a most satisfactory line of tools stamped under the trade mark shown here. We manufacture a complete line of **Planes, Iron and Wood, Auger Bits, Chisels, Draw Knives, etc.**

Ohio Tool Co.
(Dept. A)
Columbus, Ohio
Auburn, N. Y.



BLAKE QUICK ACTING VISE



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



SAMSON SPOT SASH CORD



TRADE MARK

Be sure that the cord you buy has **SAMSON AND THE LION** on the label, and that the braid is marked with the **COLORED SPOT**. You may be sure you'll get the best.

WE'RE GLAD TO SEND SAMPLES AND FULL INFORMATION.

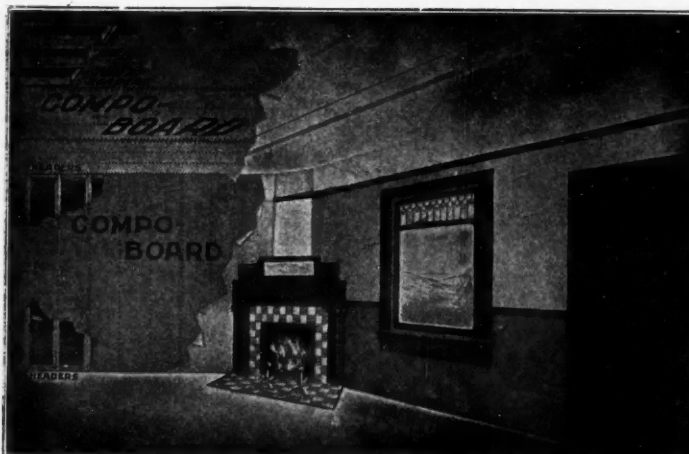
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COMPO-BOARD

A substitute for Lath and Plaster. Can be put on by any Carpenter. It is Warmer, more Durable, Quicker and more Easily Applied. Manufactured all 4 ft. wide, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17 and 18 ft. long.

For Sample, Price and full Description, Write

Northwestern Compo-Board Co.
4800 Lyndale MINNEAPOLIS, MINN.



BURLINGTON



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

Venetian and Sliding BLINDS Screens and Screen Doors

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

PHOENIX INSIDE SLIDING BLINDS

WILKES BARRE, PA.

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

**Comfort!
Economy!**

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.

Convenience! PHOENIX SLIDING BLIND CO.
BRIDGE & CANAL STS. PHOENIX, N. Y.

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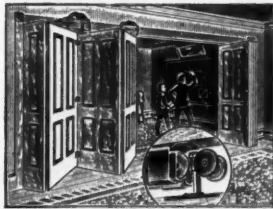


We make several different styles, all good. Get our free Catalogue, No. 186, of the largest line of Fine Tools for all kinds of mechanics.



The L. S. STARRETT CO.
Athol, Mass., U. S. A.

What a convenience are folding doors.



Richards No. 135 Swivel Hangers
It contains Hanger information you may require on special work

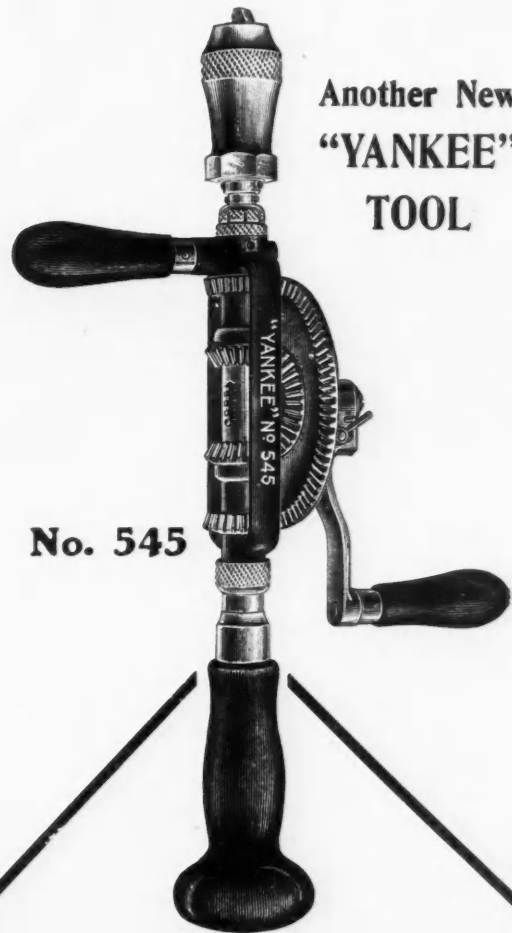
They are properly applied when hung with Richards Ball Bearing Swivel Hangers specially made for this purpose.

Every builder should know about these.

Ask your hardware dealer. Shall we send you our architects catalogue?



WRITE US TODAY.
RICHARDS MANUFACTURING CO.
AURORA, ILL.



Another New "YANKEE" TOOL

No. 545

"YANKEE" HAND DRILL

With Automatic Double Ratchet Adjustable Ball Bearings Cut Gears

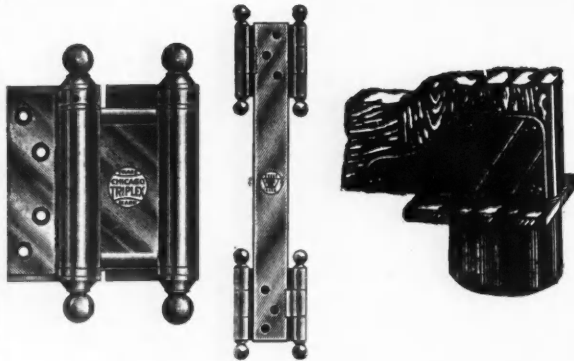
Another new "Yankee" Tool with all the advantages of the popular No. 555, but a little smaller and more convenient for general work. Will take either round shank or bit stock drills. Has a magazine ball handle for Drill Points. Furnished with one or two speed and with two or three Jaw Chuck. Ask your dealer to show it to you.

Send for "YANKEE"

Tool Book—it's FREE

North Bros. Mfg. Co.
Dept. A. PHILADELPHIA, PA.

CHICAGO SPRING BUTTS



A PRODUCT OF RECOGNIZED SUPERIORITY

combining all the valuable features which experience has demonstrated to be desirable.

Chicago Spring Butt Company,

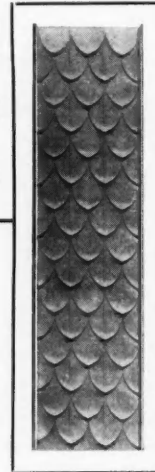
CHICAGO



NEW YORK

Send for Catalogue C-26.

Our Metal Cost No Wooden



Shingles More Than Shingles

Suitable for any roof having a pitch of at least 3 inches to the foot.

Weatherproof
Lightning-proof
Fireproof
Lasting

Picture shows 2 x 8 ft. sheet of 28 gauge galvanized iron, with pressed standing seam edges. Made in 6, 8 or 10 foot lengths. Shipped anywhere west of Mississippi river.

CLUSTER METAL SHINGLES

—make a much better roof than the best of wooden shingles, and the erected cost is the same or less. Our Cluster Metal Shingles, with the standard P. S. S. edge, are just as attractive and as durable as the small metal shingles with the patent side-locks, and the cost is less.

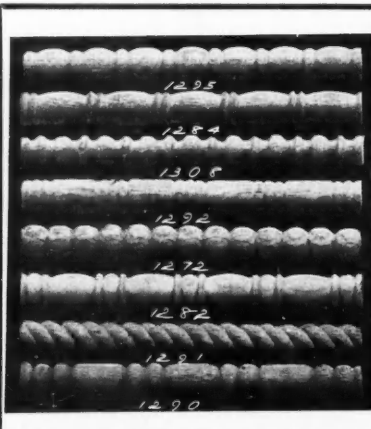
Honestly now, why pay more?

All Kinds of Roofings and Metal Roof Trimmings

St. Paul Roofing, Cornice & Ornament Co.

"The Leading Sheet Metal Plant of the West."

St. Paul, Minnesota



Wood Carvings for Interior Finish

Our beautiful Catalogue No. 21 will be sent upon receipt of 15 cents in stamps. Our product is of the highest grade, and too large to list here.

Write today

Waddell Mfg. Co.
Corner of Taylor and Coldbrook Streets.
Grand Rapids, Michigan

A Novice Can Set a Saw As Well As An Expert

THE "SPECIAL" SAW SET

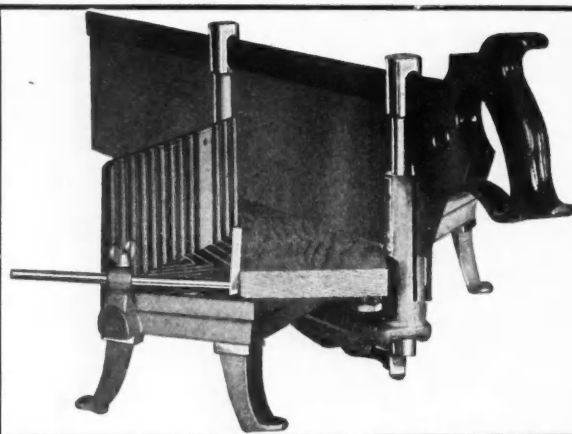


If He
Uses

A "SPECIAL" SAW SET.

Just set the anvil to the number of points to the inch of your saw, and run up the gauge screw until the saw goes through without binding. That's all.

Chas. Morrill 271 B'way New York



MARSH-AYER BOXES cost more to manufacture than any other; but they cost you no more. We are satisfied with a small profit, and you get more for your money.

Saw and all attachments are included.

Size	Saw	Capacity at Miter	Price
A26	26x4	7 inches	12.50
B28	28x5	7 inches	13.75
B30	30x5	7 inches	14.00
C30	30x6	7 inches	15.50

Illustrated circular on request.

H. C. MARSH COMPANY

606 Race Street

Rockford, Illinois

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The
**World's Greatest
Building Paper**

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The
**World's Greatest
Building Paper**

American Carpenter and Builder

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

Published on the first day of each month by
AMERICAN CARPENTER AND BUILDER COMPANY
185 JACKSON BOULEVARD, CHICAGO
NEW YORK OFFICE, 178 FULTON STREET

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SUBSCRIPTION RATES

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ADVERTISING RATES

Furnished on application. The value of the AMERICAN CARPENTER AND BUILDER as an advertising medium is unquestioned. The character of the advertisements now in its columns, and the number of them, tell the whole story. Circulation considered, it is the cheapest trade journal in the United States to advertise in. Advertisements, to insure insertion in the issue of any month, should reach this office not later than the 20th of the month preceding

To Improve Furnace Heating

FROM an address delivered at the recent national convention of Master Sheel Metal Workers, held in Philadelphia, it appears that the leading manufacturers of warm-air furnaces have decided to rescue and redeem warm-air heating. Every builder is familiar with the way the good-natured, warm-air furnace has been overworked. Being so very expansive, a child-size furnace has—more than half the time—been forced to do a man's size job of heating. And the result has been satisfactory neither to the owner, the contractor nor the furnace manufacturer.

To bring about a much-needed reform, the Federal Furnace League, an association of some 34 of the larg-

est manufacturers of warm-air heating goods in this country, has adopted a uniform standard method of furnace ratings. Also approved installation methods are to be insisted upon. In his address before the sheet metal workers, Charles S. Prizer, President of the Federal Furnace League, outlined the new plan, and told what was hoped to be accomplished.

Its chief features are the placing of correct, authoritative capacity ratings upon the warm-air furnaces manufactured by the members of the League, at the same time furnishing to architects and heating contractors correct definite, standard rules for the installation of their furnaces.

In the past it has been alleged that the capacity ratings assigned in "cubic feet" to their furnaces by many of the manufacturers showed too wide variations between minimum and maximum capacity and were indefinite and misleading.

It has also been alleged that many furnace manufacturers failed to furnish correct or definite rules for installing their furnaces.

This new system of standardization in capacity ratings and rules of installation, will remove all cause for these complaints so far as the members of the Federal Furnace League are concerned. Their furnaces will be scientifically tested by a competent heating engineer employed for the purpose. These tests will be absolutely impartial and will all be made in a building which the League has erected for the sole and special purpose of conducting such tests.

These tests will be made under uniform rules, uniform methods and uniform conditions. No member will be permitted to fix or assign his own ratings, but must take the ratings on his different furnaces as determined by the League tests.

Every furnace rated by the League will have its official rating published in the catalog of the member who manufactures it. This official rating will also be affixed to the front of the furnace on a plate designed for that purpose or will be permanently cast thereon.

The capacity ratings of heating apparatus and the rules for installation have never been authoritatively standardized for any other than the warm-air furnace

method, and this standardization in the furnace business, which is now an accomplished fact, has been rendered possible only by a strong organization among the manufacturers of the apparatus.

This organization, their president states, has been instituted and will be maintained, not for the purpose of attempting to regulate or influence the selling prices of furnaces, but to improve the structural merits of the apparatus, to elevate the standard of warm-air furnace installation and to educate physicians, architects, builders and the public to an appreciation of the great sanitary and practical advantages of warm-air furnace heating.

The rules of the Federal System are simple, easily understood and easily applied, yet wherever they are applied, errors and faults in the installation of furnaces will be at an end.

The League proposes, through a comprehensive and continuous scheme of advertising in the heating trade publications and architects' journals, and through the persistent use of its extensive mailing lists, to establish its plan of standardization so completely that there will be no excuse for the planning by an architect nor the installation by a contractor of a single imperfect or inadequate warm-air heating plant anywhere in the United States.

◆ Red Oak for White

IT will surprise most persons who know something about oak to be told that the so-called white oak timber of our markets is often a mixture not only of various species of the white oak group, but also of other species, such as the red oak. This generally unknown fact is reported by the U. S. Department of Agriculture, which, as a part of its forestry work, is frequently called upon to pass judgment upon the identity of market woods in dispute.

Foresters divide all the oaks into two distinct groups—the white oak group and the black oak group. One way of distinguishing the two is by the fact that the black oaks require two years to mature their acorns, while the white oaks take but one. The woods of the two groups of oaks are also structurally different. The true white oak, known to botanists as *Quercus alba*, is merely one of the species which make up the white oak group. Red oak, on the other hand, belongs to the black oak group. Red oak has a number of other common names, among them mountain oak, black oak and Spanish oak.

There is so much confusion in the ordinary use of names of the oaks that it is almost impossible to keep them straight without resorting to the scientific names, but the marketing of wood of the black oak group as white oak is hardly fair to the consumer. Red oak, for instance, is now much more abundant than white oak, grows faster, and is generally regarded as inferior. The two species often grow together and occupy the same general region.

In the early days of its abundance, market white

oak was derived almost entirely, it is safe to say, from *Quercus alba*, the true white oak. This species combines approximately the utmost strength and toughness of any of the timber oaks, excepting possibly the southern live oak, which in the colonial days was so highly prized for ship-building that it was protected by special laws. The immense inroads made upon the then apparently inexhaustible white oak forests, which stretched from the Atlantic seaboard to about Missouri, gradually so reduced the supply that the use of other species became inevitable.

At the present time it is almost impossible to obtain a consignment of white oak that does not contain pieces of some other species. Of the white oak group those most used, in addition to the true white oak, are burr oak, chestnut oak, chinquapin oak, post oak, swamp white oak, cow oak, and overcup oak; of the black oak group, Texas red oak, red oak, and spotted or water oak.

Real white oak timber of number one quality is very largely cut into quarter-sawed boards, while a combination of one or more white oaks and red oak may constitute other cuts of "white oak." In many markets, the term "cabinet white oak" is now understood to include a mixture of white oak and red oak, while it often signifies red oak only.

The question, "What is white oak?" is now coming up among consumers and manufacturers of commercial oak timber. The above-named white oaks are distinct but closely related species, which, together, must be depended upon for the future supply. For the ordinary purposes for which true white oak is used, practically all the trees of this group yield woods that can be interchanged and will serve equally well.

◆ The Ratepayers' Lament

They took a little gravel, and they took a little tar,
With various ingredients imported from afar.
They hammered it and rolled it, and when they went
away,
They said they had a pavement that would last for
many a day.
But they came with picks and smote it, to lay a water
main;
And in time they called the workmen to put it back
again.
To run a railway cable they took it up once more;
And, later, put it back again, just where it was before.
They took it up for conduits to run the telephone;
And then they put it back again, as hard as any stone.
They took it up for wires to feed the electric light,
And then they put it back again, which was no more
than right.
Oh, the pavement's full of furrows: there are patches
everywhere;
You'd like to ride upon it, but it's seldom that you dare.
It's a very handsome pavement, a credit to the town;
They're always digging of it up, or putting of it down.

—Selected.

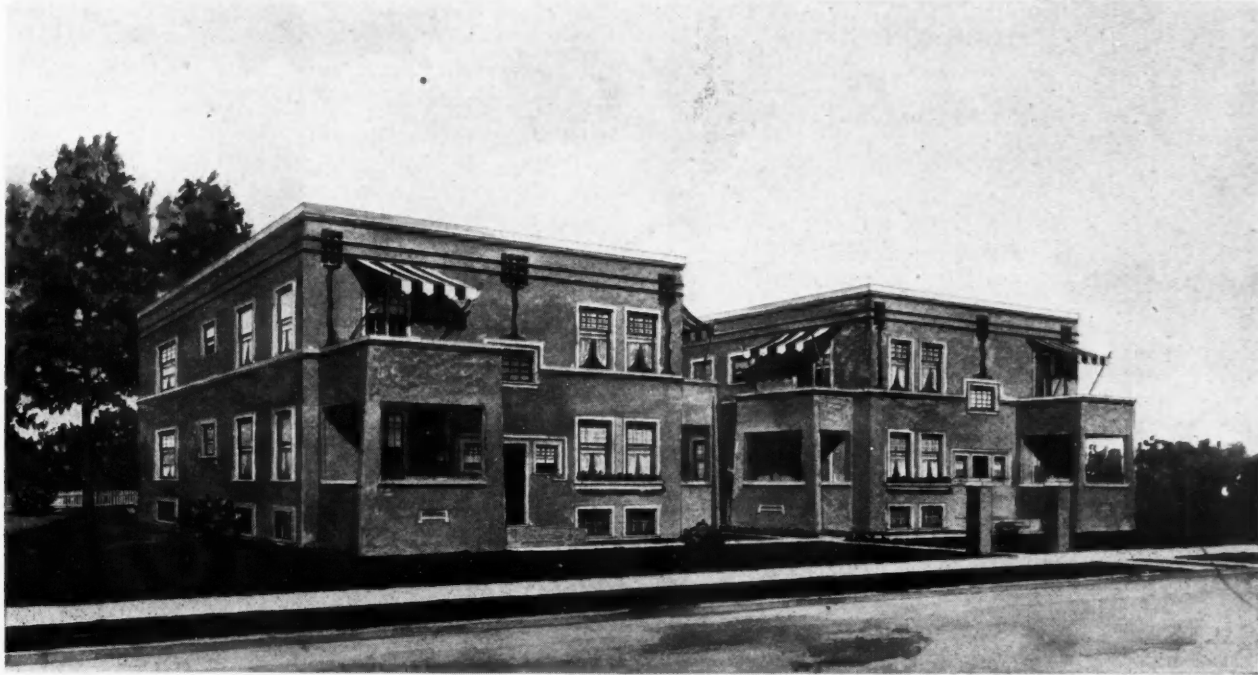
Economy of Space in Building

MODERN APARTMENT BUILDING DESIGNED TO USE "DISAPPEARING BEDS"—WHAT THESE BEDS ARE BOTH AS CONVENIENCES AND INCOME PRODUCERS

OF the many improvements in the builders' art during recent years, none surpass those pertaining to the interior arrangement and conveniences of our dwellings. Comfort, convenience, health and economy—these constitute the four-fold end

ening the household work, at the same time economizing on space. Now this latest innovation seems to complete the work along this line.

In the apartment building, perspective and floor plan of which are illustrated herewith, it will be seen that



Group of Three Buildings, Each Containing Four 3-Room Apartments Equipped with Disappearing Beds

aimed at and, in the best work today, most substantially secured.

Perfect and automatic systems of lighting, heating and ventilating have been perfected, lessening household duties and insuring hygienic conditions. And to a large extent "built in" fixtures now take the place of movable furniture formerly employed. These include gas ranges, refrigerators, sideboards, bookcases, seats, mirrors and other expensive and essential articles that go far towards furnishing a house.

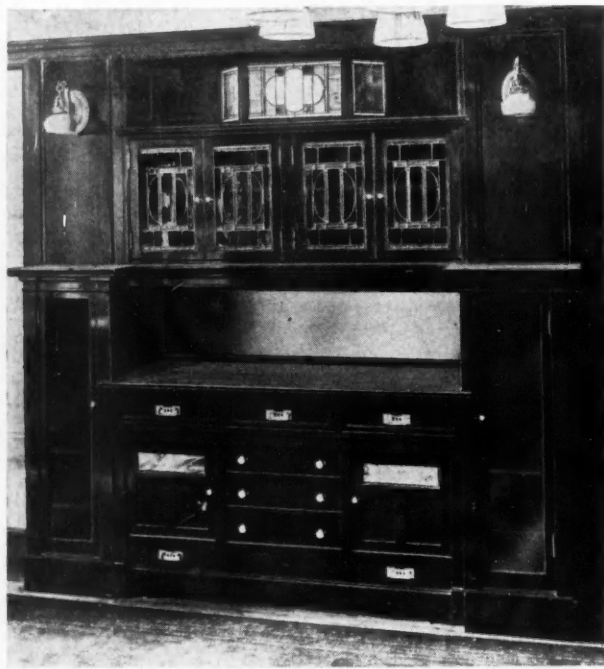
And now a new "built in" feature, the "disappearing bed," has made its appearance, an innovation offered in the interests of the newest idea,—*economy of space*.

Although it must be acknowledged that in the *ideal* state of existence there would probably be no such thing as crowding, nor no need for the economizing of space when planning a residence, still for most of us pretty strict economy in this, as in most other things, is necessary. With the price for building lots where it is, and with the cost of construction now 'way up in the clouds and going higher, there are very few of us who can afford to build *large* just for the architectural effect! Most like to figure to put every square foot of space to use—and to the more uses the better. The built-in features previously used have done much good in this way, increasing the convenience and less-



3-Room Apartments with Accommodations Equal to 5 Rooms

by the use of these disappearing beds, a three-room apartment serves all the purposes of the ordinary five-room suite. This group of apartments is to be erected this fall in Milwaukee near the New Wisconsin State Normal School, the intention being to rent them to the students and teachers. A monthly rental of \$30 will



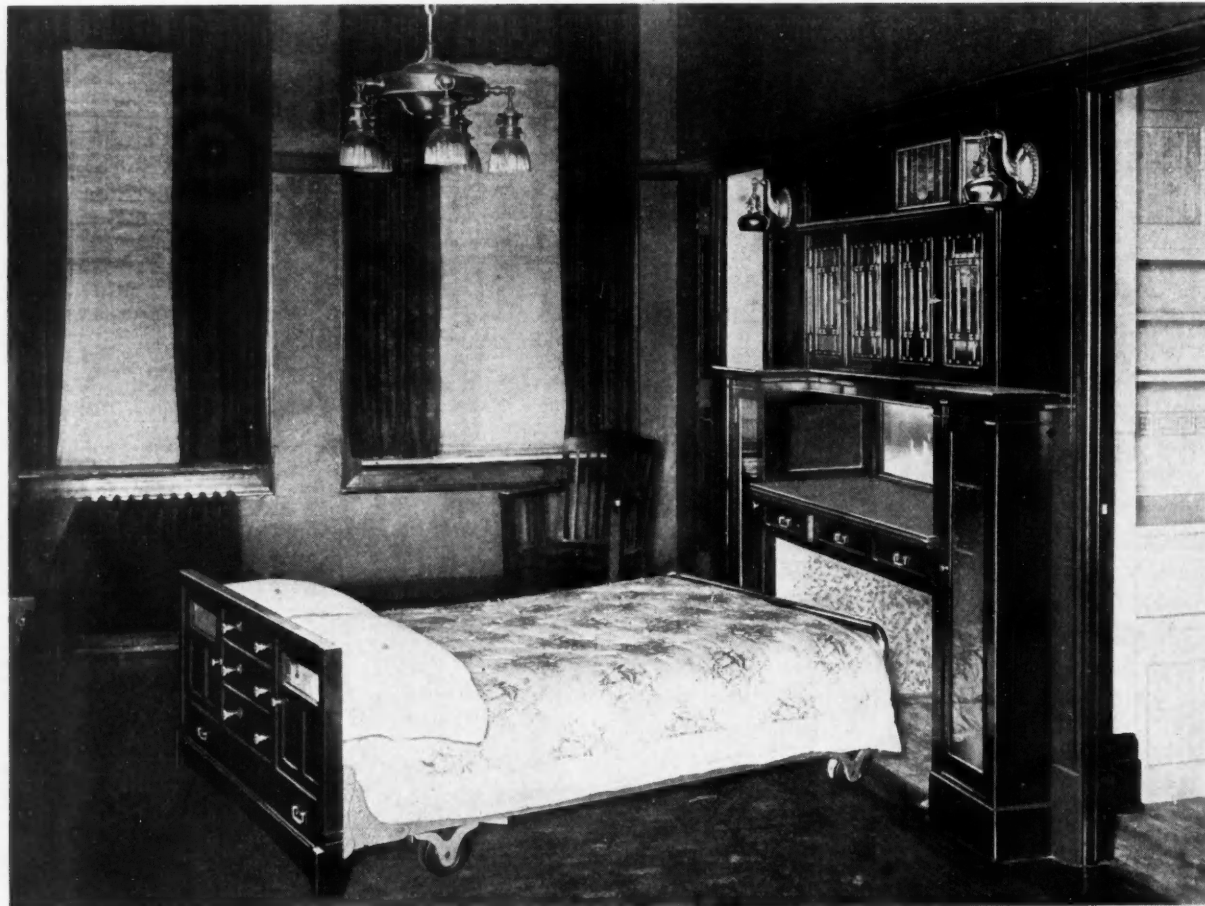
By Day—Beautiful Dining Room Buffet

very easily be obtained from each of these 3-room apartments (a very reasonable price when the accommodations and conveniences of these rooms are considered, together with the fact that with all their built-in features they are almost *furnished* when the builders

get through). The contract cost for each of the two-story buildings comprising this group is \$5,300. Comparing this with the yearly income, \$1,440, and making all allowances for taxes, heating, value of the land, repairs, etc., the exceptional qualities of this kind of building as an investment become very apparent.

Glancing at the floor plan sketch, we see the arrangement by which this new feature, the disappearing bed, gives to these 3-room apartments the accommodations of five rooms, as ordinarily planned. There is a living room, 15 by 13, and a dining-room, 11 by 13; also a kitchen, bath room and hall. The distinctive feature lies in the space between the living and dining-rooms, combined with the "seat" in the former and the "buffet" in the latter. The disappearing beds roll into ventilated, galvanized iron boxes placed underneath the raised floors of these two "dressing closets," the head-board of each bed being a part of the design, respectively, of seat and buffet. In this way no extra, *special* room is needed for sleeping purposes. The dressing closet off the living room is of ample size to hold the dressing case and the wardrobe for general clothing; and thus everything except the regular living room pieces is effectually shut away during the day when not in use. Likewise the dining-room supplies its sleeping accommodations, also, in case of need.

It might be interesting to note that the disappearing bed is but a return, under vastly improved conditions



By Night—Bed Rolled Out to Any Part of Room. Note Large, Rubber Tired Wheels



This Bed Goes in Sidewise—A Cupboard or Seat in Adjoining Room Covers the Bed Recess

of course, to first principals. In the dwellings of our remote ancestors, rude in construction and small in dimensions, space was an all important matter, and beds when not in actual use, were stored away in nooks and crannies provided for that purpose. One of the earliest references to the folding bed, which enjoyed popularity for a generation in this country and prepared the way for something better, is found in "The Deserted Village"—"The bed contrived a double debt to pay; a bed by night, a chest of drawers by day." For generations the "trundle bed" was in almost universal use in this country and brought "Tired nature's sweet restorer" to thousands of children destined later to achieve eminence. The trundle bed was one of the greatest economizers of house space ever devised and its passing was so recent that pleasant memories of it still linger with those who do not like to be accounted old.

With the folding, wall and trundle beds, things of the recent past but not entirely abandoned, it is not strange that ingenuity should have devised a practical household fixture, in the form of this patented disappearing bed that requires no valuable space, being made to disappear horizontally into a recess architecturally designed to receive it. To Lawrence Holmes

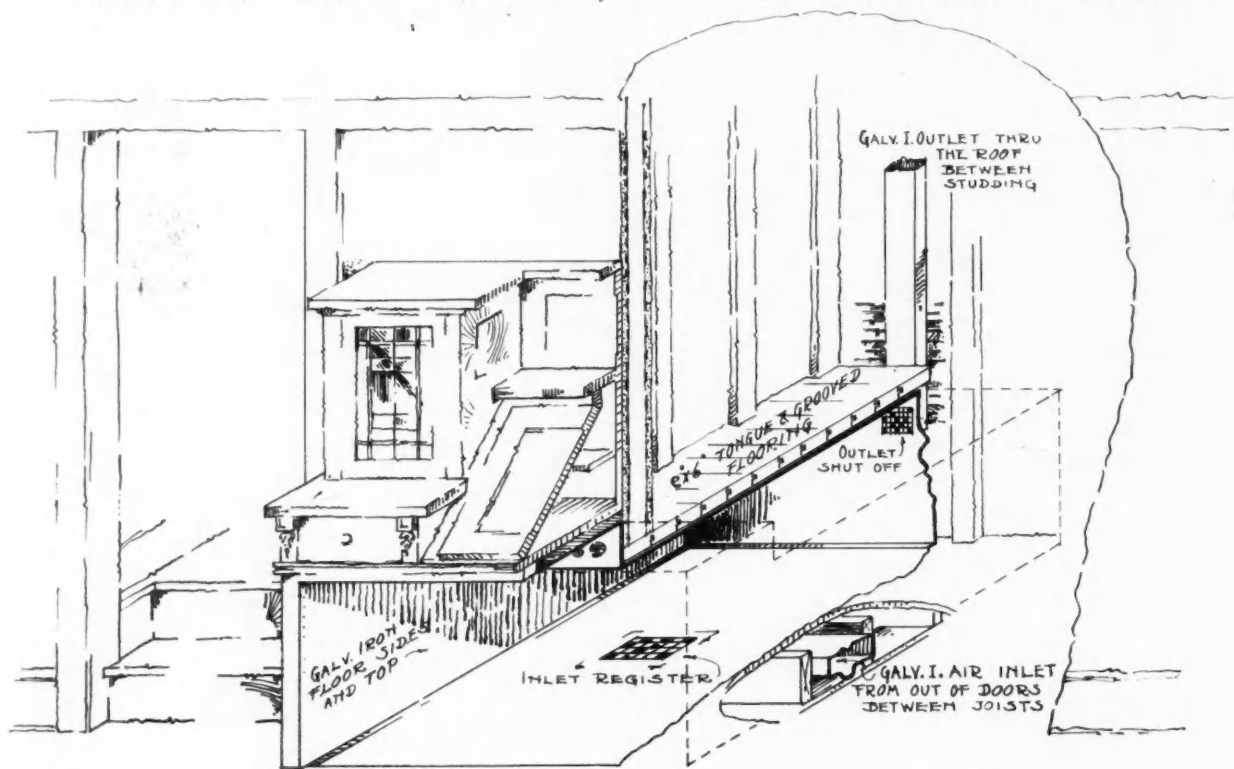


And at Other Times It Is a Beautiful Book Case and Desk

of Los Angeles must be given the credit for this invention.

While the idea is now comparatively new, it has passed beyond the experimental stage. In Los Angeles, San Francisco, Seattle, Denver, Salt Lake, Kansas City

working drawings tell the whole story. The ventilation and sanitation are two of the most important features and should not be overlooked. From the drawings showing the construction, it will be seen that a current of fresh air, drawn from the outside, is made



DETAIL & SECTION SHOWING GALV. IRON BED RECESS

and Chicago, many residences, apartment houses, flats and hotels have already been built, making use of this feature; and the popularity of the idea has been amply demonstrated. Economy of space, of money and of

to pass through the galvanized iron recess or box, where the bed is located during the day, thus ventilating the bed clothing as thoroughly as if placed on a line in the yard. The bed with bed clothing, shut



A Seattle Bungalow, With Writing Desk and Bed—Now You See it and Now You Don't!

women's strength seems to plead strongly for it, insuring a favorable reception.

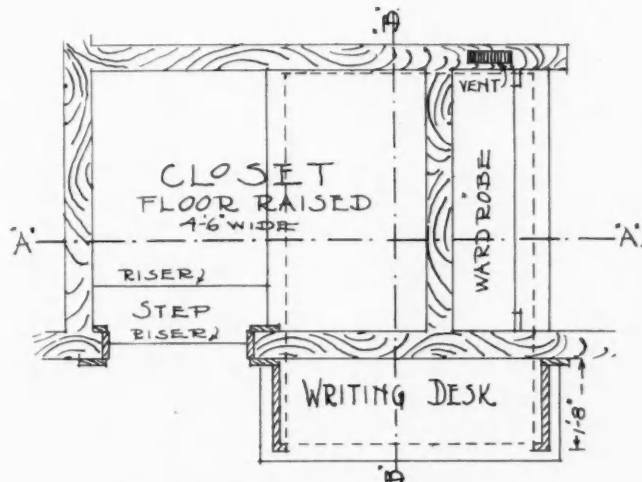
As to the details of the construction and arrangement for these beds, the accompanying photos and

away in this iron recess, is protected from the ordinary dust of the room; and, in case of contamination or vermin, is in a natural fumigating cabinet.

The bed is cleverly constructed upon large rubber-

tired rollers and rolls with the ease of a bicycle, forward and backward to any portion of the room. A short guide track, screwed to the floor just within the recess, keeps the bed from rubbing the sides of its box when run in. It will be noticed that no matter what particular piece of furniture conceals the bed—whether buffet, bookcase, writing desk, dresser, wall seat, or what—the rooms are always arranged so that the space above the bed recess may be utilized as a wardrobe, dressing

space in building, as well as by others who are on the lookout for money making features for their renting properties or for improved conveniences for the home. The imagination readily conjures up a vision of the living room or library in the home quickly changed into a spare bed room, the nursery into a play room, the balcony into a sleeping porch, the single room in the hotel of the future, transformed by day into an attractive sitting room, fit for the entertainment of

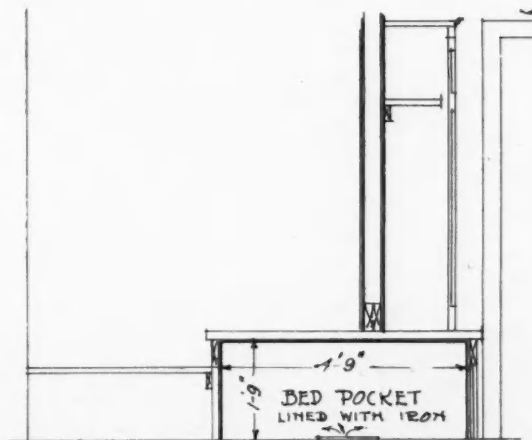


ONE OF MANY PLANS

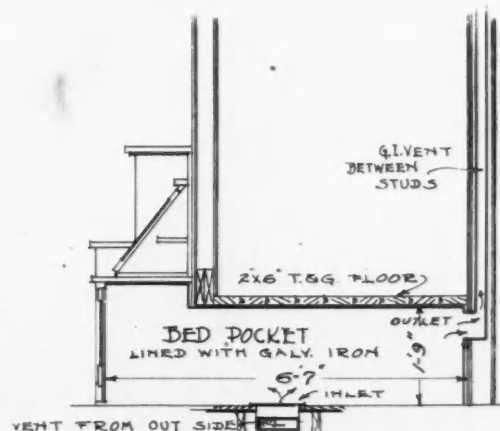
... WORKING DETAILS OF ROUGH OPENINGS ...
 REQUIRED FOR THE
 HOLMES DISAPPEARING BEDS



DESIGN FOR WRITING DESK



CROSS SECTION THRU A.—A.



LONGITUDINAL SECTION THRU B.—B.

room, bath room or pantry. The rooms have to be designed and built with this purpose in view. Which throws this disappearing bed business entirely out of the hands of the furniture dealer and makes it of special interest to architects, carpenters and builders. Moreover, the design and construction of the piece of furniture, of which the head-board of the bed is to be a part, is entirely optional with the one who is planning the house, and is left to the mill and to the carpenters to "get out" and put in place.

The advantages of this sort of an arrangement will be greatly appreciated by all who value economy of

callers or for the use of a sample room or temporary office. And we can easily see how with this innovation the two or three room suite in an apartment house or the family hotel and the four or five room flat, cottage or bungalow can be nearly doubled in potential space.

True to our fixed purpose of searching out the newest things in modern building which seem to be of practical interest or value to AMERICAN CARPENTER AND BUILDER readers, we take pleasure in being able to present this consideration of so novel and worthy a feature as this disappearing bed.

Entrance Arch for Templar Conclave

INTERESTING METHOD OF CONSTRUCTION USED FOR THE CASTLE ARCH SPANNING MICHIGAN AVE.
AT THE RECENT TRIENNIAL CONCLAVE OF KNIGHTS TEMPLAR

THE Thirty-first Triennial Conclave or Grand Encampment of Knights Templar held in Chicago during the second week of August, was memorable in a great many ways. Those who were fortunate enough to be present during that occasion will not soon forget the sight of those plumed ranks of Christian Knights—twenty thousand strong—marching staunchly in their modern crusade as did those first Templars of old.

To all who are familiar with the origin and early history of the Knights of the Temple from the birth of the Order in the year 1118 and through the bloody, heroic wars of the Crusades and who know the devotion and ideals of that stalwart band, the sentiment back of this great gathering of their descendants, the Masonic Knights Templar, was doubtless most interesting. To these the Triennial Conclave signified the capture of Jerusalem from the Saracens and its occupation by the Christian Knights. And they saw in this great organization something of the spirit of that of old.

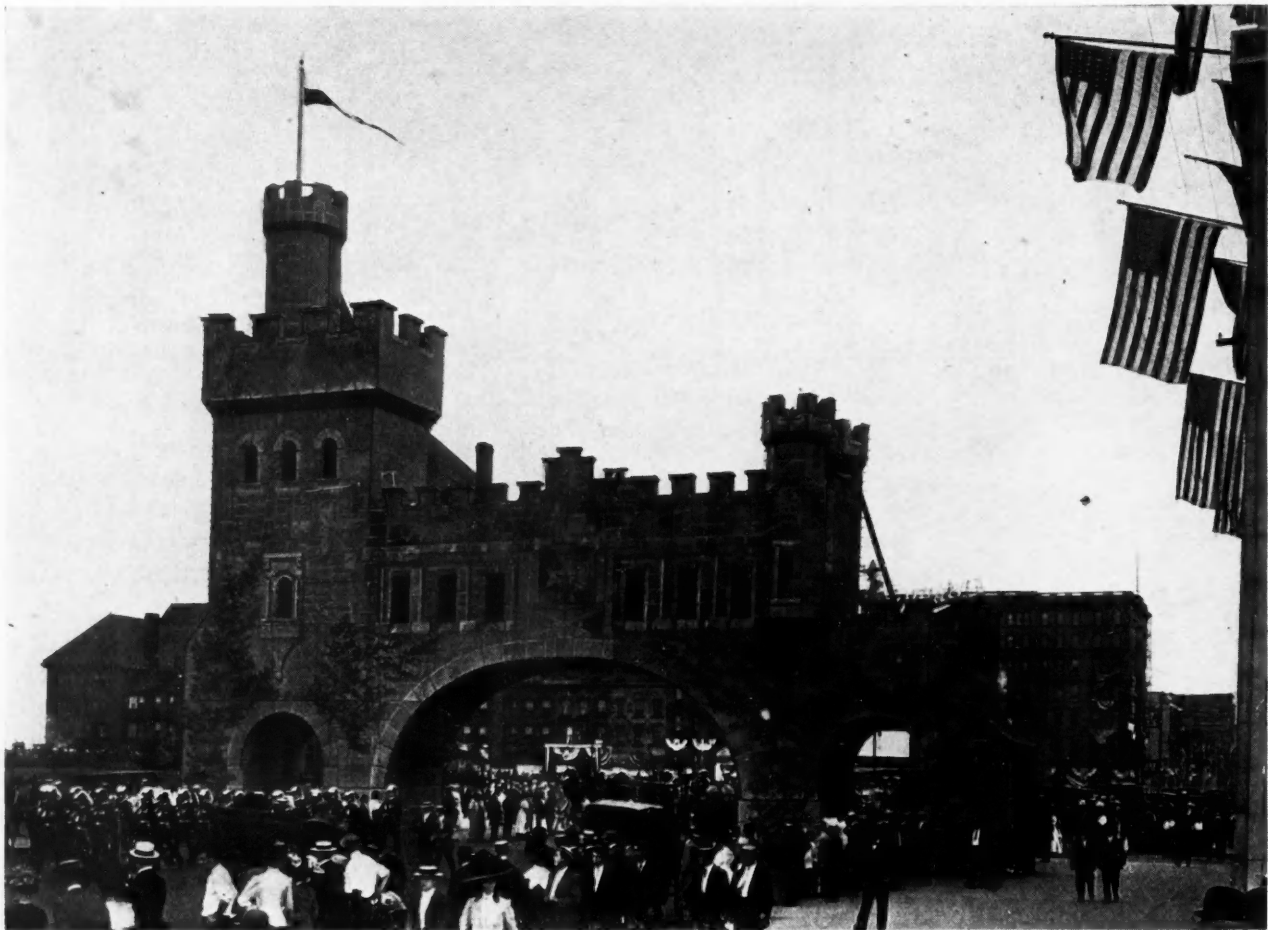
And for the spectators in general there was the wonderful display that will not soon be forgotten. In

addition to the splendor of the uniformed Knights themselves with their standards and trappings, it is safe to say that Chicago put on her decorations as never before.

With just the mere mention of the more usual features—the covering of all business buildings with flags and banners, the Grand Commandery Arch on La Salle Street, Templar Way on State, the official badge of the Conclave in colors, illuminated, and 130 feet high, standing in Grant Park, the immense reviewing stands, etc., all features to be remembered by those who saw them—we come to the great Entrance Arch spanning Michigan Ave. near Park Row. This we find to be not only a very beautiful and spectacular creation but also a piece of very interesting construction.

The accompanying photographs show this very well. They were taken especially for the AMERICAN CARPENTER AND BUILDER; one showing the finished arch and castle as it appeared on Monday, the day before the great Parade; the other, taken on the Friday preceding, revealing the method of construction.

Anyone viewing this fine old stone castle would



Ancient Battlement Serving as the Great Entrance Arch, with Sir Knights Passing in Review—View from the North

hardly think that it was built in three days and by *carpenters!* Yet such was the case. It is a very beautiful and elaborate piece of wood framing—covered over with painted canvas to represent the old, vine-covered masonry.

Perhaps the most interesting part of the construction is the framing to support the wide span of the central arch. A lattice girder, built up of 1 by 3 inch

on the city pavement and sidewalks, the one of asphalt the other of cement and neither permitted to be marred in any way, it did not at first appear what could be done to hold such a tall, narrow structure in place. Wind pressure—especially along the Lake Front—is a real force to be reckoned with; and some way had to be provided to keep this Castle right side up. The solution was rather ingenious. About ten



The Battlement 3 Days Earlier Showing Method of Construction—View from the South

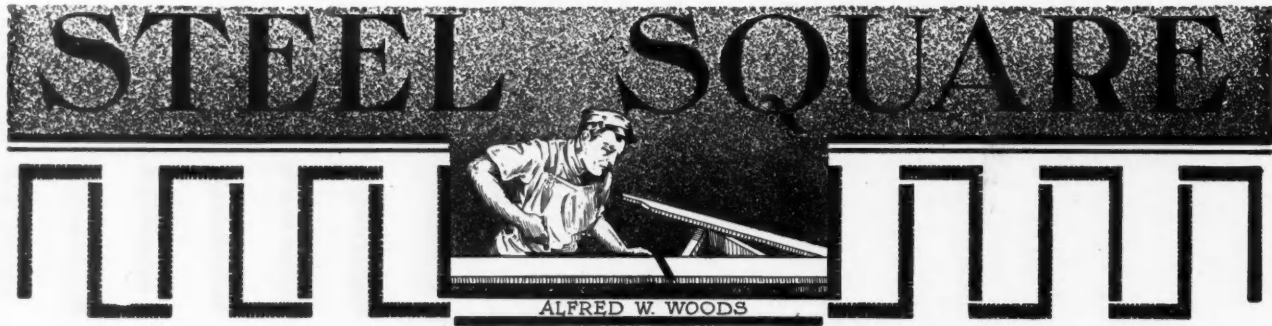
strips, and further re-enforced by a long curved member extending from one side to the other, makes a light but strong truss. This was assembled on the ground at one side and was swung into position complete. Thus the traffic on this boulevard, which is at all times very heavy, was not at any time interrupted.

The matter of providing a stable foundation for this structure seemed at first a serious problem. Located

tons of pig iron were placed in the bottom on the heavy 12 by 12 foundation timbers. This held the Castle with its towers and turrets firmly in position and helped it to serve its purpose as the Entrance Gateway to the beleaguered city.



Day dreams are all right; they furnish a target for ambition—but don't oversleep.



