

AMERICAN CARPENTER AND BUILDER



THE WORLD'S GREATEST BUILDING PAPER

Principal Contents

SPRING BUILDING NUMBER

Ideas For
Home Builders

Concrete In
Residence Work

Fire Resisting
Timber Construction

Practical Carpentry -
Stair Building

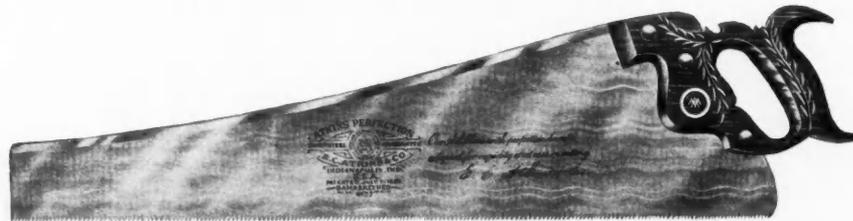
Building Plans-Designs
Details

*150 Pages
Practical
Building
Helps*

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ATKINS SILVER STEEL SAWS

WE HAVE said a great deal about ATKINS SILVER STEEL HAND SAWS. We have told you how they are made and what splendid service they are giving others and what they will do for you. Now, we want to show you a few pictures taken from photographs of the Saws themselves, because we know you will be interested. We can't show you the whole line, for we make hundreds of different kinds of SILVER STEEL SAWS for all purposes.



But look at this Hand Saw. Ain't she a beauty? Is there not something distinctive and individual about it? Look at its graceful lines and the finish and the Perfection Hardwood Handle. Does it not look like a Saw that would give results? This is our No. 53 and it comes in all sizes and points. There are a number of other patterns, styles and finishes, many of which are described in our Saw Sense Book.



Here is one of our finest Back Saws. Does it not look as though it would do the business? The blade is of SILVER STEEL and will, therefore, run a long time without filing the little fine teeth. The back is of heavy stiff steel and clamps the blade like a vise. The handle is of applewood, easy grip pattern. We make several styles of Back and Mitre Saws.



This Stairbuilders' Saw is a mighty handy tool. The blade may be regulated so as to cut any depth, assuring absolute uniformity.



This is one of the most popular styles of Compass Saw. We call it our No. 2. The blade is of SILVER STEEL and is, therefore, very hard and tough, but not brittle and it is difficult to twist these blades out of shape. The handle is of carved and polished applewood.

How to Buy Them

ATKINS SILVER STEEL SAWS are for sale by most first-class Hardware Dealers, but if your dealer does not sell them regularly, he will be glad to order for you from his wholesale house. If you have any difficulty in getting them in this way, please let us have your dealer's name and we will see that you are taken care of.

Our FREE Offer

We are still compiling our list of carpenters and if you will send us ten cents to pay postage, we will forward with our compliments, a fine strong nail apron, together with our Saw Sense Book or Carpenters' Catalog, our monthly time book with scale of wages and some mighty interesting information in regard to High Grade Saws.

Write today and secure this valuable package.



This is our No. 3 Nest of Saws with Nail Cutting Blade. They are indispensable to every carpenter. The set consists of a Compass and Keyhole Blade, together with a hardened steel metal cutting blade, all of which attach to an adjustable handle. The next time you need a Compass or a Keyhole Saw, you had better pay a little more for the No. 3 Nest and thus secure the advantages of the Nail Cutting Blade.

E. G. ATKINS & CO., Inc. THE SILVER STEEL SAW PEOPLE **INDIANAPOLIS, IND.**

READ THIS LETTER

Cochrane, Alta., Canada, Dec. 5, 1910.

Having used your Portable Saw Rig now almost continuously for six months and in that period of time built several large residences and also a large wood frame Church capable of seating 500 people, we are in position to speak with authority on what your Rig really will do.

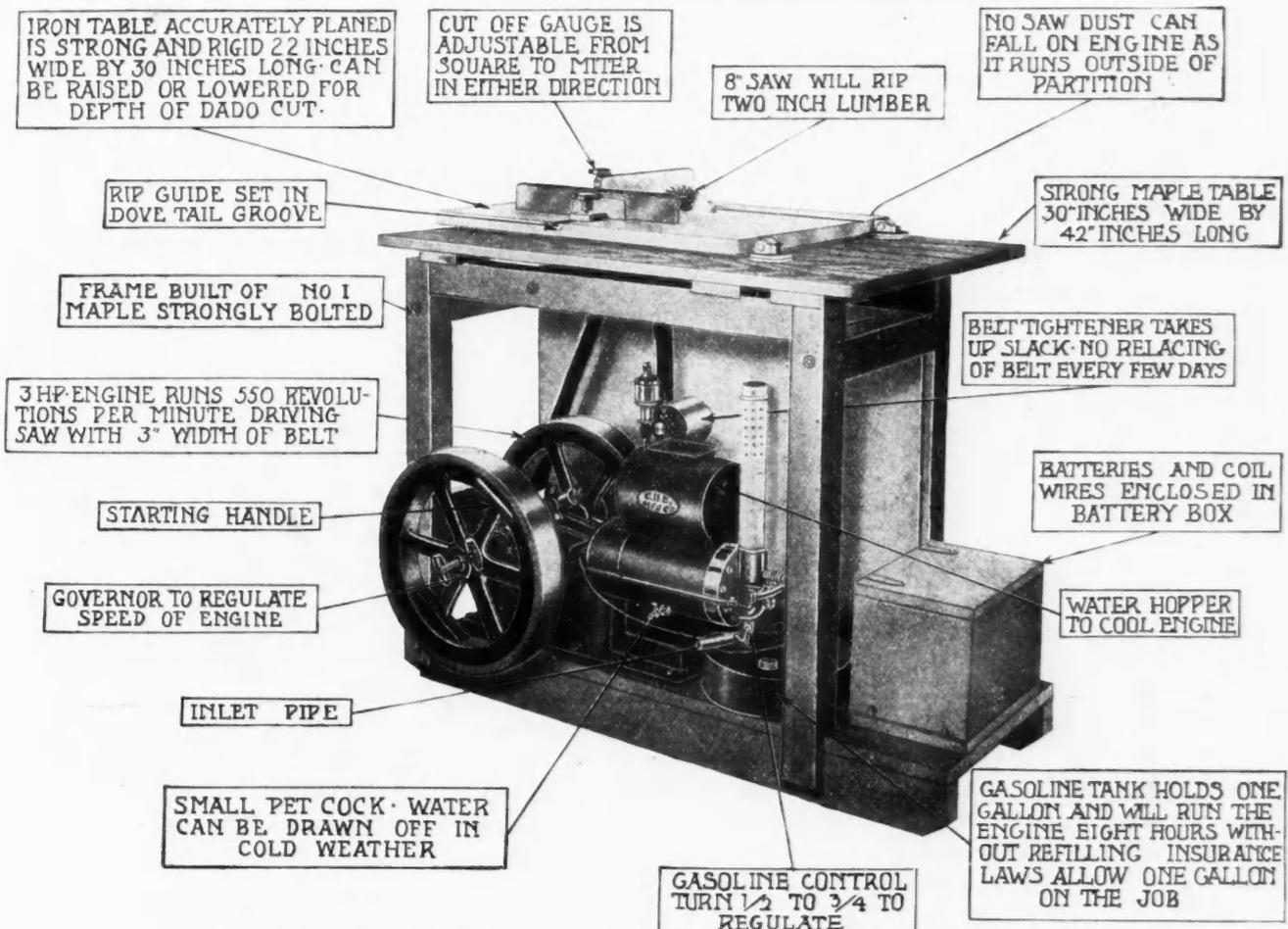
We are highly pleased with the machine; it fulfills all your claims for it and more, taking into consideration its absurdly small cost and the very small quantity of gasoline necessary to run it, we can only say that it is a wonderful money saver and no Contractor can really afford to be without it.

With the help of your machine, we have been able to figure so close as to secure every contract we have tendered on, since buying it.

We are, yours truly,

CHAPMAN BROS.,

Per A. C. Chapman



WRITE FOR OUR ATTRACTIVE FOLDER

This portable saw rig can be seen at Booth No. 1, at the Coliseum, Chicago Cement Show, February 16-23.

GEORGE D. SMITH
414 FISHER BLDG., CHICAGO, ILL.

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

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.

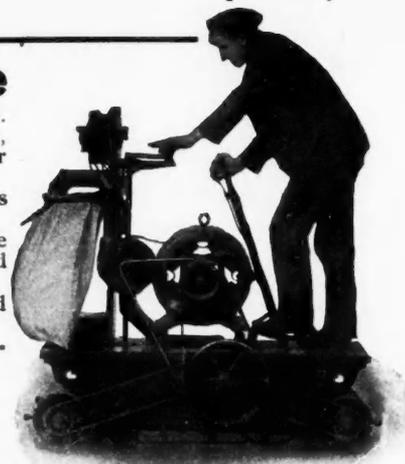
Don't be fooled with an imitation, but get a machine that does work in paying quantities, and can be operated in small rooms.

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.



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

Only Perfect Floor Surfacing Machine

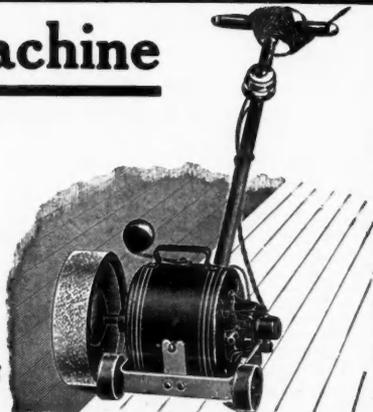
Will do perfect work on any kind of floor, whether even or uneven. Recommended by the best architects and contractors.

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, Department K Old Colony Building
CHICAGO, ILL.



AS SURE AS 2 AND 2 IS 4

A SHEARING CUT GETS BEST RESULTS IN FLOOR SCRAPING

Why does a mechanic when scraping a floor by hand use a Shearing Cut? Because he obtains smoothest and quickest work so. When you whittle a piece of wood you use a Shearing Cut.

A Shearing Cut is ALWAYS made with the
“DAISY” FLOOR SCRAPER
 With One Ten-Inch Blade Single Shearing Cut is Made
 With Two Five-Inch Blades Double Shearing Cut is Made

The “Daisy”

CUTS EITHER WITH OR ACROSS THE GRAIN
 CUTS RIGHT UP TO BASE BOARD AND INTO EVERY CORNER
 IS EASIER ON THE OPERATOR AS IT REQUIRES ONLY A SLIGHT LIFT TO GET BEST WORK
 WILL DO MORE WORK THAN ANY OTHER IN SAME LENGTH OF TIME
 WILL DO PERFECT STRAIGHT EDGED WORK AND WILL PLEASE YOU
 CLAMPS ARE INSTANTLY FASTENED
 FILING DEVICE FILES BLADES TO RIGHT BEVEL
 EDGE-TURNING DEVICE IS A WONDER

UNSOLICITED TESTIMONIALS

Gillette, N. J., Oct. 11th, 1910.
 THE DAISY MFG CO.,
 South Bend, Ind.

Gentlemen:—
 The flooring has arrived and we have scraped it with your machine and I find it does all you claim for it. Inclosed you will find check as per agreement.
 Thanking you for your kindness in allowing me to try this machine and for extending the time for trial, I am,
 Yours respectfully,
 FRED L. WALTERS.

Dubuque, Iowa, Sept. 1, '10.
 THE DAISY MFG. CO.,
 South Bend, Ind.

Gentlemen:—
 Immediately after using the Scraper we have found it to be satisfactory and superior to any we have seen in use.
 We herewith inclose draft in full for same.
 Yours truly,
 KUTSCH BROTHERS,
 per J. P. K.



**Ten
 Days
 Free
 Trial
 Offer**

We will ship a “DAISY” Outfit 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 return it. The trial will not cost you a penny.

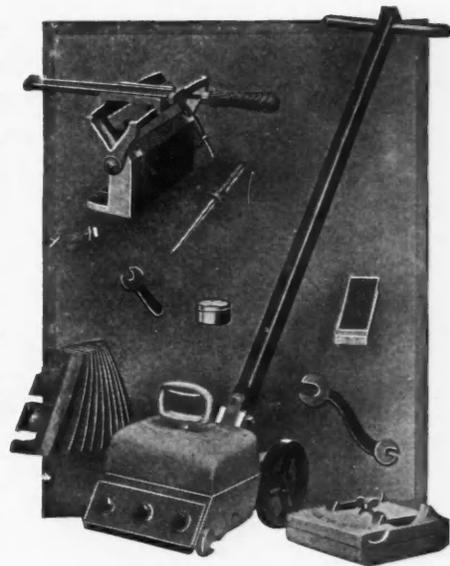
THE DAISY MFG. CO., South Bend, Ind.

THE “ACME” SAVES 75%

of your floor scraping labor expense, because one man and the “Acme” can do as much work as four men can with handscrapers. You don't have to take my word for this—prove it to yourself by accepting my one week's free trial offer.

I will send the Acme Floor Scraping Outfit to you on a week's free trial and if you don't find that the machines will save you much money and do your floor finishing better and easier than you ever had it done before, pack up the outfit and send it back at my expense.

Start the new year right by investigating into my proposition. Don't put it off, but do it now. The sooner you do, the more money you will save. Write to me for booklet and further particulars.



JOSEPH MIOTKE, 247 Lake Street, MILWAUKEE, WIS.

A Problem and Its Solution

When you are in the market for a floor scraper, and you look through the ads of the different machines and find that all claim to have the best

WHAT'S THE ANSWER?

In hopes of solving the problem, you may write for further information and receive prices and circulars, together with more claims. After wading through all this matter, you will find that you are scarcely any nearer to a solution than before.

No one, of course, will admit that theirs is not the best, even if it can be manufactured and sold for 30 cents.

Price, therefore, being about the only point of difference, it would seem that you may as well buy the cheapest—while the claims of one appear to be as good as that of another.

There's where you are most apt to make a mistake. Judge not by the price alone, nor by the manufacturers' claim, but judge by the machine itself.



To those who believe that there is economy in buying the best, and who are in the market for a Floor Scraper, we will send our machine on a week's free trial.

There is satisfaction in **knowing** you have the best. You can satisfy yourself positively on this point by **trying** different makes. Take any one of the old style Dead Weight Machines (there's practically no difference between them except in the name or some auxiliary sharpening contraptions) and try it out, together with the new Triple "A" Spring Driven, and you will get a fair comparison on the two classes of floor scrapers on the market today.

After you have made such a test, the problem is simple enough. You will be just as enthusiastic about the Triple "A" as any one of the following writers, who are now satisfied owners.

Triple "A" Machine Co.

Greenville, Ohio.

I have been testing floor machines for the last week or 10 days to my satisfaction. I had five different machines on the job and we all worked with the various machines, but after a couple of days, everybody wanted to work with the TRIPLE "A," which is, without a doubt, the best machine of its kind on the market.

There is no other machine I sent for which has not arrived yet, but I am so thoroughly satisfied with the TRIPLE "A," SPRING DRIVEN FLOOR SMOOTHER, that I am sending bank draft herewith, in payment for same. Very truly yours,

J. H. ARDINGER

Mackinac Island, Michigan.

Triple "A" Machine Co.

Enclosed please find check in payment for the Triple "A" Floor Smoother you sent me on trial.

I have used the machine two days and find it all you recom-

mend it to be. I scraped a floor which was laid and stained last year and I enclose shaving with the varnish on it as I take it off the first time over. My old _____ floor scraper would not cut through the varnish. There is no other scraper I know of that will cut half as heavy a shaving as the Triple "A." It is the easiest running and does the most and best work of any floor scraper I have ever seen. Respectfully yours,

G. W. DEWEY.

Burlington, Iowa.

Triple "A" Machine Co.

We received your floor scraper and have given it a thorough tryout, and it is the best floor scraper we have ever seen or tried. Our man cleaned up 9 squares the first day.

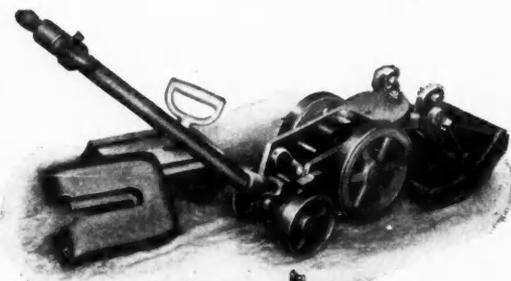
Truly yours,

HENRY PEARSON & SON.

The Triple "A" Spring Driven Floor Smoother combines the advantages of the hand machine and the power machine.

No more expense in operation than the former—Yet the capacity and ease of operation of the latter.

NO WASTED ENERGY—that's all.

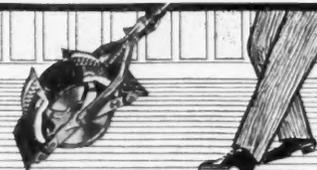


With Sandpapering Attachment

TRIPLE "A" MACHINE COMPANY

114 South Clark Street, CHICAGO

8,000,000 ft.
of Hard Wood Flooring



On 3740 ft. you can Save the price of a WEBER

THAT'S approximately what was finished with a Weber the past year—and at a saving of \$91,076.88 over hand work. It cost about 17-13c to hand-finish a single foot. A Weber does the same work for close to 2-5 of a cent. That means about \$1.53 a "square" by hand against 44c with a Weber. Here's a vital array of money-saving information. Can you beat it? Can you afford to put in another year scraping by hand or with some poor, flimsy scraper? Start 1911 right.

FREE TRIAL

The WEBER DOUBLE ACTING Floor Scraper

5 to 10 DAYS

Send for the Weber on trial. Test it out to a "dead certainty" for 5 to 10 days. Put it up against any floor scraper you've ever seen. If it's work isn't more profitable to you, return it at our expense.

You wonder why I'm so confident. I'll tell you just a few of my reasons. To pull a machine all day becomes unbearably tiresome. The Weber has two movements—forward and

backward—which relieves you of that monotonous "all day" backward movement. Not only that, but you can smooth up uneven joints and remove dark stains easily and quickly because you can see exactly what you are doing; while it enables you to scrape clean across the centers of very narrow rooms.

Other Weber features are a Flexible Frame—which is **guaranteed to prevent chattering and waves**—Handle and Blade Adjustment—Sander—and Shearing Cut and Bowling Alley Attachments.

**By Hand
\$1.53 per
"Square."
With the
WEBER
44c**



FORWARD MOVEMENT

WRITE FOR INFORMATION about a scraper that has every improvement it should have for perfect work on all kinds of wood floors.

JOHN F. WEBER, Pres., WEBER MFG. CO.

670 71st Ave.

West Allis, Wis.

GOOD FOR ONE DOLLAR

ONLY SELF-SETTING PLANE

Introductory Offer—During February—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 if in other places, so much the better

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



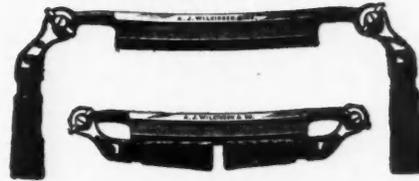
If the plane is not satisfactory, return it to us at our expense, within 30 days of receipt and we will refund the amount of the Money Order sent us and \$1.00 more to pay for your trouble, etc. This shows the confidence we have in our planes.

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.

THE FOLDING DRAW KNIFE

Have you seen the Folding Draw Knife?
It's the Draw Knife that will draw;
It will quickly draw attention;
Slickest thing you ever saw.



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 FINGER RING LEVEL

Patented Aug. 16-10



Worn on hand while at work. Carried in vest pocket while not in use. Absolutely accurate. This tool is invaluable for Brick work, laying cement blocks or setting forms for concrete.

The value of this tool can not be appreciated until once tried. Buy one to-day, so you will have it when needed. Sent postpaid to any address in United States or Canada on receipt of \$1.00.

Remember, if not entirely satisfactory money will be refunded on receipt of level. Write for free copy of our illustrated booklet, "How Jack Finnegan Saved His Job."

Manufactured exclusively by the

KOKOMO LEVEL CO., -- Kokomo, Indiana, U. S. A.

European Agents, LINDENTHAL & CO., Berlin, Germany.



Insist upon "Ohio" Tools

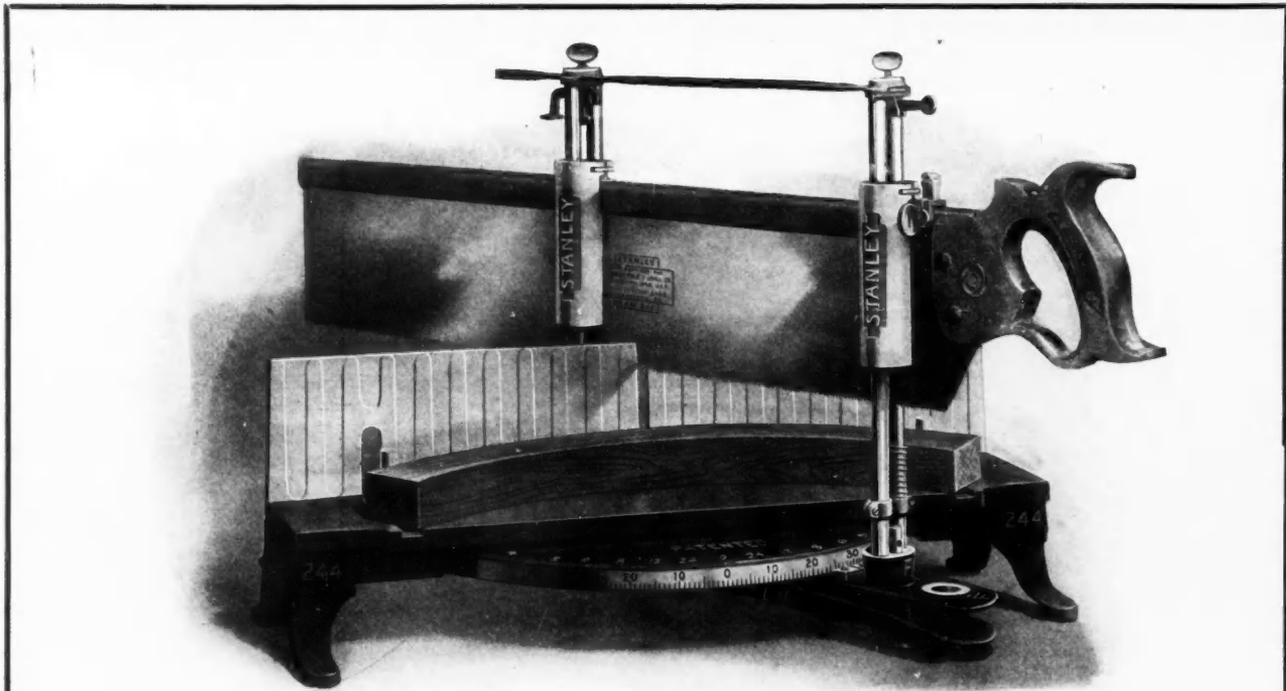
When buying Planes, Chisels, Drawing Knives, Gouges, Auger Bits, Hand and Bench Screws etc.

They are carefully made from best materials and fully warranted. Experienced mechanics have come to regard them as the most satisfactory and economical tools on the market.

WRITE FOR CATALOGUE

OHIO TOOL COMPANY (Department A) Columbus, Ohio Auburn, N. Y.





Stanley Tools

STANLEY MITRE BOXES are strong, durable, all parts are interchangeable, and they have the widest range of adjustment of any Mitre Box made. For strength, accuracy and durability they are unsurpassed.

No.	Saw	Capacity Right Angle	Capacity Mitre (45°)	Capacity at 30° without Stock Guide	Each
240	20 x 4 in.	8 1/2 in.	5 1/2 in.	3 1/2 in.	\$10.50
242	22 x 4 "	8 1/4 "	5 1/2 "	3 1/2 "	10.75
244	24 x 4 "	8 1/4 "	5 1/2 "	3 1/2 "	11.00
246	26 x 4 "	8 1/2 "	5 1/2 "	3 1/2 "	11.25
346	26 x 4 "	9 1/2 "	6 1/2 "	4 1/2 "	12.25
358	28 x 5 "	9 1/2 "	6 1/2 "	4 1/2 "	13.00
460	30 x 6 "	11 "	7 1/2 "	5 "	16.00

SEND FOR CATALOGUE



Stanley Rule & Level Co.
NEW BRITAIN, CONN. U.S.A.



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

Perfect Results Are Easily Obtained By Using Schlueter Rapid Floor Surfer

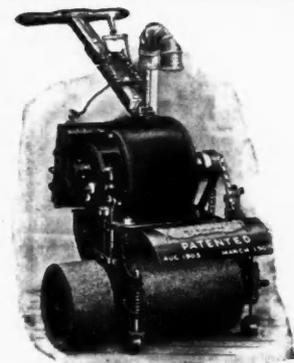
This machine is built on the only correct principle. It is guaranteed to be **The Best** machine with which to produce an even, smooth surface on any kind of large or small wood floor, old or new, hard or soft, and in all buildings: Residences, Stores, Factories, Bowling Alleys, Roller Skating Rinks,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

M. L. SCHLUETER, Chicago, Ill.
108 N. Canal Street N. Y. Office, 1001 Flat Iron Bldg



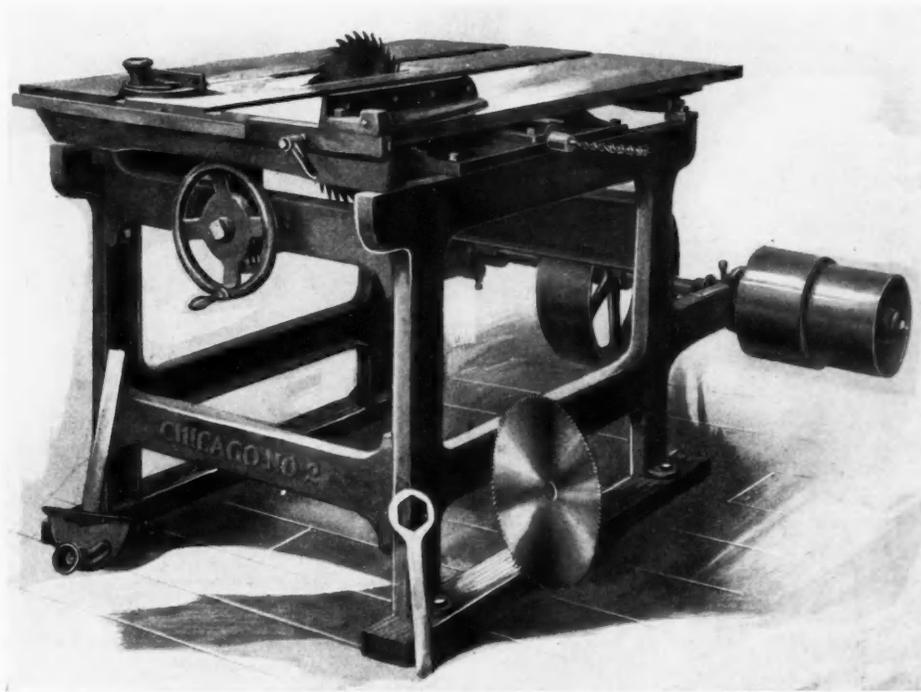
Edge Roller easily adjusted to either side.

Start With Two Machines

They are always ready for work. (Not so with the Universal Wood Workers.)

MACHINE No. 1

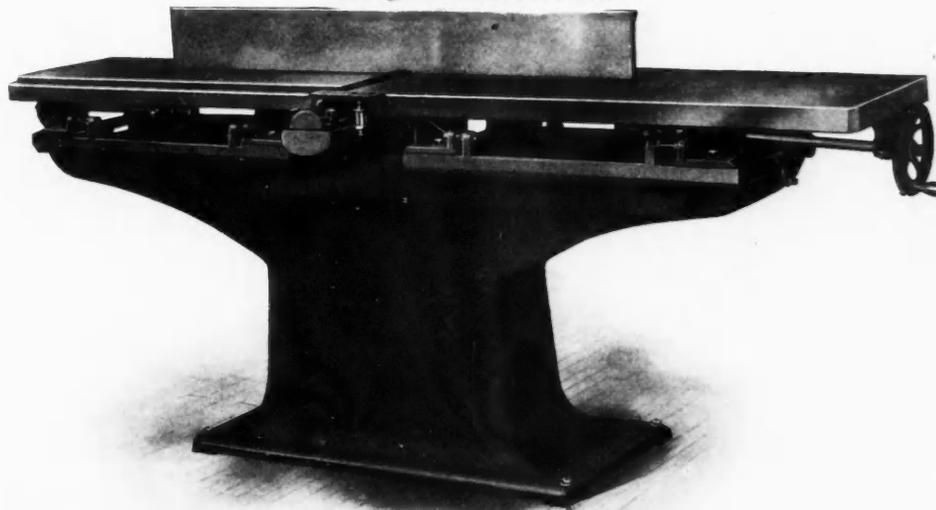
Chicago No. 2 Combination Saw Table



Used for Cutting Off, Ripping, Mitering, Grooving, Boring, Tenoning, Etc.

MACHINE No. 2

Chicago 12" Jointer and Planer

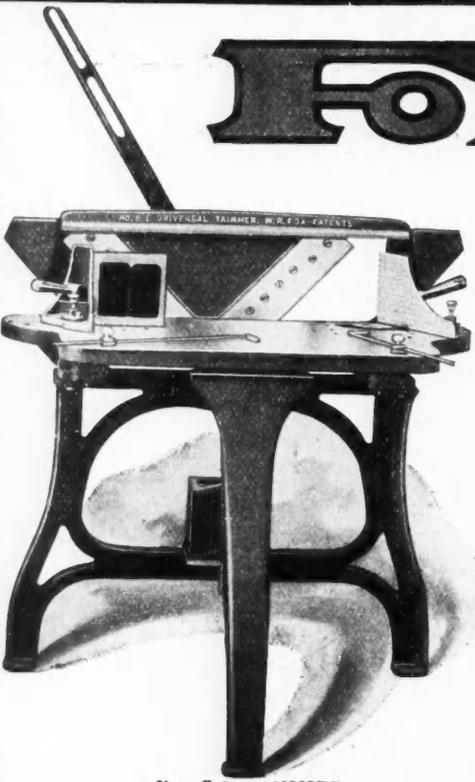


Used for Planing, Jointing, Shaping, Matching, Rabbeting, Grooving, Chamfering, Beading and Making Mouldings.

These Two Machines for \$180.00, including belt for saw arbor, countershafts, 1 14" rip saw, 1 14" cut off saw, 5 boring bits— $\frac{1}{4}$ ", $\frac{5}{16}$ ", $\frac{3}{8}$ ", $\frac{1}{2}$ ", $\frac{3}{4}$ " and 1-inch pair of jointer knives. Ask for price on one if you cannot use both.

Send for our Special Catalogue today. We issue a catalog of machines especially adapted to Contractor's and Builder's use.

Chicago Machinery Exchange 159-161 North Canal Street
CHICAGO, ILL.



FOX

Universal Trimmers

No Pattern Shop Complete Without a Fox Trimmer

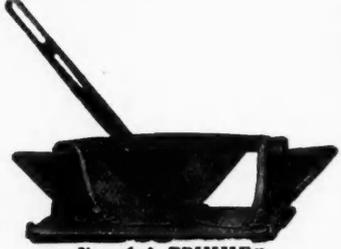
We are the original builders of Wood Trimmers, having built the **FOX Universal Wood Trimmer** for 25 years. You receive the benefit of our experience as builders of these tools.

20,000 Satisfied Users Testify to FOX EFFICIENCY

Prices Range From \$22.50 to \$150

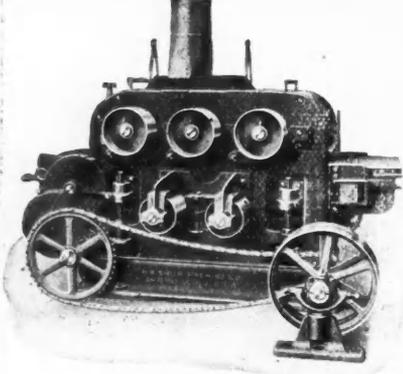
WRITE TODAY FOR OUR COMPLETE CATALOG OF TRIMMERS

No. 6-E TRIMMER



No. 4-A TRIMMER

FOX MACHINE CO. 2211 FRONT STREET Grand Rapids, Mich.



(TRIPLE DRUM SANDER)

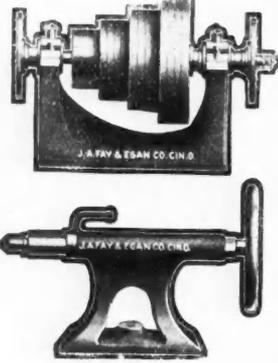
A New Triple Drum Sander with Endless-bed Feed and *Polishing* Drums over the work—Guaranteed to do **Better Work** and from 200 to 600 more work than any other high grade Sander on the market.

This Polishing Machine is specially adapted for Sash, Doors and Blind Factories, and Furniture and Chair Makers.

Address for Literature

H. B. SMITH MACHINE COMPANY
SMITHVILLE, N. J., U. S. A.

Branches: New York, Chicago, Atlanta, Memphis



Victor Wood Lathe

Are You Still Depending on the Planing Mill

to supply the finished material used in your business?

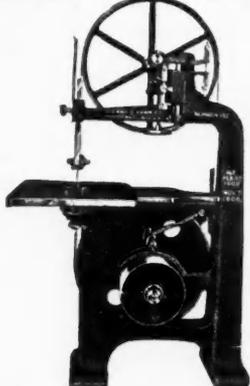
Why not do your own mill work and save the loss of time in waiting on planing mills and other inconveniences? You will not only realize a great saving in time and expense in employing a few woodworking tools but an enlargement of your business and an increase in profits.

The two machines illustrated herewith will be found a good investment. With a Lathe and Scroll Saw, you can turn out an almost endless variety of Special decorative woodwork, such as corner blocks, balusters etc., and various wood novelties.

These machines are inexpensive and will pay for themselves in a short time.

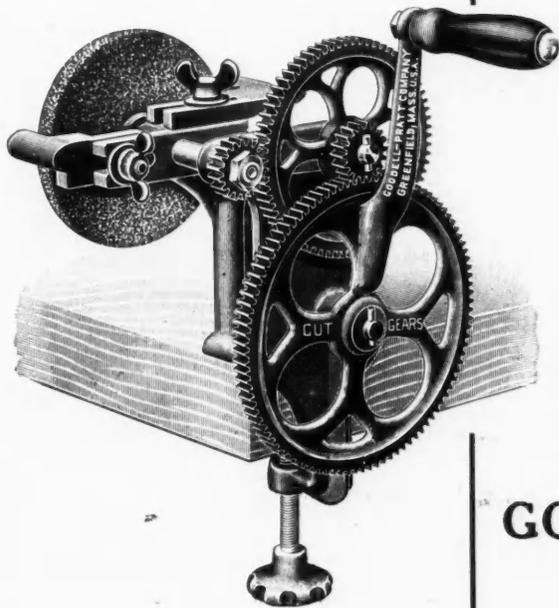
Let us tell you more about them in our large illustrated circulars.

J. A. FAY & EGAN CO., 545-565 W. Front St., Cincinnati, Ohio



No. 155 Band Scroll Saw

GRINDERS



☞ Every Bench Grinder of our manufacture is individually built up by an expert mechanic. Every part is hand fitted; bearings are reamed; gears are cut and hobbled.

☞ They are MACHINES and are built as such.

☞ Like all other products of the

GOODELL-PRATT SHOPS

you can be absolutely certain that you are getting your money's worth of quality when purchasing one of these Grinders. They may cost you a bit more in the first place, but you won't need to get another nearly as soon.

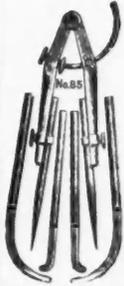
☞ Ask us for details.

GOODELL-PRATT COMPANY

Toolsmiths

GREENFIELD, MASS., U. S. A.

CALIPERS and DIVIDERS For CARPENTERS



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.

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

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

Established 1872

Largest and Most Complete Stock of
**Builders and General
Hardware—Cutlery—
Tools—Contractors
Supplies etc.**
in the Country

High Grade Goods
and
High Grade Service

AT

Orr & Lockett Hardware Co.
71-73 Randolph Street
CHICAGO



"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.

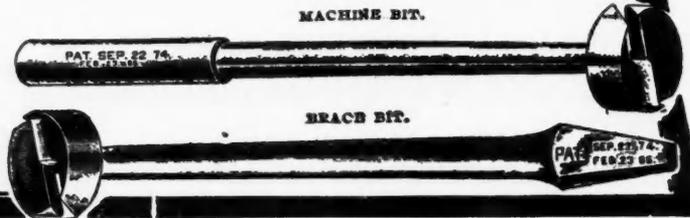
Doesn't matter how hard the wood is, no consequence whether it is full of knots, or the grain awkward to negotiate. The Forstner Bit works with equal smoothness under any condition and leaves a true polished surface on every job.

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.



THE "LIGHTNING" AUGER BIT

WARRANTED



WARRANTED

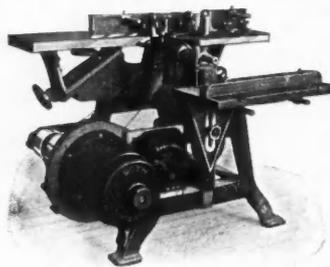
It will bore through any kind of wood in common use about twice as quickly as the best and fastest heretofore on the market. The worm has a double thread terminating in two cutting points.

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.

$\frac{1}{8}$	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.

Next machine you buy, order a— **Rothmotor**



NEW YORK OFFICE:
136 Liberty Street

to drive it individually. You will be pleased. You will be gaining some profitable experience in economy.

Ask
ROTH BROS. & CO.
1422 West Adams Street,
CHICAGO, ILL.

You Can't Afford Poor Roofing



"Mastic" Means Safety and Quality

A contractor cannot afford to stake his reputation on poor or cheap roofing. The best are none too good and nothing but the best should be used.

Mastic Roofing costs perhaps a little more, but it is better and more durable.

Ask to-day for samples and our proposition. It will make money for you.

National Roofing Materials Co.
Office & Factory, EDWARDSVILLE, ILL.

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.

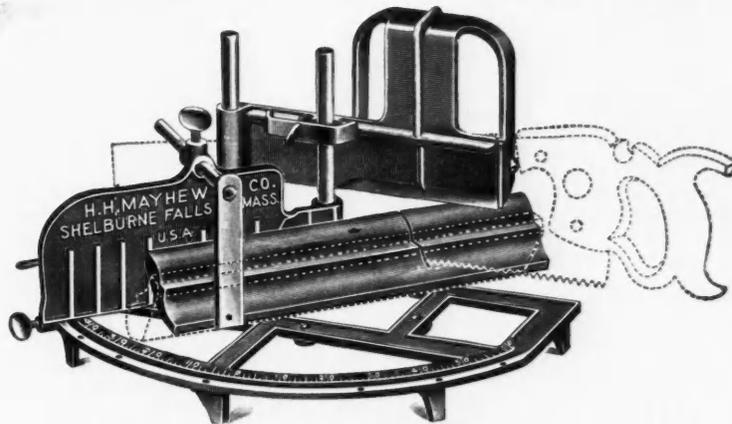
We Can Save You Money Both first cost and every day machine is used.
SEND FOR OUR CIRCULAR.

THE DOSCH MFG. CO. Bridgeport, Conn.



WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

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.

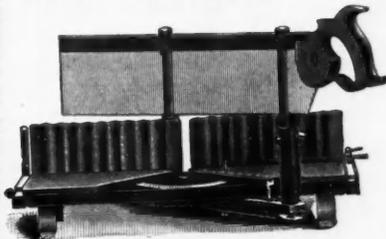
Extreme mitre to 60° without makeshift. May be used as a stationary or pivot box by use of the pin posts.
 In mitering duplicate cuts there is no restriction on length.
 Will cut compound mitre.
 Parts take down into space 10x10x4 inches.
 Weight 15 lbs. complete.
 Box contains full directions for use.

PRICE EACH, \$10.00

H. H. MAYHEW COMPANY, SHELBURNE FALLS, MASS.

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.

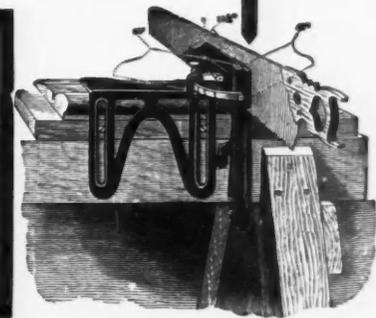
"SEAVEY" MITRE BOX

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.
 108 Duane St. New York City

Pounds

LUFKIN Tapes & Rules

are Standards of Accuracy, Durability and Workmanship.



SEND FOR CATALOG

THE LUFKIN RULE CO.

SAGINAW, MICH.

NEW YORK LONDON, ENG. WINDSOR, CAN



Your Electrical Questions Answered

Our interesting Electrical Catechism explains in detail the windings of the various types of Dynamos and Motors. Commencing with underlying principles, it shows how they are built, how they operate, and explains in plain language the common electrical units and terms and shows how

FAIRBANKS-MORSE

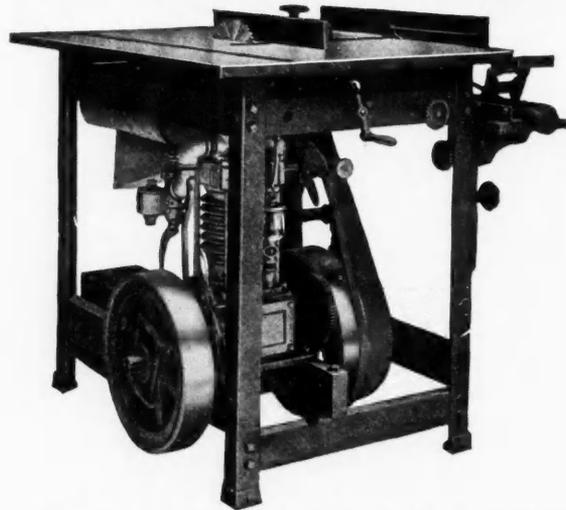
Motors and Generators

are built to excel the common ones. If you want to know more about Electricity and if you want to get the best when you buy, write for free copy of Catechism No. 1409X.

Direct Current Catechism ready now
Alternating Current Catechism ready soon

Fairbanks, Morse & Co.
481 Wabash Ave. Chicago, Ill.

The GRIMM WOODWORKER



TYPE A with 4 H. P. Gasoline Engine. Weight 400 lbs.
Showing only Rip Saw and Jointer. 7 Other Attachments

THE KIND OF LETTERS WE RECEIVE

Clarksburg, W. Va.
Gentlemen:—The machine we purchased from you some time ago has proven satisfactory in every respect, having saved us about \$500.00 on one three story business building, and would say that any one contemplating buying a machine, will make no mistake in buying your machine. Very truly yours,
FERGUSON & BROWN.
[Signed] W. B. Ferguson.

Write for Booklet and Selling Plans
Grimm Manufacturing Company
46 ERIE STREET BUFFALO, N. Y.

C. E. JENNINGS



AUGER BITS No. 1 1/2



BEAT the WORLD. TRY THEM and SEE for YOURSELF. FULLY WARRANTED.

These Bits are universal in scope. They will bore equally well in hard or soft wood, with the grain or against the grain. They combine our single skip Auger twist with our extension lip. No pressure is required to make them bore. They draw themselves in—they are the easiest boring bits made.

Insist on Having Genuine

C. E. JENNINGS



Accept no substitute—Order by name and number

If you cannot purchase of your dealer we will furnish direct in sets of 13 in leather roll or hardwood case at \$6.00 per set.

C. E. JENNINGS & CO.
42 MURRAY ST. NEW YORK

MILLER'S
Lever Lock Mortiser

It Chisels the Opening for Locks Greatest Time and Labor Saver

One builder wrote us last month: I was surprised, I did not think it would do the work so quick, when one gets use to it, he can cut an opening in two minutes.

Think This Over Builder

Our patent double edge, side cutting chisel can cut more wood, four times more rapidly and 100% less exertion than a boring bit. Mortise to be of the same size.

Sent on trial to any reliable builder

A. W. Miller Mfg. Co.



Main Office:
CINCINNATI, O.

Western Office:
RIVERSIDE, CAL.

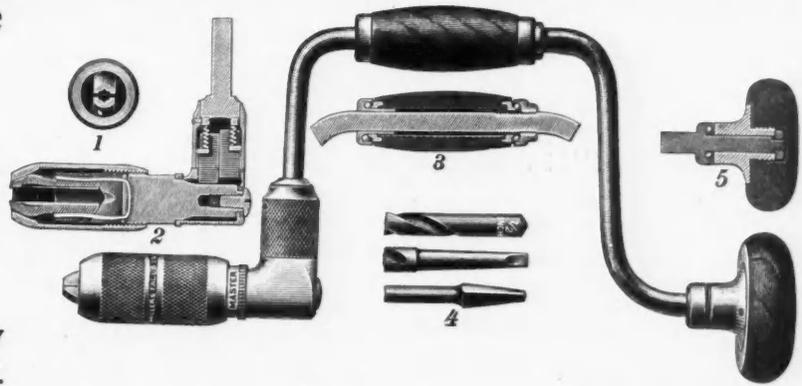
The Master Bit Brace

is our latest product in this line of tools. It has a ball bearing head, ball bearing center handles, covered ratchet, and chuck that holds securely all sorts of shapes. In producing this Brace we have endeavored to make it a perfect tool in every particular. Sample it and decide for yourself whether we have succeeded or not.

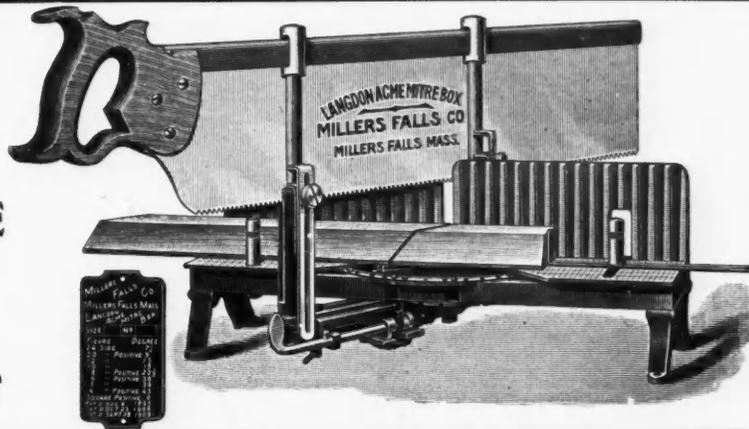
Our new catalogue describes this Brace in detail. Ask for one.

Millers Falls Company

28 Warren St., New York, N. Y.



THIS IS THE MITRE BOX YOU WANT

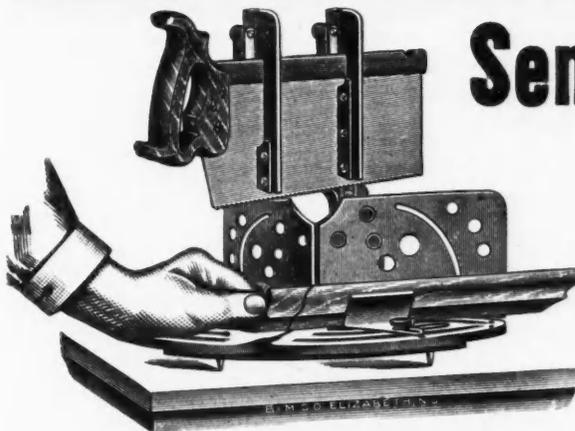


It's a LANGDON ACME and is made in three sizes put up with varying lengths of saws.

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.

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.

"Last a Lifetime and Give Satisfaction
To the End"



BUTT CHISEL

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

THE CELEBRATED BARTON TOOLS

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

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

TRADE MARK



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 in every way superior to all other materials for auger bits. The Russell Jennings kind is made to order, never bought in the open market. Its uniform density enables us to get uniform temper. Its high carbon means that our bits retain 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.

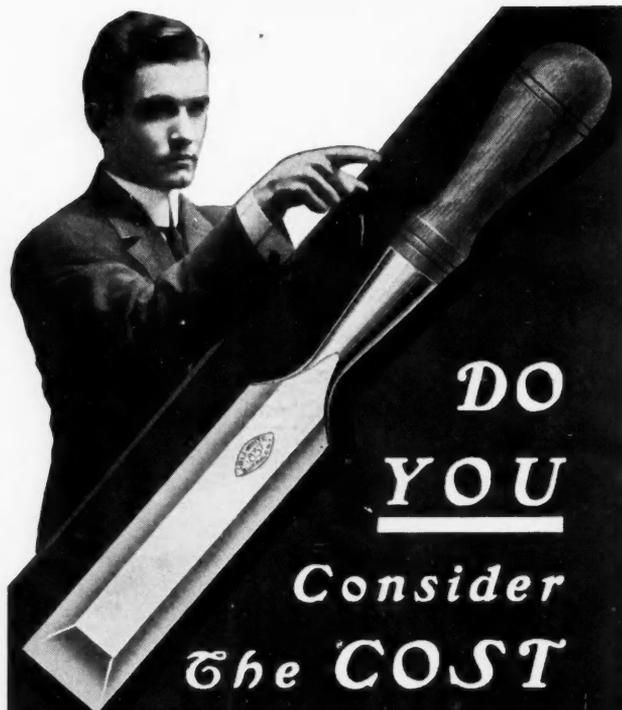
RUSSELL JENNINGS MFG. CO.

CHESTER, CONN., U. S. A.

**ASHLAND
Folding Scaffold Bracket**

Best and strongest bracket made. Used on any kind of siding. Adjusts to any space studding or pitch of roof instantly. Just the thing for carpenters, tanners, painters and brick masons. Folds instantly. No pins or bolts used in adjusting. One bracket easily carries 1000 pounds put up on 4-10d nails. No contractor can afford to be without a set. Every man who uses them orders again. Pay for themselves on first two jobs in time and material. For prices and information, write.

Ashland Folding Scaffold Co. Ashland, Ohio.



**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.

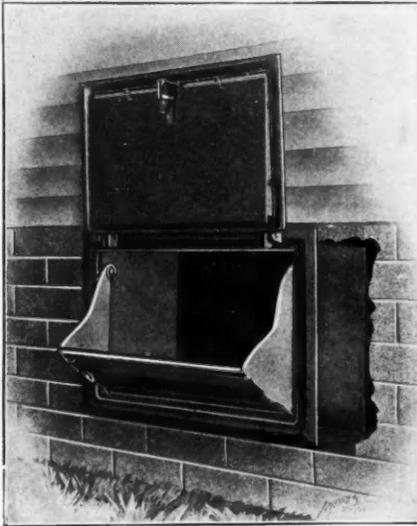
The L. & I. J. WHITE CO

143 Perry Street, Buffalo, N. Y.

LOOK FOR IT
DEMAND IT
ACCEPT NO
OTHER



THE MODEL Foundation FUEL CHUTE



AND
Cellar
Window
COMBINED

Protects the building just where the protection is most needed, above the opening.

The shield protects the rubber glass.

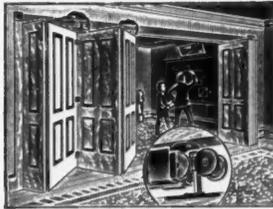
Our Majestic Chute has a solid cast door.

Both styles are made in 3 sizes.

SEND FOR CATALOGUE

Majestic Furnace & Foundry Co.
121 Erie Street, HUNTINGTON, IND.

What a convenience are folding doors.



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?

Richards No. 135 Swivel Hangers

It contains Hanger information you may require on special work



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



Quality Talks

We can furnish you with the best grade of builders hardware at wholesale prices.

No. 333 Lock Set (as per cut) Steel Dull Brass or Antique Copper Finish. Price per set.....**46c.**

FREE Our Illustrated Catalogue and Net Price List. :: ::

REHM Hardware Co.
1501 Blue Island Avenue
CHICAGO, ILL.

You can see at a glance what an advantage you have in the
Round Sharpening Stone



You can use the entire surface of the stone. You get the rotary motion so necessary in the sharpening of chisels, planer irons and so forth—and, as it is made of Carborundum you get the fastest cutting, most efficient sharpening stone on earth

The Round Stone is a combination—medium coarse on one side, fine on the other. It is 4 inches in diameter.

Price, at your hardware dealer or direct. **\$1.00**
In Oak Case . . . **1.50**

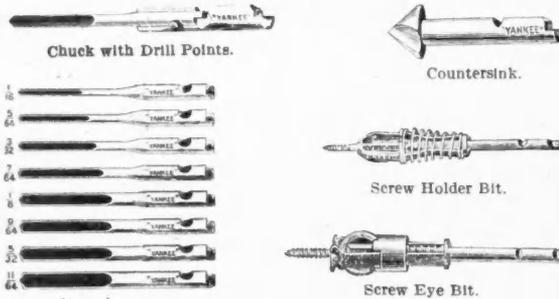
The Carborundum Co.
Niagara Falls, N. Y.



The Satisfaction
in using
YANKEE TOOLS

cannot be computed in dollars and cents but must be experienced by actual use. If a good Carpenter can get along with poor tools think of how much more he can do with a complete set of practical up-to-date time and labor-saving "Yankee" Tools. Oh yes, you say "I use them," but we doubt whether you have them all.

Attachments for Spiral Drivers



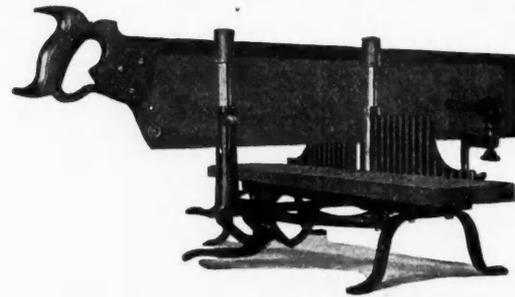
Let Us Show You

the full line. There are 35 styles and 75 sizes, (and more coming). Each one as slick as those you are now using.

Our "YANKEE" Tool Book

tells about them. A postal brings it. Write at once before you forget it.

Your Dealer sells "YANKEE" TOOLS
North Bros. Mfg. Co.
Dept. A. PHILADELPHIA, PA.



TRUE MITER BOX

We have now a positive Center and Octagon stop, which with the miter stops, will take in ninety-five per cent of the work done with miter boxes. Then with the graduated circle, any degree may be obtained very easily.

This is the only Miter Box ever constructed that has a LOW and HIGH stop for holding up the saw while placing the stock for cutting.

This box is made of cast iron, malleable iron and steel. For this reason we claim to have the Best Miter Box ever made.

No.	CAPACITY		SAW	PRICE
	Right Angle	Miter (45)		
A	9 in.....	6 in.....	26x4	\$11.50
B	9 in.....	6 in.....	28x4	11.75
C	9 in.....	6 in.....	28x5	12.00
D	9 in.....	6 in.....	30x5	12.50

We will Prepay Express if ordered direct
NICHOLLS MFG. CO., Ottumwa, Iowa



Do
You
Use
Your

Strong right arm in mortising window frames for the sash pulleys? Just consider boring $\frac{1}{8}$ -inch holes $\frac{1}{8}$ -inch

centers and set the pulley in—i. e. the **Grands Rapids No. 12**. No cutting—no fitting—no counterboring—no breaking—no swearing—no nails—no screws.

These **Grand Rapids** pulleys save more time than they cost in money. If we are telling the truth you cannot afford to use ordinary pulleys if you get them for nothing. We can prove it too.

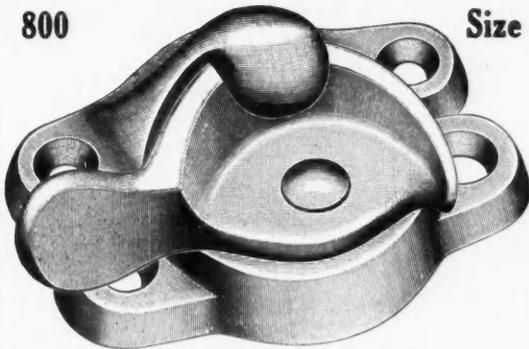
WRITE FOR FREE SAMPLE

Say what pulleys you are using and how many you buy

Grand Rapids Hardware Co.
36 Pearl Street
GRAND RAPIDS, MICH.

800

Size



The Crescent SASH FASTENER.

The Best Sash Lock Made.

Strong, Symmetrical and finely finished

Made in 5 sizes, and all builders' hardware finishes.