Problems of Roof Framing Solved

NINTH ARTICLE—USE OF AN IMAGINARY CUBICAL FORM FOR FINDING THE CUTS, BEVELS, ETC. FOR ANY SHAPED CORNER BY MEANS OF THE STEEL SQUARE

THE parts to take on the steel square for the cuts, lengths and bevels of all rafters, are contained in a cubical form, as a block, for regular or irregular corners, as the case may be; and this, in fact, is probably the best way to illustrate the different rafters in position, because it shows the unseen but necessary parts that must be taken into consideration to obtain the cuts, lengths, etc.

In Fig 23 is shown an imaginary cube of this kind, with the common rafter extending diagonally across its face, the width of the base representing its run and the altitude its rise; while diagonally through the form is shown the hip rafter, together with its run and rise. The jack rafter is also shown in its relative position and this will be seen to be a part of a common rafter as it is parallel with it. Therefore, its seat and plumb angles must be the same as for the common rafter, but another angle is required to fit against the hip. This

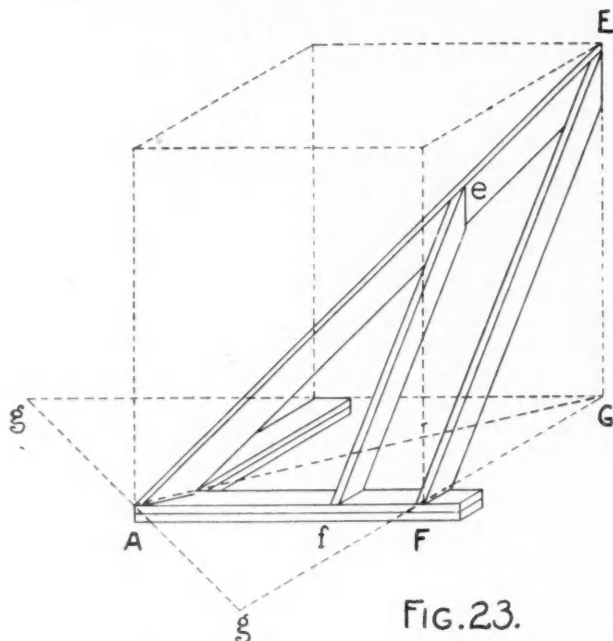


FIG. 23.

may be had by taking to scale on the steel square, the width of the base of the cubical form as AF, and the length of the common rafter, that is, the diagonal across the face as FE; and the angle for the cut will be found on the side of the square that represents the

length of the rafter. Or take the distance from the foot of the jack to the corner on which the hip rests, as Af, and the length of the jack, as fe; the cut will be found on the side of the square that represents the length.

The seat and plumb cut of the hip or valley is determined by its own run and rise, the former being

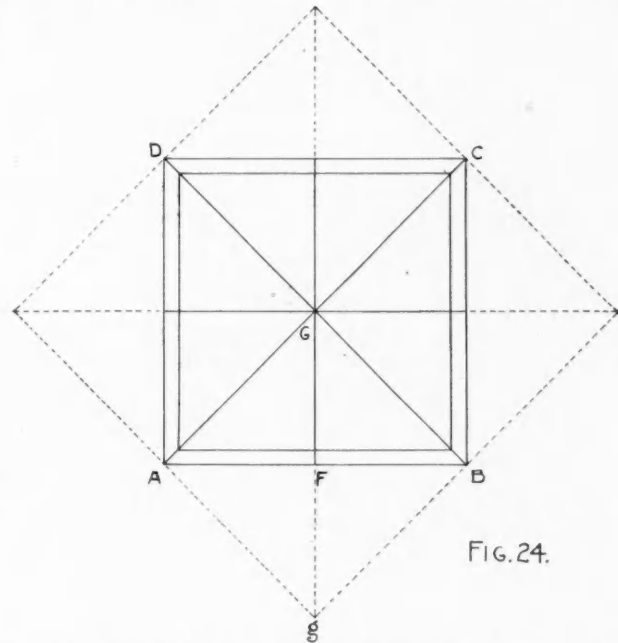


FIG. 24.

the diagonal of the base, as AG, and the latter the altitude, as GE.

The side cut of the hip is determined by its tangent and the length of the hip; and the cut will be on the side of the square representing the length. Perhaps we can explain this better by referring to Fig. 24. A, B, C, D represents the plan for a square building. GF represents the run of the common rafter and AF its tangent. AG represents the run of the hip and AG its tangent. In this, it will be seen that the respective runs and their tangents are of equal lengths. This does not occur in any other than the square cornered building and this only when the pitch is the same on both sides of the hip. The square corner for buildings with even pitch being more generally used than any other, many carpenters think they thoroughly un-

derstand the principals involved in its framing; but in irregular pitches, or for any odd-shaped corner, they are at a loss to apply the same principles. This is simply because they do not understand that it is the tangent they should use for one of the parts instead of the run. In the square cornered building, the runs

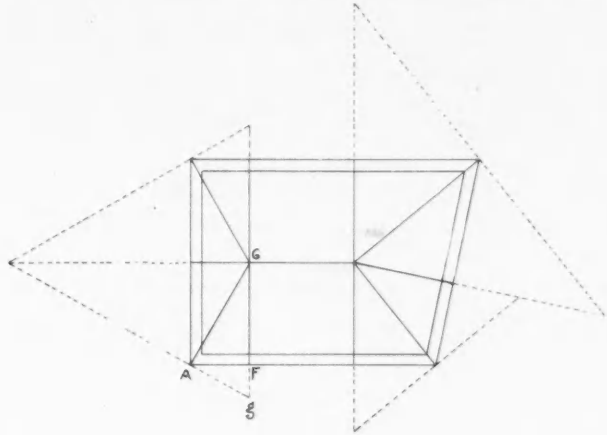


FIG. 25.

and tangents being equal (provided the pitch is the same on both sides of the hip), they think that the run is one of the parts to take on the steel square. On the contrary for a general rule, that is to apply to any

shown in Fig. 23. In this is shown the position of the hip, common and jack rafters in relation to their run and rise.

Now suppose we had four such cubes; by placing them with the corner of each together that represents the rise, we would have the position of the rafters for a square hip roof, as shown in Fig. 26. However, we have omitted the common rafter and jacks in these save one, because of the conflict of lines, which would tend to complicate the illustration.

To this we have also added the plan, as shown in Fig. 24, using the same descriptive letters for like parts; by comparing the two illustrations, we trust the reader will experience no trouble in understanding the relative parts that must be taken into consideration in the actual framing of the roof with the aid of the steel square. In this we have simply given the rafter cuts, but it does not stop here, as it applies equally as well to all of the cuts that are required in the roof boards, cornice, gutter, etc.

In the above, we have used the term cubical form, but this does not necessarily mean that the cube can not be more or less than the regular cube of equal sides, which occurs only in the 1/2 pitch, but the principle applies to any pitch. In other words, the pitch given the roof regulates the height of the form. In the case of an

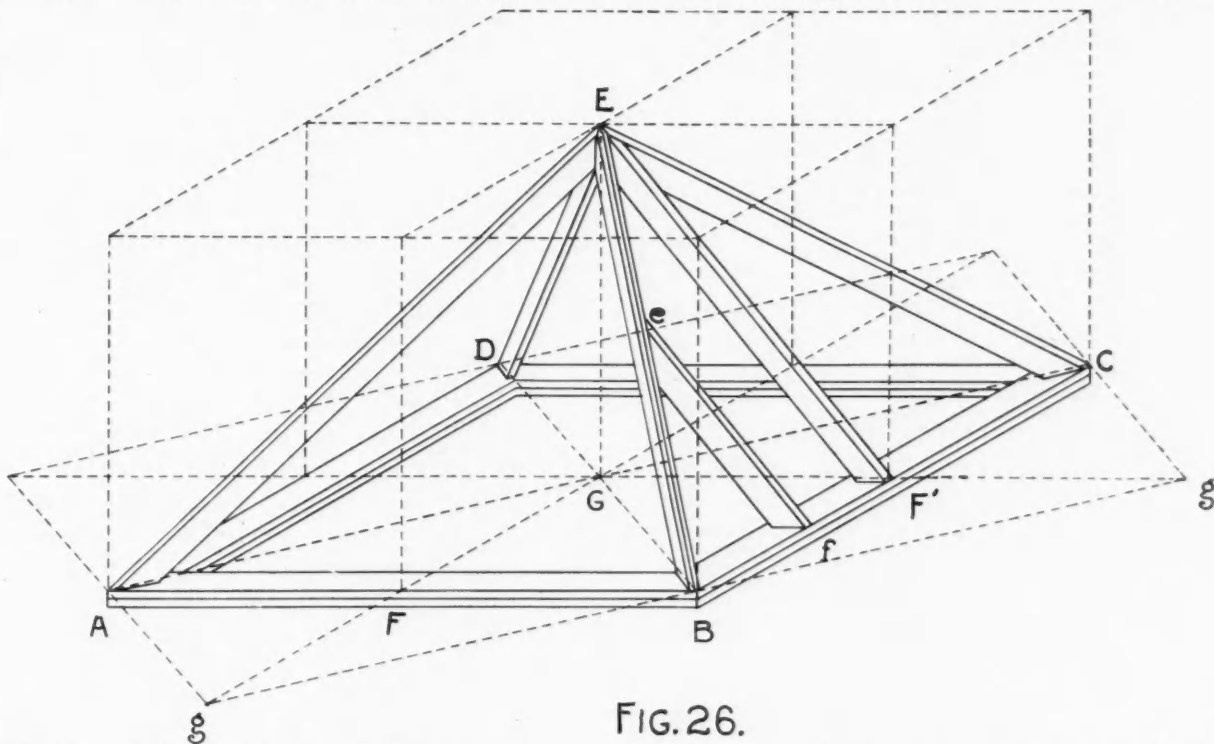


FIG. 26.

shaped corner, it should always be the tangent.

In Fig. 25 is shown a plan with two of its corners irregular and two with regular corners, but with irregular pitches; consequently the tangents and runs are of different lengths. But it should be remembered, the rule or parts to take on the steel square remain the same, as the rule applies to all alike.

But we are not through talking about the position the rafters occupy in the imaginary cubical form, as

irregular corner, the base of the form must conform to it just the same as for a square-cornered building and otherwise the procedure is the same.



A door lock may be lubricated by using some lead scraped from the lead in a pencil and put in the lock. This may be done by putting the scrapings on a piece of paper and blowing them into the lock through the keyhole.

DETAILS of CONSTRUCTION AND FINISH



CHARLES P. RAWSON



Gateway and Stucco Porch Details

LARGE SIZE WORKING DRAWINGS OF AN ARTISTIC GATE AND FENCE—MODERN DESIGN FOR A PORCH USING CEMENT PLASTER WITH WOOD ORNAMENTS

FEW people realize how much charm is found in an interesting approach to a place. A pleasant entrance that arouses the interest and conveys some impression of individuality seems to foretell pleasant things to come and is always associated in the memory with the anticipation that comes with first impressions. This is true especially of a garden gate, which for many of us holds a suggestion of sentiment because it is in its own way a symbol; it leads outward to greater space or inward to more beauty. Thus it seems right that the garden gate should have a grace and charm all its own; that it should, in the summer time be covered with vines and should always hold forth the inviting suggestion of pleasure and welcome beyond.

We show this month the detailed drawings of a very simple garden gateway and fence. It might be called a "pergola gate" and the proportions of the heavy timbers and straight unornamented lines suggest an inspiration from Japan. In no department of art is the realization of the subtle beauty that lies in simple and unobtrusive things more valuable to us as home makers than the suggestion the Japanese give us for the arrangement of our gardens. Of course, the overhead construction is meant to serve as a support for clinging vines. One such structural feature as this would serve as the central point of interest in an entire garden. The construction is clearly shown in the detailed drawings. Attention is called to the method of hanging the gate. No hinges are used and the gate is hung on pins which work easily in sockets, and the gate may be removed by simply lifting it off of the lower pin. A fence and gateway of this kind is preferably constructed of undressed lumber and stained.

Details of Modern Design Porch

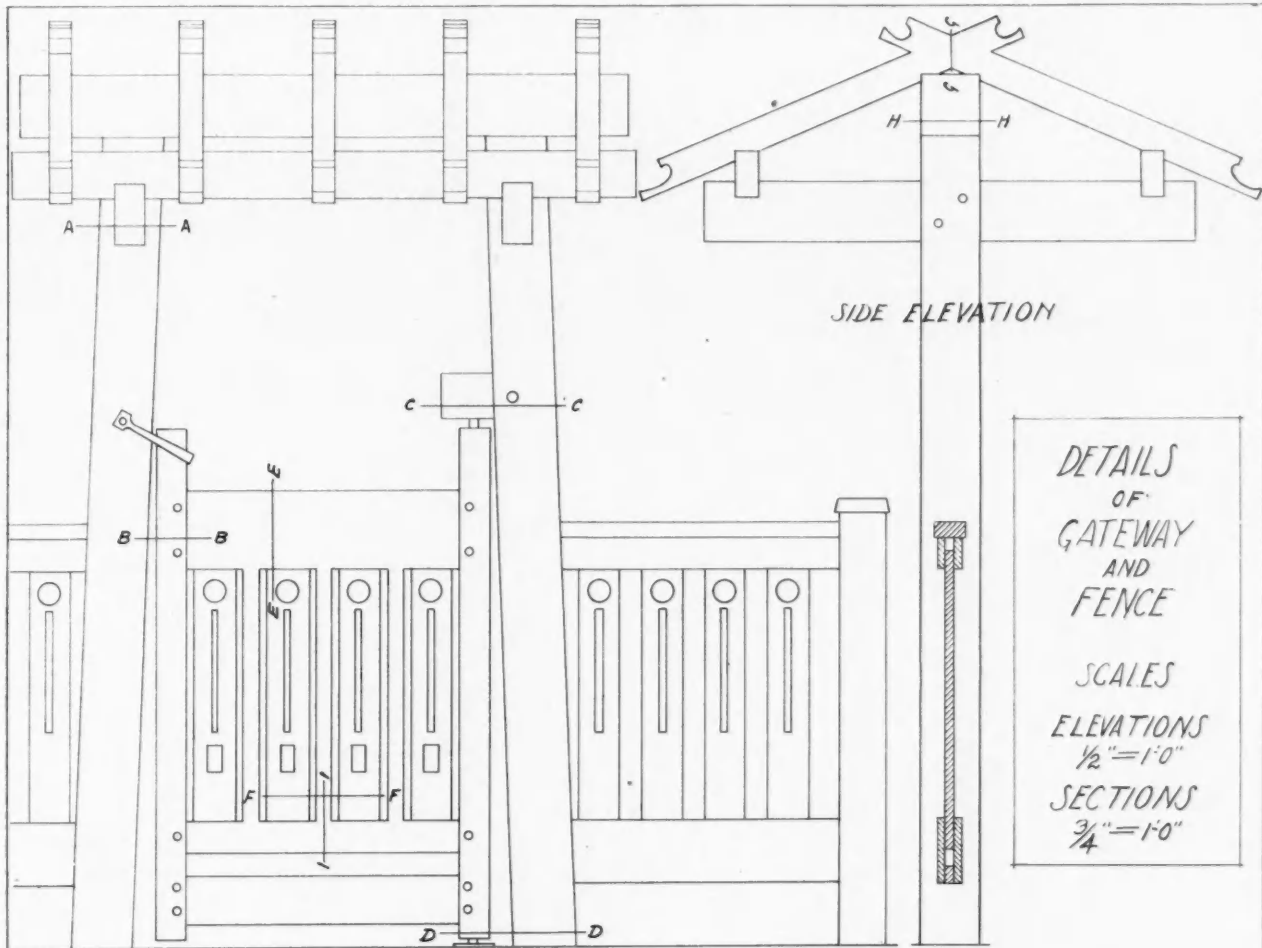
On the other page we show complete construction details, drawn to the scale of three-eighths inch to the foot, of a porch with a stuccoed column, and accompany same with larger details of the various parts drawn to the scale of one and one-half inch equals one foot. At this time when stucco is being so largely used on houses throughout the country, such a detail should

be of interest. The porch rests upon two courses of cement blocks which should be carried entirely around the house, the upper course being omitted only where the basement windows occur, which are set in the frame work and cased the same as the windows in the stories above. Attention is called to the somewhat recent method of constructing the railing which extends down to the block course in front of the edge of the porch floor. It serves the double purpose of a rail above the floor and a lattice below it. In case the span of the front is of excessive length, the cornice construction might have to be strengthened by the use of a wrought iron rod under the two center beams. (2" by 14") in the manner of a tie rod. The roof construction is the ordinary exposed rafter style with the addition of a shaped piece nailed to the bottom of each rafter to give it extra depth. The column is built up with a 2" by 4" framework to which the lath are nailed directly. The ornamental bands and blocks on the column are nailed to the lath before any plastering is done.

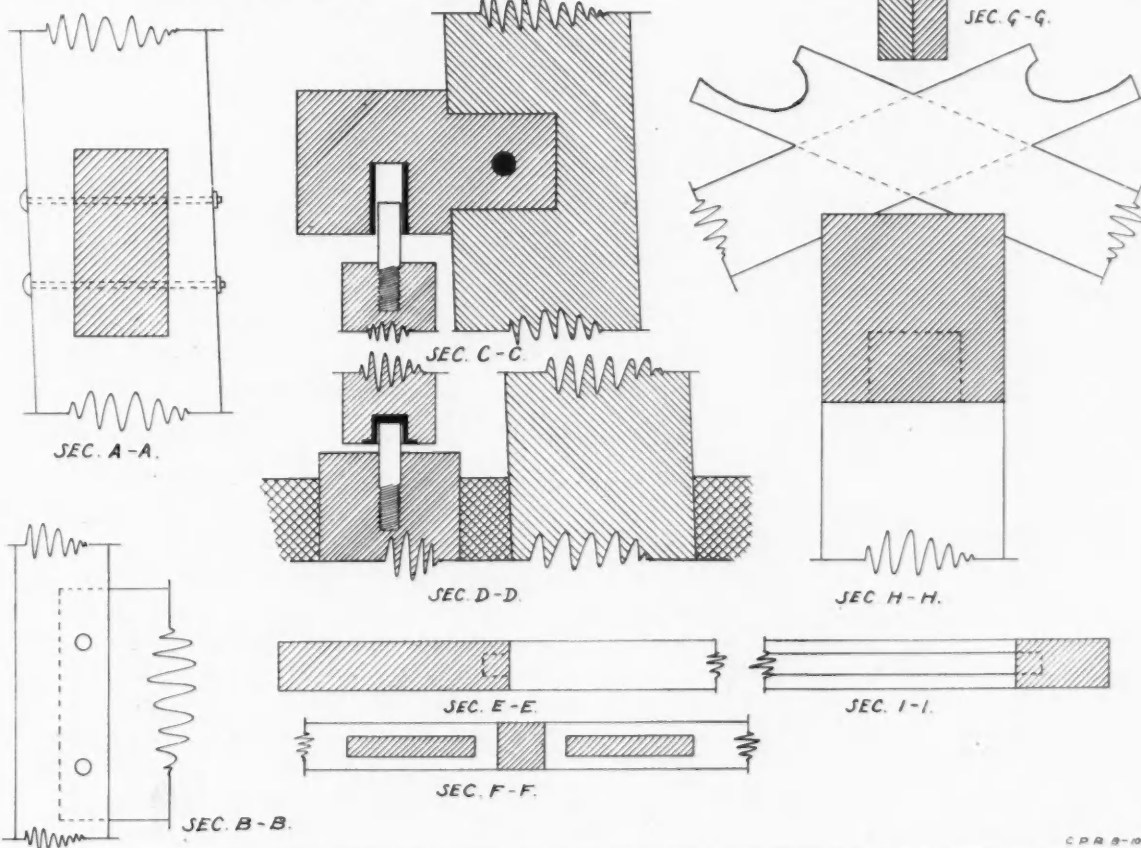


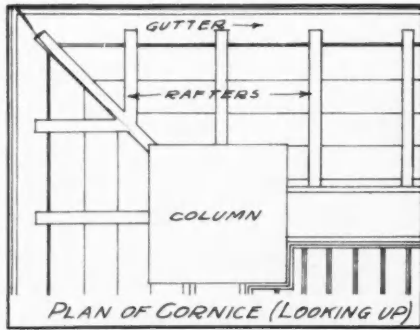
Heavy Roof Framing

It is bad practice, says F. W. Dean of Boston, in a recent paper on mill construction, to have inclined roof beams project beyond columns which are not in the center of the building, and trust to their being amply fastened together where they meet at the center of the roof to prevent movement on each other. When there is not a row of columns on the center, the inclined beams should stop at the columns nearest the center. A horizontal beam should span the space between these columns and the inclination on top should be produced by two 2-inch planks resting on edge, spiked on top of the beams with their sides flush with them and their tops sawed to the proper inclination. Sometimes a beam covering the whole thickness of the main beam is used instead of two pieces of plank. This avoids a concealed space over the beam. By using the roof construction just advocated the construction is stable and in accordance with good mechanical principles.

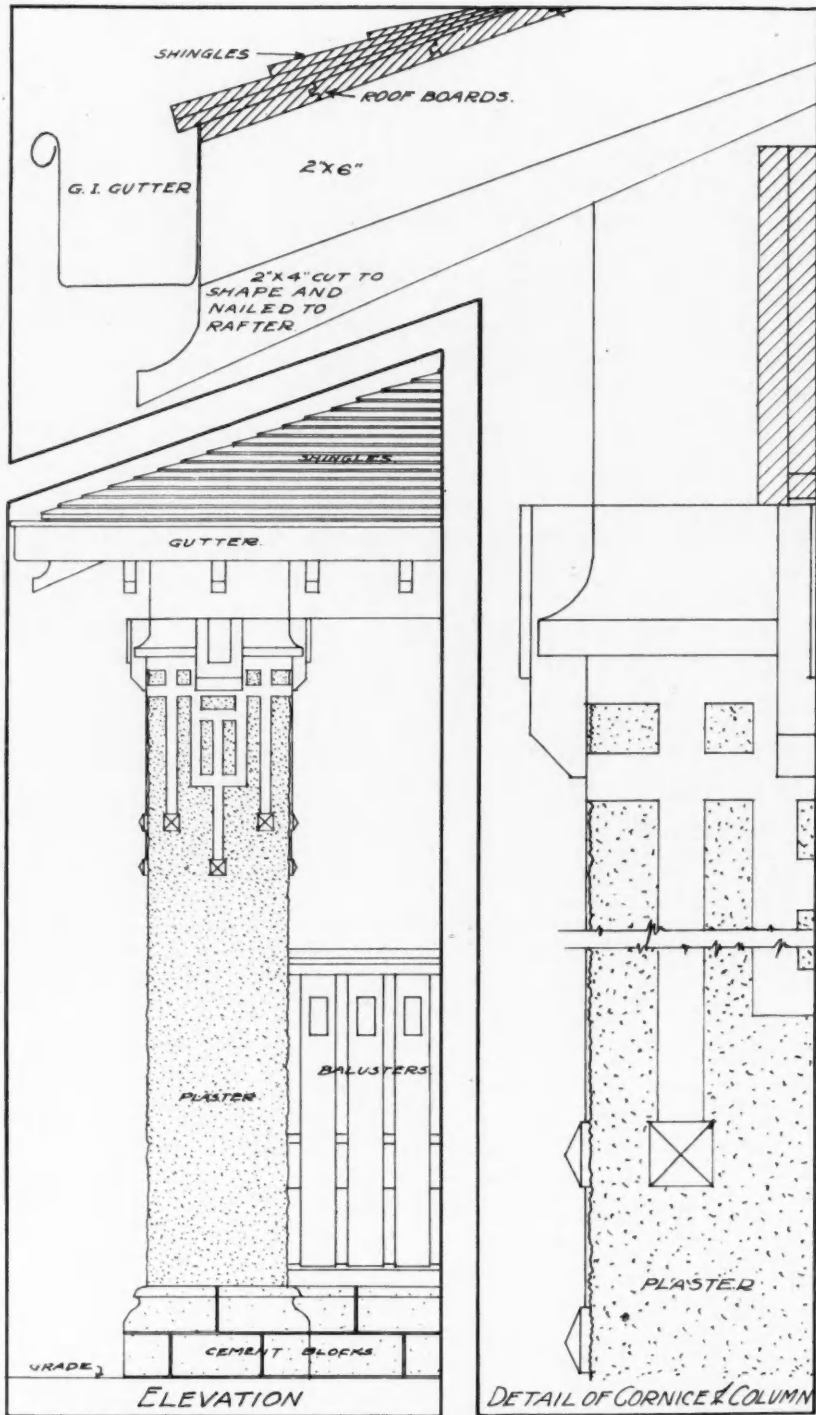


FRONT ELEVATION



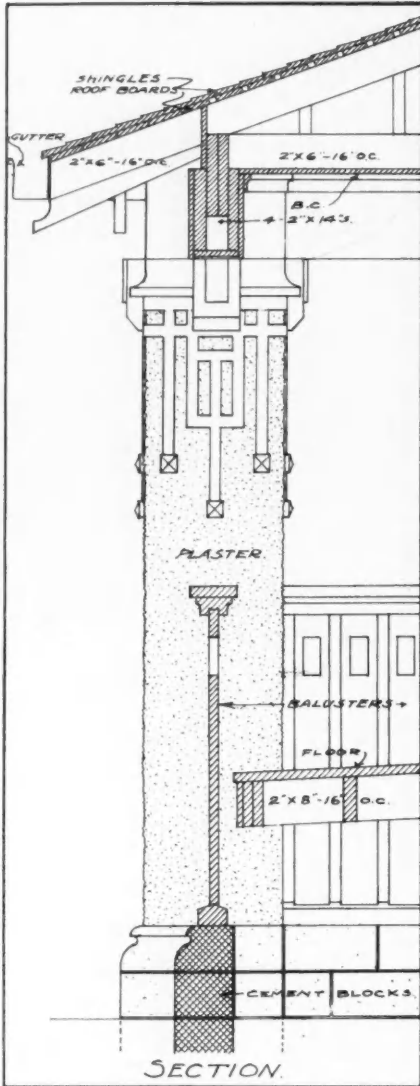


PLAN OF CORNICE (LOOKING UP)

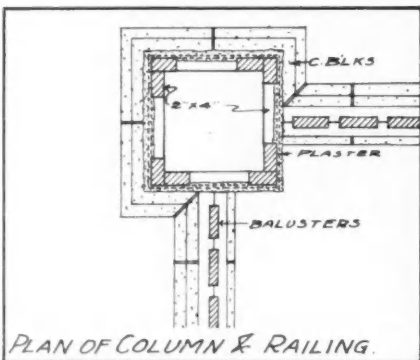


ELEVATION

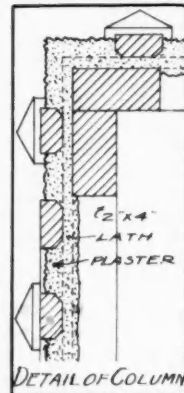
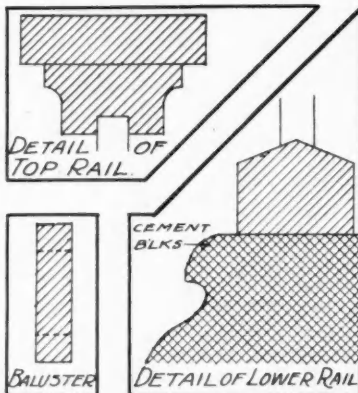
DETAIL OF CORNICE & COLUMN



SECTION



PLAN OF COLUMN & RAILING



DETAIL OF COLUMN

DETAIL OF PORCH WITH PLASTERED COLUMN AND EXPOSED RAFTERS

SCALES:
 PLANS, ELEV. & SECT.,
 3/8" = 1'-0"
 DETAILS
 1/2" = 1'-0"

Red Gum—the “New” Wood

THE RISE TO POPULARITY OF THIS BEAUTIFUL, DURABLE AND INEXPENSIVE WOOD—ITS SUITABILITY FOR USE IN MODERN BUILDING



Panel of Richly Marked Red Gum Veneer (About One Quarter Full Size)

ONE of the recent “discoveries” of the building world is red gum, sometimes commercially called “satin walnut.” The tree is one of the commonest timber trees of the South, reaching its best development in the deep, rich soil of the bottoms, where it often attains a height of 150 feet and a diameter of five feet. Were red gum imported from a distance and obtainable only at a high price, there is no doubt but that it would have been eagerly used long ago in the manufacture of furniture, cabinet work and interior finishing, but, being a common native wood and low in price, it has been discriminated against.

Red gum has been characterized as the most misunderstood and most abused wood grown in the United States. For many years red gum hung around the outskirts, being looked upon as an outcast. Occasionally small quantities were cut and used for temporary work or were used locally in the construction of cheap buildings. Everyone acknowledged the beauty of its figure and color; but, since no one had taken the trouble to study its proper handling and cure, the verdict had been rendered that red gum was treacherous; that it would warp, twist, curl and

otherwise disport itself in an unseemly manner—was rebelliously impracticable.

An increase in the demand for lumber, however, coupled with a decrease in the supply and an advance in the cost of the preferred woods, directed the attention of consumers to red gum. It was a wood known to grow in abundance throughout the southern states. It could be had in any quantity desired at a very low cost of the standing timber and the trees would produce two to four logs of large size, practically free from defects. Nature had provided an ample supply of the raw material; man had put in mills and kilns suitable for the manufacture and, presumably, the curing of any kind of lumber. All that was required then to turn this forest waste into commodities of great value was to evolve a method of overcoming the peculiarities in the physical makeup of red gum.

A number of large lumber producers, assisted by the U. S. Forest Service, at last took the matter up and, after long investigation, found that the preparation of red gum lumber for any purpose should begin when the tree is felled. To guard against staining and warping, it is handled in much the same way as

other woods, but with the important difference that when curing the piles are narrower, so that the air may circulate freely, and thus prevent fermentation of the sap, and that the cross sticks must be placed close together. It was also found that a double process of drying and curing was essential. The red gum lumber had to be carefully piled and air dried for one year after being sawed, and then kiln dried. New red gum weighs 4,750 pounds per 1,000 feet. Air dried for one year it weighs a maximum of 3,300 pounds, and gum lumber weighing more than 3 1-3 pounds per foot contains astringent sap which causes warping. When this sap is thoroughly dried out the results are satisfactory.

The heartwood of red gum shows a wide range of color and figure. It is somewhat darker than newly cut mahogany, and choice pieces, used for trim, perhaps are more highly figured. The color closely resembles that of mahogany and birch but shows a wider range.

Because of the beauty of color and figure and the fact that red gum will give good service, the wood is coming into favor, not only as a material for doors but for the manufacture of other interior trim as well. Its use in this way has been highly developed in New York and Pittsburg, many of the most handsome apartment houses, residences, stores and office buildings having been finished throughout with red gum.

One of the most interesting features, one of decided

significance, is that these buildings finished in red gum rank among the best constructed and the most costly in the city.



Residence of J. H. Smith, St. Louis, Mo., Finished in Red Gum

The old cry that red gum would warp, split, twist and curl is shown to be unreliably founded when material entering into construction of interior trim or doors is properly prepared for use. The use of red gum in Pittsburg began three or four years ago and buildings finished with this material have been subjected to every reasonable test and there has been no deterioration in the doors or trim. It has been shown that degrees of moisture or dryness have produced no greater effect on red gum than they would have on any other wood used under the same conditions.

Red gum has been introduced into Europe under the trade names of "Satin Walnut" and "Commercial Circassian Walnut," and is used by English and Continental architects and furniture designers. It is there considered as the natural successor of oak. It is probable that the constantly increasing cost of oak alone would have forced recognition of red gum in the same manner that oak was recognized and used when black walnut became more scarce and expensive. In Chicago a notable instance of the use of red gum for interior finish is the La Salle Hotel, whose architects, Holabird & Roche, specified its use practically throughout.

In using red gum for interior trim, the builder has a choice of many color schemes. Finished in the natural color, it gives a satisfactory effect, since nearly all red gum has a pleasing figure which will be brought out by the filler and varnish. It can be stained successfully and when properly done is very handsome. If different color schemes are desired any of the following stains may be



An Interior View, Residence of J. H. Smith, St. Louis

employed with entire success; dark mahogany, Flemish brown, forest green, Mission and Dutch brown. When dark mahogany is used one of the most beautiful colors



Row of 105 "Red Gum" Houses in Pittsburgh—
98 Sold Before Completion

imaginable is produced. The stain is not sufficiently heavy to entirely eliminate the figure and the result is a dark mahogany finish with the original beautiful figure of the red gum plainly visible. When any of the other stains are employed similarly satisfactory and beautiful results are obtained.

Red gum may be considered as an excellent flooring material. If properly seasoned it will not shrink, and the manufacturer who understands his work will have his wood all shrunk before he sends it through the matching machine. It will not splinter. The wood has no grain, hence one part of the surface offers the same resistance as every other part and the floor wears smooth. Red gum is tough and durable and selected stock can be used for flooring in the most expensive buildings. If finished in the natural color it will make a flooring pleasing to the eye and in every way desirable. As illustrating the desirability of red gum, the floor of the largest dancing pavilion in the world, situated at Sandusky, Ohio, may be mentioned. It covers an area of more than an acre. A floor as large as this, loaded with hundreds of people, is sub-

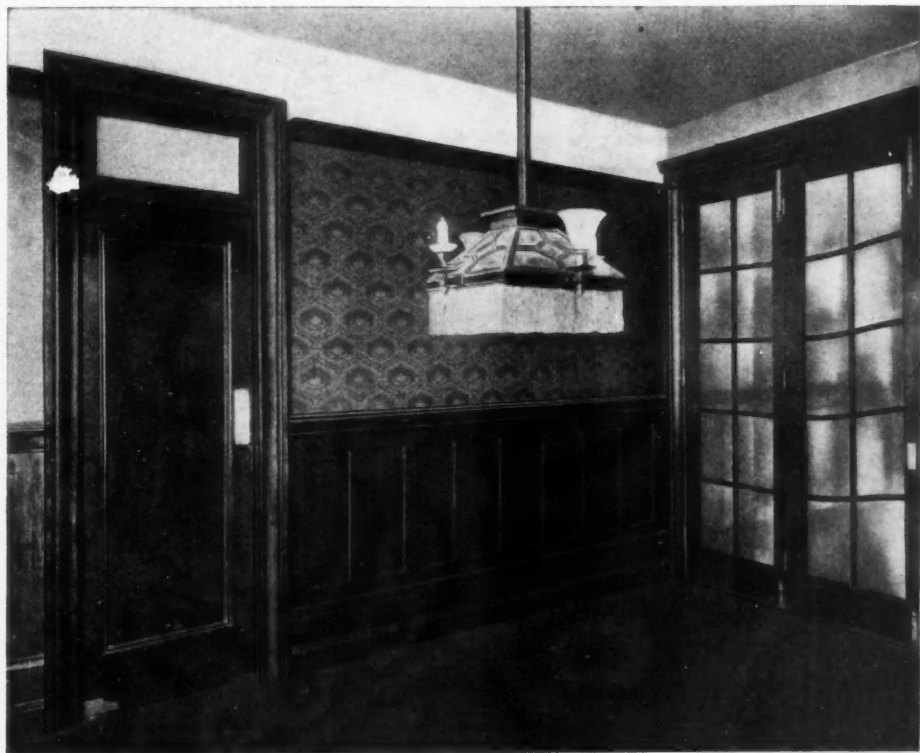
jected to the maximum of strain and wear, but after four years of constant use, it is stated, it is as good as the day it was put down. The soil about the pavilion is sandy, and notwithstanding the extraordinary care exercised more or less sand gets on the floor. So far it shows no effect of this additional cause for wear and tear.

One of the greatest points in its favor as beveled siding is that it contains no heavily defined grain, in this respect being on a parity with yellow poplar. Red gum siding is not streaked with pitch nor are the wood cells filled with resinous matter which prevents the boards from absorbing paint.

Necessarily the manufacturers who desire to strengthen the demand for red gum building material must prepare their products so that they will prove acceptable to the trade. This means perfect machine work and the application of knowledge and intelligence in seasoning the products.

Another great point in favor of red gum as a siding material is that the wood contains no acid or other ingredients injurious to the nails. In practical work it has been found that nails driven into red gum and allowed to stay there for years, when removed are as bright and free from corrosion as when they were sunk into the wood.

The builder should bear in mind, however, that red gum siding should be primed as soon as possible after being put in place. This recommendation applies to practically any kind of siding but should be observed particularly when red gum is used.



Red Gum Doors and Paneling in Fine New York Apartment Building



Valuable Data for Builders

FIFTH AND LAST OF A SERIES OF ARTICLES OF GREAT PRACTICAL HELP—HOW TO FIND THE STRESS IN THE VARIOUS MEMBERS OF A TRUSS BY SIMPLE GRAPHIC METHODS

By Paul T. Leshner

THE problem of determining the stresses in the different members of a roof truss by means of the graphical method can be explained most satisfactorily by means of a practical example.

Example:—Determine the size of the members in the truss shown in Fig. 18. Trusses to be 8 feet rise, 40 feet span and to be spaced 15 feet centers. Trusses to be made of yellow pine and the roof covering to be 2-inch yellow pine sheathing, covered with tin. The roof covering to rest on yellow pine purlins.

Solution:—The first thing we must do is to determine the load per square foot the truss must carry. The first item that we will consider will be the wind pressure. In article 1 (Dec., 1909) in notes on wind pressure, we find that for a truss with a rise of 4 inches in one foot, the wind pressure normal, or at right angles to the roof, is 17 pounds per sq. ft. of roof area. In this case the rise of 8 feet divided by 20 feet gives a rise of 4.8 inches per foot. If a rise of 4 inches per foot has 17 pounds wind pressure, a rise of 4.8 inches will have 20 pounds pressure per square foot. This 20 pounds wind pressure is acting at right angles to the slope of the roof, and as our roof load is taken in a vertical direction, we must resolve this wind force into a vertical component. To do this, draw a horizontal line, A B, Fig. 19, 12 inches long, and at one end draw a vertical line, B C, 4.8 inches in length. Then connect

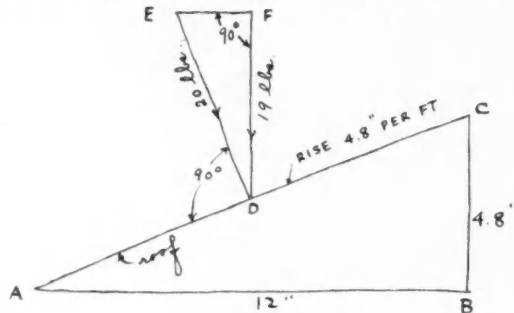


FIG. 19

A and C with a line, which line represents the slope of the roof. Then draw line E-D $1\frac{1}{4}$ inches long, each $1\text{-}16$ inch representing 1 pound wind pressure, then draw line E-F parallel to A-B and D-F parallel to B-C. Scaling line D-F, we find we have a vertical wind pres-

sure of 19 pounds per square foot.

For the snow load we will assume 12 pounds per square foot. Yellow pine sheathing, 1 inch thick, weighs 4 pounds per square foot and as the sheathing we are using is 2 inches thick, the load per square foot for sheathing will be 8 pounds. Referring to our notes in Article 4 (July, 1910) we find that tin as usually laid, weighs $\frac{3}{4}$ of a pound per square foot. We will assume that the weight of the yellow pine purlins will exert a pressure of $2\frac{3}{4}$ pounds per square foot of roof area, and that the weight of the truss itself will produce about $2\frac{1}{4}$ pounds pressure per square foot. Tabulating the above results we will find the total load per square foot.

Wind Pressure	19	pounds per sq. ft.
Snow Load	12	pounds per sq. ft.
Yellow Pine Sheathing.....	8	pounds per sq. ft.
Tin Covering	$0\frac{3}{4}$	pounds per sq. ft.
Yellow Pine Purlins.....	$2\frac{3}{4}$	pounds per sq. ft.
Weight of Truss.....	$2\frac{1}{4}$	pounds per sq. ft.

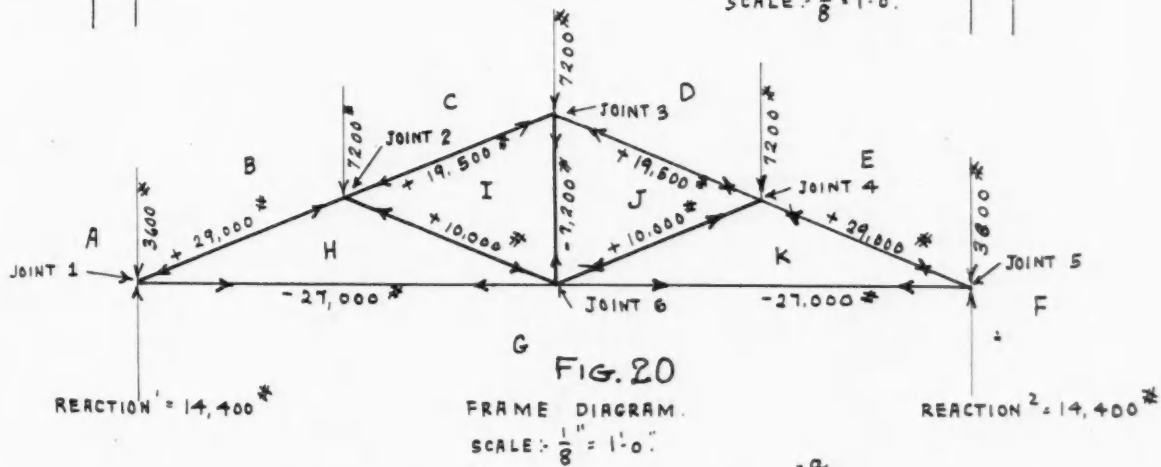
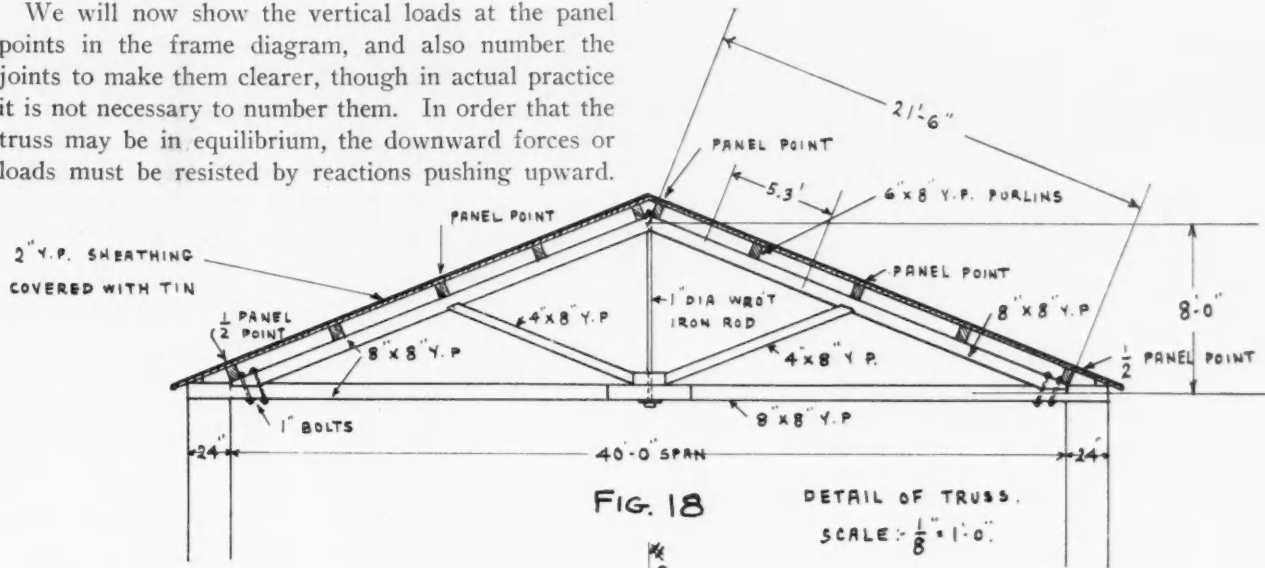
Total load $44\frac{3}{4}$ pounds per sq. ft.

Now we will get the total load coming on one panel point (see Fig. 18), and we find that one panel point takes 10.75 feet times 15 feet, or 161 sq. feet, and as we have a load of $44\frac{3}{4}$ pounds per sq. foot, the total load coming on one panel point will be 161 multiplied by $44\frac{3}{4}$ pounds or 7,200 pounds, as shown in the frame diagram, Fig. 20, which is a skeleton line drawing of the truss, and shows the locations of the various loads. We will letter the diagram as shown in the figure. This system of notation is called *Bow's Notation*, devised by Mr. R. H. Bow, of Edinburgh, and is of great assistance in the graphical solution of problems in statics. This system of lettering or notation, commonly used in graphical statics, consists of placing a capital letter in every space throughout the frame diagram between the several members and the forces acting externally. The lettering is usually commenced at the left end of the frame diagram and runs around the figure in the direction of the hands of a clock, the internal spaces are then lettered in alphabetical order commencing likewise at the left hand end of the figure.

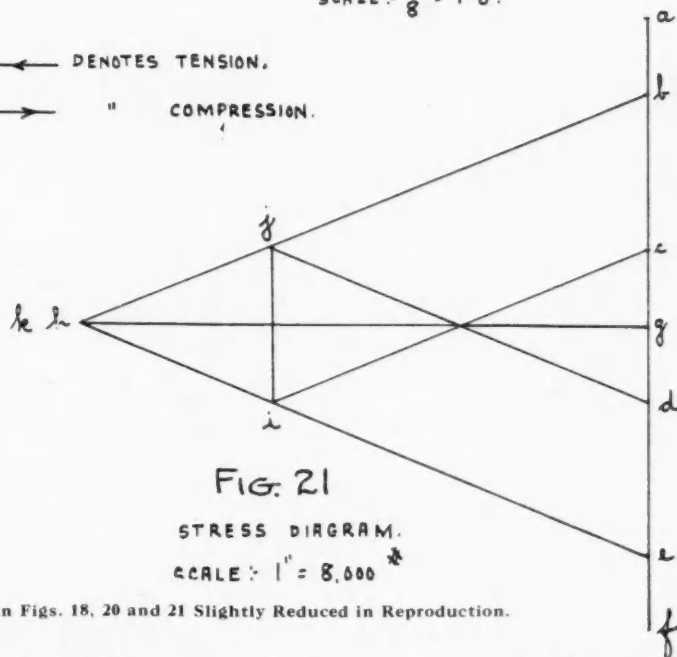
By using this notation in analyzing the stresses around a single joint, the polygon of forces will be immediately known when the point from which the polygon was started has been finally reached.

We will now show the vertical loads at the panel points in the frame diagram, and also number the joints to make them clearer, though in actual practice it is not necessary to number them. In order that the truss may be in equilibrium, the downward forces or loads must be resisted by reactions pushing upward.

We will now consider the method of finding the kind and amount of stress that each member shown in the truss diagram carries by supporting a load of 7,200



- \longleftrightarrow DENOTES TENSION.
 + \longleftrightarrow " COMPRESSION.



Note:—Scales in Figs. 18, 20 and 21 Slightly Reduced in Reproduction.

As the loads are symmetrical about the center of the truss, the two reactions will each have 14,400 pounds to support.

pounds at each panel point.

This method is a system of force polygons, and is called a stress diagram. (Fig 21.)

To draw this stress diagram, the sum of the loads ab, bc, cd, de and ef, is represented by the line af, drawn to scale and parallel to the direction in which the loads act.

It will be noticed that capital letters are used to designate the members in the frame diagram and small letters in the stress diagram. Draw ag (Fig. 21) parallel to the direction of the supporting force AG (Fig. 20) and equal to that force, to a scale of 8,000 pounds

$$\frac{14,400}{8,000}$$

equal one inch. Therefore ag is $\frac{14,400}{8,000}$ or 1.8 inches in length. Now as our total load is 28,800 pounds, we will add another 14,400 pounds to our present line ag and then our total line will be represented by the line af. The various forces coming at the panel points are then laid off to scale on this line, as explained above.

In drawing the stress diagram, it is necessary to begin at a joint at which not more than two quantities are unknown, with reference to the forces which meet at that joint. Joint 1 has not more than two unknown forces, so we will start at this point to determine the stress in the members meeting at this point. The force AB we have already laid off upon the load line af and the next line to consider is BH. Therefore in the stress diagram (Fig. 21) we will start at b and draw the line bh parallel to the line BH in the frame diagram (Fig. 20), and then our next line to consider is HG. Starting at g in the stress diagram, draw a line parallel to the line HG and where this line intersects the line which was drawn parallel to BH, put the letter h.

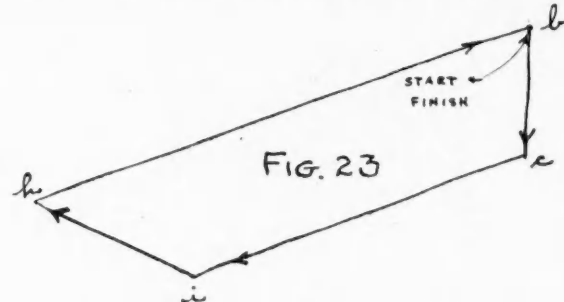
Our next force to consider is the force GA and we find that we have this already laid off on our load line af. The figure that results from going around joint I is represented by Fig. 22. We started by drawing the line ab equal to 3,600 pounds; then drew the line bh in a direction toward joint I, then drew the line hg in a direction away from the joint, next the line ga which represents the reaction of 14,000

pounds. We find that we have arrived at point a, which is the point from which we started. This is a very important thing to remember in drawing the polygon of the forces around a joint, that you must always return to the point from which you started.

In drawing the line bh we find that we drew it in a direction toward joint I and when we draw the line hg we find that we draw it in a direction away from joint I. Therefore on line BH in the frame diagram we will put a small arrow-point near the joint and pointing toward the joint, and on line HG we will put the arrow

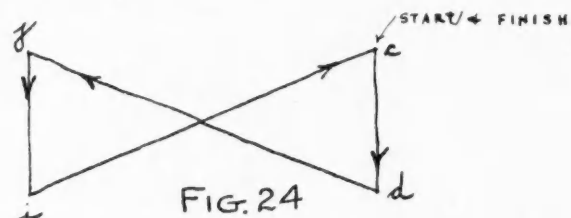
point near the joint and pointing away from it. The placing of these arrow points is very important, for by the direction in which they point we are enabled to tell whether the number is in compression or in tension.

We will now go around joint 2 and find that we have the force BC already laid off on our load line af, then start from c and draw a line parallel to line CI. From h draw a line parallel to HI and where these two lines intersect, put the letter i. Then from h we go back again to b, the point of beginning. The polygon will now be as shown in Fig. 23. We find when draw-



ing the lines ci, ih, and hb in the stress diagram, that they are all drawn in a direction toward the joint and therefore we will put the arrowheads upon these lines in the frame diagram, pointing toward the joint and near to it.

We will now go around joint 3 and find that the force CD is already laid off on our load line af. Starting at d on the load line, draw a line parallel to the line DJ in the frame diagram. Then draw from i a line parallel to JI, and where these two lines intersect put the letter j. Then from i we go back to c, from whence we started. The resulting polygon will now be as shown in Fig. 24.

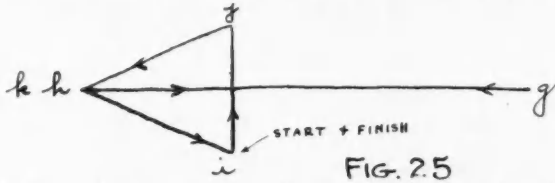


We find that lines dj and ic when drawn in the stress diagram are drawn in a direction toward the joint, therefore on these lines in the frame diagram we will put the arrowheads near the joint and pointing toward it. We find that line ij when drawn in the stress diagram is drawn in a direction away from the joint and therefore on this line in the frame diagram we will put the arrowhead near the joint and pointing away from it.

In going around joints 4 and 5, follow the same proceedings as we did when going around joints 1 and 2.

We will then go around joint 6. It will only be necessary to go around this joint to determine the direction of our arrows, because in going around the other joints we laid out all the lines in the stress dia-

gram. The polygon will be as shown in Fig. 25 and we find that lines ji, hg, and kg point away from the joint and that lines ih and jk point toward the joint.



We now have our stress diagram finished and scaling line bh we find it measures 3.62 inches and 3.62 multiplied by 8,000 lbs. equals 29,000 pounds, which is the stress in number BK. As the arrowheads on this member point away from each other, this member is, therefore in compression.

Then in scaling the other lines in the stress diagram, we have the final results as shown in the frame diagram (Fig. 20). Having found the stress in each member, we come to the point where we will calculate the size of the members in the roof truss to take the various stresses with safety. As member BH is in compression, we will treat it as a column, which is 11 feet in length and using a factor of safety of 4, we will have to support a load equal to 29,000 pounds multiplied by 4, or 116,000 pounds. Looking at the table in Article 2 (Feb., 1910), we find that a 8"x8" yellow pine column for the above length has an approximate breaking load of 236,000 pounds. Although we only require a breaking load of 116,000 pounds, the member is required to take an extra stress, due to the purlins producing a bending movement, and is also weakened by notching. Therefore we will use 8"x8" timber for members BH and EK.

To make the truss uniform and better looking we will use 8"x8" timber for members CI, DJ, HG and KG, in which members if we desired, we could use lighter timber. For members IH and JK we will use 4"x8" timber, which exceeds in strength what is required, but they give the truss a better appearance.

We will use a wrought iron rod for member JI, as this member is in tension; and referring to the Table in Article I we find that wrought iron rods have an ultimate tensile value of 52,000 pounds per square inch. So using a factor of safety of four, the safe tensile strength will be 13,000 pounds per square inch. As the stress in member IJ is 7,200 pounds, we will require

$\frac{7,200}{13,000}$ or 0.55 square inches in the cross section of one rod. Therefore we will use a 1-inch diameter rod, which has an area of 0.55 square inches at the root of thread.

The next subject to consider will be the size of the purlins. As we have a purlin midway between adjoining panel points and also one at the panel point, one purlin must take one-half of the load that comes

at a panel point, which will be $\frac{7,200}{2}$ or 3,600 pounds.

The purlins have a span of 15 feet and using the data given for wooden beams we find that the formula given in Case IV, Article 3 (June, 1910), meets the requirements and is as follows:

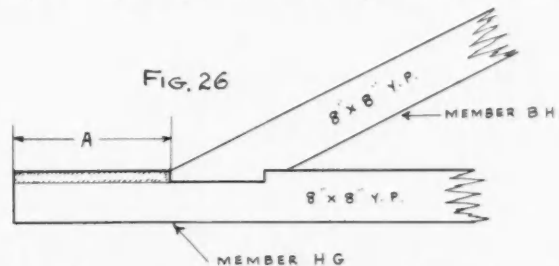
$$\text{Breadth in inches} = \frac{\text{span in feet} \times \text{load}}{2 \times \text{square of depth} \times C}$$

Let us assume 8 inches for depth of purlin and as our value C for yellow pine, given in the table, Article 3, is 90, the formula will be as follows:

$$\text{Breadth in inches} = \frac{15 \times 3,600}{2 \times 64 \times 90} = 4.7 \text{ inches.}$$

We will therefore use 6"x8" purlins.

Another point to consider is the end connections, the object being to have the distance A of sufficient length so that the stress in number BH will not shear the wood as shown in section (Fig. 26). The ultimate shearing value of yellow pine parallel to the grain is 400 pounds per sq. inch and using a factor of safety



of three in a case of this kind, the safe shearing value will be $\frac{400}{3}$ or 133 pounds per square inch. As mem-

ber BH comes to the connection at an angle it will not exert its full stress of 29,000 pounds, but will exert a horizontal stress of 27,000 pounds. This stress of 27,000 pounds divided by 133 pounds gives 203 square inches required in the area covered by A multiplied by the width. The width of the beam is 8 inches,

therefore the distance A will equal $\frac{203}{8}$ or 25 inches;

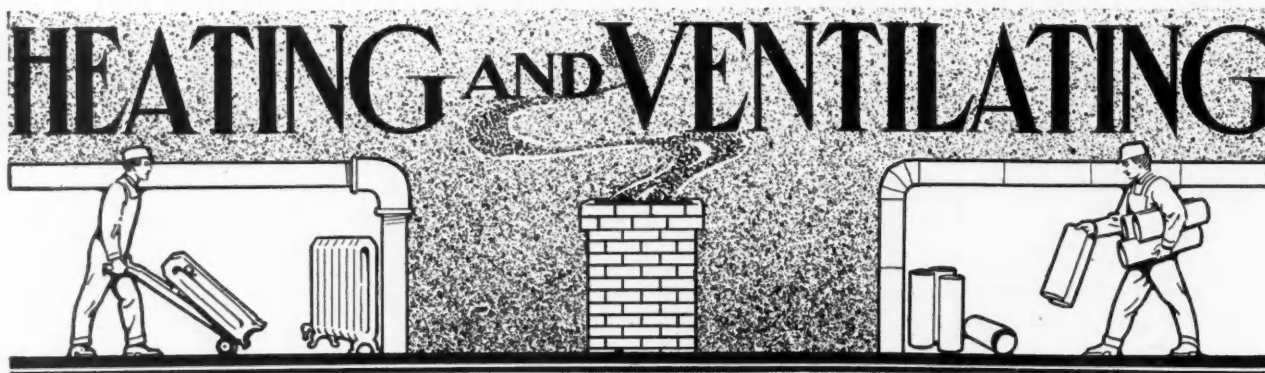
say we make this an even 2 feet.

The following table gives the ultimate shearing values for different kinds of timber:

For the safe working value use a factor of safety of 3 or 4.

ULTIMATE SHEARING STRENGTH OF TIMBER PER SQUARE INCH OF CROSS SECTION.

White Pine, parallel to the grain.....	300 pounds
White Pine, perpendicular to the grain..	2,500 pounds
Hemlock, parallel to the grain.....	250 pounds
Hemlock, perpendicular to the grain....	2,500 pounds
Spruce, parallel to the grain.....	300 pounds
Spruce, perpendicular to the grain.....	3,000 pounds
Yellow Pine, parallel to the grain.....	400 pounds
Yellow Pine, perpendicular to the grain..	4,500 pounds
Oak, parallel to the grain.....	600 pounds
Oak, perpendicular to the grain.....	5,000 pounds



Stoves vs. Modern Heating

SEASONABLE SUGGESTIONS FOR THE INSTALLATION OF UP-TO-DATE HEATING SYSTEMS IN ALL HOUSES NOW HAVING STOVE HEAT

STOVES for heating are so far out of date that a good many will laugh at the very idea that they might be considered by any one in this year of 1910 as a fit and proper means of heating a residence. Certainly no one would think of having the dirty, dangerous and inefficient things in any new work. The advantages and economy of the modern basement heating plant as well as the unsatisfactory performance of all heating stoves are too well known to allow any doubt at all, at the present time, concerning the heating question, as it applies to new work. The American people have gained the name of being the best housed people in the world; and quite a large share of the credit for this is due to the fact that their homes are *uniformly well heated*. No residence, however costly and well-built it may be, can seem at all homelike unless it is comfortably well heated in all parts. And we have learned that in this American climate a good basement heating plant is necessary for this. Stoves, besides being troublesome, dangerous and expensive, will not do. They overheat a small radius and leave the rest of the room cold. So it has come about that, with the perfection of the three great systems of modern heating, warm air, steam and hot water, the general building public have entirely given up the old-fashioned stove heating method.

With the occasional exception of a very small house or cottage this is true of all new building operations today; but investigation reveals the fact that a large number of the older houses are still stove heated. Their owners realize how much behind the times they are, and what dirty, inconvenient things the big heating stoves—always in the way—are; yet they keep putting off making the change to the modern way. Some feel that the change would involve too much work and expense; others do not know just what would be required to be done, nor which of the modern systems should be installed. This is where the progressive contractor finds an opportunity for some very nice business, especially at this season of the

year. In the fall the wise man's fancy eagerly turns to thoughts of keeping his home and family warm and well during the cold winter that is to come. Now is the time to get after the old stove heated (?) jobs and see that a practical, modern heating system is put in instead. The contractor who is alive to the opportunities of the season will land some nice jobs in this way, by simply pointing out the facts of the case.

As to the kind of heating system it is best to put in, circumstances vary just as in new work; a warm-air furnace system might be best, or conditions might make steam heat or hot water advisable. In this connection it may be of value to point out very briefly the leading characteristics of these three principle systems of modern heating.

Warm Air Heating

The popular idea in favor of warm air heating, is, that with a good heater, of ample size, and properly installed, a constant supply of pure, fresh air is furnished at all times, and every room and hall is well heated, fresh pure air being absolutely essential to the sustaining of health. Dr. Christopher H. Shearer says in this connection:

"We spend one-half of our lives in-doors and the quality of the air we breathe in our homes is the great factor in determining the state of our health."

Any residence, school, church, etc., can be perfectly warmed at all times with the fresh warm air heater system, provided the apparatus is *amply large*,—is properly located,—has good-sized pipes and registers; and with an abundant fresh air supply from the outside. The initial cost of installation is less than that of any other heating system and the yearly expense of running and keeping in order is slight.

The amount of heat required is easily regulated, according to the weather,—plenty of heat in cold weather,—moderate amount in moderate weather,—small amount, just taking off the chill, in early fall or late spring. A good air heater is responsive to the draft,—heating up quickly and giving a large volume of fresh, warm air throughout the building,—

insuring warm rooms and a warm house before breakfast. Water pans are furnished with heaters, and the evaporation, for producing in the air the proper percentage of humidity, can be regulated according to the wishes of the user.

The heating of a building of any ordinary size, such as residences, churches, schools, etc., can easily be done with fresh air heaters, provided a little study is given to the general direction of winds; and to so locate the heating pipes in such position that a constant supply of warm, fresh air is circulated in the various rooms and halls as desired. The size of these pipes is dependent on the size of the rooms to be heated.

The use of warm air heaters can not be advised for such buildings as offices and hotels, etc. The adoption of any one system of heating must, necessarily, depend upon the size and the general arrangement of the building, because these facts do decide what is necessary, in the heating question. Neither should the use of warm air heaters be advised for buildings where the cellar is under the small portion of the house; the space to be heated is largely over the other portion of the building and the prevailing winds on the side of the building, under which there is no cellar.

A building so constructed does not allow for a proper distribution of air pipes so as to have a continuous circulation of warm air through them. There are, however, exceptions where conditions in the general construction favor this system.

The occasional complaints one may have heard regarding furnace heating are traceable to the use of small cheap furnaces; with defective construction of piping and air supply to do the work properly. The same thing is true of other systems of heating,—too little radiation, small size boilers, etc., etc.—known as cheap work.

Air heaters are constructed to use either hard coal, soft coal, or wood; and are so made that the fullest benefit of each kind of fuel is obtained. Heaters are also made to use both hard coal and wood to suit the desires of the owner. This greatly favors economy in the use of the apparatus.

Steam Heating

Steam is being so largely used for heating purposes and is so well understood that it needs very little description. The best known method of adapting steam for general heating uses, is the low pressure gravity system.

In this the steam is generated in the boiler from the water, heated at or above 212 degrees Fahr. and is conducted through mains and rising pipes to the radiators, where by contact with the colder air in the rooms through the radiator surfaces the steam is condensed, and the water of condensation is carried back to the boiler to be again generated into steam.

The advantages generally conceded to a direct steam

heating apparatus are numerous. The steam can be carried any distance, and thoroughly heat exposed rooms a long way from the source of supply. The boiler can be located at any convenient point in the building itself or outside of the building. If properly installed, it is noiseless in operation, easy to take care of and while in coal consumption it requires more fuel than hot water, yet the amount burned is not disproportionate to the work done.

Fuel consumption in this, as well as all heating systems, depends largely on the economic feature of the boiler,—the calorific value of the fuel, and the manner in which the system is fired. Fuel economy must necessarily depend upon whether the apparatus as placed is adequate for the building in the coldest weather without forcing or raising an unnecessary pressure. With an apparatus designed to take care of the work in the severest weather, with ordinary firing, economy can be secured, and in moderate weather the house can be heated from the vapor without any pressure whatever being indicated on the gauge. Steam heat is very quick acting and responds easily to the opening of the drafts.

The same criticism that applies to direct hot water heating, is used in connection with this system, and yet every house-owner knows that there is a constant source of fresh air entering every house, particularly detached frame dwellings, through crevices around doors and windows and through open fireplaces; and almost every housewife is daily airing sleeping and living rooms.

Steam apparatus is manufactured in sizes suitable for heating all sizes of buildings even the modest cottage, and can easily be put in old buildings. And, while the rising lines to the various radiators cannot be always concealed inside the partitions as in new buildings, they are small in size and do not occupy useful spaces; and if carefully bronzed to harmonize with the decoration of the room, are not objectionable. The ease with which a steam or hot water apparatus can be put in buildings already occupied is appreciated fully by people in moderate circumstances who at the time of building, may be unable to complete the house as they intend it to be, and can either leave the heating apparatus to a later time, or only heat the principal rooms and extend it later.

Hot Water Heating

Twenty-five years ago hot water heating was in its infancy in this country, and while at that time it was being extensively used in Canada, its growth here was slow—as, not only house-owners but the heating trade, had to be educated as to its many advantages and adaptability for this climate.

The principle upon which all low pressure hot water heating is based is the fact that water is at its greatest density and minimum volume at 39.2 degrees Fahr. Upon the temperature being raised above this point the

volume increases and the density decreases; or, for illustration,—a gallon of water heated from 40 degrees to 212 degrees Fahr., expands or increases in volume to one and one-twenty-third gallons.

In the process of expansion the heated or lighter water is continually rising to the top, going from the top outlet on the boiler through the supply pipes to the radiator. When by contact with the atmosphere through the radiator surfaces the water becomes cooled and of greater density, it descends through the return pipe again to the boiler to be re-heated and the process continued.

The ordinary hot water system is open to the atmosphere through the expansion tank, consequently the formation of steam is impossible and by following simple, natural laws, a good system of heating is secured, easy to manage, free from danger, noiseless in operation, economical and efficient.

Hot water heating has many advantages; it is conceded to be an economical system because benefit is derived from the heat of the fire from the instant it is started, and the water will remain warm for several hours after the fire has gone out.

It has a variation of temperature from 90 degrees to 200 degrees, which makes it particularly suited to the vagaries of our American climate, it can be adapted to suit all conditions of buildings from the largest churches, public buildings and residences down to the smallest cottage, while in first cost is more expensive than other systems of heating, the saving in fuel, absence of repairs and minimum amount of attention required repays fully the additional outlay.

Hot water heat can be carried to any room, and

the heat is uniform in temperature. No matter what the exposure or the distance the radiation is from the boiler,—these conditions are met by the size and general arrangement of the plant. The temperature can be regulated to suit the desire of the occupants according to the outside climatic condition by raising or lowering the temperature of the water in the system which is shown by a mercury thermometer placed on the heater.

The objection usually raised to any form of direct heating is the fact that the same air is heated over and over, but it will be generally accepted that all buildings have a certain amount of ventilation through open fireplaces, leakage of air around the doors or windows, and the ordinary opening of windows in the sleeping and living rooms.

In the selection of a hot water heating apparatus the same as with steam, great care should be used to see that the apparatus is ample to heat the various rooms in the coldest weather; the first cost should not be the main consideration if an economical system is desired, as, in moderate weather, the fire can be run slower and the water heated to lower temperature,—the system still being ready for any sudden demands. To obtain the greatest economy, the fire should be run entirely to suit the outside conditions, 90 to 120 degrees in mild weather, 140 to 180 degrees in severe weather.

In hot water heating it is not necessary that the heater should be centrally located,—it can be placed in any part of the cellar near the smoke flue, or in an outside building if desired. This is a great advantage, especially in building where a cellar is excavated only under a small part of the building.

What Kind of a Roof?—Metal Shingles

THE FIRE HAZARD AND LOSS IN THIS COUNTRY DUE TO INFLAMMABLE AND SHORT LIVED ROOFING—ADVANTAGES OF PERMANENT ROOFING, ESPECIALLY METAL SHINGLES

CONTINUING the study of the roofing question as it applies to modern building conditions, attention is now directed to metal shingles. The writer is of the conviction, formed from rather wide observation, that this is the day of high grade building materials. Building in America has passed through, or is rapidly passing, that pioneer, early-settler, stage in which cheap, temporary construction is the rule. The owners now in general, as well as their advisers, the architects and building contractors, are tending more and more to the idea of permanent building. To-day the tendency is to use durable material put together in a thoroughgoing way; for the builders realize that a permanent investment is better than a continual expense.

In this development toward better building nothing is more striking than the rise in popularity of various permanent roofing materials. The high grade permanent roofs of various kinds—slate, clay tile, high grade sheet metal, cement, asbestos, metal shingles, etc.—have gained such an advantage that ordinary wood

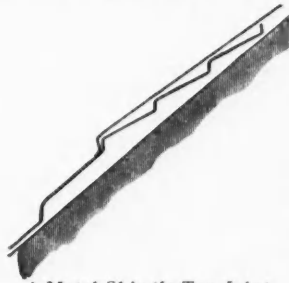
shingles are scarcely considered at all to-day as a proper covering for anything but the very cheapest buildings.

Concerning these roofing materials, it is well to note that the building contractors are not wedded to any one kind, nor should they be. Each has its special uses and advantages recommending it as especially suited to fulfill certain conditions. Those directly interested in some one form of roofing may urge its use indiscriminately *for everything*. Practical builders know better than this however; they realize that they must keep posted concerning all the materials entering into modern construction so that they may be able to advise wisely in every case.

No two jobs are exactly alike in their roofing requirements. However, except for the cheapest kind of temporary structures, no one should think for a moment of putting on a roof of short-lived, inflammable wood shingles. Some form of fire-resisting roof covering should be recommended and insisted upon.

Statistics show that in this country a house catches

fire every three minutes, causing a fire loss amounting in 1908 to the astonishing total of \$579,000,000. This is a fire burden of \$3.00 each per year for every man, woman and child in this country. It is noted also from these reliable statistics that the yearly per capita loss by fire averages only 49 cents in Germany, while in Italy it is but 12 cents. The reason for this is not far to seek, for of all these fires 60 per cent are roof fires caused by sparks from chimneys, locomotives, etc., and fires spreading from adjacent buildings by way of the roof. This great percentage of roof fires in

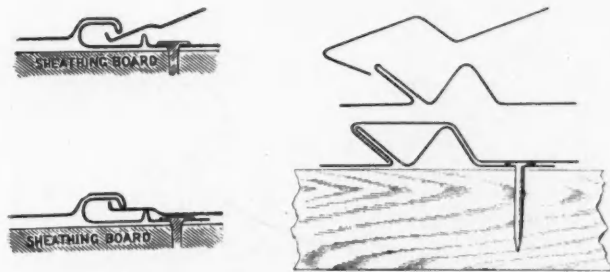


A Metal Shingle Top Joint

but sixty board feet. This is the state of affairs persisted in for a long time which has brought this astonishing and needless fire loss in this country.

Fortunately the increased use of permanent fire-proof roof covering is cutting down the greatest source of danger from fire. Yet more should be done along this line. Builders should let no opportunity pass of recommending and urging the giving up of the dangerous wood shingles and the substitution of a fire-proof roof covering.

Metal shingles are so well known in most localities that only a word concerning what they are will probably be necessary. There has been progress in this material the same as with many others during recent



Side Lock Joints for Metal Shingles

years; and the possibilities of modern metal shingle roofing should not, in all cases, be judged from examples we may be familiar with put on years ago. The same sturdy metal, thoroughly galvanized and weather proofed, continues to be used; but the designs have been greatly improved. The strong point for metal shingles to-day is their artistic appearance when applied—this combined with economy, their fire-proofing and weather-resisting properties remaining the same, having been thoroughly tested by some thirty years of continuous use under all kinds of conditions.

Metal shingles form probably the lightest weight

roof we have, thus requiring lighter framing for support. They will not break nor get loose and are locked together by various weather-proof locking joints which are proof against leakage, yet permit free movement for contraction and expansion during extremes of temperature.

Metal shingles can usually be had of two kinds, painted or galvanized. The shingles or tiles are stamped out by large and powerful machinery from first quality sheets. After they have been stamped to shape, the painting is done by dipping each into a vat of paint, thus coating both sides and thoroughly covering every part. The shingles are then allowed to stand several days so they may dry slowly before being put into boxes for shipment. In the same manner the galvanizing is done, by dipping each slate or shingle separately into a bath of melted zinc. This covers every portion of the metal and leaves no cracks or raw edges exposed for the rust to attack.

A strong point is made by those directly interested in this form of roofing in the fact that no special knowledge or skill is required to do a good job of applying metal shingles. After the first row is laid—care having been taken to see that it is started square—the other rows are laid to that as a guide, each shingle locking to the next. All metal tile roofs should be laid upon close sheathing to make a first-class job. It is also well to have the sheathing covered with oiled or rosin paper before the shingles are laid. (Tar paper should not be used, as it tends to rust out the metal.)

The building world is coming to realize more and more the truth of that old truism, "The best is the cheapest." In nothing is this of greater truth than concerning roof coverings. This is the day of permanent and fire-resisting roofs, among which metal shingles are destined to play an even more important part than in the past.



The Pilgrim Monument

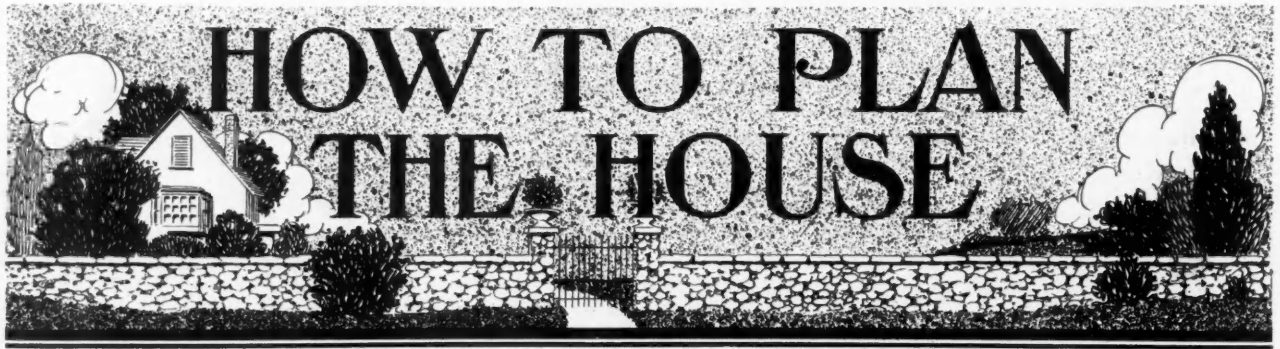
The Pilgrim Monument, erected at Provincetown, Mass., to commemorate the landing of the Mayflower, was dedicated on August 8.

The shaft springs from a crest of a mound 95 feet high, and is 254 feet in height. It is said to be the second largest shaft of solid construction in the United States.



Kieselguhr

An English firm of engineers and geologists has reported the existence at the bottom of certain lakes in Norway of between 200,000 and 300,000 tons of dry Kieselguhr—a fossil substance composed of silicious skeletons of minute animal and vegetable life. It is claimed to be proof against fire, acids, frost and vermin. It is used in Norway as lining for floors, ceilings, etc., as a protection against cold.



Three Suggestive Building Designs

GOOD IDEAS TO BE GAINED FROM THE STUDY OF SUCCESSFUL RESIDENCES DESIGNED BY LEADING ARCHITECTS—HOW TO PLAN A DOCTOR'S HOUSE

ON these pages we are offering photographs and floor plans of three residences, each of very dissimilar type, yet each embodying features of special merit and interest. To one who has to do the planning of houses for others as well as to one who is getting together ideas for the design of his

have seen it successfully used in practical work.

We do not mean by this to recommend the plagiarism of piracy of other architects' work; direct copying is very seldom a success—even if it were the right thing to do. Every feature of a residence design should be planned to meet the special needs of that particular



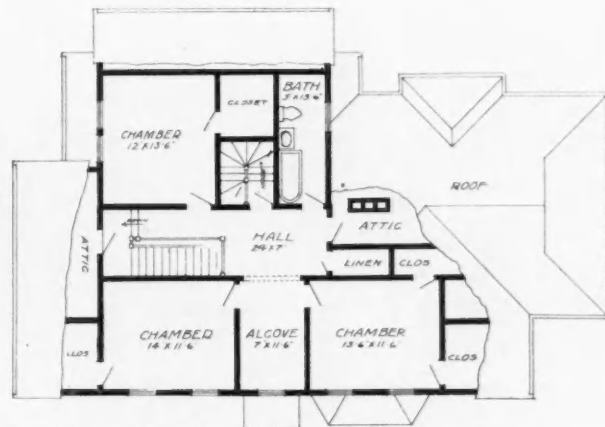
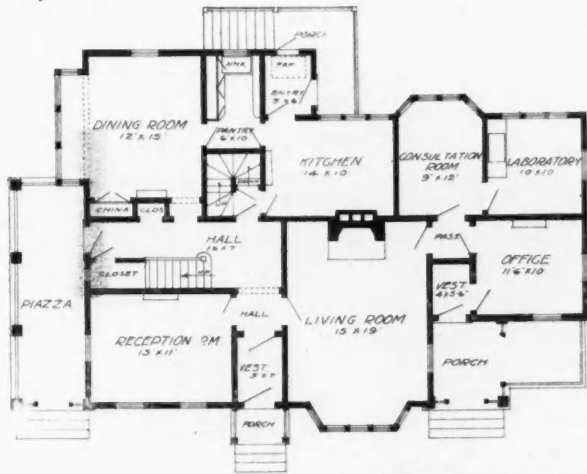
A Doctor's Residence with Office, Marblehead, Mass., Peare & Quiner, Architects

own house, nothing can be more helpful than the careful study of houses already built. Ideas both of design and construction are tested out on the hard field of practical work; and quite frequently they do not seem to stack up so well there as they did on paper. The best way to be sure that an idea is feasible is to

case; the nature and size of the building site, the outlook and the character of the surrounding buildings, and finally the needs of the family which is to occupy the house. The direct copying of some design *in toto* would very seldom meet all these special conditions satisfactorily. Good ideas may, however, be gleaned

from many sources and by the skillful designer be united and transformed into a successful and satisfactory whole.

The exterior finish is of shingles, stained deep brown, which tint harmonizes admirably with the cream white trim and dark green blinds.



First Floor Plan—Doctor's Residence and Office—Second Floor Plan

Doctor's Residence With Office

One of the really difficult problems of house designing is the planning of a doctor's residence with office attached. To have all under one roof and to have the whole a unit of design, yet with the office sufficiently separated from the living rooms, is nearly always a difficult matter. The accompanying photos and plans of such a building designed by Peare and Quiner, Architects of Marblehead, Mass., show a remarkably good handling of the problem. This is the combined residence and office of Dr. Thomas H. Gulliver of Marblehead.

A glance at the floor plans will show the convenient and satisfactory arrangement of the rooms. The cost of this building, finished in hard wood and with oak floors throughout, and including electricity, modern plumbing and steam heat, is said to have been \$6,500.



The House from the Rear



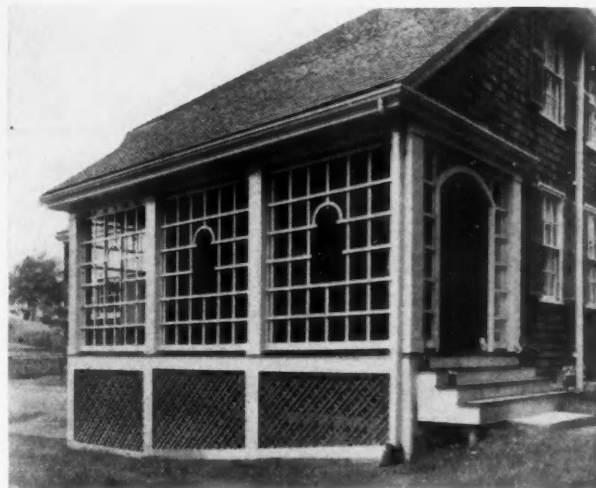
View of Dining Room

The entrance to the office is at the extreme right, where a single story addition contains a vestibule, outer office, laboratory and consultation room. A high sloping roof joins this addition to the main part. At the left the piazza and entrance to the living rooms is designed to balance the lines of the other side. There is not a monotonous line in the entire dwelling. Gables and odd windows have been introduced with excellent effect, and the combining of the conventional and the unusual has resulted in a house of exceptional charm.

plumbing and steam heat, is said to have been \$6,500.

A Square Shingled House

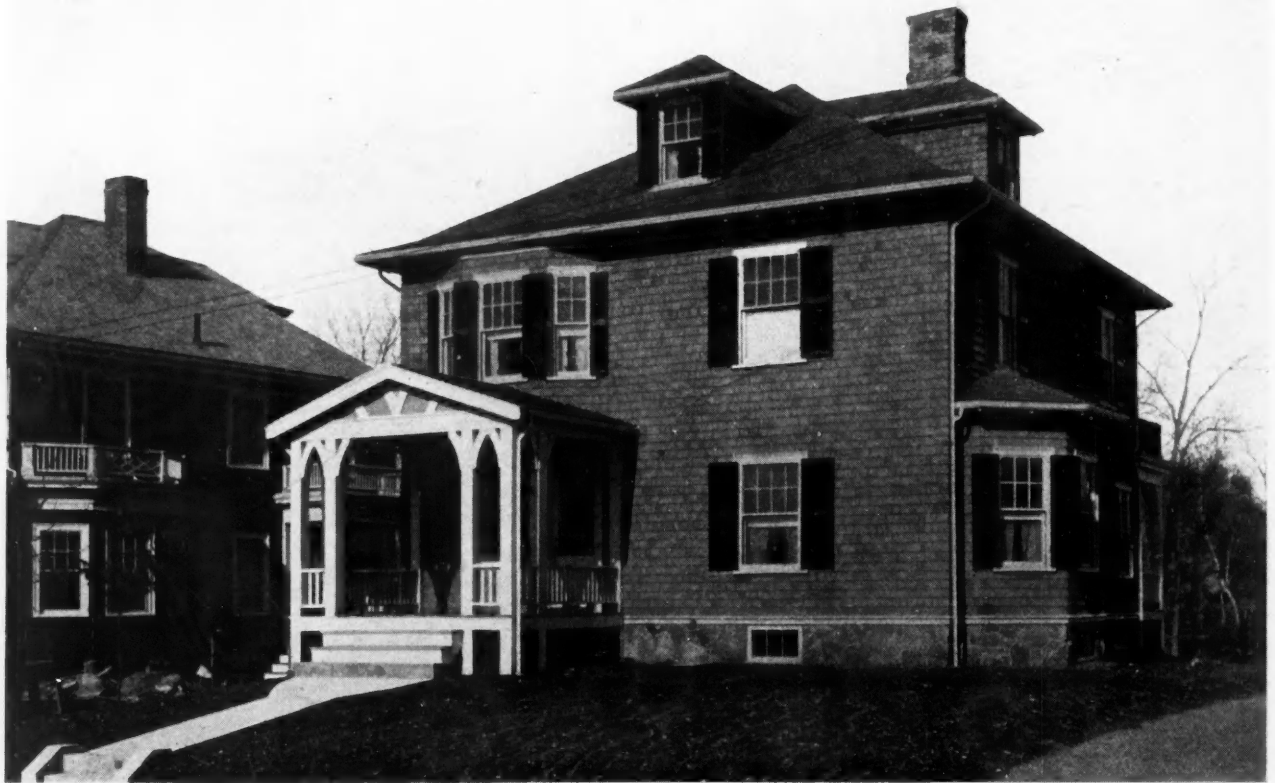
On page 56 appear photograph and plans of a house of plain and simple lines yet distinctive in appearance.



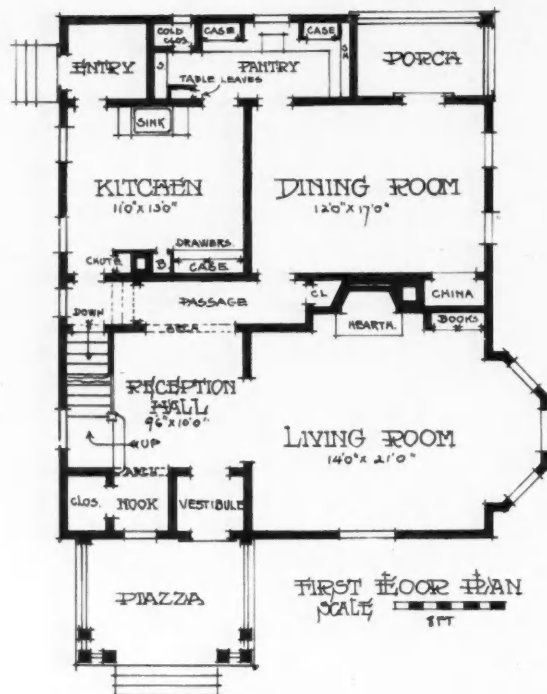
Detail of Lattice Covered Entrance Porch

How economical it may be to build in this way can be judged from the completed cost of this house. Built last summer at Brockton, Mass., using hardwood floors, cypress and white wood finish and including electric

reception hall and dining-room are of glass and are so arranged that they may be folded back against the wall, taking up very little space. The mantel in living room is set back in a recess with an arch over opening.

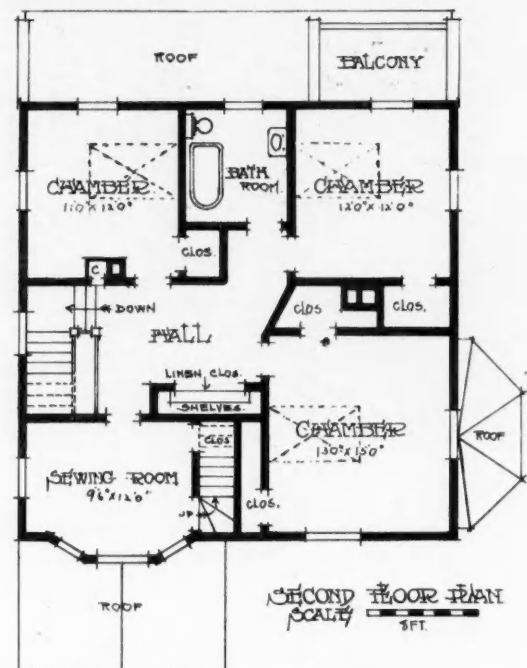


Shingled Residence at Brockton, Mass., Cost Complete \$4,300, W. F. Barlow, Jr., Architect



wiring, gas, open plumbing and steam heat, the entire cost for this house was \$4,300.

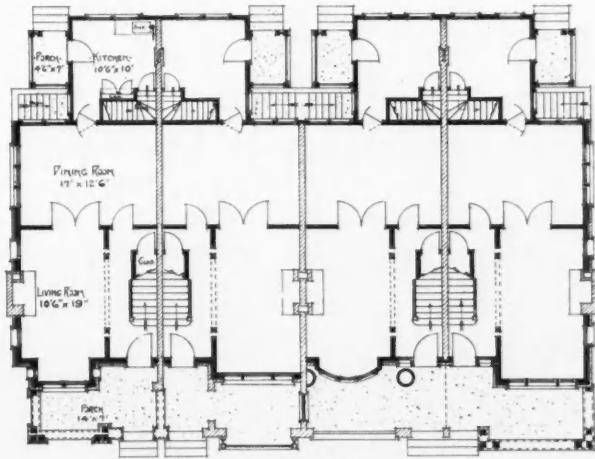
It is a seven-room house, the rooms being exceptionally large and well lighted. Double doors between



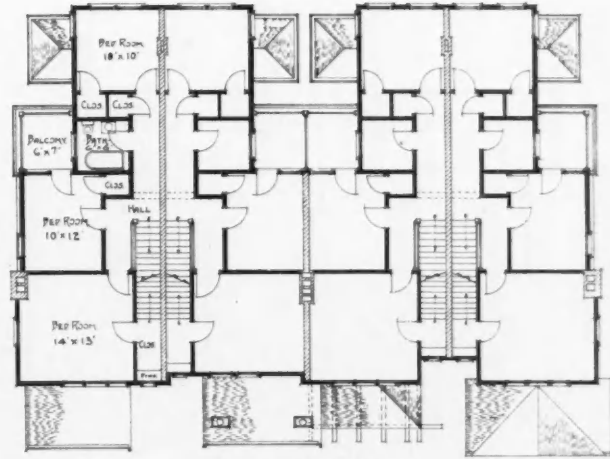
There are bracket lights on each side. The book case has leaded glass doors of a fancy design. Living room has a six-inch cornice around the wall at ceiling. The dining-room has private porch which the owners have screened in; there they serve meals in hot

weather. The pantry (6 by 15 feet) has cases with glass doors, space for ice chest, cold closet, table leaves, drawers, cupboards, etc. Kitchen also has case with glass doors, drawers under. A chute for soiled clothes runs from upper stair hall to basement, where the laundry is situated. All chambers have large closets

succession of porch and windows, porch and windows, etc., etc. No one would willingly live in such a place, and it rapidly becomes a bad investment. It pays to take extra thought in the design of terrace houses, so that, although they are all under the same roof, the separate parts may each appear different from all the



First Floor Plans



Second Floor Plans



A 4-Family Terrace Having the Appearance of Four Separate Houses—Frank B. Hunter, Indianapolis, Architect

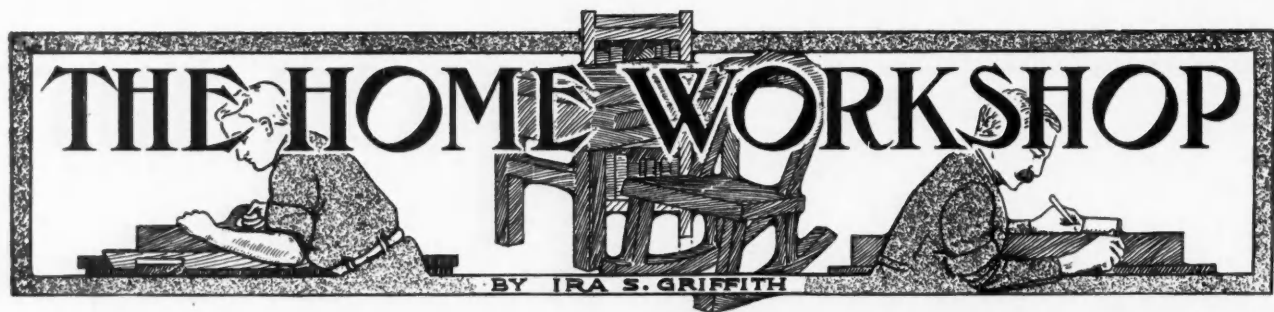
fitted with rods for coat and skirt hangers. There is room in attic for a large chamber or billiard room.

A 4-Family Terrace

For city building where lots are very expensive, it is desirable and often necessary to forego the advantages of green grass, light and air on all four sides of the house and build in solid rows or "terrace" form. If properly designed such a group of residences may be very desirable. We have all seen terraces of the other sort—all the sections just alike, a monotonous

rest. Each part is in fact a residence and a home, and it should be designed to have a distinctive and individual appearance.

The accompanying photo and plans, representing a 4-family terrace recently erected in Indianapolis, illustrates this idea very well. The design is by the well-known architect, Frank B. Hunter of that city. A study of both the arrangement of the rooms for convenience, lighting and ventilation and the exterior handling of the problem will prove very helpful.