THE H. B. IVES COMPANY

Sole Manufacturers

NEW HAVEN, CONN., U. S. A.

88-Page Catalogue Hardware Specialties Mailed Free



SAMSON SPOT SASH CORD



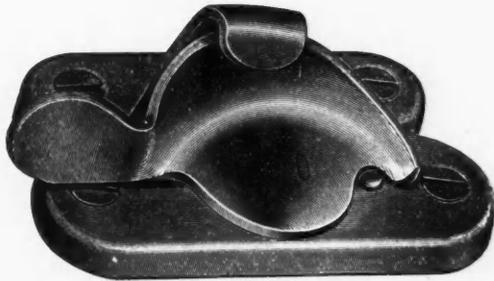
(TRADE MARK

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.

SAMSON CORDAGE WORKS, BOSTON, MASS.

MONITOR SASH LOCKS



(PATENTED)

NEVER BREAK

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

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

MADE IN TWO SIZES AND ALL FURNISHED BY

The Champion Safety Lock Co. Geneva, Ohio

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.

PUMPS, DOOR-HANGERS, STORE LADDERS

The Pump That Pumps SPRAY PUMPS Double-acting, Lift, Tank and Spray

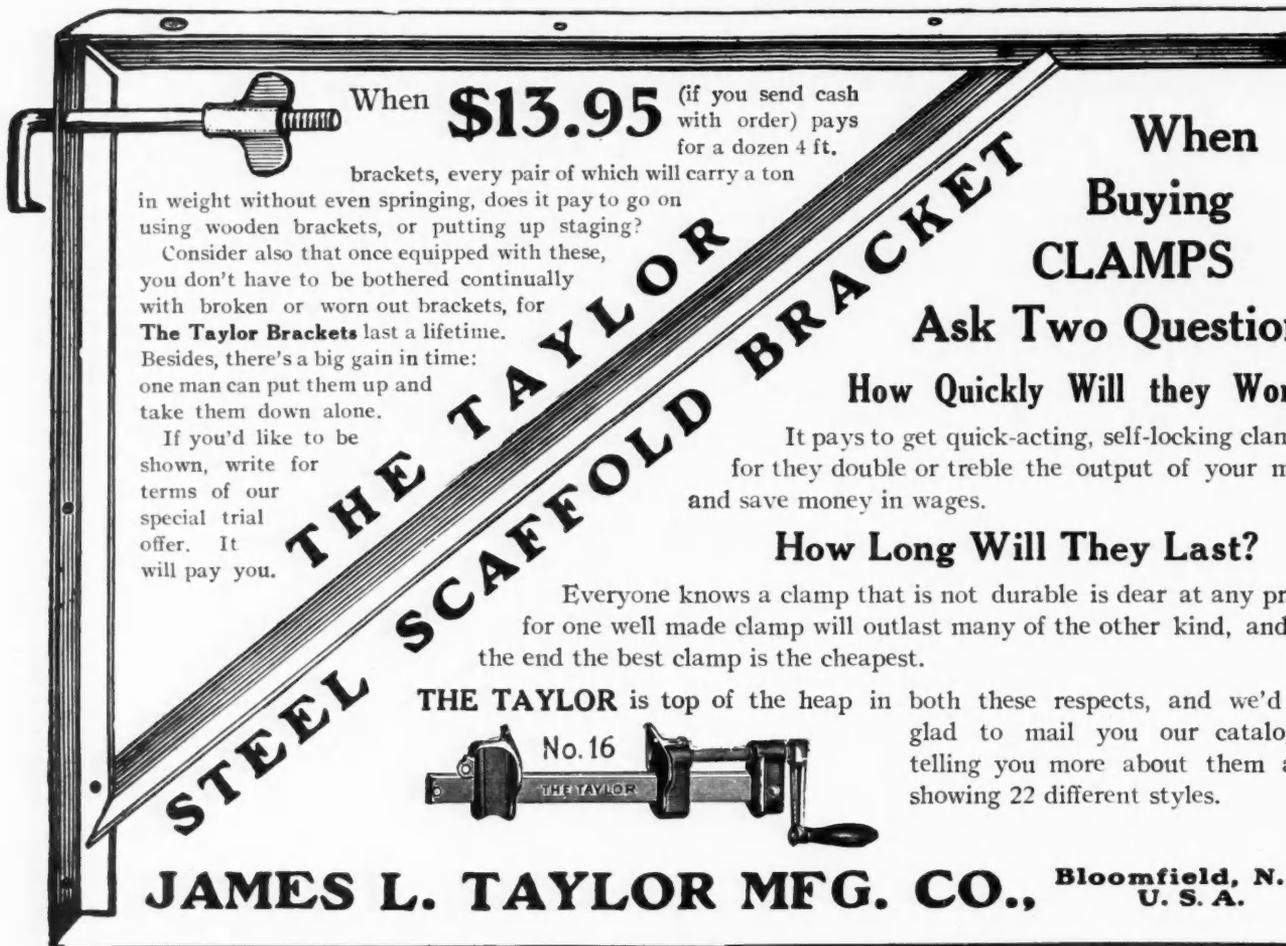
MYERS PUMPS Store Ladders Etc. Hay Tools of all kinds Write for circulars and prices.

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

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

Noiseless Cushion Tire

LADDERS



When **\$13.95** (if you send cash with order) pays for a dozen 4 ft. brackets, every pair of which will carry a ton in weight without even springing, does it pay to go on using wooden brackets, or putting up staging?

Consider also that once equipped with these, you don't have to be bothered continually with broken or worn out brackets, for **The Taylor Brackets** last a lifetime. Besides, there's a big gain in time: one man can put them up and take them down alone.

If you'd like to be shown, write for terms of our special trial offer. It will pay you.

THE TAYLOR STEEL SCAFFOLD BRACKET

When **Buying CLAMPS** Ask Two Questions

How Quickly Will they Work?

It pays to get quick-acting, self-locking clamps, for they double or treble the output of your men, and save money in wages.

How Long Will They Last?

Everyone knows a clamp that is not durable is dear at any price, for one well made clamp will outlast many of the other kind, and in the end the best clamp is the cheapest.

THE TAYLOR is top of the heap in both these respects, and we'd be glad to mail you our catalogue telling you more about them and showing 22 different styles.



No. 16

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

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.

THE CINCINNATI TOOL CO., Norwood, Cincinnati, Ohio

Write for circular. Dept. H

STANDARD HANDBOOK
—OF—
ESTIMATING DATA

Every Man in the Building Trade Needs It
READ WHAT OTHERS SAY:

It is a very handy book, not only valuable, but comprehensive. I think it the nearest correct, and the shortest cut to business, the busy man has yet found. It fills a place that has been wanted for years. Your Standard Handbook is the best book of its kind ever written.

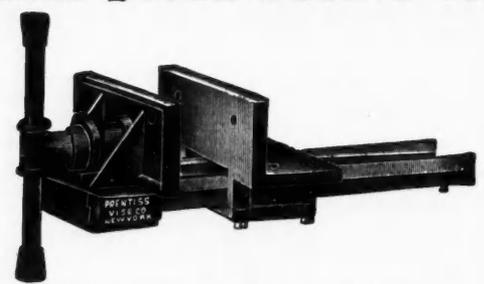
For all the 30 years I have spent in estimating and building, I would not be without it for twice the cost. Just what I want and well worth the money. Thank you for calling my attention to it.

PRICE ONE DOLLAR

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

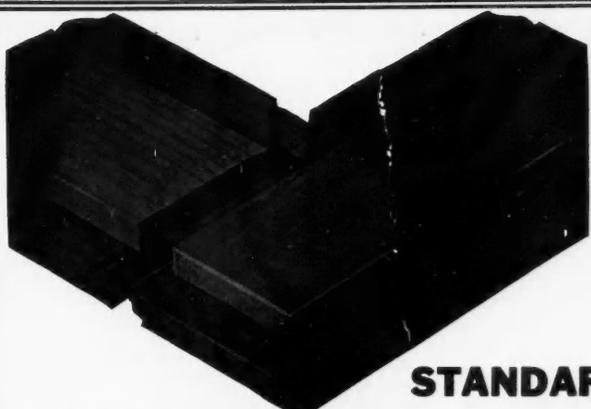
Ask for particulars of the "Builders Auxiliary" the latest and most efficient system of recording estimates and keeping cost accounts, for building contractors.

BLAKE QUICK ACTING VISE



For Cabinet Makers and Wood Workers. Simplest—Strongest —Cheapest—Best

Send for Catalogue of all kinds of Vises
PRENTISS VISE COMPANY, MAKERS
108-110 La Fayette St., New York, U. S. A.



'SEE THAT CORNER'—Notice that rails lap over stiles, which prevents the splitting of plowed edges, so common with most screens, but not with ours. They cost no more than the inferior.

Your local mill cannot compete with us. We are SPECIALISTS of WINDOW and DOOR SCREENS and run our factory all the year around. Get your screens direct.

Fly Screens and Screen Doors

for residences, apartment houses, hotels, clubs, hospitals, schools, and all places requiring ventilation.

Made to Order Neatly and Promptly

From a single screen or door to a thousand. We use the best grades of wire, black enamel, galvanized and copper bronze, etc., fastened by the most improved **Standard Shoulder Strip Method**; can never sag nor pull away, which makes the wire taut and firm.

MR. CARPENTER, BUILDER or CONTRACTOR, write for FREE copy of our 1910 illustrated catalogue.

STANDARD SCREEN CO. 1848-1850 W. 14th St. CHICAGO, ILLINOIS

CUSTOM-MADE FLY SCREENS

Our work is far superior to the usual output of local mills and has a style and finish not obtainable from those who do not make a specialty of fine screens.

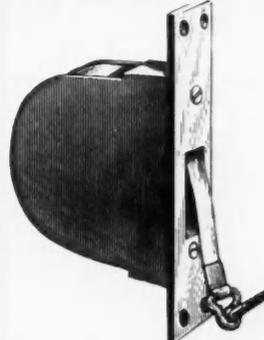
Our screens have waterproof coped joints and the frames are weather proofed before the finishing coats are applied. Best grades of Wire Cloth, enameled, galvanized, genuine bronze, fastened by the most approved methods.

Intending purchasers may have free, by mail, samples of woods, finishes, wire cloth, and a copy of catalogue and price list. Agencies in nearly all large cities. Agents wanted in smaller cities.

Special terms to Contractors and Builders.

A. J. PHILLIPS & CO.
FENTON, MICH.
25 Years' Experience 3½ Acres of Floor

CALDWELL SASH BALANCE



Does away with weights and cords, and VASTLY more durable.

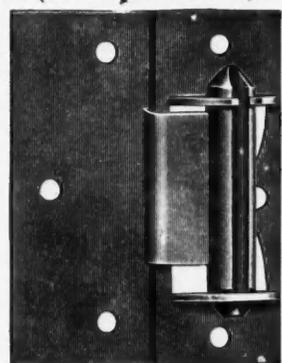
Makes sashes work perfectly.

Permits greater window space in new work, as box frames are not necessary.

May be applied to old windows without altering sashes or frames.

Write for circular to the
Caldwell Mfg. Co.
15 Jones Street, Rochester, N. Y.

Diehl's Separable and Reversible Hinge No. 20

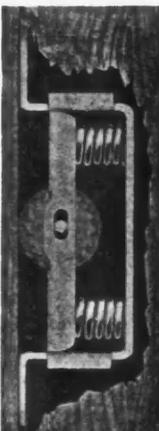


This hinge is designed for storm and screen doors. The door may be swung at right angles and lifted from its bearings without removing the screws, as the shank slides through the small slot in the upper ear so that it makes it very easy to change from storm to screen doors and from screen to storm doors without removing the hinges. They are made of open hearth wrought steel 14 gauge and finished in black baked Japan or oxidized copper. A sample of these hinges will be sent upon receipt of 25 cents in stamps.

[Manufactured by the]
Diehl Novelty Company
Sheboygan, Wis.

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

The "AUTOMATIC" SASH HOLDER



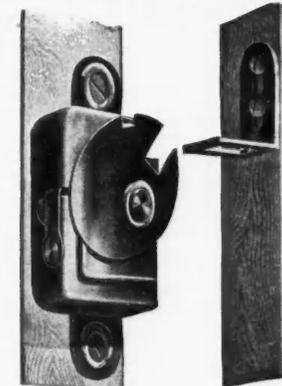
The "Automatic" Sash Holder is the new, modern, up-to-date device that dispenses with cumbersome sash weights, kinking cords or ribbons, useless weight pockets, misfit pulleys and reluctant balances, and saves all the time, labor and expense of fitting them in.

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

A sample sent on request.
Ask your dealer, or write to us direct.
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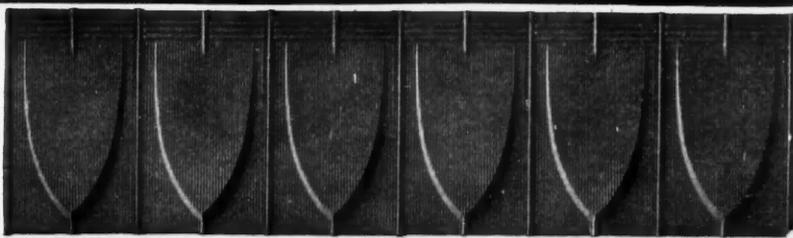
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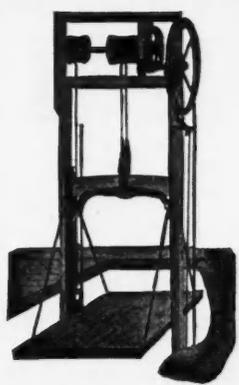
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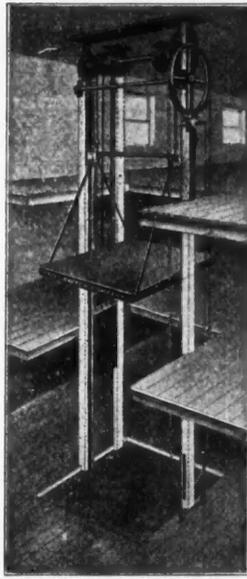
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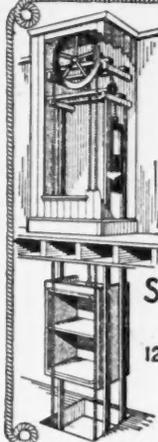


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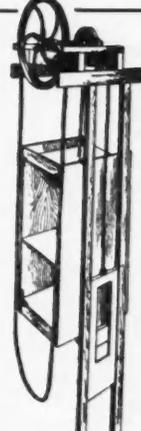


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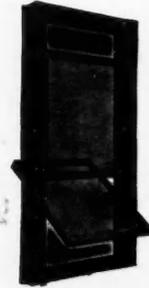
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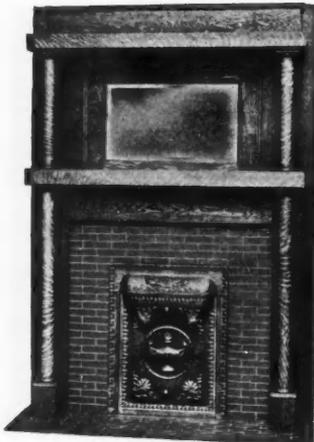
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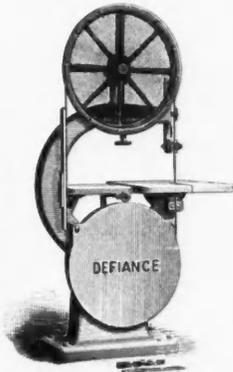
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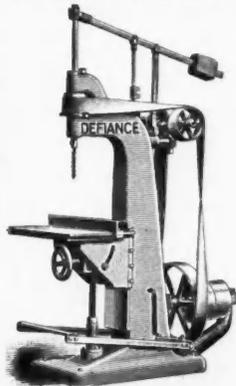
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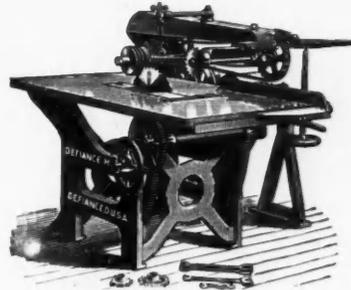


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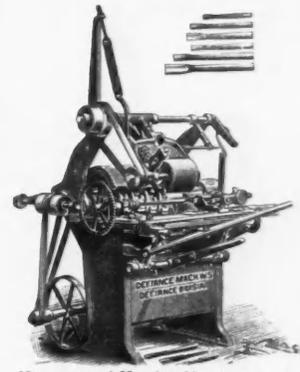
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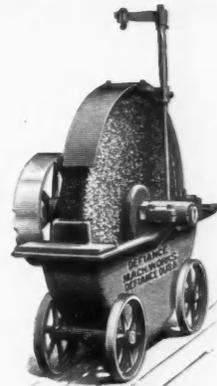


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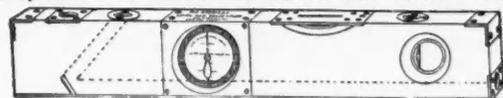
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American Carpenter and Builder

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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VOL. X FEBRUARY, 1911. No. 5

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Suggestion for a "Model" Code

WHAT is claimed to be a model building code has been prepared by Architect Fitzpatrick of Washington, D. C., and is said to have the official endorsement of the Association of Building Commissioners. It is expected that before long this code will be the one adopted by most if not all of our cities.

Probably no one man has had as much to do with the inception and revision of building codes as has Mr. Fitzpatrick; and this one is the summing up, the putting into one of all which experience and skill have devised in the codes that have been written ere this.

It defines clearly the functions of a Building Department and gives it an Advisory Board. It calls for careful plans for every building by an experienced architect and makes that architect sign a statement, in securing a permit, that the plans are in accordance with the code and that he is responsible for the building. If an attempt is made to evade the provisions of the code then the Department declines to issue permits for other work by that architect. It licenses builders and holds them under bond to build according to the code. It provides for the remission of fees to those who build better than the code exacts for the nature of building planned—an encouragement to build well.

It divides the city into the "inner fire limits," "outer fire limits" and "boundary limits." Within the inner limits all buildings must be fireproof; all public buildings anywhere have also to be fireproof as also all buildings over four stories. In the outer limits all buildings must be fire-retarding in that the outer walls and roofs must be non-combustible. In the suburbs frame buildings may be erected but even there nothing of frame over three stories is allowed and in those buildings adequate cut-offs and barriers have to be provided.

All public and semi-public buildings, hotels, apartments, etc., have to be conspicuously labeled as to the class of construction they are: "fireproof," "ordinary" or "dangerous." And it is made a misdemeanor to advertise one's building as of a superior class to that it is labeled. The floor loads allowed are also to be conspicuously labeled at each story.

The height of buildings is limited to twice the width of the fronting street, with a maximum height of 200 feet. But the maximum height may be taken advantage of anywhere provided that at a height twice the width of the street the building be recessed back to a line 50 feet from the center of the street. Towers and domes may, under proper restrictions, be carried up above the 200-foot limit.

IDEAS FOR HOME BUILDERS

House Planning and House Building

It is plainly evident to all observers that the number of people who take an intelligent interest in house planning and house building is increasing and must further increase. The popular press reveals this tendency very clearly. Illustrations and descriptions of modern houses and discussions of architectural matters are overflowing from the technical press and finding a place in the newspapers and magazines.

This growing popular interest is all to the good. Architecture has suffered too long from popular ignorance and popular apathy. Commenting on this matter, our British contemporary, *The Illustrated Carpenter and Builder*, of London, offers some very apt

and timely suggestions. Generally speaking, people get the kind of architecture they like and the kind of building they are willing to accept. There is enough architectural genius and enough skilled craftsmanship in our midst to-day to transform every town and village into a thing of beauty, and to provide every family with a beautiful and healthful home. If the genius of the architect and the skill of the workman are unemployed or are wasted on unworthy objects, it is because the demand for this beautiful architecture has not yet become general and insistent. No doubt it is also due to the fact that some who appreciate and desire good architecture have not the means to command it. But the want of money is secondary. The

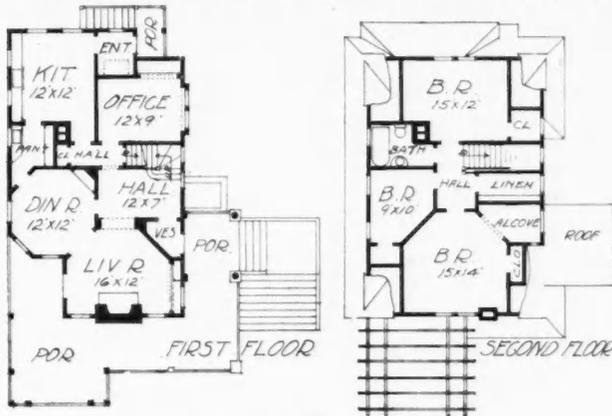


Beautiful Shingled Residence of Mr. H. A. Cahoon, Swampscott, Mass., J. C. Fowler, Architect; cost \$5000

matter of primary importance is that people should have right ideas as to what constitutes good architecture and sound building, and should insist, whenever they cause buildings to be erected, upon having only those which are both well-designed and well-built.

Good Building the First Essential

And here no doubt is a point of danger. The popularizing of architecture is a good thing so long as the demand is for good architecture. A great uninstructed public demanding "quaint" houses and "picturesque" bungalows, will get what it wants, but the result is not likely to make for real progress in architecture, or for healthy conditions in the building trades. When the house-hunting man turns with disgust from



Floor Plans, Cahoon Residence

the "desirable villa residences" to which the house agents have directed his attention, and determines to build him a house according to his own—and his wife's—ideas, he takes a very right and sensible course. But he is apt to go about it in a wrong way. He invites an architect to design him a "picturesque" house with



Hall in Cahoon House Showing White Enamel Arch

nooks and bay windows, and overhanging eaves; it is to contain accommodation which might reasonably be supplied for \$6,000, but is to cost not a penny more than \$3,000. That is to begin at the wrong end. If our friend's chief ambition is that all the landscape painters of the neighborhood shall come and erect



Detail of Pergola and Porch, Cahoon Residence

their easels before his house, he does well to concern himself primarily with gables and nooks; but if he hold with Bacon that "houses are built to live in and not to look on," he will do well to give more attention to the soundness of the walls and roof, and the relative positions of dining-room and kitchen. Let the man with \$3,000 to spend, determine that he will have as much good, sound building as \$3,000 will buy, and therewith be content. If this means being content with two sitting-rooms instead of the desired three, or abandoning a projected ingle nook, there is solid consolation in the knowledge that all the material used in the house is thoroughly sound, and has been put together in a workmanlike manner. When the essential thing—good building—is secured, our friend may find it possible to indulge his fancies in many matters of detail, but he should be warned against too earnest



Living Room—View Toward Dining Room and Hall

a striving after the ideal of the picturesque. Having determined on the accommodation he desires and can afford, he will be well advised to be guided in regard to the design by his architect, assuming, of course, that the latter is an artist and a man of sound judgment.

Is an Architect Needed?

Possibly some may be inclined to think that under this scheme the architect is not wanted at all. If building is the essential thing, why not go direct to the builder and let the design take care of itself, thus saving the fees of an architect? There can be no greater mistake than to regard the architect as a useless luxury. As the building trade is now organized, it is scarcely possible to get even good building without the aid of an architect to specify what the client should receive, and to see that he gets it. But the client wants something more than good building. Having gone so far as to insist upon good materials and skillful workmanship, he would be foolish, indeed, if he did not provide also for the reasonable and artistic manipulation of those elements which constitute architecture.

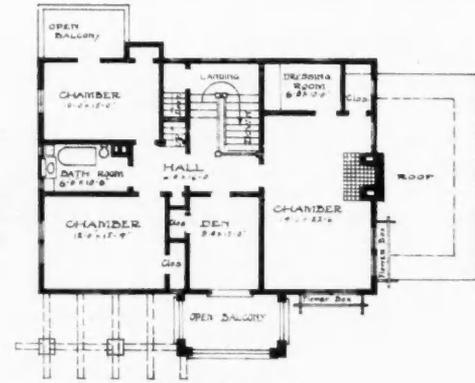
Conditions Which Influence Cost

It is important to remember, when questions of cost are under consideration, that the cost of carrying out a design may vary very greatly according to local conditions. It is impossible to point to a design of a house and say, without qualification: "This can be built for \$2,500 or for \$5,000." If the nature of the soil is such

as to require extra strong and deep foundations, the cost will be greatly increased; if the site is a long way from a station, the item for cartage will be so heavy as to make an appreciable difference to the cost of the house. The house which is to have a self-contained drainage and sewage disposal system is naturally more costly than a similar house in which the drainage system can be easily connected with the Municipal



First Floor Plan



Second Floor Plan

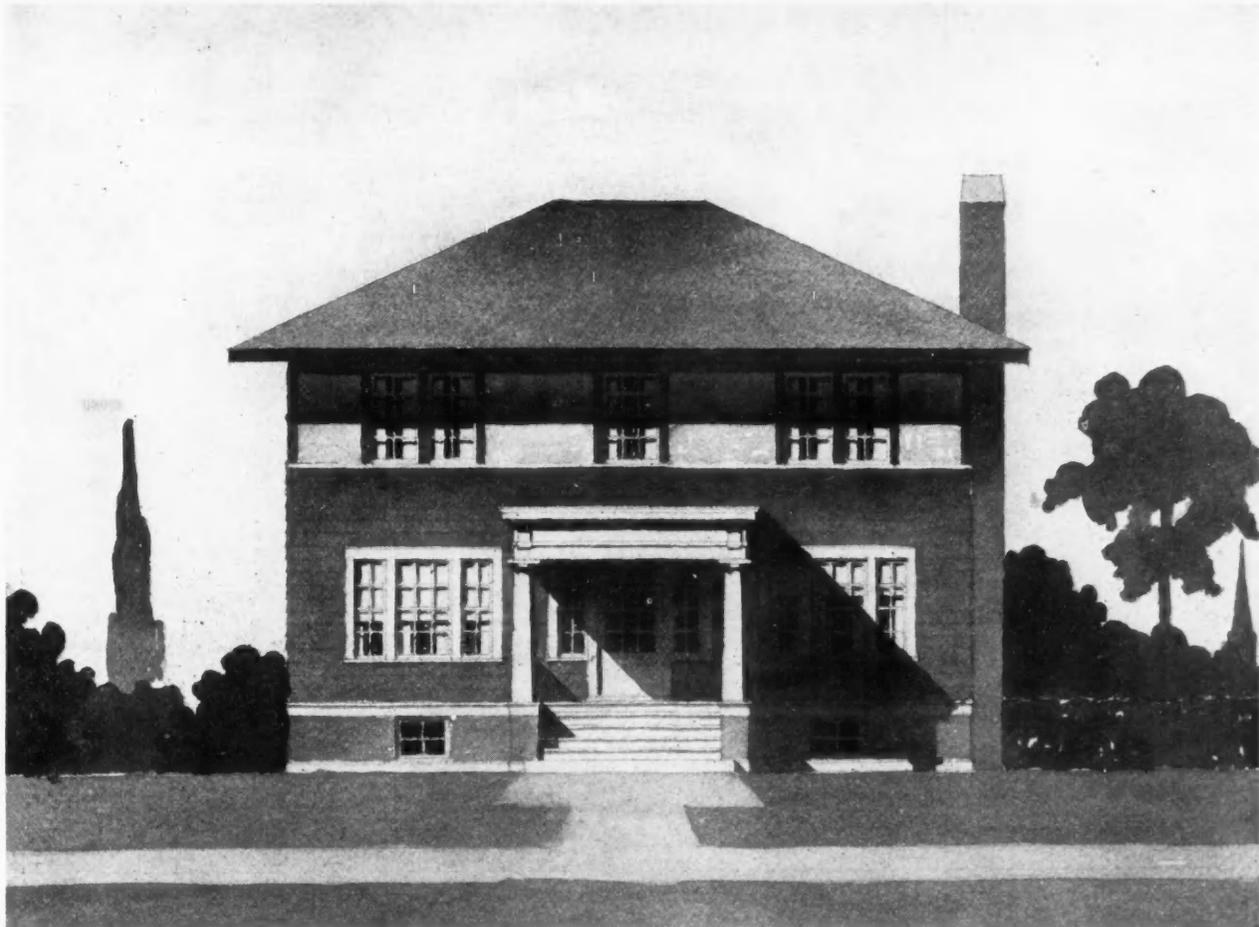
sewer; a self-contained lighting system may also be an item of additional expense. As regards materials, it is obvious to everyone that some desirable features, such as hardwood finish floors would add to the cost of the house, but it is not so obvious that materials which could be cheaply used in one place would be very expensive in another. Here considerations of economy reinforce the sound rule that regard should be had to the characteristic local materials; a stone-built house would be much cheaper in the neighborhood of stone quarries and a brick house in the neighborhood of brickfields, the cost of carriage in each case being reduced to a minimum.

The Speculative Builder

We have thought it worth while thus to consider the subject of house building from the point of view of the client who has no special technical knowledge, because we are constantly being consulted about the building of houses, and some inquirers seems to have very hazy ideas about the place of the architect in the building scheme, and what is due to him and to be expected from him. But it is, of course, the fact that a large proportion of the smaller



Modern Cement Plaster House at Cedar Rapids, Ia. Designed by Brown Brothers for Mr. A. H. Newman. Cost \$8500.



A Design Popular with Conservative Builders; Square Cut with Hip Roof; Wide Rough Clapboards and Cement Plaster; Estimated Cost \$4,000.

houses in country districts and an overwhelming majority of such houses in the suburbs of the cities, are built not to the specific instructions of particular clients, but by speculating builders who aim at providing an article that is generally useful or, at any rate, generally saleable. Now this is a perfectly legitimate and a by no means unreasonable method of providing for the needs of a community. The requirements of a great number of families are very much the same, and there seems no reason why a builder or a company who have acquired a suburban tract should not erect upon it houses of the size and kind that are most readily saleable, taking advantage of the economies to be affected by simultaneous building and the duplication of plans and of details. Speculating builders, as a class, are not held in high esteem.

This, however, is hardly fair. There is nothing essentially base in producing houses, any more than in

producing other needed commodities, as a commercial speculation. But it must, unfortunately, be admitted that modern competitive conditions are not favorable to the maintenance of a high standard of excellence



in design and construction in the houses built by speculating builders. Although there are houses built

speculatively which reach a high standard of design and construction, these at present are in the minority. There is no reason, however, why a higher standard should not become general. Very much depends on

himself might do something, by employing architects to design his buildings, by laying out "additions" on "town planning" lines, and by seeking to establish and maintain a reputation for sound materials and good



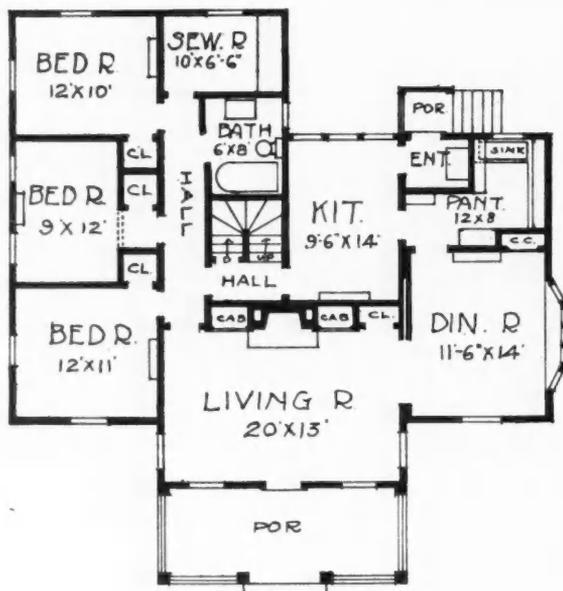
Seven Room Shingled Bungalow at Beach Bluff, Mass., Costing \$3,000; Designed by Peare and Quiner for Dr. E. W. Marvin

the education of the public in this matter. Every decent builder and every decent workman would rather build good houses than bad ones. It rests with the public to make this possible. If people would realize

workmanship. Some builders are already doing good work along these lines.

House Planning Ideals

And now what are the ideals that should govern home builders and house planners in this work? They should seek, almost before everything, to express restfulness and simple comfort—the qualities which mark the difference between a mere lodging and a home. Much of the striving after prettiness and picturesqueness which characterizes many modern houses, destroys the quality of restfulness. Beauty the house must have, but it must come naturally, inevitably as the outcome of logical, simple building, and good proportion. Never should beauty be sought by applying ornament to a structure which has no beauty in itself; the attempt will be futile and wasteful, and it may well be that the last state of that house will be worse than the first. The small house, and every other building,



Floor Plan of Bungalow

that the laws which govern the supply of commodities are pretty much the same—whether those commodities are boots, or pianos, or houses—they would give up expecting good houses at the price of bad ones. Then they would regard the builder's reputation for good work as of more consequence than his reputation for cheapness. Meanwhile, the speculating builder



View from the Right

should avoid shams. This does not necessarily mean the ostentatious showing of every beam, but it does mean the avoidance of such tawdry devices as nailing strips of thin wood on a facade to give a "quaint" appearance in imitation of the old half-timber construction. In the small house there should be no ostentation; it had better be a glorified cottage than a cramped and impoverished mansion. The owner of the small village or suburban house will have other ideals than those of the house agent, who measures the value of a house by the number of its "reception rooms." Such a house is really to be built for the family that will inhabit it, not for the visitors who

convenience and exterior appearance, are embodied in these examples of successful modern work. They represent the work of some of the well-known architects who have made a special study of the problems of the small residence.

Concerning the beautiful shingled residence illustrated on pages 28 and 29, the rather complete set of photographs shown will, in connection with the floor plans, make clear all the points of this design.

On page 30 is shown a charming example of the cement stucco house. It could be built of frame, concrete, hollow tile or brick, with the cement stucco treatment on exterior walls. The principal features



Living Room in Dr. Marvin's Bungalow; White Enamel Trim and Mahogany Finish Doors

will come but occasionally. Instead of cutting up the limited space into several little rooms in view of the expectations of visitors, the family will require all the available space for their dining-room and common sitting-room. Hospitality need not, indeed, be omitted from consideration, but it must be of a very simple and unostentatious type.

Concerning the Illustrations

Passing to the designs illustrated on these pages by means of photos and floor plans, very little needs to be said by way of explanation. Sound ideas of planning, both with respect to interior arrangement for

are the heavy arched porches, the flower boxes and the roof treatment.

It was built, not long ago, by H. F. Jones, general contractor, the cost complete being \$8,500. The interior finish was redwood for the first floor and yellow pine for the second; while the floors were oak, maple and yellow pine.

The design illustrated on page 31 was drawn up especially for the AMERICAN CARPENTER AND BUILDER, to be published in this place to illustrate some of the best ideas of modern conservative house planning of the kind that is becoming increasingly popular.

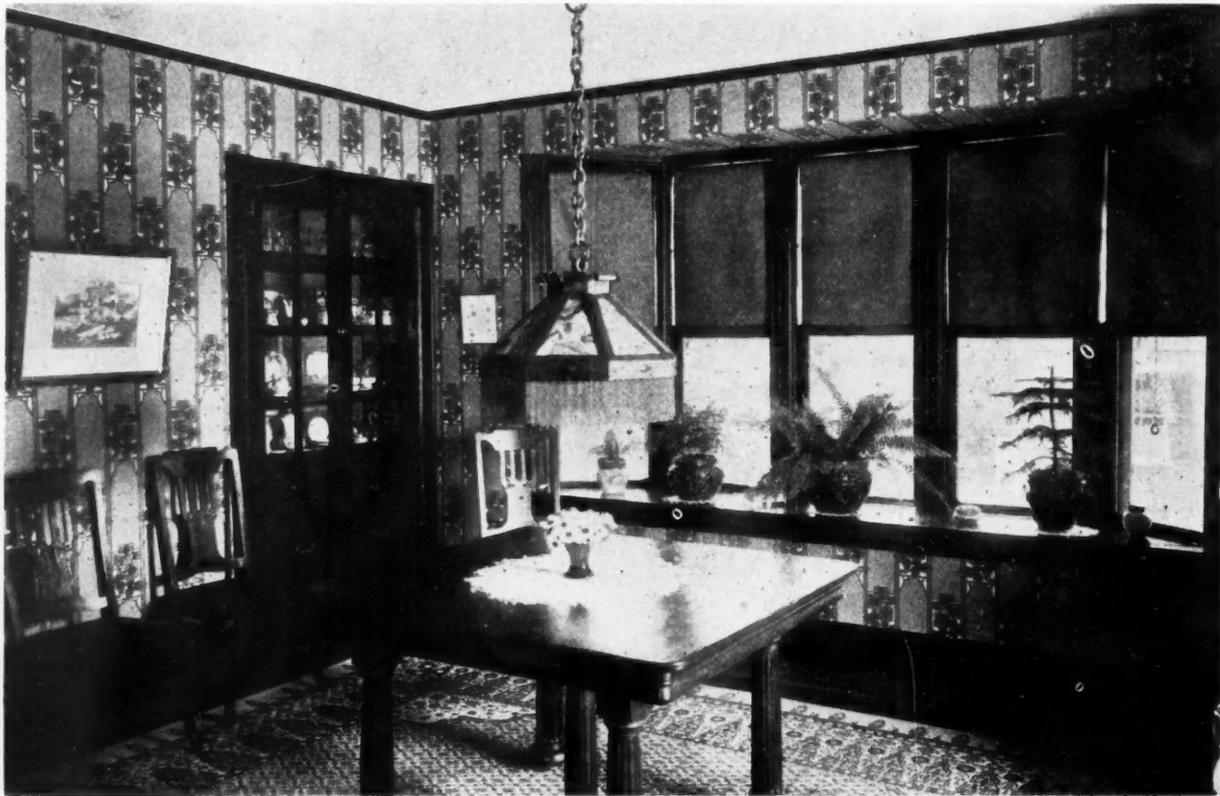
On pages 32, 33 and 34 are shown a series of views of a shingled bungalow of exceptional beauty and charm. Many good and practical ideas can be gained from these photographs by those interested in buildings of this kind.

The house on page 35 is a seven-room house of the Colonial type, with a large reception hall and vestibule. The exterior of this house is covered with shingles stained a warm color on the walls, roof shingles left to the weather. The trimmings are painted white. Some of the desirable features are: Good, large rooms, fireplace arch effect between living and reception hall, combination stairs, good closet room, and very large piazza. Hardwood floors

in shades of green, yellow and tan. The inside wood-work is finished in the mission, with ceiling beams in living and dining-room. The exterior is stained brown with cream colored trimmings.

The itemized cost of this house was as follows, as designed and constructed by O. S. Lang, of Buffalo, N. Y., for Messrs. A. J. Kuhnle and Harry J. Fellows, using yellow pine floors and trim:

	MATERIAL	LABOR
Excavating		\$10.00
Masonry	\$50.00	40.00
Cement and concrete work.....	15.00	10.00
Lumber	660.00
Mill work	400.00



View of Living Room in Dr. Marvin's Bungalow

throughout, steam heat, good plumbing, electric lights, gas and good cellar are some of the modern conveniences of this residence. It is stated by the architect that this house can be duplicated for \$4,800 at the present time.

The cottage, shown on page 36, is a handsome example of what can be done with little money. It is designed as a summer cottage, though thoroughly built of good material. It has a character decidedly noticeable as being above the ordinary. It will comfortably house a large family.

The solid square arrangement of the verandas afford a good opportunity to enclose with screens if desired. For the amount of cost, no more can be accomplished in the way of convenience and beauty of its lines.

The walls are plastered with rough cast and tinted

Plastering	110.00	70.00
Painting, exterior	35.00	25.00
Painting and decorating, interior...	25.00	25.00
Plumbing and fixtures.....	100.00	80.00
Hardware	90.00
Slate roof	85.00
Carpenter work.....	420.00

Total	\$1,570.00	\$680.00
Grand total.....	\$2,250.00



Felling Trees With Wire

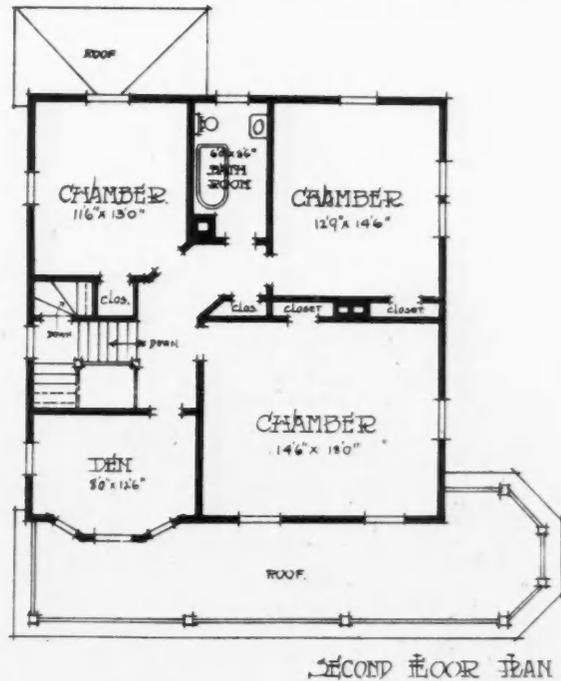
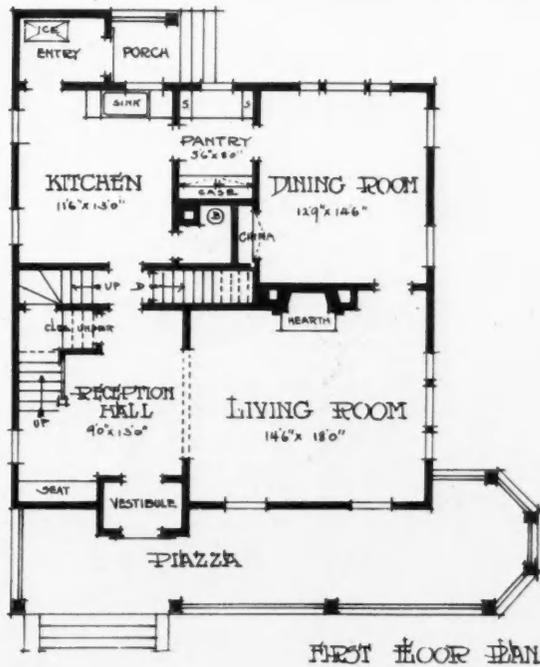
A method of felling trees with no other tools than a taut wire and a motor has been devised by a clever German inventor, says the *Literary Digest*.

The use of a wire heated by an electric current, to

burn its way through the trees has long been known. The Berlin inventor, Hugo Gautke, has simplified this process by causing the wire to become incandescent through the work that it does itself.

This result is obtained in his system by the friction of a steel wire one twenty-fifth inch in diameter,

which, experience has shown, may traverse a trunk 20 inches thick in six minutes. The wire, which is given an excessively rapid to and fro motion by an electric motor, becomes heated by the friction to a temperature high enough to burn the wood and penetrate it rapidly. The result is a neater cut than that



For those Who Like Large Piazzas; Eight Room House at Brockton, Mass., costing \$4,800, W. F. Barlow, Jr., Architect

made with a saw. The wire severs the largest trunks without the necessity of opening the cut with wedges and the tree may be cut at any desired place, even below the ground, so that no protruding stump is left.

Inquiries from all parts of the United States, particularly from the territory in the middle west, indicate that the out-of-town attendance will be very heavy. The Show comes just at the right time for the con-



Neat Story-and-a-Half Seven Room Cottage at Buffalo, N. Y., Costing \$2,250. Designed for Mr. A. J. Kuhnle by O. S. Lang, Architect

The electric current may be brought to the place from a distant station. Such a station may be established at the border of the forest; a gasoline motor of 10 horse power and a dynamo are all that is needed. By this means, the huge trees that are met with in tropical forests, whose diameters often exceed ten feet, may be felled by a single executioner.

The method has, in all cases, the immense advantage that it prevents the loss of wood that results from the use of the ax.

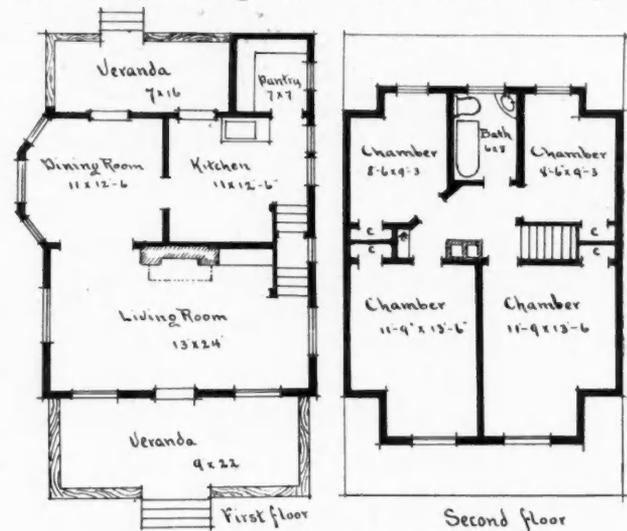


Fourth Annual Chicago Cement Show

The outlook for the success of the Fourth Annual Cement Show in Chicago, February 16-23, is very bright. The show will again be held in the big Coliseum. All the main floor, annex and balcony space has already been disposed of. A new and very beautiful scheme of ceiling and wall decorations has been designed and the next Cement Show will undoubtedly surpass in beauty any that have thus far been held. The same general equipment for booths will be installed as was used at the New York Cement Show, December last. The corner posts and railings will all be made of cement and the show will be truly a Cement Show. There will be about two hundred exhibitors.

tractors who are in the market for machinery for the opening building season.

Two important conventions will be held in connection with the Chicago Show. The annual meeting of



Floor Plans of Story-and-a-Half Cottage

the National Builders' Supply Association will be held at the Auditorium, February 21-22, and the Sixth Annual Convention of the Interstate Cement Tile Manufacturers Association will be held at the New Southern Hotel, February 21-23.

DETAILS of CONSTRUCTION AND FINISH

CHARLES F. RAWSON

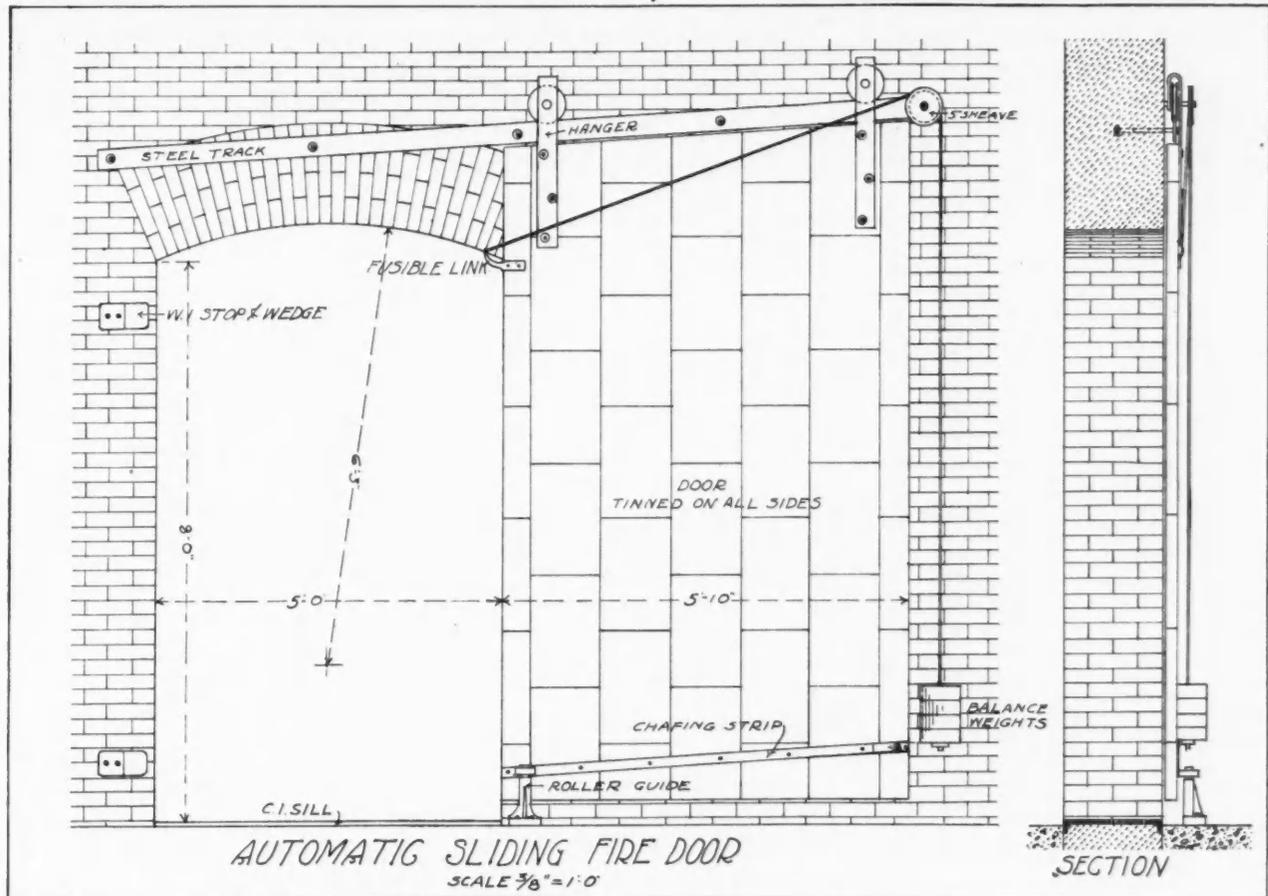
Standard Mill Construction

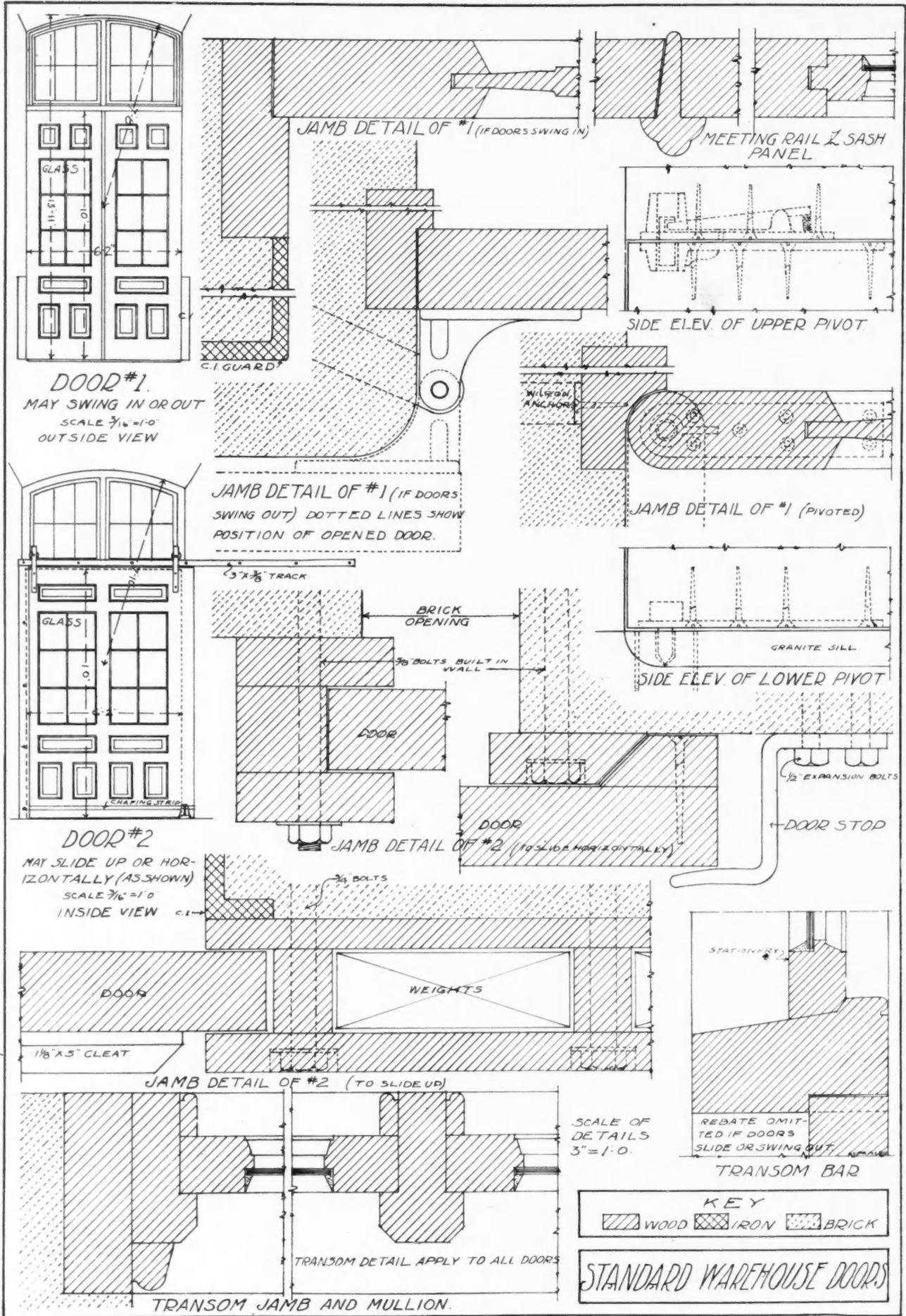
CLEARLY DRAWN WORKING DETAILS TO SCALE SHOWING APPROVED CONSTRUCTION FOR FIRE RESISTING FACTORY DOORS AND WINDOWS

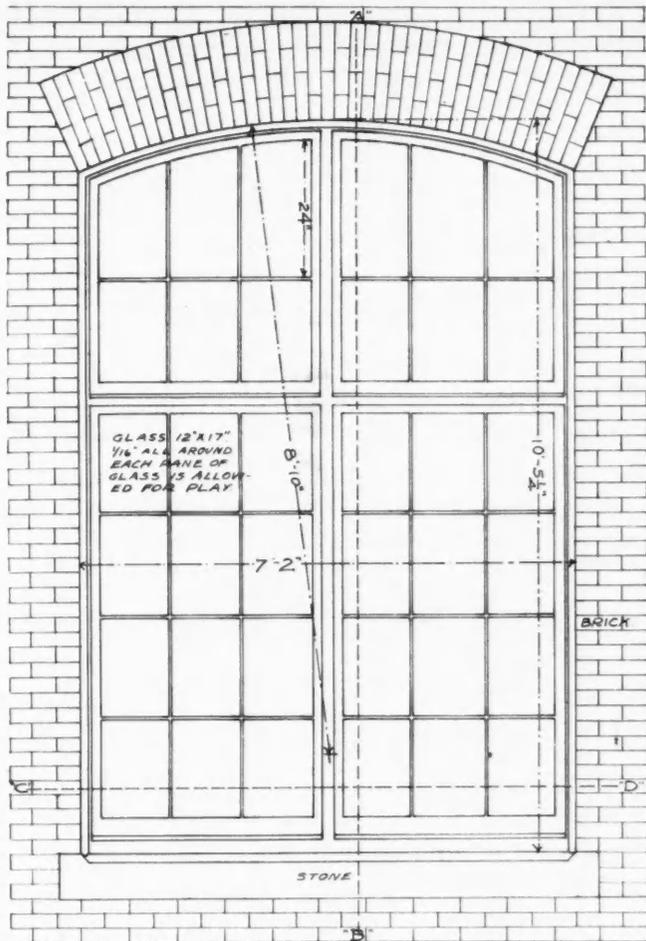
IT HAS been our object this month to illustrate details of a typical or so-called standard form of door and window construction for warehouses, mills or factories. Measurements are not final but are shown only to give the reader some idea as to the dimensions used in ordinary work. In doors we have shown two general types, swinging and sliding. Swinging doors may be made to swing in or out, and are hung on either pin hinges or pivot hinges; the sliding doors may be made to slide either vertically or horizontally. Details of the general form of these doors and of the various methods of construction are given, the former at the scales of three-sixteenths inch and three-eighths inch equals one foot and the latter to

a scale of three inches equals one foot. The cast iron door guards are omitted usually when the doors swing out. The ends of the transom bar should in all cases be tenoned into the frame. Transoms over doors are usually left stationary. The best way to fasten the door stop to the wall, in the case of the door sliding horizontally, is to run the bolts all the way through the wall, using a washer and nut on the end. This prevents the constant striking of the door from loosening the stop and thus defeating the real intended purpose of the same, which is to wedge the door tightly when closed to prevent the spread of fire.