Two Good Projects for Home Craftsmen

HOW TO MAKE A MAGAZINE STAND AND A MISSION SETTEE—COMPLETE DETAILED INSTRUCTIONS WITH PHOTOS AND WORKING DRAWINGS

THE magazine stand should be made of quarter-sawn white oak. The stock bill is as follows:

STOCK BILL FOR MAGAZINE STAND.

Sides, 2 pieces, $\frac{7}{8}$ by $15\frac{1}{2}$ inches by 48 inches, S-2-S.

Top and bottom shelves, 2 pieces, $\frac{3}{4}$ by 13 by 21 inches, S-2-S.

Middle shelves, 1 piece, $\frac{3}{4}$ by 13 by 17 inches, S-2-S.

Middle shelves, 2 pieces, $\frac{3}{4}$ by 12 by 17 inches, S-2-S.

Door, 2 pieces, $\frac{3}{4}$ by $13\frac{1}{4}$ by $16\frac{1}{2}$ inches, S-2-S.

Door, 2 pieces, $\frac{3}{4}$ by $13\frac{1}{4}$ by $8\frac{1}{2}$ inches, S-2-S.

Door, 1 piece, 5-16 by 6 by 14 inches, S-2-S.

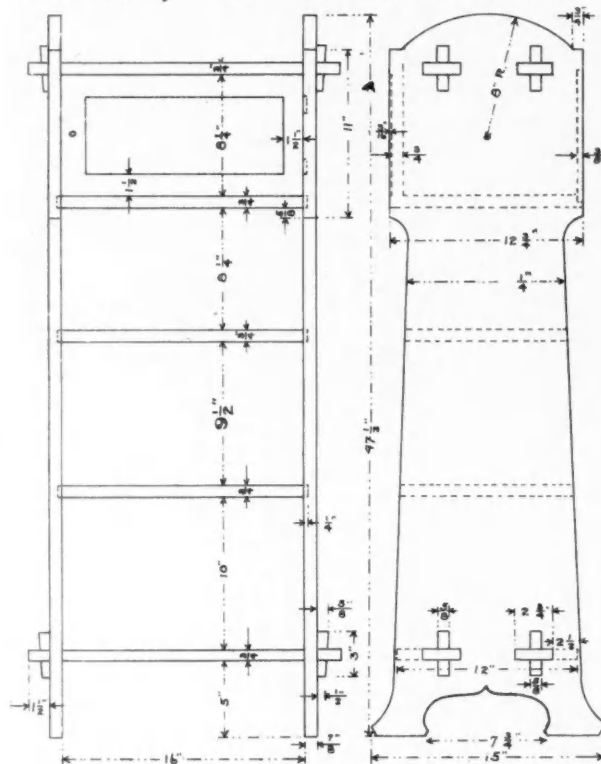
Backing, enough to cover one square foot of space, $\frac{3}{8}$ inch, matched and beaded.

Keys, 8 pieces, $\frac{5}{8}$ by $\frac{3}{4}$ by $3\frac{1}{2}$ inches, S-2-S.

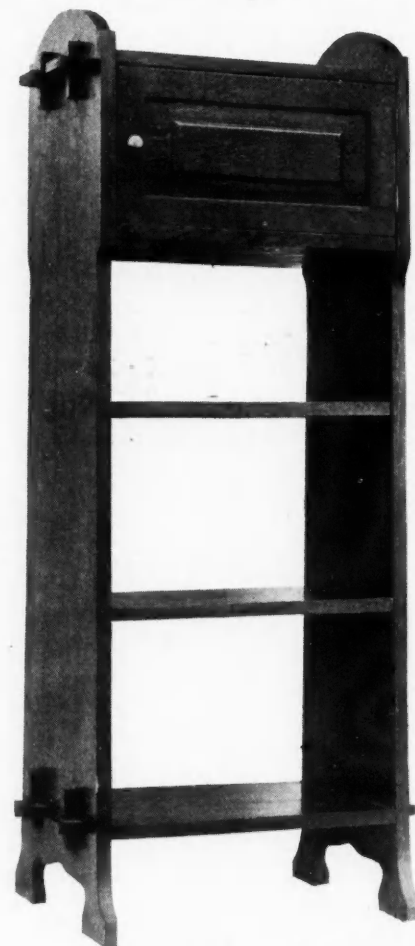
Begin work upon the side pieces. Plane a joint edge on each piece and square the lower ends from this edge. Next surface, that is, take off the mill-marks from the broad surfaces, joint an edge and square the two ends of each piece.

Return to the side pieces and, beginning at the lower end, lay off the lines which shall indicate the

locations of the gains and mortises that are to receive the ends of the shelves and their temons. Now locate a center line on each piece, parallel to the joint edge, and lay out the outline of the sides. A paper pattern should be made for the form at the bottom. Draw one-half of the form full size then



MAGAZINE STAND.



Magazine Rack with Cupboard

fold on the center line and trace this to the other side so as to get both sides alike. From this pattern the design may be transferred to the wood. The proper widths of all the shelves may now be obtained by measuring the width of the side pieces at the places the shelves are to fit. The shelves may be worked to width.

After having worked the shelves to width, lay out and cut the tenons on the top and bottom shelves, as indicated in the drawing. Also shoulder the middle shelves so as to make their ends fit in enclosed gains; half an inch back from the edge will do.

Locate the mortises and gauge their ends, also the ends of the gains. Work these mortises and gains. After this the outline of the sides may be worked to the lines.

The back is to have the ends of the pieces which form it "let in" to rabbets formed on the back edges of the two upper shelves. Plow these rabbets, then thoroughly scrape and clean all of these parts and put them together.

The door of the compartment is to be framed in the usual manner. The stiles and rails are to be thoroughly tenoned and mortised at the ends and the inner edges; the face edges are to be plowed to receive the panel of five-sixteenths inch stuff.

There will be needed a pair of hinges and a Hog catch for the door.

The magazine stand shown in the picture was made by R. J. Hamilton, Oak Park, Ill.

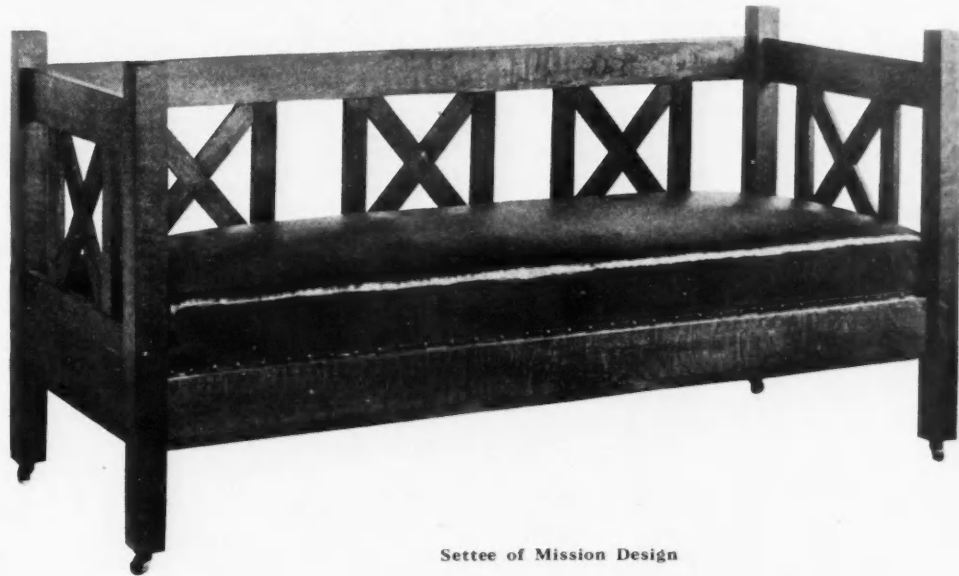
How to Make a Settee

The mission settee seems to be an ever popular piece for handicrafters. The one shown is simple in its design and construction.

There will be needed for its construction the following pieces.

STOCK BILL FOR SETTEE.

- Posts, 4 pieces, 2¼ by 2¼ by 34½ inches, S-4-S.
- Front rail, 1 piece, 1 by 4¾ by 68 inches, S-4-S.
- Back rail, 1 piece, 1 by 7¾ by 68 inches, S-4-S.
- Back rail, 1 piece, 1 by 3¾ by 68 inches, S-4-S.
- End rails, 2 pieces, 1 by 7¾ by 26 inches, S-4-S.



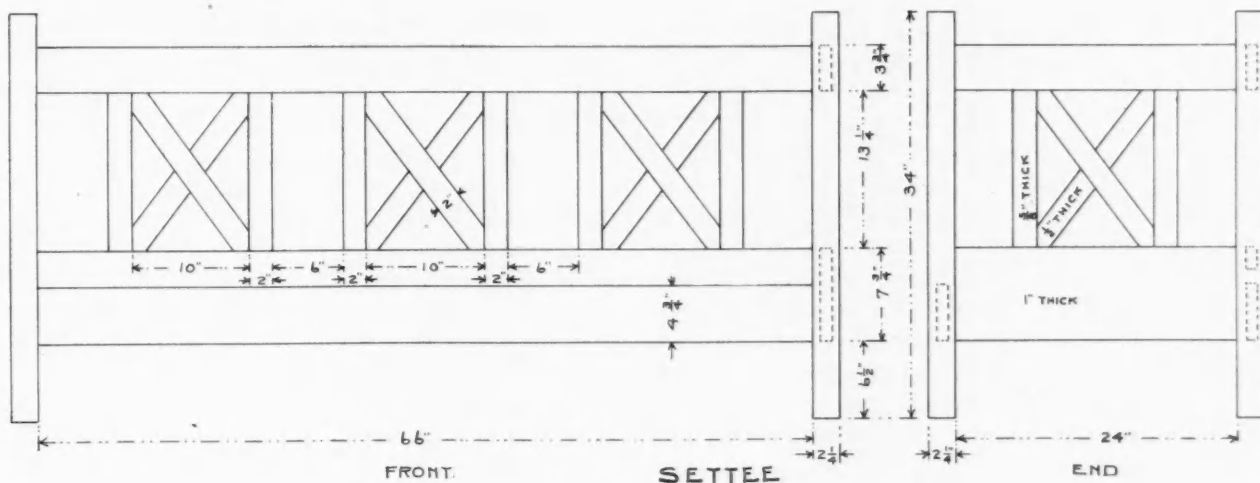
Settee of Mission Design

- End rails, 2 pieces, 1 by 3¾ by 26 inches, S-4-S.
- Verticals, 10 pieces, 5/8 by 2 by 14 inches, S-4-S.
- Diagonals, 10 pieces, ½ by 2 by 18 inches, S-4-S.
- Seat cleats, 2 pieces, ½ by 3¾ by 67 inches, S-4-S.
- Seat slats, 12 pieces, 3/8 by 3 by 26 inches, S-4-S.

The settee shown in the illustration has an upholstered spring, box seat. If this is desired the slats specified in the stock bill may be omitted, with the exception of three of them.

The four posts should have their lower ends squared up first and chamfered slightly to prevent their slivering at the arrises. Next cut them to length and square the top ends, putting on a three-sixteenth or a one-quarter inch chamfer.

Stand the posts up in the positions they are to have relative to one another in the finished piece, faces in, and mark roughly the locations of intended



mortises. Having done this, lay them flat on the bench, even the lower ends by means of the try-square and measure off on one of them the exact location for the ends of the mortises. Square these lines across all the pieces. Set the gauge from the face side and face edge and gauge the sides of the mortises, then chisel them.

The rails should next be cut to length. It will not be necessary to use the plane in squaring the ends, since tenons are to be cut thereon. They should be sawed square and to the line.

Place like pieces together and knife the shoulders of the tenons, then gauge their sides and cut them.

Into the inner edges of these rails are to be set the ends of the verticals. Cut the mortises of a size sufficient to take in the whole end. Corresponding rails should be placed side by side, inner edges up, when these markings are made so as to insure getting them laid out alike.

Cut the verticals to length, sawing them squarely to the lines. Make them long enough to allow each end to set into the rails about one-quarter to three-eighths of an inch.

The ends of the settee may now be fitted together without glue to make certain that everything is correct, after which the diagonals may be made and fitted in place. These diagonals are to be fastened in place by means of dowels in their ends and into the rails. Prepare these dowel joints; then, using good hot glue, put the ends of the settee together. Next, put the back frame together and finally join the back and front rails to the ends of the settee.

Put on the cleats to hold the seat, clean off all surplus glue and apply the finish as follows:

Flemish Brown Finish

The following directions will produce a very pleasing finish for both the magazine rack and the settee.

Apply a coat of brown Flemish water stain. Allow this to dry, then sandpaper it smooth, using number 00 sandpaper. After this apply a second coat of stain, this time diluting the stain by the addition of an equal volume of water. Sand this lightly and put on a very thin coat of shellac; be sure the shellac is thin, otherwise it would fill up the pores of the wood and interfere with the work of the filler which is to follow. The purpose of this shellac is to protect the stain on the highlights from the stain of the filler. Sand this shellac lightly then apply a coating of paste filler according to the directions which will be found on the can. A dark filler should be used and can be made as follows: Stir into the light paste filler, mix coloring matter in these proportions: 12 ozs. Vandyke brown, 4 ozs. Venetian red and 20 lbs. of filler. Allow the filler to harden over night then sandpaper it smooth. If one covering does not fill the pores of the wood smoothly enough to suit, a second coat

may be applied in a similar manner. On the hardened filler apply a coat of orange shellac and sand it lightly when dry. Follow with several coats of some good rubbing varnish. The first coats should be rubbed with curled hair or hair cloth and the last coats with pulverized pumice stone and crude or raw linseed oil.

This finish is dark as to its general effect with the highlights showing through in a deep brown. If a lighter brown is preferred, it can be easily obtained by diluting the first as well as the second application of stain.



Work of the "Steeplejack"

The successful "steeplejack" must possess determination, perseverance and ingenuity. He must solve many a practical problem in hoisting great bodies aloft. He must know how to fasten a hook over the summit of a sky-scraping chimney. He must have the nerve to paint a steeple that sways like a pendulum at the slender top. He must be able to tear down, build up, gild, paint, place electric wires and do many another task that would be difficult enough on the solid earth, says a writer in *Harper's Weekly*. But a steeple is not the most difficult height to climb. Straight, tall chimneys are the hardest of all. There a man has to work with might and main to lift himself inch by inch from the ground to the top. Sometimes the top is 300 feet high. When it is reached a hook is placed over the edge, a pulley is made fast, the swinging chair is hauled up and work begins.

When the chair is near the top it is easier to work, because the ropes are short; but when they lengthen, as the ground is approached, there is a tendency to swing, and the wind gives impetus.

The steeplejack's safety depends upon the hook, and until he has raised himself almost to the top it is impossible for him to see whether or not the hook has been properly adjusted. More than once a steeple-climber has seen, when within 10 feet of the top, that corrosion of the iron and the collection of soot have so thickened the wall that the hook is merely balancing on the top, so that the slightest pull in the wrong direction would drag it off. Again, the bricks are often loose at the top, and the hook is likely to tear them away.

One of the natural difficulties to conquer is the swaying of all high steeples and chimneys. In a gale a steeple point will sway a foot and a half. Usually it sways from 7 to 9 inches. Painting it means reaching for a spot on the right side, and finding it on the left, and when making a dive for it on the left, to see it sway back to the right. Yet in spite of the constant danger a born steeplejack exults in his work, and is at home, like the iron-worker on the skyscraper, only when high above the world. He can stand triumphantly at any height, if he can have $2\frac{1}{2}$ square inches to bear his weight.

MACHINE WOODWORKING



Equipment and Power for the Carpenter Shop

OPPORTUNITIES IN CARPENTER SHOP WORK FOR CARPENTERS AND CONTRACTORS ESPECIALLY DURING THE WINTER—GASOLINE ENGINES—PROPER MACHINERY EQUIPMENT

IN THESE days of readily available power in small units, and of highly perfected machinery for almost every imaginable purpose, there are few carpenters or building contractors who could not to their own advantage well afford to set up a small woodworking shop. With the approach of the winter season, which ordinarily is very dull for those whose work is not so well organized, interest naturally turns again more strongly to the power-equipped shop. Progressive men, who do not relish the three or four months of inforced idleness when outside work is impossible, will now get busy figuring out not only the opportunities in carpenter shop work for the winter season but also the advantages to them of power in connection with their regular work.

The first and most essential machines in any wood-working plant will usually be circular rip and cut-off saw benches. These, if only one man is likely to be at machine work at one time, and if room is an item of material consideration, may be advantageously combined. The buzz planer is a machine the value and applicability of which is apt to be underestimated by one who has never used it; and a band saw is pretty sure to pay its way in any locality. The lathe is generally of value only when there is available a man somewhat specially skilled in its use. An upright boring machine, so set that a large variety of work may be gotten under it, is pretty likely to be found useful; and an emery grinder is almost essential for keeping machines and tools in order, as well as for miscellaneous work.

Selecting the Power

To one contemplating the installation of a machine woodworking shop, the first item of consideration is, of course, the power; and the first consideration about power is to have plenty of it, promptly available. What is best in this line depends very largely upon the requirements and local conditions. In nine cases out of ten, however, some form of internal combustion engine will be found the most practicable; and in eight of these nine cases, gasoline will be the fuel used.

Gas or crude oil is much cheaper in some localities, while kerosene may be more economical in others. Alcohol will be cheaper some day, but it is doubtful if it could successfully compete with any of the others, even in the most favorable localities, as yet. But whether the fuel be street gas, natural gas, producer gas, alcohol, gasoline or kerosene or crude oil, the engine is practically the same.

It seems to be almost the universal custom to get too little power, or to overload that which one has. This tendency should be carefully guarded against, for there is nothing so wearisome as trying to do work with a machine inadequately driven. It costs a little more to get six horsepower out of a ten-horsepower engine than it would to get the same out of a six-horsepower one, but, in case of any slight extra stress, the reserve four horsepower carries one through and avoids a shut down. Of course, it is not well to go to excess in the matter, but a little reserve power is well worth all that it costs. Though this is true regardless of the kind of power used, it is a rule having, perhaps, fewer exceptions in the case of gasoline engines than in that of any other form of power.

A gasoline engine differs from a steam engine in that it cannot practicably be made to deliver more than its rated amount of power. Its power may be increased, it is true, by so changing the governor as to give it greater speed, but this is, for many reasons, impracticable. True, gasoline engines are usually rated at the actual power capable of being delivered (which method of rating makes one of a stated power about 10 per cent stronger than a steam engine of the same nominal power), yet the tests on which such rating is based are, naturally and fairly enough, made under the best of running conditions. As these perfect conditions are rarely attainable in actual practice one dare not reckon on all of the power of his engine being available at all times. Also, without any disparagement to machine manufacturers, it may be said that, when they state the power requirements of their machines they are pretty apt to state them at less than they will be under ordinary running conditions

—for ordinary running conditions are far from the best, and the blame is not theirs, but yours.

There are hundreds of makes of gasoline engines on the market, each of which doubtless has its peculiar merits; merits which the manufacturer is always delighted to show up. It is well, by study and comparison of as many different makes as possible, to become as well acquainted as may be with the demerits, which they usually do not show up. The only general caution that seems necessary is against getting one of too little power or of too light build. Weight is rather a good point than a detriment in a stationary engine, though extreme weight of the running parts adds somewhat to the cost of running.

There is, however, a chance to save power and thus economize in gasoline which is sometimes overlooked in equipping a plant with a number of machines. Say, for example, there are a number of machines scattered all through the shop, a turning lathe at one end, a pony planer at the other end, band saw, rip saw, etc., in the middle. To reach all these machines it takes quite a stretch of line shafting; and it is in this line shafting that power is used up. The first precaution to be taken, therefore, is to have the shafting, pulleys and belting as light as practical for the work they have to do. This would seem contrary

to the inclinations of some old time mechanics, who believe in making things extra heavy, but it is a good policy just the same. For one of the important things in connection with the gasoline engine is reducing the quantity of gasoline required to keep it going. To keep this quantity down to minimum means that you should eliminate all useless weight of machinery and friction in both shafting and belts.

Also it pays to have some means by which you can cut off at least a part of the line shafting while you are operating the other part. This may be done very easily if your gasoline engine is somewhere near the middle of your line of shafting, which it should be, provided the machines are all practically the same in power requirements. Then you can put the drive belt from the engine onto a short length of shafting or jack shaft with a coupling on each end, attaching it to the line shafting in each direction. By having these couplings and convenient levers to throw them in and out one can let half the line shaft stand idle while operating the other half and thus economize considerably in power. It costs a little more to equip with these couplings in the manner suggested, but money expended here will be made up for by economy in gasoline, and it will have wear and tear on machinery and belting as well.

Hints on Estimating

DON'T forget that rates of wages are lowest in dull times and in winter, and highest in boom times and in summer.

Remember that an allowance for discounts is not operative when payment is delayed beyond the time limit.

Repairs on bargain-counter plant may be three times as great as on first-class new equipment.

Depreciation is affected by a multitude of conditions, and estimates of the amount for this item should not assume too high a figure for scrap value.

The interest on plant goes on whether the plant is working or not.

If the non-paying part of a job has to be done first, interest on the loss will run to the end of the contract.

In estimating the cost of transportation, give special attention to the character of available roads, the direction of the proposed traffic, and the time of year.

Insurance against accidents depends upon the riskiness, not to the plant, but to the men.

After making an estimate in detail, lay it aside a day or two if possible, forget the figures, and then go over them again critically.

If someone else is going to carry on the work, take his personality into account in making an estimate of how much his work is going to cost.

Check up an estimate against average contract prices, selecting particularly contracts where the conditions are well known, and selecting the contract bids from firms of experience in the line of work in question.

Check over the bidding sheet to see that it compares with the estimate.

A long and big job can be estimated on more safely than a short and small one, since the accidental conditions on big work are more likely to balance themselves.

It is not wise for the contractor to figure on making money out of lawsuits as he can generally make a good deal more money by doing construction work on a square basis than he can by providing a job for his lawyer.

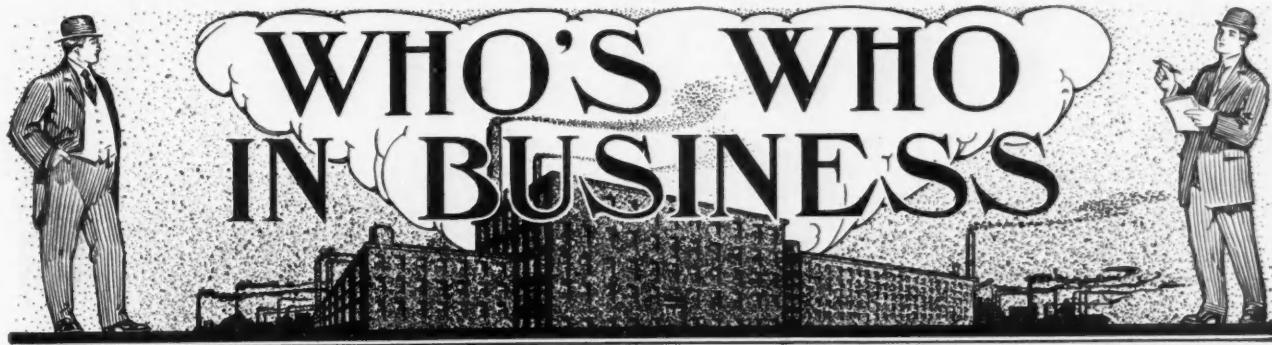
For trench machine work, from \$7.00 to \$10.00 a day should ordinarily be added for rental. Also add the cost of the sheeting, plank and pumping. In estimating the cost of trenching work, look out for boulders.

The worst estimate made upon even assumed data is generally a good deal better than guess.

To estimate the quantity of sheeting or of shiplap, calculate the exact surface to be covered, deducting openings; then add the following percentages:

	Sheeting	Shiplap
For floors	1/7, or 15%	1/6, or 17%
For sidewalls.....	1/6, or 17%	1/5, or 20%
For roofs	1/5, or 20%	1/4, or 25%

The cost of materials will vary from year to year. A study should be made of the characteristic fluctuations in prices, when figuring closely, in order that proper prices of materials can be determined for some time in advance.



The L. & I. J. White Company

IN the year 1837, Leonard and I. J. White started in a small building to manufacture edge tools and machine knives, offering to the trade the best that good material and high-class workmanship could produce. The White Brothers decided to devote their entire time and energy to the manufacture of these two lines, thereby giving every tool the highest quality that could be obtained.

The trade was tiring of inferior tools, and the demand for tools that were always the best that skill could produce and fully guaranteed, was rapidly increasing. This was shown by the growth of the White business from a small beginning to an immense plant.

Mr. I. J. White died on Feb. 2, 1879, and Mr. Leonard White continued the business until his death, on December 31, 1893, when he was succeeded as president by John G. H. Marvin.

Mr. Marvin entered the employ of the L. & I. J. White Company nearly a quarter of a century ago, working in different departments, and gradually advancing to the highest position with the company. By doing this, he acquired a perfect knowledge of the edge tool and machine knife business, and a keen insight into the requirements of plant and trade. He

brought about many changes and improvements during the different stages of his advancement, and upon his election to the presidency in 1894, inaugurated a progressive policy to increase the White business,

which has made it necessary to double the capacity of the plant three times. The hard and careful work performed and knowledge acquired throughout the different departments prepared him for the position of president, treasurer and general manager, which he now holds.

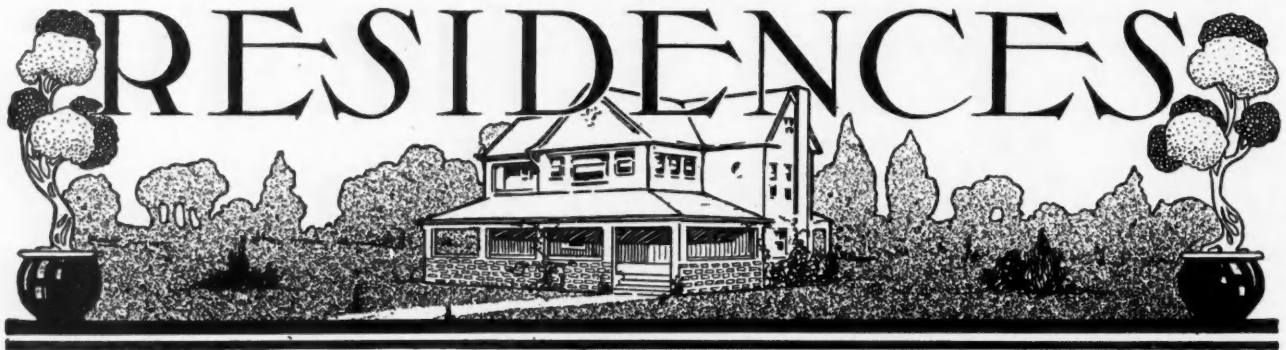
Today the company operates many forging fires, monster grinding machines, punches, shears, presses, wood-turning lathes, etc., and the plant is one of the largest in the country manufacturing both edge tools and machine knives. How much of this growth has been due to the progressive and indomitable spirit of Mr. Marvin, is best known to those closely associated with him, who point him out as the one man above all

others to whom most of the success is due.

The company has agencies in all of the principal cities in the United States and abroad, the majority of which have been established under the present administration. It also has branches located in New York City, Chicago and New Orleans.



JOHN G. H. MARVIN
President and Treasurer—The L. & I. J. White Co.



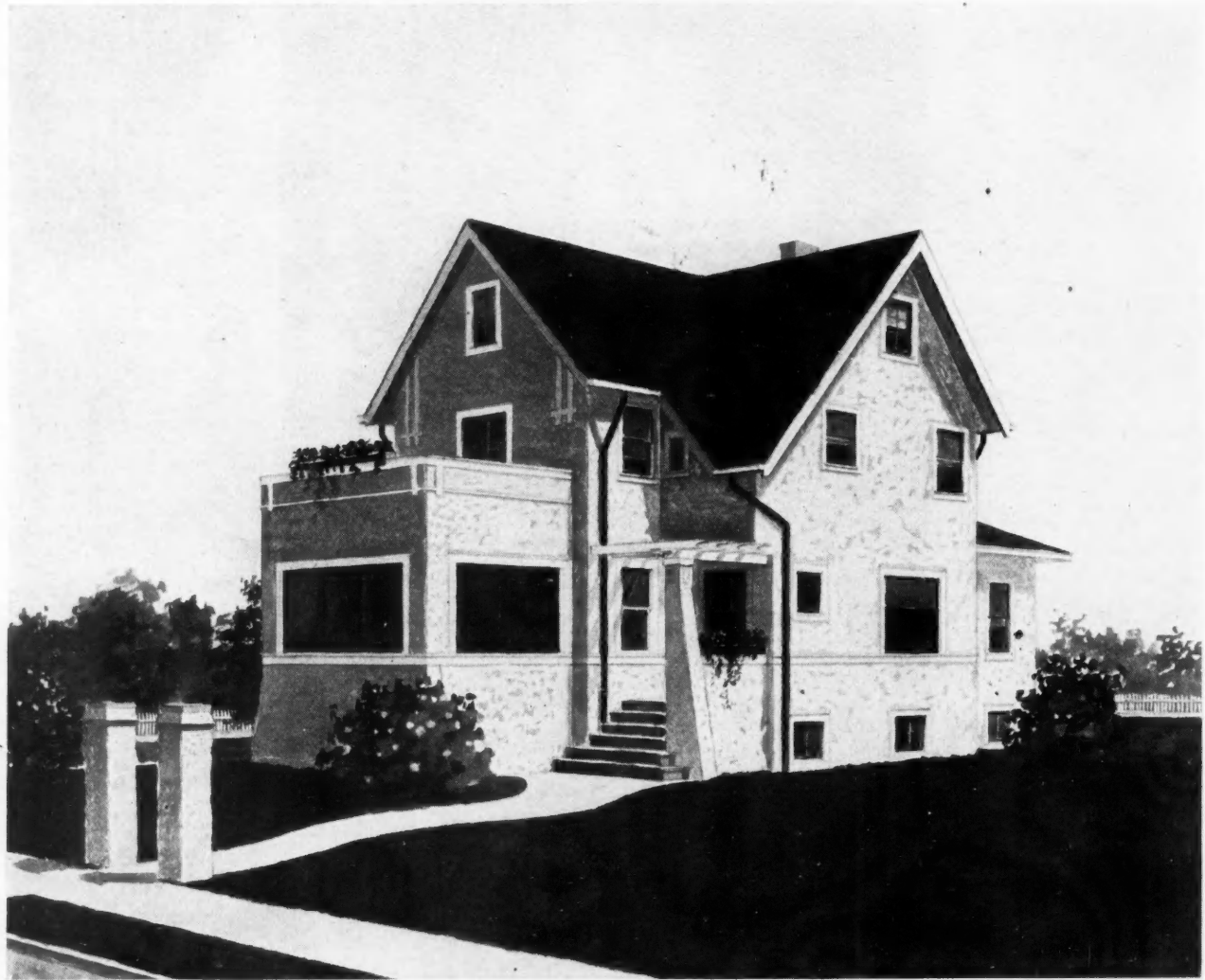
Plans for Artistic Stucco House

COMPLETE SET OF ARCHITECT'S DRAWINGS FOR A VERY ATTRACTIVE SEVEN-ROOM CEMENT PLASTERED HOUSE COSTING COMPLETE \$5000.

HERE is a house planned on rather unusual lines which is now being completed for Mr. Charles P. Rawson at Ravenswood Manor, Chicago. The exterior is covered with stucco in a deep yellow and the trimmings are white with the window sash and downspouts painted blind green. The

the house, the entrance door being on the side and protected by a small pergola.

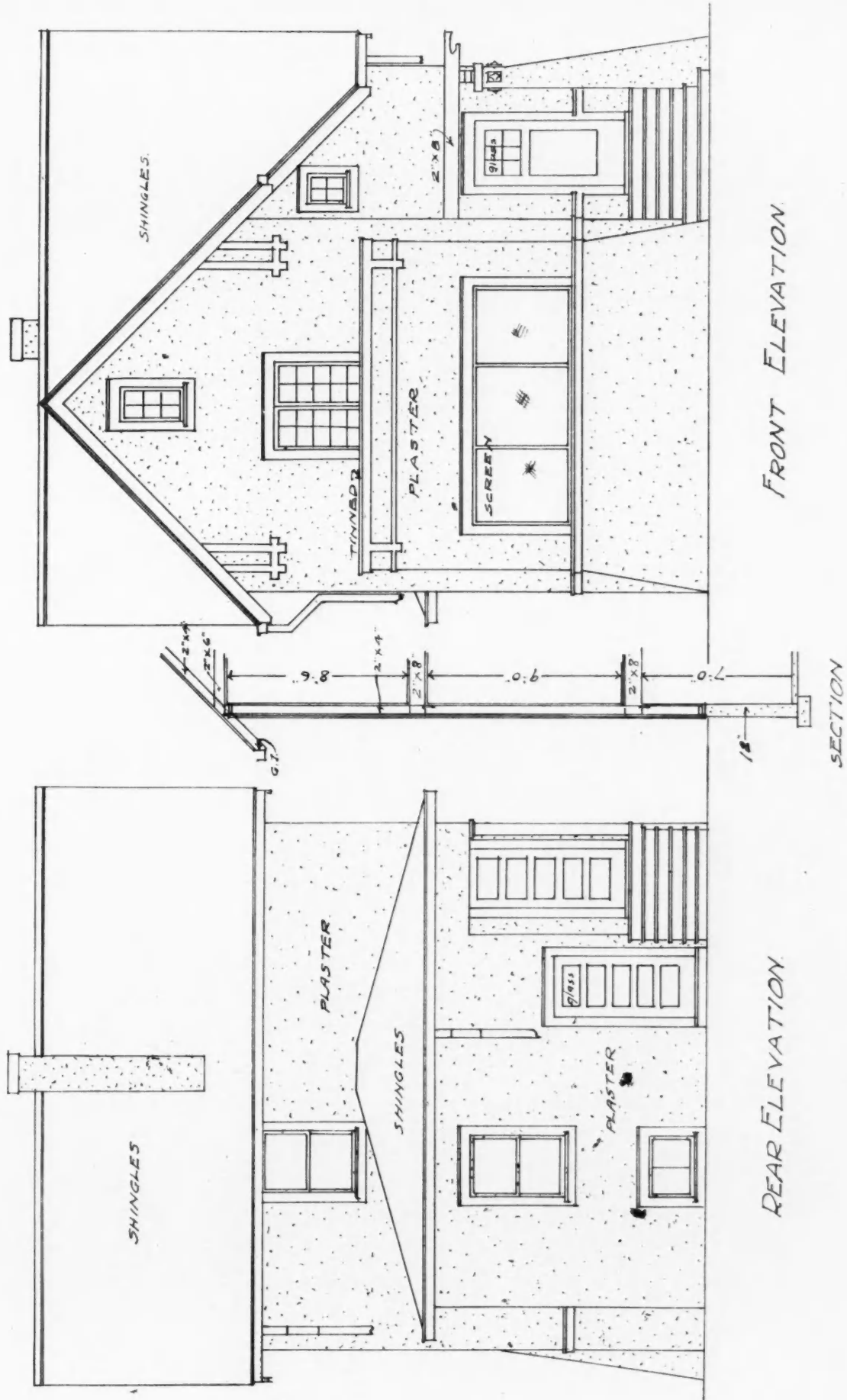
The interior of the house shows many good points. The combination stair, the small hall on the second story, the large balcony entered from the front bedroom, the omission of a pantry with the substitution of



Attractive Dwelling Now Being Erected for Charles P. Rawson at Ravenswood Manor, Chicago

roof is shingled and stained green. One of the attractive features of the house is the large living porch which is screened in and which is entered only from

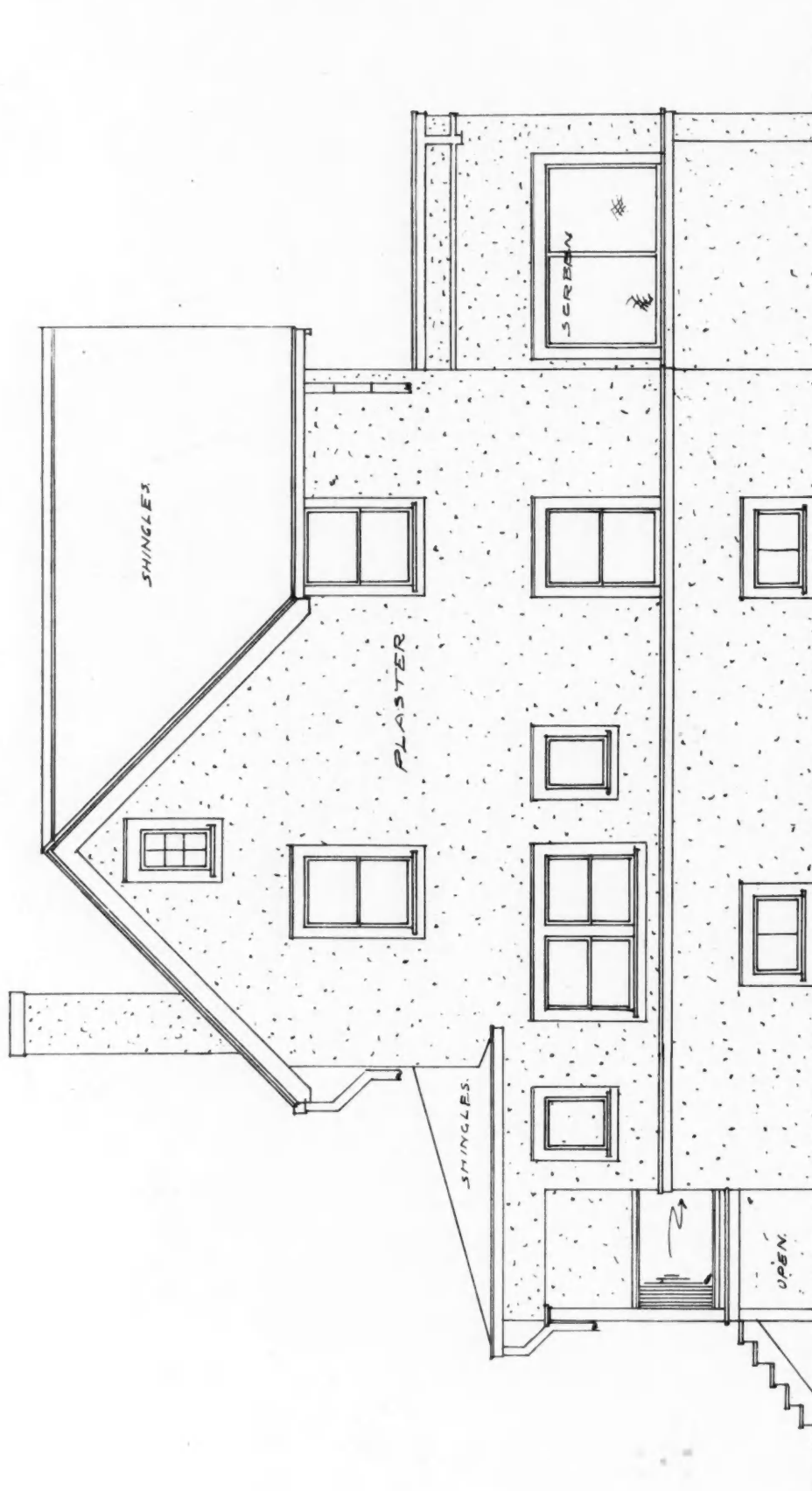
abundant cupboard space in the kitchen, and the addition of the "extra room" or den on the first floor are some of the attractive features.



(PERSPECTIVE ON OPPOSITE PAGE.)

The living room is of fair size and has a beamed ceiling with gold panels. The woodwork in this room is rich dark oak and the walls are hung with golden yellow grass cloth. The dining-room is done in dark

oak with a paneled wainscoting and a vaulted ceiling. The upper part of the walls are papered with a "landscape" freize. The bedrooms are all papered and the woodwork is enameled; the front room being in old

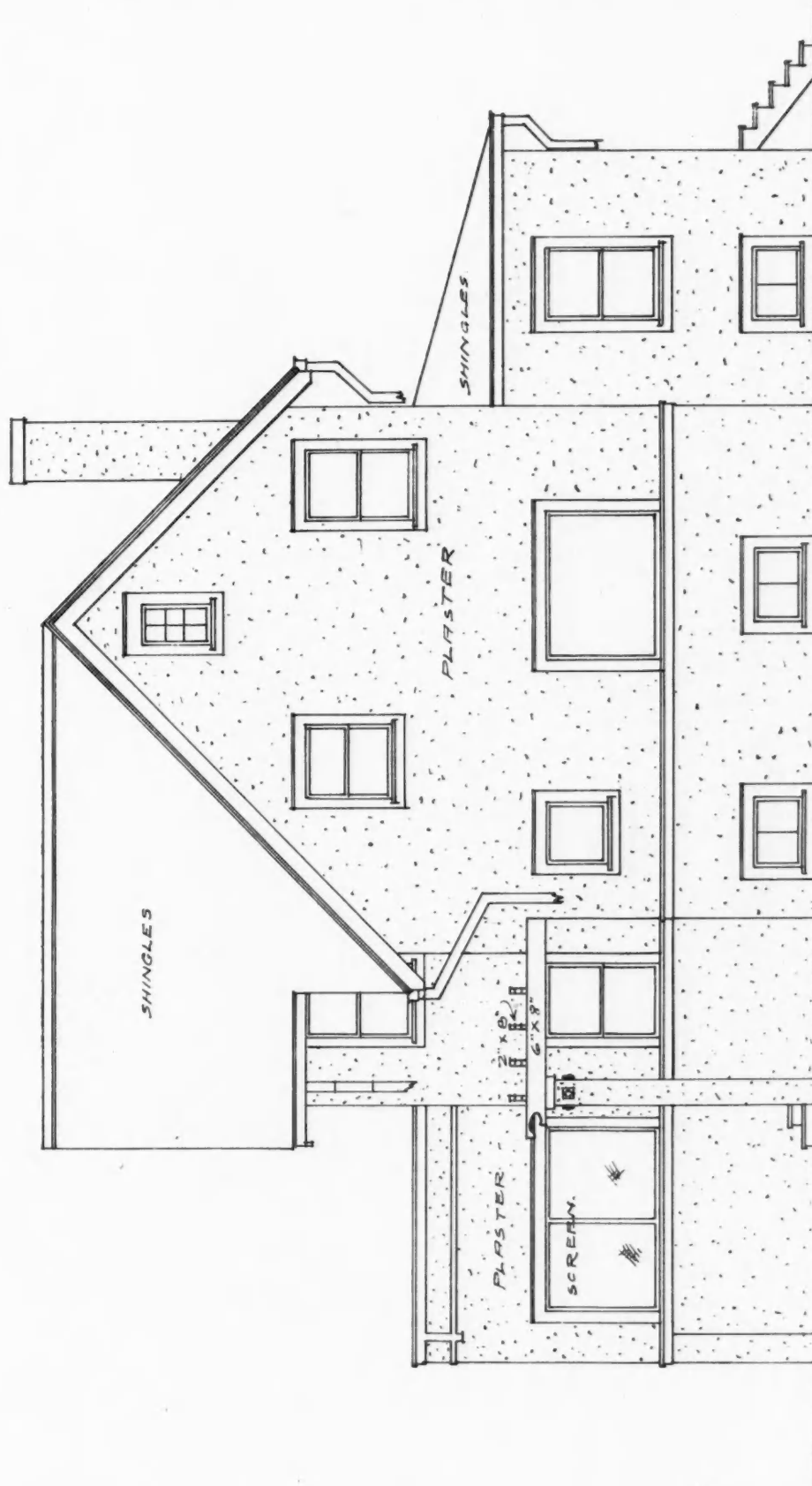


LEFT SIDE ELEVATION — HOUSE PAGE 64.