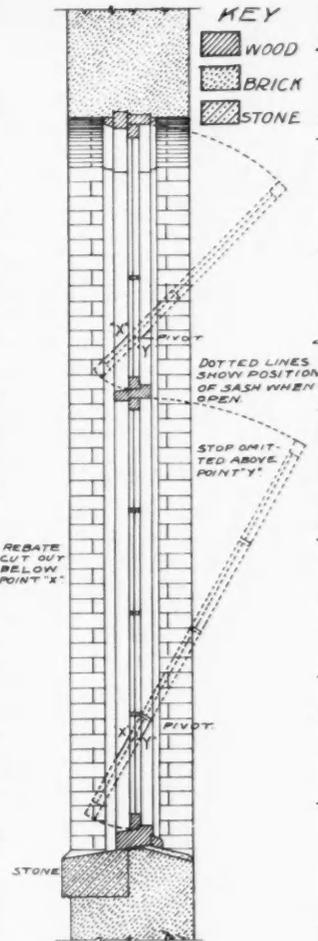
(Continued to page 46.)



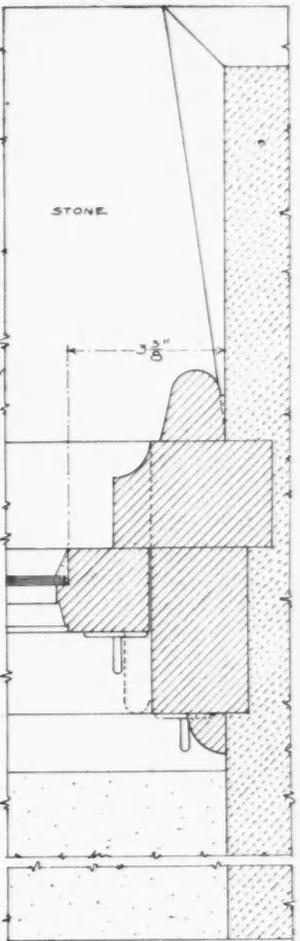




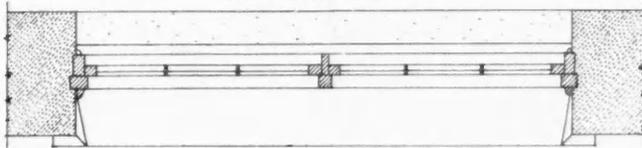
FRONT ELEV.
SCALE 3/8"=1'-0"



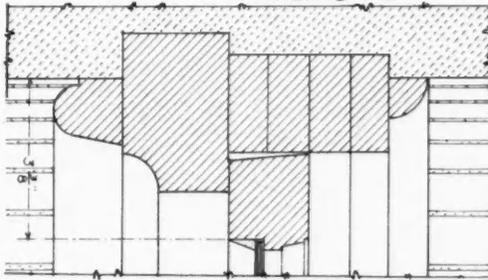
SECTION A-B
SCALE 3/8"=1'-0"



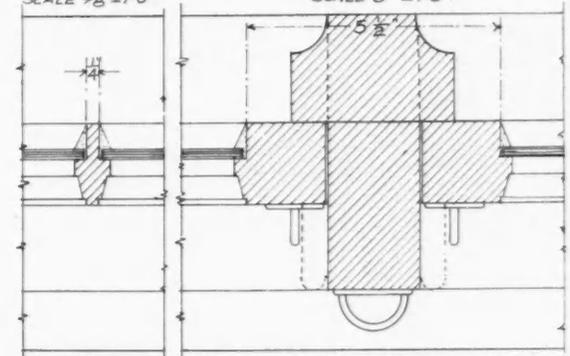
DETAIL OF JAMB.
SCALE 3"=1'-0"



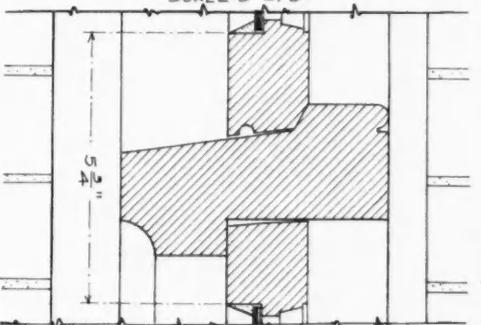
PLAN C-D
SCALE 3/8"=1'-0"



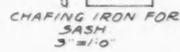
DETAIL OF HEAD
SCALE 3"=1'-0"



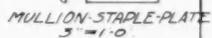
DETAILS OF SASH-BAR AND MULLION
SCALE 3"=1'-0"



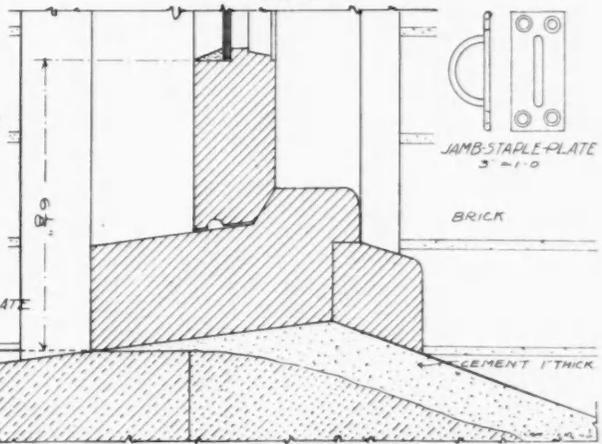
DETAIL OF TRANSOM BAR
SCALE 3"=1'-0"



CHAFING IRON FOR SASH
3"=1'-0"



MULLION-STAPLE-PLATE
3"=1'-0"



DETAIL OF SILL
SCALE 3"=1'-0"

STANDARD WAREHOUSE WINDOW



CEMENT BUILDING CONSTRUCTION

Blocks and How to Use Them

DETAILS SHOWING APPROVED CONSTRUCTION WITH CONCRETE BLOCKS—PRACTICAL SUGGESTIONS LOOKING TO A MORE WELL ORDERED USE OF THIS WORTHY BUILDING MATERIAL

I BELIEVE that concrete blocks represent the form in which concrete shall be used to the very largest extent in the future," an authority on this subject and a close observer of modern building tendencies has recently stated, "by reason of its being in unit form, readily and easily adaptable to architectural arrangement. Moreover every unit can be inspected before it is placed in the building, giving to the builder the protection necessary to secure the very best results in his construction work."

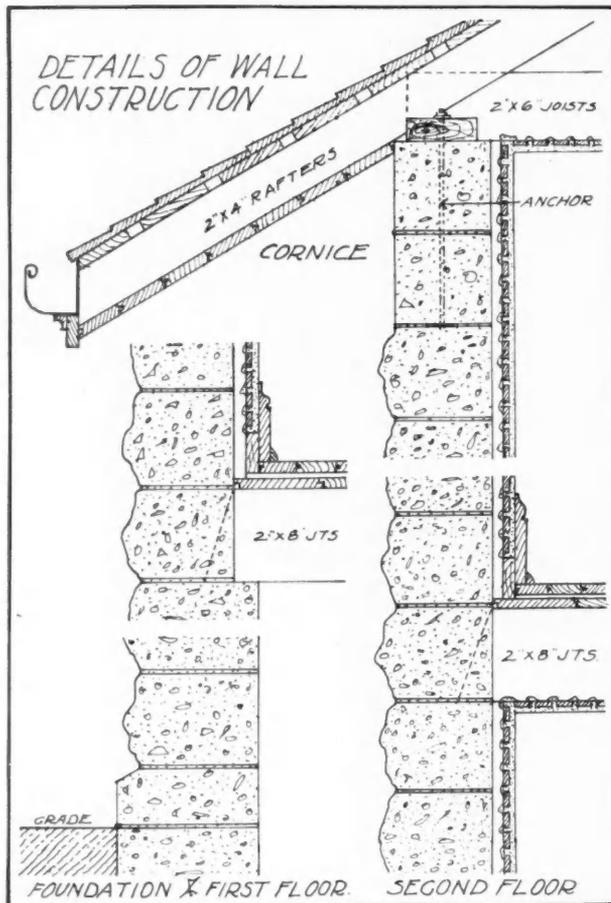
At the outset it may be said that the concrete building block not only has no apologies to offer but presents itself as one of the best and most economical forms of material for the construction of buildings. It has

come into recognition in every part of the United States as a staple in the building material field.

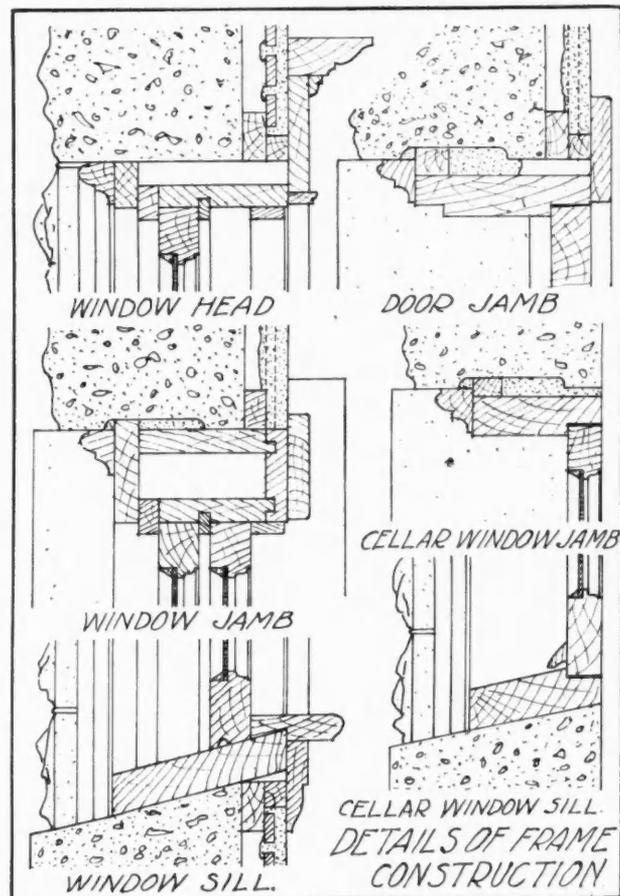
With marked advancement in the artistic qualities of the block and with improved methods of manufacture, its permanency is assured. On this subject one of the block experts has said:

"The time has come when concrete blocks should receive their proper recognition at the hands of those who are honestly and fairly seeking to secure building material of the highest class.

"There is still something to learn in connection with their manufacture, and yet we have traveled far along the road of actual achievement, so far indeed, that a stage has been reached where we are justified in saying



Wall Section Showing Joist Seating at 1st and 2nd Floors and Plate



Windows and Door Framing Details

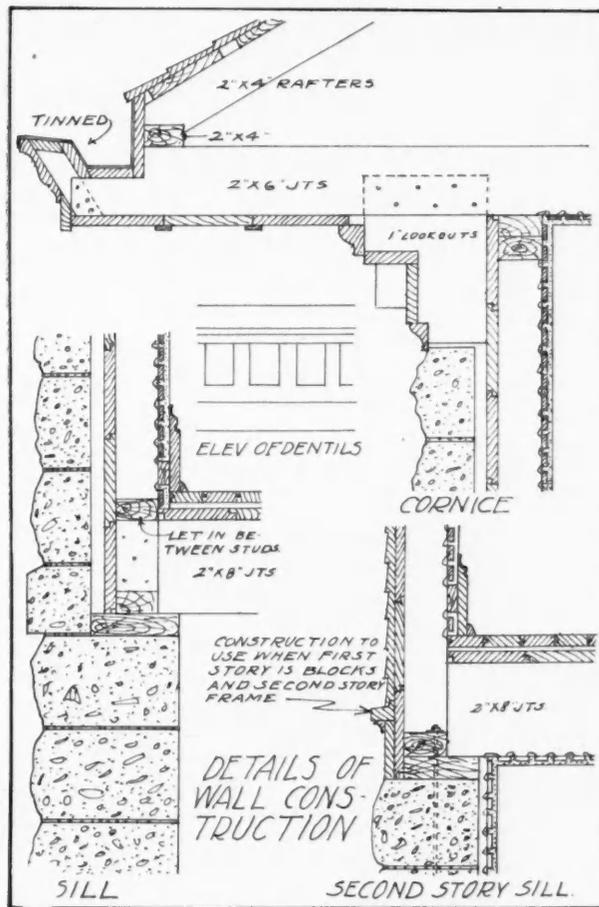
RECOMMENDED CONSTRUCTION USING BLOCKS

that concrete blocks of the highest character can be, and are made.

"Mistakes have been made in the development of this industry, one of the greatest perhaps being the adoption of a face design of the so-called 'Rock Pattern,' which has brought in its train more objection from architects and builders, and those who have to do with the initiatory stages of building operations, than

safety in any manner. Facings can be used, which will give rich effects without the use of an expensive mixture in the body of the blocks. In addition to the well-known fire-resisting qualities of concrete, the concrete block wall has the advantage of the interior air chambers, which allow it to conduct heat or cold but slowly. During a recent fire, while the flames from an adjoining structure were beating against a concrete block wall, the inside surface of this wall remained so cool that the hand could be placed against it without harm. The fire protection afforded by hollow block walls is an enormous advantage to the resident of rural communities, who is generally entirely without means of resisting or in any way stopping the spread of flames.

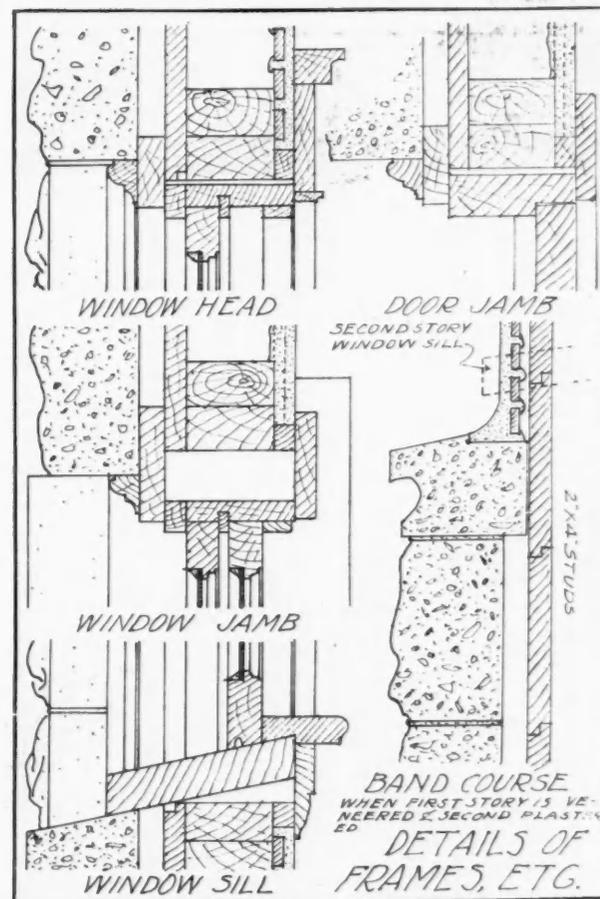
The ability of the hollow blocks to stop the passage of heat or cold makes houses of this material warm in winter and cool in summer. It tends to prevent sweating, and in mild climates often makes its possible to



Cement Blocks Used in Combination, Wall Sections Showing Construction and Arrangement

any other single cause to be found. This objection is well taken. Rock-face blocks represent an imitation of that which they cannot be, as natural stone of this design is produced by chipping away the face of the stone. It is also the cheapest character of dressed stone. But in condemning concrete blocks as such, by reason of this rock design, architects have overlooked frequently the manifold designs in which they can be made, and it is the writer's experience wherever he has had occasion to discuss this subject with architects and builders of the highest class that they can readily be won over to the use of concrete blocks when they are properly made, in designs other than rock face stone. There is no architect anywhere who is fair, who will not readily admit the durability of concrete. His objection to blocks is therefore based upon the objection noted above."

Concrete block construction offers many advantages. The hollow blocks make a saving of about one-third in material, without reducing the strength so as to impair



Cement Block Veneer Construction, Details of Window and Door Frames—Band Course Joint

put plaster on the block wall, without the use of lath. This cannot be done, however, where the winters are at all severe.

The concrete block appears at once as a substitute for both brick and stone—having all of the good qualities possessed by both, and in addition several advantages possessed by neither.

In monolithic or solid concrete construction difficulty is occasionally found in facing the work so as to make it pleasing to the eye. The concrete block

may be made with a variety of artistic facings, relieving greatly the architectural sameness and monotony of monolithic work; and not infrequently colorings are used in these facings, giving a large range of variation from the natural cement shades. Facings are ordinarily used from $\frac{1}{2}$ inch to an inch in thickness, and care



Attractive Story-and-a-Half Cottage Using Etched-Face Blocks

should be taken to insure a good bond between the facing and the body of the block. This is best accomplished when both mixtures are as wet as can be conveniently handled. Block facings may be made up in a variety of face designs, including plain face, rock face, imitation ashlar, tooled face, bevel face, plain face with tooled border, etc. It may be observed, that although the rock face design is the one which is hardest to reproduce without giving a monotonous,



Rough Finished Blocks in Two Widths in Combination with Shingles

artificial appearance, it is the one most often attempted. Where a wall is to be laid up of rock face blocks, no less than four different rock designs should be used; by reversing these, it is possible to get eight designs.

Pleasing effects may be obtained by using plain or flat face blocks from which the cement on the surface has been removed. This is accomplished by brushing

the surface with a stiff brush when the block is but partially hardened, and then applying muriatic acid to clean up the face. The muriatic acid solution should be made up of one part commercial strength acid to three parts water, and may be put on with an ordinary calcimine brush. After the acid has remained on the surface about ten minutes it must be removed, preferably by thoroughly scrubbing with two or three changes of clean water. This operation must be repeated until the sand grains composing the facing stand out clear and clean.

When coloring is desired, every effort should be made to obtain sand or stone of the required color, as in this manner it is possible to produce colored blocks without impairing their strength or durability, or giving then an artificial or plaster-like appearance. Several kinds of mineral coloring matter are now on the market, producing facings in almost any desired shade. Iron oxides make very satisfactory pigments, giving yellow, buff, red, and gray, while marble dust and ground white quartz used in the mixture give it a grayish white appearance. Lamp black is often used to



Cement Stucco over Concrete Blocks

obtain gray-black and slate shades. Vegetable coloring should never be used under any circumstances.

To avoid differences of color, the pigment should be thoroughly mixed with the cement before the latter is mixed in the mortar. Definite proportions of all the materials must be strictly maintained. Wherever possible, the cement and coloring for the entire job should be mixed at once. In all cases it is good policy to experiment with the materials before using.

Considerable difference of opinion exists as to the most desirable shape of block to employ. Ordinary hollow blocks are made with a variety of different air spaces, and solid blocks in various shapes are made and bonded together with cement mortar or steel anchors, giving air spaces between them. Hollow blocks with square, rounded square, elliptical, and round air spaces are commonly used and distinct advantages are claimed for each.

In the manufacture of concrete blocks the securing of a good product is always to be considered of greater

importance than the actual cost, for the reason that in practically all parts of the country good blocks can be placed in the structure cheaper than any other building material excepting lumber, and concrete blocks often compete with lumber. When it is considered that where concrete is used, the first cost is the final cost, while in the use of all other materials there are heavy charges for upkeep and repair, it is apparent that concrete is a very economical material. The added protection against fire loss is also an advantage in favor of concrete construction.

Before being used in the wall, at least where the work is to be permanent, each block should be carefully examined. A crack of any size, or broken or crumbly edges, indicate a weakness in the block, and make it unsuited for important work. Blocks may be tested for their water-resisting qualities by placing a small amount of water on the surface, and observing whether the water remains on the surface or is absorbed. A block which absorbs moisture readily is not suitable



Smooth Faced Blocks Best for Cottages

for use in dwellings, or other buildings which are to be kept free from dampness. In machines or molds using a mix wet enough to be poured, blocks are occasionally warped and distorted, and these, although strong and dense, should be laid aside because of their unsightly appearance. Blocks varying in color should never be used together in the same wall, as the effect is artificial, and displeasing to the eye. No trouble will occur from blocks differing in color, however, if the same cement, sand, and stone, in the same proportions, are used for the whole job.

Practically all block troubles are due to one or more of the following four causes: (1) The use of too lean a mix; (2) the use of fine sand or poorly graded aggregate; (3) lack of sufficient water; (4) insufficient mixing. If plenty of cement is used in the mixture and also good, clean, coarse sand, with as much water as can be used in the particular method of block manufacture employed, there should be no trouble in obtaining good blocks, provided the mixing has been thorough.

COURT DECISIONS AFFECTING BUILDERS

Builder's Own Evidence Admissible

In an action by building contractors for a balance due, one of them was allowed, over objection, to answer a question as to whether or not, based on his experience as a builder, the building was put up in accordance with the written specifications, plans and contract. It was held that the question was admissible, as the witness was not a mere expert, answering a hypothetical question, but had actual knowledge of the facts. *Iron Clad Mfg. Co. v. Thomas B. Stanfield & Son, Maryland Court of Appeals, 76 Atl. 854.*

Changing Time Limit by Oral Agreement

A written building contract fixed the time limit within which the work was to be completed and after which damages should be allowed if not then completed. It was held that it was within the power of the parties to change the time limit by oral agreement, afterwards made, extending the time, and that the court would respect such change, if made in good faith, and refuse damages suffered prior to the date fixed by the change. *Campbell v. Kimball, Supreme Court of Nebraska, 127 N. W. 142.*

Computing Damages for Defective Construction

In an action for breach of defendant's warranties on a contract to roof a building, whereby it guaranteed the materials and workmanship, and agreed to make necessary repairs, if notified, where plaintiff called upon defendant to repair, and some repairs were attempted, but defendant could not repair because it had used faulty material, and did not properly construct the roof so as to permit necessary repairs, plaintiff was entitled to damages for defendant's breach of its warranty, and not merely the cost of repairing the roof.—*Duggleby Bros. v. Lewis Roofing Co., 116 N. W. (Iowa) 711.*

Measure of Recovery for Personal Injuries

Plaintiff was 27 or 28 years old, a carpenter, with an earning capacity of \$3.50 a day. By an accident in a planing mill he lost the entire little finger of his left hand, the middle finger above the knuckle, and the end of the index finger was cut off diagonally without injuring the bone; the ring finger having been cut off in childhood. The injured fingers were very sensitive to touch and cold, and plaintiff could not take up material or tools with the injured hand, and is greatly hampered in climbing ladders, etc. Held that a verdict for \$3,008 was not excessive.—*Rood vs. Seattle Electric Company, Washington Supreme Court, 104 Pacific Reporter 249.*

Fire Resisting Timber Construction

SAFE YET ECONOMICAL BUILDING FOR WAREHOUSES, SHOPS AND FACTORIES—"STANDARD MILL CONSTRUCTION" AS APPROVED BY THE FIRE UNDERWRITERS

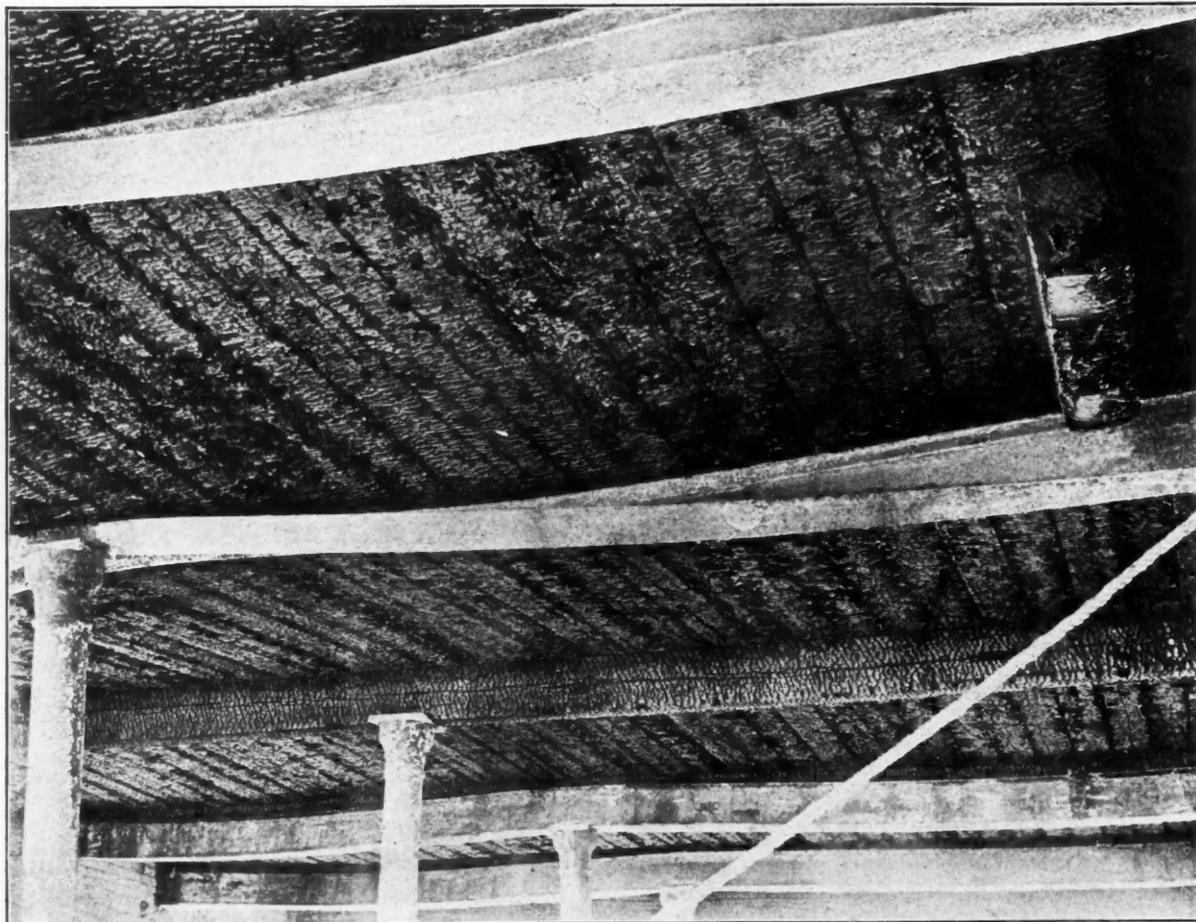
A FACT too often overlooked or ignored in these days when all the cry is for the new, so-called "fireproof" building materials, is that timber—nature's own logical, abundant and most economical building material—*when properly used* in factory or warehouse construction, is fire resisting and practically fireproof.

Without wishing to enter into any controversy concerning the relative merits of these other materials, either as to their fire-resisting properties or cost as compared with heavy timber construction, it is in order to present some facts of the case, at the same time pointing the way to safer construction for warehouse and factory buildings and showing the methods recommended by the fire underwriters for this class of work.

The Boston Manufacturers' Mutual Fire Insurance Co. and other "factory mutual" companies associated with them, have been working for years in the interests of improved construction and fire protection for industrial buildings, warehouses, shops and factories. They state emphatically that timber used in what is

known as "slow burning" or "standard mill construction," has entirely justified itself, as the experience of years has shown, since it renders possible a somewhat less costly and at the same time what is of great importance, a very effective system of fire protection.

The Engineering Experiment Station of this company points out, in a recent report, that it is a well-known fact that steel or wrought iron, when heated, will fail by buckling or bending very much sooner than the equivalent beam or post of wood. It is, therefore, necessary that all steel members essential to the stability of a building be protected by fireproofing wherever there is combustible material. This protection requires that in buildings more than one story in height, the posts upon which the structure depends should be fireproofed, so that a fire in a lower story may not bring down all above. In many mills the sprinklers may have their supply of water temporarily shut off, as has been the case in several of our largest fires. Even a comparatively small fire would then soon heat the steel members to a point where they would



WOOD VERSUS STEEL BEAMS IN A FIRE

Results of fire at Arlington Manufacturing Company, Arlington, N. J., May 7, 1898 as illustrated in Report No. V, "Slow Burning or Mill Construction," Boston Manufacturers Mutual Fire Insurance Co. In a building in course of construction, the stability of the single 8 x 10-inch wooden timber was not affected although the ten-inch steel beams sagged and were twisted to a degree which required rebuilding. The wooden beam was used because not enough steel had been ordered to complete the work promptly. In rebuilding, wooden beams were used throughout.

fail by bending or buckling.

The accompanying photograph graphically illustrates the point in question.

It can be safely stated that all things considered, the mill or slow burning type of construction is to be recommended for most factory or warehouse building. In some cases, where the contents will be extra inflammable, the extra expense of the thoroughly fire-proof reinforced concrete structure is warranted, otherwise heavy timber mill construction should be used.

In order that there shall be no misunderstanding as to what is meant by mill construction, it is explained that it consists of using heavy timber and plank, disposing them in heavy solid masses so as to expose the least number of corners or ignitable projections to any possible fire. Also it consists in separating every floor from every other floor by fire stops.

The essential features of standard mill construction as recommended by the underwriters, are illustrated in the accompanying details, and are briefly as follows:

Walls—Brick walls at least 1 foot thick (16 inches for best work) in top story and increased in thickness at lower floors to support additional load. The pilastered wall has many favorable features

and is often preferred to the plain wall. Window and door arches should be of brick, window and outside door-sills and underpinning of granite or concrete.

Roofs—Roofs of 3-inch Southern yellow pine plank, spiked directly to the heavy roof timbers and covered with substantial roofing. Roofs should pitch 1/2-inch to 3/4-inch per foot. An incombustible cornice is recommended when there is exposure from neighboring buildings.

Floors—Floors of cypress or Southern pine plank 4 inches or more in thickness, according to the floor loads, spiked directly to the floor timbers and kept at least 1/2-inch clear of the face of the brick walls. In

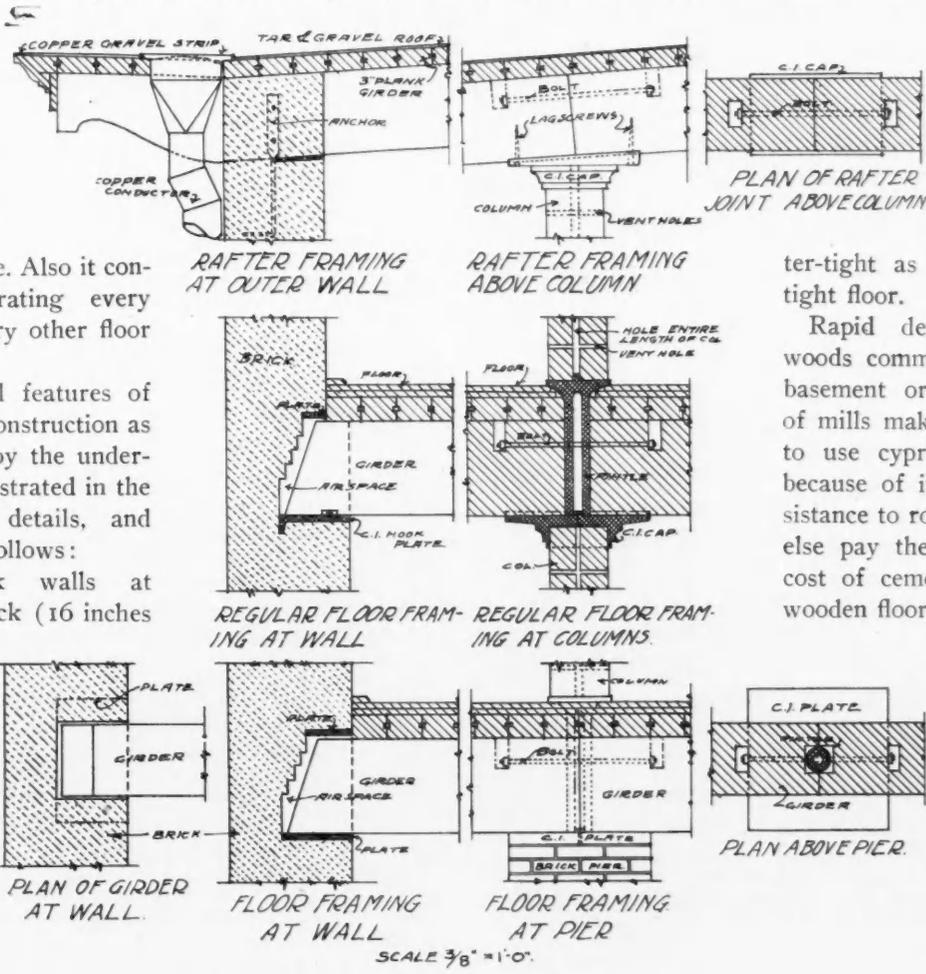
floors and roof, the bays should be 8 to 10 1/2 feet wide and all plank two bays in length, laid to break joints every 4 feet and grooved for hard wood splines. Usually a top floor of birch or maple is laid at right angles to the planking, but the best mills have a double top floor, the lower one of soft wood laid diagonally upon the plank, and the upper one laid lengthwise. This latter method allows boards in alleys to be easily replaced when worn, and the diagonal boards brace the floors, reduce vibration, and distribute the floor load even better than the former method.

Between the planking and the top floor should be two or three layers of heavy tarred paper, laid to break joints, and each mopped with hot tar or similar material to produce a reasonably water-tight as well as dust-tight floor.

Rapid decay of most woods commonly used for basement or lower floors of mills makes it desirable to use cypress for floors because of its peculiar resistance to rot influences or else pay the much higher cost of cement floors. If wooden floors are required, crushed stone cinders, or furnace slag should be spread evenly over the surface and covered with a thick layer of hot tar concrete, on which is often laid tar-

red felt, well mopped with hot tar or asphalt, on which a floor of 2-inch seasoned cypress or spruce plank should be pressed, nailed on edge without perforating the waterproofing under it, and the hard wood top floor boards nailed across the plank. Cement concretes promote decay of wood in contact with them. If extra support is required for heavy machinery, independent foundations of masonry should be provided.

Timbers and Columns—All woodwork in standard construction, in order to be slow-burning, must be in large masses that present the least surface possible to a fire. No sticks less than 6 inches in width should be used, even for the lightest roofs, and for substantial

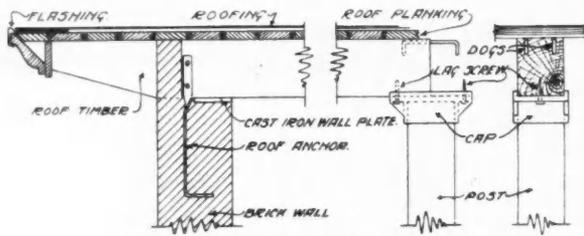


Details of Approved Fire Resisting Timber Construction

SCALE 3/8" = 1'-0"

roofs and floors much wider ones are needed. Timbers should be of sound Georgia pine, and for sizes up to 14 by 16 inches, single sticks are preferred, but timbers 7 or 8 inches by 16 are often used in pairs, bolted together without air space between. They should not be painted, varnished, or filled for three years, because of danger of dry rot, and an air space should be left in the masonry around the ends for the same reason. Timbers should rest on cast-iron plates or beam boxes in the walls and on cast-iron caps on the columns.

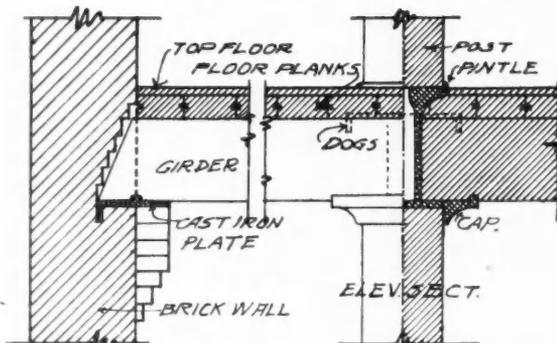
Beam boxes are of value as they strengthen the walls when floor loads are heavy and distance be-



Fire Resisting Cornice and Roof Framing

tween windows small; they facilitate the laying of the brick and handling of the beams, and there is less possibility of breaking away the brick in putting the beams in place. They also insure a proper air space around beams.

Columns of Southern pine should be bored through the center by a 1½-inch hole, with ½-inch vent holes top and bottom, and ends should be carefully squared. They also should not be painted until thoroughly seasoned, to prevent dry rot. Columns should be set on pintles, which may be cast in one piece with the cap, or separately, as preferred. Columns of cast iron are preferred by some engineers, and when the building is equipped with automatic sprinklers, have proved satisfactory, but are not as fire-resisting as timber. Wrought-iron or steel columns should not be used, un-



Floor Construction and Support in Fire Resisting Mill Building

less encased with at least 2 inches of fireproofing.

Stairs, Elevators, and Belts—One of the most important features of slow-burning construction is to make each and every floor continuous from wall to wall, avoiding holes for belts, stairways, or elevators to the utmost extent possible, so that a fire may be confined to the floor where it starts. No well-informed mill owner, engineer, or builder will, therefore, fail to

locate elevators, stairs, as well as main belts, in brick towers or in sections of a building cut off by incombustible walls from all the rooms of a factory. Openings in these walls should be provided with fire-doors, preferably self-closing. These, as illustrated on page 37, should be hung on heavy, inclined, solid steel rails at least 3½ inches by ¾ inch, and balanced by a weight held by a fusible link.

In modern practice all belts and ropes which may be used for transmission of power to the various rooms are placed in incombustible vertical belt chambers, from which the power is transmitted by shafts through the walls into the several rooms of the factory. There should be no unprotected or unguarded openings in the inner walls of this belt chamber.

Windows—Windows to be placed as high and made as wide as possible to obtain the best light, and the use of ribbed glass is recommended in upper sashes.

Standard Mill Construction

(Continued from Page 37)

It is customary to make the pine hinges on doors swinging out to fit the particular job on which they are to be used; and the exact location of the pin must be determined by measurements at the building after the frame is in position. Three hinges should be used on each door.

In all places in all interior jambs of both doors and windows it is well to use a brick with a rounded corner. This makes a neat finish and a much better one than the square edge brick at only a slight increase in cost.

The arched heads of both transoms and windows should be made of small pieces of wood glued together and sawed to fit the curve of arch where used.

In windows we have shown only one general type which is standard for ordinary work, and we show the elevation, plan and section of the window to the scale of ¾ inch equals 1 foot, together with all necessary details of construction to the scale of 3 inches equals 1 foot. This window occupies a brick opening of 7 feet, 2 inches by 10 feet, 4⅛ inches. To make a window of the same design for a 6-foot, 2-inch opening make the glass 10 inches by 17 inches and the radius of the arch 7 feet and 8 inches.

The general rule for size of upper pane of glass is 7 inches longer than size of glass used below. In figuring the height and width of openings 1/16 of an inch all around each pane of glass has been allowed for play. The sash is generally 1¼ inches thick.

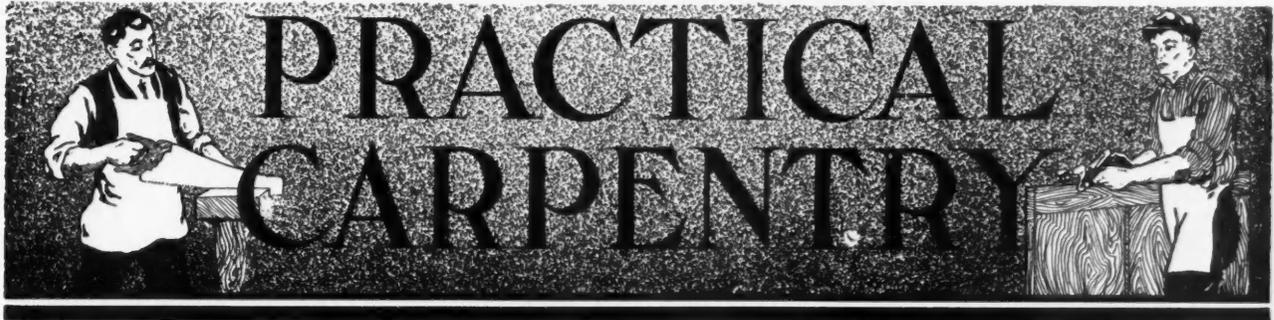
Poor Child

"Why are you sobbing, my little man?"

"My pa's a millionaire philanthropist."

"Well, well! That's nothing to cry about, it is?"

"It ain't, ain't it. He's just promised to give me \$5 to spend for Christmas provided I raise a similar amount."—*Chicago Record-Herald*.



How to Lay Out and Build a Platform Stair

A VERY INSTRUCTIVE ARTICLE, CLEARLY WRITTEN AND ILLUSTRATED, EXPLAINING PROPER STAIR BUILDING METHODS

By Morris Williams

CARPENTERS generally do not get the opportunity to learn how to lay out such a stairway as represented in the plan (Fig. 1) of the accompanying illustrations.

The stairway usually comes to the building from the mill ready to be put up, and where it does not, there is always the one man only who can be trusted to handle properly the stair work in almost every building; so that the major number of carpenters seldom

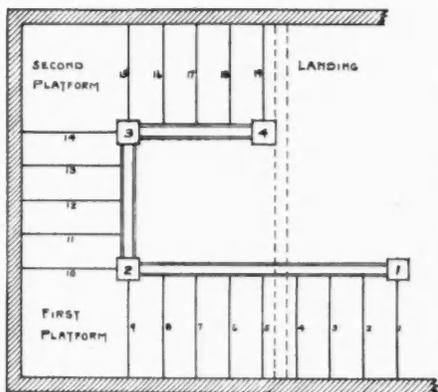


FIG. 1. PLAN.

While such conditions exist, as all carpenters know, it sometimes happens that most, especially the younger members of the trade, look up to stairwork as the goal of their ambition.

It very often happens that a stairway of the type represented in Fig. 1, is to be built on the job where the job is a fairly good one and located outside the great cities. My endeavor in this article will be to show as clearly as possible, and that by an experienced stair builder, how from the start to the finish the laying out of all the constructive details is accomplished.

The plan, as shown in Fig. 1, contains three short flights and two platforms all combined, making a stairway such as is often seen in wide halls and reception rooms. To construct such a structure we will need to know first what size and number of steps will be required to reach from the first floor to the second floor. In this connection it may be well to remember that the most important consideration will be the correct rela-

tive proportion of treads and risers: a matter often overlooked not alone by the inexperienced but also by many of those in the trade who work exclusively on stairwork.

It is universally conceded that the height of the riser should never exceed 7 inches in residence buildings; and considerably less in public buildings.

This fact should never be lost sight of in stair-building.

Another very important consideration should be that all flights be limited to at least twelve steps. If the height between floors is found to require, say twenty steps, a platform should be placed as near the center of the flight as conditions permit.

This applies to straight flights that are found in closed hallways and stores where the height between floors is much in excess of that in ordinary residences.

The height between the floors in our example is 11 feet 1 inch or 133 inches. Now by keeping in mind that 7-inch risers will satisfy the conditions of easy traveling up and down, we will divide the number of

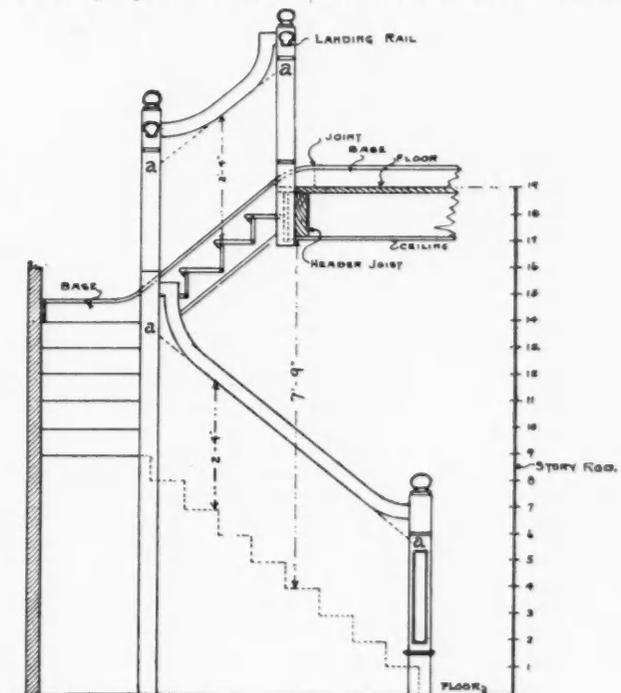


FIG. 2. ELEVATION.

inches (133) contained in the height between floors by 7. The dividend will be 19, which denotes the number of risers required. The same result may be and usually is obtained by the method shown in the elevation (Fig. 2) where a pole or rod of any dimension but long enough to reach from floor to floor is divided by the use of the compasses. This rod is known as the "story rod" and in this example will indicate nineteen divisions, each measuring 7 inches, the width of the risers.

After ascertaining the width of the risers we have

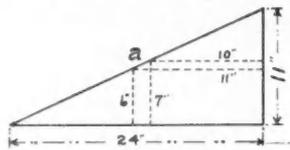


FIG. 3.

now to find out the best relative width of the treads to produce the easiest possible stepping.

Of the many rules or methods in use for this purpose, the one shown in Fig. 3 will be found to be as satisfactory as any; and more so, in so far as it graphically illustrates the principle of operation.

Draw two lines at right angle to one another; make one to measure 24 inches and the other 11 inches; connect the two as shown. Now upon the line 11 inches, measure the width of 7 inches to represent the riser; draw a line parallel to the 24-inch line to cut the long edge of the triangle as shown at *a*.

This line will indicate the best relative proportional width of tread for a 7-inch riser; it measures in this example 10 inches.

If, for instance, the width of riser measures 6 inches, the same method of operation will apply to find the relative width of tread, and for a riser 6 inches wide as shown in the diagram, the line indicates a 11-inch width for the tread.

Another very simple and easily remembered rule, is to consider the product of the tread and riser to equal the number 66; and whatever width we may have for the riser, divide it into this number.

For example; assume that the riser, as before, is 6 inches high; then the width of the tread will be $66 \div 6 = 11$ inches.

We have by these rules the means of finding out the best dimensions of steps for the stairway and therefore may now proceed to lay out the stringers.

For this purpose the common custom is to make a pitchboard which is used as a template to mark the form of the steps upon the face of the board intended for the stringer.

A diagram representing the pitchboard is shown in Fig. 4 and is composed of a right-angle triangle, the width of the tread for the base, and the width of the riser for the altitude. The dotted lines indicate a method of finding upon the upper edge of a "housed" or "closed" stringer the position of the balusters.

In common stairwork the pitch board sometimes is replaced by the steel square, which, if carefully ap-

plied, will answer the same purpose.

In Fig. 5 is shown how both the steel square and the pitchboard are applied to the stringer board.

In preparing the board all that is needed is to make the edge straight; and it is immaterial which of the two edges to use; some use the top and others the bottom.

In Fig. 5 it is the bottom edge that is used; and in this operation a gauge line is marked $1\frac{1}{4}$ inches from the edge, which will be the line to apply either the square or the pitchboard for marking the form of the steps.

The steel square as shown is applied to the board and upon the line with 7 on tongue to represent the riser, and 10 on blade to represent the tread, and by stepping along the board the number of times corresponding to the number of steps required the marking is accomplished.

It will be observed that this method is similar to that used for laying out a common rafter in roof construction and a little thought will show that it should be so; owing to similar fundamental conditions. The common rafter is to reach from the plate to the ridge so also is the stringer of a stairway to reach from floor to floor, both rafter and stringer having a specific slant commensurate to their respective run and rise.

In Fig. 5 the pitchboard is also shown applied to the stringer board by placing its long edge upon the gauged line, moving it along the line as many times as the number of steps required.

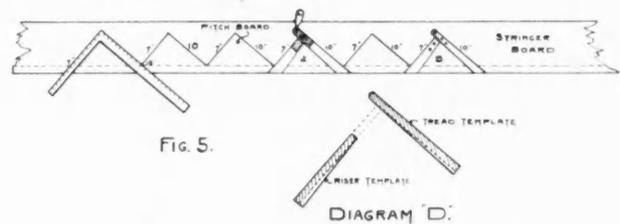


FIG. 5.

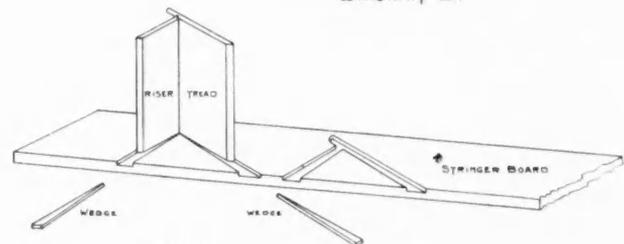


FIG. 6.

After the steps are marked upon the face of the stringer by either method, the next operation will be the marking of the grooves or "housing" for the risers, treads and wedges. For this purpose two thin templates are prepared and applied as shown at *a* in Fig. 5. How they are prepared is shown in diagram *D*, where the shaded portions represent the thickness of the treads and risers and the parts not shaded, the shape of the wedges.

A brad-awl hole is made in the center of the marking in the one for the treads, so that when applied to the stringer as shown at *a* in Fig. 5, a brad-awl may

be inserted to hold the template in place. The one for the riser is pushed against the one for the tread and close to the riser line already upon the stringer board.

The brad-awl mark left upon the stringer after marking the grooves for all the steps required will be the center for the brace bit that will be used to bore the hole to receive the nosing of the tread. The method in use to work the grooves is as follows: With the same size bit as the one used to bore for the

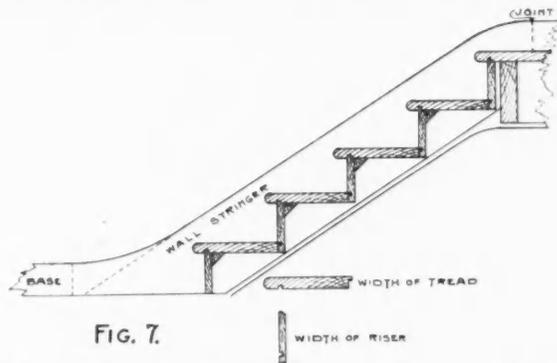


FIG. 7.

nosing, make a few other bores as shown at *B* in Fig. 5 for the tread and riser.

This portion of tread and riser is chipped off to the depth of the groove as shown by the shaded portion upon the step *a* in Fig. 5. Then, with a tenon saw or a regular stairbuilder's saw, the remainder of the groove for both tread and riser is sawed along the lines that have been marked upon the stringer for the grooves and roughly chipped off to the depth of the groove. Then by the use of a router plane all the grooves are cleaned to the depth required.

In Fig. 6 two of the grooves are shown finished and a step placed in, to illustrate the method of operation. After the steps are placed in the grooves as shown in this figure, they are tightly wedged in the manner shown.

The plan (Fig. 1) will show how many steps each stringer will contain.

For the outside stringers that are fastened to the newel posts, about an inch on each end is added as tenons to enter the newels.

In Fig. 7 is shown the wall stringer for the top flight exactly as it appears after it is finished; and diagram *C*, Fig. 13, represents the most common method in use by stairbuilders to form the easements at the intersection of base and stringer, at both top and bottom; as shown in Fig. 7. The stringers we have been describing are known as "closed" or "housed" stringers; and at the present time they are oftener made use of than the other class which are known as "cut and miter."

To lay out the latter kind of stringers the pitchboard is applied as shown in Fig. 8. A fence guide is nailed on its long edge which is held close to the top edge of the stringer and moved along the edge as many times as required to complete it.

After the stringer is mounted for the steps the portions marked, are cut off to the shape of the steps; the cut along the line of tread is made square to the

face of the stringers and the one along the riser is made square to a miter cut to receive the mitered end of the risers.

The plan of a few steps (Fig. 9) will help to show how the stringer is cut and mitered.

Figs. 10 and 11 indicate how the tread is prepared for the balusters and return nosing.

Now we will take up the laying out of the newel posts, and show how to find the length and mark the housing for the steps in each one; and for convenience will number the newels as 1, 2, 3, 4, as shown in Fig. 1.

The first thing that must be determined in finding the lengths of the newels will be the height of the handrails above the nosing line of the steps.

In the elevation (Fig. 2) lines are shown drawn perpendicular to the treads from the nosing; their length being 2 feet 4 inches; they represent the length of the short balusters, and determine the length of the handrail; therefore by drawing pitch lines at the height of 2 feet 4 inches from the nosings and continuing them to the adjoining newels of each flight, we will find points upon the newels as shown at *A* in Fig. 2. These indicate the position of the handrail upon the newel. By measuring above and below these points the lengths required to receive the rails and stringers, the lengths of each newel are obtained.

If it is determined to have goose necks, and easements in the handrail as shown in Fig. 2, the newels will be so much longer.

It will be observed that it is an easy matter to find the length of newels in the manner shown in Fig. 2. The only objections to this method of operation is that it entails too much drawing.

In Fig. 12 is shown the method usually employed among stairbuilders. Let it be required to find the length of newels No. 3 and No. 4. Newel No. 4 being on the second story landing, will have to be laid out so

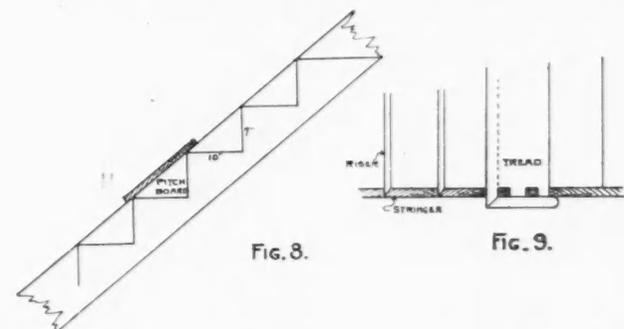


FIG. 8.

FIG. 9.

as to receive both the level landing rail and the pitch rail of the flight adjoining.

In this figure the flight rail is drawn upon the nosing of the steps as shown 2 feet 4 inches above instead of as in Fig. 2.

The first consideration in this operation will be to fix the height of the level landing rail from the floor. Let this height be 2 feet 10 inches from the floor to the bottom of the landing rail which is the standard height for landing rails.

Between this height and the height of the flight

rails which is 2 feet 4 inches, we find a difference of 6 inches.

Now measure upon the newel a distance of 6 inches from the landing floor, and draw a section of the landing rail as shown.

This will determine the height of the goose neck of the flight rail adjoining.

Draw the goose neck as shown by making $c-d$ (Fig. 12) equal $c-n$ and drawing a line from d square to the pitch rail to meet a line drawn level from n in O ; which will be the center from which the curve of the goose neck is described by means of a pair of compasses.

The same process is used for the easement and goose neck of adjoining newel No. 3. Draw the easement first at any height desired, then the goose neck of the rail below parallel to the easement as shown.

With this drawing as it now appears if drawn full size as it should be for practical purposes, we can readily find the exact length of the two newels by adding to the length of newels as here presented, the length 2 feet 4 inches of the short balusters. If it is desired to have newel No. 3 to reach down to the floor below, it will be necessary to add to its previous length the sum of fourteen risers, which is the height from the floor to the second platform.

The easement and goose neck connecting to newel No. 2 as well as its length may be found precisely in the same manner. Owing to the risers being similarly placed in the center of the two newels, 2 and 3, the goose necks and easements connected to the two will also be similar in size and form; which is a matter to be considered, in so much as the stairway when finished will have a much better ornamental appearance when all the goose necks are alike.

In Fig. 13 is shown a sketch of a portion of newel No. 1 showing how the first step and stringer are housed into the newel.

The housing for the steps in the other newels may

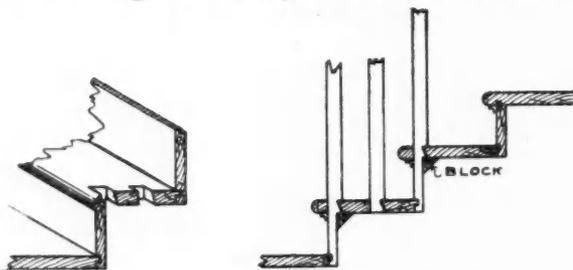


FIG. 10.

FIG. 11.

be laid out by taking the measurements from the plan Fig. 1.

In preparing the rough work which is technically called "staircase," it will be observed that the main considerations will be the height of the platforms and the position of the header joist.

A section of the header joist is shown behind the newel No. 4 in the elevation (Fig. 2); and in the plan (Fig. 1) its plan is shown by the dotted line across the staircase.

In locating the header, care should be taken to secure at least 7 feet headroom from the tread below it, which in this case, as shown in Fig. 1, is the fourth tread of the first flight.

The method usually employed to find the height required is to deduct the sum of the risers below—in this case risers 1, 2, 3, 4—from the height of the ceiling above the floor. From the story rod we know that the total height between floors is 11 feet 1 inch; by deducting the depth of the header joists, flooring and

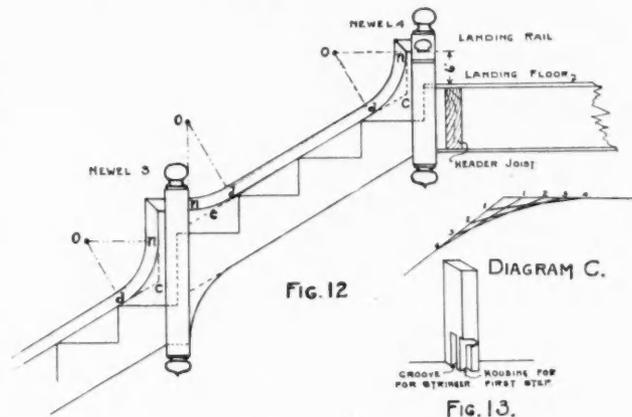


FIG. 12.

FIG. 13.

plaster of the second floor, we find a height of 10 feet 1 inch from the first floor to the ceiling; and by deducting from this length the sum of four risers we find a clear headroom below the header of 7 feet 9 inches.

All that is necessary to determine the height of the platforms is to measure the number of risers each platform is above the floor.

The first platform as shown in Fig. 1, is upon the ninth risers, therefore we multiply the depth, 7 inches of the risers, by 9 and find the height of the platform to be 5 feet 3 inches above the floor less the thickness of the platform flooring.

The second platform is shown in Fig. 1, to be upon the fourteenth riser; 14 therefore multiplied by 7 will determine its height above the floor, less the thickness of the flooring.

Framing for Roof Dormers

The framing of the sides and roof of all dormer windows is very much the same. Several methods of construction were shown in the December number. These suggestions will apply, however, to nearly all wooden dormers. An opening of the proper size to receive the dormer should be framed in the roof and the studs of the dormer should be notched out one inch over the roof boarding and trimmed rafter and extended to the floor. Notching the studding onto the roof prevents the roof from sagging or breaking away from the sides of the dormer and thus causing a leak, and the studding being extended to the floor also stiffens the trimmer, and give a good surface to lath on, without fear of plaster cracks.

of concrete may be classified under two broad divisions as follows:

1. *Mass or Integral methods*, in which the mass of the concrete itself is waterproofed prior to setting.

2. *Methods of external or surface treatment*, in which a protective, impervious covering is applied to the surface of concrete or placed between successive strata during the erection of the structure.

Both of these methods may be—and in many instances are—effectively combined in the same construction.

Each of the above classes into which waterproofing methods are divided may be further subdivided into a number of special methods differing from one another in marked characteristics.

Integral Methods of Waterproofing

Integral methods, for example, comprise three great subdivisions as follows:

(a) The use of carefully graded and proportioned and thoroughly compacted mixtures to give maximum density to the concrete.

(b) The introduction of special waterproofing materials into the mixture; these may be in the form of a powder, a paste, or a liquid. They are sold under various proprietary trade names; and many of them possess great merit.

(c) The special treatment of Portland cement itself during the process of manufacture, so that as it comes from the mills it already contains all the waterproofing elements required, to give with approximate aggregates, an impervious mixture.

Surface Treatment Methods of Waterproofing

Under this head we find the widely used processes of asphalt and tar-product waterproofing, together with a long list of special proprietary compounds (many of which are asphaltic or bituminous in their nature) sold in paste or liquid form for direct application to the surface; also various special brands of weather-proofing and damp-proofing paints.

Surface-treatment methods of waterproofing may be subdivided according to the materials used:

(a) One method that has been very widely adopted and has been found of great practical efficiency, even under conditions of great severity, consists in the use of *asphalt* or of asphalt or tar product mixtures. Either alone or in combination with felt or other fabric these may be applied to the surface or between two sections or layers of the concrete structure. The latter method, in which the coating is effectively protected from abrasion, gives the most satisfactory results. A method very frequently adopted is the use of an inch layer of asphalt poured hot between the face of the main wall and a thin protecting wall of brick or concrete built in front of it and carried up as the work progresses.

(b) A method that has been proved effective where the requirements are not very severe consists in plastering the wall—immediately after the removal of the

forms, if possible—with a coat of very rich cement and sand mortar. This coating is usually from one-half to three-quarters of an inch thick, and lime paste is sometimes added for smoothness in working. It is essential that the coating be well troweled and smoothed off, preferably with a wooden float, as the hard skin developed by such treatment is practically waterproof. A neat cement wash is sometimes used, applied with a brush. On horizontal or inclined surfaces, the surface of the concrete should be worked and troweled, giving the effect of a cement coating.

(c) Another method that has given satisfactory results in preventing water penetration and absorption under conditions of moderate pressure, consists in the application of *washes* that depend, for their effect, upon chemical action. Perhaps the most widely used example of this method is what is known as the *Sylvester* process of waterproofing, which consists in the alternate application of hot solutions of castile soap and alum. The application is preferably made while the concrete is still "green"; but the process may be used for the waterproofing of old walls either of cement or lime plaster, stone, brick, or other more or less porous material. The walls in every case should be clean and as dry as possible, and the temperature of the air not lower than 50 degrees F. The soap is first dissolved in water—three-quarters of a pound of soap to a gallon of water—and, while boiling hot, is spread over the surface with a flat brush. Twenty-four hours later, the alum solution—one pound of alum to eight gallons of water—should be applied in the same manner, at a temperature of about 65 degrees F. The process is repeated every twenty-four hours, four coats being usually sufficient to effect the desired result. From the chemical combination of the soap and alum, an insoluble compound is formed which effectively fills the pores of the structure to an appreciable depth and checks the penetration of moisture.

A process similar to the above in its action has been used for making mortar non-absorbent. Powdered alum (one per cent by weight) is thoroughly mixed with the dry cement and sand; and about one per cent of the potash soap (such as ordinary soft soap) is dissolved in the water used in mixing the mortar. A wash consisting of five pounds of alum dissolved in two gallons of water, to which one pound of concentrated lye has been added, has been successfully used on green concrete surfaces. Boiled linseed oil, applied in successive coats until it ceases to be absorbed, has also been used effectively.

(d) In addition to the above methods of surface treatment, there are on the market a large number of special patented waterproofing compounds and processes of more or less merit, manufactured according to formulae, and sold under various proprietary trade names.

It must be understood that there is no hard and fast line of demarcation between the integral and sur-

face methods of treatment. A method that is in its nature essentially integral, involving the incorporation of special materials throughout the mass of that portion of the concrete which is directly affected, may, in the manner of its application, have all the appearance of a purely surface method of treatment, the waterproofed material being spread upon the surface or deposited between successive strata in much the same way as asphalt and other bituminous products are applied.

There are same points of vital bearing on the problem of waterproofing, regarding which there is no dispute. It is universally conceded, for example, that proper proportioning of ingredients, proper grading of aggregates, thoroughness of mixing, and careful methods in placing concrete are factors of the utmost importance. *The densest concrete that can be made with the given materials will be the most impervious to water.* Also, the richer the mix, where no special compounds are used, the more nearly waterproof will the concrete be. It is evident, therefore, for practical reason, that, for waterproofing work where the concrete alone is depended upon, a tendency to excess of fine materials is better than the reverse. Especially in monolithic construction, it is now generally conceded that a wet mixture, a rich concrete, and a proportioning of aggregates to give great density, are essential for securing a waterproof structure.

The amount of pressure exerted by water against walls and beneath floors is frequently underestimated, especially where the hydrostatic head is low or is prevalent for but a short time after a rainfall.

For More Variety in Slate Roofs

By E. J. JOHNSON.

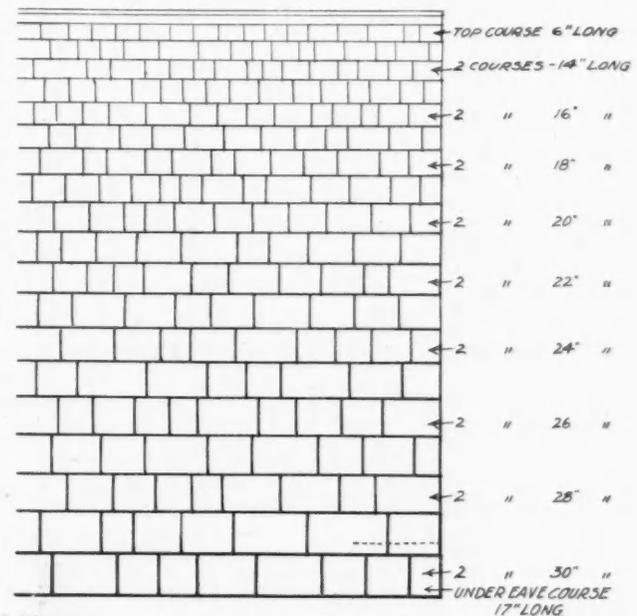
The use of slate thicker than ordinary is being used more generally than heretofore. While it is recognized that standard thickness of roofing slate is an excellent wearing roof, yet these thicker slates give additional strength as well as improved appearances,—lines in the roof being heavier than is the case with standard thickness. A roof slate $\frac{3}{4}$ inch thick will withstand any possible usage including the hard use given a roof where masons, carpenters or other mechanics travel over it for repairing and other purposes. Many owners would gladly pay the additional cost for $\frac{3}{4}$ -inch slate were they informed that this thicker slate could be obtained.

In order to avoid the possibility of thin slates being used in the roof, it is suggested that it be specified that slates run full $\frac{3}{16}$ inch thick. A small additional charge is made at the quarry for this selection; but it avoids the use of any thin slates at an exceedingly slight additional cost. Any of the well-known grades of slate of full $\frac{3}{16}$ inch thickness will make a strong roof at every point.

It is not generally known that roofing slates may be obtained in various colors. In addition to the standard black slates there is the unfading green, purple,

red as also slates containing the two colors, purple and green. Many architects as well as owners seek other roofing materials for color effects, either forgetting that slate may be obtained in these colors or else entirely overlooking the fact.

There has been recently introduced in this country the use of slates in the form as followed in roofing old European buildings one hundred and more years ago. This method was to use slates of random widths and graduated lengths, the slates at the eave being 30 or even 36 inches long while the courses gradually become shorter as they approach the peak where slates 16, 14 and even 12 inches in length are used. The thickness of the slates also are graduated, slates at the eave being in thickness from $\frac{3}{4}$ to $1\frac{1}{4}$ inches and gradually becoming thinner as they go up the roof.



"Old European" Style of Slate Roofing Using Graduated Lengths and Random Widths

This same idea in a modified form may be carried out by using even standard thickness throughout the roof and all of one length, but random in widths, thus breaking up the set appearance of an ordinary slate roof while still retaining its other advantages.

It Always Beats

The minister was addressing the Sunday-school. "Children, I want to talk to you for a few moments about one of the most wonderful, one of the most important organs in the whole world," he said. "What is it that throbs away, beats away, never stopping, never ceasing, whether you wake or sleep, night or day, week in and week out, month in and month out, year in and year out, without any volition on your part, hidden away in the depths, as it were, unseen by you, throbbing, throbbing, throbbing rhythmically all your life long?" During this pause for oratorical effect a small voice was heard: "I know. It's the gas-meter."—*Tit-Bits.*

What Kind of a Roof?—Slate

THE ADVANTAGES AND ECONOMY OF SLATE AS A ROOFING MATERIAL FOR RESIDENCES AND PUBLIC BUILDINGS—SUGGESTIONS FOR THE ROOFING CONTRACTOR

THE roof covering of any building is of the greatest importance. Upon it depends not only the durability and preservation of the whole structure, but the safety of the contents and the comfort and health of the occupants.

It is necessarily subject to more exposure than any other part of the building, and final economy is lost when cheap and perishable materials are used.

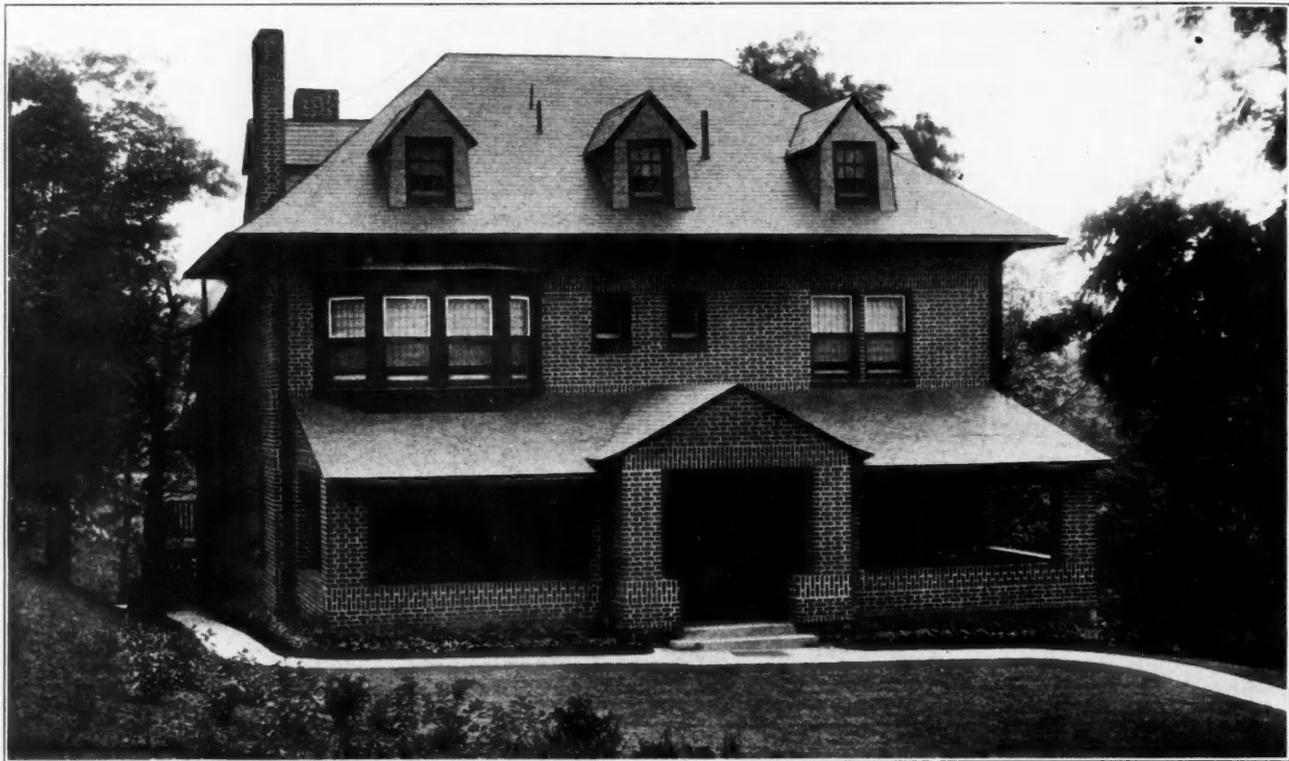
No matter how well our houses or barns may be built, if the roofs leak there result constant repairs and expense, besides damage and annoyance.

It has been pointed out that while there are innumerable forms of roofing materials made by man, all manufactured through more or less elaborate process-

In several instances slate used over 100 years ago were taken off when the original buildings were torn down, and relaid.

It has been stated that slate is the cheapest of all roofings. "Cheap" means inexpensive. Now, many roofing materials of seeming low cost can not be called inexpensive if they cost you their original price over and over again on account of the constant bills for painting, repainting or coating and recoating, as well as other repairs and expense which must be met as long as the roofing lasts.

In other words, the cost of a roof is not only the amount which you have to pay for the material and labor of putting it on, but to these must be added the



A Well Designed, Well-Built Residence Appropriately Roofed With Slate

es, there is only one kind of roofing made by nature and used in its natural state; that is slate.

Slate is taken from the quarries in large blocks, quarried from solid living rock 200 feet below the earth's surface, pure—just as nature put it there—split into the proper thickness and trimmed to the various sizes, but the substance of the rock is never changed. It is the same, well-known slate rock that cannot absorb anything, and therefore, cannot decay.

There is no "wear-out" to a slate roof. As far back as the 14th century slate was largely used as a roof covering in England, Wales, Germany and France. Many of these very same slate are in use on these buildings today.

additional and continual expense of keeping the roofs in repair as long as the building stands.

The conflagration hazard will hang over every town and village as long as wooden shingles are used for roofs. They are fire breeders, being usually dry and inflammable, ready to be ignited by the first flying brand or spark. Insurance companies make very material reductions in rates for non-combustible roofs, such as slate; their use should be encouraged in every community. So far as exposure fires are concerned, the one feature of the building which most needs protection is the roof, as flying brands or sparks are not likely to lodge anywhere else.

It frequently happens that beginners in the slate



General View of a Typical Slate Quarry

roofing business, through inexperience, are induced to use low priced slate, which generally means *inferior stock*. Roofers sometimes make the same mistake because some contract was taken very low or through a desire to procure an extra profit on their work. The fact should constantly be borne in mind that while the use of such inferior stock may yield a high profit for the time being, yet the results in the end, will be to ruin their business. Prospective customers are greatly influenced by the appearance and durability of the roofs already laid in their vicinity, and if these roofs do not show that durability, etc., which can reasonably be expected, they lose faith and confidence in slate and some other form of roofing material will be

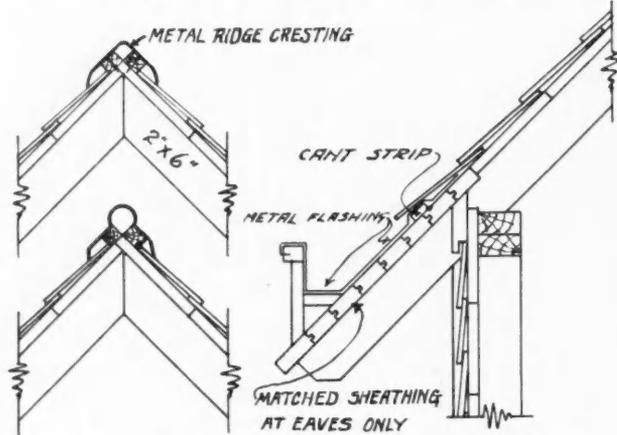
used. From a personal observation of years, the writer knows of many cities and towns in which the slate roofing business is now stagnated and the use of slate almost discontinued, simply because a large amount of cheap and worthless slate was laid in said towns, with the above mentioned results.

It is the prevailing opinion of people not familiar with the use of slate for roofing purposes, that a building should be constructed very much stronger for slate than for other roofing materials. This is a great mistake, as any building strong enough for shingles, tin or iron is strong enough for slate, for the following reasons: The weak points of any roof are the valleys or other breaks in the roof where snow drifts



Very Attractive Dwelling of Dark Brown Brick With Blue Slate Roof

in and lodges, and when the snow melts with rain the weight at points where the snow has drifted is much heavier than any two slate roofs. It is well known that snow will not stick on a slate roof as it will on shingles or on a metal roof, as the slate being



Proper Construction at Ridge and Eaves for Slate

of a warmer nature causes the snow to melt and slide off. Two by six rafters, 18 feet long, 2 feet from centers, give a roof all the strength necessary for a slate roof.

Slate can be depended upon to make a roof perfectly water tight on any pitch down to one-fifth. Half pitch or steeper makes the best roof both for looks and strength, as it throws the weight on the walls more than on the rafters, and causes the snow

of the buildings now being put up. Sheathing boards, when not matched, should be nailed at both edges on rafters, which should not be over 2 feet apart. Wide boards when used for sheathing are liable to warp and curl up at the edge, thus affecting the slate. While it may not break the slate it raises the courses, marring the appearance of the roof.

Three-penny, galvanized or tinned nails, with a flat head, are the nails generally used for all sizes of slate up to and including 20 inches in length, and four-penny nails for slate longer than 20 inches.

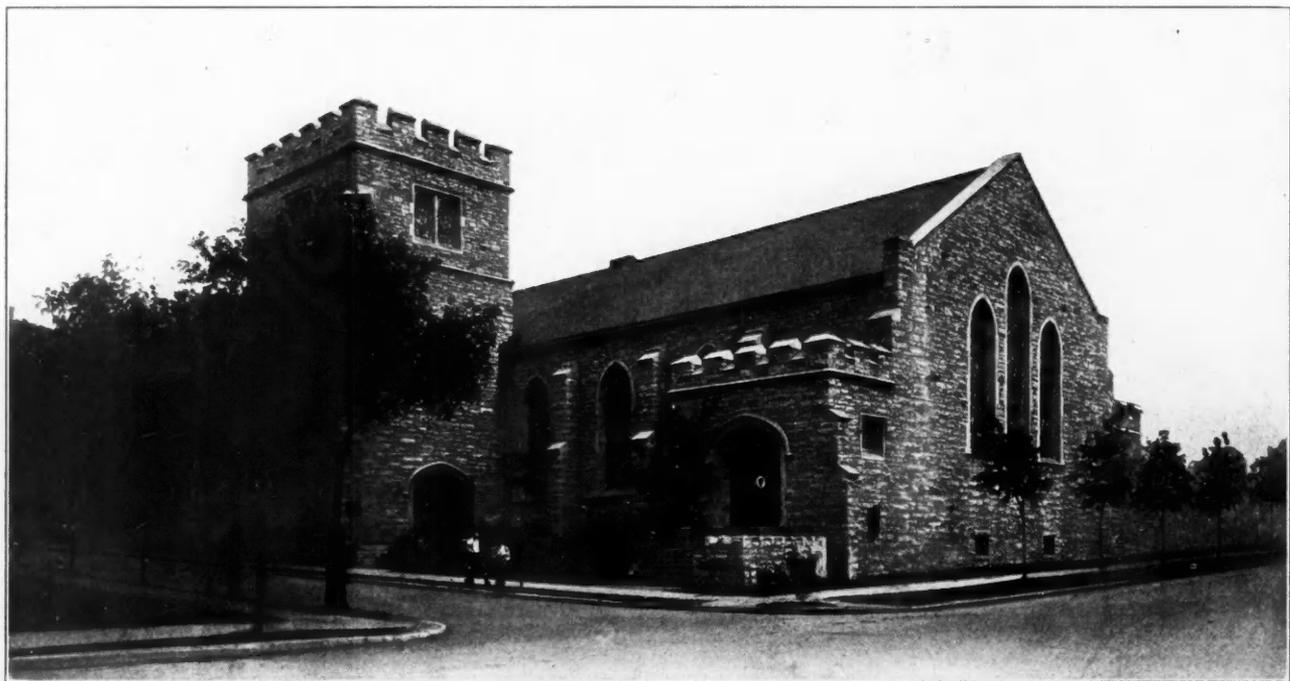
The thick slate should be laid at the eaves, and the thin slate at the top of the roof, but the last course at the gable should be thick and perfect slate. If a slate is so imperfect as to damage the roof when finished, it should not be laid in one of the regular courses, but put aside and trimmed for use on hips or in valleys.

[NOTE: The photographs illustrating this article were furnished us by the Genuine Bangor Slate Company, and it is through their courtesy that they are presented here.—Ed.]



Worked Slightly Overtime

A Baltimore man tells of an address made to some school children in that city by a member of the Board of Trustees. "My young friends," said the speaker, "let me urge upon you the necessity of not only read-

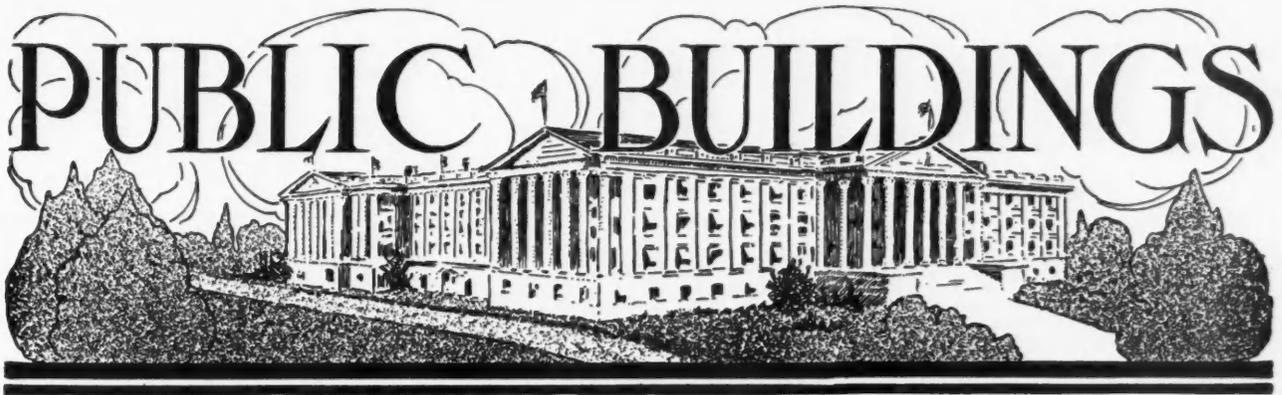


Slate Has Been Urged as the Logical Roofing for Churches and Other Public Buildings

to slide off clean, thereby never overloading any one part of the roof.

Matched lumber is best for sheathing for any roof, but surfaced boards from 6 inches to 10 inches wide make a good job and are used on a large majority

ing good books, but also of owning them, so that you may have access to them at all times. Why, when I was a young man, I used frequently to work all night to earn money to buy books, and then get up before daylight to read them."—*Success*.



Modern City School Building

RENDERED PERSPECTIVE DRAWING AND FLOOR PLANS SHOWING DESIGN AND ARRANGEMENT OF A WELL PLANNED SCHOOL BUILDING OF MODERN DESIGN

THE drawings reproduced herewith will serve to show some of the best ideas of the present day in city school architecture. Attention is called to the layout of the rooms, the building having the

letter H shape with the class rooms forming the sides of the letter and the hall, teachers' rooms and library arranged in the bar. The exterior is architecturally good, being slightly more ornamental than many practical designs.



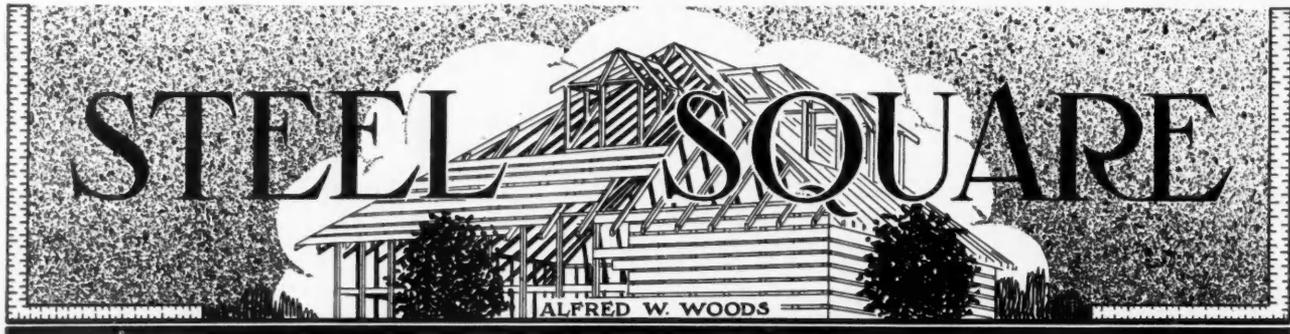
First Floor Plan



Second Floor Plan



Practical, Well-Arranged School Building of Attractive Design, G. W. Ashby, Architect, Chicago



Brace Framing

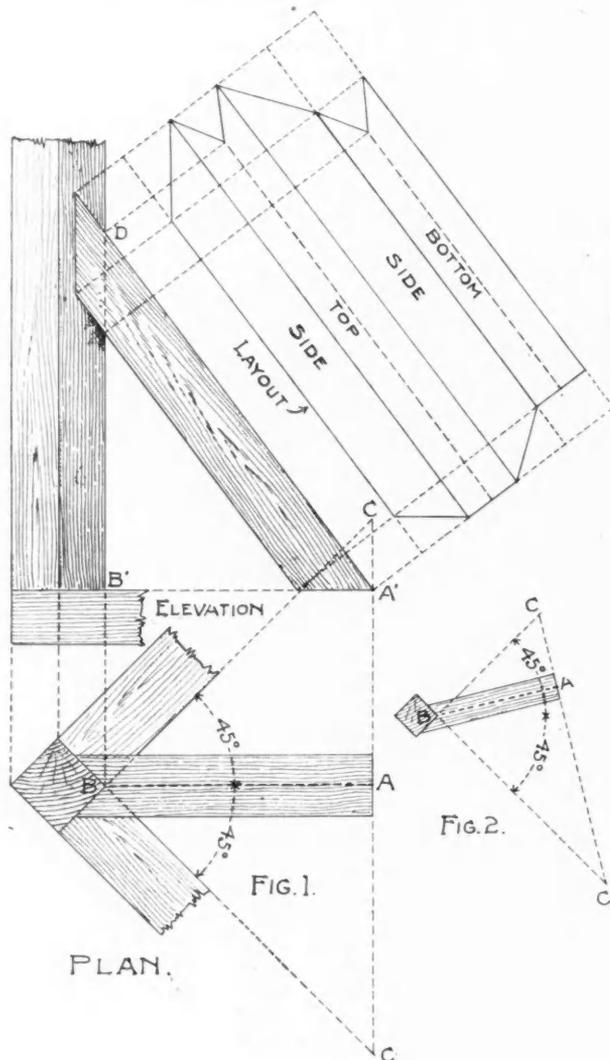
A COMPARISON OF THE BRACE WITH THE COMMON AND HIP RAFTERS—BRACE FRAMING BY MEANS OF THE STEEL SQUARE AND ALSO BY A SIMPLE GRAPHIC METHOD

ONE of the first things that the young carpenter learns when he takes up carpenter work, is how to frame the common brace. This is very simple, if he stops to think a little, as the parts to take on the steel square are just the same as for the

relation may not be so readily grasped. So for illustration purposes we will show the brace with its lower end resting on a level with the bottom of the post against which it rests. Then it will be seen that the run and rise is the same as that of a common rafter of like pitch, and when looked at in that light is plain enough; but should the brace be set at an angle with the face of the post, another phase enters into the problem which is liable to throw the workman off the track completely if he is not careful in keeping his bearings. Let us see. Suppose the brace does set at an angle with the post, the seat and plumb cuts are found precisely in the same manner as for the brace sitting square with the post; but a side cut is necessary to fit against the post and that is the sticking point; just how to place the square to make this cut is what puzzles the inexperienced.

In the illustration is shown the plan, elevation and layout of a brace resting cornerwise against a post; that is, it rests at 45 degrees from either side of the post, as shown in the plan and requires a right and left cut at the top to fit the angle of the post; and, being at the same angle from either side, the same figures used on the square will give the required angle for the cut. Now in this position, the brace is the same to the post as the hip for a square cornered building is to the corner of the deck plate. Therefore, the cuts must be identical and are as follows: •

See Elevation: $B^1 A^1$ and $B^1 D$ taken to scale on the square will give the seat and plumb cuts, which, we trust, everyone knows, but in order to make the subject complete, we give them here. To arrive at the cut across the back or top of the brace, (more commonly called side cut) take to scale $A C$ on one arm of the square (see plan) and the length of the brace on the other (see $A^1 D$ in the Elevation) and the cut will be on the side that represents the latter. The square should be applied to the center line and reversed. If the brace sits off more to one side, as shown in Fig. 2, then it has the same relative position as the hip for an unequal pitch roof; but the treatment is the same as above described, though, of course, requiring a different set of figures on the square to obtain the top cut, because the distance $A C$ and $A C$ are equal in



common rafter of the same pitch. The cuts are identical, though the brace more often is set just the reverse of the common rafter, and for that reason their

Fig. 1, but note the difference in Fig. 2. Yet they represent relative parts.

Refer again to Fig. 1 in connection with which is shown the complete layout of the brace. This shows another way of finding the cuts, though it is not necessary to carry it so far as we have shown it here, which shows all four sides of the brace; and, by trimming to the outer solid lines and folding on the three center lines, the form will show a perfect model of the brace.

This is a simple way of arriving at any cut and many of the old-time framers used this method; though, of course, it is useless to carry the illustration as far as shown here; after finding the angles for one side, the same will answer for both sides. Likewise the top and bottom. The steel square in this, as will be seen, is only necessary to lay out the lines of the diagram at right angles to each other. The other lines that represent the cuts are then drawn from one intersection to another, as indicated by the dotted lines from the elevation of the brace.

Bird's Eye Pine

BY W. D. GRAVES.

If the cause of "bird's eyes" in maple has ever been authoritatively determined the writer was not consulted in the matter; and, in any case, it remains a



Photo of Pine Board with "Bird's Eye" Markings

matter of interest to us who work in wood. It is a grain formation never seen in its extreme form in any other wood, and it is but rarely that we see anything at all closely resembling it. We occasionally see a faint resemblance of it in black walnut burls, and the writer has seen what appeared to be an occasional "bird's eye" in yellow birch. The most clearly defined ones he has ever seen in any lumber other than maple, however, have appeared in the bull pine—locally known as "yellow pine" of the Rocky mountains.

In the case of the best shaped "eyes" in this wood the difference in coloration was so slight as to defy the camera, but the accompanying photo will give a faint idea of the usual grain convolutions. Although the color of this sample made photography possible, it is one of the poorest "bird's eye" formations of many that he has seen.



To Bag the Game

Caddie (to Jones, who has missed his ball six times consecutively)—Try it with the bag, sir.—*Boston Transcript.*

Why Willie Quit

Carpenter (to his apprentice)—Well, Willie, have you sharpened the tools?

Willie—Yes—all but the 'and-saw, and I haven't quite got all the gaps out of it.—*Sketch.*

Self-Taught

N. Read—How you stutter! Did you ever go to a stammering school.

J. Terry—N-n-no, sir. I d-d-do this naturally.—*Brooklyn Life.*

A New Idea in Heating

Frank had been sent to the hardware store for a thermometer.

"Did mother say what size?" asked the clerk.

"Oh," answered Frank, "gimme the biggest one you've got. It's to warm my bedroom with."—*Success.*

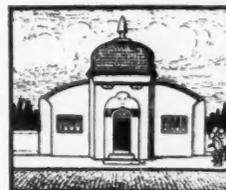
First and Last Things

"George," said her husband's wife, "I don't believe you have smoked one of those cigars I gave you on your birthday."

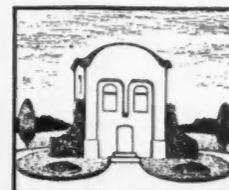
"That's right, my dear," replied his wife's husband; "I'm going to keep them until our Willie wants to learn to smoke."—*Chicago News.*

The Bungalow Seen Through German Eyes

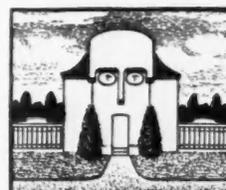
From the "Fliegende Blätter"



Highly Appropriate for a Policeman



Something Nobby for a Butler



What Schoolmaster Could Resist This?



Bungalow for an Elderly Spinster

Acknowledgments to "Suburban Life"

Beautiful Residence With Wood Mantels

HOW WELL DESIGNED WOOD MANTELS HAVE BEEN USED EFFECTIVELY IN THE DECORATION OF A BEAUTIFUL AND COSTLY KENTUCKY RESIDENCE



Library and Parlor Mantels—White Enamel, Colonial Design

IT IS a fact generally conceded by the architect, the builder, the decorator and the intelligent layman, that there is no architectural feature of a room of greater importance to its finished effect than the mantel.

Where the right mantel is in its correct setting, the artistic values and livable qualities of the room in which it stands are more than doubled; also the

reverse is true in the same ratio where the mantel is out of harmony with, and unsuited to, its surroundings.

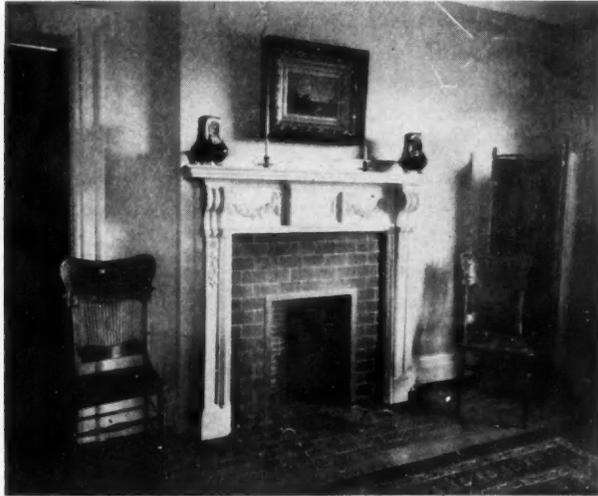
In the residence of Mr. R. B. Wallace at Ft. Mitchell, Ky., the strong Colonial note is struck in the design of the exterior and the same Colonial motif has been carried within to the design of the graceful wood mantels which play such an important part in the interior decoration of this beautiful southern home.



Residence of Mr. R. B. Wallace at Ft. Mitchell, Ky.

Every important room, both up stairs and down has its fireplace with white enamel wood mantel, each one different in the details of its design; but all strongly Colonial in feeling. There are six of them altogether. The three used on the first floor rooms, the library, parlor and dining room, are illustrated.

This house is broad and hospitable in its general atmosphere and it seems very fitting that so plentiful a use should have been made in it, of the fireplace;



White Colonial Mantel in Dining Room

for there is certainly no other feature which adds so much to the feeling of warmth, comfort and real hospitality of a room.

The people of the South know how to appreciate the practical value of the open fireplace as well as the vigorous ornamental effect of its appropriately designed mantel. In many places the open fire in the



Wallace Residence
First Floor Plan Second Floor Plan

grate at night and morning gives practically all the heat that is needed.

Due to this lead and also because of the inherent fitness of the fireplace for use in the home, their popularity has increased wonderfully of late throughout all parts of the country. Every residence of any pretensions whatever has one in the living room and usually a number of others in other rooms, notably the dining room, reception hall and main sleeping room.

Since the mantel in each case should be in harmony with its surroundings and conform to the general style of the house, the home-builder should consider long and carefully the designs submitted for his hall, his living-room, his dining-room, and the bed-chambers of his house. In buying and placing a piece of furniture one has always the opportunity to remove it if it proves unsuited to its surroundings, and unattractive in itself, but in the mantel once placed one has a permanent and most conspicuous feature for the room, which must be retained and enjoyed—or endured. Fortunately, it is generally possible today to see in the showrooms of the dealer the actual mantel ready to set in place. This is a great help to those who, from drawings alone, are unable to see in the mind's eye the complete effect, for in houses architecturally correct, the mantel is essentially a very important part of the trim and furnishings.



Skyscraping Spite Fences

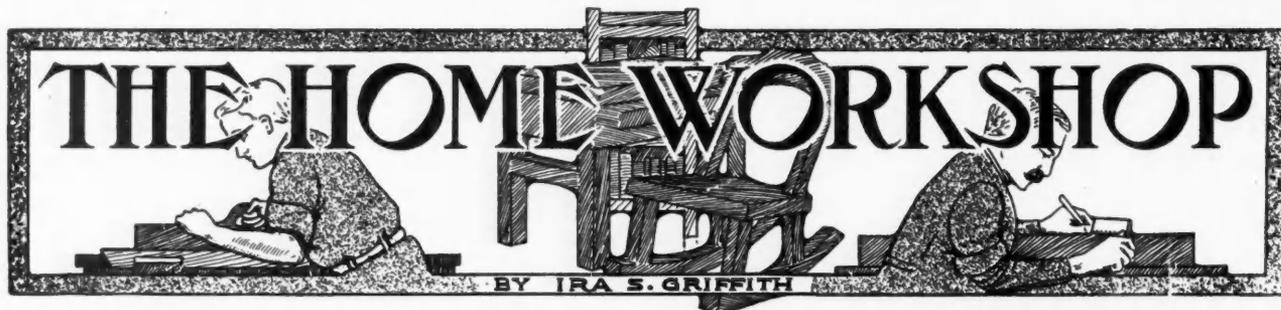
Skyscraping fences may be found in New York City on the upper West Side and on the upper East Side, on Fourth avenue in the new retail district, and on Fifth avenue in Millionaire row. How some of them came to be built may be inferred from this story of a citizen of Harlem named Harry Goodstein. He lives at the corner of Manhattan avenue and 119th street in a low brick house. Directly in back of him a tall flat building rears its bulk skyward. Goodstein conceived a dislike for the tenants in the flat building and for the general appearance of the hulking rear extension itself.

Complaining did no good; he could not alter the flat building and he did not want to move. So he built on the rear of his lot a corrugated iron fence 66 feet high and 13½ feet wide, which effaced the objectionable outlook completely. The fence cost \$300, but it made Goodstein happy. This Harlem fence with its height of 66 feet held the record for altitude for three years. It was eclipsed somewhat more than a year ago by the brick fence, or more properly wall, 85 feet, 9 inches high, built by the American Lithographic Company around the rear court yard of its big printing house at the southwest corner of Fourth avenue and Nineteenth street. The wall effectually blankets the windows of the 12-story business building erected on the site of the old Hotel Belvedere next door.

It is built in the form of a triangle, one side being 56 feet long and the other 24. The wall is of skeleton steel frame construction, anchored to the main south wall of the printing house and filled with a curtain of brickwork a foot thick. It cost \$5,500 to build. The only public explanation given for its erection was that it would serve as a "fire stop."



The Barber—Shall I go over your face twice?
The Patron—Yes, if there's any left.



Comfortable Furniture for the Library

HOW TO MAKE AND FINISH IN THE HOME SHOP THE BOOK RACK, LIBRARY TABLE AND BIG EASY ROCKER SHOWN IN THE PHOTO

WE HAVE chosen to illustrate the three articles described this month by means of a group photograph showing them in their home surroundings. The objects themselves do not stand out so distinctly but the surroundings add to the pictures and fully compensate for this. We have chosen the book-rack, the library table and the big easy rocker. All should be made of white oak, quarter sawed.

For the book-rack there will be needed stock mill planed on two surfaces as follows:

Base, 1 piece, $5\frac{1}{8}$ by 5 by $16\frac{1}{2}$ inches, S-2-S.

Ends, 2 pieces, $\frac{1}{2}$ by 5 by 5 inches, S-2-S.

Square up the base in the usual manner. Before

chamfering the ends, it will be advisable to work the ends and fit them into the dadoes that are to be made in the base to receive them.

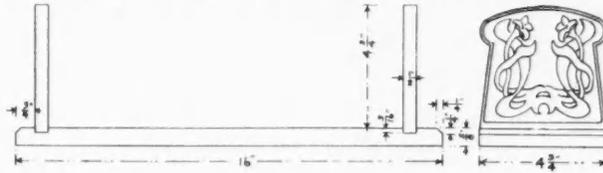
The design shown in the working drawing is merely suggestive. There are other forms that will be just as appropriate. Whatever form is used, let the lines be simple. An outline made up of long sweeping and short snappy curves is always more pleasing to the eye than one made up of a lot of curves of similar size and shape that make for monotony. Pleasing outlines may be got by means of straight lines alone. The decorative design, too, is merely suggestive.

In working these ends, square an end; then draw



HAND MADE FURNITURE IN THE HOME
Complete Directions are Given for Making the Big Rocker, Library Table and Book Rack

a center line. Work out the outline, one side of it, full size on paper. Fold the paper on its center line and trace the other half so as to get both parts symmetrical. It may be well to work up the decorative design on this same piece of paper. Cut out the outline; then place the paper pattern on the wood, center line on center line, and mark out the outline; the decorative design also, if it has been drawn. With the chisel or what ever tool is best suited, work the outline. The decorative design is best worked with a small veining tool such as wood-carvers use. If



CARVED BOOK RACK

ambitious, the background may be lowered and the leaves and flowers modeled by means of the carver's tools. If the decorative forms are to be modeled, the surfaces of the ends should be smoothed of the mill-marks beforehand. If the outlines are merely to be grooved the leaves and flowers should be put in color.

Having prepared the ends, lay out the dadoes and fit the ends into them. They are to be made secure by means of glue. A chamfer across the ends is to be made before gluing.

For a finish, use a small brush and put on the leaves

Library Table With Book Shelves

This piece of furniture is of rather unusual but very pleasing design. It serves as table and magazine or book stand as well, taking up no more room than a table alone.

Only the very best of well seasoned wood should be used. On account of the extreme width of the legs and the form of ornamentation, unseasoned wood that would be likely to warp would make a very unsatisfactory piece of work, more so than with the ordinary run of designs. Quarter sawed stock will be best because it is less likely to warp, due to the fact that the annual rings are cut at right angles.

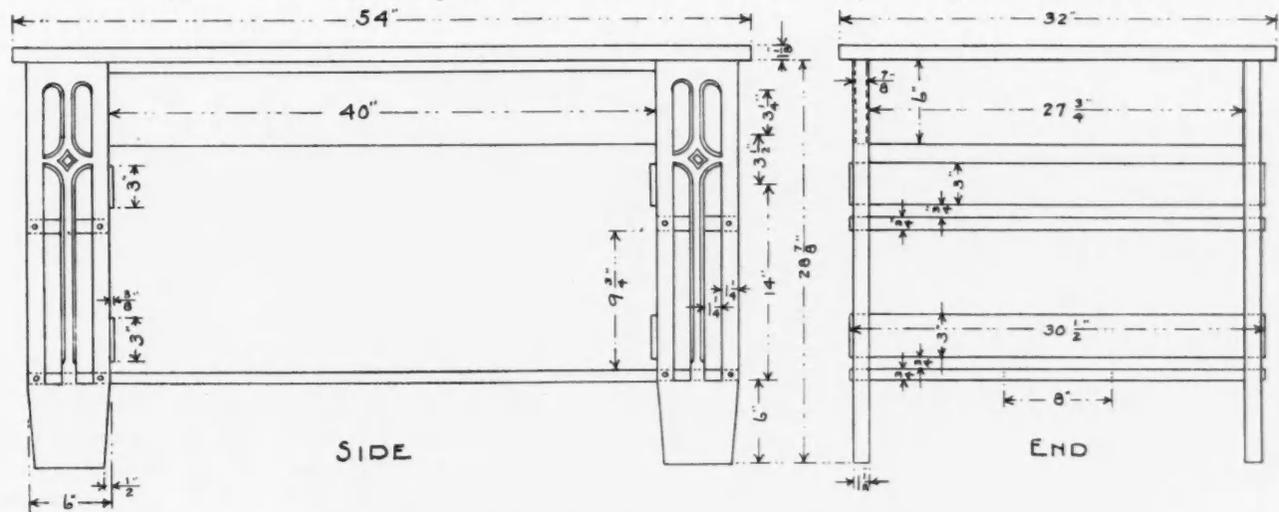
The stock bill is as follows:

STOCK BILL FOR LIBRARY TABLE.

Top, 1 piece, $1\frac{1}{8}$ by $32\frac{1}{2}$ by $54\frac{1}{2}$ inches, S-2-S.
 Side rails, 2 pieces, $\frac{7}{8}$ by $6\frac{1}{4}$ by 42 inches, S-2-S.
 End rails, 2 pieces, $\frac{7}{8}$ by $6\frac{1}{4}$ by 30 inches, S-2-S.
 Legs, 4 pieces, $1\frac{1}{8}$ by $6\frac{1}{4}$ by $28\frac{1}{2}$ inches, S-2-S.
 Shelves, 4 pieces, $\frac{3}{4}$ by $6\frac{1}{4}$ by 31 inches, S-2-S.
 Backs for shelves, 4 pieces, $\frac{3}{8}$ by $3\frac{1}{4}$ by 31 inches, S-2-S.
 Stretcher, 1 piece, $\frac{1}{4}$ by $8\frac{1}{4}$ by 42 inches, S-2-S.
 Moulding, 2 pieces, $\frac{1}{8}$ by $1\frac{1}{4}$ by $40\frac{1}{2}$ inches, S-2-S.

No provision is made for a drawer in the table. If one is wanted the necessary extra stock will have to be added to the list above.

Begin by squaring the top to the size indicated in the accompanying working drawing. The dimensions in the stock bill for this top presuppose that the worker will be able to get his pieces glued up at a mill.



LIBRARY TABLE WITH BOOK SHELVES.

a green spirit stain. On the flower a red spirit stain. Now give the whole a coat of brown or mission paste filler. The spirit stains when they are applied make the ends look rather barbarous with their brilliant colors; the filler, however, tones them down to the softness prescribed by good taste. When the filler has hardened, a second coat may be applied if the pores are not yet well filled. The directions for applying and working the filler will be found on the can in which it is purchased. Over the filler apply two or three coats of wax, rubbing and polishing it as directed on the cans.

Should no mill be convenient he will, of course, add enough to each piece's width to allow for proper jointing of the edges. If the mill is accessible, better get the top in one piece. The machines can do it better and cheaper than you can joint and surface it by hand.

Next square up the rails to the proper width and saw them to length properly. The ends need not be planed since they are to be made into tenons.

Square up legs of the table and shape the lower ends as indicated. With gauge and dividers carefully lay out the pierced ornamentation on one of the legs.

With bit and saw, work the shapes. A one-quarter of an inch chamfer is to be worked on both inside and outside of the legs where indicated in the working drawing. Before working these chamfers, however, use this leg as a templet or pattern and mark out the other three legs. Work them in a manner similar to that of the first leg.

Square up the shelves and shape and fit them to the legs. They are to be fastened to the legs by means of stout screws and these sunk below the surface far enough to permit their being covered with dowels which are to be glued in place and the ends rounded off.

The backs for the shelves are to be squared up to the same length as the shelves, each projecting one

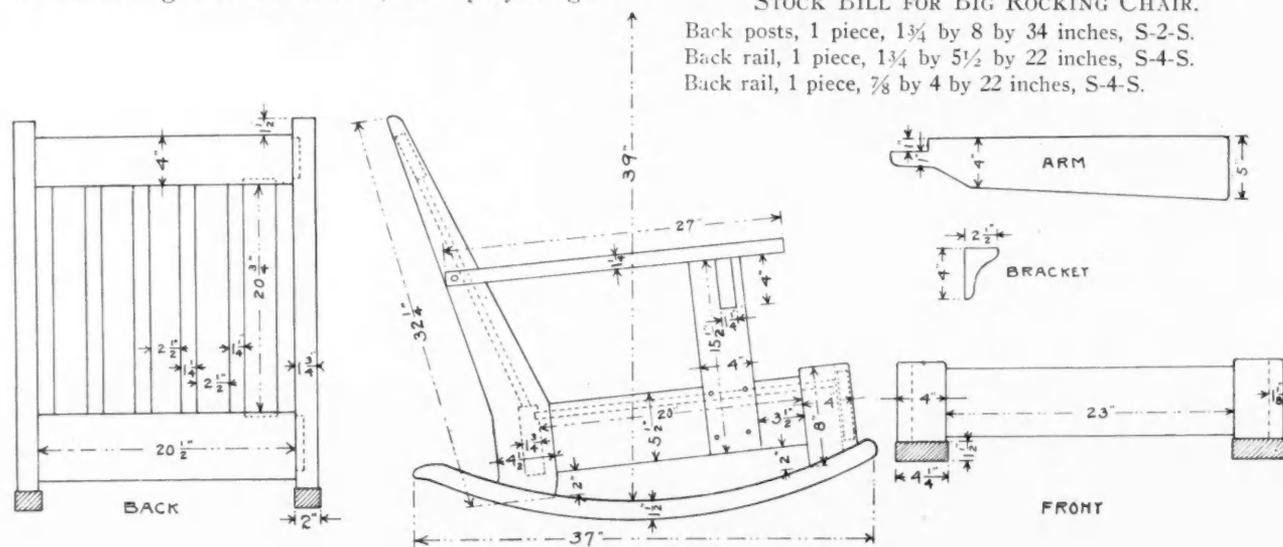
wood or interfere with the filler. Some people do not like the "contrasty" effects. In this case the thin shellac coat should be omitted, allowing the filler stain to tone down the highlights. Sand the shellac smooth using No. 00 paper and follow with a coat of orange shellac. On this, when dry, add two or more coats of some good rubbing varnish. Rub the first coats with hair cloth or curled hair and the last with powdered pumice and crude or raw linseed oil.

Big Rocking Chair

A rocking chair of very generous proportions is offered for the third piece. It should be made of the same material and can be finished the same as the table. For stock there will be required:

STOCK BILL FOR BIG ROCKING CHAIR.

Back posts, 1 piece, $1\frac{3}{4}$ by 8 by 34 inches, S-2-S.
Back rail, 1 piece, $1\frac{3}{4}$ by $5\frac{1}{2}$ by 22 inches, S-4-S.
Back rail, 1 piece, $\frac{7}{8}$ by 4 by 22 inches, S-4-S.



BIG EASY ROCKER

fourth of an inch beyond the legs and being slightly chamfered, about a sixteenth of an inch. These backs are to be fastened to the legs by means of ordinary nails and these are to be covered by old mission nail heads. These heads are made to represent the old hand-wrought nails and produce a very pleasing effect when used in connection with a mission or other dark finish.

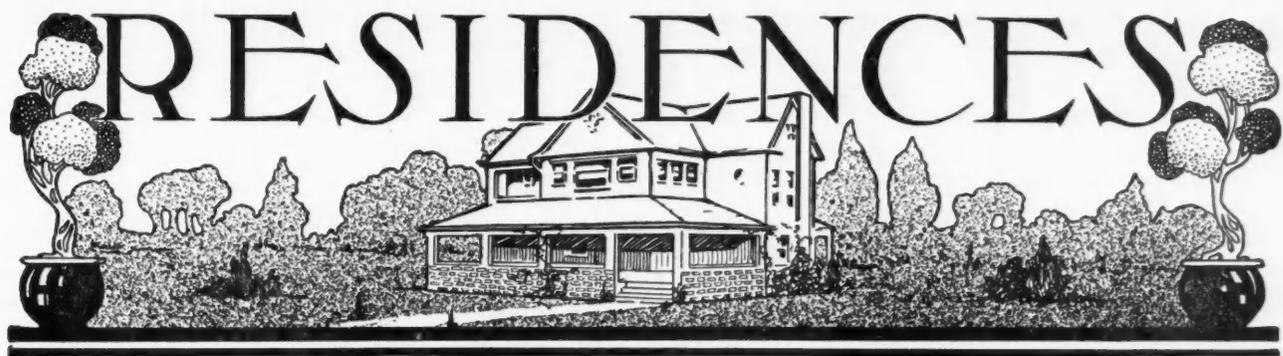
In assembling the table the ends with their shelves should be put together first, after that the side rails and the stretcher may be glued in place. The stretcher is to be tenoned well into the shelves for upon it will depend much of the strength of the table. Thoroughly scrape and sandpaper all the parts and remove all surplus glue preparatory to applying the finish.

For a finish, first put on a coat of water stain, mission, antique, etc., according to what you like. Allow this to dry then sand lightly to remove the "whiskers" raised by the water. On this apply a second coat of the same stain diluted by the addition of an equal volume of water. Sand lightly when dry then apply a very thin coat of shellac. This is to protect the highlights from the stain of the filler which follows. Being thin it does not fill the pores of the

Back slats, 5 pieces, $\frac{3}{8}$ by $2\frac{1}{2}$ by $30\frac{3}{4}$ inches, S-4-S.
Arms, 2 pieces, $1\frac{1}{4}$ by $5\frac{1}{4}$ by $27\frac{1}{2}$ inches, S-2-S.
Brackets, 2 pieces, $1\frac{1}{4}$ by $2\frac{3}{4}$ by $4\frac{1}{2}$ inches, S-2-S.
Arm supports, 2 pieces, $\frac{7}{8}$ by 4 by 16 inches, S-4-S.
Front rail, 1 piece, $\frac{7}{8}$ by $5\frac{1}{2}$ by 25 inches, S-4-S.
Side rails, 2 pieces, $\frac{7}{8}$ by $5\frac{1}{2}$ by 22 inches, S-2-S.
Front posts, 2 pieces, $1\frac{1}{8}$ by $3\frac{1}{4}$ by $8\frac{1}{2}$ inches, S-2-S.
Front posts, 2 pieces, $1\frac{1}{8}$ by $4\frac{1}{4}$ by $8\frac{1}{2}$ inches, S-2-S.
Rockers, 2 pieces, $1\frac{1}{2}$ by $4\frac{1}{2}$ by 39 inches, S-2-S.

It is intended that the back posts shall be got from one piece of wood. A little foresight in laying out the pieces will indicate how this is to be done. The rockers are to be bent to shape. A form, having slightly more curvature than what the working drawing calls for in the rockers will be needed. The wood will need to be steamed and clamped to this form and then allowed to dry.