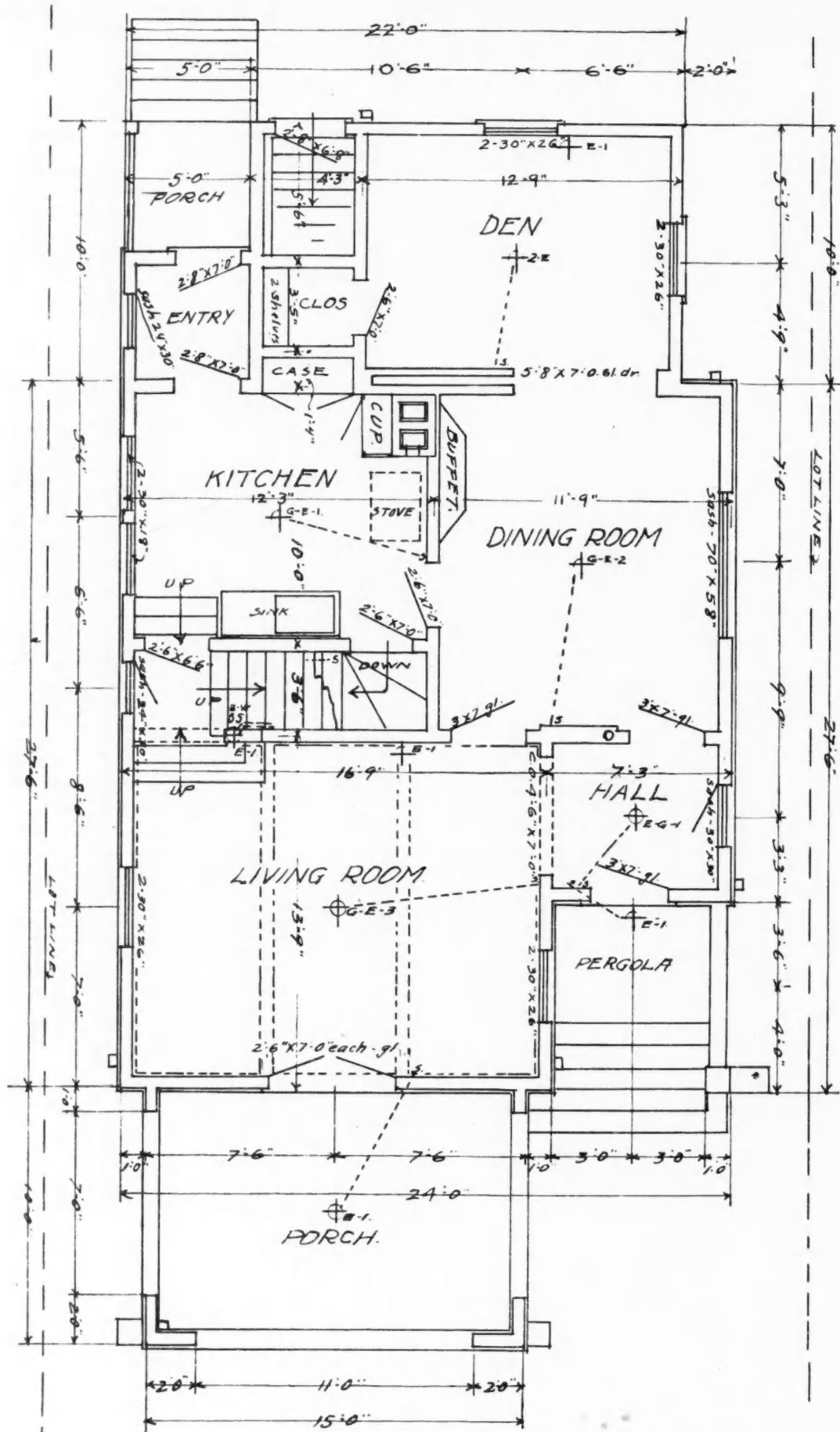
ivory with walls and ceiling in panels of yellow, and the rear bedroom is in French grey and pink. The house contains every modern convenience, including hot water heat, electric lights, hot and cold water, etc. The cost was about \$5,000.00.

Rift Sawing

The term rift sawing is sometimes used in place of "quarter sawing" and signifies that the log is cut into quarters before being reduced to boards. In genuine quarter sawing the cuts are as nearly as possible at



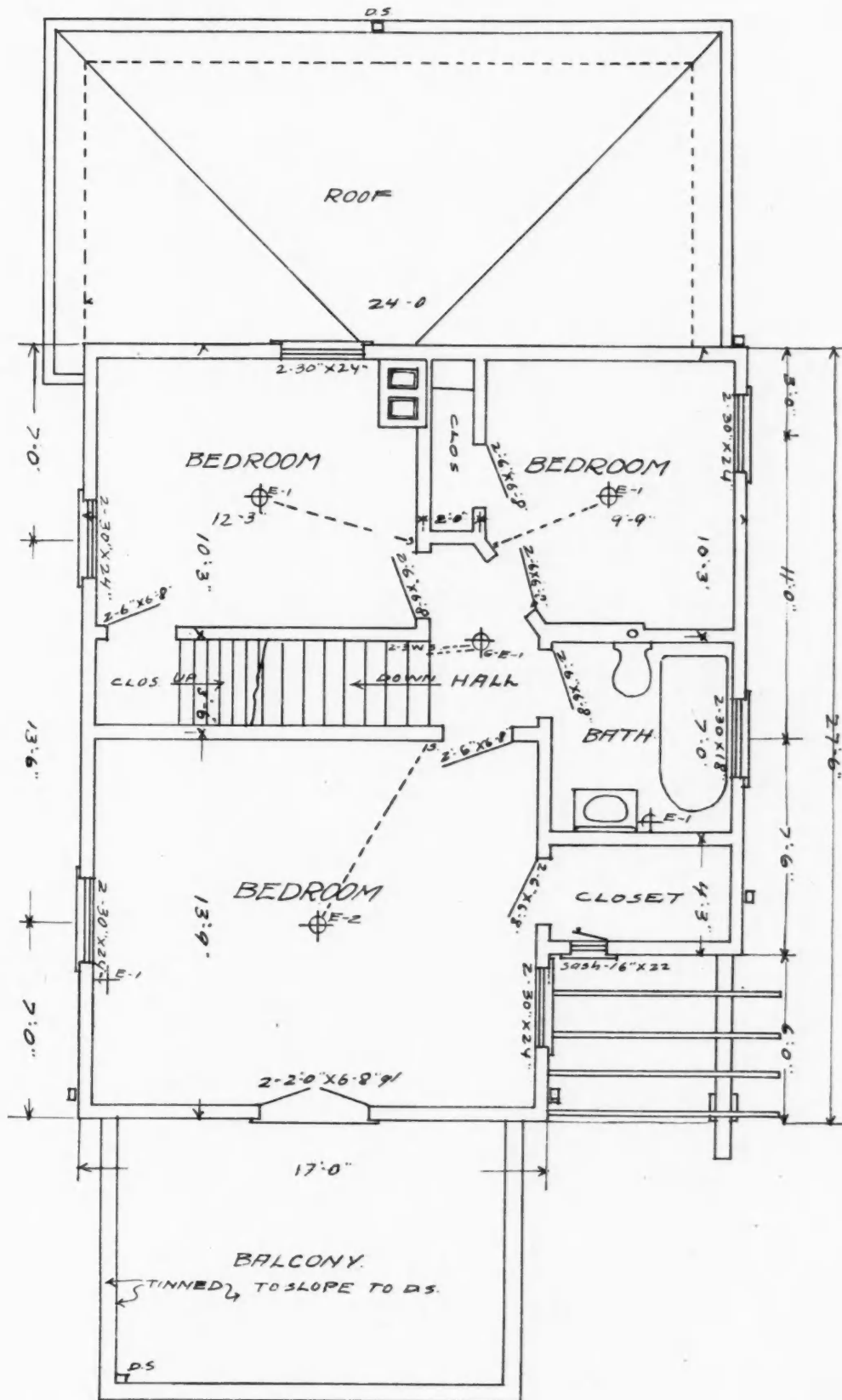
RIGHT SIDE ELEVATION — HOUSE PAGE 64.



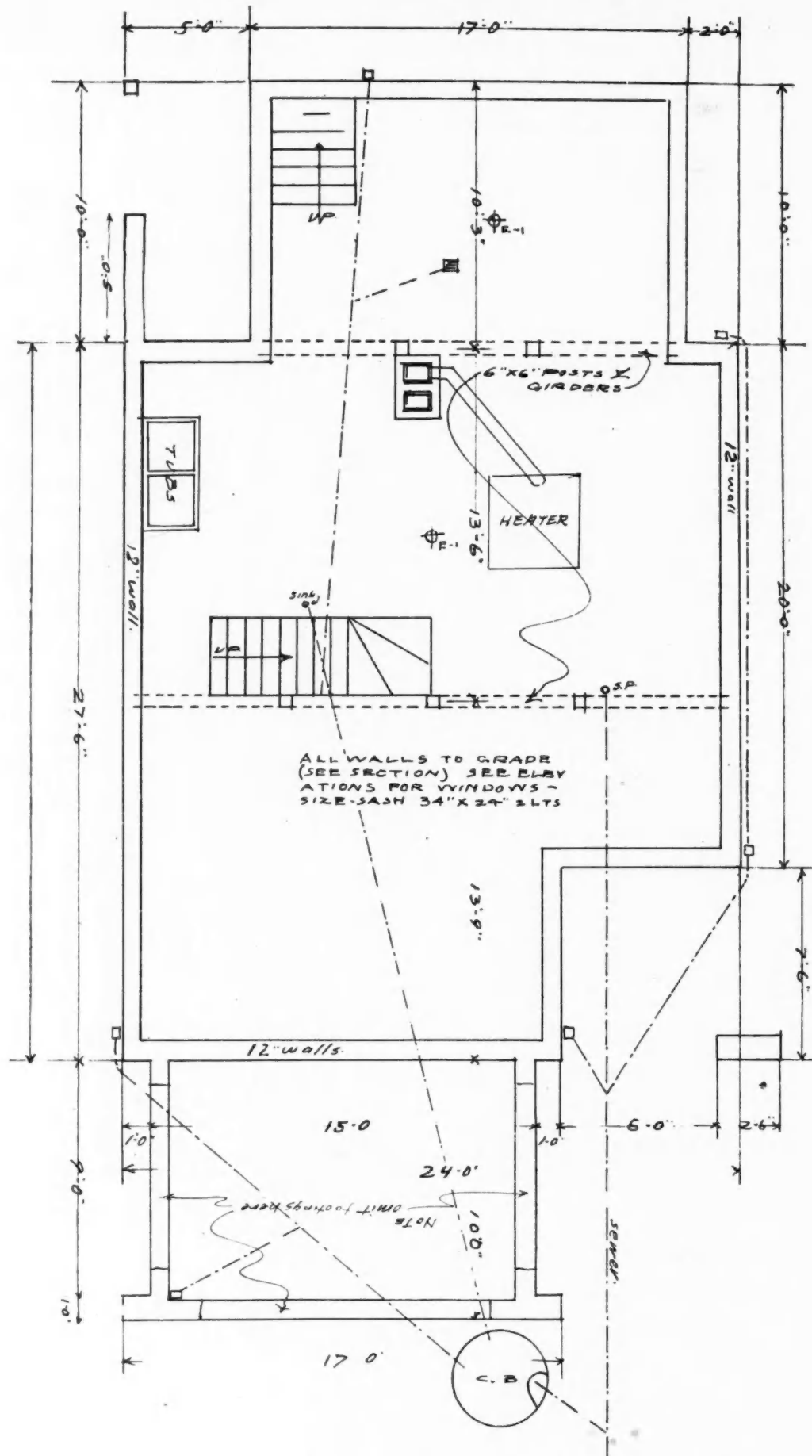
FIRST FLOOR PLAN—HOUSE PAGE 64.

right angles with the circles of growth or parallel with what are termed the medullary rays. The expressions quarter sawed, rift sawed, vertical grained, straight grained and edge grained as applied to boards mean

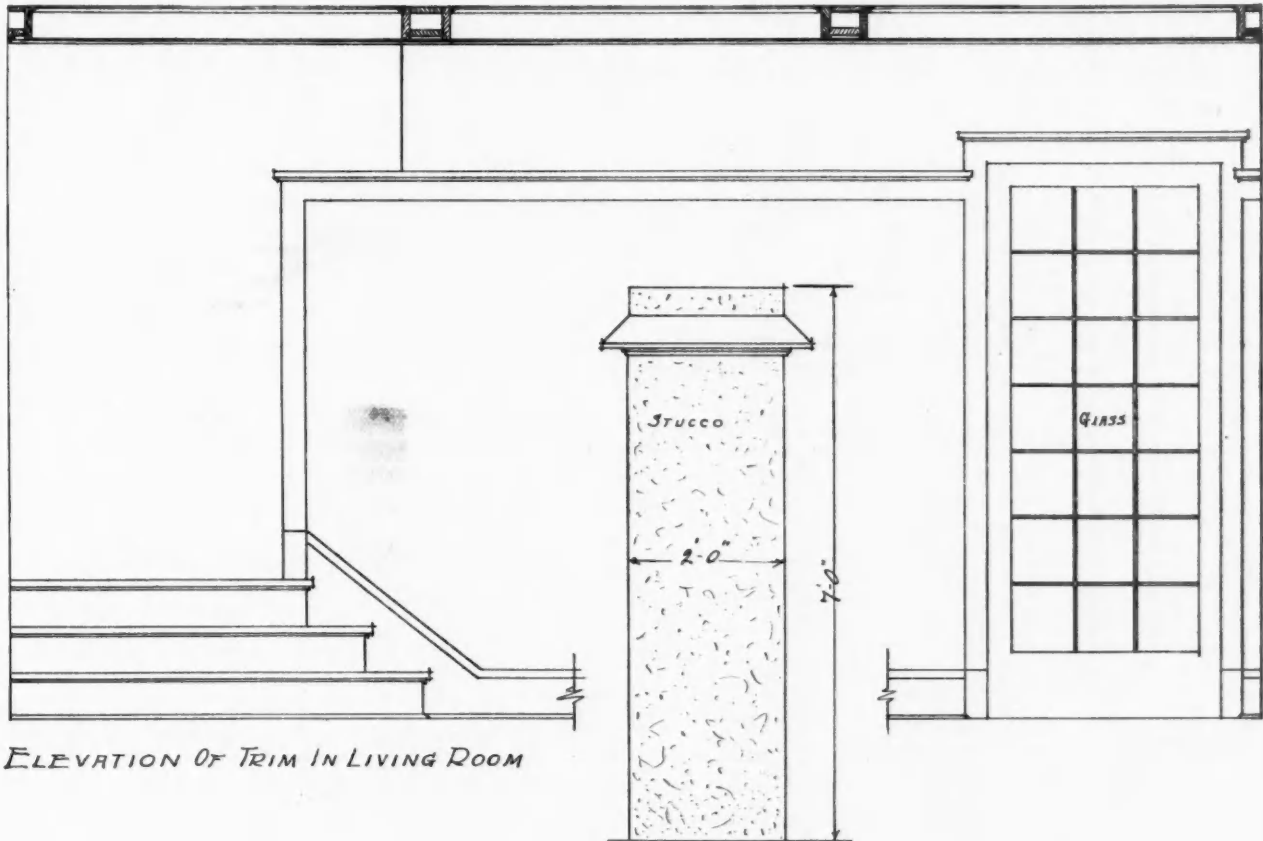
practically the same thing. Quarter-sawed lumber is used for a variety of purposes, the finest furniture being made from it, as well as the finest finish, clapboarding, flooring, etc.



SECOND FLOOR PLAN—HOUSE PAGE 64.

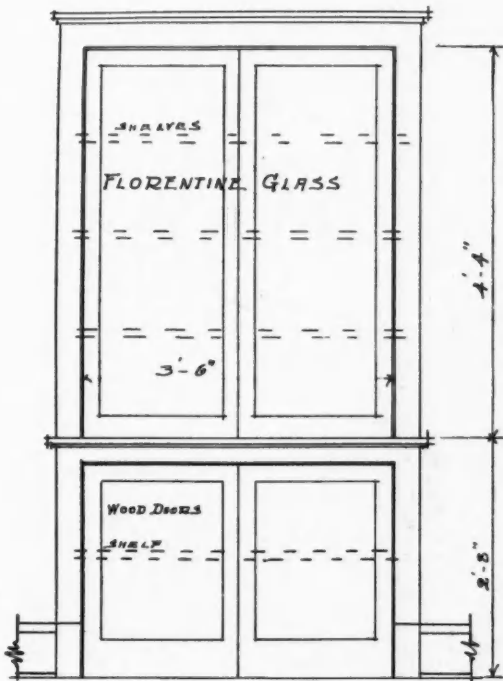


FOUNDATION AND CELLAR PLAN—HOUSE PAGE 64.

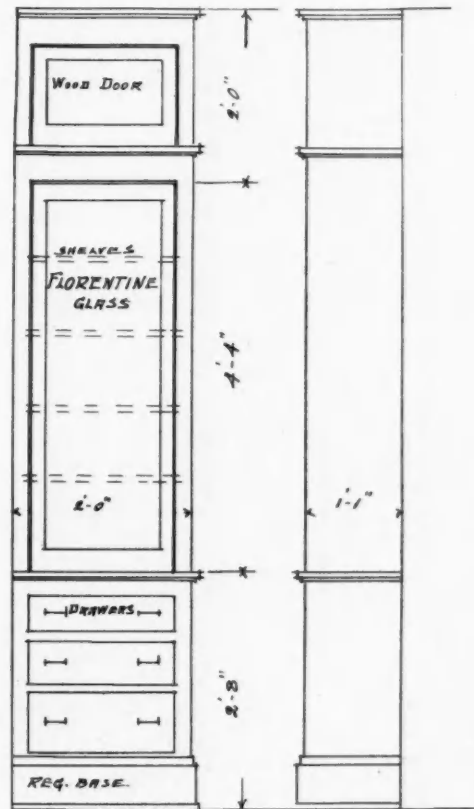


ELEVATION OF TRIM IN LIVING ROOM

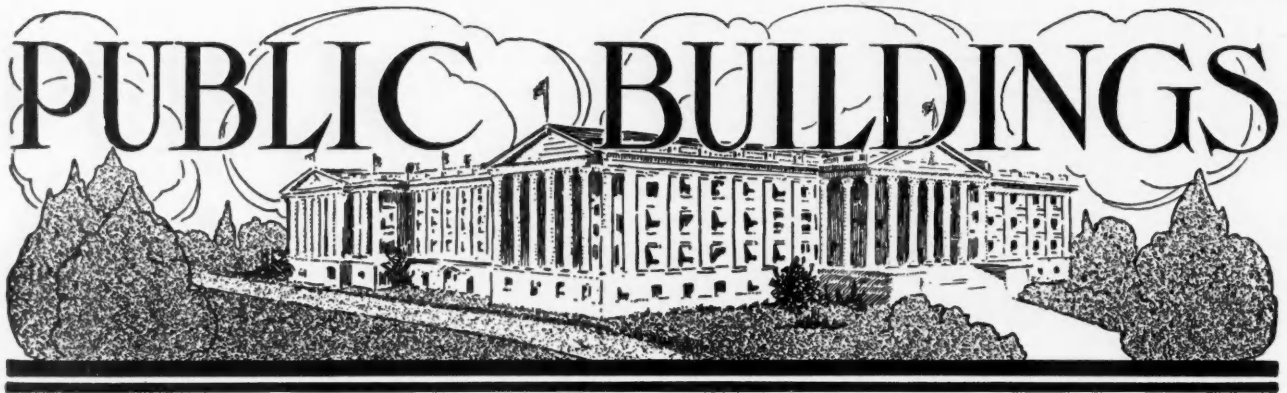
ELEVATION OF GATE POST



ELEVATION OF KITCHEN CASE



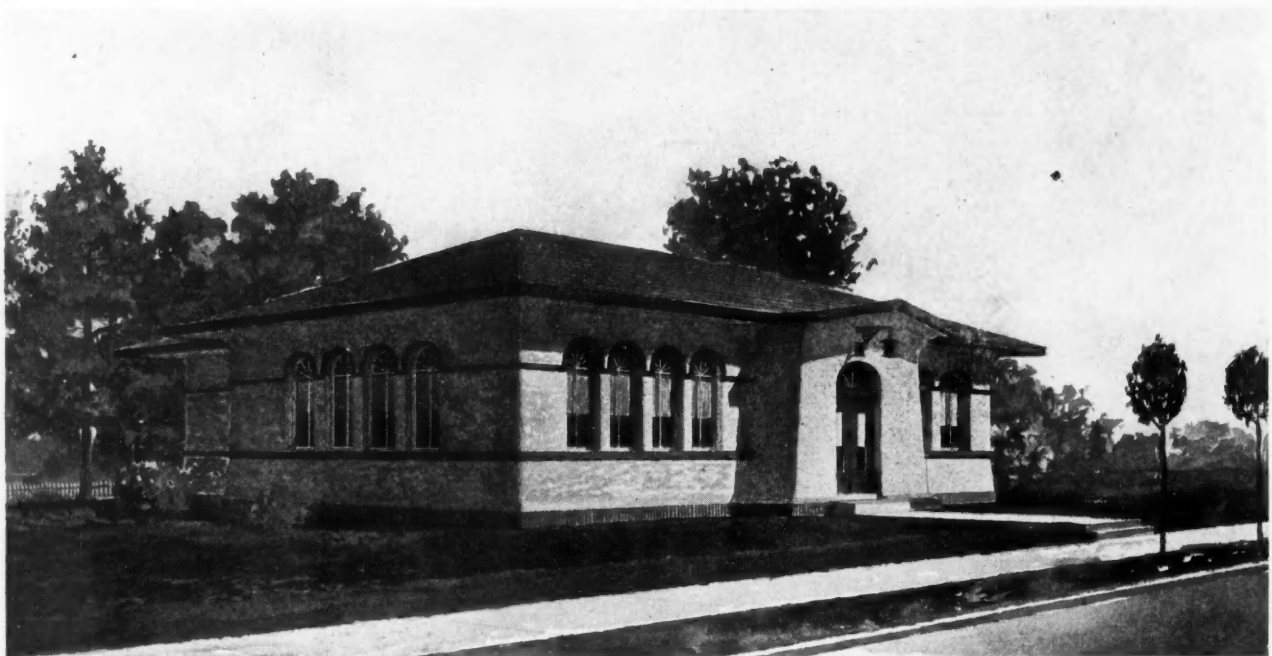
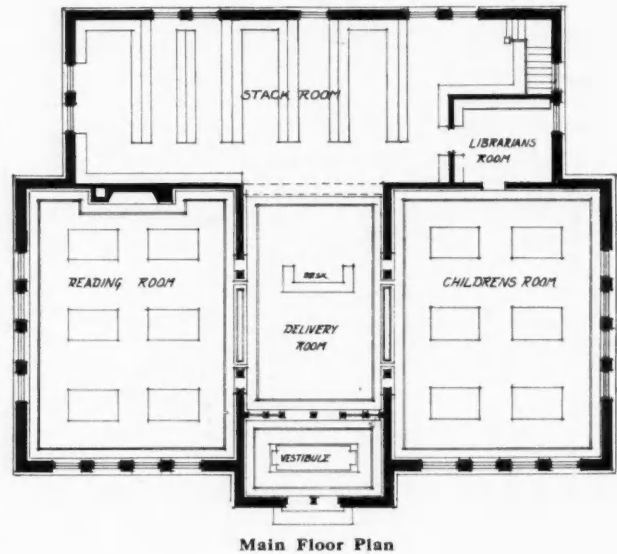
FRONT & SIDE ELEV. OF CUPBOARD IN KITCHEN



Design for Small Public Library

RENDERED PERSPECTIVE AND FLOOR PLAN FOR A LIBRARY BUILDING OF SATISFACTORY ARRANGEMENT AND ATTRACTIVE DESIGN

A LIBRARY building suitable for a small city or town is illustrated herewith. It is a one-story structure, easily accessible in all parts and practically fireproof, as a public building for this purpose should be. The walls are laid up of common brick and plastered over with cement plaster. A foundation course of dark brown paving bricks set on end gives a substantial look to the base of the walls in contrast with the lighter appearing stucco. Two other courses of these paving bricks are allowed to show, one at the window sills and the other at the springing line of the circular window heads. The cornice rounds out to the eaves continuing the cement plaster. The whole effect is Mission, and is very pleasing. In arrangement the space in this building is planned according to the best accepted ideas. Both the general and the children's reading rooms are of good size and well lighted. The delivery desk is centrally located and the stack room gives the required accommodations.



Small Public Library Building to be of Brick, Plaster Coated—G. W. Ashby, Chicago, Architect

CORRESPONDENCE



A Handy Flour Bin

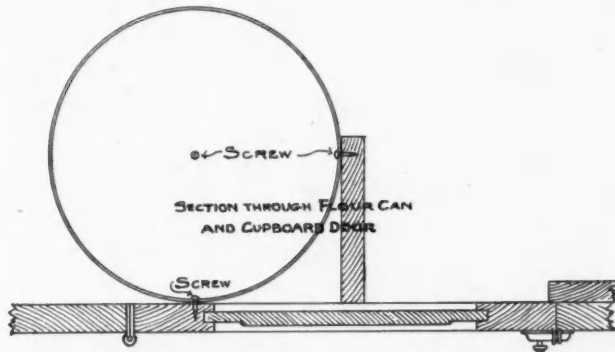
To the Editor:

Madison, Wis.

Some months ago there appeared a description of different ways of constructing flour bins. I wished to give my ideas at that time, but was too busy, but will do so now.

To begin with, I have no use for any style of tilting, slam bang, finger pinching flour bins. I make a kind as herewith described and all of my customers are pleased with them:

I use a door $1\frac{1}{8}$ inches thick and 1 foot 4 inches or 6 inches wide by 2 feet 4 inches or 6 inches high, depending more on the height of work shelf than that the door should be any certain size. I hang the door with $2\frac{1}{2}$ by $2\frac{1}{4}$ inches



loose pin butts and fasten an ordinary flour can on the inside in the position as shown. I first make a shelf of $\frac{7}{8}$ inch stuff to fit the bottom of can, except as shown to fasten near bottom of door and brace shelf on one side to make secure. If the can is fastened close to the hinge side of the door, as shown with at least one-third of the can projecting back past hinge, the door will never sag, or twist in the least. I use one screw at top of can and one in center of bottom, which is sufficient to hold it in place.

There is no chance of flour being thrown over the back when it slams shut, as it will not slam. It is also easily cleaned by removing the butt pins, and being of metal, can be scalded and given a sun bath at will. Counter shelves generally being wide, the space back of can can easily be utilized for small boxes or as a cupboard for storage.

This form of bin is easy to open, being like an ordinary door from outward appearance and I think has more in its favor than any other bin and at the same time is much cheaper to make.

CHARLES E. MARKS.

Placing the Door Butts

To the Editor:

Baldwin, Kansas.

Regarding the discussion concerning the proper place to put the hinges on a door, I would say that the best and most practical method of locating the butts is to place the top hinge one inch below the bottom of the top rail of the door and to place the bottom butt one inch above the top of the bottom rail of the door. One exception to this would need at times to be made. That is, when a base block is

used which reaches above that height. In case of a base block it is better to set the lower butt high enough to clear the top of the base block. Then if, as is often the case, the casings are set with a margin and the block is slightly wider than the casing (which is a thing of good taste), then the hinge will not be crowded, as is often the case, by the block, neither will the unsightly carving, sometimes done, be found upon the base block to make room for the butt.

BURR GUNSAULLUS.

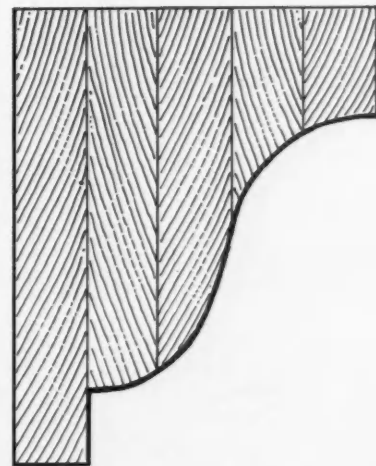
How a Circular Mould May be Developed

To the Editor:

Lucasville, Ohio.

I have been a reader of your valuable paper for a short time and get much valuable help from its columns, especially the correspondence department. Now as we all are helped by these letters, we too should be willing to help our brother carpenters by discussing the question brought out; and by sending in any new kinks we might happen on in our work, might help some one else out of a difficulty.

This is my first communication, so I will limit it to telling of a little trouble I had last winter and the way I overcame it. I was building a small veranda, which extended around the corner of the house; the corner of the veranda was rounded to a 5 feet 6 inch radius on the outer side of soffit. I had difficulty in making this curve in the soffit and fascia, which I did by kerfing in the usual way. I struck off the radius for the plancier and sawed it out, but when I tried to fit around a small radius with the crown mould, my troubles began. I tried first a 5 inch mould and finally a $3\frac{1}{2}$ inch; but had to kerf so close together that it would split all to pieces in the bending. Then I tried steaming, but all to no purpose, as the difference in length between the top and bottom edges of a 5 inch mould when sprung around a curve of over 6 feet 6 inches is, if I remember correctly, nearly $4\frac{1}{4}$ inches. I finally got some $\frac{5}{8}$ inch linwood strips and laminated the mould around the curve, as shown in the illustration. I worked out the pieces on the bench with hollows and rounds and sprung them in place one at a time; the thin soft wood bending very easily.



Now if this will help some one out of as bad a predicament as I was in, I will feel well repaid, or if any one knows of a better way than I have described, I shall be glad to know of it.

G. RAY MAHAFFEY.

How to Erect Stave Silos

To the Editor:

Dorchester, Wis.

As I have been called on on several occasions to put up stave silos, and have had but little experience in that line, I wish to ask for information regarding such work. I will look for an answer in the next copy of your paper, of which I have long been a subscriber.

JOHN P. KRAMER.



Power Boring Machine for Barn Builders

To the Editor:

Fairfield Center, Indiana.

Under separate cover I am sending you photo of a bank barn I built. This photo was taken when I raised the building. All posts were $8\frac{1}{2} \times 8\frac{1}{2}$ inches square, cross sills the same size, street sill 10×11 inches.

I want to call your attention, particularly, to the steam power boring machine which I built and used to bore all

day after day in the hot sun. If any of the readers of the AMERICAN CARPENTER AND BUILDER want more information in regard to the machine, I will be glad to help them out.

Mr. Editor, if you see fit to put this photo and my letter in print do so; if not, take a good look at it and see what I am doing to save hard labor. In the photo it looks as if the machine was bolted to a post under the barn; but it is a post dug in the ground about two rods from the building, as you can see.

WM. STOMM.

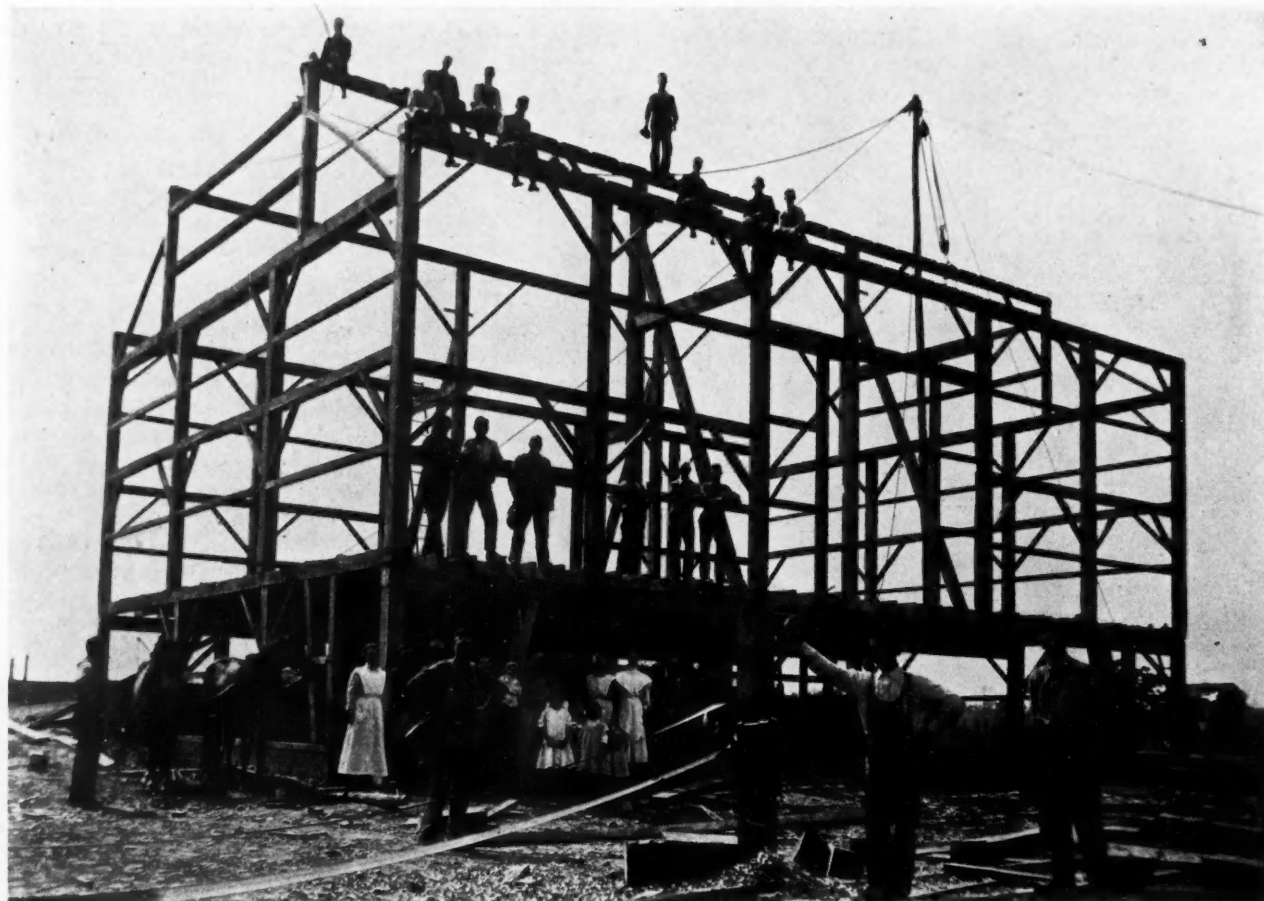


Painting Old Walls and Woodwork

To the Editor:

Altenberg, Missouri.

I have a church building to paint, the inside walls. The building is 45 by 85 feet by 36 feet high, inside. The walls have not been painted since the building of the church, some 43 years ago. The walls are hard finished, and I want to



Power Borer Which Bored all Holes for this Barn in 4 Hours

holes for this building in four hours. Easy—isn't it—to stand and watch someone else run a hand machine; but it's much easier to handle the levers and let an engine do the work! Every barn builder should be the owner of one of these machines. The cost is only a trifle more than a common hand-power machine.

For a track to run my timber on I use 2 by 4 and stake it down and take lumber trucks out of the mill to run my timber to the machine. Three men can handle this machine and timber to a finish.

I assure you, brother carpenters, here is a money maker for you. I made my own pattern and had it cast and helped to finish it up ready to run. The cost was \$14.00, including belt. I would not be without one of these machines for money—a nice sum—and take the old method, continuing it

paint them white. Would it be advisable to paint with best white lead and linseed oil? Or what other material would be best?

I have a school building also to paint, outside. A new part has been added to the old part. When the old part was painted it was done with ready mixed paint, but there is hardly any traces of the paint now. Would it be advisable to give the old part two coats of white lead and oil paint, and the new part three coats? I want to do a good job.

GOTTLIEB FOHMANN.

Answer: To paint the walls with oil paint will require the services of several men, in order to make a surface without a lap, for you cannot use oil paint, but would be obliged to use a flat coat, or oil paint thinned with turpentine. Oil paint, white at least, would soon turn yellow, hence it would

be necessary to flat it with turpentine. Benzine will not do, for that will allow it to become yellow, and retain a gloss.

We would advise a good water paint, one of those called washable water paints, which give a beautiful satin finish and wear well. There are several of these paints on the market, and they are easily applied. As to the school building, would say that two coats of paint would do on the old part if it is not weather-beaten. They would come up equal to three coats on the new part, but the two coats would have to be made rather stout, corresponding to the second and third coats of the new part. Certainly nothing can equal pure white lead and pure linseed oil paint for exterior use, with a little japan driers to assist drying. But we would advise about 20 per cent of white zinc to the lead mixture, as making a better wearing paint, the zinc hardening the too soft lead sufficiently to make it weather resisting.

A. ASHMUM KELLY.

Urges Stamped Metal for Beam Ceilings

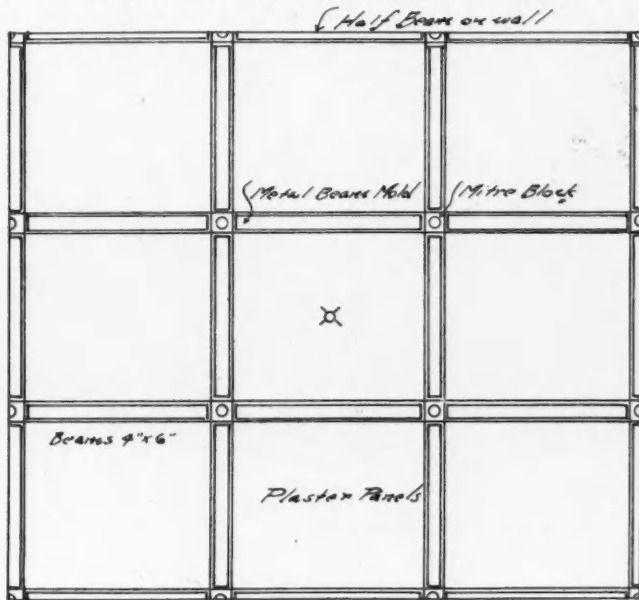
To the Editor:

St. Louis, Missouri.

I herewith submit an idea for a combination metal and plaster "beam ceiling." This is something new and practical, as I have known same to be tried and proven satisfactory.

Nothing adds more to the beauty of a dining-room than a beam ceiling. A combination metal and plaster ceiling using metal beams and plaster panels is equally as good as wood, at about one-third the cost. The designer has worked out a practical finish, reducing the joints in the metal to a minimum, also using stock sizes and patterns. Material for same can be had of any manufacturer in stamped metal.

In laying off a beam ceiling, as shown in diagram, nail strips directly to joist; then apply metal beam moulding to the wood strips. The panels are then ready for the lath, and plaster, which should close all joints at the angle of the beam moulding and ceiling. The only joints left to care for



Plan of combination Metal and Plaster Beam Ceiling

will be the ones intersecting the mitre blocks, but by using a special mitre block as shown in diagram, these will be overcome, as the joints are concealed by a recess or shoulder in the block.

The finished ceiling can be decorated as a whole or allow the plaster to finish the panels and merely treat the metal beams, using two coats of lead and oil, and finish with a

good cabinet varnish if a polished finish is desired. A ceiling finished as above described is sure to meet with approval.

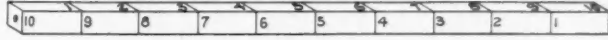
W. W. DANIELS.

How to Lay off a Ten Foot Pole

To the Editor:

Danville, Pa.

I see one of the readers wants to know the best way to mark a ten foot pole, to which I will say; commence to mark at right hand end of the pole, then turn end for end each time, marking one of the sides till the four sides are marked and the figures will be right. I have had 39 years' experience in laying out all kinds of heavy framework and have seen many mistakes made by the pole being marked wrong.



Take a clear white pine 1 1/4 by 1 1/4 inches, plane up square, lay off the markings true to square, and mark with a knife. Then take a very thin saw and saw the marks very lightly and with a lumberman's pencil make the figures large and legible. It is a good idea to drive a four or five inch nail in each end of the pole, driven flush with the wood, so as to prevent the wearing of the wood or mischievous persons cutting off the end. I always take the best of care of my pole and never keep two different poles on the same job. Never allow it used for any other than measuring purposes, as some are wont to use it for a walking stick, or a hand-spike. All of the markings needed are for the foot marks; the inches can be found with the square or pocket rule.

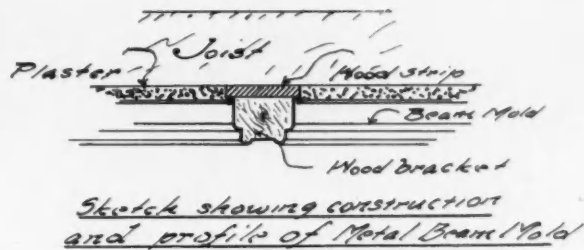
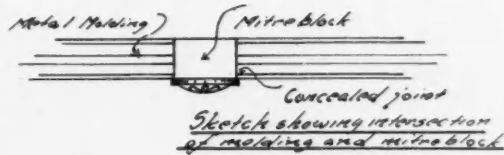
JAMES F. WILLIAMS.

Some Good Questions

To the Editor:

Medford, Ore.

I would like someone to tell me through the paper how to "rough in" for electric lights in a common one-story bungalow. I have watched the workmen and it seems very simple.



Also it seems very easy to attach the fixtures.

Also I would like directions for installing bath tubs and other plumbing fixtures after the job is roughed in.

I would like directions for building a refrigerator in the wall so the ice can be put in from the outside and opening into the kitchen also.

What is the best way or different ways to put up the pic-

ture mould in a room with nine-foot ceiling where the door and window heads are of different heights?

I study the AMERICAN CARPENTER AND BUILDER from beginning to end and learn as much from the advertisements as I do from the articles.

EMERY J. EASTMAN.

How About Painting Copper

To the Editor: Sharon, Pa.

What is the best material to paint copper and galvanized iron with successfully? Our tinnerns have let the copper stay in its natural color. This doesn't look right on a finished job. Some say if painted it won't dry; others say it will run off and give the semblance of paint thrown on.

I have a job with ridge cresting and ornaments of galvanized iron; valleys, gutters and down spouts of copper. I want to make a first-class job of the same. This is the first time in 40 years I have run up against copper in this section of the country. Any experienced brother answering the above will greatly oblige

D. C. CARTWRIGHT & Co.

Fine Example of Cement Block Work

To the Editor: Long Beach, Cal.

Have been a subscriber to the AMERICAN CARPENTER AND BUILDER for many years—am a charter member. Have derived much valuable instruction from the magazine. Success to it for many years to come.

Will enclose a short description of the First M. E. Church of Long Beach, California, which was dedicated a year ago last month. Will also send a photograph of the same under separate cover. Would be pleased to have them published if you wish to do so. My work on the building was the manu-

facturing and setting of the artificial stone.

This is the largest church in Southern California, being 150 by 150 feet in size and having a seating capacity of 2,700. The total cost is \$150,000.

The frame is of steel, wood and brick with a veneering of artificial white granite. The tower rises to a height of 90 feet and it measures 65 feet to the top of the gables. It presents a very attractive appearance and one suggesting strength and permanence.

There are 35,000 square feet of artificial stone and 5,000 feet of plaster on the exterior walls. Over fifty molds were used in making the rock-faced stone and the variety of design produces a surface very closely resembling the natural cut stone.

H. H. HAMILTON.

Stair Building, Roof Work, Etc.

To the Editor: Winnipeg, Canada.

I would like to ask the following questions:

First. The roof is $\frac{1}{2}$ pitch and corner returns in a belt course around front gable; this belt course is shingled and also has $\frac{1}{2}$ pitch. Now, the question is, how shall I cut bottom of mould to fit on it?

Second. In making stairs with two bull nose steps at bottom, how are they attached to main part of stairs? Also when newel goes through them to floor, how is the hole made from the newel in blocks of bull nose steps and should the stairs start from the finished floor or from the rough floor?

Third. In a work on stairs that I have, it says to cut the first riser the thickness of the tread less than the others. Does this apply to housed stringers or simply to cut stringers?

Fourth. In cutting out string, should end at top be cut flush with top riser, or should a few inches be added where it



Methodist Church, Long Beach, Cal. Artificial White Granite, Made by H. H. Hamilton.

cuts against landing? If so, should that be taken from width of landing?

Fifth. In a stair planned ell shape, how is the outer string attached to landing?

Sixth. Is it possible to get a water-tight roof around a dormer without step flashing?

Seventh. What is meant by prism glass?

Answer: First. The face cut of the mould is the same as the seat cut of the common rafter, but the steel square cannot be readily applied to the mould, because its face does not lie in the same plane with the face of the rafter. The edge cut would also be at the same angle, and the same difficulty is experienced in placing the square. Besides the shape of the mould would prevent getting a line across its face to obtain the cut. However, this is not a very particular cut, because it is up on the roof and usually out of sight of the would-be critic, because he cannot get close enough to it without the use of a ladder to view it at close range. Where a particular fit is required, it is better to make the cut on the wooden miter box and cut the mould in that. In this case, the pitch being one-half, 12 and 12 will give both the side and edge cuts on the miter box.

Second. This part of the stairs should be built separate with the main flight resting on them with the stringer cutting against the newel. For a good solid job, the newel should extend through the step to the floor with treads and risers gained into same. It usually does not matter which floor the stairs rest on, but calculations should be accordingly.

Third. The thickness of the tread must be deducted from the rise for the first tread in either case, otherwise it would be just that much higher than the others. Starting from the floor to the top of the first tread must be the proper rise for all of the other treads. The tread takes off an equal amount of the second rise, but when the second tread is added, it brings it back to the same height as the first rise, and so on for the others. This is a very simple problem and easily proven by laying off three risers of equal height; then add the treads and it will be seen that the first rise is just the thickness of the tread higher than the other two.

Fourth. Yes; it is better to cut the stringers a few inches long, so as to permit of wedging up the last riser and this should be allowed for in the framing of the landing. The flooring of the landing extending over to the nosing just the same as if the stringer was cut flush with the last riser.

Fifth. The stringers should cut against the angle post or better still, let them run to point of intersection and cut out the angle post so as to set down over the stringers. The effect will be the same in either.

Sixth. That depends on the kind of a roof. If reference is had to a sided dormer on a shingle roof, the flashing can extend up under the siding and be bent at the lower end to fit the pitch, and be shingled over. If the flashing is properly spaced, it ought to make a storm-proof job. For brick work, it is better to put in counter flashing.

Seventh. Prism glass is largely used in modern store fronts, to transmit light into the interior of store and other deep rooms, also for sidewalk lights for lighting basement rooms, etc. It is of different patterns, cast with sharp ridges on one side for throwing the light at an angle from the face of the glass. It is generally used in one large piece, the full size of a transom light in a store front, but it is often cut into small square lights.

A. W. Woods.

The Intersection of Different Roofs

To the Editor:

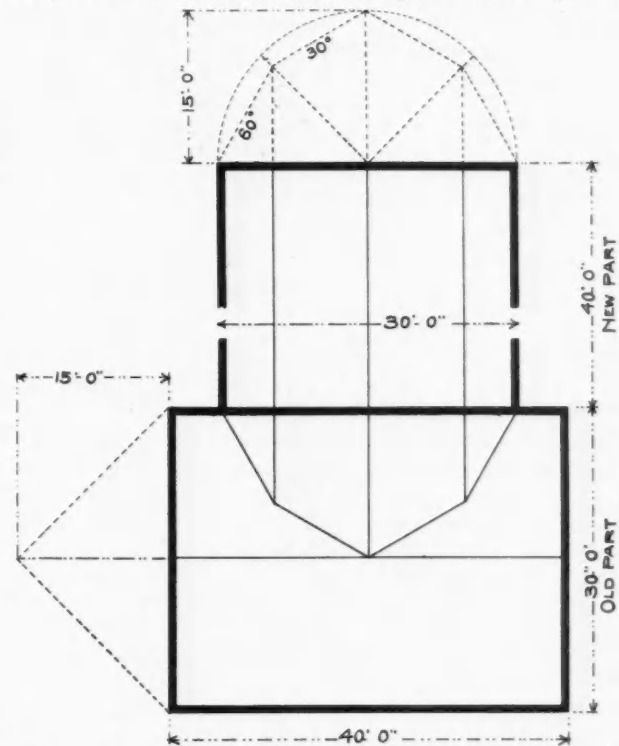
Oxford, N. Y.

Will you give me a solution of the following? How can I best develop the plans to find the layout of roof above plate to peak for the enclosed roof plan, from which I have just built a barn. I made my drawings and they worked out

alright, but I am afraid some other workman could not have used them successfully.

WILLIS T. JOHNSON.

Answer: The layout as submitted by Mr. Johnson is correct, to which we add the intersecting lines of the gambrel



roof, or new part to the plain one-half pitch roof of the old part, the rise of the two roofs being the same. The length and cuts of the gambrel rafters are the same for both sets of rafters, which makes a simple roof to frame. The joining of the two sets and the peak should have $\frac{7}{8}$ inch boards nailed on both sides to make them perfectly rigid.

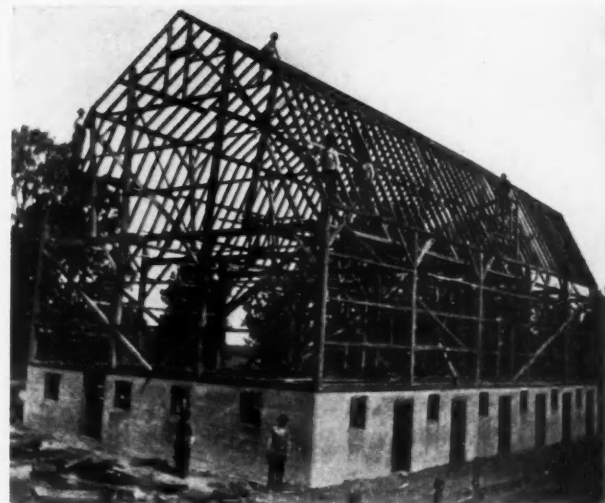
A. W. Woods.

Heavy Barn Framing

To the Editor:

Owatonna, Minn.

I must say that I feel proud of being a charter member of such a valuable magazine as the *AMERICAN CARPENTER AND BUILDER*. I am sending you a picture of a barn frame which I put up last summer for Geo. Gallea, which is 40 by 80;



16 ft. post on top of basement, and all of oak which makes it a pretty heavy structure. Notice the long braces from corners to the center.

F. J. SUSTACEK.



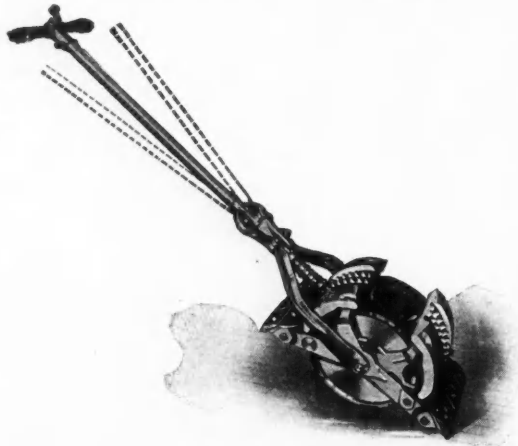
Lignine (Wood) Capitals

We have received a most interesting and beautiful catalog from the Ornamental Products Co. of Detroit, showing their complete line of Lignine (wood) capitals and carvings. In looking it over it is really surprising that such high-class, ornamental goods may be obtained at such a reasonable price. All sizes and costs are given, making this a very valuable catalog for carpenters and builders to have for reference.

The company informs us that they desire to place a copy of this catalog in the hands of every reader of this journal. Write to them today—West Fort St., Detroit, Mich.

How the Weber Double-Action Floor Scraper Was Developed

This business really dates back to 40 years ago, when Mr. Nicholas Weber, a carpenter, began by taking small contracts.



This proved so profitable that he soon became regarded as one of Milwaukee's leading carpenter contractors.

It was under him that his son, John F. Weber, began his career as a contractor, and it was the habits of close observation of the latter that gave the floor scraper its high place today.

Mr. John F. Weber began at the early age of 18. He was born and raised to this age in a veritable atmosphere of carpentry. Of his many duties, one was to scrape hardwood floors and mill work, at which he became so proficient that his five brothers came to look upon him as an authority on hardwood floors and flooring.

His first idea of a machine to scrape floors was conceived one hot summer day, when he had just finished scraping by hand a large hardwood floor which had proved exceptionally tedious.

With this idea in mind, and after much study and experimenting, Mr. Weber completed his first machine. It was, naturally, a crude affair with a piece of steel rail for a weight. Cumbersome as this machine was, it served for rough, or first, work for a long time. With it, however, the flooring had to be hand-finished.

Like numerous other devices, this one, as time went on being put to hard usage, showed many defects and much room

for improvement. It would chatter and leave waves in the floor. This seemed utterly unavoidable until Mr. Weber invented a way of attaching the blade holder to the machine by half-ball-and-socket joints, or bearings. These joints were made very much on the plan of those in a man's arm. They removed the dead weight of the scraper from the knife—absolutely preventing chattering and floor waves—and produced a finish that cannot be excelled by hand.

Now came the small room trouble. He found that he could scrape away from one wall until the handle touched the opposite one; then it became necessary to turn the machine around and scrape until the handle struck the first wall. This left about two feet of space in the center of the room—representing the size of the machine—that must be scraped by hand.

To overcome this, Mr. Weber added another knife to the side of the scraper next to the operator so that it had one on each end. By bringing this back knife into play, he could, by pushing the scraper, easily scrape this otherwise untouchable center space. He had invented a double-acting floor scraper.

After perfecting this double-acting feature, it was accidentally discovered that it was also a success in smoothing off end joints and removing stains.

Even with this new feature, his scraper still had defects. It did first-class work on certain kinds of flooring, but on others its work was not yet equal to hand work. This need evolved the Weber adjustable blade holder, by means of which the blades can be instantly set at any angle for perfect work on all kinds of flooring.

Until this time, it was not possible for one operator in a hundred to properly sharpen a floor scraper blade. It had to be done solely with the eye and hand as guides, and by taking the knife from the machine.

Plainly, a sharpening device was necessary whereby the blade could be quickly given a true edge without taking it from the scraper.

The Weber Automatic Sharpening Device filled the need exactly.

Mr. Weber secured patents on his improved machines the first patent being allowed in February, 1906. At first he intended to use the machine only for his own use; but others soon became aware of its high grade work, and he was literally swamped with requests to build scrapers for carpenters and contractors all over the country.

Accordingly, in September, 1907, he put his first machine onto the market. He was offered orders from twenty-six contractors, but sold this first machine to Joe Mirtz, of Milwaukee, who has used it continually ever since.

Among Mr. Weber's latest improvements may be mentioned a sander that gives the sandpaper a little more even pressure. Besides that, it can be turned half way around, which changes the direction of wear and nearly doubles the life of the sandpaper. It is attachable to the machine or can be used with a separate handle.

Last, but by no means least, is his bowling alley scraper attachment—which produces a surface so level that day light cannot be seen under a steel square—and his adjustable handle, which enables the operator to work right up to the

baseboard without marring it.

Mr. Weber is also authority on cement houses. The Duplex Flat shown above is 45'x33' in size. It rests on a solid concrete wall below the line, while above it is of cement block. The first floor, or flat, contains the following rooms: living room, 14'x14'; dining-room, 12'x14'; kitchen, 10'x14' 4"; bath room, 7' 6"x9' 6"; bed room, 13' 8"x12' 2"; all birch finish.



Duplex Flat in Cement, Designed and Superintended by Mr. Weber

According to Mr. Weber's method, this flat can be finished entire for the low price of \$4,200.00. Complete specifications can be had from Mr. Weber; and one set of blue print plans will be given with each scraper sold, if requested.

Contractors interested are asked to send to John F. Weber, Pres. Weber Mfg. Co., 670 71st Ave., West Allis, Wis., for his free trial offer. Those fortunate enough to be the first to buy a Weber Double-Acting Floor Scraper in their towns, will be entitled to an extremely low discount.

"Universal" Auto Turntable

The Canton Foundry & Machine Company, of Canton, Ohio, recently have made a very important improvement in their Universal Auto Turntable. A serpentine circular track about 6 ft. in diameter now is used instead of a smaller one. This larger circular track prevents the table from tilting under excessive weight. (Refer to advertisement in this issue.)

The company recently has spent about \$10,000.00 for special machinery for large capacity production of the "Universal" table, and a special factory has been organized exclusively for this purpose.

Six of these tables recently were ordered for the Auto-car Building at Boston, a \$100,000.00 garage. The company is now making special efforts to introduce them into police and fire stations.

The table is so well built that it will stand any weight up to 6,000 lbs. without tilting, and spin around as smoothly as a top. A new direction circular for erecting and a catalog are now in press, which will be mailed in a short time to any builders or contractors who are interested in such tables. This catalog carries complete detailed drawings of the new table and gives valuable information. Representatives are being established from the Atlantic to the Pacific, and a thorough selling organization has been effected.

The "Improved" Coal Chute, which is also exclusively made by the Canton Foundry & Machinery Company, is specially designed and is being specified by architects.

This chute is solid paneled, presenting a neat appearance, and has a self-locking device that is an improvement over all others. When the coal man closes this chute before leaving, it automatically locks and cannot be opened from the outside, without a special socket wrench. In a few years the cost is much less than for a wooden window frame, when you consider how wood becomes battered and marred.

The "Improved" Coal Chutes are made in three sizes. Special printed matter will be mailed to all contractors and builders on request.

Asbestos Stucco

The H. W. Johns-Manville Company of New York, with branches in all of the larger cities, are working along the right lines on the stucco question. They are offering in

**Give your
CLIENT A MODERN
Store Front**

A front that invites business
and is an everlasting
credit to you and
to him.

Kawneer System

Let
him be
able to regulate
ventilation and drain-
age of his show win-
dows—keep off frost and
sweat in winter and in summer make
them dust-tight. Only solid copper,
brass, bronze and aluminum are used.

Other characteristic features are plainly described in Booklet No. 2—send for it.

KAWNEER MFG. COMPANY

Factory and General Office
NILES, MICHIGAN

BRANCH OFFICES:
Chicago
New York
Philadelphia
Kansas City
St. Louis
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BRANCH OFFICES:
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Seattle

BRANCH OFFICES:
Des Moines, Ia.
Salt Lake City
Portland
Houston
El Paso
Syracuse, N. Y.
Washington D.C.



DISSTON Principles

Seventy years of activity in manufacturing and selling; seventy years of uninterrupted development, imparts to any organization a good many common sense ideas of business.

For nearly three-quarters of a century we have been formulating, from time to time, and setting down in simple language some of the ideas and ideals which, carefully followed, have contributed to our growth.

They may be of interest to *you*—they have been to a good many of our friends. Here they are:

"We have always striven to manufacture the best saws. Now we manufacture not only the best, but the largest line in the world."

"Our aim is to manufacture Disston Goods of superior quality and at a price to make them purchasable by all users."

"Perfection comes with long experience."

"The manufacturer who makes his own steel can watch the quality the closest."

"What do you put into your saws that makes them so good?" Henry Disston was often asked. "Good steel and honest work;" was his invariable reply."

"A man who has made a reputation for his goods, knows its value as well as its cost and will maintain it."

"The world recognizes Disston Saws as the standard by which all others are judged."

"Having a thorough knowledge of the requirements of saws, we make them to meet those requirements."

"A constantly increasing demand is the best evidence of efficiency."

"Quality is the best selling agent."

"Strictly first quality goods may be slightly higher in price, but give better satisfaction and longer service to the user. Thus, in the long run they cost less than cheaper grades."

If you are unable to obtain the Disston Brand, write us and we will see that you are properly supplied.

Henry Disston & Sons
INCORPORATED
Keystone Saw, Tool, Steel & File Works
Philadelphia, Pa., U. S. A.

place of sand in stucco a ground asbestos rock containing a large percentage of asbestos fibre, which has a tendency when mixed with proper binding material, to form a more durable and elastic product than is possible to get by using sand.

These people have had excellent success with this product and have issued full directions for the application, which if properly followed should minimize the troubles experienced in the past, providing, of course, that the mechanics applying the material are willing to do their share.

They are to be commended on the position they have taken regarding their material for stucco purposes, it being their intention to refrain from selling their product to people who are not equipped to handle it properly. Their salesmen are doing their utmost to prevail upon the trade to use thicker walls and if the manufacturers of Portland cement are willing to join with the supply people and the mason contractors, they will do a great deal toward better construction on this particular type of houses.

Life of Metal Lath

We are presenting herewith some extracts from a paper by Allerton S. Cushman, A. M., Ph. D., and Henry A. Gardner on "Corrosion and Preservation of Iron and Steel," which we feel sure will be of great interest and practical value to the readers of the AMERICAN CARPENTER AND BUILDER.

"The proper control of unavoidable impurities, their homogeneous distribution and a careful heat treatment, particularly as far as the annealing processes are concerned, will improve the rust-resistant quality of metal, whether it is called iron or steel, and regardless of the method by which it is made."

"It is now very generally admitted as the result of recent researches by a number of investigators that a state of stress or strain in a metal invites rapid corrosion, as will also a burnt condition of the metal leading to high porosity and the presence of occluded gas and blow holes." Page 2.

Difficulties Introduced by Improper Heat Treatment, Etc.

"To sum up this phase of the subject we may say that, other things being equal, the electrolytic theory points to the fact that the purer and least segregated metals should be most resistant to corrosion. At the same time it should not be forgotten that it is always possible to leave the frying-pan for the fire, and that in the effort to arrive at chemical purity in the processes of manufacture, the metal may have come to harm by burning, gas occlusion, or faulty heat treatment. It is also true that in the effort to reach chemical purity the physical characteristics may be changed, to the damage of the metal produced. Unfortunately, analysts do not as a rule consider the question of occluded gas, and yet this factor undoubtedly has much to do with resistance to corrosion."

Page 68.

Effect of Heat Treatment, Tempering, Stresses, Strains Etc.

"The effect of heat treatment probably has as much to do with the resistance tendency to corrosion as any other factor to the problem. Under the special caption of heat treatment we may include all effects produced by rolling, whether hot or cold, as well as surface stresses and strains." Page 83.

The Acid Test as a Measure of Corrosion Resistance

"This interesting discussion opens up the important question of the use of an acid test as a measure of corrosion resistance. This test has been much used by some manufacturers who believe it to be reliable as an accelerated method of measuring the stability and hence the corrosion resistance of their products. The applicability of the acid test is absolutely denied by some authorities, and is treated with caution by others.

KNO-BURN EXPANDED METAL LATH

MECHANICALLY CORRECT, THE STRAND IMBEDS ITSELF COMPLETELY IN THE PLASTER WITH A ONE SIDE APPLICATION, THEREBY INSURING ITS PRESERVATION AS WELL AS OBTAINING A PERFECT KEY; SECURING BOTH ADVANTAGES AT A SUBSTANTIAL SAVING IN THE QUANTITY OF PLASTER.

PAINTED LATH IS ABSOLUTELY RUST AND ACID RESISTING AND THE PURE CARBON USED ON KNO-BURN LATH IS THE BEST KNOWN NONCONDUCTOR OF ELECTRICAL CURRENT.

GALVANIZED KNO-BURN IS IN A CLASS BY ITSELF. EVERY YARD PRODUCED IS GALVANIZED AFTER THE LATH IS EXPANDED. THIS PROCESS GUARANTEES AN EVEN, THOROUGH COATING—NO RAW EDGES OR CRACKED AND FLAKED SURFACE.

KNO-BURN LATH, IN ITS DIFFERENT MESHES, HAS BEEN SUCCESSFULLY USED FOR OVER TWENTY YEARS. WRITE FOR OUR BOOKLET "THE ACID TEST OF TIME."

NORTH WESTERN EXPANDED METAL CO.

— ESTABLISHED 1889 —

**930-950 OLD COLONY BUILDING
CHICAGO**

**FACTORIES——
CHICAGO, ILL.
JEANNETTE, PA.**



See Here! Mr. Carpenter,

That trademark is something for you to remember, for every good live man wants and will have first-class tools, and experience has proved that the Simonds is the world's best hand saw.

If you're more than an *average* man, you're looking for the best saw. Every hustler wants a saw *with an edge that holds*, and that's the Simonds and you'll always know it by the trademark.

That trade-mark means that this saw is

MADE OF SIMONDS STEEL

made especially for the Simonds Saw in Simonds Mills.

By our patented process, we get the most evenly and correctly tempered saw on the market. No one else can quite make it, they don't know how. We are advertising, so *you* won't forget the Simonds trademark.

If you will only try the Simonds Saw, you will agree with us, and the hundreds of Carpenters already using them, that

Simonds Saws are The Best, And They ARE The Best.

Each Simonds Saw comes packed in a separate case. Remember the trademark when you buy. Every saw absolutely guaranteed free from imperfections in workmanship or material.

When you need a saw buy a Simonds. Let us know the kind and size you want and we will tell you the name of our nearest dealer and will also send you a free copy of "Simonds Carpenter Guide," a useful and instructive booklet.

Simonds Mfg. Co.

Fitchburg, Mass.

Chicago
San Francisco

New York
Portland

New Orleans
Seattle

Committee U of the American Society for Testing Materials has reported that the acid test should not be used to decide the relative resistance to corrosion of different types of iron and steel." Page 96.

The Relation Between the Acid Test and Resistance to Corrosion

"As has been previously explained, corrosion is a surface action and solution in acid depends upon the rapid depolarization and disengagement of hydrogen from the surface. This depolarization is easily affected one way or the other by impurities in the metal, and also in the electrolyte which provides the attack. It is not to be expected that the rapid attack furnished by a dilute acid will be comparable to the slow rusting of iron under the conditions of service. In the former case depolarization and solution go on rapidly, whereas in the latter case the difference of potential between positive and negative points and nodes on the surface is stubbornly maintained for long periods of time. Unfortunately the same considerations must apply to all the acceleration tests that have been proposed and used by engineers and metallurgists, such as aerated brines and natural waters through which air and carbonic acid are bubbled." Page 98.

Probably no Reliable Acceleration Test Possible

"Owing to the nature of corrosion it is probably true that no perfectly reliable acceleration test for corrosion resistance can be devised. Corrosion, in the natural process of rust formation, that is to say, in very slightly acid media, is a question of comparatively slow growth under special conditions, and any effort to hasten the action changes all the conditions of equilibrium, producing an entirely different order of phenomena." Page 99.

Efficient Annealing Essential to a Rust- Resistant Metal

"A careful reading of the preceding paragraphs should show that in order to produce the most rust-resistant steel it is not sufficient to work towards purity of the metal and homogeneous structure, but also efficient annealing as the last stage in the preparation of the product is absolutely essential." Page 99.

Made in Nature's Work Shop

Nature is a wonderful chemist. Constantly at work down in the bowels of the earth, her seething cauldrons are going day and night.

Intense heat, powerful gases, immense pressure and streams of never ending source supply the energy, while untold quantities of materials are at Nature's command to boil, and crush and grind and mix into the wonderful products she creates for the use of man.

Gold, diamonds, and other beautiful stones and precious metals are all from Nature's laboratory and attest to her artistic skill. Iron, copper, coal, salt and asphalt are among the innumerable products which show the endless variety and practical forethought for man's needs.

Nature works her wonders carefully and well. The formulas are secrets of her own, but even if man could fathom them he would be helpless because of the lack of facilities at his command and at best he can only imitate.

The material is provided by Nature for almost every human requirement. In return for their use she exacts the labor and brains of human beings to take them from her and adapt them to their proper use.

Coal for fuel, stone for houses, rocks for their foundations, and for a covering to the house Nature has wisely provided the wonderful lake of asphalt from which Genasco Ready Roofing is made.

For centuries, nature's wonderful alchemy has been forming this natural asphalt and mutely waiting for the time



Home Craftsmen and Shop Craftsmen—All Demand This Bit

THE "Irwin" Auger Bit is the only solid-center-stem auger bit made in every style and size. The "Irwin" is the strongest, easiest and fastest-boring bit made. It will not clog and will bore into the end or side of either the hardest or softest woods without tearing.

Every Irwin Auger Bit passes through fifty expert hands and bears the stamp—THE IRWIN BIT, REG. U. S. PAT. OFF., and is your protection on quality, and the user's protection against dissatisfaction.

Our Factory Guarantee to Irwin Dealers and Irwin Users

Do not forget that in sending your order, either for a trial assortment, or to fill stock if you already carry Irwin Auger Bits, that you, as a dealer, are absolutely protected, not only in dealing with the largest Auger Bit factory in the world, but also that you cannot make your recommendation of Irwin Auger Bits too strong to your customers.

Our unqualified factory guarantee, made possible by the most rigid tests and system of inspection of workmanship and materials that can be found in any tool factory in the world, makes it possible for us to absolutely guarantee every Irwin Auger Bit satisfactory to the user or price refunded.

The Irwin Auger Bit Company

Largest in the World

Station I-18

Wilmington, Ohio

Orders all filled through jobbers



when man should have need for it and recognize its value.

The Barber Asphalt Paving Co., Philadelphia, were the first among the people of modern times to recognize the immense value of Trinidad Lake asphalt and adapt it to commercial uses.

Genasco Ready Roofing is the product of their experience and skillful use of this natural asphalt. It defies storms, heat, cold and every other weather condition. It is also a perfect waterproofer—doesn't leak and will not warp and rot or corrode and crumble, and it is claimed will last for years.

Valuable information on the subject of roofs is incorporated in The Good Roof Guide Book issued by the Barber Asphalt Paving Co., Philadelphia.

A Clothes Dryer for Every Home

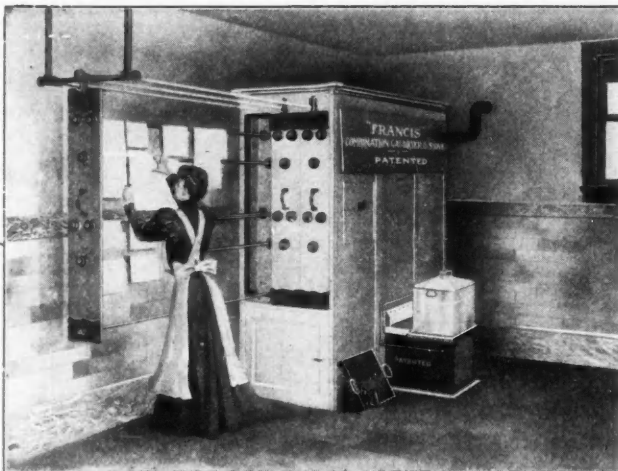
It is our opinion that this little article will be of greatest interest to every reader of the AMERICAN CARPENTER AND BUILDER, inasmuch as it treats of a product that should be installed in every residence, flat-building, hotel, hospital, and institution of every kind wherein mankind dwells, whether by choice or by stress of circumstances.

Just as the furnace, or boiler, is necessary to a modern home an apparatus for interior clothes drying is almost as essential. And why shouldn't it be? Clothes are washed every week, and in the winter, which is fast approaching, it is hard to dry these clothes outside, owing to the inclement weather. In the house that you build hereafter, why not make them truly modern? Instal a drying apparatus, thereby increasing the value of the house far more than the actual expense of the installation.

These dryers are ideal not only for residences but also for apartment buildings, hospitals, either small or large, hotels, clubs and public institutions. No matter how large the building may be, the dryer is made adequate, and no matter how small the building may be it is equally adequate; dryers are built to accommodate the necessities of any size building.

On the market to-day are dryers and dryers; but this article is relative to the dryer known as the Chicago-Francis which is said to have advantages recommending it above all others. In considering equipment of this sort, you have not only to consider whether or not the dryer will dry the clothes satisfactorily, but you must also take into consideration the cost of operating these dryers.

The Chicago-Francis is economical in the extreme, inas-



much as the waste heat emanating from the laundry stove heats the dryer and dries the clothes. The dryer can be provided with stove suitable for burning coal, wood or gas, as may be desired; or steam heat can be utilized. The gas laundry stove used in conjunction with the dryer, can be



Amatite ROOFING

A Frank Statement

HOW many manufacturers of ready roofing will tell you frankly how their goods are made?

Mighty few. They will talk about "secret formulas," "special waterproofing compounds," etc.—all nonsense.

They don't tell you what the goods are made of because they don't dare.

From the start we have never hesitated to tell the buying public just what Amatite is made of and just what it will do.

How Amatite is Made

Amatite is made of two layers of *Coal Tar Pitch—the greatest water proofing material known.*

Alternating with these two layers of pitch are two layers of coal tar saturated felt to give it tensile strength.

On top of these four layers is a *real mineral surface—five layers of protection.*

The mineral surface is permanent, fireproof, and *absolutely requires no painting.*

It Needs No Painting

Roofings that require *painting* are a worry and an expense. Every year or two the owner has to give them a coating with some special compound or he is pretty sure to have a leaky roof.

Amatite is Making Good

We are constantly receiving letters from customers telling us how satisfied they are with Amatite—how much better it is than the old-fashioned roofing.

Year after year, in all weather, Amatite will give perfect service without any painting or attention of any kind.

Surely this is the kind of service that wins and keeps customers.

Something Back of It

Remember, in this connection, that Amatite is made by the *largest manufacturers of roofing materials* in the world, and that when you buy this roofing there is something behind it. We stand back of every roll. We know we are offering the best and the most economical ready roofing on the market. For sample, booklet, and prices address our nearest office.

Barrett Manufacturing Company

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



You will soon be wanting varnishes, stains, shellacs, fillers etc. and only the Best will satisfy you. There is only one Best and Berry Brothers make it. Insist upon having above mentioned goods with Berry Brothers trade mark.

Write today for our free book—*"Natural Woods and How to Finish Them."*

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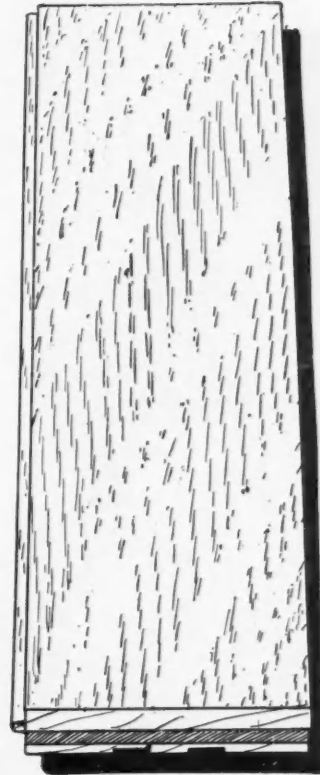
CHICAGO
CINCINNATI
ST. LOUIS
SAN FRANCISCO

Canadian Factory—Walkerville.

Here's Something Interesting

Our thin hardwood flooring has revolutionized the hardwood flooring industry for the following reasons:

1. *It requires less labor.*
2. *It allows more profit.*
3. *It is more durable.*
4. *It is more sanitary.*
5. *It is more beautiful.*
6. *It is easier to lay.*
7. *It is absolutely level.*
8. *It is kiln dried.*
9. *It has more wood above the groove.*
10. *It has our special "hollow-back" feature*
11. *It wears longer.*



Note the amount of wood above the shoulder, being fully $\frac{1}{16}$ " more than is found on **any other hardwood flooring.**

Note our special tongue and groove which are found on no other flooring, and how exact they are made. Each piece is absolutely perfect and an exact duplicate, and therefore produces the most uniform and level floor requiring usually but a little sandpapering to prepare it for finish.

Note the "Hollow-Back" feature on which we have made patent application. This affords immense resistance as well as offering the most solid foundation of any flooring manufactured.

The tonguing and grooving extend to the ends as well, and the finished floor looks like a solid sheet of hard wood. No nails showing, no wavy appearance, just a level, smooth, substantial floor, rarely requiring scraping.

There is an immense field for hardwood floors, and here is an excellent opportunity to embark in a line that pays most handsome profits. Displace the high priced flooring specialist by establishing a reputation in your community as an expert hardwood floor layer.

You can do this owing to the absolute perfection of our flooring, thus doing away with all unnecessary labor. A little preparatory work in leveling the old floor underneath will produce an absolutely perfect floor, which requires scarcely any work to prepare for finish.

Women all over the country are enthusiastic over hardwood floors and realize their sanitary and labor saving features as well as their beautiful appearance; they can be laid for the price of an ordinary carpet, so you see they are most economical too.

SEND FOR OUR BOOKLET

"Profitable Opportunities to Carpenters," which describes our flooring in detail and gives much valuable information relative to the laying and finishing of hardwood floors.

Start in this most profitable line **today**, because it means nice new dollars to you and requires no experience outside of your knowledge of carpentry.

Always use "Cincinnati" hardwood flooring and you will know you are buying the perfection resulting from **twenty years** of study and experience.

Cincinnati Floor Co.,
228 West Fourth Street, Cincinnati.

Cincinnati
Floor Co., 228
W. 4th Street,
Cincinnati.
Send me booklet,
"Profitable Opportu-
nities to Carpenters"
without obligation to me.

NAME.....

ADDRESS.....



JOHNSON'S

Money Makers

FREE

**Just Mail Coupon or
Postal for Three Big
Samples and Book.**

LET us send you test packages of these three Johnson's Wood Finishing Specialties absolutely free. These are the best money makers among all wood finishes for Painters and Decorators and we want to *prove it to you at our expense*. Johnson's Electric Solvo — to remove old finish in a jiffy; Johnson's Wood Dye, for artistic, rich, permanent color; Johnson's Prepared Wax, for the beautiful polish of subdued lustre.

Johnson's Wood Dye

Made In 14 Standard Shades

No. 126 Light Oak	No. 130 Weathered Oak
No. 123 Dark Oak	No. 131 Brown Weathered Oak
No. 125 Mission Oak	No. 132 Green Weathered Oak
No. 140 Manila Oak	No. 121 Moss Green
No. 110 Bog Oak	No. 122 Forest Green
No. 128 Light Mahogany	No. 172 Flemish Oak
No. 129 Dark Mahogany	No. 178 Brown Flemish Oak

Price — all shades — half gallon size — \$1.50.

Johnson's Electric Solvo softens all old finishes in 15 or 20 minutes without the slightest injury to wood. Goes farther than any other varnish remover.

Price — Gallon Size \$2.50.

Johnson's Prepared Wax gives the "hand rubbed" effect and does not catch and hold dust or dirt or show heel-marks.

Our Beautiful 48 Page Text Book

which we will send free with samples, is the most helpful guide to decorating published. Send the coupon or postal now for the whole outfit — free.

S. C. Johnson & Son
RACINE, WIS.

"The Wood Finishing Authorities"

S. C.
JOHNSON
& SON
Racine, Wis.

I accept your offer of a sample of Johnson's Wood Dye. Also a copy of your text book—"The Proper Treatment for Floors, Woodwork and Furniture", Edition A. B. C. 9.

Name

Address

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JOHNSON'S

Business Getters

FREE



**This Set of Wood Panels —
14 Natural, Standard Colors—
Will Get Contracts for You.**

WE want you to have this complete set of Wood Panels showing Johnson's Wood Dye in its 14 shades. We'll gladly send them free because they will prove to you beyond doubt that Johnson's Wood Dye produces better results than any other wood-coloring material made.

Also, they will get you the business in competition with any other set of panels or color card ever put out.

They show the real colors on the real wood—colors of life and richness. And you are safe in contracting to match any shade—Johnson's Wood Dye never varies.

Johnson's Color Panels and Guide Book Always in Demand

In every city and town the best trade is coming to depend more and more on Johnson's Wood Finishing Materials and the Johnson Suggestions for interior decorations.

You will find our book, "The Proper Treatment for Floors, Woodwork and Furniture," Edition A. B. C. 9, equally helpful to you and to your trade. Beautifully illustrated in natural colors from life—complete in color scheme suggestions, and valuable information on all kinds of wood finishing work. Tells about the matchless results possible by the use of Johnson's Wood Dye, Johnson's Under-Lac, Johnson's Prepared Wax and other wood finishing specialties.

Cut out Coupon now to remind you, fill in your name and address and send by next mail, or mail postal if more convenient. Remember this business-getting outfit is absolutely free—All yours for the asking.

S. C. Johnson & Son

Racine, Wisconsin

"The Wood Finishing Authorities"

**S. C.
JOHNSON
& SON**
Racine, Wis.

I accept your offer of a set of Johnson's Wood Panels; also a copy of your text book—"The Proper Treatment of Floors, Woodwork and Furniture," Edition A. B. C. 9.

PLEASE USE THIS COUPON—CUT ON DOTTED LINE

Name

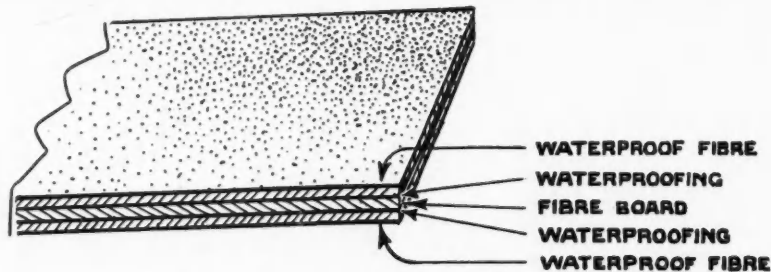
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UTILITY WALL BOARD

A Fibrous Waterproof Board in Sheets
To Be Used Instead of Lath and Plaster

CANNOT CRACK—NO DIRT

For New
Buildings
or
Repair
Work



Warm in
Winter
and Cool
in
Summer

UTILITY WALL BOARD is better than lath and plaster and actually saves the user a lot of money and gives him a handsome, durable job—

MR. CONTRACTOR: This is your chance to make more money and finish your jobs quicker.

Utility Wall Board

can be applied by the carpenter—nailed right to the studs—easy and clean to handle—cuts with a saw—fits any space and can be put on in winter or summer—no waiting for plaster to dry—no cracked walls—no ruined decorations—send for free samples and circulars quick.

MADE ONLY BY

The Heppes Company, CHICAGO, ILL.
4503 Fillmore St.

operated at an expenditure of from 2 to 3½ cents per hour figuring cost of gas at \$1.00 for 1,000 cubic feet.

Again, it does not require a small fortune to instal one of these dryers. They are as economical in price as they are in operation.

Clothes dryers are not in an experimental stage. Thousands of them are in daily use throughout the United States.

As to the construction of the Chicago-Francis, a whole volume could be written; but suffice it to say that they are scientifically perfect, that is, their heating and ventilating system has been perfected after many years of closest study. It must be remembered that drying clothes by artificial means depends to a large extent upon the quickness with which the moisture and odors emanating from the clothes can be removed. The catalog of the Chicago Dryer Co., 383 Wabash Ave., Chicago, Illinois, explains in detail, their method of construction and operation. Catalog mailed free upon request.

To those builders who are interested in this line of work, the Chicago Dryer Co. maintains an engineering department that is entirely at your service. This department solicits your inquiries and will furnish estimates and plans without any obligation on your part. All that is needed is a rough sketch of the room with its measurements, and they will do all the rest.

Their catalog should be in the hands of every man interested; it is worthy a place in your files. Requests for catalogs and inquiries should be sent to Chicago Dryer Co., 383 Wabash Ave., Chicago, Ill., or Dryer Mfg. Co., 206 E. 26th St., New York City. In writing please address nearest office and mention this paper.

New Field for Carpenters

The winter is approaching—a season of the year when usually work is very slack. For carpenters, as well as others,

during this period a new and profitable field is now opened up by the modern portable Vacuum Cleaner. Everyone knows from sad experience the terrors of housecleaning by the old way. It is now pointed out that this former terror or dislike may be turned to a good profit—and that easily too—by any one enterprising and energetic enough to take advantage of it.

The Vacuum Cleaner, although the latest labor saving device on the market today, has nevertheless been thoroughly tried and tested and has been proved to be a complete success and practical in every way.

One who has never seen a demonstration of Vacuum Cleaning can not realize the wonderful—almost miraculous—work of cleaning that these machines will do. Carpenters are directly interested in this modern development and labor-saving device. In studying the applications of it and its possibilities for them, carpenters should not fail to investigate the Everson Vacuum Cleaner.

The manufacturers of this cleaner are making a proposition



Will Old Age Find YOU Still Drudging Along?

No man can check the progress of time. Ceaselessly and swiftly you are being hurried toward the age when the untrained are "old"—when the gate of employment is closed. Will you let lack of training condemn you to poverty, worry, and dependence?

Employment and good pay are always waiting for the man with special training; with ability to do some one thing better than the other fellow; with knowledge of how to solve problems and get results. Will you choose profit and safety, or want and dependence? Your choice must be made now. Take the first step. Mark and mail the coupon. It will bring to you a full explanation of the I. C. S. way—a sure, easy, quick way to acquire the training that will insure you against drudgery in old age. It is the way that suits your special case. You study when it suits your convenience. The training is adapted to suit your particular needs.

That the I. C. S. can help you is proved by the upward of three hundred letters received at the Schools every month telling of earnings increased and prospects brightened through study of I. C. S. Courses. In a single year the increases in salary reported by I. C. S. students amounted to over Two Million Two Hundred Thirty Thousand Dollars.

Mark and mail the coupon NOW.

International Correspondence Schools

Box 910, SCRANTON, PA.

Please explain, without further obligation on my part, how I can qualify for a larger salary and advancement to the position, trade, or profession before which I have marked X.

Architect	Estimating Clerk	Automobile Runn'g
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Contract'g & Build.	Surveying	Sh.-Met. Pat. Drfts.
Building Inspector	Mining Engineer	Textile Manufact'g
Structural Eng.	Mechanical Eng.	Bookkeeper
Struct'l Draftsman	Mechan'l Drafts'n	Stenographer
Plum. & Heat. Con.	Stationary Eng.	Advertising Man
Supt. of Plumbing	Electrical Engineer	Window Trimming
Foreman Steam Fit.	Electric Lighting	Com'rc'l Illustrat'g
Plumbing Inspect'r	Electric Railways	Civ. Service Exams.
Heat and Vent. Eng.	Concrete Const'c'n	Chemist

Name _____

Street and No. _____

City _____ State _____

which should be very profitable to many for the winter season—and for other times throughout the year. The Everson Mfg. Co. of 34 Oliver St., Boston, Mass., are desirous of having in every town, where not already represented, a man to handle their machine. It is pointed out that there is a splendid profit in this, for the owner can easily make big wages by doing cleaning. Seventy-five cents an hour is the price usually charged. A man can be sent out at twenty-five cents an hour, thus making the machine pay you a clear profit of fifty cents per hour. Think this over, and drop a line to the Everson Mfg. Co., 34 Oliver St., and find out about this proposition. It will pay you, and it will interest you.



You need one of these cleaners in your house anyway. It is a real portable cleaner, and can be used either by man or woman with equal facility. The case of this cleaner is made of vulcanized fibre; top and bottom the same, is made of pressed steel, which method of construction insures lightness and strength. However, the best part of the Everson is in its motor. This motor is of the Holtzer-Cabot Electric Co.'s product, and generates 1-6 h. p.. It is not the object of this article, however, to go into a long description of the Everson. It is enough when the company issues a guarantee covering a period of one entire year from date of purchase. Their catalogue and literature tells all about the component parts of this machine, of its merits, and of its extraordinary features, that are not found in other vacuum cleaning devices.

Every reader of the AMERICAN CARPENTER AND BUILDER will do well to look into this matter, both because of Vacuum Cleaning itself, and for the desirable agency proposition the company is now making.

A New Corrugated Iron Roof

The Edwards Mfg. Co. of Cincinnati, O., manufacturers of a complete line of sheet metal building materials of every conceivable description, have perfected and are now putting on the market a new corrugated sheet steel roofing, which is something entirely different from anything ever offered in this line heretofore.

There is perhaps no more popular roofing than corrugated steel, it being in universal use the world over. However, regular corrugated roofing as manufactured everywhere today has a number of disadvantages which have been the aim of all manufacturers of roofing to overcome for many years. The Edwards Patent Pressed Standing Seam Corrugated roofing does away with many of the objectionable features of regular corrugated steel roofing; and it is a

UNION METAL COLUMNS

Most Durable Columns
for Porches and Pergolas

MADE in all required sizes, from the smallest up to 40 inches in diameter and as high as 35 feet, following classic designs.

Union
Metal
Columns
are not
high-
priced.



Splitting
warping
and rot-
ting are
all im-
possible.

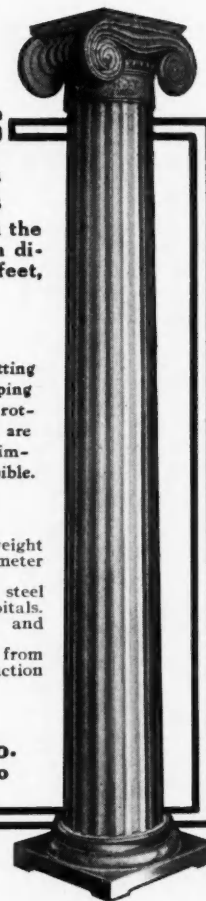
Union Metal Columns support far more weight than wood columns of the same diameter and last much longer.

They are made with fluted and tapered steel shafts and best grey cast iron bases and capitals. Broadly protected by patents allowed and pending.

In use on houses of every type and size from mansion to cottage, with absolute satisfaction to every owner.

Every carpenter in the country
should send for catalog and prices

The Union Metal Mfg. Co.
531 Clifton St., Canton, Ohio



Good Roofs Cheap

The roof that is best and most satisfactory to owner and contractor alike—is the one that gives absolute protection—at the *lowest cost per year*—for longest length of time.

It actually costs less to lay

Sea Green and Purple Roofing Slate

and to keep it in perfect condition during the life of any building—than to get similar results with other roofing material.

It is the strongest and most durable slate quarried. It never needs paint or repairs, is fireproof and lightning proof. You can positively recommend it to every builder as the roofing that will give the best satisfaction always, and save endless trouble and expense to both you and the owner.

Send for our book "Roofs" giving interesting facts on comparative roofing costs and values—let us prove why this slate will pay you—how it will please your customer. Write today.

American Sea Green Slate Company

125 Clark St., GRANVILLE, N. Y.

Transom Operation Perfected

The many faults of appearance and operation characterizing the old style transom rods, so objectionable to everyone are overcome in the

"RICHMOND"

**Concealed⁷
Transom Lift**

Simply turn the knob on door trim and transom opens or shuts to the required angle and is held steady there until the knob is again turned. No locks, hinges or catches are required.



In the **RICHMOND** Concealed Transom Lift all parts as implied by the name are concealed, excepting only the knob. The fixture is completely assembled before leaving our factory. Booklet descriptive of the operation and installation of this fixture will be mailed upon application to

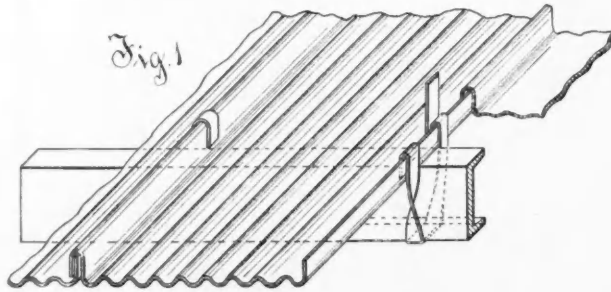
THE McCRUM-HOWELL CO.

MANUFACTURERS

Park Avenue and 41st Street

NEW YORK CITY

form of roofing which will appeal to builders who desire to use a corrugated roofing, but who are not satisfied with the methods of applying same, or the results of regular corrugated steel as a roof itself.

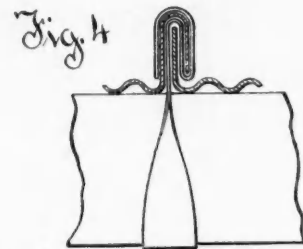
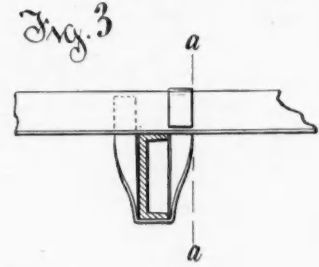


In this age of steel, the great majority of buildings on which corrugated steel is used are constructed throughout of structural steel to which the corrugated steel is applied afterwards, either as a siding or roofing. Edwards Patent Pressed Standing Seam Corrugated roofing is especially adapted for use on buildings of this character, as will be seen by the accompanying drawings. This roof has the advantage of having perfectly tight seams and can be applied directly to the purlins without the use of rivets of any kind. This is a feature which can scarcely be overestimated. It is a well-known fact that all forms of iron and steel roofings deteriorate first at the points where the sheets are punctured by rivets. This is easily understood, as these points must stand all of the strain of vibration, wind pressure, etc. The deterioration is especially noticeable in cases where galvanized steel is used, for at all points where the sheets are punctured for the purpose of riveting, the raw metal is exposed, consequently breaking the coating at this point and permitting

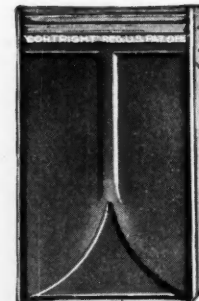
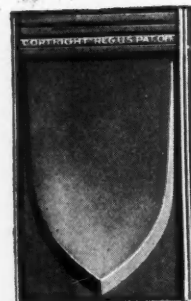
the oxidizing of the sheets, which is increased very rapidly by the vibration as mentioned.