No allowance is made for slats in the bottom in the stock bill although their location is indicated in the working drawing. If good heavy cushions are to be used, and they should be used, the bottom may be made of slats. The necessary stock will need to be ordered. A much better way, however, even with the heavy cushion is to have the chair upholstered with good springs. This is not at all a difficult task and can be done easily by the amateur.



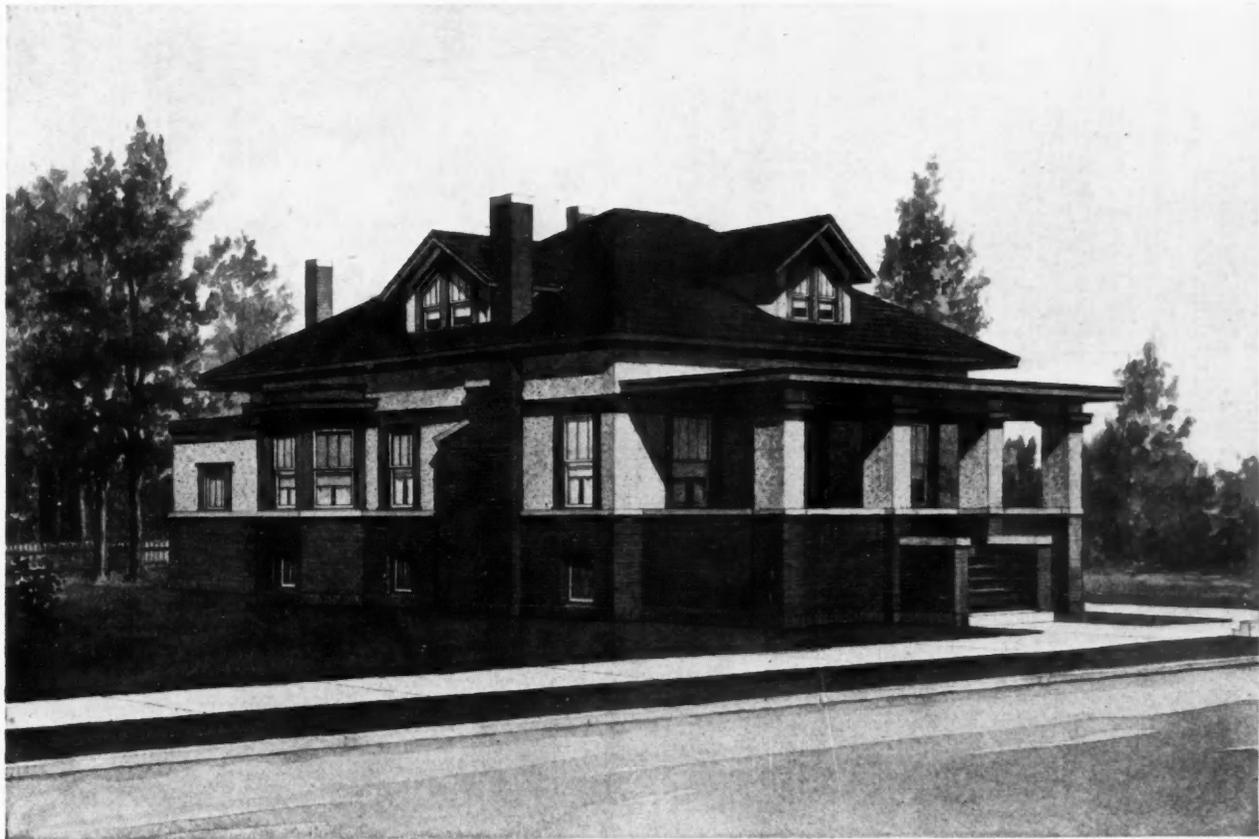
Plans for Brick Veneer and Stucco Cottage

COMPLETE WORKING DRAWINGS, TO SCALE, FROM WHICH THIS ARTISTIC SEVEN-ROOM BUNGALOW CAN BE BUILT

ON this page we are showing the perspective drawing of a cottage or bungalow of seven rooms, built of timber with an exterior finish of face brick and cement plaster. The complete set of architect's drawings from which this dwelling was put up is reproduced on the five pages immediately following this. These will be found to be very com-

plete in them are the "built-in" features, the seats, bookcases, mantel and buffet.

The two bed rooms provided on the first floor are well placed for privacy and convenience. The inside hall connecting with the bath room and into the dining-room, solves easily what is frequently a hard problem. Upstairs, under the roof, there are two very nice



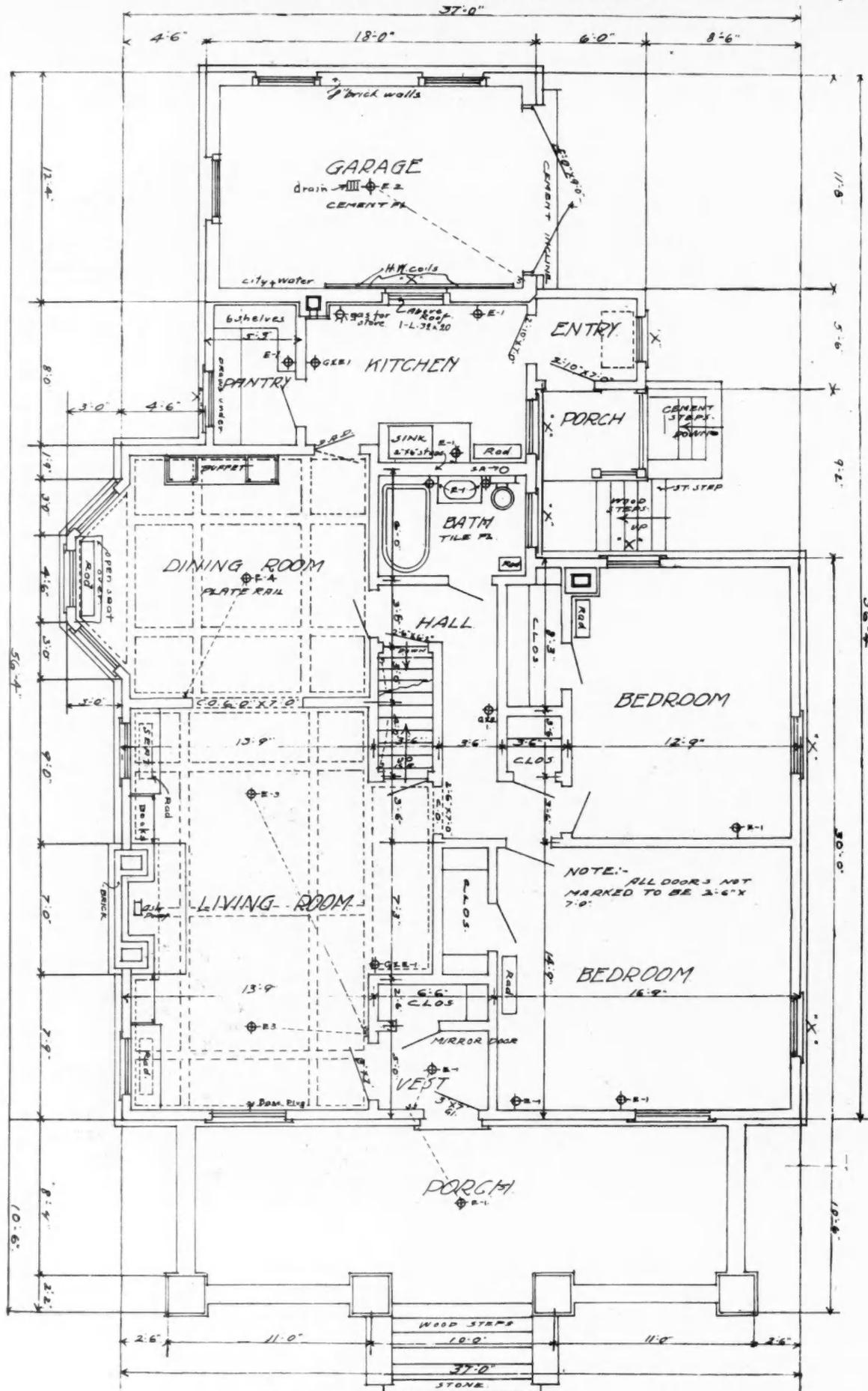
Very Attractive Seven Room Cottage Designed for Mr. J. A. Beckwith of Chicago.

plete; and as they embody many new and good ideas it is hoped that those interested or engaged in home building may obtain some real help from them.

It will be noted that the position of the electric fixtures are all indicated, also the wiring to the switches. An attractive beam ceiling scheme is shown (in dotted lines on the plan) for the living room and dining-room. These are two exceptionally pleasant rooms. Prom-

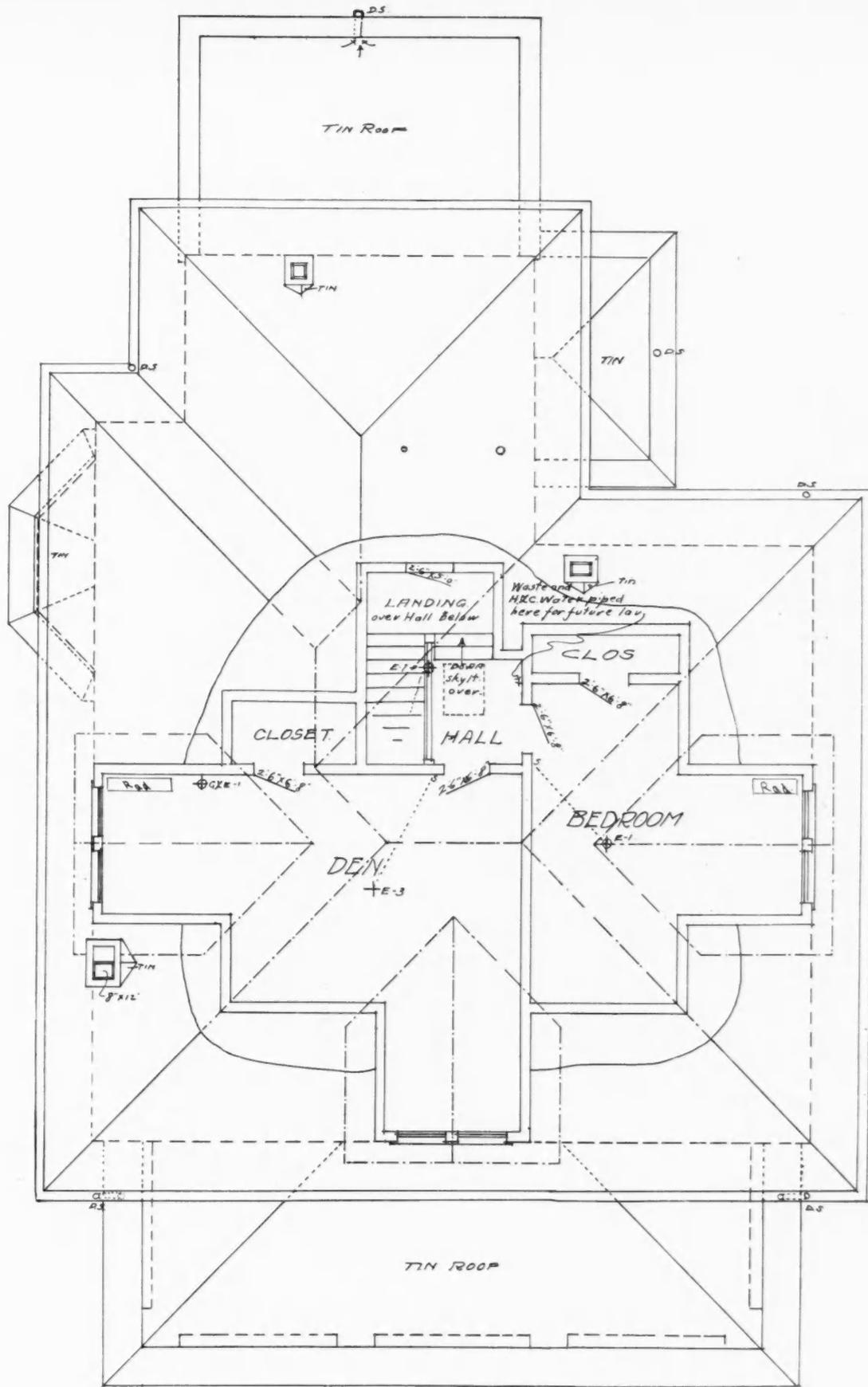
rooms, somewhat cut up but none the less attractive on that account. The high basement is cemented and finished throughout and forms a very important part of this house.

Something of a novelty is the garage attached to the rear of this cottage—a desirable feature with many who are building this year, who own automobiles and want to have them "stabled" near by.



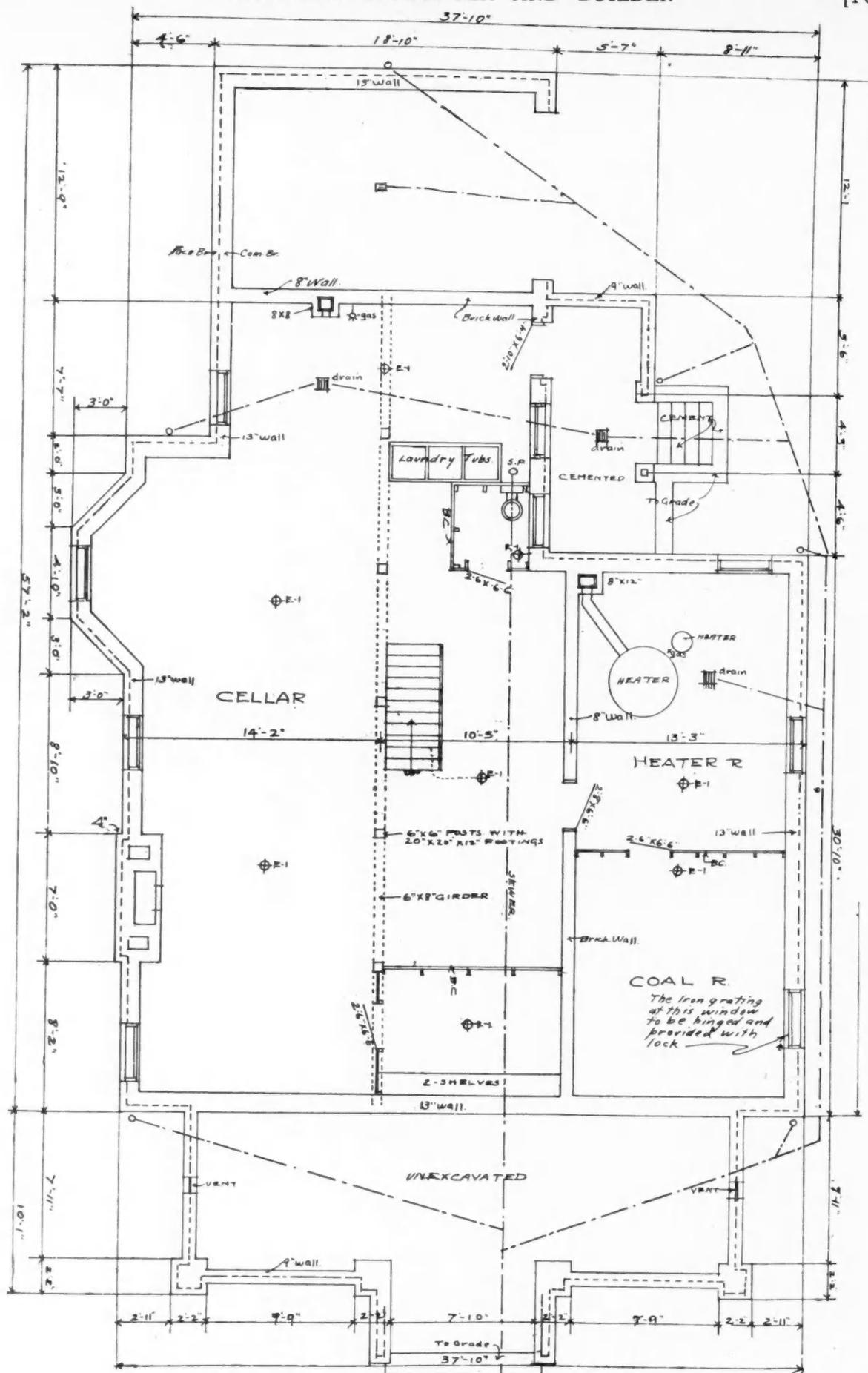
FIRST FLOOR PLAN

Cottage Shown on page 65



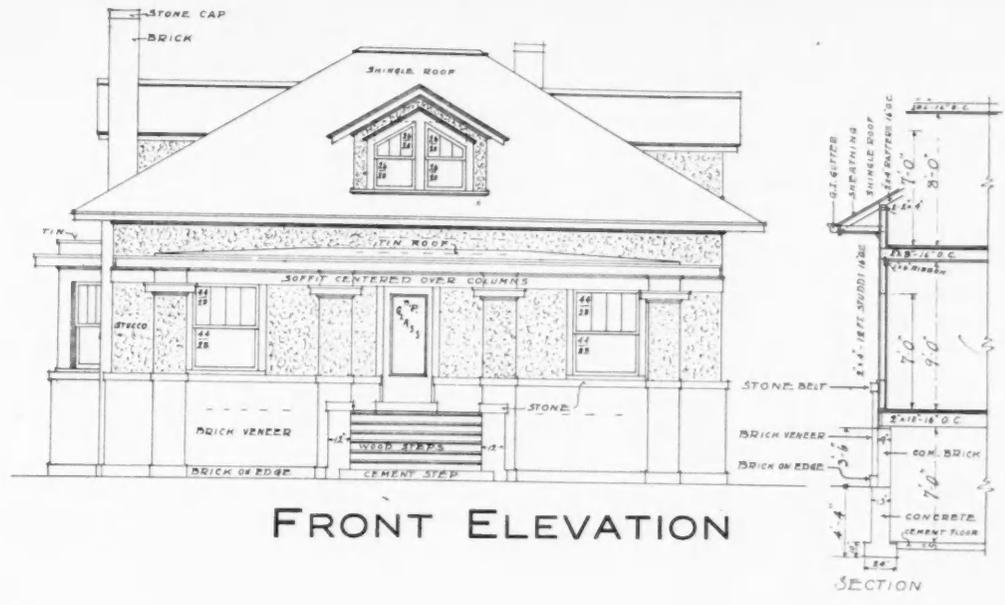
SECOND FLOOR AND ROOF PLAN

Cottage Shown on page 65



BASEMENT AND FOUNDATION PLAN

Cottage Shown on page 65



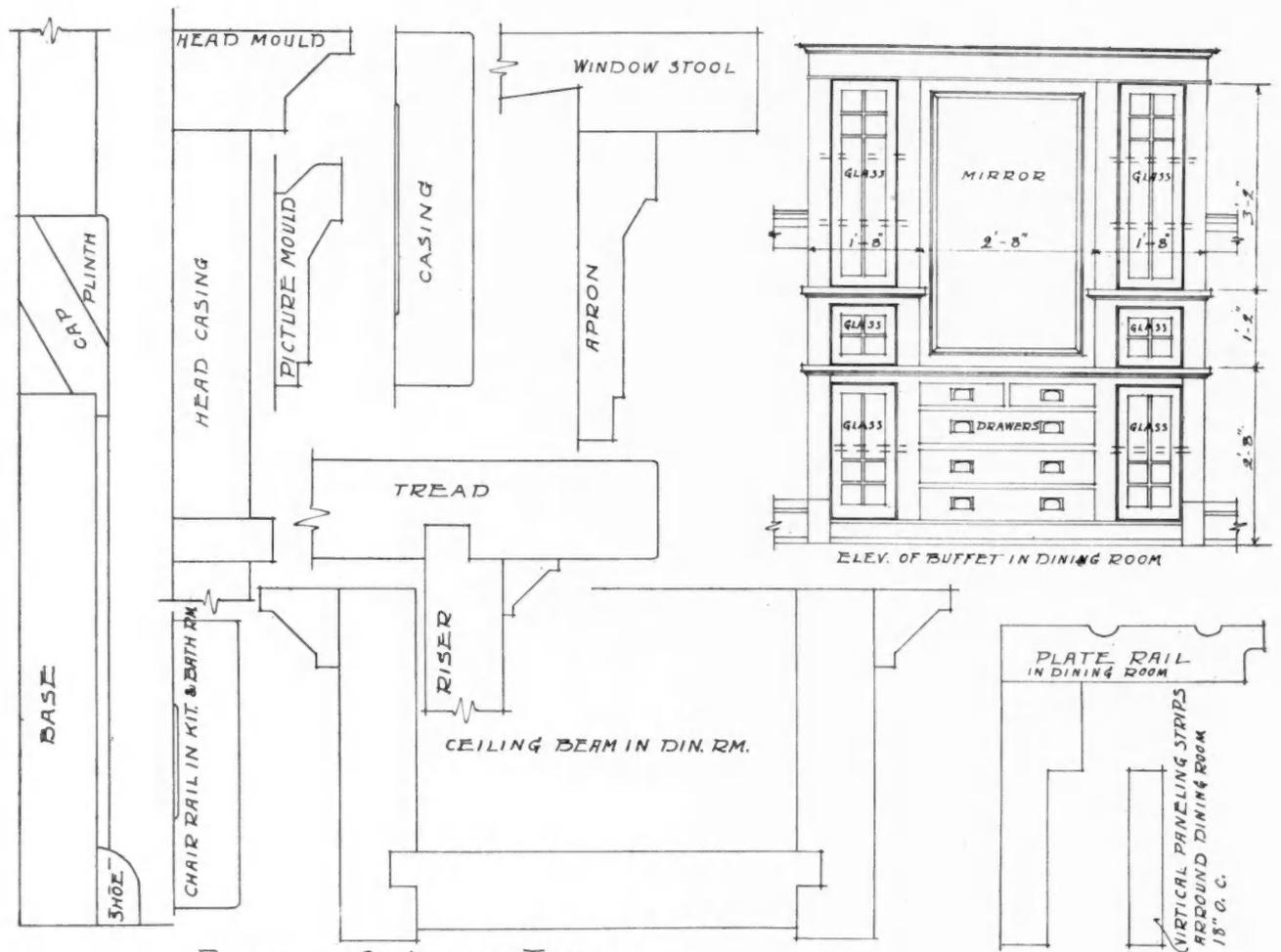
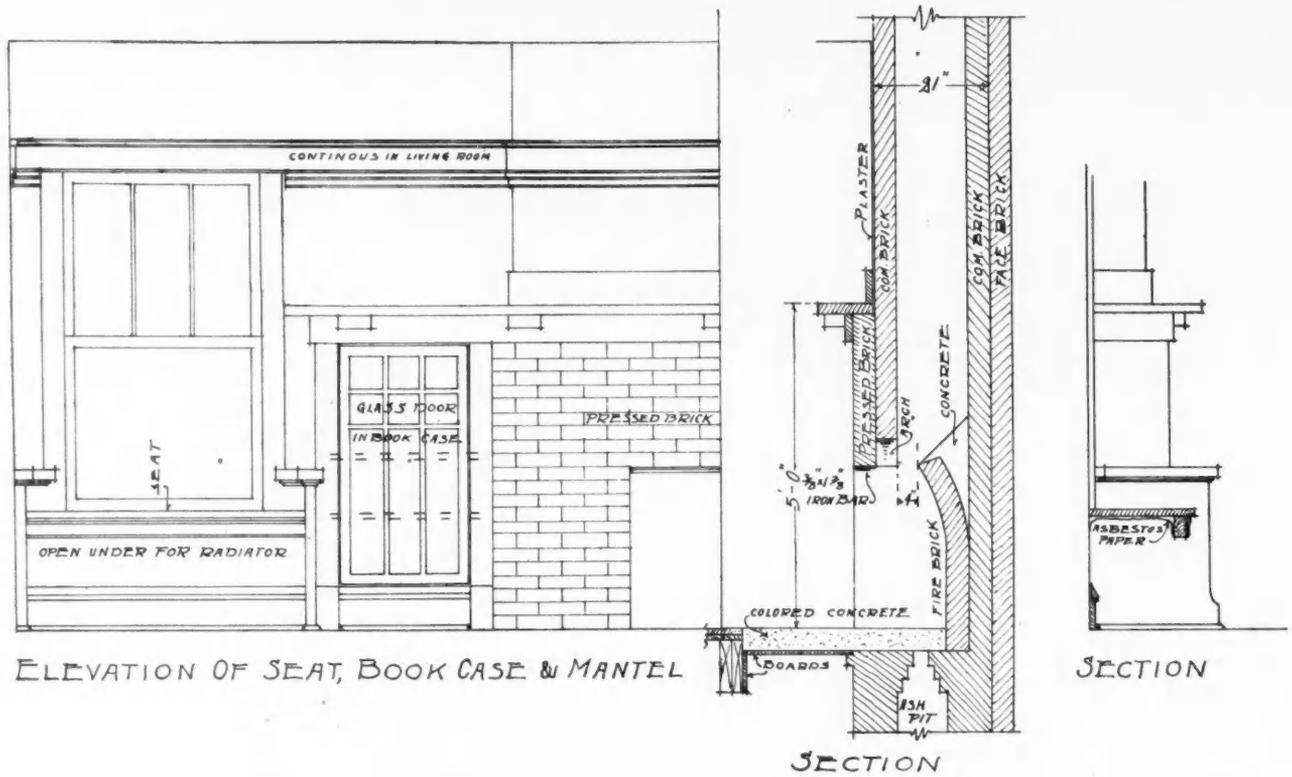
FRONT ELEVATION



LEFT SIDE ELEVATION



RIGHT SIDE ELEVATION
Cottage Shown on page 65



DETAILS OF INSIDE TRIM
DETAILS OF INTERIOR FINISH

Cottage Shown on page 65

CORRESPONDENCE



The Reason for Diagonal Boarding

To the Editor: Rumford Falls, Me.
 In the October number W. D. Graves of Missoula, Mont. explains at some length how the "pig headed" man failed to give any adequate reason for laying his under floor diagonally, and closes his letter with the remark that under some circumstances it might be advisable to lay it that way, but he allows the impression to be formed that he does not know the reason himself. But there is a reason, and a very good one, too.

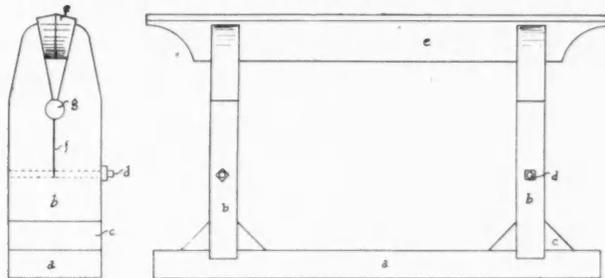
Every carpenter of experience knows that it is much easier to lay a hard-wood floor and do a first-class job by laying the flooring crosswise of the under floor. In some rooms this can be done, and in others it cannot, but if the under floor is laid diagonally you have the same advantage whichever way the top floor is laid. We all know how impossible it is to get a perfect under floor, the boards will vary a little in thickness, sometimes they will warp and twist a little, and when the hard-wood floor is laid the same way, either you have got to do a lot of shimming at some points or do more planing and buffing in finishing, and perhaps have some open joints.

In regard to the diagonal wall boarding, I should agree with Mr. Graves.

W. I. WHITE.

A Wooden Saw Vise

To the Editor: St. Joseph, Mo.
 A saw vise that can be easily made by the ordinary mechanic and which will hold the ordinary hand saw for its whole length while being jointed and filed is shown in the accompanying drawings. The frame is made up of a rectangular base (a) 1½ inches thick, 5 inches wide and 2 feet long, into which the two standards are gained. To make the up-



END VIEW. SIDE VIEW.
 rights a little more solid, triangular strips (c), are nailed into the corners as shown in the side view.

The end view shows the construction of the uprights which are made as follows: The uprights are 1½ inches thick, 5 inches wide and 12½ inches long and are gained into the base ½ inch. Four inches from the base of the upright, holes are bored and a carriage bolt placed in each as shown at (d), to prevent the uprights from splitting. Eight inches from the bottom in a median line, an inch hole is bored as shown at (g).

Lay off 1 inch on each side of the center line at the top of

the uprights and saw out the wedge-shaped piece, tapering it from 2 inches at the top to ½ inch where it enters the hole (g). Make a saw cut (f) down the center line to the bolt to enable the sides to spring apart under pressure.

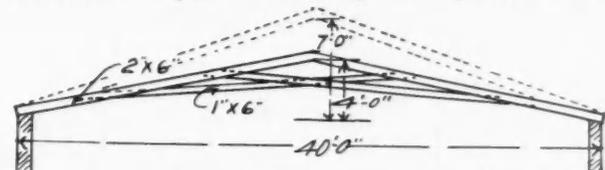
The most difficult portion to make is the two wedge-shaped pieces (e), which slide down into the V-shaped uprights. Perhaps the easiest way is to cut and try, although the bevels can be taken from the drawing, as shown in the end view. These two little strips are about 25 inches long but the length can be varied to suit. The ends can be cut some fancy shape as shown in the side view or left square.

The method of using is to place the strips (e), one each side of the saw and next to the tooth edge and drop them into the uprights which will hold them rigid. In some cases it may be necessary to tap them down a trifle in case the saw is not held closely enough. This vise can be made from either hard or soft woods but in any case the clamping strips (e) should be well fitted and hold somewhat better if made from soft wood.

H. C.

Safe Depth for Roof Truss

To the Editor: Malcom, Ia.
 I have been a subscriber to the AMERICAN CARPENTER AND BUILDER for some time and am more than pleased with it. I wish to submit a question concerning a building I have to build



and want a little advice in regard to roof. The dimensions are 40 by 60 feet with 10-foot walls made of cement blocks. The first idea for the roof was to splice joist and use three trusses of 6 by 8's, then purlin the rafters. However, the owners wished to do away with joist and give the roof 4-foot pitch in 40.

I suggested using 2 by 6 rafters, which would be close to 22 feet in length and trussing each with a 1 by 6, 16 feet long, as in the sketch.

Will that carry the weight on that span of 40 feet? If it was a steeper pitch I know it would but wish you would state in the February number what is correct. If you have a better method it will be gladly received.

I have another question I would like advice on. The front of the building is built up square above the roof of cement blocks; how is the best method of fastening roof to the wall and flashing with patent roofing.

G. L. ROYCE.

Answer: While this method of framing the self-supporting roof is as good as any, it would not be strong enough for such a flat roof unless very much heavier timbers were used than you intend. Why not increase the slant, giving about 7 feet for the truss depth instead of 4, as figured on? The roof would then be safe and good and the total cost would be no more.

EDITOR.

Gothic Roof Barn

To the Editor:

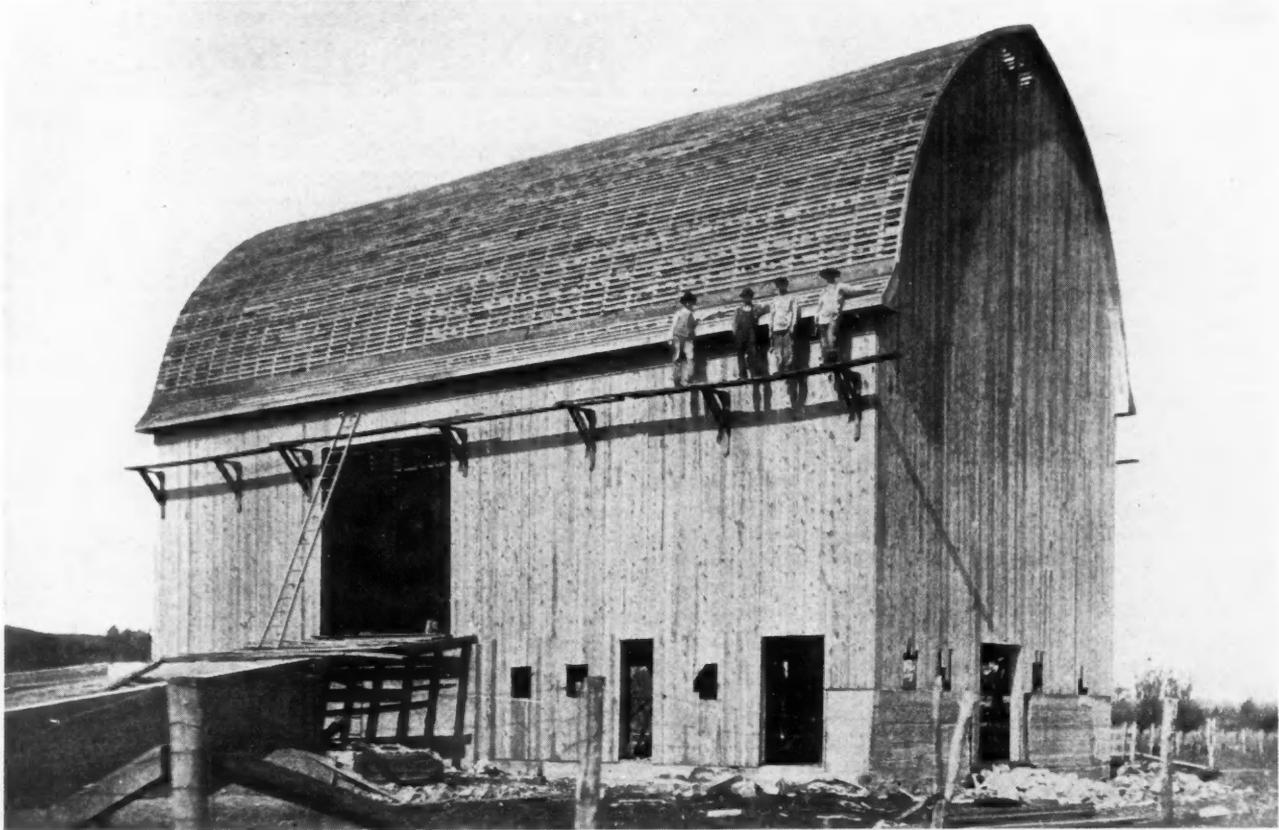
Highland, Mich.

The accompanying photograph and framing plans are of a barn that I recently erected, to replace a gambrel roof barn that I erected last year and which was destroyed by fire caused by lightning.

As I do not pose as a barn builder, or solicit work in that

something long to be remembered.

I began to raise the basement frame on this barn about 9:30 a. m., with twelve or fifteen men to help during the forenoon and at four o'clock in the afternoon we were up to the plates and had the purlin posts set. Considering the style of basement and size of barn, I think we did remarkably well. The barn is 36 by 66 feet, resting on a 5-foot wall at each end.



Gothic Roof Barn 36 by 66 Feet in Size, Built Near Highland, Mich.

line, I do not keep an equipment for raising barn frames. Think I would prefer having an old-fashioned "raising" anyway, as many hands make light work; and it is soon done, and at the same time makes a sort of a gala-day for the neighborhood. We all enjoy meeting together on such occasions and the glorious feast prepared by the fair sex is

The picture shows the cornice and ribs on, ready for the shingles. The ribs are 1 by 2½ inch strips spaced with the shingles, allowing a rib for each row of nails. This makes a light and economical roof and one that dries out quickly after a soaking rain. The rafters are made by bending five ⅞ by 3 inch strips around a form and nailing thoroughly. After the frame was raised and while the front and rear were being sided I had the floor laid; and on this I struck off the circle for the rafter form. Four inch blocks were then

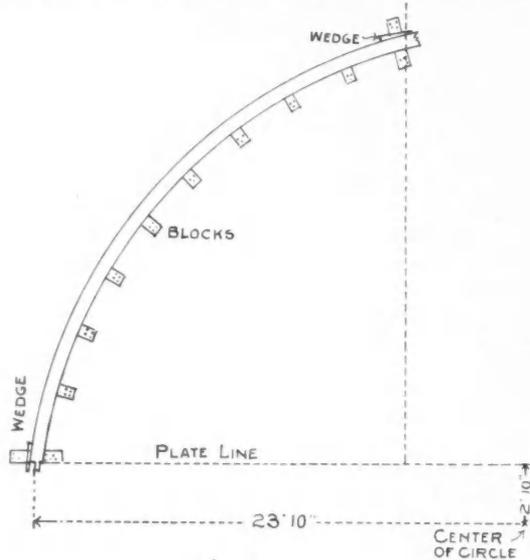


FIG. 1.

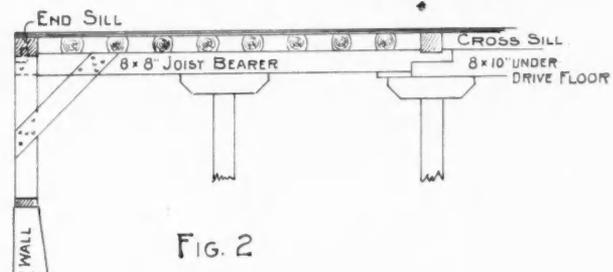


FIG. 2

nailed solidly to the floor flush with the circle line (Fig. 1) and the strips for the rafters were bent to the blocks by means of a cant hook. I began by taking three strips of different lengths, setting the inside or bottom one up 2 inches from the other two, so as to form the tenon. These were wedged between blocks at the starting point and then bent to the form by one man with the aid of the cant hook and nailed with 8d. nails by another, who continued around the form,

letting the last piece project beyond the end till well nailed. Another strip was then bent around, breaking joints and nailed with 10d. nails; then the last strip was placed on and nailed with 20d. nails. The last two strips were set up 2 inches to form the shoulder of the tenon at foot of rafter to set in a mortise in top of the plate. I had the cornice marked out full size and the point of rafter was indicated by marks across the blocks at that place. I also laid off the spacing for the ribs by squaring up from the spacing on the floor.

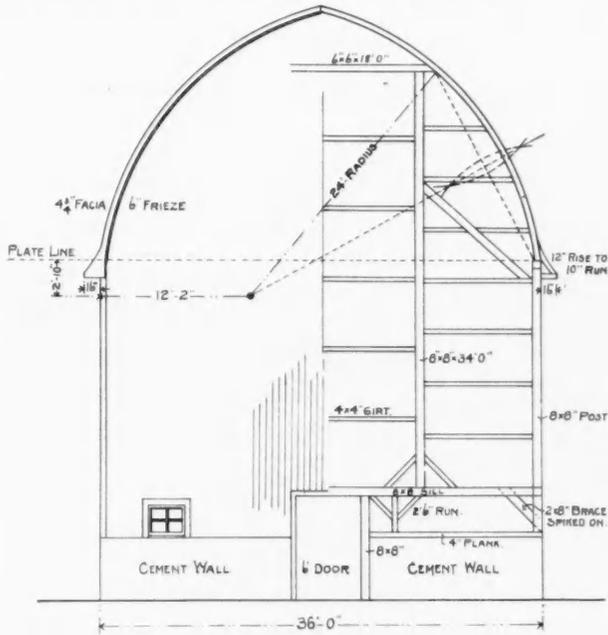


FIG. 3.

A stay was then nailed on the foot of rafter and then marked for sawing off; then it was raised from the form, sawed and spiked from the under side.

Fig. 1 shows the method of bending and shaping the rafters. Fig. 2 shows the girders, sleepers and basement posts and Fig. 3 shows the east end elevation. The facia and frieze were made up of 7/8-inch square stuff bent and thoroughly nailed in the same way as the rafter, using slim nails for the purpose.

ALBERT GONNE.

Flat Roof for Brick Livery

To the Editor: Red Level, Ala.
I hope I am not too late in my renewal. I do not wish to lose a single copy of the paper, the AMERICAN CARPENTER AND BUILDER.

I wish to ask you a question or have some information on a roof question, I have to work on.

The building is a brick sale-stable, 50 by 100 feet, with 12-foot ceiling. I wish to know how to put a flat roof on the

same so it will not leak. How much fall per foot ought the water ways to have and how should they be located.

The parties having the work done wish the roof put on as the enclosed drawing. I wish you to correct me on the same.

Is it a practical way? I suggest short braces of 1 by 4 or 6, to be nailed from rafter to ceiling joist, where dotted lines are. The walls are to go 4 feet higher than the ceiling and slope off to the back. On the right side the upper 2 by 4 represents the front end of the roof, and the lower one the back end, which is 18 inches fall in the 100 feet. Would that be enough with one 4-inch down spout at each side? I have not done any roof work on brick buildings and I would like to see some illustrated.

C. G. LEITZMANN.

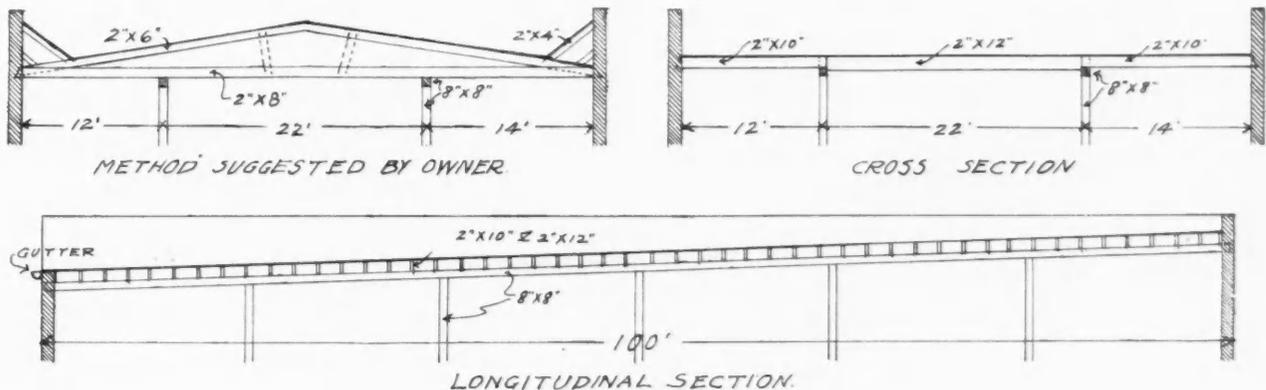
Answer: The accompanying sketches will show you how problems of this kind are ordinarily handled. It makes a better and less expensive job, all things considered, than the method you have proposed. The cross section and longitudinal section will show you all you will wish to know about the details of this arrangement.

EDITOR.

Graves Takes a Crack at Blind Nailing

To the Editor: Missoula, Mont.
While conservatism, in moderation, is commendable, it is as liable as other traits to be overdone. Clinging too tenaciously to the old and tried is as much to be decried as is too much readiness to take up with the new. We are all too apt to flatter ourselves that we are conservative; when, in fact, we are bound by the fetters of habit—habit that grows in weight and retarding power like the barnacles on a ship. Some of us are just plain pig headed. All of which was suggested by seeing a man blind-nailing the flooring which he was using for sheathing on a house.

I have seen a man make a door from flooring by blind-nailing it on the cleats. In that case the strips were practically pivoted; and, as soon as the stock shrunk a bit, there was nothing whatever to prevent sagging. Flooring and ceiling, used as such, should be, and usually are, thoroughly dry. It requires but little to hold them in place, and such holding in place is all that is required of the nails. Blind-nailing, for such purpose is usually the best method; but, when there is no occasion to hide the nail heads, and where security is of moment, it is about the poorest way one can choose. At the edge where the nail is driven the hold is tolerably secure; though even that edge is rarely drawn down to that firm contact which gives the most secure results. The other edge, if the stock is thoroughly dry and the matching tight, is held well enough for top flooring; but, if there is any exposure to the weather, any strain comparable to what would be an upward one on a floor, or any racking stress like that to which sheathing is subject; or, if any material shrinkage is to be expected, the latte. edge is not secured at all. In case of sheathing—for which purpose a



cheap grade of flooring is much used—the conditions and requirements are entirely different from those of flooring as such. There is no occasion for hiding the nail heads (which, by the way, is really the only excuse for blind-nailing), and it is highly desirable that the sheathing should serve to stiffen the building. Moreover, sheathing is somewhat exposed to the action of the weather, and should be secured against warping. Usually, too, the flooring used for this purpose is less thoroughly seasoned than that used for flooring proper.

Blind-nailing, it is true, is a very convenient and effective way of drawing the stuff to a tight edge joint, and may be permissible as a way of securing one edge; but, if the job is such that it is at all possible, one should put a nail in the other edge as well. Any sheathing, however narrow, should have at least two nails in each stud; for, as buildings are now framed, they depend for stiffness almost entirely upon the sheathing. In case so many nails cannot be afforded, two nails in every other stud, taking alternate studs for alternate boards, are better than one nail in each stud; even though such nails are zig-zagged, or staggered.

Also at Miter Joints

Another habit which has a tendency to over prevalence is that of the miter joint. Like blind-nailing, it is but a wood-working makeshift. It takes nerve, as well as the fortification of many years of practical experience and observation, to make that statement; but it is true. As we all know, one of the first principles of carpentry, if not the first, is that wood shall be so joined that shrinking or swelling shall tend as little as may be to open the joints. Wood is bound, whatever its location or condition, to shrink or swell; and either change is bound to open a miter joint. Circumstances and conditions may be such that this change will be inappreciable; and any joint other than a miter may be impracticable. Under such circumstances, of course, one should use it; but, wherever it is avoidable, it should be avoided.

Aside from the opening caused by the almost inevitable change in the wood, the miter joint is one which it is practically impossible to make at all strong. For picture frames and the like it is unobjectionable—for many such mouldings it is unavoidable—but, for anything requiring appreciable strength, it is about the worst joint possible. If one always chooses, from the available forms of joint, the one which will be least affected by shrinkage or swelling of the wood, he will never make a miter except when it is the only joint practicable in the case.

W. D. GRAVES.

To Prevent Leaks Over Bay Windows

To the Editor:

Milford, Conn.

It seems to be a very difficult matter for a carpenter to build a bay window that will not leak in a bad rain storm. There are comparatively few bays built that do not have a window or a large double-window directly over them, and the leak is almost invariably down the side of the casings of these windows. The bay window may be well roofed and the tin turned up under the siding for 5 or 6 inches, yet it will leak, and where the water gets in will be a mystery to a close observer. Water-tight joints are not always made in siding and sometimes the casings shrink from the siding; then the rain beats in by the side of the casing of the upper window and runs down behind the tin turned up from the roof, thus causing a leak.

To prevent this, saw through the sheathing under the window casing and to about 6 inches on each side, slanting the same upward in sawing. Now put a piece of tin well into the saw kerf, and bend it down over the tin that turns up from the roof; then after the siding is properly put on, we have a bay window that is positively water tight. Care should

be taken in siding not to drive the nails too near the roof. It is better to slant them a little upward in driving. In no case should the sills of the upper windows come closer than $4\frac{1}{2}$ inches to the roof of the bay window, as it is necessary to have room for the tin to insure a good job.

H. W. GOTTSEGEN.

Hard Wood Border in Bay

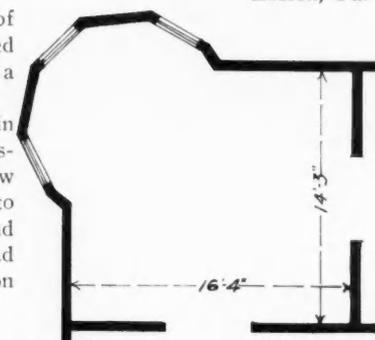
To the Editor:

Easton, Pa.

I enclose the plan of a room in which I layed a hardwood border for a 11 by 13 foot rug.

Will you put this in your paper for discussion? I want to know which way is the best to fill in the space around the window, as we had considerable discussion about it here.

CLARENCE R. MAJOR.



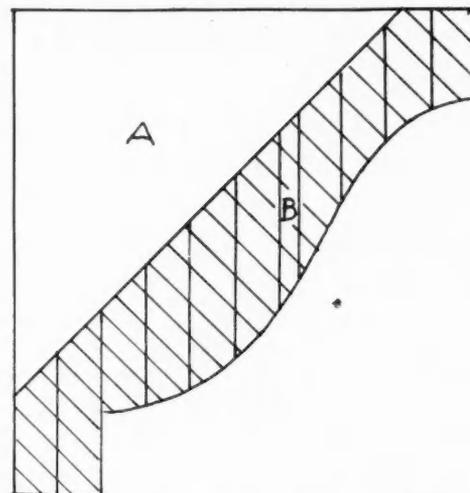
Cheap way to Develop a Circular Mould

To the Editor:

Rumford Falls, Me.

I have been a reader of your valuable paper for several years, and get much information from its pages which is a constant help to me in my business. I have been in the building business twenty years, and am all the time running up against knotty problems, sometimes solving them myself, sometimes receiving a hint from a brother workman that fits the case, and sometimes find the solution in the "trade paper," a constant reader of which I have always been.

I therefore agree with G. Ray Manaffety in the September number, that we should always be willing to help our brother carpenter by the discussion of any question brought up. He shows how he overcame the difficulty of bending a crown



moulding around a circular veranda, and I doubt if there is any better way; but I have overcome the difficulty many times on cheap work in a cheaper way.

First fasten to the fascia, blocks, A, every few inches as the case may demand. Then if you have access to a fine cutting circular saw—and if not use your rip saw—strip the moulding into strips about $\frac{3}{8}$ inch thick, beginning at the fillet. Make an extra strip (B) to make up for saw kerfs. Begin at the fillet and nail in place, using very small nails, and after complete, smooth up and you will find that you have a satisfactory job that has cost you less than if it had been done in any other manner.

W. I. WHITE.

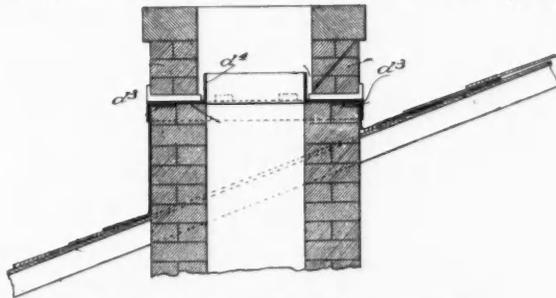


CONDUCTED BY WATSON & BOYDEN, PATENT LAWYERS AND SOLICITORS, WASHINGTON, D. C.

Damp Proof Chimney Construction

973,023—Patented Oct. 18, 1910, by Alfred W. Fletcher, of Brooklyn, N. Y.

This invention relates to means for preventing dampness from seeping through chimneys from the outside. It consists in a sheet metal guard which is inserted in the chimney during



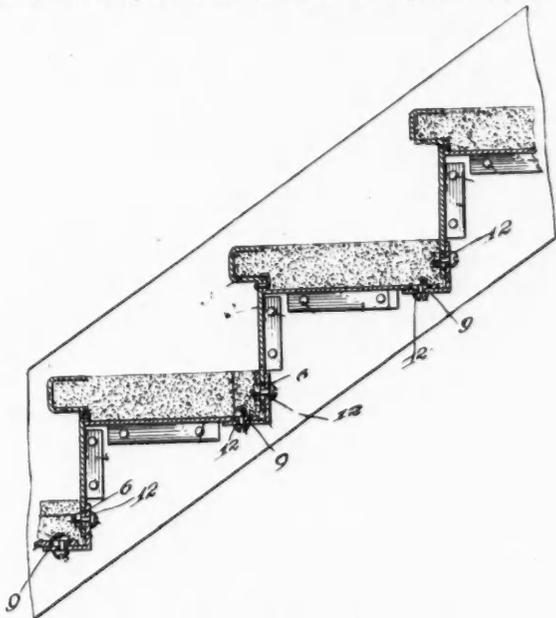
Sheet Metal Guard Keeps the Water Out

the course of construction. This guard has flanges d³ which overhang the outside of the chimney and an upstanding flange d⁴ inside the flue which prevents water running down the inside of the chimney.

Adjustable Fire Proof Stairs

973,109—Patented Oct. 18, 1910, by Alvah A. Griner, of Chicago, Illinois.

The idea here is to provide stock risers and treads for stairs which may be of standard size and pattern and at the



Adjustable Concrete and Steel Stairs

same time permit building of steps of different widths and heights. To this end the risers and treads are connected by means of bolts passing through slots as shown at 6, 9 and 12, whereby the supports may be relatively adjusted.

Cleat for Securing Prepared Roofing

973,902—Patented Oct. 25, 1910, by William H. Woerheide, of St. Louis, Mo.

This device is designed to be used with prepared roofing instead of the usual nails and caps. Instead of the round cap, the inventor employs an elongated, inverted trough which is



No Cement Needed with this Cleat

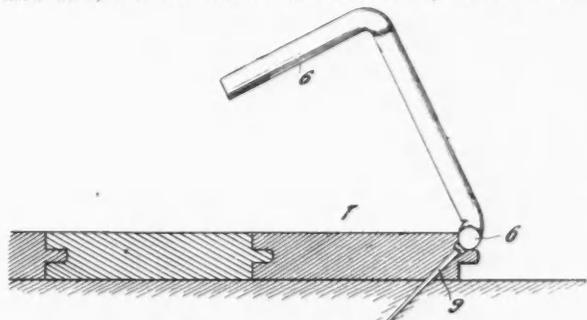
formed of resilient metal, such trough being placed end to end close together along the edge of the roofing. The inventor claims that this device will effectively form a leak proof roof without the use of any cement whatever.

Flooring-Tool

977,708—Patented Dec. 6, 1910, by John E. Burns, of Minneapolis, Minnesota.

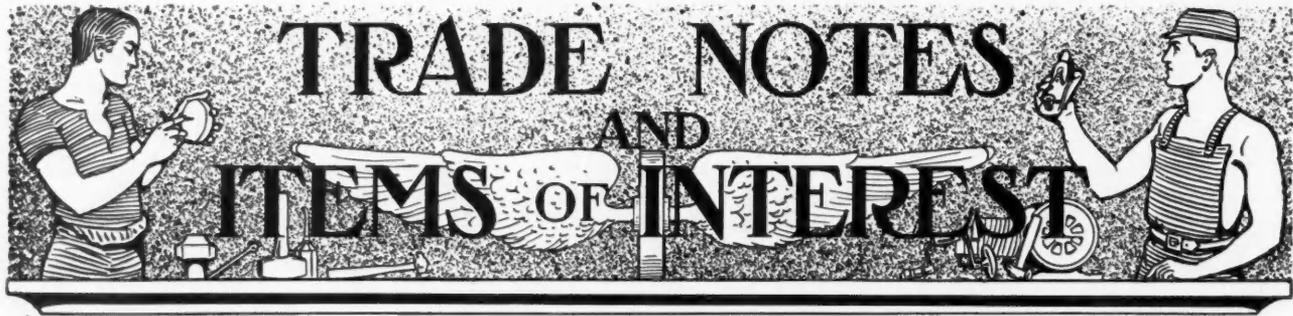
This invention relates to improvements in devices employed for nailing down floors consisting of boards having interlocking tongues and grooves, and it has for its object to provide a simple and efficient device of this kind by the use of which the nails may be set, and the boards interlocked in the most expeditious manner.

A board to be interlocked with the board already in place, is positioned as shown, the first-mentioned board being indicated at 7, and the nail to be driven at 9, the latter being



Flooring Tool Drives Nail Without Bruising Tongue

driven obliquely through the board from the tongued edge, as usual. The nail is started by hand, after which the tool is used to drive it, and at the same time to bring the groove of the board over the tongue of the last board. The bends 6 are straight throughout their entire length, to permit the herein-described operation.



Yes, It's a Blacksmith Shop

It is not often that we see the purpose and use of a building so clearly indicated in its design as in this ingenious creation by Wm. Hurst, a building contractor of Glendive, Mont. You will note that no glaring lettered sign is needed above this door to let one know that this is a blacksmith shop.

Through an ingenious use of concrete blocks and moulded cement work, a building has been made which is at once



The Facade Tells Its Own Story

useful and ornamental. The shop is 40 by 110 feet in size. The front is 20 feet high, while the horse-shoe doorway is 14 feet high. The smaller horse-shoes used for windows are 5 feet. A good cement floor was laid over the entire shop. It is stated that Universal Portland cement was used in this work and that the total cost of the building was seven cents per cubic foot.

Church Tower Moved Intact

In the issue for September, 1910, *L'Architecture et al Construction dans le Nord* reports the moving intact of a church tower, covering a superficial area of some 1,100 feet and 150 feet high a distance of about thirty feet. The operation was made necessary by alterations and the enlargement of the building, and was performed without disturbing the continuous working of a sixteenth century clock installed in the tower. The work occupied ten days and was successfully carried out by a firm of American contractors familiar with such operations.

Covering Pulleys with Leather

A successful method of attaching leather or paper to metal in the case of band-saw wheels, is told by a reader of *Machinery*.

First soak 12 ounces of good glue in cold water. Put 4 ounces of boiled oil and 4 ounces of turpentine into the glue-pot, and in this dissolve 3 ounces of resin. When the resin is dissolved, add the glue. The resin and glue should be well stirred while dissolving.