In order to do the best possible job with corrugated iron it is necessary to lap the sheets two corrugations, but by using this new roofing a saving of 11 per cent can be effected on the side seams alone, and in addition to this a much tighter side lock is assured. It is impossible to rivet a cleat to corrugated roofing, passing the cleat under the purlin and still make the work tight enough to prevent vibration. By means of the cleats used in connection with this roofing, it is possible to make the cleats absolutely tight.

This roofing has another advantage which will be appreciated especially where the roofs are high and difficult to



scaffold, and that is the fact that it can be placed on the roof and worked entirely from above, no scaffolding of any



CORTRIGHT

SELLING TALK No 5

Now—as to Cost!

Give this point serious consideration. If Cortright Metal Shingles should cost twice as much as most other forms of roofing they'd still be

The Most Economical Form of Roofing

But they do not cost twice as much.

This is one of a series of Selling Talks published to help you make more profit through Cortright Metal Shingles. Next month's talk will tell you something about wood shingles.

In fact they usually cost less than stone slate and in most sections of the country are as cheap in first cost as wood shingles.

But first cost is not the only thing!

It's the final cost.

When you invest in Cortright Metal Shingles your investment is "full paid and non-assessable".

CORTRIGHT METAL ROOFING COMPANY
Philadelphia and Chicago

For with ordinary care they never need repairs. The roofs we sold 25 years ago are as good as new today.

We repeat.—Cortrights prove the cheapest.

Undisputable proof of this fact and all other advantages of Cortright Metal Shingles you'll find in those two free books we've been asking you to send for.

If you haven't written for them will you? Right now?

Just fill in the coupon and let us send them by return mail.

Gentlemen:—

You may send me the two free books offered by you in the September issue of the American Carpenter and Builder.

Name

Street Address

City

Business

Coupon



One Telephone, Dumb; Five Million, Eloquent.

If there were only one telephone in the world it would be exhibited in a glass case as a curiosity.

Even in its simplest form telephone talk requires a second instrument with connecting wires and other accessories.

For real, useful telephone service, there must be a comprehensive system of lines, exchanges, switchboards and auxiliary equipment, with an army of attendants always on duty.

Connected with such a system a telephone instrument ceases to be a curiosity, but becomes part of the

great mechanism of universal communication.

To meet the manifold needs of telephone users the Bell System has been built, and today enables twenty-five million people to talk with one another, from five million telephones.

Such service cannot be rendered by any system which does not cover with its exchanges and connecting lines the whole country.

The Bell System meets the needs of the whole public for a telephone service that is united, direct and universal.

AMERICAN TELEPHONE AND TELEGRAPH COMPANY
AND ASSOCIATED COMPANIES

Granite
TRADE MARK
ROOFING



A six inch lap is better than a three inch lap. It gives better satisfaction against leaks and permits nailing down on the under sheet only, so that no nail heads appear on the surface. Otherwise this is the same Granite Roofing that we have sold for 25 years for use on great factories. It is immune from damage by coal smoke or cinders, and it has a sea grit surface which makes painting entirely needless. Behind it is a reputation that has Passed the Quarter Century Mark.

EASTERN GRANITE ROOFING CO.
Chicago 16 Battery Place, New York Pittsburg



**Contractors
Get This Book**

It will be of great assistance to you and your customers in selecting mantels for the home.

It contains suggestions for the proper selection of the most appropriate mantels for new or old buildings—the woods and finishes suitable in each case.

Voss Mantels are different from the ordinary stock mantel. They are designed by competent artists and built by experienced cabinet makers. Nothing but the best, most thoroughly seasoned material is used in them. They are built for wear as well as looks.

Tear out this ad—write your name and address across the bottom of it and we will send you the book by return mail.

VOSS MANTEL COMPANY, Inc.
Arbegust Street LOUISVILLE, KY.
"Master Mantle Builders for 25 Years"
We make special designs from architects' drawings.
FILL OUT HERE

Name.....
Address.....

kind being necessary.

Figure 1 shows the roof as applied on iron purlins without rivets. The method of applying the cleat will be especially noticed.

Figure 2 shows the position of the cleat after the roof is completed.

Figure 4 shows a section through the cleat at the point A-A indicated in figure 3.

While this roofing is primarily adapted for use on buildings having steel purlins, it can be applied on wood purlins or sheathing boards quite as well, the cleat in this case being nailed to the wood purlin or sheathing in such a manner as to entirely conceal them after the roof is complete.

The cost of the material is somewhat more than the cost of regular corrugated sheets, but the saving in side laps and in application more than makes up for the difference. This is not a theoretical roof, having been applied to a number of large buildings in various parts of the country, which have given absolute satisfaction. One of these roofs covers a single building requiring over one thousand squares. This roof was put on three years ago and it has given perfect satisfaction in every respect.

All of the essential features of this roof are protected by patents in both this and foreign countries. The manufacturers will be glad to go into any further details on application. They will also be glad to furnish samples, give estimates, etc.

In addition to the iron and steel roofings this company manufacture a complete line of sheet metal building material, such as cornices, skylights, metal ceilings, metal shingles, etc., their complete line being shown in a number of very handsome catalogues which they offer free on application.

A Handy Tool

We are pleased to call our readers attention to something of special interest to them, a Vertical Hollow Chisel Mortiser manufactured by J. A. Fay & Egan Co. It will be found a very handy and durable tool for the class of work intended.

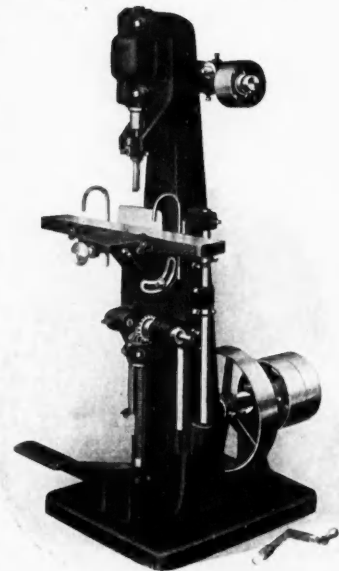
This machine will mortise to a depth of 3 inches or 6 inches by reversing the stock. It accommodates chisels from $\frac{1}{4}$ to $\frac{3}{4}$ inch square.

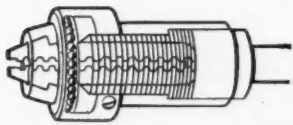
Frame is a single piece casting with good floor support, and is perfectly rigid.

Table is $4\frac{1}{2}$ inches wide and 30 inches long and is moved by foot power a distance of 6 inches. It is provided with clamps to hold the stock and angles 40 degrees in either direction. It is adjusted up and down by crank and bevel gears, and is gibbed to the column of machine and is provided with stop rod to regulate depth of mortise.

Chisel Mandrel is made of the best grade of crucible steel and runs in self-oiling bearings lined with genuine babbit.

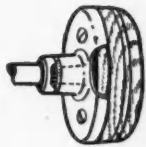
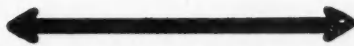
For further information concerning this new tool, you are invited by the manufacturers to write for large illustrated circular. Their address is 545-565 W. Front St., Cincinnati, Ohio.





The Ball-bearing Chuck is found only on the P. S. & W. SAMSON BRACE. It can be tightened with the bare hand to a firmer grip than any other chuck with a vise. The weakest wrist can release it.

The Steel-clad Head with dust-proof ball-bearings is another strong feature of the SAMSON.



It pays to buy good tools

When you buy a brace, you ought to know how it is made and who made it. The large line of high-grade P. S. & W. Braces is backed by the Trade-mark that stands for quality and ninety years of business ability, experience and progress. Look for

The MARK of the MAKER on every P. S. & W. SAMSON BRACE

It's one of the top-notchers among hundreds of P. S. & W. Guaranteed Tools for Carpenters.

Send for this 165-page book

SECOND EDITION NOW READY FOR DISTRIBUTION

Our "Mechanics' Handy List," shown at the left, contains over 30 pages of tables and valuable information, and a catalog of over 200 tools for Carpenters, Machinists, Electricians and Tinsmiths.



The Peck, Stow & Wilcox Co.

MANUF'R'S of the Largest Line of Mechanics' Hand-Tools Offered by Any Maker

Address Correspondence to 22 Murray Street
NEW YORK CITY

Established 1819

Five Large Factories

FREE TRIAL FOR SIX MONTHS

Mechanic's Special The Perfected Carborundum Grinder

25 Times Faster Than the Grindstone

Use the Luther Diamond Tool Grinder six months on free trial—prove by your own tests in your own work on your own tools, that this Luther Diamond Tool Grinder grinds 25 times faster than the grindstone, 3 times faster than corundum or emery grinders—that it is non-heating—that the greenest apprentice in the shop can, with our special attachments, do the most difficult sharpening without hazard of drawing temper from tools.

No risk to you. If the Luther Diamond Grinder does not actually possible for one much grinding as with grindstones, dum

make it actually possible for 20 men can do emery or corundum wheels, or if after six months' use you decide you don't want it, you will be nothing out—not a cent.



Luther Diamond Tool Grinder

The Perfected Carborundum Sharpener's Device

Every wheel is genuine Carborundum—the artificial diamond crystals produced in the electrical heat hotter than can be measured by any instrument of science. Carborundum crystals will scratch the genuine diamond. On the wheels of the Luther Diamond Tool Grinders this wonderful abrasive cuts hardest tempered steel as emery does copper—cuts it without frictional heat—does not need cooling with water and will not draw temper from steel.

Perfected Mechanically

Besides its wonderful carborundum wheels, the Luther Diamond Tool Grinder in all other respects also is a piece of superior machinery, compact and strong in design. Machined parts run in bath of oil; machine cut spur gears; bronze, dust-proof bearing; twist drill sharpening and other devices—in every point and particular a scientifically strong, durable, machine—a work, time, tool and money saver from start to finish, all of which is guaranteed by the largest exclusive manufacturer of foot and hand grinders in the world.

Foot Power Grinder with Twist Drill Sharpening Device attached

Return this coupon and get our FREE TRIAL OFFER

We want you to sharpen your tools with a Luther Diamond Tool Grinder for 6 months. You don't have to keep the Grinder unless you want it. This coupon entitles you to six months' free trial—it puts you under no obligation whatever. Send us this coupon today for complete free trial proposition, and catalog showing 35 types of hand and foot power grinders and grinding attachments from which you can choose an outfit for six months free trial. It's going to be money in your pocket to have one of these grinders on six months free trial. Have it. No letter or postal necessary. Just write your name and address on this coupon and return it today

Luther Grinder Mfg. Co.
56 Madison St.
Milwaukee, Wis.

Please send me free and prepaid books on Carborundum and catalog of Luther Diamond Tool Grinders, and particulars of six months' free trial offer.

Name.....
Address.....
.....

Luther Grinder Mfg. Co.
56 Madison Street,
Milwaukee, Wis.

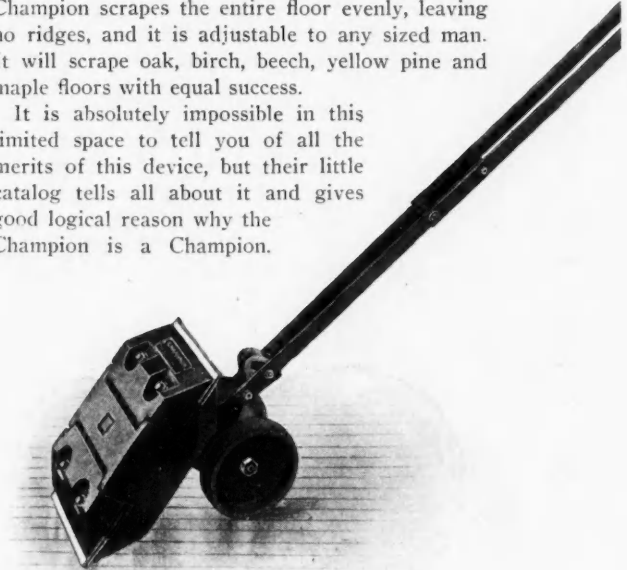
The Champion Floor Scraper

There may or may not be much in a name, but the above name was given the floorscraping device manufactured by the Dosch Manufacturing Co., of Bridgeport, Conn., because the manufacturers honestly believed that their machine was really a champion.

There need be no argument as to whether floor scrapers are profitable; this is a recognized fact. A great deal of the success of a floorscraper depends on the blade and its absolute rigidity. The Champion takes care of this feature, for its knives are solid pieces of the best steel procurable, sharpened on both edges. The knives are held in position with absolute security and they cannot come loose.

The head of the Champion is reversible. The Champion scrapes the entire floor evenly, leaving no ridges, and it is adjustable to any sized man. It will scrape oak, birch, beech, yellow pine and maple floors with equal success.

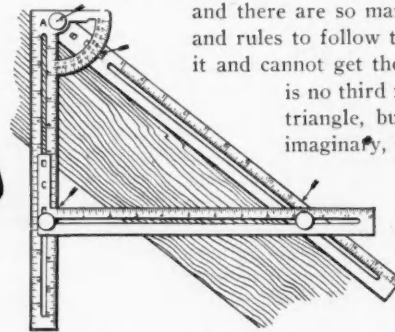
It is absolutely impossible in this limited space to tell you of all the merits of this device, but their little catalog tells all about it and gives good logical reason why the Champion is a Champion.



This catalog is free on request and will be mailed to you for the asking.

The "A B C" Protractor Square

Many volumes have been written on the steel square, but still it is a mystery to thousands of its users, and will continue to be, as it is not made so it can be adjusted to any position, and there are so many figures to remember and rules to follow that the majority forget it and cannot get the desired results. There



is no third member to complete the triangle, but the third member is imaginary, which fact confuses the ordinary user of the common steel square.

A great many architects today are drawing their plans and specifications in degrees, and the ABC protractor square, which is being put on the market by the Crookston Tool Company of Crookston, Minn., is said to be overcoming all of the defects of the common square, removing the difficulties in roof and stairway work as well as in all circular and degree work. By the use of this valuable tool all work is said to be made as plain as ABC. It is very simple and easy to use and the degree circle in connection with the adjustable triangle makes it a tool that should be in the hands of every carpenter in the country. It gives lengths, bevels at both ends and degrees all at the same time, and it takes no figuring to use it. Just set the ABC pro-

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;

Who will qualify you at home in a few months to double your earning capacity

Don't waste time and money trying to learn from books or printed lessons made for all alike, the same as patent medicine; you can only learn this right on *practical work* from a practical man.

Free This Month A high-grade Complete Drawing Outfit, including a \$13.85 Set of German Silver Tools.



If you want to be the "BEST MAN" write me to-day. Address—

Chief Draftsman

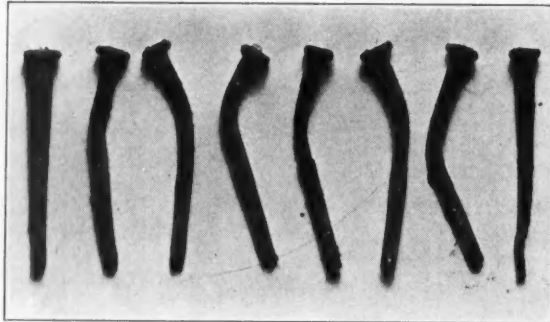
Div. 17

Eng's Equip't Co. (Inc.) Chicago



Zinc Coated Brand

**TRADE
M.I.F.CO.
ZINC COATED
MARK** **NAILS**
*Will Last
a Life-time*



In Use Nearly 30 Years and No Signs of Rust.

Read This Evidence of Durability:

In 1880, Mr. M. P. Harding, of Branford, Conn., shingled his store with pine shingles, nailing them with Zinc Coated Iron Cut Nails. In July, 1909, just 29 years later, he reshingled. The nails were as free from rust as on the day they were driven, although the house stands within three-quarters of a mile of the seashore. The cut shows some of the nails.

One of the main causes of leaky roofs is that the nails rust after being a few years in use. The way to prevent this trouble is to use nails in the beginning that are guaranteed to last as long as the building.

The "M. I. F. CO. ZINC COATED" brand of iron cut nails are that kind. They are made after a process used successfully for many years and are warranted to give full and absolute satisfaction.

We have numerous samples of nails used along the seaboard that were in use more than thirty years. They are as free from rust as the day they were driven.

Don't you think it would be profitable to use nails like these all the time? We will send you a sample package and price list free if you will write us. Why not write today?

Malleable Iron Fittings Company
BRANFORD, CONN.

tractor square at the dimensions given and it gives you what you want, bevels as well as lengths.

For instance, if you want to get bevels and lengths of rafters for a house 20 feet wide and 44-degree roof, just set member C to member A at 10 (one-half width of building) and set member B at 44 degrees, with member A and member B will give you the length of your rafter, to be 13 feet and 11 inches; member C will give you the upper cut and member A the lower cut of your rafter, and member C at the same time will show you that the rise of your roof in this case is 9 feet and 8 inches. These results you get from the ABC protractor square in less time than it takes to write it, and to get hip and jack rafters is just as easy.

The illustrated directions which the manufacturers put out with each tool makes roof, stairway and circular work so plain with the ABC protractor square that a boy who can read is able to use it.

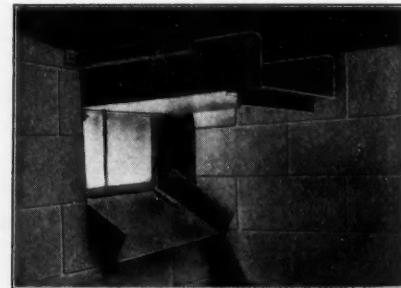
The Crookston Tool Company will be pleased to furnish all information regarding this square, which they sell on a guarantee that it will do the work they claim for it.

Taylor Coal Chutes

Modern times demanded that the use of the old wooden

coal chutes in the front yard of a fine residence be discontinued. They were unsightly, unclean eyesores, but they were the direct cause of the modern coal chute of today. In fact it was one of them that started Mr.

H. W. Taylor of



the Taylor Coal Chute Company of Kewanee, Illinois, into

the manufacture of the Taylor "Chutes." From a small beginning this company now is known in almost every city in the United States.

The two photographs here shown illustrate the modern way. By the use of the Taylor

Chutes the basement windows are all in harmony and, owing to its construction, ample light is given to the coal celler.

On the outside it protects the house thoroughly.

They are what you need, and their catalog which tells all about them, their various sizes and designs, is free. Write for it today.



New Books for Estimators

The Builder's Auxiliary Company, Boston, have just issued a very complete set of blanks and books for estimating which should be of immense value to all building contractors. The set of blanks consists of a large standard schedule for estimating and two smaller, handy size books for use on the job—one for keeping a record of all materials as received and used, and the other a time book for keeping a record of the labor cost for the various portions of the work. It seems that the careful use of these books on several jobs could not help but improve the estimating ability of any contractor.

An estimate should not be based on what some book says a certain piece of work can be done for. The cost is never the

ASBESTOS "CENTURY" SHINGLES

"The Roof that Outlives the Building"

Here is the solution of one of the greatest difficulties that beset the architect and builder—

Asbestos "Century" Shingles—an absolutely and truly *indestructible* roofing.

Every architect and builder has experienced the nagging annoyance of having a roof go back on him. Of the repairs to be made at cost or a dead loss—and worse, of the *resentment and illwill* of the client.

Asbestos "Century" Shingles are the first *practical and light-weight* roofing made of *reinforced concrete*.



Asbestos "Century" Shingle Roof—Residence of J. H. Briggs, Sea Gate, Coney Island, Brooklyn, New York; Squires & Wynkoop, New York, Architects: P. J. Van Note, Brooklyn, Contractor.

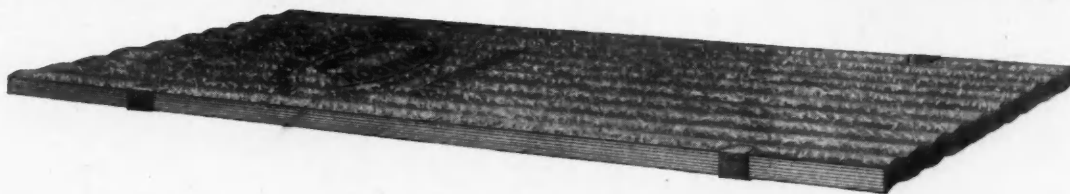
Fire cannot burn, chip, crack or blister them. Dampness and wet weather actually make them tougher, harder, more elastic.

They need *no painting—no repairs*

You can get Asbestos "Century" Shingles in numerous shapes and sizes, three colors—Newport Grey (silver gray), Slate (blue black) and Indian Red. Ask your Roofer for new quotations. Write for Booklet "Everlasting 1910."

The KEASBEY & MATTISON COMPANY, Factors, Ambler, Pennsylvania

CORRUGATED SHEETS



Black, Painted, Galvanized—with standard corrugations. All galvanized patterns bear in the stencil the word "APOLLO,"—the black and painted "AMERICAN." Look for these stencils when buying Formed Products—they insure standard sheets and full weight. Send for Weight Card of Formed Products.

**Formed Roofing and Siding Materials.
Black Sheets of Every Description.
Galvanized Sheets.**

**American Numethod Ternes.
American Old Style Ternes.
MF Roofing Tin.**

American Sheet and Tin Plate Company

General Offices: Frick Building, Pittsburgh, Pa.

DISTRICT SALES OFFICES:

Chicago Cincinnati Denver Detroit New Orleans New York Philadelphia Pittsburg Portland San Francisco St. Louis

same in any two locations, nor is it the same for any two contractors. Every contractor should be able to tell exactly just what *he* can do the work for. For this, nothing is so good as keeping accurate track of all costs, both material and labor, on a number of jobs. This should be done until reliable, personal data is had on every part of the work one is called on to figure.

These time keeping and material books of the Builders' Auxiliary Company would be most helpful for obtaining and keeping these records. The large standard schedule blanks—which are exceptionally complete—will also be of great service

in the preparation of estimates. There could be no overlooking nor forgetting of items in using such a schedule.

This company also publish a small Handbook of Estimating Data. It is packed full of valuable material, methods of figuring, average day's work, etc. The Builders' Auxiliary Co., 325 Old South Bldg., Boston, Mass., will gladly send full information on request.

A Matter of Confidence

"Do you ever think of how much depends on the condition expressed by this word 'confidence'?"

"Or how quickly the whole machinery of business would stop, or the whole structure of civilization would tumble down if it was lost to our lives?"

"Or how necessary it is that you encourage the growth and cultivate the acquaintance of houses that appeal to your confidence?"

"If skill, or technical knowledge, or years of familiarity with any subject, is required to make a safe or profitable purchase of an article, we must go to some person in which we have confidence.

"Few can tell when a fabric is all-wool.

"One in ten thousand knows when a diamond is perfect. Nine in ten could not pick a diamond out of a group of faceted glass.

"Only the life-trained could tell the difference in two pieces of roofing, or even determine what is necessary to good roofing.

"So it becomes a matter of confidence.

"Time—the test of time—is required for the first element of confidence; then the experience of the man; then his reputation—what other people think of him; then the business method that has directed his dealings; then the reasonableness of his claims for the article he sells and the duty it will perform.

"Cortright Metal Shingles and their makers have earned public confidence by nearly a quarter century of business probity and liberality."—Reprinted from that breezy little monthly, the "*Cortright Metal Shingle Advocate*," which will be mailed regularly to all builders on request.

Send for Free Sample

Years ago when a builder was putting up a structure he bestowed the least thought upon the question of nails. In those days nails were of the very best quality and, while he paid more for them than nails cost at present, he knew that in after years everything would be in the same place as it

STANDARD—Lock Joint—METAL SHINGLES

ORNAMENTAL EASILY APPLIED
—
GUARANTEED WEATHER PROOF

We can save you money on
CORNICE SKYLIGHTS VENTILATORS METAL CEILINGS ROOFINGS SIDINGS EAVE TROUGH CONDUCTOR PIPE



ABSOLUTELY STORM PROOF

CANTON Manufacturing Company

1310 to 1320 East Second Street CANTON OHIO

Catalogue FREE




22,000 Sheldon Steel Rack Vises
\$2.80 and up, sold on approval, an unconditional money-back guarantee.

SHELDON'S STEEL BAR CLAMPS
Guaranteed Indestructible
We solicit privilege of sending samples and our complete catalogue.

E. H. SHELDON & CO. 84 N. May St., Chicago

Patent Malleable Clamp Fixture
E. H. SHELDON & CO., Chicago, Ill.
Gentlemen:—We are pleased to state that the 25 dozen Clamp Fixtures which we bought of you a little over a year ago are giving excellent service. We are well satisfied with them and shall be pleased to remember you whenever we want anything additional in this line.
Yours truly,
CURTIS SASH & DOOR CO.
Sioux City, Iowa.






Unbreakable LIGNINE (WOOD) CARVINGS Unbreakable
SAVE YOU MONEY

We prove this—Send for free sample and catalogue of Capitals, Pilaster Capitals, Heads, Shields, Scrolls, Etc.

ORNAMENTAL PRODUCTS CO., West Fort St., DETROIT, MICH.





Hardwood Floors

Builders and Contractors know the importance of **OAK FLOORING**. They are fast learning the difference between a house floored with soft wood or cheap substitutes in Hardwood flooring, and the home making qualities of a house with **OAK FLOORING**. The living, renting and selling values of any building is **INCREASED BY OAK FLOORING**.

OAK FLOORING gives an air of refinement and elegance to a home—is rich in color and will never wear out. The standard thicknesses are $\frac{1}{2}$ inch and $\frac{3}{4}$ inch.

OAK FLOORING $\frac{3}{4}$ inch in thickness, may be laid over old floors very economically, taking the place of carpets. The highest quality of Clear Quartered **OAK FLOORING** $\frac{3}{4}$ inch thick can be bought, laid and polished for about half the cost of a fair quality of carpet.

Write us for further information.

Oak Flooring Bureau
410 Hammond Building
Detroit, Mich.

Protection and economy

You want to use roofing that gives lasting protection at moderate cost. Your problem is solved when you specify

Genasco Ready Roofing

It is made of Trinidad Lake asphalt—Nature's everlasting waterproofer. It prevents cracks, breaks and leaks, and does away with damage and repairs.

The Kant-leak Kleet does away entirely with cement and large-headed nails. Keeps seams absolutely watertight. Saves time in laying. Makes a beautiful finish. Ask for Genasco rolls with the Kleet packed in them.

Ask your dealer for Genasco. Mineral or smooth surface. Be sure you see the hemisphere trade mark. A written guarantee, if you want it. Gold medal (highest award) Seattle, 1909. Write for samples and the Good Roof Guide Book.

THE BARBER ASPHALT PAVING COMPANY

Largest producers of asphalt, and largest manufacturers of ready-roofing in the world.

PHILADELPHIA

New York San Francisco Chicago

Cross-section, Genasco Stone-surface Ready-Roofing



M. P. DURABLE FLOOR VARNISH

Price \$2.50 per gallon; Quarts 73c each

Exhaustive tests conducted during many years show this varnish to be the most durable and elastic Floor Varnish on the market. It is impervious to water and does not mar nor scratch white. It is light in color, thus preserving the natural beauty of the grain. It can be used with equally good results over painted or grained surfaces. It dries hard in from 15 to 24 hours, and can be rubbed and polished or left in the gloss.

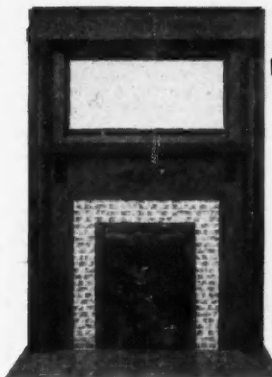
For sale by paint dealers everywhere. If not at yours, we will send by prepaid express upon receipt of price. Full descriptive price list upon application.

THE GLIDDEN VARNISH CO.
Makers of High Grade Varnishes for all purposes
GLIDDEN BLDG., CLEVELAND, OHIO

GLIDDEN'S

GREEN LABEL VARNISHES

WHITE MANTELS make home-like homes



Mr. Contractor:

Our Catalog should be in your hands. It shows Mantels of Wood or Tile of every description every one of which can be installed **AT A GOOD PROFIT**.

Our Designs Are Exclusive

Every one can and should install a White Mantel. They are made to accommodate the small cottage or the modern mansion at prices to suit any purse.

*White Mantels are made to Heat as well as Beautify
Our Catalog is worthy of a place on your Desk*

WHITE MANTEL & TILE CO.

100 Jackson Ave.

Knoxville, Tenn.

Price of Mantel only \$14.85.
Price of mantel as shown above with combination coal burning grate and first quality enamel tile, any color for hearth and facing—\$22.40.

was when his job was finished.

In recent years conditions have changed and every builder expects and knows that if he uses ungalvanized nails, or even those improperly galvanized, within from two to five years he may expect trouble with the roof and perhaps with the siding, for the reason that the nails will rust out in spite of everything. In most cases, the modern wire nail or cheap galvanized nail is not good for more than five to seven years and must be replaced.

One independent company, however, manufacturing nails, has never been lured by "the large quantity cheap price" song. They are today making nails after the same process used in 1861, and the size of their business and its steady growth is ample proof that a reliable product is and always will be preferred by the American public. We refer to the Malleable Iron Fittings Company, of Branford, Conn., who manufacture the well-known "M. I. F. Co. Zinc Coated" nails. This firm makes a guaranteed product which is based altogether on the quality idea. Their nails, after thirty years' use, show as great tensile strength as those just from the factory. The acids prevalent in all woods, rain and snow, usually so disastrous to the nail of modern manufacture, have no effect whatever on the zinc coated cut iron nails made by this firm.

The Malleable Iron Fittings Company are willing to send a sample package of their nails to anyone who is interested enough to write for them, and we suggest that every builder, for the sake of his own pocketbook, familiarize himself with this product.

Dixon's Steel Car Paint

The Joseph Dixon Crucible Company of Jersey City, N. J., has just gotten out a very attractive little booklet of envelope size on their paint for steel cars.

The booklet not only goes into the merits of the Dixon Paint for this service, but illustrates a number of different types of steel cars upon which Dixon's Paint has given excellent service. The booklet also contains color chips showing the four colors in which Dixon's Silica-Graphite Steel Car Paint is made.

Anyone interested in steel car painting should send for a copy of this booklet which will be forwarded, free of charge.

"Hercules" Machines in Export

From all parts of the world comes a steadily increasing demand for machinery for making concrete blocks. During the past month the Century Cement Machine Co., of Rochester, N. Y., makers of the well-known Hercules machine, have entered large orders from Turkey, Italy, Argentine Republic, Australia, Porto Rico and New Zealand.

This company is enjoying a large export business and have just arranged for a special export department, to be in charge of Mr. John Connelly, a man widely experienced in the export field and for many years connected with the Philadelphia Commercial Museum.

SLATE WE HAVE WHAT YOU WANT

*In Roofing Slate, Slate Blackboards
Structural and Plumbers' Slate*

SATISFACTION GUARANTEED IN QUALITY AND PRICE

ASK FOR DELIVERED PRICES

J. K. HOWER, Station C., Slatington, Pa.

H. J. KICHLINE, Sales Agent

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

Patents

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CASH FOR YOUR REAL ESTATE BUSINESS. No matter where located, if you want to buy, sell or exchange any kind of property or business anywhere at any price, address FRANK P. OLEVELAND, Real Estate Expert, 2150 Adams Express Bldg., Chicago, Ill.

For Sale

FOR SALE—Woodworking plant and lumber stock, Newark, N. J.; corporation discontinuing manufacture of its own equipment; will give opportunity to bid on their work. Address H. S. B., care American Carpenter and Builder.



Ten Days' Free Trial

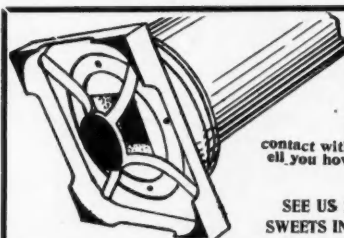
allowed on every bicycle we sell. We **Ship on Approval** and trial to anyone in the U.S. and *prepay the freight.* If you are not satisfied with the bicycle after using it ten days, ship it back and *don't pay a cent.*

FACTORY PRICES Do not buy a bicycle or a pair of tires from anyone at any price until you receive our latest Art Catalogue of high grade bicycles and sundries and learn our unheard of prices and marvelous new special offers.

IT ONLY COSTS a cent to write a postal and **FREE** by return mail. Everything will be sent you **FREE** by return mail. You will get much valuable information. **Do Not Wait; write it Now!**

TIRES, Coaster-Brake rear wheels, lamps, parts, repairs and sundries of all kinds at half usual prices.

MEAD CYCLE CO. Dept. C.122 CHICAGO



LENGTHEN THE LIFE OF YOUR COLUMNS

By the **ZIMMERMAN Iron Bases**—the only ones having the center bearing. Air, not water, comes in contact with the base of the column. May we tell you how they pay for themselves?

Write for Circular B.

SEE US IN SYR. Corner Block Factory
SWEETS INDEX Syracuse, N. Y.

DO YOU WANT SLATE?

Roofing Slate for Houses, Barns, Sheds and Railroad Stations. Clean and ornamental, rain, wind and fireproof.

Blackboards for Schools, Colleges, etc., are being used all over the World, need no better commendation, "It is just the thing."

Structural and Electrical Stock, Steps, Sink Tops, Wash Tubs, Window Sills, etc., superior to all other stone for such purposes.

Slaters' Supplies, Hand-made Slaters' Tools, Snow Guards, Slaters' Cement, Nails, Felt, Slate Punching and Cutting Machines, etc. Write for prices and I will tell you all about Slate. **B. McKenna, Slatington, Pa., U. S. A.**

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HOT-WATER HEATED

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BIG 72 PAGE Catalogue Free

Full of information about Andrews System of Heating, Plumbing, Water Supply and Sewage Disposal. Sold on 360 days Free Trial Guaranty. Send names of two or more persons who want to buy heating plants.

Andrews Heating Co.
1116 Heating Bldg.,
MINNEAPOLIS, MINN.

The conflagration of April 13, 1909, at Rochester, N. Y., spread via the roof line (for views of the ruins in different sections of the city, see pages 433 to 439). Fire-resistive roofs would have prevented this fire from getting a hold on buildings far from where the firemen were trying to extinguish the flames. A roof that will confine a fire to the building in which it starts will also keep out an "exposure" fire. The safety of cities from conflagrations involves the passing and enforcing of laws that prohibit wooden roofs.

Prevents Conflagrations!

Here is a clipping from "Insurance Engineering" confirming the opinion of other high authorities--that conflagrations can be prevented by roofing buildings with a fire-resisting roofing, so that flying embers will not cause fires to spread.

J-M Asbestos Roofing

cannot be set on fire by burning sparks, embers, etc., because it is made of *Asbestos*. It will resist the flames of a blow torch for 50 minutes without being burned or injured.

It is a *positive fire protection*.

J-M Asbestos Roofing is also rot-proof, rust-proof, acid-proof, heat-proof and cold-proof. It never needs painting.

Write nearest branch for Sample and Catalog 303—or simply write your name and address on the margin of this advertisement and mail it to us.

H. W. JOHNS-MANVILLE CO.

Manufacturers of Asbestos
and Magesia Products

ASBESTOS

Asbestos Roofings, Packings,
Electrical Supplies, Etc.

Baltimore
Boston
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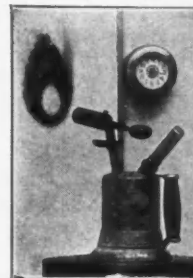
Cleveland
Dallas
Detroit
Kansas City

London
Los Angeles
Milwaukee
Minneapolis

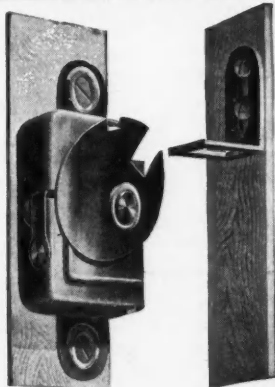
New Orleans
New York
Philadelphia
Pittsburg

San Francisco
Seattle
St. Louis

1108



In this test the flame of a powerful blow-torch was placed within two inches of J-M Asbestos Roofing. At the end of fifty minutes the roofing was not burned or injured, being only slightly blackened with smoke.



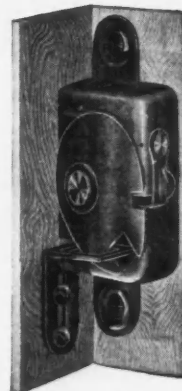
The No. 21 Watrous Screen Door Catch

The Latest and Best Thing in Screen Door Catches
THE CATCH WITH THE POSITIVE LOCK

The case comes flush on door jamb. The strike is adjustable. Needs no templet. A child can set it without making a mistake. A light trip and a strong hold. Positive lock does away with necessity for hook-and-eye, or other fastener.

Sells at Sight!

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ESTABLISHED 1852

A ROOFING SLATE

with a Record

Genuine Franklin Tunnel

Uniformity and Durability Unexcelled

Write for Price List No. 25

SOLE PRODUCERS

SLATINGTON SLATE CO.
SLATINGTON - - - PENNA.

EVERY CARPENTER KNOWS WHY

Dwight Special

Is the Best Thin Flooring

DWIGHT LUMBER COMPANY

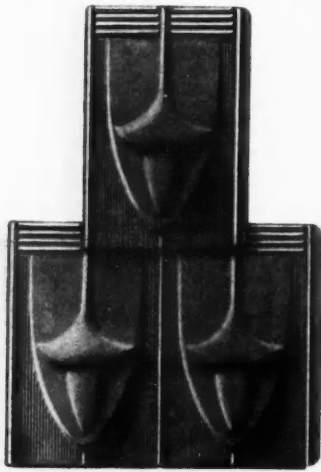
DETROIT, MICHIGAN

Makers of the Best Hardwood Flooring

Parquetry and Mouldings

"Titelock" Metal Shingles

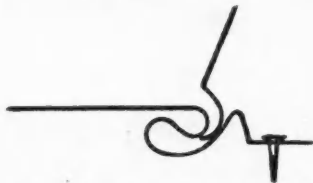
Our readers have undoubtedly observed the increased demand, during the last few years, for a suitable roof covering, which is more durable, serviceable and more ornamental than slate, tile or wooden shingles. Various products have been placed before the public, but none of them, so it is claimed, cover all points so thoroughly or have met with such success as metal shingles. Accordingly progressive builders are in-



Style A—Showing Method of Laying

terested in this roofing material in a general way and they want to learn the merits and advantages of the special brands.

The metal shingles which we are illustrating and which are described on this page, are manufactured by the Mil-

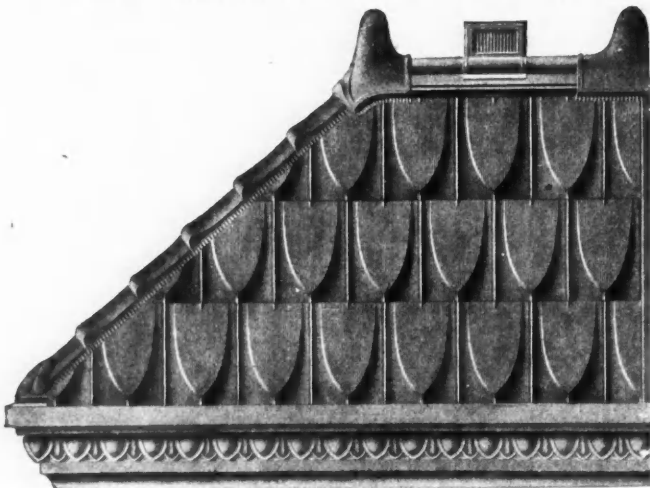


Side Lock—When Laying Shingle

waukee Corrugating Company, of Milwaukee, Wis., and are placed on the market under the name "Titelock." These shingles have met with exceptional success; many owners and builders unite in recommending them.

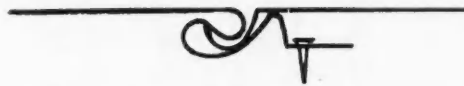
The Milwaukee Corrugating Company, which is one of the largest sheet-metal works in the west, employs only the most up-to-date methods and uses only the best material in the manufacture of its products.

"Titelock" metal shingles are not made from a galvanized



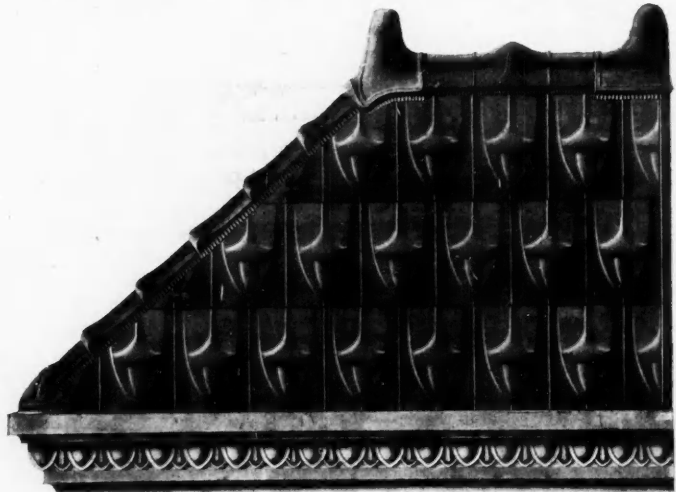
Style B—With Ridge and Hip Finish

sheet. They are made from full-weight terne-plate, and after



Side Lock—When Laid in Place

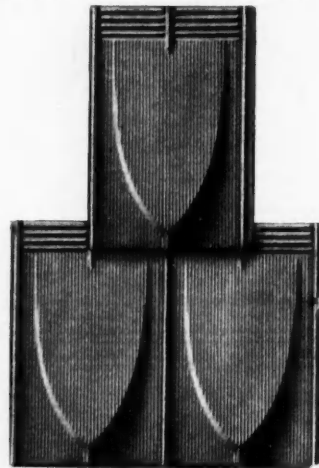
the shingles are completely formed they are dipped into paint or submerged in spelter, as the case may be. This method of galvanizing metal shingles insures an absolutely perfect coating of spelter. There are no raw edges exposed to the weather, no places on which the zinc coating has been cracked, and the perfect covering absolutely protects the iron from corrosion. This is given as the reason why "Titelock" metal shingles have so generally met with the approval of



Style A—With Ridge and Hip Finish

the hardware man, the tinner, the carpenter and the builder, all over the United States and Canada, and why the life of these shingles exceeds that of others.

The embossing is very clear and pronounced, and when the shingles are placed on a roof they present an exceptionally



Style B—Showing Method of Laying

pleasing appearance. Hip and ridge covering, valleys, porch-flashing, finials and cresting-blocks, and other appropriate trimmings are also furnished by this company.

These shingles are made in two sizes—7 by 10 inches and 10 by 14 inches—painted or galvanized, in both styles, "A" and "B."

We understand that the manufacturers have issued a number of very complete and attractive catalogues and booklets, and these, together with samples of their "Titelock" shingles, they are sending out, free of charge, to all interested parties.

MASTIC ROOFING



Prepare
For A HEAVY

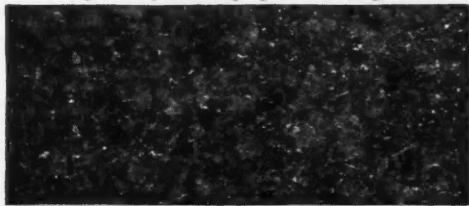
NOW
FALL BUSINESS

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 high grade of our goods will develop a very strong demand during the fall and winter months.

The success of Mastic Roofing will be doubled and trebled during the coming year. Orders are pouring in and our manufacturing facilities have been 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.



The above cut is an exact reproduction of a piece of Mastic Roofing 21-2x11-16 inches and shows the slightly surface finish.

We offer special inducement to contractors and builders putting on the first Mastic Roof in every locality where it has not yet been introduced.

Send for Free Sample.

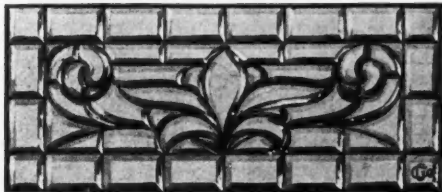
We will send a free sample of Mastic Roofing when you send for the booklet. Write today.



NATIONAL ROOFING MATERIALS CO.
Edwardsville, Illinois



ART GLASS



We manufacture

Clear,
Bevel
Plate,
Mitred
Bevel

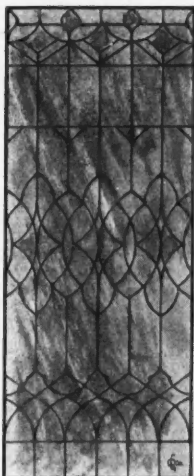


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Brass

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Special designs quickly and satisfactorily executed.

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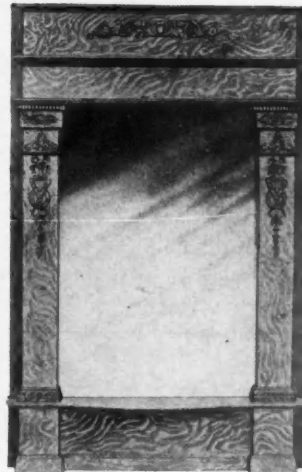
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years in our present location satisfied customers in every state in the union.

We can satisfy YOU if you will give us a chance to figure on your needs in our line of work.

Our 48-page catalogue will be mailed on request.

(FREE.) It contains Seventy-two designs of Grille Work, Colonnade openings, Consols, and Parlor Columns.