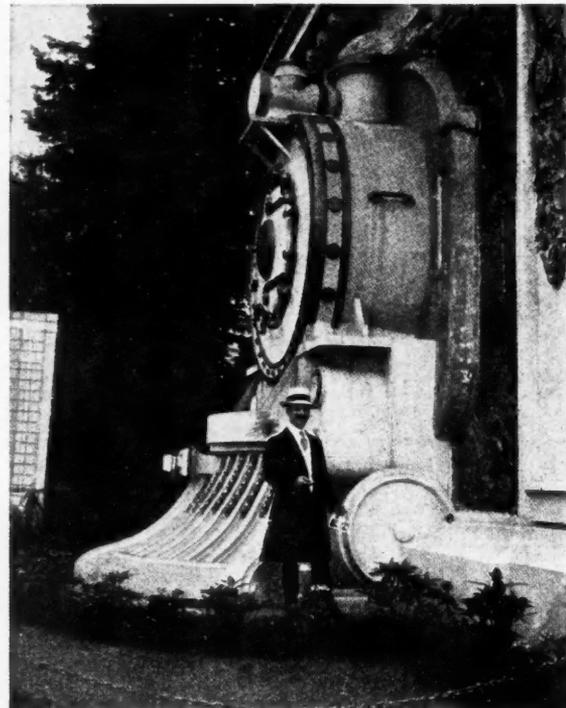
Before applying the leather cover to a pulley have it warm and dry, and scrape off all matter that may have accumulated on its face. Then, with a swab, apply muriatic acid

(full strength) to all parts of the face of the pulley. When dry, wipe gently with waste. Cut leather lengthwise of hide, and a little wider than the face of the pulley. Have the cement melted in the glue-pot, apply it across the face of the pulley with a brush for about six or eight inches, lay on the end of leather and rub it down hard with the corner of a piece of wood. Fold back the leather and continue to apply cement until the pulley is covered.

Two thicknesses of leather are used. Make the first thickness a butt joint, and the last a scarf or lap joint of about three or four inches long. Make the laps on the driven pulleys the way they run, and on the drivers the opposite way. Pulleys should be cleaned by holding a piece of coarse sandpaper against them.

The Engine in Architecture

Quite a novelty in building construction is illustrated in the accompanying photograph showing a portion of the



Novel Building Detail at the Brussels Fair

Canadian Pacific Railway exhibit building at the Brussels Exposition, 1910. The figure in the foreground gives the comparative size of this detail. The work was carried out in plaster composition.

The Mortise and Tenon Joint

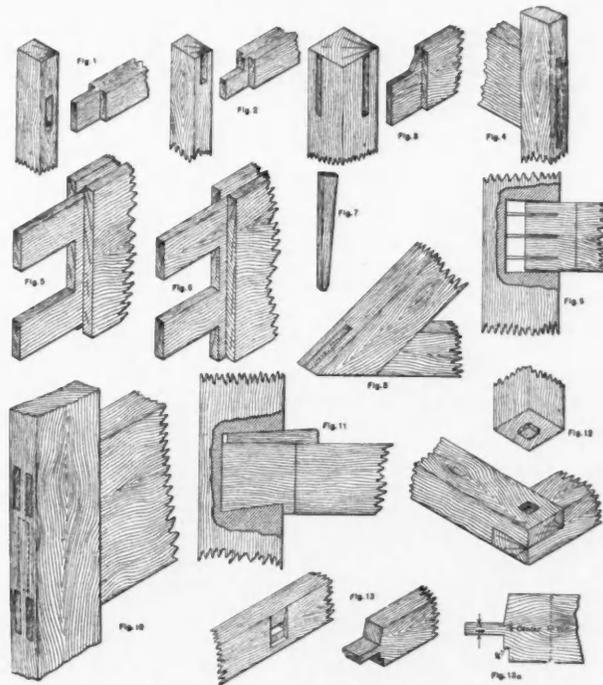
Of the various joints used by woodworkers in the several branches of the craft, none is more important than the mortise and tenon. Indeed, it may be classed as funda-

mental, for, as T. B. Kidner points out, writing in *Woodcraft*, it enters into every sort of wooden construction from a Howe truss or a trestle bridge to a Chippendale chair or a fancy cabinet.

Properly proportioned, it forms one of the strongest methods, and certainly the most all-round effective one, for joining framing of almost every description.

The simplest form of mortise and tenon joint is to be found in the case of rough constructive framing where two pieces of timber are to be joined at right angles, uncomplicated by panels. In such a case, the rule is to make the tenon one-third of the thickness of the material as shown in Fig. 1.

This proportion ought never to be exceeded, for while the tenon is often made less than one-third the thickness of the material without detriment, a tenon greater than one-third the thickness of the material leaves the "cheeks" of the



Various Forms of a Favorite Joint

mortise weak in proportion to the strength of the tenon.

Fig. 2 is one of the first modifications of the simple mortise and tenon joint found necessary in framing and is used where the mortise is at the end of a piece. Such a tenon is said to be "haunched" or "relished," the idea being to leave a solid portion at the end of the mortised piece.

It will be noted that a small piece of that part of the tenon which is cut away to form the "haunch" or "relish" is left on and fitted into a corresponding groove in the mortised piece. This small part is not always left parallel but is often cut back to nothing at the outer end, as shown in the case of the table leg and rail in Fig. 3.

The width of tenons in joinery and cabinetmaking is another factor which must receive consideration, for it is bad construction to make a tenon too wide in proportion to its thickness. The effect on such a tenon when its wedges are driven in is shown in Fig. 4, where the tenon is buckled by the pressure of the wedges and the cheeks of the mortise forced out.

The rule for the width of the tenon is that it should not exceed five or six times its thickness. A familiar application of this rule is in the case of wide rails of framing where the tenons are formed at each edge of the rail, leaving a relished portion in the center, as in Fig. 5. For the bot-

tom rail of an ordinary panel door a combination of Figs. 2 and 5 is necessary and is shown at Fig. 6.

To save complications in the drawings no wedges, or provision for them, have been shown, but in joinery work at all events most mortise and tenon joints are well wedged. To be most effective a wedge should have an angle of not more than 5 or 6 degrees, as is shown in Fig. 7.

In cabinetmaking the through tenon is seldom used because of the unsightly appearance of its end grain on the edge of the framing. The custom of making tenons go only a part of the way through is also rapidly spreading among house joiners, and the through tenon is seldom seen nowadays. Given that the tenon fits properly so as to fill the mortise completely, there is no doubt that the short tenon is perfectly satisfactory for indoor work. If, however, the door or framing is to be exposed to the weather, the old-fashioned method of concealed wedging, known as "blind" or "fox" wedging, is to be recommended. See Fig. 9.

A common requirement in architects' specifications for first-class doors is that the lock or middle rail shall be double tenoned on the outer stile. Such an arrangement is shown in Fig. 10.

A very effective form of mortise and tenon formerly common in constructive work, is shown in section in Fig. 11, where one side of the mortise is formed to fit the dovetail shape of the edge of the tenon. Its chief use was in attaching to the backs of solid door frames the blocks which are built into the walls by the masons to hold the frame in position.

Another joint familiar to everyone before the days of wire nails and "balloon" framing was the "stub" mortise and tenon used at the junction of the corner post with the sills of a building and shown in Fig. 12.

Fig. 13 shows the much beloved tusk tenon joint of the old carpenters. And wherever floor timbers are properly framed today the joint is still used and is a most effective one.

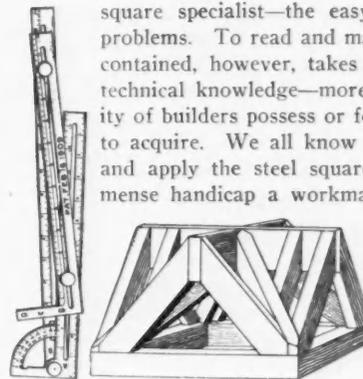
Breaking Large Bottles with Boiling Oil

The method of breaking small bottles or vessels at the place wanted with a kerosene-soaked string is well known, but this method does not work so well with the larger vessels. Following is a method given by *Popular Mechanics*, by which any sized glass vessel can be broken—as for example, a glass tub to be made out of a carboy:

Fill the vessel with cold water up to the point at which it is to be broken. Pour enough boiling oil over the water to make a good coat on the surface, and before the oil has time to cool, dash cold water on the outside of the vessel. A clean break at the contact point of oil and water will be the result.

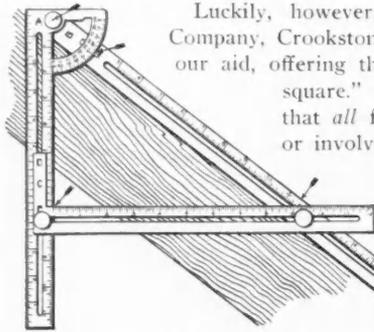
Steel Square Framing Made Easy

As was recently stated by Alfred W. Woods in this magazine, the steel square contains within itself—for the steel square specialist—the easy solution of all framing problems. To read and make use of the information contained, however, takes a great deal of skill and technical knowledge—more, in fact, than the majority of builders possess or feel that they can take time to acquire. We all know how difficult it is to read and apply the steel square; we also know the immense handicap a workman is under who does not understand its use.



It has been truly said, "Every day we find out how little we know about most things!" That is emphatically the case

when it comes to framing with the ordinary steel square, and if we had to depend on it alone for help, everything but the very simplest of framing problems would have to remain as Chinese puzzles to most of us.



Luckily, however, the Crookston Tool Company, Crookston, Minn., have come to our aid, offering their "A B C protractor square." With this it is claimed that all framing problems, simple or involved, are easily solved. It gives lengths, bevels and degrees, its operation being simple, straightforward and easily understood.

The accompanying drawings illustrate this ingenious tool, showing it in use and also folded for easy carrying in the kit or chest.

The other cut illustrates a number of common roof framing problems, all of which are easily solved with the "A B C protractor square."

We are informed that this square is sold on an absolute guarantee that it will do what the makers claim for it. The Crookston Tool Company, Crookston, Minn., will be pleased to furnish readers of the AMERICAN CARPENTER AND BUILDER full information of this tool on request.

The Low Down Forced Feed Concrete Mixer

The Low Down Forced Feed Concrete Mixer of the Elite Manufacturing Company, Ashland, Ohio, has at last solved the difficulty of proportioning with absolute accuracy, the mixture of cement, sand and stone.

The following is a brief description bringing out some of the valuable points claimed for this continuous mixer.

The first and most important of all is the *force feed*. The stone, sand and cement are forced into the mixing trough by chain elevators running at right angles to the mixing trough. Gravity, which is more or less uncertain, is not depended on. It is impossible for wet sand to pack and not feed down.

The second advantage is the low down hoppers; one man can do the work of two with less effort; you lift the sand and crushed stone only about one-third the height. There is also a division in the sand hopper so that you can use either sand and crushed stone or both, regulating all to the desired proportion.

Another decided advantage is that the mixing paddles can be easily cleaned because they are not covered up with hoppers. The shaft is connected with the engine with a cone clutch which enables you to throw it in and out of gear without stopping the engine. The cement feed can also be thrown in or out of gear without interfering with any other portion of the machine.

You will find it, on close examination, one of the most simple concrete mixers on the market today. It has few parts and so is not liable to get out of order. From the fact that one of these machines has been in continuous operation with a contractor the past year and is giving perfect satisfaction, the Elite Manufacturing Company are willing to guarantee them to the public, knowing they will make good. See them at space 30 at the Chicago Cement Show, or write to the company direct at Ashland, Ohio.

Increasing Life of Shingles

The following wash has been found good by farmers in some sections of the country to make shingles wear better: Make a wash of a bushel of quicklime, half a bushel of salt and eight pounds sand. Put this preparation on the same as whitewash. This will help to make the shingles fireproof from falling cinders and preserves them against the weather.

The wash, by wetting the upper surface, restores warped shingles to their proper form, and closes up the space between the shingles. The lime and sand, by filling up all cracks in the shingle itself, keep it from warping for years.

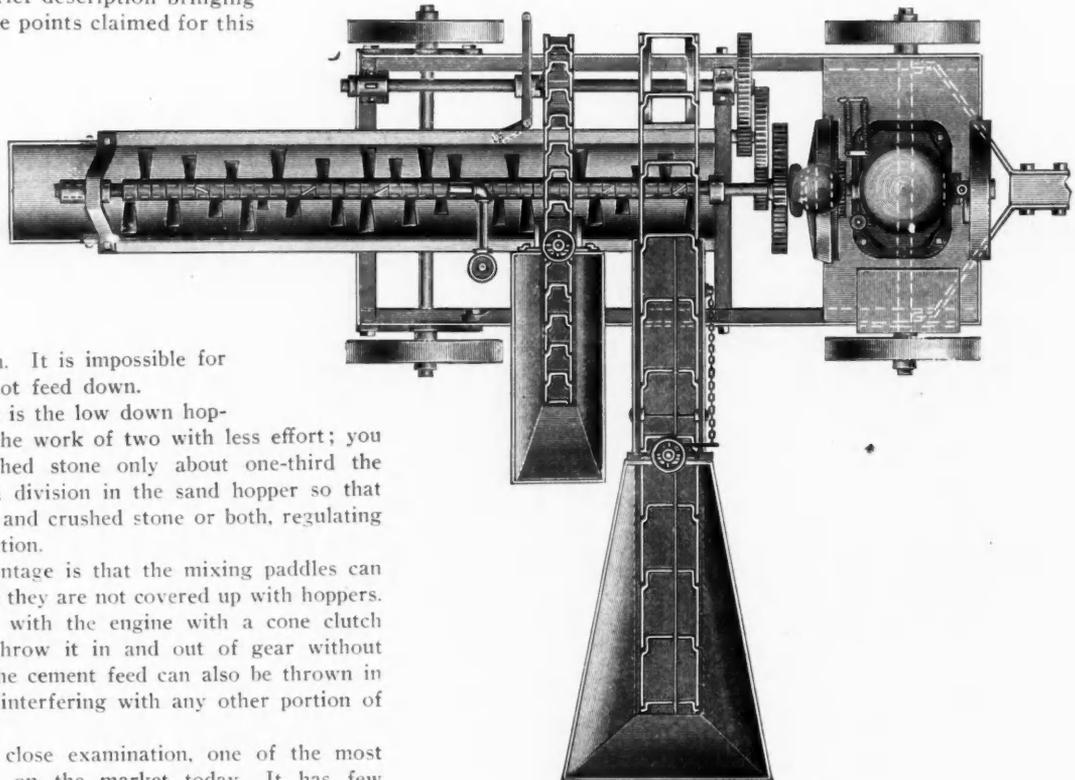
The "International" for Contractors and Builders

One of the bad features of contracting has always been the inability to move small amounts of material, tools, etc., from one job to another. The "International" commercial car—a truck of about 1,000 pounds capacity, which has been on the market for the past five years—is rapidly coming into use to overcome these difficulties.

Contractors and builders can save a great deal of time by using an "International" car for this purpose. It is peculiarly adapted for it. The wheels are high with solid rubber tires, giving it facilities for traveling through muddy roads, snow, etc., so that it is serviceable all the year round—a feature which is not found on many trucks of this character.

The engine is of the air-cooled type and has thoroughly demonstrated its efficiency in the past five years in both winter and summer.

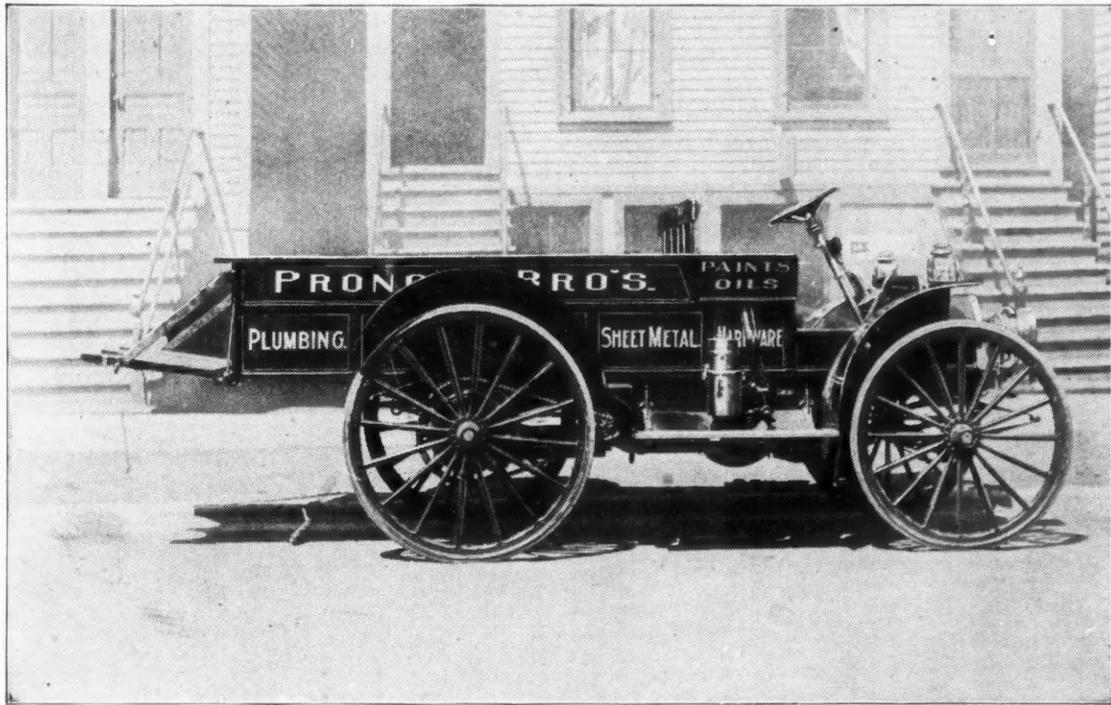
One of the peculiarities of this car is its simplicity. It is as nearly "fool proof" as a car can be, and at the same time it can be operated by any one blessed with ordinary intelligence.



Plan View of Elite Mfg. Co.'s Mixer

Take it all in all, the "International" is built as though it were specially designed for the contractor's and builder's handy wagon, so well adapted is it for this work.

The readers of the AMERICAN CARPENTER AND BUILDER, as



The "International" Handy Wagon—A Time and Money Saver for Builders

progressive men, should investigate the money and time saving features of these motor wagons for their own work. A letter addressed to the International Harvester Company, Chicago, will bring full information about this car.

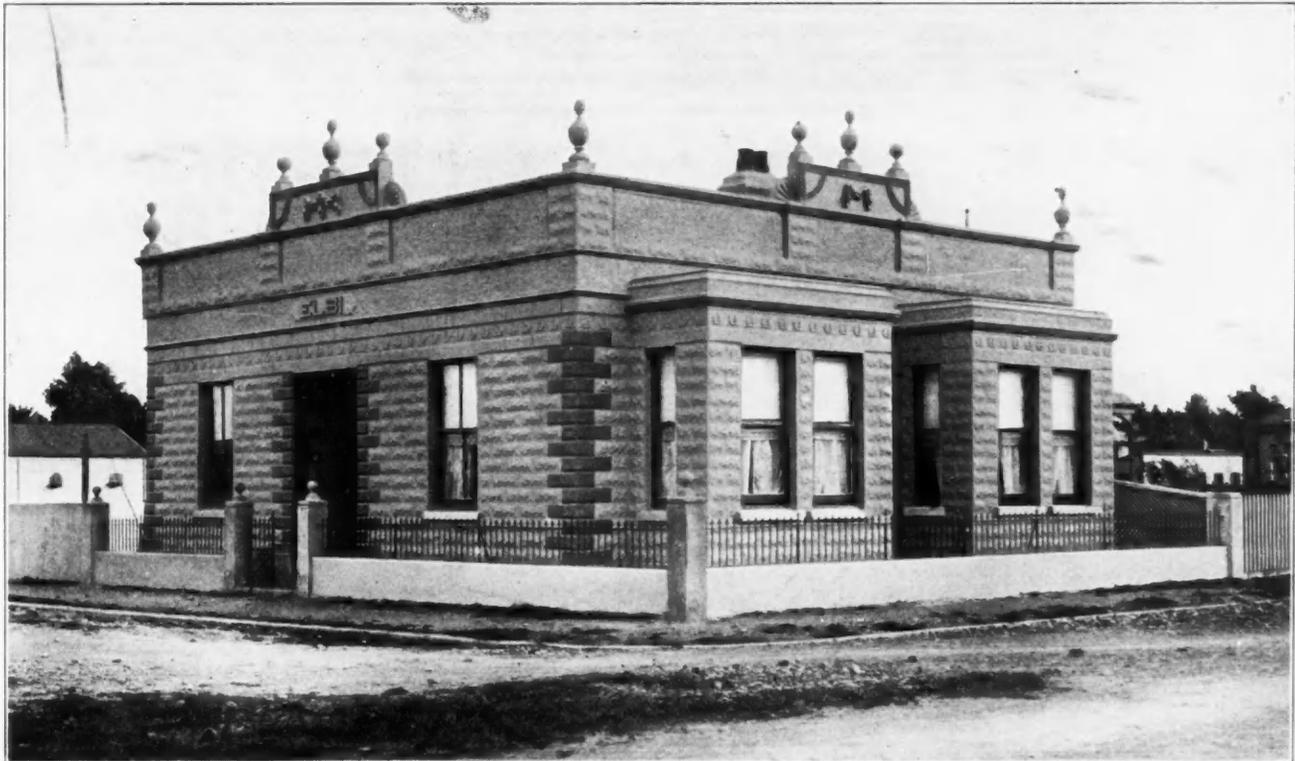
First Cement Block House in New Zealand

The accompanying photograph was furnished us by the Marsh Company, Chicago, and shows the first cement house built in New Zealand.

The Miracle double air space block was used in its construction, and the trimmings were cast in Miracle molds now being supplied by the Marsh Company.

The building is very tastily put up, and illustrates what can be done by a careful contractor.

A great many block makers can profit by the suggestions that this house offers, by adding to their equipment, molds for ornamental purposes that will increase their business and profits.



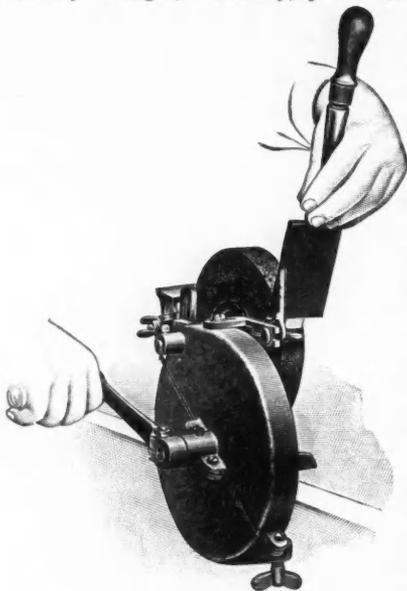
The First Cement Block House Built in New Zealand—Miracle Blocks Used

The Daily Grind

Did you ever stop to think of the vast amount of time that you spend in preparing your tools for your work? Just to satisfy your own curiosity, do this and see how much time would be yours to spend more profitably if your tools did not require so much time.

Now, there are different ways of sharpening tools and all these ways can be classed under two headings, the wrong way and the right way, or the slow way and the quick way. This little article will tell you about the "Luther way"—the quick way. Were you to have a job in a neighboring town, which is say some six or seven miles away, and you had to reach it every day, you could get there if you wanted to by walking, but you would either take the train or drive, would you not, for the simple reason that it would save you time and physical energy? Now, just so it is with your tool grinding. The "Luther way" can be summed up as being the safe, logical and profitable way.

The efficiency of a grinder is based entirely upon two features, mechanism and the substance used. By combining these two factors, providing both are the best, you have a perfect grinding machine. The mechanism to be of the best must embody strength, durability, power and speed, and must be



Mechanics Special

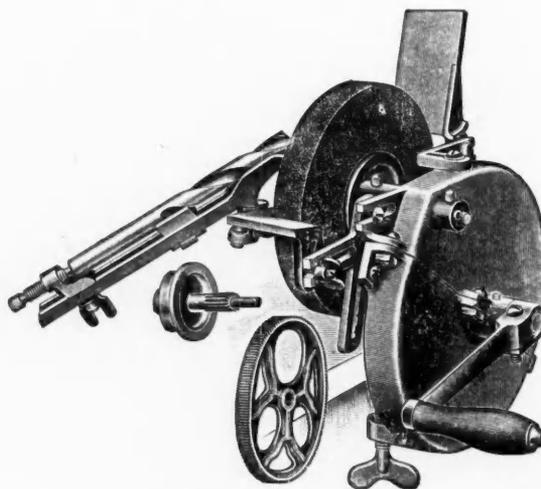
simple and practical. The mechanism of the Luther grinder is built on these principles and the grinding substance used is carborundum, which many consider the best abrasive known, claiming it to be the hardest, sharpest and the best cutting abrasive, and which, if properly used, will not draw the temper from the steel. Carborundum is a manufactured substance which was accidentally discovered in Edison's laboratories during the experiment for the artificial production of diamonds. It is practically as hard as a genuine, South African diamond, and this diamond-like hardness prevents it from ever glazing.

Now, with the Luther grinder one has a splendid mechanism and possibly the best grinding substance known, consequently a perfect grinder. Luther grinders are built with the same care as is used in the construction of a high-priced lathe. All the bearings are dust-proof, and Luther Brothers are the originators of grinders constructed with inclosed machine parts; consequently dust and grit cannot cut the bearings.

On this page are several reproductions of Luther grinders of various styles, and in the reproduction of the "Mechanics' Special" you will find a machine that should be owned by every mechanic. It is built along advanced mechanical lines. The spur gears have wide bearing surfaces and are cut from the solid blank. The gearing and all wearing surfaces are protected by an inclosed casing. This casing is absolutely oil-tight. The gearing runs in a bath of oil. This machine may be fitted with the Ajax Twist Drill grinding attachment; thus making this grinder indispensable in any place where drills are used.

The "Luther Best Maide Grinders" are built along original lines. They possess many valuable features that go into the making of successful sharpening machines, and the manufacturers claim that the "best maide" sharpener has no rival in the grinding field.

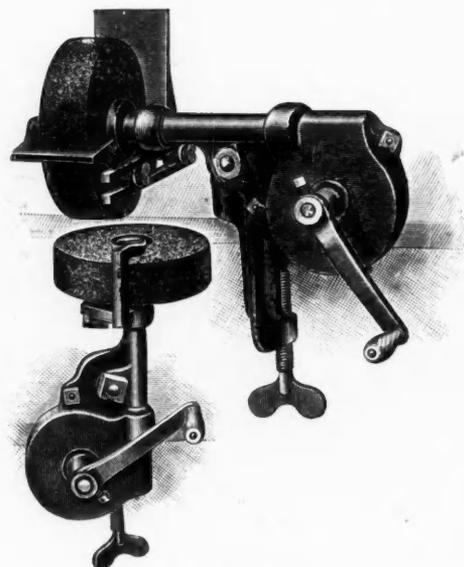
Now, by using these grinders you can accomplish in a few moments what takes you ordinarily hours of time to do. Also, you get better edges on your tools—more lasting edges. A



Mechanics Special No. 2

tool grinding device of this sort should be in the hands of every mechanic. It saves your time and your temper, and puts you in a position where you can actually save the original cost of this grinder in a very short time, and, considering the great convenience they offer, the cost is merely nominal.

It is impossible to tell you all about the Luther grinder, but their catalogue is free for the asking. This catalogue shows you over fifty different styles of grinders; grinders



Best Maide No. 1

adapted to the use of mechanics of every kind. It tells you why the Luther Manufacturing Company consider their grinding machine superior to anything yet manufactured, and it is worthy of a place in your files. A card or letter addressed to the Luther Bros. Mfg. Co., 56 Madison St., Milwaukee, Wis., will bring this to you.

Bishopric Sheathing

A great many readers of the AMERICAN CARPENTER AND BUILDER have, during the past year, become acquainted with the merits of Bishopric wall-board and have tested it out on important work of various kinds.

These will scarcely need any introduction to its sister product, Bishopric sheathing. This is made of same materials as the wall board, being of kiln-dried, dressed laths, imbedded in hot asphalt mastic, under pressure of 500 pounds to the square

sheathing the wall board is easily nailed. This combination of Bishopric sheathing and ready roofing keeps out cold and summer heat.

With Bishopric sheathing, therefore, the entire interior of a house may be lined—floors, roof and sides. As stated in the pamphlet, when Bishopric sheathing is built for wall protection, it is nailed to outside of studs with lath and



Bishopric Sheathing Used Under Clapboards and on the Roof Under Ready Roofing

inch, and surfaced with sized cardboard, all cut at the factory into sheets of uniform size (4 by 4 feet). The finish, however, is not necessarily so fine. The sheathing is of uniform thickness, insuring a perfectly even surface when applied. For practical service—protection against heat, cold, dampness, etc.—Bishopric sheathing is the equal of wall board and is 20 per cent cheaper. It is used as a substitute for lath and plaster where a particularly smooth job is not required.

Bishopric sheathing is nailed to the weather side of studs, with lath and asphalt side exposed. Over the laths, weather boards are nailed or cement is applied. Compared with wood, Bishopric sheathing is preferred for the following reasons:

Bishopric sheathing makes a more solid and substantial wall than lumber; therefore, develops great wind strength. There are no gaping joints; no widening cracks due to shrinkage; no knot holes. It's like a solid board.

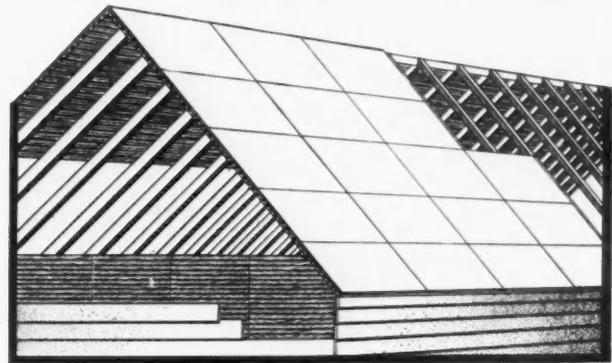
The asphalt mastic in Bishopric sheathing is a non-conductor; is proof against heat and cold, keeps the building cooler in summer and warmer in winter.

The body of Bishopric sheathing being asphalt mastic, moisture cannot penetrate it. The wall, therefore, is proof against dampness.

Bishopric sheathing is used with good results as a foundation for flooring. The sheathing is nailed to joists, and over this the flooring is nailed. This insures a warm floor, protecting the health of the women as well as the children, who find their greatest pleasure in playing on the floor. Bishopric sheathing is also used with best results as a foundation for ready roofing. For this purpose it is nailed to rafters with smooth side of weathering up. Over the surface of Bishopric

asphalt Mastic sides exposed to the weather. This leaves dead-air space between laths and boarding, as shown in both illustrations.

The cost of applying ordinary wood sheathing is from \$5 to \$10 per 1,000 feet, whereas the cost of applying Bishopric sheathing is but \$2.50 per 1,000 feet—a saving of about 75 per cent. Furthermore, 1,000 square feet of wood sheathing covers but 750 feet of surface, 20 per cent less being due to



Bishopric Sheathing Being Applied Over Rafters

tongue and groove. In Bishopric sheathing 1,000 square feet covers 1,000 feet of space.

Bishopric sheathing does away with the expense of building paper and cost of its application.

Every progressive builder should investigate this material for himself. Address the Mastic Wall Board and Roofing Manufacturing Company, 24 East Third street, Cincinnati, Ohio.

Ornamental Designs for All Purposes

Few people realize to what extent concrete is being used to beautify buildings and structures of all kinds. It is impossible to go anywhere nowadays without seeing concrete in some form or shape. You see solid, massive, beautiful columns, attractive gate posts, substantial and handsome porches, piers, grave stones—in fact, everything imaginable.

Concrete lends itself so readily to the forming of ornamental moulds that its use is becoming larger and larger; and it is no uncommon sight to see plain buildings turned into handsome and attractive structures by means of concrete. In many localities concrete porches and columns are being added to plain wooden buildings and the effect is everything that could be desired.

Concrete is being extensively used in the manufacture of grave stones and it has no apologies to offer as it does not make a cheap or shoddy looking substitute for marble.

Ornamental gate posts are becoming common, and they lend distinctiveness to any property, giving it a stylish appearance and adding value to the property.

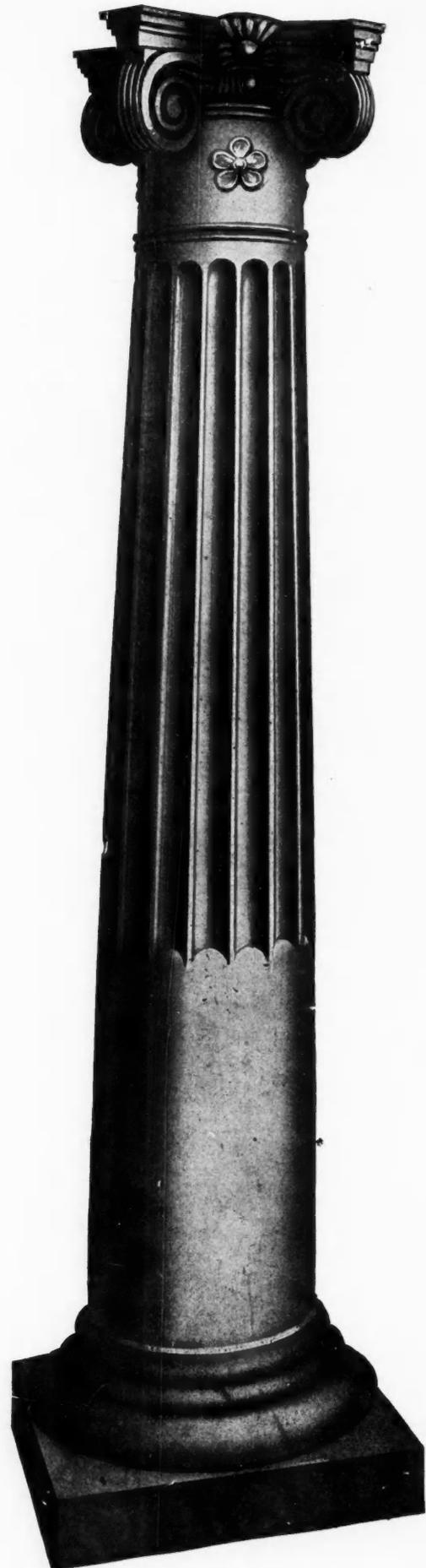
Later developments in concrete construction are bringing out new materials for facing, and beautiful effects can be secured in white, medium red, dark red, blue, brown, gray, black and even in imitation of granite and marble. There is not a thing manufactured but that can be reproduced in concrete.

The Renaissance column shown on this page gives some idea of the beauty and rich appearance of concrete when properly moulded. Builders, masons and carpenters, all over the country, are taking up the manufacture of these special articles and furnishing them on their buildings. It is a branch of the building industry which opens up unparalleled opportunities of profit. Such special articles can be easily manufactured with the proper and necessary moulds. Full and complete information can be secured from leading concrete concerns, especially from the "Northwestern" Steel and Iron Works of Eau Claire, Wis. They are pioneers in the manufacture of these special molds, and practically anything in the concrete line can be secured from them. Their line covers various sizes of block machines, brick machines, mixers, porch column and baluster outfits, sill and cap moulds, chimney moulds, drain and sewer tile moulds, ball moulds, well curbing and pier moulds, block cars, cinder crushers and gas-line engines.

The output of their factory is astonishingly large and they sell at minimum prices. The quality of their goods is recognized everywhere.

They issue a wholesale catalogue which is beautifully illustrated, and will be sent free to all readers of this publication on request. Masons, carpenters, builders or block makers will do well to secure a copy, as it not only makes a fine reference book, but is full of valuable and useful information.

It is thought by many that the future building material will be exclusively concrete, and those who take up its use early will reap the largest profits. Masons and carpenters can secure such moulds as porch column and baluster outfits and supply their trade, making double profits—one in the manufacture and one in laying. Various uses will suggest themselves and the use of such moulds will be found indispensable after they are once used. The prices at which these are being sold are attractive and permit of every mason, carpenter or block maker owning an outfit. Over five thousand builders in the United States alone took up the manufacture of concrete last year and the reports show successful effort on their part with unusually large and attractive profits. Write at once addressing Northwestern Steel and Iron Works, Eau Claire, Wis.



Concrete Column Cast in a "Northwestern" Mould

Woodworking Machines for You

Carpenters, contractors, builders and retail lumbermen have been for a long time depending upon the planing mill to supply the finished material used in their business; but the loss of time in waiting on planing mills and other incon-



Fig. 1

veniences have resulted in the rise of a great many smaller shops with power-driven tools.

Realizing these conditions, J. A. Fay & Egan Co., have designed a number of machines especially to meet the requirements of this trade.

Among the machines of that character is the bench hand planer shown by Fig. 1 which will be found a valuable asset. On it you can do all kinds of surfacing and jointing that are required and in half the time it would take you to do it by hand with a jack plane. With it you can plane, surface straight or tapering, joint, edge, etc., in the most rapid and perfect manner.

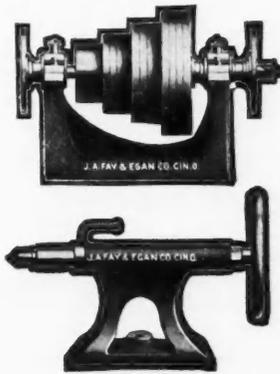


Fig. 2

In the construction of every building there occurs a considerable amount of waste that every carpenter, contractor or builder should make good use of. The band scroll saw and the lathe (Figs. 2 and 3) will enable you to work up this waste into profitable stock. You can turn an almost endless variety of special decorative woodwork, such as corner blocks, balusters, etc., and various wood novelties.

In order to accommodate shops desiring a single machine that will do a large variety of work, the manufacturers designed their No. 62 Universal woodworker (Fig. 4). The variety of work possible to do with this machine is truly surprising. It is "a whole wood-shop in itself," and is just as efficient in all its capacities as separate machines. It will plane any kind of surface, straight or tapering; rabbet door frames; rabbet and face in side blinds; joint, bevel, gain, chamfer, plow, make glue joints, square up bed posts, table legs and newels, raise panels, either square, bevel or ogee, joint and bead window blinds, work edge moldings, stick beads, work circular molding, rip, cross-cut, tenon, bore, route, etc. In short, this machine will take care of all jobbing work required by carpenters, contractors, builders and retail lumbermen.

Fig. 5 illustrates the manufacturers' No. 260 variety saw. This machine is designed to meet the requirements of shops of medium capacity having a smaller variety of work than the No. 62 Universal woodworker can do, such as sur-

facing, squaring, gaining, rabbeting, miter-sawing, tenoning, boring, grooving, routing, ripping, cross-cutting and jointing, etc.

Many of our readers of course, are not equipped with necessary power to operate such machines. To all such, we advise the purchase of a small gasoline engine. Those who have electric power in their plants, could, of course, apply motors to each of the machines.

In conclusion, it can be safely said that in a very large percentage of carpenter, builders', contractors' and retail lumbermen's shops, these machines will directly produce a revenue sufficient to make their purchase a good investment, and incidentally bring, in addition a great deal of business that now passes by.

You are invited by the manufacturers to write for full

information concerning these and many other useful machines designed especially to meet the requirements of carpenters, contractors, builders and retail lumbermen. The proper address of the manufacturers is 545-565 West Front street, Cincinnati, Ohio.

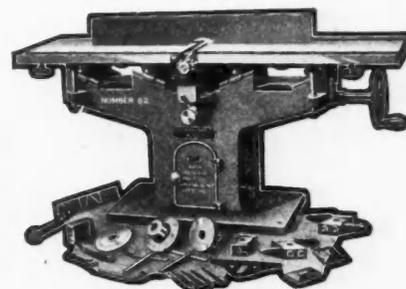


Fig. 4

A Treasure Chest

An old chest that is the most treasured possession of an old lady who lives in a curious old house in one of the Massachusetts towns, is supposed to have been one of the treasure-chests of the Spanish Armada. It is over twenty inches in height, and is encircled with deep bands of iron enriched with paintings of tulips. Two delightful little landscapes adorn the panels, and the imitation lock is in old ormolu. The real lock covers the whole lid of the chest, and is altogether a wonderful piece of mechanism, as it has no end of springs and wheels, and throws no fewer than eleven bolts. The entire face is covered with a steel plate curiously and beautifully engraved in an exquisitely fine design. There is an inner safe also with a quaint old lock and key.

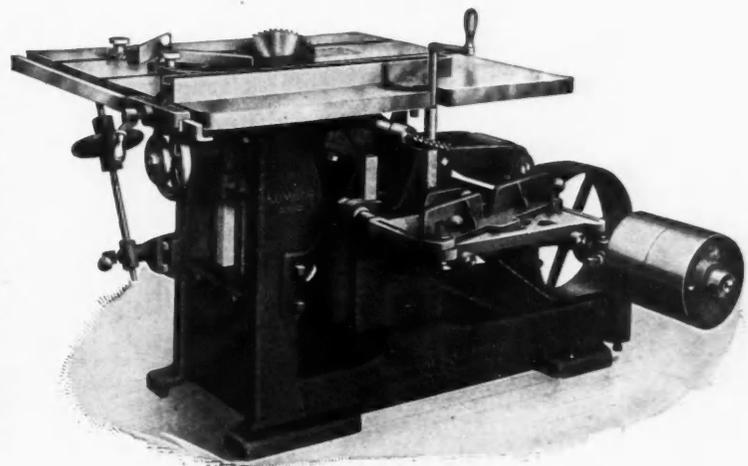


Fig. 5

Government Service for Manufacturers

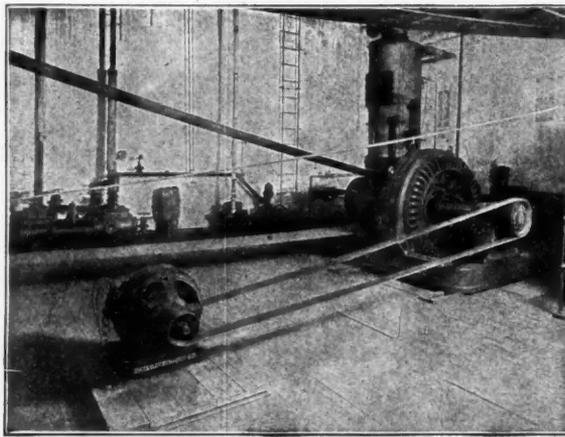
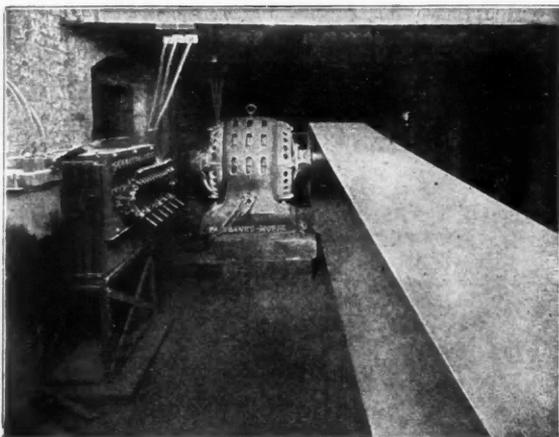
The Bureau of Manufacturers, of the Department of Commerce and Labor at Washington, is establishing a file of the names of American manufacturers and traders, for use in distributing the valuable information which reaches it from time to time in regard to foreign trade. Those who desire to avail themselves of the facilities thus offered for extending their trade abroad should send to the Bureau their names.

Modern Electric Power Plant

The extensive use of alfalfa meal for stock feeding in our western states has caused a very rapid growth of a new

attractive example of the way in which electric power contributes to the development of a new industry.

A typical installation is that of the Kingfalfa Mills at Nebraska City, Neb. Their plant consists of a 300 K. V. A., 440-volt, 600 R. P. M., 3-phase, 60-cycle, alternating-current generator, of the two-bearing, belt-driven type; this is driven by a 300 H. P., simple, non-condensing Corliss engine, and the power developed is used to drive a disintegrator or alfalfa meal mill and other auxiliary machines, such as a blower, dust collector, packer, etc. The alfalfa mill is driven by a 150 H. P. slip-ring type motor, which is belted direct to the mill.



Two Views of Fairbanks-Morse Electric Power Plant in Kingfalfa Mills, Nebraska City, Neb.

industry; namely, the grinding of alfalfa stalks for the production of this highly nutritious product.

The mills are usually electrically driven and they form an

On account of the great weight of the mill and the inertia of the moving parts a high starting torque is required to start and bring it up to speed, which is a severe test on the

THIS IS THE SASH

that has revolutionized store fronts. You could hardly call it a new departure, but the development based upon years of study about store fronts—and store front requirements.

This sash enables you to REGULATE the ventilation and drainage of show windows. It's simple too—just a V-shaped slide built in the gutter and operated from the inside of the window. No complicated devices. It simply opens and closes the vent holes.



Control Device

Kawneer System of Store Fronts

In Winter you have full and efficient ventilation and in Summer the sash is made dust-tight.

No. 30 Sash
One-Half Size

from sidewalk to

And here we speak of only one part of the complete Kawneer construction—the Kawneer System is COMPLETE

bar construction.

Send for Booklet No. 2 and learn about the store front construction that has proven its merits by actual use. This Booklet contains mighty good information about store fronts in general and it is one that you will keep on file for future reference. BOOKLET No. 2.

KAWNEER MFG. CO.

Factory and General Offices, NILES, MICH.

Branch Offices in all Large Cities

GLIDDEN'S GREEN LABEL VARNISHES

VELVET WHITE ENAMEL

(Egg Shell Finish)

This is a pure white enamel of the very highest quality. It dries with an egg shell gloss producing a natural rubbed effect without the necessity of rubbing. Is waterproof and not affected by washing or changes in temperature. Can be successfully used on new or old woodwork.

Price \$5.00 per gallon; quarts \$1.35 each



For sale by paint dealers everywhere. If not at yours, we will send by express prepaid on receipt of price.

Full Descriptive Price List on Application
THE GLIDDEN VARNISH CO.
Makers of High Grade Varnishes for all purposes
Glidden Building
CLEVELAND, O.

DOORS

Windows
and All Staple

MILLWORK

Direct From Gordon-Van Tine Co.

**50% Below
Dealers' Prices**

And Our Building Material
Catalog—Sent FREE—

PROVES IT!

We now occupy our great new five-story concrete warehouse, **seven times larger** than the one destroyed by fire. It is filled from roof to basement with Doors, Windows, Mouldings, Flooring, Inside and Outside Finish, Roofing, Lumber.

We will supply carpenters and contractors with everything in building material at actual **wholesale prices**. This saves you an average of 50 per cent on a complete house bill.

Do you realize that right here in Davenport is the **Largest Independent Building Material Plant in America?**

Millwork and Lumber for Finest Modern Homes

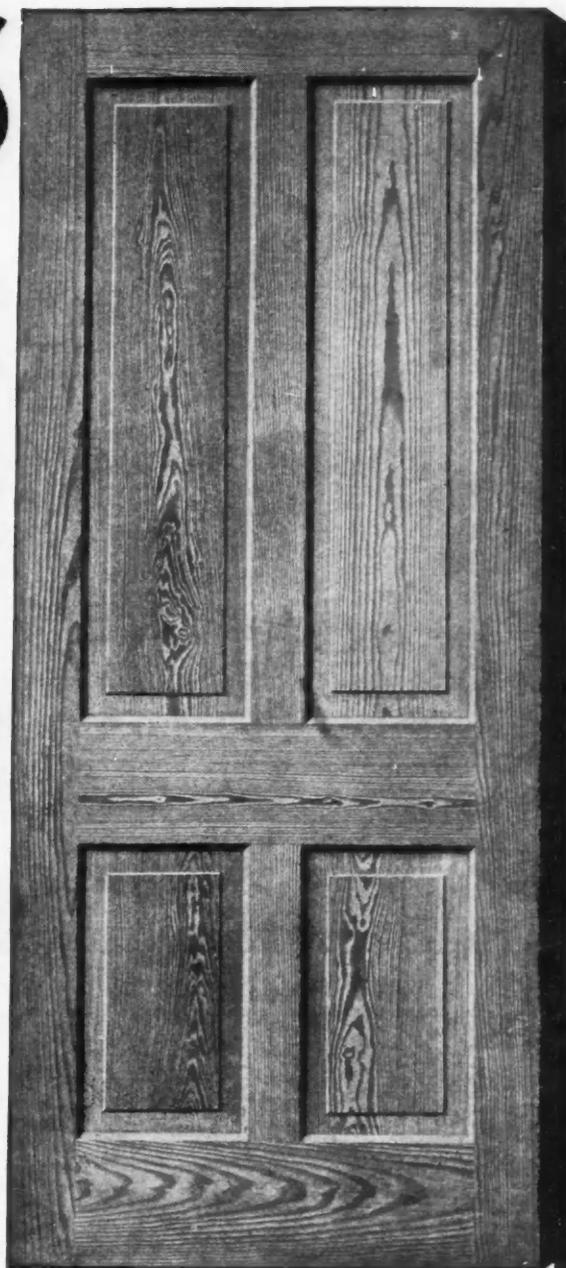
Carpenters and Contractors in every state in the Union send their orders to us **by mail**. You owe it to yourself to investigate the big values we offer—to see the high quality of the goods. **We will save you big money and give your orders special attention.** Orders for complete house bills can be shipped within 48 hours.

We have no expensive force of traveling salesmen. We do not have one price for **dealers** and one price for **Carpenters and Contractors**. Everybody gets the **wholesale price** and a Guarantee of Satisfaction backed by Three Big Banks.

Ask for Grand Catalog of Building Material

The variety and extent of our stock is unequalled in all America. Wholesale prices, in any quantity, large or small. In justice to yourself, **INVESTIGATE.**

The latch string is always out to Carpenters and Contractors who are able to visit our plant.



Our Price
On This Strong,
Well Made, 2 ft.
6 in. x 6 ft. 6 in.,
1 3/8, Y. P. Door.
Quality Guaranteed
**(Your Dealer)
Asks Double**

\$1³⁸—

GORDON-VAN TINE CO.

559 Federal Street

(108)

Davenport, Iowa

capacity of both the motor and generating plant.

The main motor drive and the generating plant are shown in the accompanying illustrations. Other motors will be used to operate the auxiliary machinery.

The plant has a capacity of four tons per hour of the finished product, and in a test of several hours continuous operation has been worked to the capacity of six or seven tons per hour.

The entire electrical equipment was manufactured and installed by Fairbanks, Morse & Co., through their branch office at Omaha, Neb. These people manufacture and sell a very complete line of electric motors adapted for all forms of work, making a specialty of proper equipment for wood-working shops and builders' uses. Let them know your needs along these lines. A letter addressed to their main office, 481 Wabash avenue, Chicago, will bring complete information.

Triple "A" Floor Smoothers Well Liked

We are informed that the "Spring-Driven" floor smoother of the Triple "A" Machine Company, Chicago, Illinois, is enjoying a great sale and is so well liked that this company have yet to receive their first complaint or criticism on its efficiency.

The general opinion of practical men who see and use this machine seems to be that it covers everything that could be required in a practical floor surfacing machine and that it is the very thing that has been needed for this line of work.

It is a well-known fact that floor scraping has been one of the most difficult problems that the people connected with the building trades have had to solve. There is nothing about a building or an apartment that stands out more prominently than the floors, and nothing is more pleasing to the eye than a well-finished job of floor surfacing. It is the

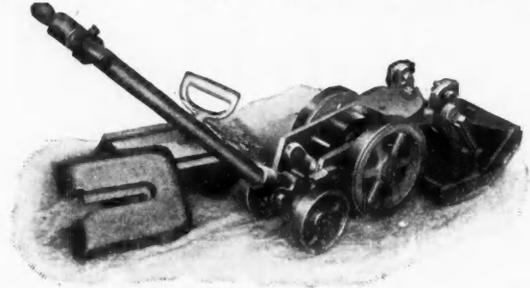
strongest advertising card that a contractor can place upon a building.

In the course of many years' experience, the inventor of this machine has found that there are three very essential requirements that go to make up a practical floor surfacing machine.

They are, namely: weight, adjustability and power. Lacking any of these, a floor smoothing machine cannot do first-class and profitable work for the contractor.

The great secret of success in the Anderson Automatic Adjustable floor smoother lies in its powerful motor spring, which pulls more than half the load on the cutting stroke and aids the operator in a simple and most effective manner.

Ordinarily, the work of operating a floor scraper comes altogether on the cutting stroke, and the limit of human



power necessarily confines the operator of a "dead weight" to a small, light machine with a correspondingly small capacity. In the "Spring-Driven" floor smoother, where the effort is equalized between the push and the pull a larger and more effective machine can be used, which naturally will not jump and leave waves, and at the same time enables the operators to do twice the work with half the effort.

The powerful Spring-Driven floor smoother has opened

Genuine Bangor Slate Co.'s slate being put on over shingle roofs. Compare the appearance of the two sections of this roof.



A mental picture of the fire-proofness and cost per-year-of-service of the two roofings is also interesting. This building is owned by Geo. W. Kessler, Denver, Ind. Walter Laidlow, 545 La Salle St., Chicago, Roofer.

The best proof

that our slate is the standard is furnished by the attempts to sell other slate by attaching the name "Bangor;" offering "Bangor-this" and "Bangor-that" slate. To get the genuine insist on our warranty and certificate with each carload.

A very interesting case

of substitution occurred in Paterson, N. J. The owner became suspicious that our slate, though specified, had not been furnished. That called his attention to other defects in the building, resulting in a damage suit against the contractor who had to pay twenty times the slight original saving on the roof. The Court records verify this statement.

There is the same sort of difference between slate and slate as between hemlock and oak

Genuine Bangor Slate Co.'s slate represents in slatedom what white oak is in the lumber world. Yet the price difference between our slate and inferior slate seldom exceeds from \$10 to \$20 for an average house.

You will find the owner willing to stand the small difference when you show him that it secures for him the best slate there is. If you wish, we will help you convince him, relieving you of all trouble in the matter.

Write our Trade Help Department for interesting and helpful information.

Genuine Bangor Slate Co.
Car Building EASTON, PA.

We never had a chance like this to furnish our home



You can almost hear the old folks saying: "We never had a chance like this to own the things that go to make life worth living. Don't you remember, mother, when we got the last parlor carpet how you had to go without your new Sunday dress, and when daughter got her piano, how we all had to pinch and save for years before we could get the money together?" And then the sweet-faced old lady hesitates for a moment at one of the big bargains in our New Spring Catalog before replying. "Do I remember? I am not likely to forget the sacrifices we had to make to furnish our home; how we both had to deny ourselves for every little necessity we bought for the house. If we had had a chance like this in our young days, how much smoother everything would have been. But it is not too late even now. We are not too old to spruce up a little bit yet, and I am going to order that new dining room table I have wanted so long and we won't have to pinch and scrape to pay for it."

We Trust Carpenters, Contractors, Builders Anywhere for Anything

Talk this over with your wife or mother. This is the most extraordinary offer ever made to the mechanic and his family.

WE SELL ON CREDIT EVERYWHERE—Wherever there breathes the love of home in village, town and city. We sell everything for the home—furniture, carpets, rugs, refrigerators, baby carriages, sewing machines, or pianos. 3,000 tremendous bargains on credit at lower prices than ever were quoted for cash. You can have these home comforts now and begin at once to enjoy them. No need to wait for the money, simply pay as you can—we charge no interest and ask no security. We have every confidence in the carpenter, the contractor, the builder and mechanic. In our 46 years' experience we find that the wage earner—the man who works with his hands—is on the square and worthy of our liberal credit terms. There are no collectors to annoy. Our dealings are confidential—no hardship, no drain on the pocket book. We take absolutely all the risk. We only want the chance to prove to you that we can sell on credit at a lower price than you can buy anywhere else for cash.

30 Days Free Trial

Our plan of sale binds you to nothing. Whatever you select can be used for one month before you decide to buy it. Every article is sent on approval. You not only see it, but use it. Think of the advantage of having the new stove, the couch, the rug or the bed, for a whole month's free use, while you decide whether or not you want to buy them. No one to bother you, no one trying to sell them to you, no hurried examination in a crowded store while an impatient clerk waits for your order, no tiresome shopping or snap judgment—but in the quiet of your own home with your family and friends to consult, you can make up your mind by actual test and use. If the article for any reason is unsatisfactory simply send it back. Compare the price anywhere you please and if ours is not 20 to 50 per cent lower, don't keep the articles at all. You are under no obligation—the month's use will not cost you one penny—we leave the whole thing in your hands.