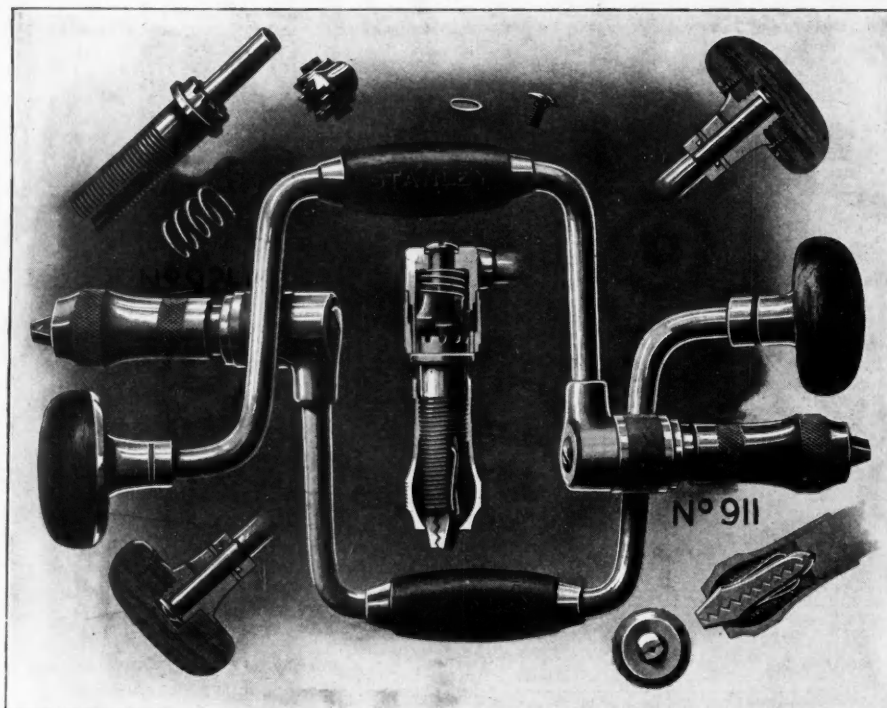


Consol Design No. 5

826-838
Wells
Street
Chicago,
Illinois

Get our price on
Consol
DESIGN
No. 5.

We have others.



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Stanley Tools

In the STANLEY CONCEALED RATCHET BIT BRACE are embodied improvements and refinements in mechanical construction not previously contained in any Bit Brace.

The novel features of design, together with the highest quality of workmanship and material, place this tool in a class by itself as to strength, durability and convenience of operation.

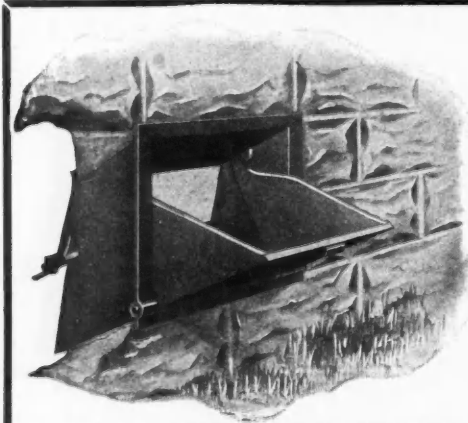
NOTE PARTICULARLY—The Cam Ring which governs the Ratchet is in line with the Bit—a great advantage in working and that the Ratchet mechanism is completely *protected*, so that it is always free from dirt, grit and moisture, and retains oil for a long time.

In the Clutch mechanism, *five teeth*, are in engagement when working as a Ratchet, as against *one tooth* in other forms of Ratchet Braces.

They are highly nickeled and have Cocobolo Ball-bearing heads and Cocobolo handles.



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**A NECESSITY TO EVERY MODERN HOME
NO MORE DAMAGED CASINGS OR SASH**

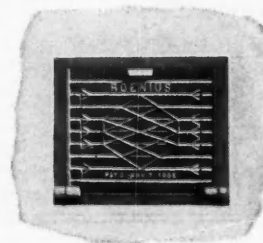
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Nearly 20,000 in Use

Safe from outside tampering or entrance and weather-proof. Are easily opened and locked.

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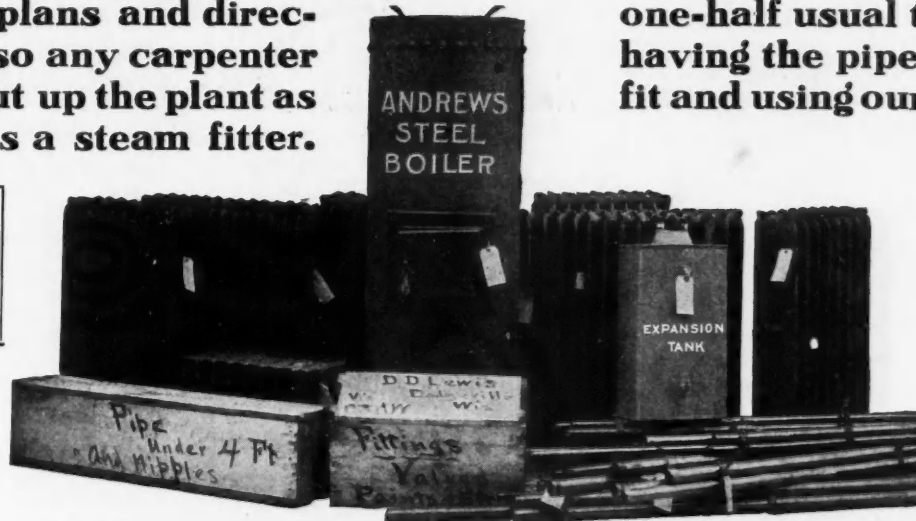
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Install The Heating Plant Yourself— You Can Save \$50.00 to \$200.00

We cut the pipe to fit and send plans and directions so any carpenter can put up the plant as well as a steam fitter.

Our own steam fitters save one-half usual time by having the pipe cut to fit and using our plans.

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BOOK FREE



Andrews Book On Heating, Sanitation & Water Supply

A New Book on these subjects of vital importance to home builders and owners has just been issued by the Andrews Heating Company. This Book describes and illustrates with elaborate plans and details the construction and operation of hot water, steam, and hot blast heating and ventilating plants for residences, schools, churches, business blocks and public buildings; also central station plants for groups of buildings such as colleges and factories.

It gives the theory and method of operation of air pressure water supply systems for furnishing any quantity of water at any desired pressure.

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The reader is enabled to get complete information about these systems as applied to different kinds of buildings. Also accurate estimates of cost of the systems ready for use.

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Hot Water or Steam Heating Plumbing, Water Supply or Sewage Disposal Sold on 360 Days Free Trial.

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ANDREWS HEATING CO.

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Tells how you can install your own heating systems and save dealers' profits. It describes in detail our Direct Selling Plan and the heating plant that is scientifically correct for each particular house, because designed especially for it. It shows how to get the most heat for the least money and get it longer than with any other furnace made.



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"Crescent" Mixers Stand the Test
A Postal will bring our Catalog and Lowest Prices
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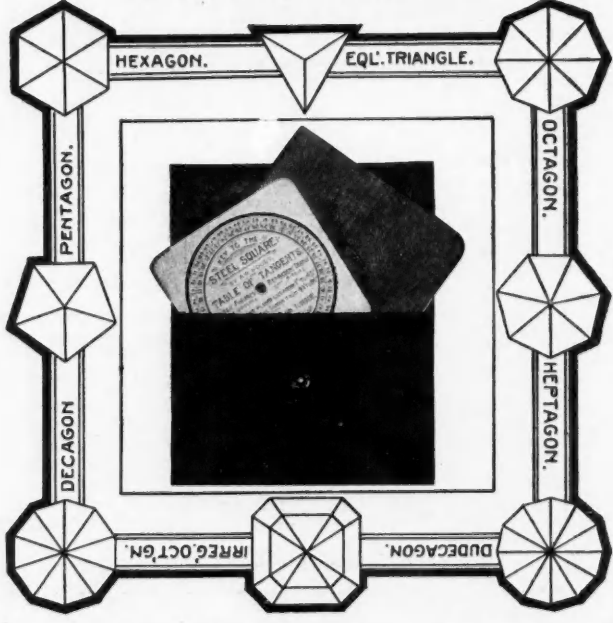
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A WONDERFUL INSTRUCTOR



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Special terms to Contractors and Builders.

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25 Years' Experience 3 1/2 Acres of Floor



If you are designing a store front for a new building, or for remodeling an old one, you of course will want to set the glass in the construction that will give the best satisfaction, so specify "*The Coulson*," which is the only practical construction of its kind on the market.

Write for Catalog "E 800"

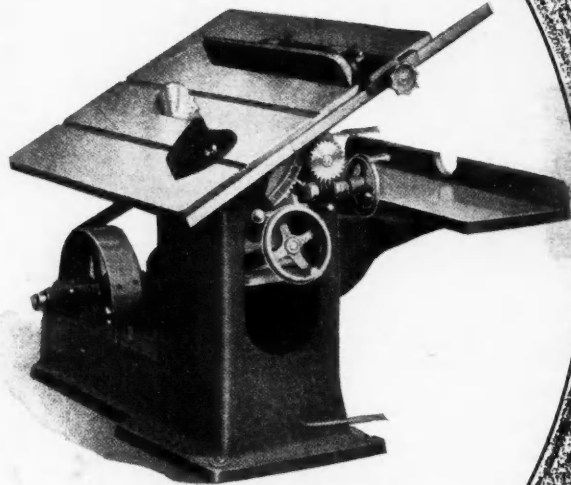
J. W. COULSON & CO.
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CRESCENT Combination Saw Table

The Crescent No. 2 Combination Saw Table is excellent as a rip-saw table, and is equally suitable for grooving, rabbeting, bevelling, cutting off, etc.

A boring attachment with wood table and self centering chuck can also be furnished at an additional charge, and increases the efficiency of the whole proposition very materially.

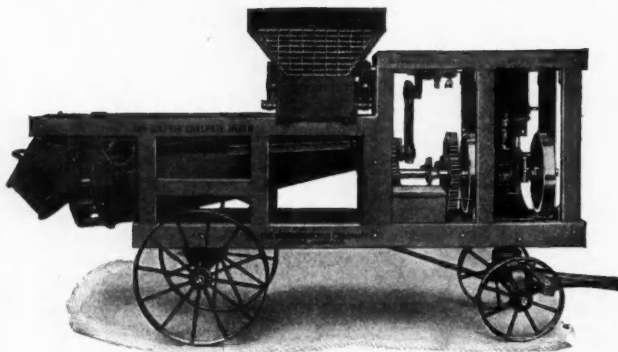
This is a first class machine for carpenters, builders and contractors, being simple and economical in operation and durable in construction. As a matter of business you should send for catalog and prices.



No. 2 Crescent Combination Saw-Table
(Saw and Belt are included with this machine)

The Crescent Machine Co.
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"IT IS THE MOST SERVICEABLE, QUICKLY HANDLED AND LARGEST PRODUCER FOR ITS SIZE THAT I HAVE YET SEEN"



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5 Sizes

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Manufactured Exclusively By **The Knickerbocker Co. Jackson, Michigan.**

30 Tons' Pressure GUARANTEES Uniformity of Product

THE SOMERS uses the "wettest" mix of any block machine on the market

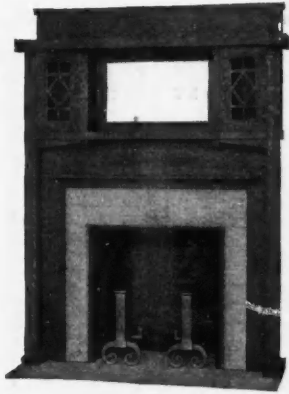
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Enjoy the Confidence of a large number of Contractors and Builders because they are found to be Exactly as Represented—Always.

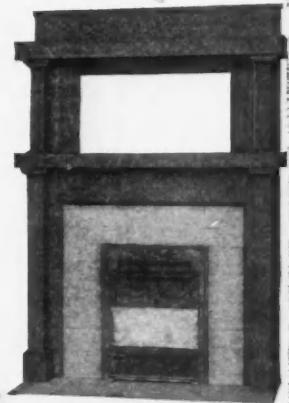
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"THE MANTEL FOLKS"

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\$24.75 Special \$23.75



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at the above prices we include MANTEL
with Tiling and Grate, also

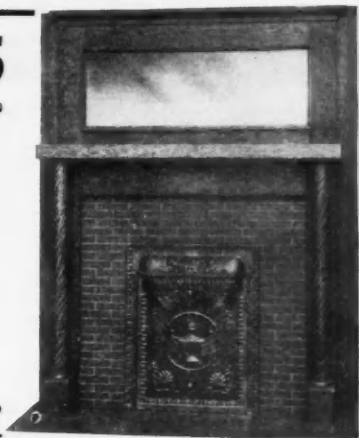
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Write for our 50 page catalogue. Sent free
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Cincinnati, Ohio



IMPERIAL "SPIRAL" "AMERICAN" INGOT IRON LATH

THE MOST SUPERIOR RUST-RESISTING

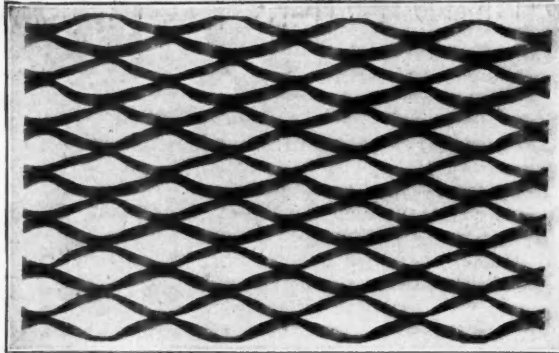
Government Approves It---Architects Specify It, Contractors Demand It.

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Made From
**"AMERICAN
INGOT IRON"**

The Attainment
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Highest Purity
in Iron

99.94% PURE



Imperial "Spiral"

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Equal Distribution
of the Metal
Giving Maximum
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Is unequalled by any expanded lath made, NOTE that "Spiral" Twist SAVING of THREE to FOUR cents Per Yard IN labor AND Plaster.

MADE IN ALL GAUGES, ONE STANDARD SIZE 16 1/2 INCHES x 96 INCHES

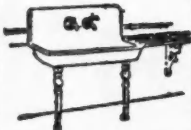
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SAVE YOU 30 TO 45 PER CENT



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



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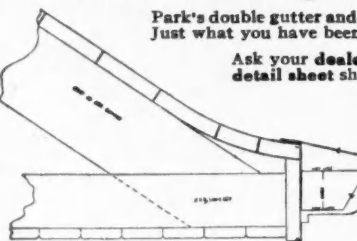
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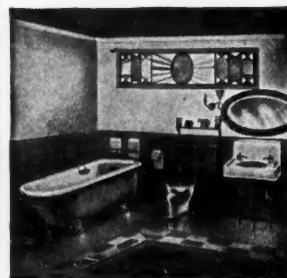


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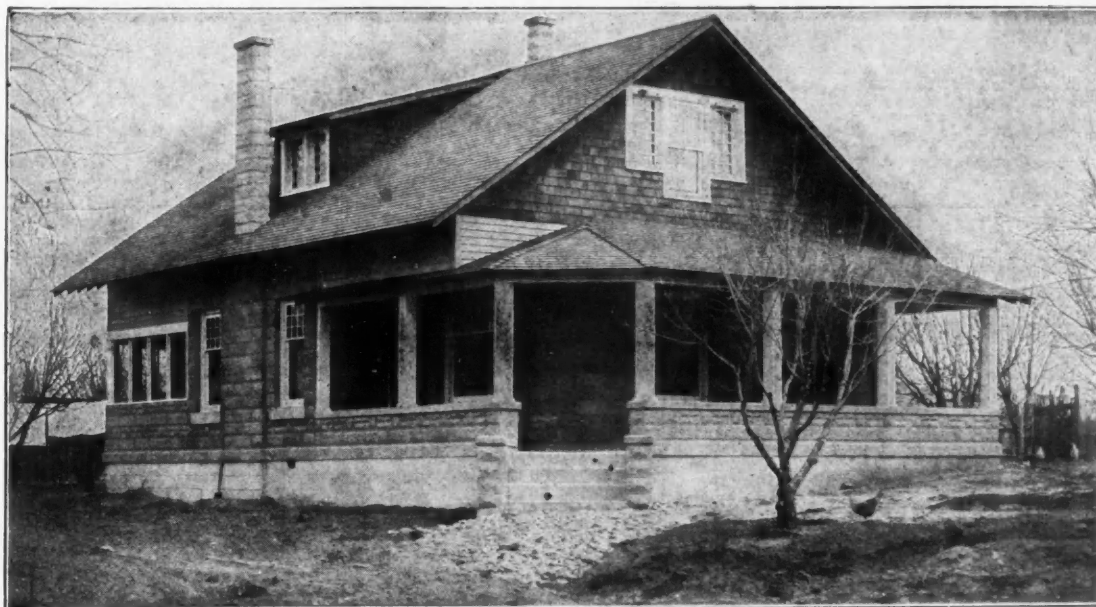
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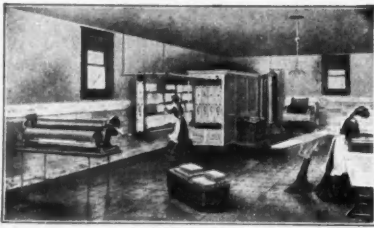
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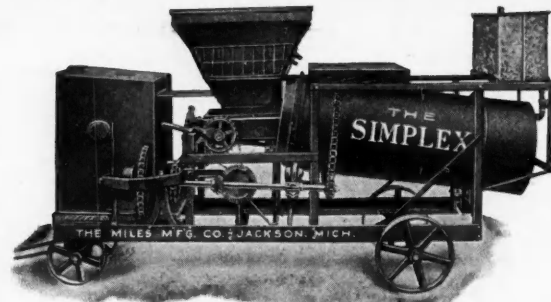
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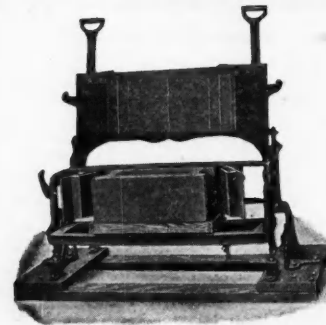
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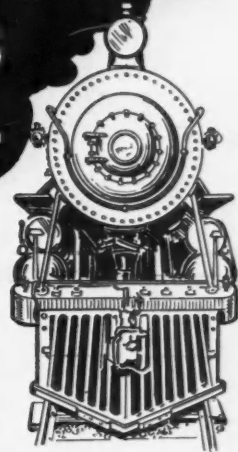
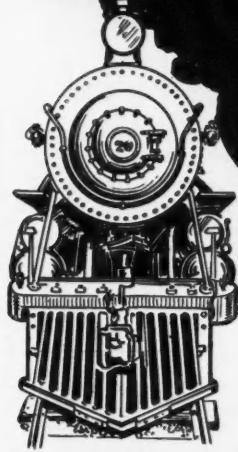
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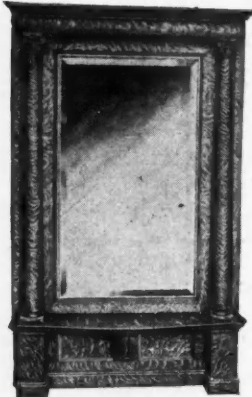
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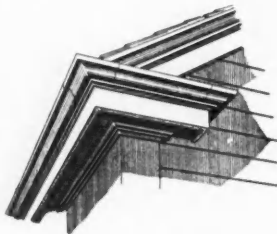
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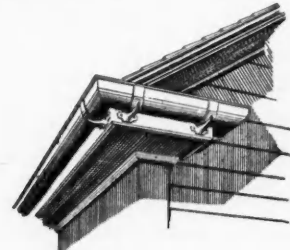
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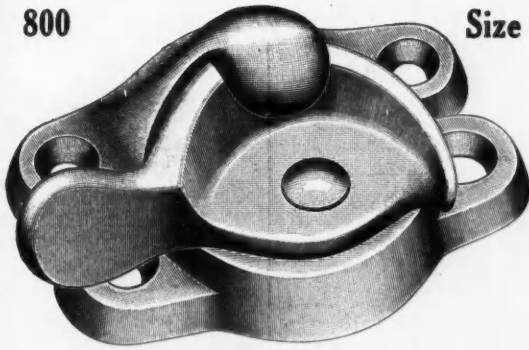
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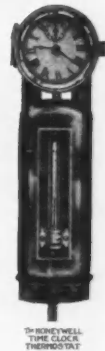
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is simple in construction — secure — durable—absolutely storm and water tight. As expansion and contraction are provided for, it is guaranteed, when put on according to directions, to remain perfect for years.

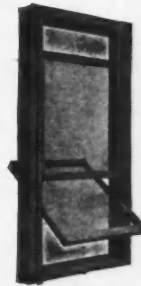
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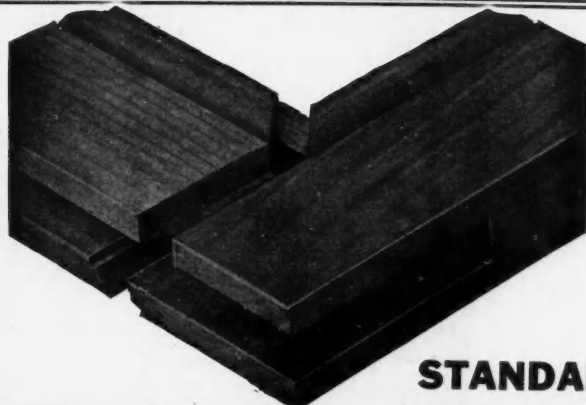
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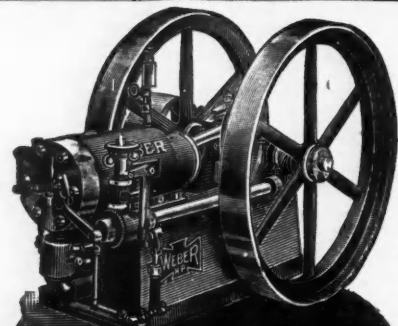
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Save 30 per cent on Porch Material

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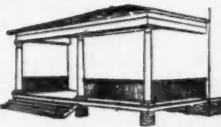
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 Top and bottom rails at.....\$2.75 per 100 lineal ft.
 Column rails at \$4.12 per 100 lin. ft.

Porch Flooring.
 1/2x3/4 in. face clear Fir at.....\$32.00 M.
 Clear 4 in. Minn. Soft Pine at.....\$28.00 M.

Porch Ceiling.
 No. 1. Y.P. Ceiling, D.M. and Beaded \$18.00 M.



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 Every piece of Mill Work absolutely guaranteed brand new, highest grade and satisfactory to you.

WINDOW FRAMES.
 Lot 10 A-100. Everything complete, outside casing 1 1/2x4 1/2 inch, main sill 1 1/2x3 1/2 inch, sub sill 1/2x5 1/2, jambs including stile and blind stops 5 1/2 in. wide, parting strip, etc. Made from sound selected clear face Yellow Poplar, Cypress and White Pine. Price complete in the K. D. with pulleys.....\$1.65



DOOR FRAMES
 Lot 10 A-99. Outside door frame, everything complete, outside casing 1 1/2x4 1/2 oak sill, 1 1/2x7 1/2; rabbeted jambs, 1 3-8x5 1/2. Made from the same woods as above. Price complete in the K.D. \$1.85

\$8.10 BUYS BEAUTIFUL FRONT DOOR.
 Lot 10 A-13. Soft Pine double A quality glass, size 3x7 ft., 1 3-8 in. thick.....\$8.10
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 Lot 10 A-1000. Quality strictly first-class, and at this price is a decided bargain.
 2 ft. 8 in. x 6 ft. 8 in.
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 Lot 4 A-1662. Made of wrought steel, antique copper finish plated. Complete set each.....\$0.47.
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Lot 4 A-719. Planished antique finish. Size 2x2, per pair.....13c
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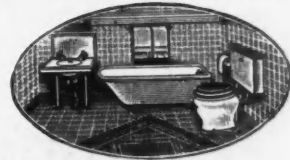
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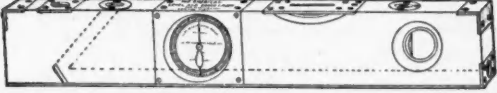
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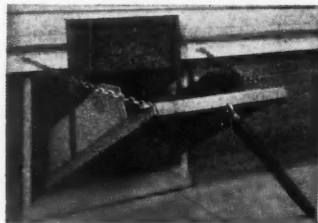
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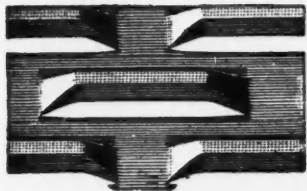
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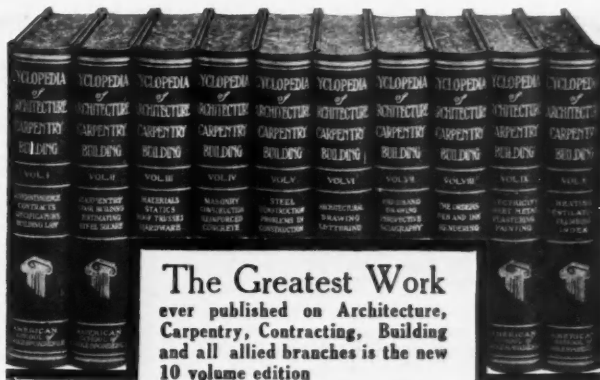
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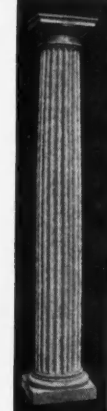
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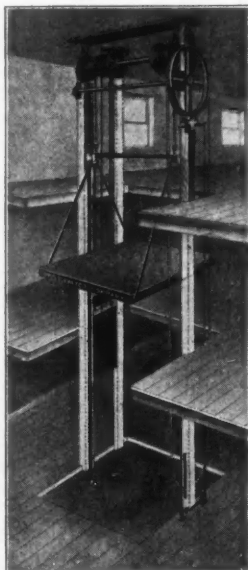
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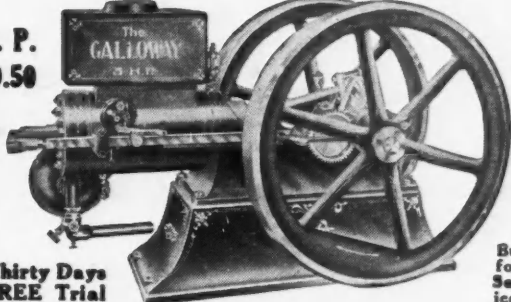
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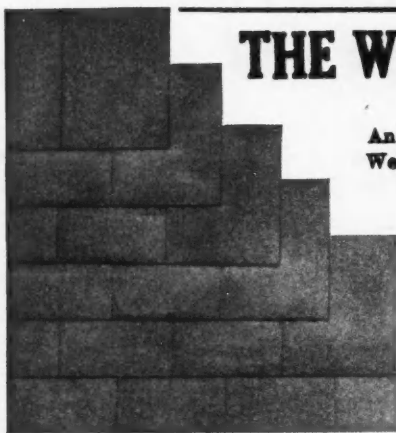
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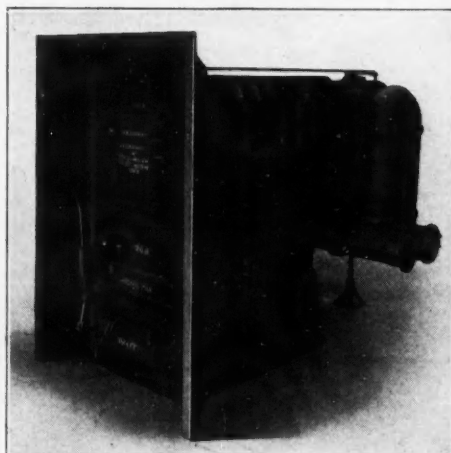
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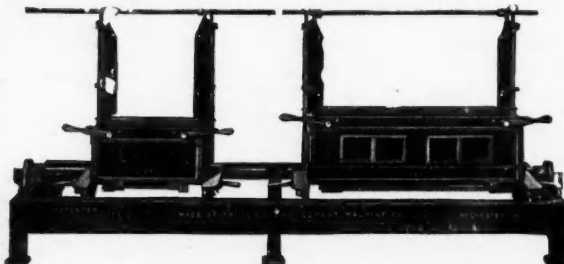
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CONTENTS FOR SEPTEMBER, 1910

Page		Page		Page	
Correspondence	73	How a Circular Mould May Be De-		Ratepayers' Lament, The	30
Design for Small Public Library	72	veloped	73	Red Gum—the "New" Wood	43
Details of Construction and Finish	40	How to Erect Stave Silos	74	Red Oak for White	30
Economy of Space in Building	31	How to Lay Off a Ten-Foot Pole	75	Residences	64
Editorial	29	How to Make a Magazine Stand	58	Rift Sawing	67
Entrance Arch for Templar Conclave	36	How to Make a Mission Settee	59	Some Good Questions	75
Equipment and Power for the Carpenter Shop	61	How to Plan the House	54	Stair Building, Roof Work, Etc.	76
Fine Example of Cement Block Work	76	Intersection of Different Roofs, The	77	Steel Square	38
Flemish Brown Finish	60	Kieselguhr	53	Stove vs. Modern Heating	50
Gateway and Stucco Porch Details	40	Machine Woodworking	61	Three Suggestive Building Designs	54
Handy Flour Bin, A	73	Painting Old Walls and Woodwork	74	To Improve Furnace Heating	29
Heating and Ventilating	50	Pilgrim Monument, The	53	Two Good Projects for Home Craftsmen	58
Heavy Barn Framing	77	Placing the Door Buts	73	Urges Stamped Metal for Beam Ceilings	75
Heavy Roof Framing	40	Plans for Artistic Stucco House	64	Valuable Data for Builders	46
Hints on Estimating	62	Power Boring Machine for Barn Builders	74	What Kind of a Roof?—Metal Shingles	52
Home Workshop, The	58	Practical Carpentry	46	White Company, The L. & I. J.	63
How About Painting Copper	76	Problems of Roof Framing Solved	38	Who's Who in Business	63
		Public Buildings	72	Work of the "Steeplejack"	60

INDEX TO ADVERTISEMENTS, SEPTEMBER, 1910

Page		Page		Page	
Ackermann & Co., J. B.	8	Gade Bros. Mfg. Co.	122	Northwestern Compo-Board Co.	26
Acme Woven Wood Lath Co.	109	Gage Tool Co.	20	Northwestern Expanded Metal Co.	81
Adjustable Hanger Co.	24	Galloway Co., Wm.	125	Northwestern Grille Works	116
American Floor Surfacing Mach. Co.	6	Glidden Varnish Co.	101	Northwestern Steel & Iron Works	128
American Bell & Foundry Co.	126	Globe Heat & Power Co.	127	Oak Flooring Bureau	101
American Rolling Mill Co.	112	Goodell Mfg. Co.	20	Ohio Tool Co.	26
American School of Correspondence	123	Goodell-Pratt Co.	22	Ornamental Products Co.	100
American Sea Green Slate Co.	90	Gordon-Van Tine Co.	115	Otis Elevator Co.	124
American Sheet & Tin Plate Co.	99	Grand Rapids Foundry Co.	106	Parks Ball Bearing Machine Co.	15
American Telephone & Telegraph Co.	93	Grand Rapids Hardware Co.	20	Peck, Stow & Wilcox Co.	95
Andrews Heating Co.	102-107	Hardin Co., John	112	Perfection Mfg. Co.	19
Architects & Engineers Supply Co.	117	Hartman-Sanders Co.	123	Pettyjohn Co., The	125
Atkins & Co., E. C.	Cover	Heitland Grate & Mantel Co.	125	Phillips Co., A. J.	109
Automatic Sash Holder Co.	4	Helb, Edward	122	Phoenix Sliding Blind Co.	27
Barber Asphalt Paving Co.	101	Hess Warming & Ventilating Co.	16-118	Pitless Auto Turntable Co.	120
Barnes Co., W. F. & Jno.	21	Heppes Co., The	89	Prentiss Vice Co.	26
Barrett Mfg. Co.	84	Hitchings & Co.	116	Progressive Mfg. Co.	13
Bates & Edmonds Motor Co.	120	Holland Grate Co.	18	Raber & Lang Mfg. Co.	108
Berger Mfg. Co.	21	Holmes Disappearing Bed Co.	18	Rehm Hardware Co.	4
Berry Bros.	84	Honeywell Heating & Specialty Co.	117	Richards Mfg. Co.	27
Bishop & Co., Geo. H.	118	Hower, J. K.	102	Rodgers & Co., R. M.	14
Bovee Grinder & Furnace Works	123	Hurley Machine Co.	9	Root Co., B. M.	11
Bradt Publishing Co.	21	Huther Bros.	14	Roth Bros. Co.	15
Brunsdorf-Mueller Co.	23	Ideal Concrete Machinery Co.	22	Russell-Jennings Mfg. Co.	12
Brilliant Gas Lamp Co.	114	International Correspondence Schools	88	St. Paul Roofing, Cornice & Orn. Co.	28
Brown Specialty Machinery Co.	16	Inter-State Equipment & Eng'g Co.	3	Samson Cordage Works	26
Builders' Auxiliary Co.	24	Irwin Auger Bit Co.	83	Sargent & Co.	21
Burlington Venetian Blind Co.	27	Izard-Warren Co.	23	Sasgen Bros.	23
Burritt Co., A. W.	111	Ives Co., H. B.	117	Schleuter, M. L.	8
Caldwell Mfg. Co.	11	Jahant Heating Co.	108	Scott Roofing & Mfg. Co.	125
Canton Art Metal Co.	126	Jenks, Benj. L.	4	Sedgwick Machine Works	120
Canton Foundry & Machine Co.	124	John-Manville Co., H. W.	103	Seneca Falls Mfg. Co.	17
Canton Mfg. Co.	109	Johnson, E. J.	122	Sheldahl Gas Power Co.	120
Carborundum Co.	113	Johnson & Sons, S. C.	86-87	Sheldon, E. H.	106
Cement Tile Machinery Co.	109	Kanneberg Roofing & Ceiling Co.	124	Shultz, C. H.	18
Central Mantel Co.	118	Karol, B. B.	112	Sidney Elevator Mfg. Co.	19
Century Cement Machine Co.	128	Kawneer Mfg. Co.	79	Sidney Tool Co.	11
Champion Safety Lock Co.	4	Keasbey & Mattison	99	Silver Lake Co.	26
Chicago Dryer Co.	114	Kees Mfg. Co., F. B.	116	Simmons Hardware Co.	Cover
Chicago Grille Works	105	Kepplinger, G. B.	8	Simonds Mfg. Co.	82
Chicago House Wrecking Co.	121	Knickerbocker Co., The	110	Slatington Slate Co.	103
Chicago Machinery Exchange	13	Littlefield & Clark	127	Smith & Hemenway Co.	12
Chicago Spring Butt Co.	28	Lorenzen & Co.	11	Smith Machine Co., H. B.	11
Cincinnati Floor Co.	85	Luffkin Rule Co.	23	Somers Bros.	110
Cincinnati Tool Co.	21	Luther Grinder Mfg. Co.	96	Standard Screen Co.	119
Cleveland, Frank P.	102	McCrum-Howell Co.	91	Stanley Rule & Level Co.	106
Clinton Glass Co.	105	McKenna, David	102	Starrett Co., L. S.	27
Cortright Metal Roofing Co.	92	Mack & Co.	26	Sykes Metal Lath & Roofing Co.	123
Coulson & Co., J. W.	109	Majestic Furnace & Foundry Co.	127	Syracuse Corner Block Factory	102
Crescent Machine Co.	110	Malleable Iron Fittings Co.	98	Taplan-Rice-Clerkin Co.	22
Cunningham, R. M.	16	Mallory Mfg. Co.	24	Taylor Coal Chute Co.	122
Daisy Mfg. Co.	4-5	Marsh, H. C.	28	Taylor Mfg. Co., James L.	14
Defiance Machine Works	15	Marsh Co.	6-113	Tower & Lyon Co.	16
Detroit & Cleveland Navigation Co.	25	Mastic Wall Board & Roofing Co.	130	Triple A Machine Co.	9
Detroit Decorative Supply Co.	116	Mayhew Co., H. H.	20	Trused Concrete Steel Co.	122
Detroit Show Case Co.	25	Mead Cycle Co.	102	Union Metal Mfg. Co.	90
Diehl Novelty Co.	24	Messenger & Parks Co.	112	United Pump & Power Co.	126
Diston & Sons Co., Henry	80	Miles Mfg. Co.	114	Universal Floor Scraper Co.	6
Dixon Crucible Co., Jos.	15	Millers Falls Co.	24	Universal Portland Cement Co.	125
Dosch Mfg. Co.	19	Miller Co., A. W.	17	Voltz Mfg. Co.	120
Dow Wire & Iron Works	119	Milauke Corrugating Co.	12	Voss Mantel Co.	94
Dunn & Co., W. E.	128	Miotke, Joseph	8	Waddell Mfg. Co.	28
Dwight Lumber Co.	103	Montross Metal Shingel Co.	12	Watrous Mfg. Co., E. L.	103
East Bangor Consolidated Slate Co.	119	Moorman & Otten	111	Weber Mfg. Co.	7
Eastern Granite Roofing Co.	94	Morrill, Chas.	28	White Co., L. & I. J.	25
Edwards Mfg. Co.	10	Mullins Co., W. H.	119	White Mantel & Tile Co.	101
Engineers Equipment Co.	97	Murphy Varnish Co.	10	Wilkinson, A. J.	16
Everson Mfg. Co.	19	Myers & Bro., F. E.	125	Willis Mfg. Co.	108
Fay & Egan Co., J. A.	14	National District Telegraph Co.	102	Willshire Clamp Co.	23
Forest City Bit & Tool Co.	16	National Mfg. Co.	Cover	Winthrop Asphalt Shingle Co.	126
Foster & Sons Co., Wm.	114	National Roofing Materials Co.	105	Yellow Pine Mfrs. Association	116
Fox Mfg. Co.	12	National Sheet Metal Roofing Co.	122		
		Nicholls Mfg. Co.	124		
		North Bros. Mfg. Co.	27		

NOTICE TO ADVERTISERS

Forms for the October number of the American Carpenter and Builder will close promptly on September 20. New Copy, changes and orders for omissions of advertisements must reach our business office, 185 Jackson Boulevard, Chicago, not later than the above date to insure attention.

AMERICAN CARPENTER & BUILDER CO.

BISHOPRIC WALL BOARD

Cheaper and Better Than Lath and Plaster

YOU DON'T HAVE TO WAIT for good building weather when you use Bishopric Wall Board. This substitute for lath and plaster is made of kiln-dried, dressed lath, imbedded in hot Asphalt Mastic under pressure of 500 pounds to the square inch, surfaced with sized cardboard and cut at the factory into 4x4 ft. sheets, of uniform thickness ($\frac{3}{8}$ inch), which are easily and quickly nailed to studding, ready for immediate application of wall paper, paint, burlap or other decoration.

Applied
Dry,
Winter or
Summer



It is applied dry; is guaranteed not to swell, shrink, warp, crack, flake or blister; is clean, sanitary and odorless; is proof against moisture, cold, heat, and vermin; saves fuel in winter and keeps out summer heat; also deadens sound. Is suitable for dwellings, factories, new partitions in old buildings, finishing attics, porches, laundries, cellar ceilings, garages, etc.



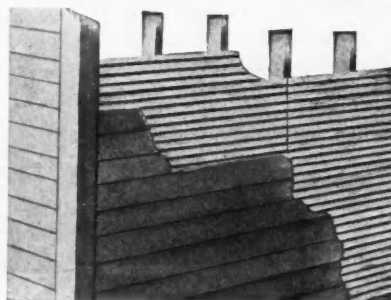
Importance of Lath The lath forms a perfect binder—a guarantee against warping or twisting out of shape. Furthermore, insures perfect adhesion when nailed to studding. Beware of cheap imitations. Bishopric Wall Board is protected by U. S. patents. Prosecution will follow infringement.

PRICE AND SHIPMENT FROM NEAREST POINT: Crate of 16 sheets, covering 256 sq. ft. of surface, \$6.40 or \$2.50 per 100 sq. ft., f. o. b. New Orleans, La., Cincinnati, O., or Alma, Mich.

Saves labor. Does away with building paper. Cheaper than lumber.

BISHOPRIC SHEATHING

Proof against heat, cold, moisture and vermin. Patented.



Made of the same materials used in Bishopric Wall Board and same way, though finish is not necessarily so smooth, therefore costs less. It is nailed to studding on outside of the building, with lath and Asphalt Mastic exposed. Over this you nail weather-boarding. This gives solid sheathing with dead air space between Sheathing lath and siding. Ideal material for cement exterior or stucco work. Cement firmly adheres to lath and Asphalt Mastic, making a solid, smooth exterior. For factory or residence, this form of cement construction is the cheapest and best known.

Bishopric Sheathing is cheaper than lumber; is free from holes and rough spots; is nailed to studding in half the time required for lumber; does away with expense of buying and applying building paper; is proof against heat, cold, dampness, frost, wind and vermin. Being a non-conductor, it keeps the building cooler in summer and saves fuel in winter. It is used with excellent results as a lining for dairy barns, poultry houses, driving stables or other outdoor buildings.

Ideal For Cement Exteriors

Illustration to right is from an actual photograph of a New Orleans factory with Bishopric Sheathing and cement exterior. Bishopric Sheathing has been nailed to outside of studding and the exposed lath and Asphalt Mastic have been coated with cement. The artist has indicated with an arrow the exposed lath. This form of cement construction is most durable as well as economical; is fire-proof, moisture-proof, wind proof as well as proof against heat and cold. The cement firmly adheres to the laths, making a solid, smooth exterior. Spaces between parts of laths not fully imbedded in Asphalt Mastic form an excellent key for firmly holding the cement. For factory or residence this form of cement or stucco construction is the cheapest and best known.

PRICE AND SHIPMENT: Crate of 16 sheets, covering 256 sq. ft. of surface, \$5.12, or \$2 per square of 100 sq. ft., f. o. b. New Orleans, La., Cincinnati, Ohio, or Alma, Mich. We ship from nearest point.



Write for descriptive booklet and samples of Bishopric Wall Board, Sheathing and Roofing—ALL SENT FREE.

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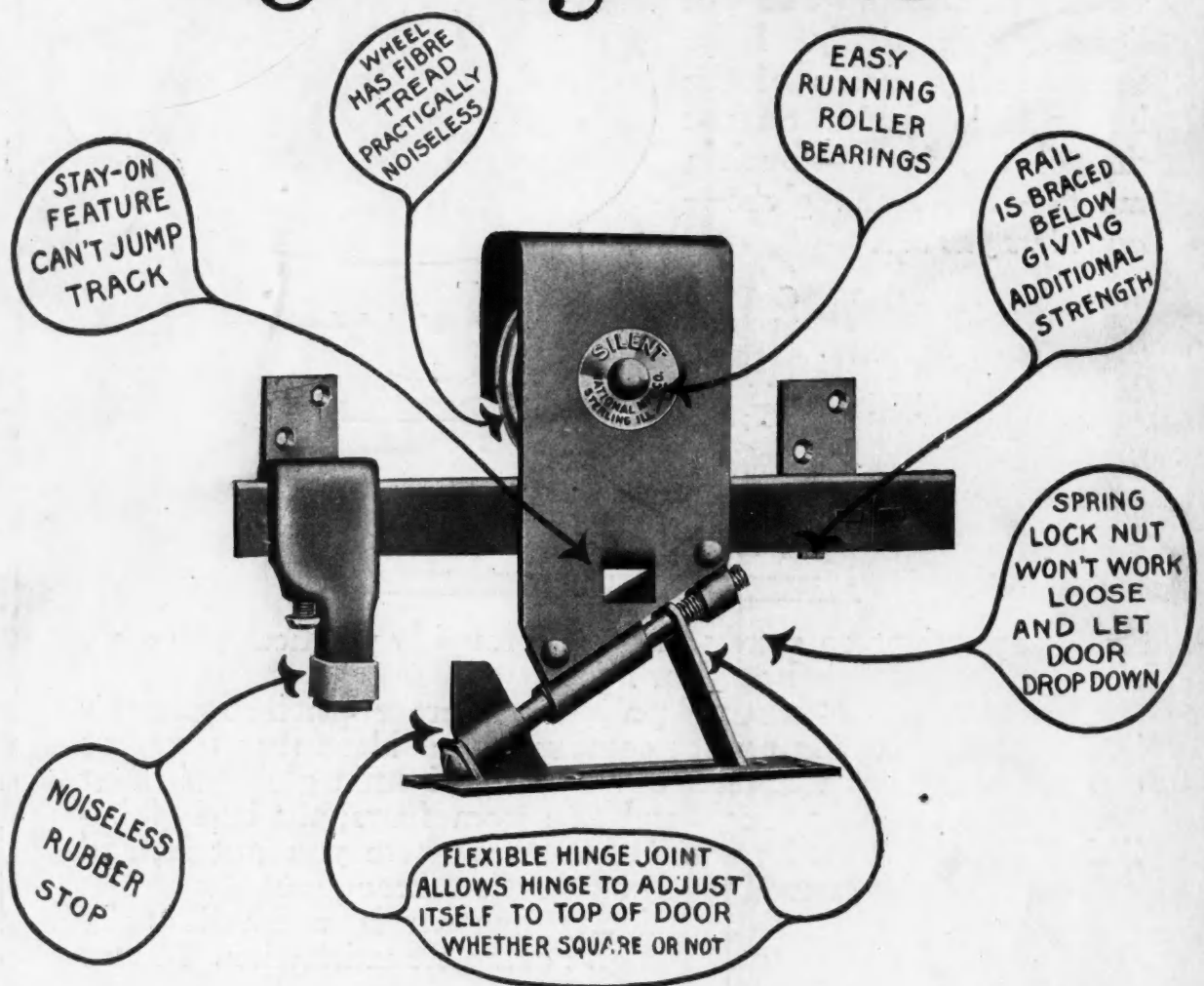


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They're Easy to Hang



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