Cash Factory Prices on Credit

We guarantee on every article a saving of 20 per cent to 50 per cent. This means that we undersell mail order houses selling for cash—your local stores cannot be compared at all, because they are enormously high. Our tremendous buying power gives us the control of the world's markets in our line. We buy the entire output of scores of factories, and by doing this, we are practically able to dictate our own prices and fix our own costs. It would bankrupt any lesser concern to even attempt to meet our prices, and our cast iron guarantee stands back of every claim we make.

References: The name Spiegel, May, Stern Co. has become a household word. But for the benefit of those people who are not acquainted with us, we give as references the following:

National Bank of the Republic, Chicago; National City Bank, of New York; First National Bank, Kansas City; National Bank of Commerce, St. Louis, and Atlas National Bank, Cincinnati.

Spiegel, May, Stern Co.

1302 35th Street, Chicago, Ill.

FREE

New \$17,000 Book

SEND NO MONEY—NO STAMPS. Simply mail us the coupon printed below for our great big portfolio fresh from the presses, picturing over 3,000 bargains for the home. This book is something more than a mere catalog. It is full to the brim of ideas and suggestions that any housewife will appreciate—economies in buying and arrangement—pictured true to life: numerous full page illustrations in twelve colors.

We have a separate book showing seventy styles of stoves and ranges from 89c up. If you want this stove book also, let us know.

Cut Out This Coupon

Spiegel, May, Stern Co.

1302 35th Street, Chicago

- Mail me Free of Cost your New Spring Housefurnishing Book.
- Mail me Free of Cost your New Stove Book.

Name.....

Post Office.....

State.....

a new field of floor scraping. A great many painters and others having old or varnished floors to refinish find it one of the most effective and economical devices for this kind of work that has been offered.

Up to the introduction of the "Spring-Driven" the scraping of a varnished floor was regarded by practical men as an impossibility, but with a heavy scraper edge in this machine it is claimed to be as simple a matter to scrape a varnished floor as any other kind.

Judging from the number of orders that this company are receiving from people who have other styles of machines in their possession, we feel justified in stating that the "Spring-Driven" floor smoother is a machine which fills the long felt want for an improved machine of this kind.

Canton Art Metal Bunch in Annual Sales Convention

During the last week in December the second annual Sales Convention of the Canton Art Metal Company was held at their main office and plant at Canton, Ohio. Between 25 and 30 men attended including the traveling selling force and branch house representatives.

The convention program follows:

Tuesday, December 27th

Morning and afternoon—Reception.

Evening—Smoker at the McKinley Hotel.

Wednesday, December 28th

9:30 a. m.—Inspection of Factory No. 1.

2:00 p. m.—Address: Roofing and General Line

8:00 p. m.—Smoker and Social Session at McKinley Hotel.

Thursday, December 29th

Morning and afternoon—Guests of the Massillon Rolling Mill Co., at Massillon, Ohio.

8:15 p. m.—Theatre Party at Grand Opera House.

Friday, December 30th.

9:00 a. m.—Inspection of Metal Furniture Factory No. 2.

Address: Art Metal Furniture.

2:00 p. m.—Address: Metal Ceilings.

7:00 p. m.—Banquet at the Canton Club.

Saturday, December 31st

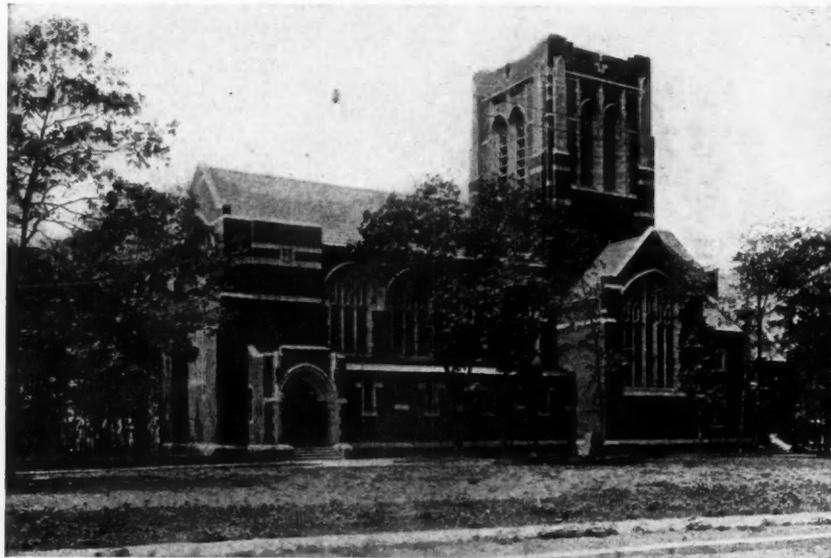
9:30 a. m.—Looking Forward, General Discussion.

2:00 p. m.—Address: Credits.

Some of those in attendance were:

A. B. Clark, President; W. W. Clark, Vice-President and Secretary; Elmer R. Eckis, Treasurer; W. H. Gardner, Sales manager ceiling department; C. E. Saint, Sales Manager roofing and eave trough department; Traveling representatives—A. P. Phillips, W. Ohio and E. Ind.; C. D. Gardner, E. Ohio and W. Pa.; E. V. Dayhuff, Middle West; H. A. Bernhard, Southwest; C. C. Watters, Michigan; L. F. Hively, New York and Penn.; H. W. Baker, Indiana; P. L. Howenstein, City Rep.; Metal Furniture Department—J. P. Williams, Manager; L. R. Kesper, Special Representative; C. O. Peterson, Eastern Representative; M. L. Rice, Pacific Coast Representative.

The Branch Organization was represented by J. H. Yohe, Vice-President and Treasurer; W. R. Lyman, Secretary; A. L. Whitcomb, Superintendent; W. T. Stevens, Export Manager, and Alfred Bowers, Geo. F. Williams, C. F. Mahnen, S. K. Stearns, and C. W. Purcupile, Representatives, all of the Canton Steel Ceiling Company of New York; H. A. Boyd, Manager, and J. M. Teague, Representative of the Newark Steel Ceiling Company of Newark, N. J.; W. A. Ziegler, Vice-President and General Manager; Jas. H. Ziegler, Secretary and Treasurer; Frank Braucher, Representative N. Minn. and Wis.; W. G. McCollam, N. Dak. and Mont.; John S. Davies, S. Minn., N. Ia., S. Dak.; and Aug. Lindquist, City Representative, all of the Canton Steel Ceiling Company, of Minneapolis, Minn.



SAGE MEMORIAL, FAR ROCKAWAY, L. I. Cram, Goodhue and Ferguson, Architects
This Roof Covered With E. J. Johnson's Roof Slates.

ESTABLISHED 1884

E. J. Johnson
38 Park Row, NEW YORK

—Quarrier of—

**ROOF
SLATES**

Black—Green—Purple—Red

**Slate Blackboards
Structural Slate**

"Out of the Ordinary" effects in Roof Slates, both as to color, thickness and arrangement on the roof is our specialty. Write us for delivered prices and other information.

Branch Office, 626 Park Building, Pittsburg, Pa.

Quarries—Bangor, Pa., No. Poultney, Vt., No. Granville, N. Y.



Cost of Heating this House

For Entire Winter of 1909-10 **\$28⁰⁰**

WITH THE
UNDERFEED
SYSTEM

CARPENTERS, Builders and Architects are invited to write *today* for cheerful information about the Peck-Williamson *Underfeed* Heating Systems, which insure *clean*, heat at *least* cost. The Underfeed adds to the renting or selling value of any building.

The handsome home of Leo Caruthers, at Christiana, Pa., is shown above. Using the **cheapest** grade of fuel in a Peck-Williamson UNDERFEED Furnace, it cost just \$28 to heat this entire house last winter. Other nearby homes just as large weren't nearly so comfortable and it cost the owners of these homes **three times as much** to foot their

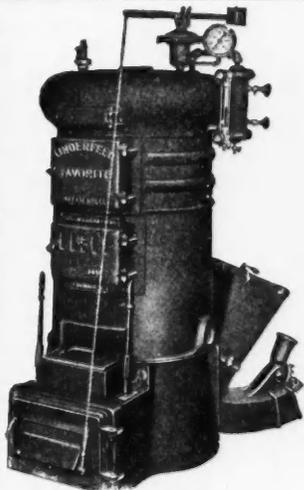
coal bills. Thousands who have adopted the modern UNDERFEED Heating System—either Warm Air, Hot Water or Steam—have **solved** the problem of **reducing** living expenses. There's only **one** answer to the question: "How can I save **ONE-HALF** to **TWO-THIRDS** of coal bills."—USE

The Peck-Williamson Underfeed

HEATING SYSTEMS WARM AIR FURNACES - BOILERS STEAM-HOT WATER

Instead of **choking** and **cooling off** heaters by the old-fashioned way of throwing coal **on** the fire, coal in the UNDERFEED is easily **fed from below**. All the fire is on top. Smoke and gases **wasted** in other heating systems are consumed and turned into **more** heat. **Cheapest** slack and pea and buckwheat sizes of hard and soft coal yield as much clean, **even** heat as highest priced coal in **other** furnaces or boilers. The **difference** in cost is **yours**. An UNDERFEED heating plant soon **pays for itself** and then keeps on saving for you. The few ashes are easily removed by shaking the grate bar as in ordinary furnaces and boilers. In addition to **saving** money, the UNDERFEED requires less attention than other heating plants.

This illustration shows The Underfeed Boiler.

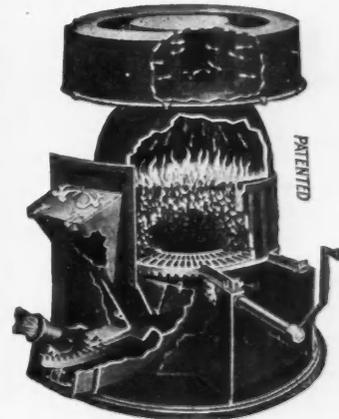


S. D. LANCASHIRE OF OBERLIN, OHIO, WRITES:

"The Underfeed holds fire the best of any furnace I have had experience with. We found that it would hold fire an entire week without being refilled and have started a new fire at the end of that time without rekindling."

Let us send you an Underfeed Furnace Booklet and fac-similes of other testimonials, or our special Catalog of Steam and Water Boilers—both **FREE**. Heating plans of our Engineering Corps are **FREE**. Write today, giving name of local dealer with whom you prefer to deal.

Illustration shows furnace without casing, cut away to show how coal is forced up under fire, which burns on top.



THE PECK- WILLIAMSON CO., 436 West Fifth Street, Cincinnati, Ohio



Put up Walls and Ceilings of BEAVER BOARD and build up your reputation for classy workmanship.

Every carpenter should know how to put up BEAVER BOARD. The walls and ceilings count more in the looks of the house than anything else. When you turn out a good job you get the credit, for BEAVER BOARD jobs last. They don't crack or deteriorate and don't have to be done over like plastered walls and ceilings. They cost less and look better.



Nailing Beaver Board to the Walls and Ceiling of a New Room.

Good for Every Kind of Building

Beaver Board is being used all over the United States and Canada. It is put up in big office-buildings, theatres, stores, churches, clubs, factories, residences, garages, etc. It is extensively used for remodeling old rooms, fixing up attics, cellars, out-buildings, etc.; for building partitions and false ceilings and many other purposes.

Beaver Board is made in panels and nailed directly to the studding in new buildings. It can be put on right over the lath and plaster of old walls. It makes a room warmer in winter and cooler in summer, it resists shock and vibration and deadens sound.

Write today for samples, booklets and special information to carpenters—how Beaver Board is put up and decorated; directions for working out different designs; pictures of finished interiors; how to make partitions, drop ceilings, etc.

Sold by lumber, hardware, paint, wall-paper and builders' supply dealers and decorators, in sizes to meet all requirements. If not handled by your dealer, write us, mentioning his name.

The BEAVER COMPANY of BUFFALO

In U. S., address 280 Beaver Road, Buffalo, N. Y.
In Canada, address 330 Beaver Triangle, Ottawa, Can.

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

The "Great Bell" Furnace

The "Great Bell" furnace, made by the American Bell & Foundry Company, Northville, Mich., solves the heating problem, so it is claimed, which is: How to combine the least outlay with the greatest heat. It solves this important question for houses, stores, schools and churches.

It is a furnace constructed for durability and efficiency, economical in fuel and installation. The "Great Bell" is built along lines that have been tested over and over again. It embodies all the essentials which make it a model heating



apparatus. It is claimed that it can be installed for less than half the cost of a regular piped furnace, and will do better work at an expense for fuel of 20 to 30 per cent less than any other system for same space heated.

The secret of its success is the one-register system placed immediately over the furnace and centrally located. The heat from this one register is ample to warm the whole house with inside doors open, to almost an oven temperature. For heating second and third floors, registers can be put in ceilings in each room.

The economy and efficiency of "Great Bell" furnaces have been thoroughly tested in hundreds of places and it is claimed they have made good their claims to be the most durable and least expensive furnaces made.

The company makes a variety of furnaces, which are described and illustrated in catalogues to be had free by mail. All who contemplate putting in a new furnace or replacing an old one, will do well to acquaint themselves with the superior advantages of "Great Bell" furnaces.

New Woodworking Machine for Contractors

The introduction of the No. 20 Famous Universal woodworker marks the beginning of a new era in the history of woodworking machinery, as it is safe to state that this machine will revolutionize the entire business. This statement will be better realized and appreciated when the fact is considered that the No. 20 Famous embodies the salient

The **MARK** of the **MAKER** is your guarantee of good quality and progressive excellence.

THAT mark is put only on the very best tools that we make, and in each case stands for definite superiority in the tool and our personal ensurance of your satisfaction. On this P. S. & W. Chisel it means a special quality of tool steel, tempered and hardened by a special process and sharpened before it leaves the factory. It means a longer socket than in other makes, accurately rounded to fit the handle. It means the perfect finish of the most complete line of chisels on the market.



A Handy Book For Carpenters

Our 165-p "Mechanics' Handy List," shown at the left, contains 35 pages of valuable shop information and a catalog of over 200 tools. Sent free at your request.

REG. U. S. PAT. OFF

P. S. & W. Carpenters' Tools

THESE include the most complete and well finished line of gouges and chisels on the market, also the largest line of braces, including the Samson Brace with Ball-bearing Chuck, the greatest improvement ever made in brace-construction. All our highest grade Braces, Augur Bits, Chisels, Gouges, Drawing Knives, Squares, Calipers, Hammers, Hatchets, and other Carpenters' Tools bear our trade-mark and are fully guaranteed.

Our four large lines of Guaranteed Hand Tools for Electricians, Machinists, Tinsmiths and Carpenters are sold by practically all leading dealers in the United States and Canada, or can be ordered by them from any hardware jobber. Insist on The MARK of the MAKER and accept no substitute.

The Peck, Stow & Wilcox Co.

MFRS. of the Largest Line of Mechanics' Hand Tools Offered by Any Maker

Address Correspondence to 22 Murray St., New York City
Established 1819 Five Large Factories

features of sixteen different woodworking machines. In other words contractors can install a complete machine-shop by buying the one machine.

The autocratic planing mill, with its exorbitant charges, vexatious delays and general inconvenience, will now cease to be the bugbear of the carpenters', builders' or contractors' existence, as the wonderful adaptability of the Famous woodworker allows the contractor to do practically all his own millwork upon his own premises, in a fraction of the time, at a fraction of the cost, and without any of the inconveniences attending planing mill service.

The advantages of a universal woodworker—particularly the No. 20 Famous—over individual woodworking machines are apparent to everybody. In the first place is the first cost. It seems incredible that any contractor will buy sixteen machines when he can buy one which will do the work of sixteen. Another point to be considered is the saving in floor space; then there's the saving in power transmission equipment such as belting, shafting, pulleys, motors, etc. Last, but not least, is the saving of labor. But one machinist is required to operate the Famous—and he does not have to be an expert or require any previous experience. The simplicity of construction and absence of complicated parts is assurance against trouble, and makes it one of the most simple woodworking machines to operate. You are requested to write the manufacturers, the Sidney Tool Company, of Sidney, Ohio, for some interesting literature and full particulars.

Disston Force in Annual Trade Conference

An informal banquet was given early in January by Henry Disston & Sons to representatives of the big saw and tool-making concern, who went to Philadelphia from all parts of the Union and from Canada to attend a series of trade conferences.

Besides the corps of salesmen, there was present at the

banquet, a large number of saw experts who spend their time in lumber camps and sawing centers to aid millmen in any and every way that their experience and knowledge enables them to render assistance.

All the executive departments of the great home organizations were also represented at the banquet.

It is the general sentiment of all Disston salesmen and representatives that the next twelve months will be the best selling year of their experience despite the fact that 1910 was a record breaker.

Business reports brought in from every section of the United States are optimistic, and men who are in the closest possible touch with actual conditions are confident of boom trade for the lines they represent.

One of the western salesman said: "Mr. Toastmaster, I want to say that I am proud to be in the Disston employ. It is an honor to be associated with this management and to have the privilege of selling Disston goods. I have had no difficulty whatever in obtaining and maintaining our full share of the business in my section, and this by reason of the well-known high quality and efficiency of the Disston goods. The future looks even brighter than the past. The treatment accorded us by the management makes us loyal to the core and we shall ever stand by the house of Disston and its goods. In saying this, I know I am echoing the sentiment of everybody here."

During the week all representatives made careful study of the manufacturing processes and executive policies of the great plant in Tacony. Officers of the company have spared no effort to thoroughly acquaint their men with the principles, purposes and ideals of the great organization of which they are a part.

Mr. Robert J. Johnson, second vice-president, acted as toastmaster at the banquet.

Houses That Cold, Heat and Sound Cannot Penetrate

Such houses can be built by using Keystone Hair Insulator, instead of building papers. Keystone is the most efficient insulator because it confines the greatest amount of dead air, which, as you know, is the secret of insulation. Being made of a thick layer of cleansed and sterilized cattle hair, securely fastened between two layers of strong, non-porous building paper

Keystone Hair Insulator

contains innumerable dead air cells which defy the passage of heat, cold or sound.

Keystone will not pack down or settle; will not dry out and split; will not rot or attract moisture; will not carry flame and is absolutely inodorous and vermin proof.

Write nearest branch for sample and catalog

H. W. JOHNS-MANVILLE CO.

Manufacturers of Asbestos and Magnesia Products

Baltimore
Boston
Buffalo
Chicago

ASBESTOS

London
Los Angeles
Milwaukee
Minneapolis

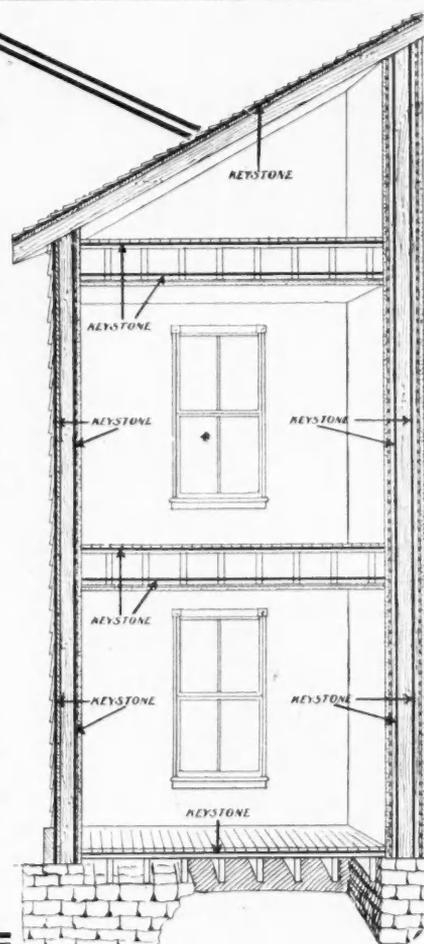
Asbestos Roofings, Packings, Electrical Supplies, Etc.

New Orleans
New York
Philadelphia
Pittsburg

San Francisco
Seattle
St. Louis

903

For Canada—THE CANADIAN H. W. JOHNS-MANVILLE CO., Limited
Toronto, Ont. Montreal, Que. Winnipeg, Man. Vancouver, B. C.



WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

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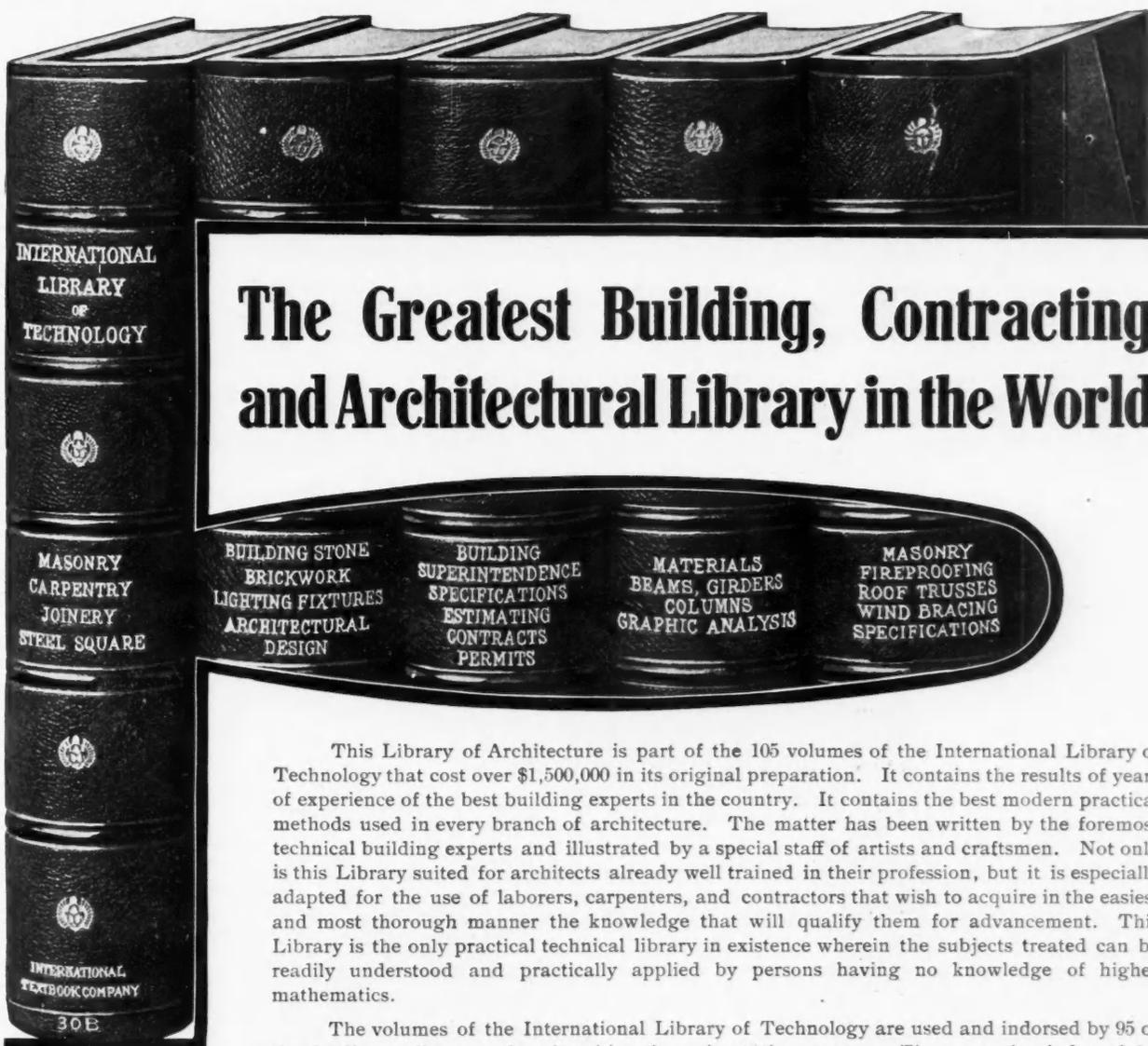
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The Greatest Building, Contracting and Architectural Library in the World

This Library of Architecture is part of the 105 volumes of the International Library of Technology that cost over \$1,500,000 in its original preparation. It contains the results of years of experience of the best building experts in the country. It contains the best modern practical methods used in every branch of architecture. The matter has been written by the foremost technical building experts and illustrated by a special staff of artists and craftsmen. Not only is this Library suited for architects already well trained in their profession, but it is especially adapted for the use of laborers, carpenters, and contractors that wish to acquire in the easiest and most thorough manner the knowledge that will qualify them for advancement. This Library is the only practical technical library in existence wherein the subjects treated can be readily understood and practically applied by persons having no knowledge of higher mathematics.

The volumes of the International Library of Technology are used and indorsed by 95 of the leading colleges and universities throughout the country. They are also indorsed by leading engineers. An example of these indorsements is to be found in the statement of

Frank L. Mueller, Assistant Secretary of the O'Rourke Engineering Construction Company, of New York, who states: "Some time ago I received several volumes of your Library of Technology, and it will certainly give you pleasure to know what I think of these books. I have at my disposal a reference library containing more than one thousand engineering books, but I must say that none of these works contain the information generally desired in such concise and simple form as the volumes of your Library of Technology."

A partial list of the subjects contained in the Architectural Library is as follows: Excavating, Shoring, and Piling; Footings and Foundations; Areas, Vaults, and Retaining Walls; Cements; Concrete Construction; Stone Masonry; Stone Arches; Carpentry; Mechanics of Carpentry; Joinery; The Steel Square; Building Stone; Lathing, Plastering, and Tiling; Common Brickwork; Ornamental Brickwork and Terra Cotta; Lighting Fixtures; Use and Design of Lighting Fixtures; Architectural Design; Building Superintendence; Specification Writing; Specification-Writing Memoranda; Estimating and Calculating Quantities; Contracts; Permits; Fireproofing of Buildings; Stair Building; Ornamental Metal Work; Builders' Hardware; Roofing; Sheet-Metal Work; Mill Design; Loads in Structures; Properties of Sections; Materials of Structural Engineering; Beams and Girders; Columns and Struts; Details of Construction; Graphical Analysis of Stresses; Roof Trusses; Statics of Masonry; Heavy Foundations; Retaining Walls; Fireproofing; Roof-Truss Design; Wind Bracing; Specifications; Geometrical Drawing; Projection Drawing; Free-hand and Ornamental Drawing; Wash Work and Brush Drawing; Elementary Perspective Drawing; Architectural Drawing; Painting and Interior Decoration; History of Architecture and Ornament.

There are 10 volumes in this Architectural Library, beautifully bound in three-fourths red morocco, stamped and numbered in gold, printed on a very high-grade book paper, and fully and practically illustrated. They may be purchased in sets of five or more volumes. Each volume is 6 x 9 inches in size. For full information,

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LIGHT AND POWER HOUSE

WAREHOUSES
No. 1-2-3-4

PLANING MILLS

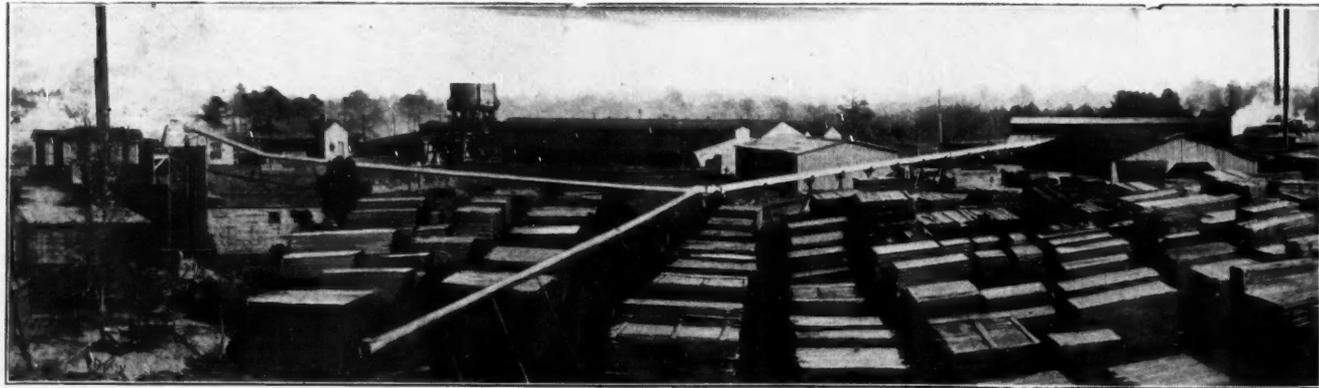


Photo by Ewing

\$100.00 TO \$150.00 SAVED ON A CARLOAD OF LUMBER

The Proof of Quality
Caldwell, Idaho.
Sears, Roebuck & Co.,
Chicago, Ill.

Dear Sirs:—I have one of the nicest houses in town. The material received from you was very satisfactory and made most elegant inside finish.

We like the plan very much.
Yours respectfully,
O. V. BADLEY.



Here's the Proof

READ THE LETTERS OF SHREWD BUYERS WHO HAVE PURCHASED LUMBER AND MILL WORK AT WHOLESALE PRICES. THEN FILL OUT AND SEND US THE COUPON ON THE OPPOSITE PAGE.

WE CONTROL THE CUTTING OF VAST TRACKS OF STANDING TIMBER, AND AT OUR IMMENSE SAW MILLS, one of which we illustrate above, we convert this standing timber into high grade lumber. This lumber we sell direct to Contractors and Builders at less than wholesale prices.

By eliminating all extra handling expenses we enable our customers to purchase their lumber at prices even lower than the local dealer pays for his supply. The result is shown in the following letter:

Kane, Ill., R. 2.
Sears, Roebuck & Co.,
Chicago, Ill.

Gentlemen:—Just received my car of lumber and think it all O. K. I think I have saved all of \$150.00 on it, and you may receive more orders from here soon.

In regard to grades, they are all you claim them, and your No. 1 is as good or better than their highest grades here. I will answer all inquiries asked of me by your customers if they send stamped envelope. You can tell them all that I am with Sears, Roebuck & Co. to stay for anything in the lumber line.

Very truly yours,
PHILLIP YOUNG.



Another Proof

113 Bridge St., Cohoes, N. Y.
Sears, Roebuck & Co., Chicago, Ill.

Gentlemen:—I am sending you a photograph of the house built from material shipped from you and according to your plans. I am well satisfied with the quality of materials and your prompt shipment. Your plans are a great help to anyone that wants to build. After a close estimate I can say that I have saved on this property \$1,000.00.

Very truly yours, FRANK CHAMBERLAIN.

The Proof of Saving
R. F. D. No. 1, York,
Neb., Sears, Roebuck &
Co., Chicago, Ill.

Gentlemen:—We have saved fully \$500.00 on this building, besides having better material than we could possibly have gotten at our home town. We were greatly surprised too at the manner and promptness in which our order was handled, as we received most of the material within nine days from the time we mailed our order, the distance being nearly 700 miles.

Very truly yours,
J. P. BERCK.

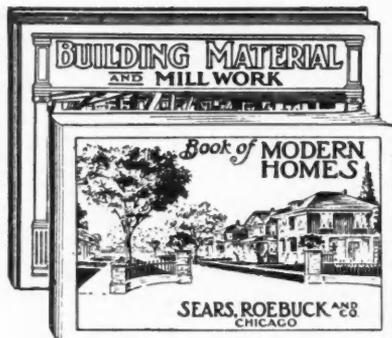


If You Were Offered a Building Lot FREE

with the material to put up a complete house you would naturally think you were getting a big bargain. Supposing two concerns were figuring on your bill and that both of them specified the same amount for the material but one of them offered to give you a building lot worth \$500.00 absolutely free, would you hesitate about accepting the offer? We have proven to you by genuine letters from our customers that we have saved them from \$500.00 to \$1,000.00 on building material of the very highest grades, a saving which represents the value of a first-class lot even in an exclusive and populous territory.

We Have Furnished the Material for One Thousand Homes

and this year we have every reason to believe we will make a new record. In our book of Modern Homes, a copy of which we will be glad to send you free upon request, we illustrate, describe and price nearly one hundred different styles of houses for which we furnish all the materials, and for any one of which we can give you practically free a complete set of building plans, typewritten specifications and an itemized bill of materials. The building plans for any one of these houses will save you from \$75.00 to \$150.00 in architect's fees.



These Books Are Free See Coupon on Opposite Page

Ten Million Feet of Lumber, Five Hundred Thousand Dollars Worth of Mill Work Ready for Your Orders

We could ship over 700 average size carloads of lumber from the stock now ready at our Saw Mills. We are continually adding to this big stock to meet the demands of shrewd purchasers who have learned the wisdom of buying lumber at wholesale prices.

We could furnish mill work, hardware and painting materials for one hundred houses or more on one order, and still have enough material on hand to stock a dozen average mill work concerns.

Our new Building Material and Mill Work Catalog lists our complete line and is gotten up in the highest style of the printer's art. It is yours for the asking. Contractors and others tell us that if they could not secure another copy they would not sell this book for \$5.00. It will be sent you free.

SEARS, ROEBUCK & CO.

PLANING MILLS

STEAM DRY KILNS

LOG TRAIN RAMPS WAREHOUSE No. 5 LOG POND

LOG MILLS



\$500.00 TO \$1,000.00 SAVED ON A HOUSE

Saving and Quality

THESE LETTERS PROVE THAT THE FIRST STEP TOWARDS SUCCESS IN BUILDING IS TO WRITE FOR OUR CATALOGS AND WHOLESALE LUMBER PRICES

WHERE THE STURDY OAK, THE STRONGEST PINE AND THE LASTING CYPRESS ABOUND

our big Saw Mills are located. We always have on hand a complete assortment of the best lumber for all purposes. TO PROVE TO YOU that the quality of our lumber is even superior to that which you can buy locally, we print this letter:

1448 Charles St., Rockford, Ill.
Sears, Roebuck & Co.,
Chicago, Ill.

Dear Sirs:—I have unloaded and started to build with the carload of lumber bought from you, and I must say it was the best lumber of its kind that I ever saw. I have sorted out the No. 2 sheathing (dressed and matched) and found that it is equal to the very best pine flooring that I could get from my local dealer at more than twice the price. Taking it all in all, I SAVED \$152.00 ON THE CARLOAD.

Yours truly,
V. O. NEWBURGH.



Wishing you continued success, I remain,
Your customer,
JOHN C. JOHNSON.

Still More

Colorado Springs, Colo.
Sears, Roebuck & Co.,
Chicago, Ill.

Gentlemen:—I am more than pleased with my home built by your plans and with your material. I have saved on my order given you about \$500.00, and the quality of the material furnished by you far surpasses any that is being furnished for other houses being built right here, and your prices are more than 50 per cent less, and in some cases even more than that. I thank you for the promptness and the courteous manner in which you treated me.

Wishing you success in your business, I remain,
Yours truly,
JOHN M. CLEAR.



Satisfaction and Saving

Bay Shore, Long Island, N. Y.
Sears, Roebuck & Co., Chicago, Ill.

Dear Sirs:—I was very well pleased with the quality of material sent by you. The red oak trimming was the prettiest lot of mill work I ever saw. Your columns were of the best, also your doors and sash cannot be excelled at twice the cost. I saved at least 30 per cent on the material.

Yours very truly,
S. J. SMITH.

YOU CAN FURNISH YOUR NEW HOUSE FROM CELLAR TO GARRET WITH THE SAVING WE MAKE YOU

The difference between our prices for high-grade building material and those prevailing in the local markets will purchase furniture, carpets, window shades and curtains for the entire house, leaving a substantial amount for use in your grocery or meat market. Remember that we never sacrifice quality for price. The quality is always guaranteed to be exactly as represented and fully up to your own expectations.

WE SHIP OUR PRODUCTS INTO EVERY STATE IN THE UNION

Our building materials can be found in modern residences from Maine to Oregon and from North Dakota to Florida. We can put you in touch with people in your own state who have saved money by purchasing lumber and mill work from us, and who will gladly answer any inquiry that you may have to make. The letters we receive from satisfied customers would fill a book as big as our large General Catalog, and we have published a large number of them in handy form in a booklet describing every phase of successful building which we will be glad to send you if further evidence is needed of our ability to save you money and give you the best goods that the mill work market affords.

Quality First of All, Promptness in Shipping, Careful Packing and a Big Saving

distinguish every transaction with our house. Experienced builders appreciate quick service when in the market for lumber or millwork. In the great Mill Work Factory where over 700 people attend to our customers' orders, we are now making shipments of complete house bills practically within forty-eight hours. The care taken by us in packing, crating and boxing our mill work products insures your getting the goods in perfect condition.

Let us emphasize this point. The first step towards success in building is to write for our Catalogs and Wholesale Lumber Price List. Do it today and you will never regret it. Mail us the coupon.

CHICAGO, ILLINOIS

SEARS, ROEBUCK & CO., CHICAGO, ILL.

Please send me the catalogs checked below:

- Building Material Catalog
- Book of Modern Homes
- Wholesale Lumber Price List

Name.....

Postoffice..... St. No.....

State.....

Amer. Carp. & Bldr. 2-11



**CORTRIGHT
METAL SHINGLES
SELLING TALK NO 10**

No Rain or Snow Can Get Up Under Here.

See Where I'm Pointing?

It's absolutely impossible for any snow or rain to beat in under either the tops or sides of

CORTRIGHT METAL SHINGLES

It is equally impossible to lay two shingles with flat surfaces like wood, slate, etc., one on top of the other without leaving space enough for both rain and snow to penetrate.

For instance, wood shingles in nine cases out of ten split right down the center first and that is just where the joint of the two overlapping shingles comes.

What's the answer? An immediate leak of course.

Now just stop and consider that Cortright Metal Shingles are joined on the sides by an absolutely water-proof sidelock and protected at the top and bottom by an overlap equally impenetrable.

By this means you see we get just as tight a roof as though it was covered with one solid sheet of tin.

Now if Cortright Metal Shingles are going to make you money now's the time you want to find it out.

If they WILL make you money you're losing every day you delay investigation of them.

Why don't you find out? We print two good sized books just to help you and the only reason we haven't sent them to YOU is you haven't sent us your name.

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 why Cortrights are fireproof.

That's why we've attached the coupon. Sign it right now.

Cortright Metal Roofing Co.
Philadelphia and Chicago

COUPON

Cortright Metal Roofing Company
Philadelphia, Pa.

Gentlemen:—
You may send me the two free books offered by you in the American Carpenter & Builder month of February.

Name

Street Address

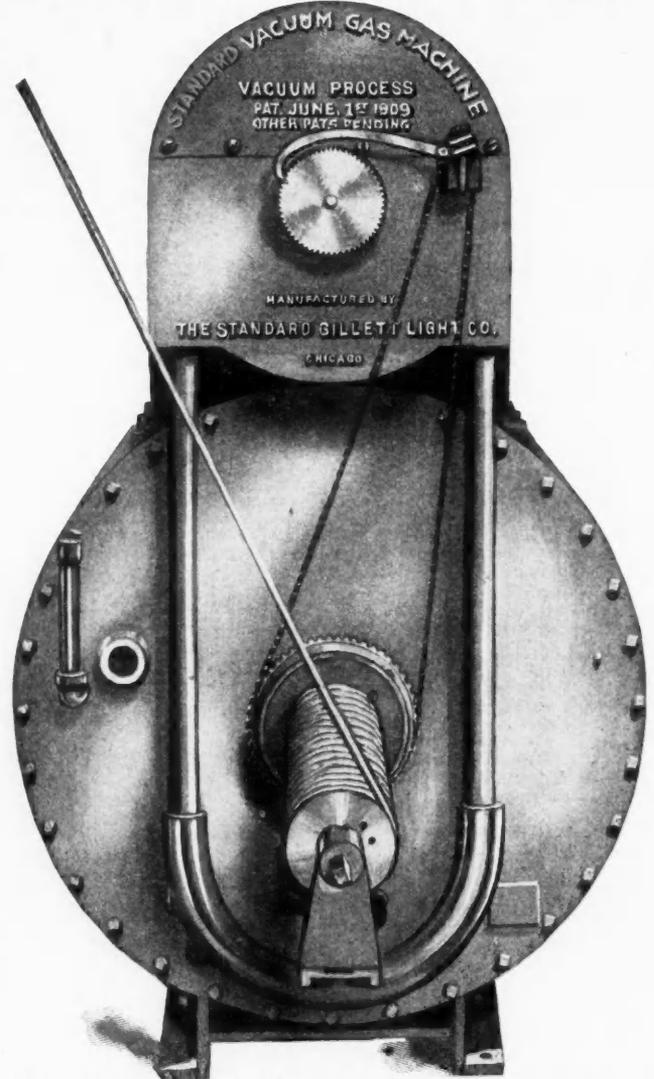
City

Business

An Improved Gas Light Generator

The Standard-Gillett Light Co., of Chicago have made an ingenious use of the vacuum principle to overcome the difficulties heretofore encountered in gasoline lighting generators. Their new "Standard Vacuum" gas machine, which is illustrated herewith, is guaranteed to produce automatically a constantly uniform gas, and is built on entirely different principles from those heretofore employed in gas machine manufacture. By this vacuum process it is possible to use any grade of gasoline, from the highest to the lowest

The gas making process consists of supplying a very small and graduated quantity of gasoline, from the general supply,



elevating it by means of miniature buckets, each of a capacity of a few grains, and feeding it by gravity through a small pipe, into a special chamber, formed in one end of an inside drum. For convenience, this chamber may be called the carburettor and is connected through a suitable sized pipe or air intake, to the atmosphere, without. This carburettor forms one end of an ingeniously constructed drum.

In operation, a partial revolution of this drum draws in the vapor, from the carburettor, carries it down under the water, compresses it and delivers it at the other end of the drum as finished Standard Vacuum Gas. However, the indrawing of this vapor from the carburettor, temporarily creates a vacuum therein until a new supply of air and gasoline can be inspired therein.

A measured quantity of atmospheric air and gasoline rush to fill the rarified space, making an ideal and perfect vaporization.

Will You Answer This Advertisement And Get These Samples Delivered Free?

RIGHT by actual test we want you to know all about Johnson's Wood Dye and Under-Lac. A single trial will prove their superior merits. We will gladly bear the expense of sending samples that you may be familiar with the quality of our goods. There's a great difference between

Johnson's Wood Dye

and a mere stain. It is a real deep-seated dye that penetrates the wood, giving a rich, permanent color that will not raise the grain in the slightest. Johnson's Wood Dye is made in fourteen standard shades, as follows:

- | | |
|------------------------|-----------------------------|
| 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. 171—Flemish Oak |
| No. 129—Dark Mahogany | No. 178—Brown Flemish Oak |

Half-Gallons—\$1.50 Each.

Johnson's Under-Lac

is a spirit varnish which will not chip, mar or scratch. It is better than shellac or varnish, as it can be easily applied and does not raise the grain, nor is it thick and sticky like varnish—dries in half an hour. Gallons \$2.50. In answering, use attached coupon for samples of Johnson's Under-Lac and Dyes. State carefully the number of shades wanted. With samples we will also send a copy of our booklet, "The Proper Treatment for Floors, Woodwork and Furniture," showing all shades of dye.



Free Sample of Dye

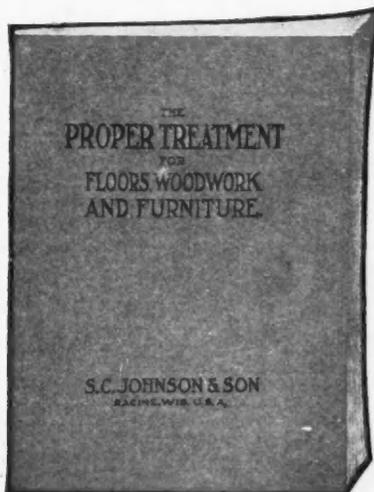
S. C. Johnson & Son

"The Wood Finishing Authorities"

Racine, Wisconsin, U. S. A.



Free Sample of Under-Lac



Free Book

Please send FREE samples of Johnson's Under-Lac and Wood Dye No. —. Also booklet, "The Proper Treatment for Floors, Woodwork and Furniture." I agree to test the samples and if they are satisfactory will use and recommend them in my work.

Name.....

Address.....

A.C.B.-2.....

As a very limited supply of gasoline is transformed from a liquid into a gas, the application of the refrigerating principle is remote, but far removed as it is, any slight drop in temperature is equalized by a higher temperature of the water surrounding.

By taking gasoline from the bottom to the top of supply tank, its heavier and lighter parts are mixed uniformly, so that the quality of Standard Vacuum Gas will be the same. By any other means of carburetting or supplying gasoline, rapid deterioration sets in.

Every reader of the AMERICAN CARPENTER AND BUILDER is concerned in keeping up with the latest developments in things pertaining to building. They should write to the Standard Gillett Light Co. for complete details of this generator and gas lighting system.

Write for This

The most unique and for a good many purposes the most useful calendar of the year is the Apollo all-metal perpetual calendar which has been received from the American Sheet and Tin Plate Company of Pittsburg.

It is made entirely of the Company's products, the back being made of an Apollo best bloom galvanized sheet 28 gauge, 14 by 20 inches in size and the calendar plates being made of 34 gauge enameling stock, enameled black with dates printed in aluminum, and so arranged as to form a perpetual calendar.

The whole calendar presents an attractive appearance, being lithographed in four colors, and having attached a bright chain hanger.

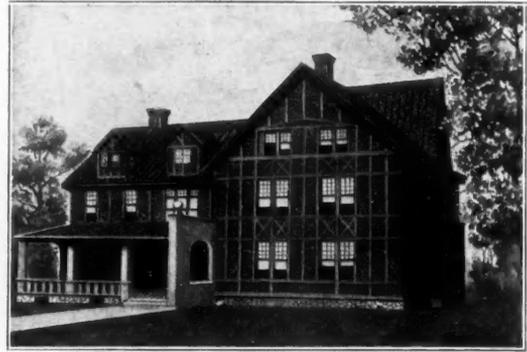
We are not surprised to learn from the manager of this company that the Apollo calendar is having a very popular call. The American Sheet and Tin Plate Company has already issued large quantities with a wide distribution, and

the prospects are that new editions will have to be secured in order to meet the enormous demand for it.

The company hopes to place a calendar with every modern sheet metal shop, supply house, and user of sheet and tin mill products in the country, who is interested enough to ask for it and to send their address to the company's general offices at Pittsburg.

Artistic Results With Burmite Roofing

The accompanying illustration is a good example of the way "Burmite" slate surfaced roofing may be used to produce very satisfactory and attractive results in residence work. This roofing comes in two colors, slate red and



Roofed and Sided with Burmite

"Stoddard" slate green. Thus it works in very successfully with bungalow work or for any house of striking design. Since these colors are produced by the double layer of slate chips, which are, of course, of unfading colors, evenly embedded over the entire surface, no uneasiness should be felt

APOLLO BEST BLOOM

Galvanized Sheets



PITTSBURGH

Specially adapted to shop and construction work. Selected materials, fine equipment and the large corps of competitive experts in each department, all combine to make Apollo Sheets the highest grade galvanized product obtainable.

The good sheet metal worker and careful builder both know Apollo Sheets excel. Gauges 10 to 30 inclusive. Sold by leading jobbers everywhere. Write nearest District Sales Offices for full information and quotations. Send for Weight Card.

American Sheet and Tin Plate Company

General Offices: Frick Building, Pittsburgh, Pa.

DISTRICT SALES OFFICES:
Chicago Cincinnati Denver Detroit New Orleans New York Philadelphia Pittsburgh Portland San Francisco St. Louis

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Give Good Varnish Advice to Your Customers

THE varnishing of the floors, doors and other woodwork that you build is very important.

It's so important you ought to help see that good varnish is used.

By recommending Berry Brothers' Varnishes you will be giving the best possible varnish advice—advice, which if followed, will greatly increase the beauty, and permanent satisfaction of your own handiwork.

Berry Brothers' Architectural Varnishes

MEET ALL REQUIREMENTS FOR HIGHEST GRADE FINISHING IN BUILDINGS

TRADE LIQUID GRANITE MARK

For finishing floors in the most durable manner possible. Its quality has made it the best-known and most widely used of all varnishes. There is no substitute.

WOOD LUXEBERRY FINISH

For the finest rubbed (dull) or polished finish on interior woodwork. It has for years been the standard to which all other varnish makers have worked.

ELASTIC INTERIOR FINISH

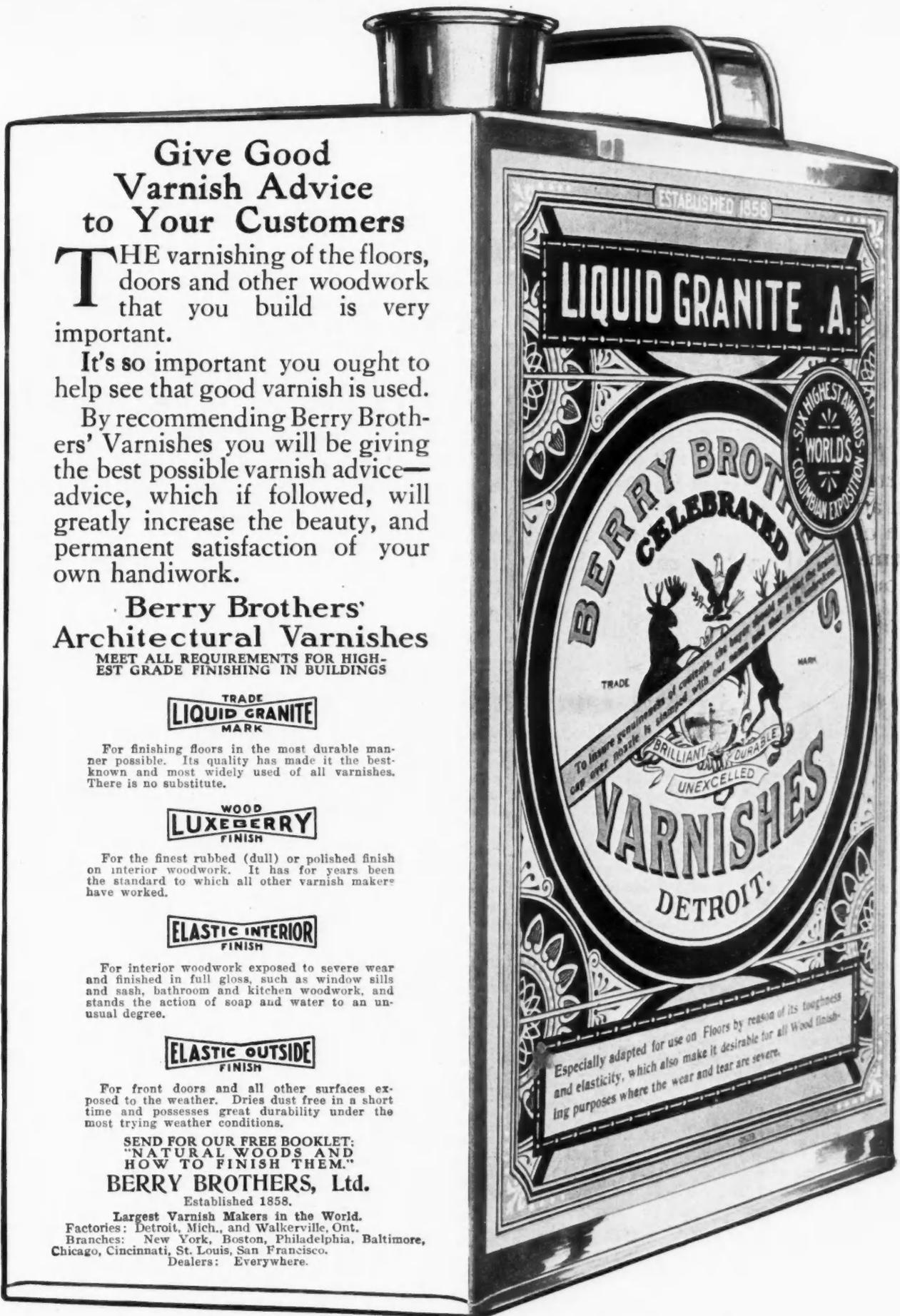
For interior woodwork exposed to severe wear and finished in full gloss, such as window sills and sash, bathroom and kitchen woodwork, and stands the action of soap and water to an unusual degree.

ELASTIC OUTSIDE FINISH

For front doors and all other surfaces exposed to the weather. Dries dust free in a short time and possesses great durability under the most trying weather conditions.

SEND FOR OUR FREE BOOKLET: "NATURAL WOODS AND HOW TO FINISH THEM."
BERRY BROTHERS, Ltd.

Established 1858.
Largest Varnish Makers in the World.
Factories: Detroit, Mich., and Walkerville, Ont.
Branches: New York, Boston, Philadelphia, Baltimore, Chicago, Cincinnati, St. Louis, San Francisco.
Dealers: Everywhere.



DRAW GOOD PLANS AND DRAW GOOD MONEY

WITHOUT DOUBT many readers have in the past wished to be successful, first class Draftsmen and Designers, and probably often looked for a long time at plans and drawings, trying very hard to figure out certain lines, or experienced an intense desire to be able to do the best work in most up-to-date manner; and many men in most any kind of business, especially in Architectural lines, have often felt greatly embarrassed simply because unable to read even a simple sketch or unable to make any kind of businesslike drawing.

No Carpenter is first-class and competent unless he is an A-1 Draftsman in addition. Without this knowledge he can never rise any higher and will remain only a Carpenter paid by the hour or day.

To become a successful Draftsman it is necessary, first of all, to receive

the most practical and personal training. Not a lot of school or book knowledge, but practical Drafting room work.

Mr. F. V. Dobe, Chief Draftsman of the Engineers Equipment Company (Inc.), Chicago, has for many years made a practice of giving personal and individual Drafting instruction in complete Architectural Drawing and Building design; and is prepared to accept a few more personal students, young or old.

His instruction is given by mail, but must not be compared with ordinary "for all alike" correspondence school lessons, as all the work is laid out personally by himself and prepared especially for your individual requirements and advancement. He treats each student according to the student's ability; and with his individual practical method, which consists of actual Architects' work.

Good Draftsmen in Demand

JUDGING by the manner in which many carpenters and contractors are getting in communication with Mr. F. V. Dobe, of the Engineers Equipment Company, and signing up for his personal instructions in architectural draftsmanship, they are realizing the necessity and pleasure of making more money. The opportunities offered today for ambitious, wide awake and progressive men capable of making from \$25.00 to \$75.00 per week as architectural draftsmen are better than ever. The immense amount of building which is going on and



the increasing demand for more and larger structures, gives the man with actual drafting-room experience splendid opportunities for steady employment at high wages, besides the chance for advancement. There is no class of men who make better architectural draftsmen than the carpenter and contractor.

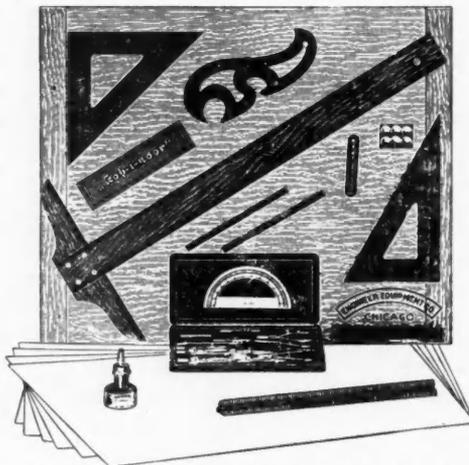
The experience gained by actual work on all kinds of buildings makes it much easier in studying and also in holding a responsible position afterwards. No employer cares for diplomas—neither does he care or will pay big wages to just a mere copier. What the employer wants today is originality and practical ability, and this requires practical training. The quickest and best way to be trained on

practical drafting-room work and to get the required practical experience, is to receive personal and individual instruction from a high-grade practical man at the trade, with a reputation as the most experienced man in training men to become competent and successful draftsmen.

An ordinary draftsman, not even the best draftsman, can teach this trade unless he has had many years of experience as an instructor, and has ability to impart knowledge that is understood and will stick forever—a special gift that 99 out of 100 do not have.

Mr. F. V. Dobe, chief draftsman of the Engineers' Equipment Company (Inc.), Chicago, with twenty years' experience in training and handling men, has for a good many years given personal individual instruction by mail with the most deserving success, because his instruction work consists of actual drafting-room work that gives his personal student and apprentice the required practical experience.

Mr. Dobe has been an advertiser in this paper for a good many years and will send his "Successful Draftsmanship" prospectus, 6 by 9, also list of open draftsmen positions, and full information free. His advertisement appears on opposite page. Anyone interested should write to him.



This outfit, value \$13.85, furnished free by Mr. Dobe to his students

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.

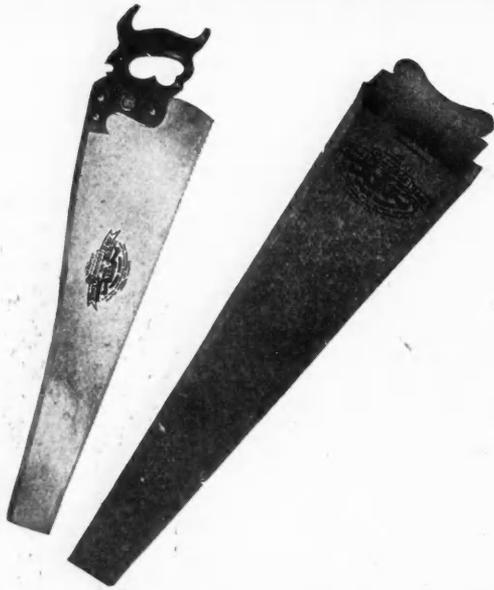
Free This Month A high-grade Complete Drawing Outfit, including a \$13.85 Set of German Silver Tools.



If you want to be the "BEST MAN" write me to-day. Address—

Chief Draftsman

Div. 17. Eng's Equip't Co. (Inc.) Chicago



SIMONDS

(Pronounced "SI-MONDS")

¶ The very first step taken toward making a Simonds Saw—the making of the steel—is specialized under a Simonds Process. By it we produce Simonds Special Crucible Steel—for Simonds Saws only.

¶ No other process produces a better steel for saws. It is tough, flexible, with a temper taking quality that makes it when treated, tempered, ground, finished and made into a saw blade, in the Simonds way, in the Simonds shops, the best saw that can be bought at any price.

¶ Another thing: should even the slightest defect crop up in a Simonds Saw, while in the process of making, that condemns it to the scrap heap. Remember you can always be sure of buying high grade quality when you buy a **Simonds**.

To buy the right saw, let it be rip, hand, or panel, see that the Simonds (Si-monds) name is on the BLADE

Let us send you a free copy of "Simonds Carpenter Guide." Tell us what kind of a saw you will need soon

Simonds Manufacturing Company
Fitchburg, Mass.

Chicago, Ill.
New Orleans, La.
Seattle, Wash.

New York City
San Francisco, Cal.
Lockport, N. Y.

Montreal, Que.
Portland, Ore.
London, Eng.

on the score of the necessity for future painting, as that will be unnecessary.

This "Burmite" slate surfaced roofing is a new product being placed on the market by the Birmingham & Seaman Company, of Chicago. All those interested in building should write to them for samples of this material and booklet containing valuable information on the roofing question.

A Satisfactory Hot Water Supply

Electric Weld

Combination gas water heaters have come to be synonymous with efficiency convenience and satisfaction in the all-important matter of hot water supply. These heaters are adapted for use with either coal range or gas. They are

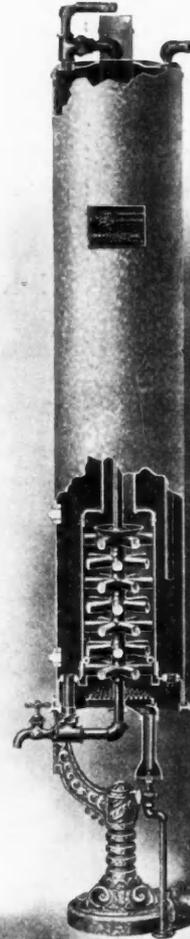
for all kinds of hot water service; for residences, apartments, hotels, office buildings, or any place where hot water is required.

It is affirmed that more gas is burned per capita today than before the advent of electric light. Dustless, ashless, odorless, cool, quick, safe and convenient, it expresses the genius of the American people for getting the utmost out of life. Based on the most favorable performance of the

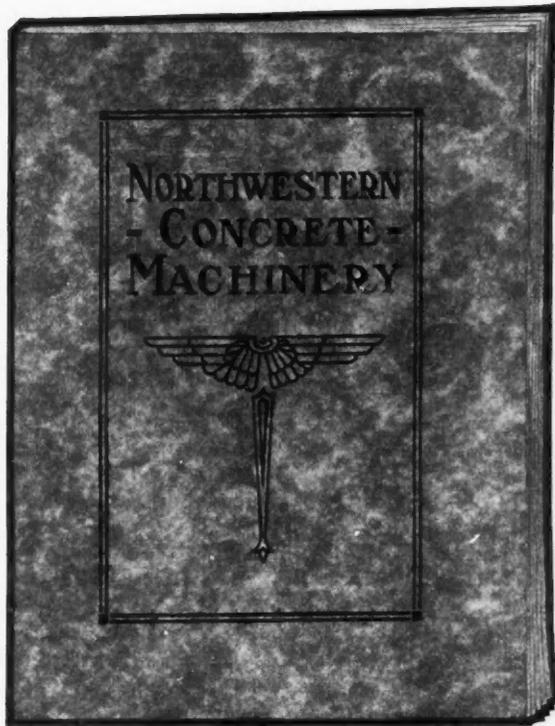
best, old time independent heaters and instantaneous heaters, a gallon of water for a cubic foot of gas has been considered about the best result possible to obtain. Sometimes these heaters fulfill the expectations of their owners; most times they do not. It remained for the manufacturers of the "Electric Weld" to develop a heater that would give results such as would make possible the use of gas water heaters generally.

It remained for them to prove that water can be heated more economically by the use of gas than by any other known method.

The "Electric-Weld" Combination Boiler heats 1.3 gallon of water from 64 to 140 degrees, and 3 gallons of water from 64 to 90 degrees—this means water at bathing temperature instantly from the lighting of the gas, at the full rate of a 3/4-inch



You Need This FREE Illustrated Book on Concrete Machinery



The biggest, most modern and up-to-date line of concrete machinery, moulds, tools and appliances are illustrated and described in our 1911 big wholesale concrete machinery catalog. It is a regular concrete encyclopedia, containing hundreds of beautiful illustrations and shows practically everything required in this line—machines and moulds for every conceivable purpose, including block machines, brick machines, post machines, tile moulds, bend tile machines, tomb stone and burial vault moulds, wheel barrows, block cars, engines, grave markers, ornamental moulds of all kinds, trowels, pointers, tuckers, mortar gauges, etc. The reader will see the most modern and up-to-date machines ever produced.

You cannot afford to be without a copy as it will show what you ought to have and prices you ought to pay.

This volume will prove immensely valuable to anyone interested in concrete, from the biggest contractor to the smallest concrete worker.

Everything is Sold by the Pound

Our entire line of machines and moulds is sold at wholesale prices. You can purchase these machines or moulds at lower prices than those of any other reliable line of concrete machinery manufactured.

No Money Down 10 Days Trial

We back our goods with a **satisfaction clause** and make you the judge of the practicability and adaptability to your use.



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CATALOG

EAU CLAIRE, WISCONSIN

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

faucet, with city pressure. It is stated that no such result has ever been obtained before from gas water heaters. This means a hot bath for less than a cent with gas at a dollar per thousand, a barrel of water at 140 degrees for three cents, and unlimited hot water for family using several bath rooms, laundry and kitchen for half a cent an hour.

All over the country, architects, builders, plumbers and others interested in the hot water question have taken up with the "Electric-Weld" Combination Boiler and Gas Water Heater.

Throughout the country it is specified as a routine practice, having been successfully introduced and having been in use for years sufficient to demonstrate its adaptability for all kinds of service. Its constantly increasing sales give the best evidence of the favor it is meeting at the hands of those who are in position to specify and use it.

The apparatus is assembled at the factory and shipped complete ready to install. The only connections necessary are those for hot and cold water to the roughing connections and the necessary gas connections to supply the burner.

The apparatus is so simple in construction that it can be disconnected or assembled by any plumber without the necessity of cutting the pipe or changing the fittings.

There is absolutely nothing about the heater requiring the service of an expert to adjust, all parts being standardized and necessary adjustments being made by the simple turning of the screw.

The "Electric-Weld" Combination Boiler puts at the service of the architect or the builder and plumber, the best range boiler on the market, combined with the most efficient gas water heater at just about the price of any reputable range boiler, plus that of the least inefficient independent heater.

All interested should write John Wood Manufacturing Co., Conshohocken, Pa., for complete information.

Northwestern Cement Products Association

The Seventh Annual Convention of the Northwestern Cement Products Association will be held in the city of Minneapolis on February 28 and March 1, 1911.

On account of not being able to secure a suitable building, no attempt will be made to hold a cement show this year, but it is hoped that the new coliseum will be ready by next year.

A number of strong papers are being arranged for such as will bring out discussions. These will be on varied subjects so as to be of interest to every one.

The West Hotel has been selected as headquarters and the meetings will be held in the large assembly room on the parlor floor. There are a limited number of rooms on this floor and the next, which can be rented for exhibit purposes. Anyone desiring space had better write the hotel promptly as there are only a very few suitable rooms.

The secretary is after a record attendance this year and hopes to have a membership of five hundred of the best contractors, block and tile manufacturers, architects and engineers in the Northwest.

Estimating Bad and Good

When estimating on a job some builders simply look at the plans and say, "That job is worth so much," while others sit down and go carefully over the plans and specifications, measure up and take a few notes of some of the things that will be required. The former are taking great risks, which do not pay, and the latter are adopting very unsatisfactory methods. Now, a builder should give his whole attention to reading off, measuring up and writing down everything required, even if it takes a longer time than anticipated.

The question is, can he afford the time to do it? Consider the value of the many hours and days contractors

ASBESTOS "CENTURY" SHINGLES

"The Roof that Outlives the Building"

Do you know that *two hundred million Asbestos "Century" Shingles* were used on all types of buildings all over the world during the past twelve months?

In all parts of the United States you will find residences, industrial plants, public and business buildings roofed with these shingles—the Government Buildings, West Hingham, Mass.; The Pabst Stock Farm, Oconomowoc, Wis.; The William Rockefeller Estate, Tarrytown, N. Y.; The Hartman Stock Farm, Columbus, Ohio; Miller Bros. "101 Ranch", Bliss, Okla.; Municipal Water Plant, Columbus, Ohio; Y. M. C. A. Building, Ardmore, Pa.; Plant of the Cleveland Hardware Co., Cleveland, Ohio; Atlantic City Pumping Station, Absecon, N. J.; Power House of the Great



Asbestos "Century" Shingle Roof—Residence of Dr. J. B. Porteus, Atlantic City, N. J.; H. A. Stout, Atlantic City, Architect; Atlantic City Cornice Works, Atlantic City, Roofers.

Northern Elevator, Devil's Lake, N. D.; High School, Marion, Ill.; Office building of the Will and Baumer Co., Syracuse, N. Y.; Union Passenger Station, Salt Lake City, Utah; St. Vincent's Hospital, Portland, Oregon; etc.

Asbestos "Century" Shingles are the first *practical lightweight roofing of reinforced concrete*. You can get these shingles in shapes and sizes to fit any architectural scheme. Three Colors—Newport Gray (silver gray), Slate (blue black), and Indian Red. Ask your Roofer for new quotations. Write for Booklet "Everlasting 1911."

The KEASBEY & MATTISON COMPANY, Factors, Ambler, Pennsylvania

6 MONTHS' FREE TRIAL

We want every Carpenter, Contractor and Mechanic in the United States to grind any and all their tools on the **LUTHER CARBORUNDUM PERFECTED GRINDER** for the next **SIX MONTHS**, in order that they may realize that it is a money earner, and also its great value. If after this trial you decide not to keep it, return it to us—no hard feelings—just send it back. The **SIX MONTHS' USE WILL HAVE COST YOU NOTHING?**

Mechanic's Special with Twist Drill Grinding Attachment.

Luther Diamond Tool Grinder

The Perfected Carborundum Sharpener
EITHER HAND OR FOOT POWER

PAYS FOR ITSELF EVERY MONTH



25 Times Faster Than a Grindstone
8 Times Faster Than Emery

Hand Power Mechanic's Special with Attachment



It will cut the hardest steel as easily as emery cuts copper. One man with a *Luther Grinder* will do the work of 20 men with any other sharpening device. The wheel of the *Luther Grinder* is

Genuine Carborundum

Carborundum is the most wonderful abrasive known. There is nothing else like it or near like it in the world. Nothing except the Genuine Diamond itself is so hard, and wheels made of Genuine South African Diamonds would sharpen tools no quicker, and even with all this speed and ease of sharpening tools, you can't draw the temper from the tool and need no water for cooling.

The Greatest Labor-Saving Tool Ever Made

The Luther Grinder is built like a high-priced Lathe and is Guaranteed for five years.

It's construction is mechanically perfect—machine cut spur gears—dust proof and bronze bearings—all machined parts run in bath of oil.

The *Luther Grinder* cannot fail to please owing to its solid construction and because it makes it easy to have keen edged tools without drudgery.



RETURN THIS COUPON FOR OUR SIX MONTHS' TRIAL OFFER

READ WHAT W. H. SEARS, OF PENTWATER, MICHIGAN, WRITES:

Luther Grinder Manufacturing Co., Milwaukee, Wis.
Gentlemen:—We have tried your tool grinder and find that it will grind a chisel in two minutes that would have taken an hour of time on the ordinary grindstone.

If the Luther Grinder will do this for Mr. Sears it will do it for every man in the country.

Luther Grinder Mfg. Co.

Address 56 Madison St.

MILWAUKEE, WIS.

Luther Grinder Mfg. Co., 56 Madison St. Milwaukee, Wis.

Gentlemen:—Please send me particulars of your **Six Months' Free Trial Offer**, also your booklet about Carborundum. This does not obligate me in any way or mean that I will buy. It means simply that I want full details.

Name _____

Address _____

spend in taking off quantities, the neglect of other work, which requires all their attention, the doubtful chance of obtaining the contract, the sleepless nights spent in trying to come to a satisfactory conclusion in their efforts to figure out what it ought to be, and a hundred and one other worries which help to shorten this brief span of life.

Slipshod estimating and guess work has ruined many a good man. A builder is anxious to get the work and may have inside information that his efforts will be fruitful, but even so, he is liable to overlook something or many things. His familiarity with a particular class of work makes him over-confident. He sends in his tender and is accepted. Perhaps his was not the lowest, but he honestly believed that he gave a fair, reasonable offer to do the work with a marginal profit. When the work commences and as it advances he discovers the he overlooked the ceiling joists, or didn't reckon on the strapping, or some other items. If only one item be omitted, however small, he is that much the loser. "But," he may say, "what does it matter? I have allowed sufficient elsewhere to cover that." Thus he cuts a piece off the top of his pants to make them longer at the bottom.

No man can be a success until he can make a reliable estimate of the actual cost of everything required in the job and do it quickly. Then, and then only, can he tell how much he will gain, and only a systematic method will enable him to do this, and place him in a position to do good work to the satisfaction of the owner, the architect and all concerned. He then impresses the architect with his sincerity and ability, increases his clientele, and improves his banking account, building up a reputation and obtaining a lasting advertisement which cannot be secured by any other means.

Rapidity doesn't mean so much in making an estimate; but it gives the builder more time for looking after his business.

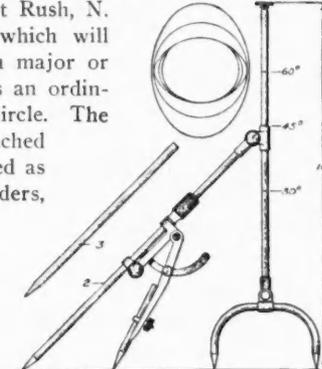
The Bradt Publishing Company emphasize these facts in their ad. this month and offer a solution of these problems

to those sending for the last edition of the Lightning Estimator.

We might say this concern has advertised in every issue of this journal and we know them to be reliable.

The Kelley Ellipsograph and Divider

A wonderful new instrument for draftsmen, pattern-makers, mechanics, etc., is the ellipsograph and divider invented and sold by J. T. Kelley, of West Rush, N. Y. This is an instrument which will draw an ellipse of any given major or minor axis, just as readily as an ordinary compass will draw a circle. The compass member can be detached from the ellipsograph and used as ordinary compasses or dividers, an extra leg for that purpose being supplied with the tool. For carpenters, builders and contractors, its use is a necessity for saving time and doing perfect work.



Mr. Kelley positively guarantees satisfaction. It will pay for itself in a saving of labor and worry.

For full particulars address J. T. Kelley, West Rush, N. Y.

Notable Catalog of Woodworking Machinery

Quite the most notable catalog of the year has been received from the Defiance Machine Works, Defiance, Ohio, covering their complete line of patent, labor-saving wood-working machinery. This is their catalogue No. 200. It is very substantially bound in boards with cloth covers and is

E-Z ELECTRIC FLOOR SANDPAPERING and POLISHING MACHINE

For keeping Floors of every description Clean and Polished. It saves Time, Labor and Money.

The E-Z will clean, scrub, sandpaper or polish anything—from a common WOOD floor to the finest Polished Oak floor.

It is FOOL PROOF and dust-proof; noiseless in operation; weight, 50 pounds. Can be attached to any lamp socket, requiring no special wiring or "inspection."

Machine interchangeable for direct or alternating current. Driven by a 1-4 horse power motor.

It grinds and polishes MOSAIC, TERRAZZO and MARBLE floors.



Write For Free Trial Offer

Machines Used and Endorsed with flattering Testimonials by the Largest Firms and Institutions.

John Herr Mfg. Co.

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THE PERRY LUMBER RECKONER

1:8 14 = 4 Equals 1/2 Feet to the Lineal Feet.

Pcs.	FEET.	Pcs.	FEET.	Pcs.	FEET.
1	0 1/2	34	317 1/2	67	625 1/2
2	1 1/4	35	320 1/2	68	634 1/2
3	2 1/8	36	330	69	644
4	3 1/8	37	345 1/2	70	653 1/2

Lumber Mistakes Eliminated

An end to figuring, errors and wasted time

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, who used to make errors and waste time figuring, but who found a better way.

Only \$1.00 SAVES COST MANY TIMES

Thousands of lumbermen use it and save cost every week. Special cut index gives instant access to any desired size of lumber.

Money refunded to anybody asking, but not one book returned.

Write today, enclose \$1.00 bill. We pay the postage.

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12 x 14
D.T.



Telephone Etiquette

Co-operation is the keynote of telephone success.

For good service there must be perfect co-operation between the party calling, the party called, and the trained operator who connects these two.

Suggestions for the use of the telephone may be found in the directory and are worthy of study, but the principles of telephone etiquette are found in everyday life.

One who is courteous face to face should also be courteous

when he bridges distance by means of the telephone wire.

He will not knock at the telephone door and run away, but will hold himself in readiness to speak as soon as the door is opened.

The 100,000 employees of the Bell system and the 25,000,000 telephone users constitute the great telephone democracy.

The success of the telephone democracy depends upon the ability and willingness of each individual to do his part.

**AMERICAN TELEPHONE AND TELEGRAPH COMPANY
AND ASSOCIATED COMPANIES**

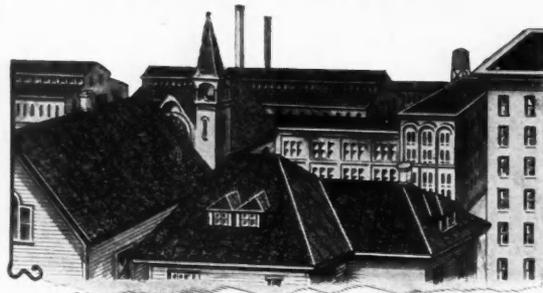
One Policy

One System

Universal Service

There's A Reason Why
Architects, Engineers, Contractors, Builders,
Roofing Experts and Owners
are Specifying, Recommending and Using

Ready-To-Lay
Burmite
FLEXIBLE - CEMENT-
BURLAP INSERTED MATERIAL
For ROOFING and SIDING



Residences, Business and Factory Buildings, Summer
Homes, Bungalows, Garages, Warehouses and Plants

It is Because *Burmite* has been found
THE BEST BY TEST

Artistic and Attractive in appearance, Durable and Economical,
with Superior Fire-Retardative and Storm-Resisting Qualities to
meet Extreme Weather Conditions—Sparks, Hail, Sleet, Sliding
Ice, Rain, Snow or the Extremes of COLD and HEAT do not
affect its superior Upper Coating, which is made with two separate
and distinct surfaces, i. e.,

BIRD-SAND and "Twolayr" SLATE-CHIPS (Patent
Pending)

For the "Twolayr" Slate-Surfaced Material, Natural Colored
Slate of Unfading Quality is used, the fine slab-shaped Slate Chips
being embedded into the Pure Asphaltum Composition so thoroughly
—and put there to stay—that a Smooth, Even, Upper
Mineral Surface (there being two layers of the Slate Chips)
is the result, thus securing the well-known IMPERVIOUSNESS
and WEATHER-RESISTING QUALITIES OF SLATE, AT
ONE-FOURTH THE COST.

2 Permanent } SLATE-RED } UNIFORM SOLID SLATE
Natural } and "Stoddard" } Surface. Requires no Painting.
Slate Colors } SLATE-GREEN } Kept Clean and Bright by the Rain

THE FIRST COST—THE ONLY EXPENSE
Sold on its Merits and Lasting Qualities

As a rule, other grades must be coated at least three times in
from seven to ten years; and if the cost of paint and labor is
added to the original cost of material and applying, it will be at
once apparent that "Burmite" is not only the most Lasting and
Inexpensive but more Practical than others.

The resisting qualities of our Slate-Surfaced Material are such
that it is especially recommended for, and is being largely used
as a Roofing on Pulp Mills, Chemical Works, Acid and Fertilizer
Plants, and other Buildings used for like purposes, where Roofs
are affected by Acids, Gases or Fumes.

To make yourself acquainted with this up-to-date Material for
the Roofing and Siding of Buildings, WRITE TODAY for
our Samples and Booklet.

"BURMITE QUALITY COUNTS"

Illustrated with buildings, beautifully printed in colors, showing
effect of BURMITE applied as a Roofing and Siding. Mailed
free of all charges and obligation.

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ROOFING MANUFACTURERS

GENERAL OFFICES, 1208-1226 Tribune Bldg. CHICAGO
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PAINT for Structural Iron Work. ROOFING BRUSHES
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Mail to my address, Samples and Booklet. This places me
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A. C. & B. 2-11

a book of 534 pages, including a very complete index. A high
grade of paper is used so that all the illustrations are very
clear—and a good many illustrations are used—also good
sized legible type is used throughout in the descriptions of the
machines.

This is a book which everyone interested in woodworking
machinery should have. In spite of its very expensive and
elaborate nature this book is being sent out free of charge to
all interested parties. Readers of the AMERICAN CARPENTER
AND BUILDER will find it of great value and they may be assured
that the machines illustrated and described therein will meet
their every requirement.

The Defiance Machine Works was established in 1850
and has had a steady and constant growth, keeping abreast
of the times and adding new machines to their line to meet
the new requirement of the woodworking business as occasion
has demanded.

A Practical Drawing Course for Carpenters and Builders

Every young man working at the carpentry trade is am-
bitious to work his way up into a better job. Taking the
advice and good counsels of the older heads in the trade
as to what is the easiest and surest way to do this, he will
work toward the architectural end of the business.

Our best architects and house planners come up from among
the practical men who have had the benefit of a real experi-
ence on the job. A comparatively small amount of study
and practice is all that's required to fit them for this work,
since they already have most of the practical knowledge nec-
essary—gained from actual contact with building problems;
what is needed are instructions in drafting—especially in the
laying down and rendering of perspectives. Many otherwise
successful architects feel themselves deficient in this particu-
lar part of their work; and they know that they are losing
money by it.

Architectural perspective is the name given to the drawing
of a building made from the architect's plans before the build-
ing is erected,—a style of work that of late years has become
exceedingly popular. The demand for architectural perspec-
tives is steadily increasing, because those who build are de-
manding more and more, every year, perspective drawings of
their buildings from the architect, in addition to the plans.

Many people cannot form a correct idea of the appearance
of a building from the detailed plans, and a well-made draw-
ing in perspective, properly shaded and set off by a little land-
scape and secondary detail, pleases the eye, and is a valuable
adjunct to the plans and elevations, especially if these latter
are in competition with those of other architects.

Plans are often sold in competition with better ones, sim-
ply because of the effect produced on the customer by a good
perspective drawing, showing the finished building.

One who can lay out and shade up a good perspective from
plans can demand \$25.00 to \$50.00 and up for each drawing,
according to size and detail, and artists who know this busi-
ness are hard to find.

There is no class of people to whom a correct knowledge
of drawing and perspective is more useful than to architects
and architectural draftsmen and to carpenters and builders
who are ambitious to work ahead into that more profitable
line of business.

In this connection we want to call attention to the courses
offered by mail by the School of Applied Art, E246 Fine
Art Building, Battle Creek, Mich.

Comparatively few are so well favored in circumstances that
they can avail themselves of competent instruction in some
art institute. To the many who wish to study drawing, and
yet are not thus favored, this School of Applied Art is
rendering invaluable service, by the superior, practical nature

"We Have Had 4 Men Lay at Rate of 2,000 Square Feet Cement Sidewalk in Ten Hours"



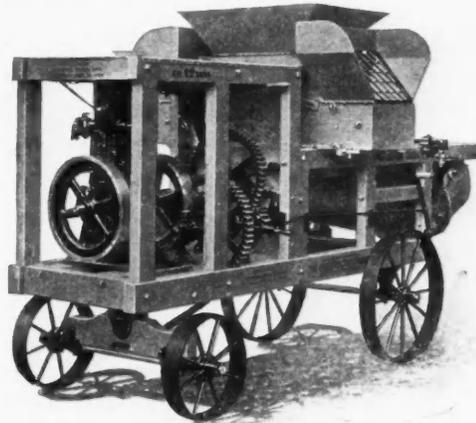
No. 9 Coltrin on Sidewalk Work, Ampere, N. J.

LEMOYNE, PA., Dec. 16, 1910.
 MR. J. B. BRUNNER,
 Lemoyne, Pa.

Dear Sir:—We have used two Coltrin Concrete Mixers for two seasons and consider them the best mixers on the market. We have had four men lay at rate of 2,000 square feet cement sidewalk in 10 hours and can safely recommend the Coltrin to anyone wishing a mixer for all purposes.

Yours truly,
 S. B. LEACH & CO.
 Per S. B. Leach.

**Seven Sizes,
 Steam
 Gas Engine
 Electric
 Hand Power**



**Over 1,600
 in use
 in 40 States**

The No. 9 Coltrin Mixer

**SHIPPED ANYWHERE IN UNITED STATES ON FIVE DAYS' TRIAL
 WRITE FOR 1911 CATALOG**

**SEE THEM AT
 Chicago Cement Show,
 Coliseum, Feb'y 16-23,
 1911
 Spaces 39-40**



The No. 9 Coltrin on Sidewalk, Denver, Colo.

**Manufactured by
 THE KNICKERBOCKER COMPANY
 JACKSON, MICHIGAN**

Granite

TRADE MARK

ROOFING



SIX INCH SOLID LAP

SAFEGUARD

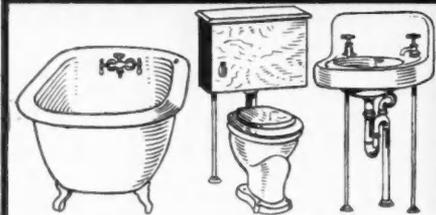
Granite ROOFING

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.

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\$38.95 BUYS THIS COMPLETE BATHROOM OUTFIT



MODERN BATHROOM FOR EVERY HOME

The luxuries of modern plumbing at half the ordinary cost

This outfit is complete—ready for installation. Our standard thread connection enables you to put it in yourself—without any knowledge of plumbing. Complete instructions with every outfit. We have put this outfit into 1900 homes.

Complete Pneumatic Water supply systems from \$42.00 upwards.

Save \$100.00 to \$250.00 on your steam or hot water heating plants.

Send in sketch of building, and we will quote you price on complete system that you can install yourself by following special plans and instructions with each system.

Write for our 100-page catalog FREE.

Learn how you can eliminate exorbitant prices by buying direct from one of the largest concerns in the business, established over thirty-four years. This catalog shows everything in plumbing and gas fitting that you could possibly use, and quotes you prices that you cannot approach elsewhere. Wash stands, sinks, closets, bathtubs, pipe, fittings, steam and hot water heating plants, acetylene lighting plants, gas and electric fixtures, tools of all kinds. A postal will bring the Catalog—Write today to Dept. B.

M. J. GIBBONS ARCADE DAYTON, O.

of its instruction. It rests its claims to patronage chiefly upon the great extent to which it applies the sound method of giving each student separate and individual instruction. The large number of students "making good" is the most satisfactory guaranty that its claims are well based.

Write for particulars and handsome art book.

E-Z Electric Floor Surfacer

Since the installation of electricity in nearly every new building and its general use for lighting purposes, there has been a long-felt want for a light weight, portable electric floor surfacing and polishing machine which can be attached to any electric light socket, without the requirements and delay of "inspection" and which an unskilled workman can operate as well as one thoroughly familiar with the work and the machine.

There have been many attempts to put on the market a machine to meet the various requirements, but they have all been very expensive, cumbersome contrivances, only suitable for large operations and in buildings containing large meters and heavy wiring; hence the demand for a cheap, practical combination machine which can be used for numerous purposes by the wide-awake carpenter and contractor.

The illustration herewith represents the E-Z electric grinding and polishing machine adapted for various purposes in the building line. The cut shows it equipped for grinding and polishing mosaic, terrazzo or composition floors, which is accomplished with a disk containing carborundum blocks, the floor being kept lubricated with a spray of water fed from the tank on the handle. The disk is quickly removed by giving it a backward turn and in its place a scrubbing or polishing brush can be inserted. The manufacturers claim that it will grind down and polish to a perfect finish 200 square feet per hour of the hardest terrazzo flooring. The machine can be used without the tank and spray as a sand papering and polishing machine and will sand paper equally as much floor space. As the paper gradually becomes dull a heavy weight is placed on front of the machine, and as the paper continues to wear another weight is placed back of the motor, thus giving the necessary pressure until a new sheet is required.



It is also claimed that this machine is being used at a great saving of labor in office buildings, department stores, hospitals, clubs, etc., for scrubbing and polishing wood, marble and composition floors.

The weight of the E-Z machine is only fifteen pounds. It is "fool proof"; easily taken from place to place on a street car, can be attached direct to any electric light socket; is extremely simple in construction, all working parts being packed in grease and enclosed within a dust and water proof case. There are no belts, no chains, no moving parts exposed to damage the base or maim the operator. Owing to its lightness, flexibility and peculiar ball-bearing construction it will accomplish the heavy grinding with remarkable rapidity and then put a polish on the surface without leaving a scratch or blemish. The machine is under absolute control of the operator at all times. There is no adjustment necessary for the entire weight of the machine rests upon the brush or

ANDREWS HOT-WATER HEATING

CONTRACTORS, There's Good Money for You Putting in ANDREWS HOT WATER HEATING SYSTEMS in Your Houses



We Saved the Owner \$160

They are sent you "Knock-Down," ready to screw together

THIS SYSTEM is the easiest for you to handle, as we do all the work of planning, cutting and fitting—yes, and take the risk of the plant's success. We know the Andrews Systems are the best that can be produced in every way. Your Carpenter's helper can easily set up the plant, following our complete and simple directions. It will pay you to investigate our proposition which enables you to make the profit that would otherwise go to the heating contractor. Send us a rough sketch for an estimate on your next job. We will quote you a net price or quote price to your customer, allowing you a commission. Let us help you make money.

Andrews Locomotive Steel Boiler

is made of the strongest steel plate, like big power boilers, is easiest to clean, has more than two times as much heating surface and fire travel as other boilers. It costs more, but will save you from \$20.00 to \$200.00 on coal bills yearly. Ask users near you.

Regurgitating Safety Valve

makes your radiators one-half hotter in very cold weather. It makes Andrews Hot Water System heat up your house as quickly as steam without any steam plant disadvantages; stops "boiling over". It is simple, automatic, safe.

Temperature Control

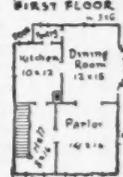
Andrews Thermostat keeps the whole house at 70 degrees or any other point you wish. It watches the fire and operates the dampers, saving you all bother. Accurate, absolutely dependable. Guaranteed for life.

Our Hot-Water Engineers

are famous. From your rough sketch or architect's plans they design your complete hot water system make it complete in the factory and ship it to you "knock down" with such complete and simple directions that you, your carpenter's helper or any handy man can put it in.

How to Get An Andrews System

First send us a rough sketch or architect's plans of the house to be heated, giving size of rooms, windows, height of ceilings and construction, and get our **free estimate** of cost complete. The plant is then made complete in our factory and shipped "knock down" either to you or to your customer, as you may prefer. We pay freight and furnish a 360 Days Free Trial Guaranty Bond. For your services we allow a very fair commission.



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has capacity of 3,000 Systems per year. It is equipped with special tools and labor saving devices which reduce cost and furnish much better plants. We sell direct from factory and save you jobbers' and middlemen's profits.

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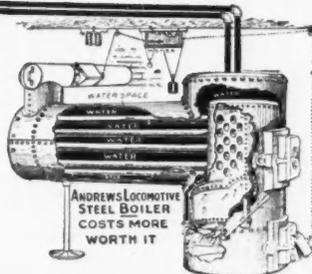
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on concrete. You need this book because you should know about our latest improved COMBINATION HELM PRESSES equipped for making DRY WALL blocks and pressed brick on the one machine. These presses are built in different sizes and for hand and power operation. Do not fail to investigate the Helm DRY WALL building system.

This system will get you the most business because it saves money for the builder. It saves the cost of furring and lathing and makes the building more fireproof while it is absolutely waterproof.

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Mich.

Please send me Free the two books advertised in Am. C. & B.

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Traverse City, Mich.



when in operation. After starting the motor the handle is raised, withdrawing the casters and the machine is propelled over the surface with perfect ease.

The E-Z is also made to swing on a double jointed arm, or bracket, fastened to the wall and can be used in shops for sand papering, grinding or polishing a large variety of work placed on a table, or stand, under it.

Although simple in the extreme, this machine is the result of years of experiment and has been perfected by Mr. John Herr of the John Herr Manufacturing Company, 44 North Fourth street, Philadelphia, Pennsylvania. All those interested should write to him for full information.

Wheeler's "Safety" Brackets

Mr. Contractor and Builder, how do you manage to make a profit with the prevailing high prices paid for labor and materials? You don't make what you are entitled to, do you?

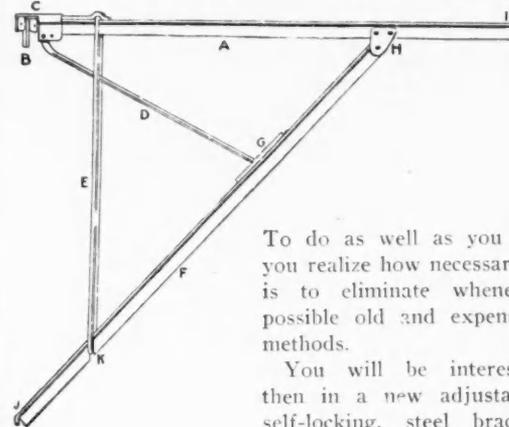


Fig. 1. In Position

To do as well as you do, you realize how necessary it is to eliminate whenever possible old and expensive methods.

You will be interested then in a new adjustable, self-locking, steel bracket scaffold, Wheeler's "Safety" which is being placed on

the market by the American Steel Scaffold Company, 501 Woodward Ave., Detroit. For a moderate cost this invention replaces the old wooden staging or scaffold, a cumbersome and costly contrivance which at best inadequately serves the purpose for which it was intended. The simplicity of this bracket scaffold, its unquestioned strength, its movable head which enables it to be clamped to a siding of any thickness, and its self-locking device at once insuring positive rigidity and safety are some of the features wherein it deserves attention.

Every detail in this scaffold bracket has been thoroughly tested by expert mechanics and engineers. Its general design, its working convenience as well as the size and form of material used have been given special attention so that everything of an experimental or useless nature has been eliminated. We ask your consideration of a device thoroughly practical and one so simple that any workman or laborer can place it in position.

Fig. 1 shows the bracket clamped to siding ready for use.

Fig. 2, the scaffold folded for shipping. Referring to Fig. 1, the arm (A) on which rests the standing board is 3 1/2 feet long and made of 1 1/4-inch tee steel 3/16 of an inch thick. The hook (B) which clamps on to the siding is 2 1/2 inches long and 1 1/4 by 5/16 inch steel.

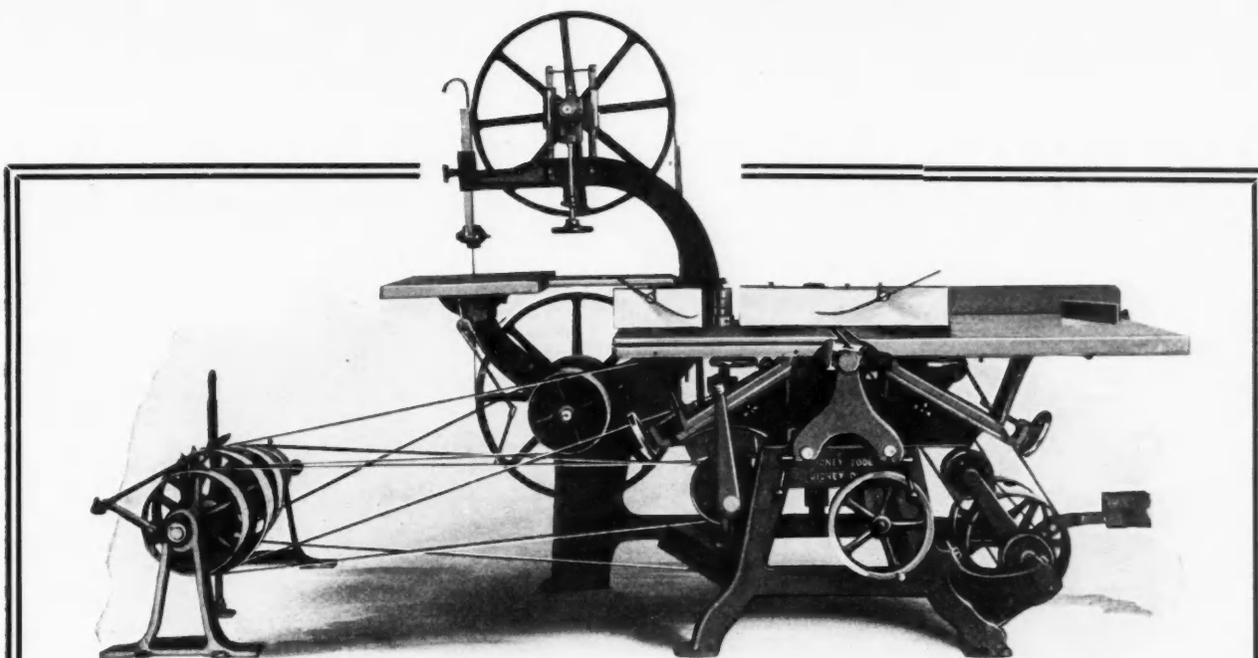
The crosshead (C) is made of 12-gauge steel. The round brace (D) is of 5/8-inch steel. It holds (C) securely in place and locks (E) to (K). The loop (E) which locks (F) in place is of 3/8-inch steel.

The brace (F) is of the same size tee steel as (A) and 4 feet long.

The ratchet (G) in which (D) is locked is made of 18-gauge steel. (H) to which (A) and (F) are riveted is of 12-gauge steel.



Fig. 2 Folded



The FAMOUS No. 14 Universal Woodworker does sixteen different kinds of work

Absolutely, without the shadow of a doubt, the FAMOUS No. 14 is the greatest piece of wood-working machinery ever invented and the greatest labor and time saving device ever offered for contractors' use.

The following woodworking machines are embodied in the FAMOUS No. 14:

- 1 27-inch Band Saw.
- 2 12-inch Jointer.
- 3 Saw Table, with raising or lowering arbor.
- 4 Single Spindle Shaper.
- 5 Boring Attachment arranged on Special Boring Spindle.
- 6 Pony Planer.
- 7 Tongue and Pole Rounder.
- 8 Hollow Chisel Mortiser.
- 9 Single End Tenoner.
- 10 Drum Sander.
- 11 Disc Sander.
- 12 Knife Grinder.
- 13 Emery Grinder.
- 14 Band Re-Saw.
- 15 Spoke Tenoner, Rim Borer and Wheel Equalizer.
- 16 Adjustable Felloe Rounder.

This variety means you can do **all** your mill-work yourself. You can be independent of planing mills with their high charges and delays—you put their profits in your own pocket. You can install a complete machine-shop for the price of one machine.

You don't require an expert to operate the FAMOUS. You don't have to fear breakdowns. The machine is absolutely "fool-proof"—there is nothing complicated, nothing to wear out, and any machinist can operate it.

The adjustments for the different operations are made almost instantly. Every part is readily accessible and "understandable".

Five hundred Famous Universal Woodworkers were sold last year by **sheer force of merit**. Not one complaint has ever been made during their entire history of manufacture. No other woodworkers on earth can show such a record.

Behind the machine is our guarantee—which covers the **entire** life of the woodworker. You **cannot** lose.

Our proposition makes it easy for you to install a FAMOUS. Write today for full details—and for complete descriptive literature.

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57-61 Alexander Street

WINNIPEG
The A. R. Williams Mach'y Co.
260 Princess Street

MONTREAL
Williams & Wilson
320-328 St. James St.

The Perry Lumber Reckoner

This is a book of lumber tables arranged for rapid estimating work. The tables are accurate and the book is of convenient pocket size, strongly bound for wear. The paper and the type are good.

The index of the Perry reckoner is peculiar to itself and is one of the most valuable features, for it greatly increases the speed with which the different sizes may be found. The cut corners give access to the different lengths of the size indexed. The first cut corner gives the 12 and 14 foot lengths; the next gives 16 and 18 foot lengths; the next 20 and 22 foot lengths, and so on. The feet board measure are given for every commercial size and length of lumber, and not only for one piece but also for every other number of pieces up to 101.

Something of what practical men think of the value of this book may be gained from the following letter received not long ago by the publisher, Benjamin L. Jenks.

"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.

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. For further details write to Benjamin L. Jenks, sole publisher, 908 Williamson building, Cleveland, Ohio.

A Fire-Lightning-and Storm-Proof Roofing

Every carpenter and builder interested in roofing that will give the best service should investigate the merits of the Montross metal shingles.

For over 22 years they have proven to be durable, economical and serviceable for every kind of building. They



Get Out of the Shovel Class

Some men dig, dig, dig, all their lives and never get out of the rut. Always striving—never succeeding—they need but a helping hand to point the way. Are you doing the same? Every carpenter, bricklayer or any man in the building trades who wants to get out of the rut should devote his idle time this winter, when work is slack, to a course in DRAFTING. The course is short, but complete, and includes

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Eight Million Barrels

The uniform high quality, the regular setting properties and good popular color of Universal Portland Cement recommend it to the building contractor for concrete work of all kinds.

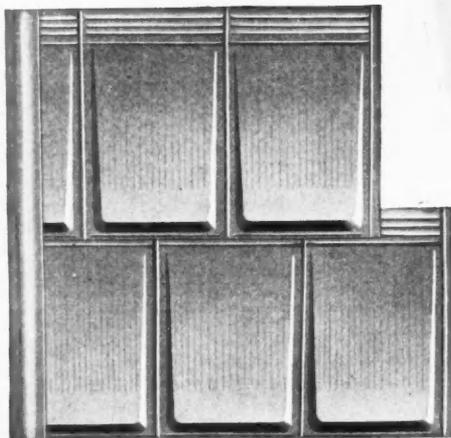
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Put them right on over the old Wooden Shingles. Saves Time, Money and Work. Old Shingles add Warmth and saves sheathing.

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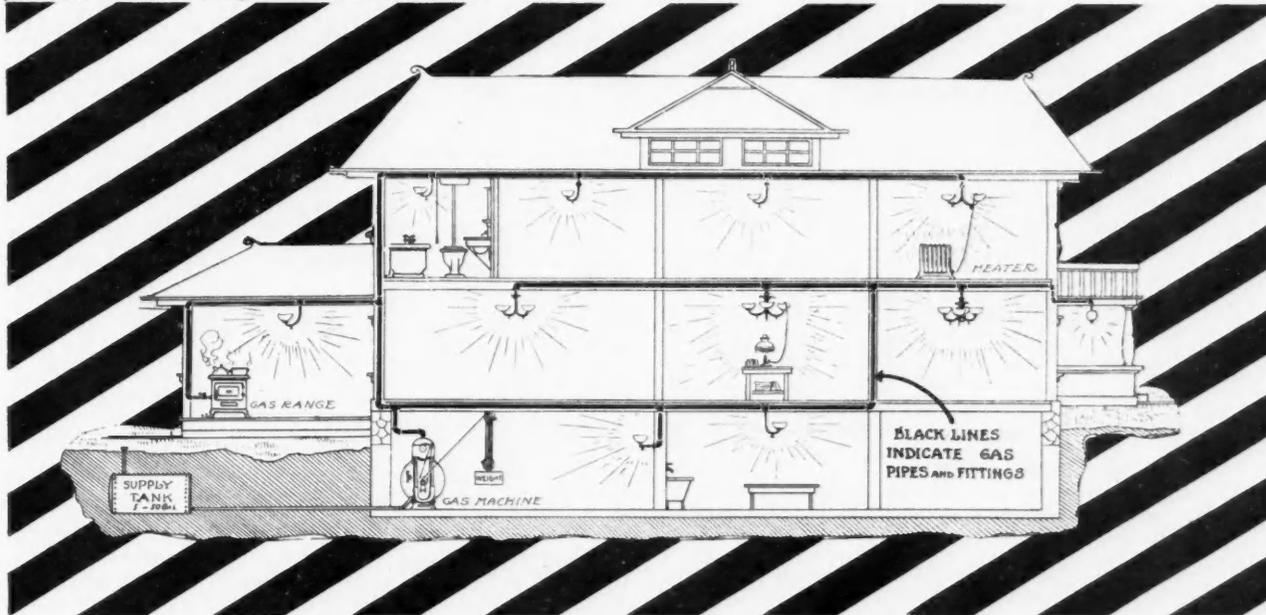
National Sheet Metal Roofing Co., Jersey City, NEW JERSEY

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The Standard Vacuum Gas Machine has revolutionized Gas Production by means of a Vacuum Cold Process. Airgas can be used for Lighting, Heating, Cooking and Industrial Purposes. Airgas is made without the application of any heat and consists of 97 per cent of air that you breathe and 3 per cent of Gas. Machines are made in different sizes, for small homes, big residences, large buildings, or can be made to supply gas for entire towns up to 20,000 people. Gas made automatically throughout. No cleaning. No work filling machine. It runs itself. Uses Gasoline, Benzine or Naptha, also called Petrol, or Motorspirits of any grade. Standard Vacuum Airgas can be made for 15 cents per 1,000 cubic feet. 32 times cheaper than electricity, 25 times cheaper than acetylene. 12 times cheaper than common kerosene oil lamps and 10 times cheaper than Coal or City Gas. Machine make gas only when needed, otherwise stands idle. It is always ready. Gas produced instantly. No waiting. All conveniences of city gas, with none of its dangers and its disadvantages.



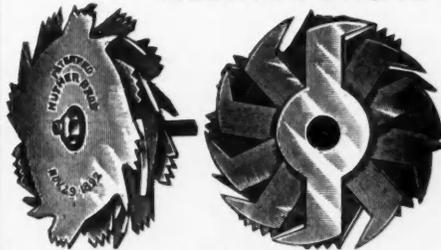
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Will save it's cost in three days' time



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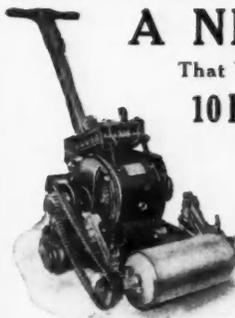
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For cutting any width groove from 1/4" to 2" or over. Will cut a perfect groove, either with or across the grain, and leaves edges smooth. Will ship to any responsible firm on ten days' approval; if not satisfactory you are at liberty to return at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

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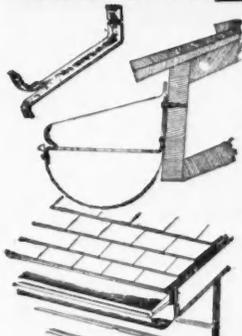
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TAKES WATER ONLY



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A unique and important feature of the IDEAL is that it will not fill with snow and ice. When it sleets the small opening (about one-eighth inch) is quickly closed. This prevents the bursting of the trough, also of the down spout. When it thaws the ice melts, and the entrance opens automatically before the water from the roof reaches it.

The Ideal can now be erected with a Wire Hanger if face-board has mouldings

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insure protection against fire, lightning and storms—three very important features to be considered.

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Montross metal shingles are lighter than slate or tile and do not require a heavy framework to carry them. Will not break or split. They outwear wood shingles and composition roofings. Every carpenter and builder should recommend and lay them as they will give you a good profit and are sure to satisfy your customers.

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The Milks framing instrument is claimed by the manufacturers, to be one of the most remarkable and wonderful inventions in the building field. The claims for this framing instrument are as follows:

It will do the figuring work instantly and with absolute accuracy without mental calculation; gives the length and cuts of hips, valleys, common rafters, jacks and cripples, on any width of building or any pitch of roof, roofs out of square or different pitches of roof; figures stairwork in all its branches,

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Manufactured in narrow widths— $2\frac{1}{4}$ " and $3\frac{1}{4}$ ", and always for sale by first-class lumber dealers.

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Success has dawned for many a man with the marking of the I. C. S. coupon. It was a simple act—an act that placed him under no obligation—but it proved to be the beginning of a career.

Trained men are in demand everywhere. There is not an important labor-employing concern in the world that has not openings for men prepared to make good in positions. "We always need trained men," said a prominent manufacturer recently to a young man applying for a position. "There are not well-trained men enough to meet the smallest part of the demand," declared a leading magazine in a strong editorial. The Help Wanted columns of trade papers teem with advertisements for trained men.

Draftsmen are wanted. Can you trace out a machine or a building? Foremen and Superintendents are wanted. Can you plan and direct work? Chemists are wanted. Can you make an analysis or build up a useful compound? Trained Electricians are wanted. Would it be safe to turn you loose in an electric plant? Civil, Mechanical, and Mining Engineers are wanted. What does that mean to you? Advertising men are wanted. Can you write a business-pulling ad? The Civil Service needs men. Are you prepared to pass a Civil Service examination?

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straight or circle, giving the proper number of steps to go in the space; the exact width of treads and rises and all other measurements necessary; divides distances, figures octagons, circles and braces of all kinds. It can be used by anyone who can read and write. It lasts a life-time. In nineteen seconds it will do the work that it takes an ordinary mechanic from two to three hours to accomplish. It will give the answer to puzzling problems, even to a fraction, in less time than it would take to get a pencil and paper ready, preparatory to figuring them out. Gves correct answers quickly and accurately, thereby saving expense, worry and mistakes. It is the only instrument ever invented that figures stairwork with absolute accuracy, giving the proper number of steps, and the exact run and rise of each.

Mr. Milks, the inventor of this instrument, also claims that lengths of all rafters used in the construction of building could be figured in less than one minute. In proof of this statement a test was made that demonstrated his contentions were correct.

The signed statement which follows is a copy of the original on file at the office of the Parsons Manufacturing Company.

"We timed Mr. Milks in giving the answer to the following problem: What would the lengths of all the rafters be for a hip roof to be placed on building 26 feet 8 inches square? In 30 seconds Mr. Milks gave correct answer to the problem, including lengths of hips, jacks and common rafter." Geo. S. Lynd, Pres.; J. H. Kent, Treas.; P. A. Morrison, Rec. Secy.; S. A. Speas, member, U. B. of C. & J. of A., Local No. 1022.

The Milks framing instrument is manufactured by the Parsons Manufacturing Company, 1800 Washington Avenue, Parsons, Kansas, who also manufacture the Milks Pocket miter box. Reading matter fully describing both framing instrument and miter box will be sent on request.



10 CENTS A DAY BUYS THE Emerson Typewriter

Made in our own factory, at Woodstock, Ill. \$50 now—later the price will be \$100. The best typewriter made. Entire line visible. Back spacer, tabulator, two-color ribbon, universal keyboard, etc. Agents wanted everywhere. One Emerson machine free for a very small service. No selling necessary.

TO GET ONE FREE and to learn of our easy terms and full particulars regarding this unprecedented offer, say to us in a letter: "Mail your FREE OFFER." **The Emerson Typewriter Co., Box 78, Woodstock, Illinois**

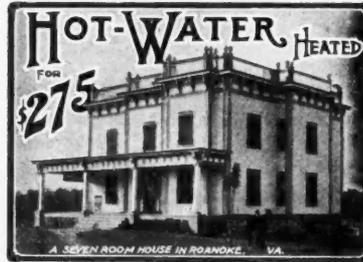


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ASK FOR DELIVERED PRICES

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R. J. KICHLINE, Sales Agent

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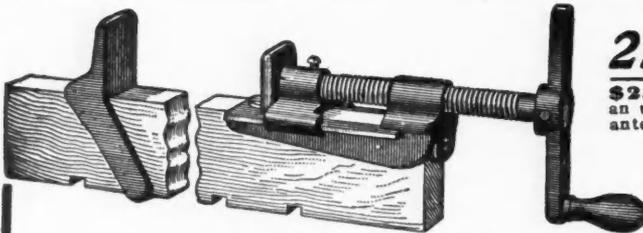
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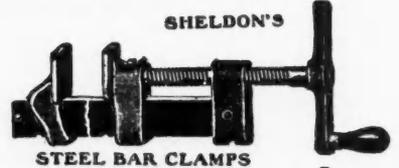
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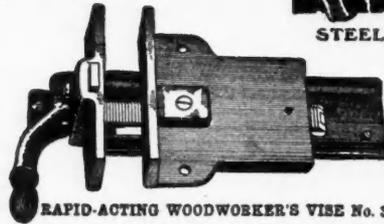
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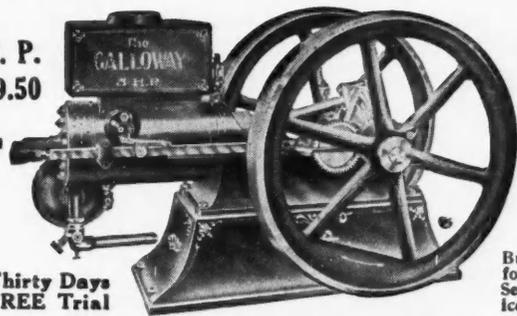
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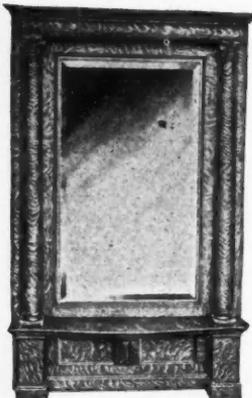
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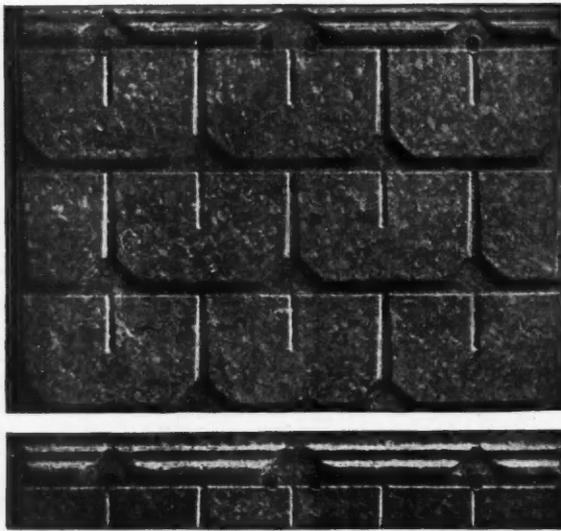
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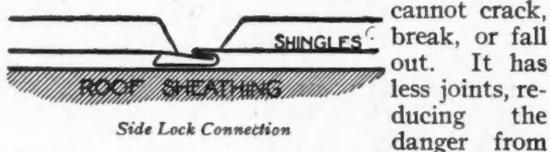
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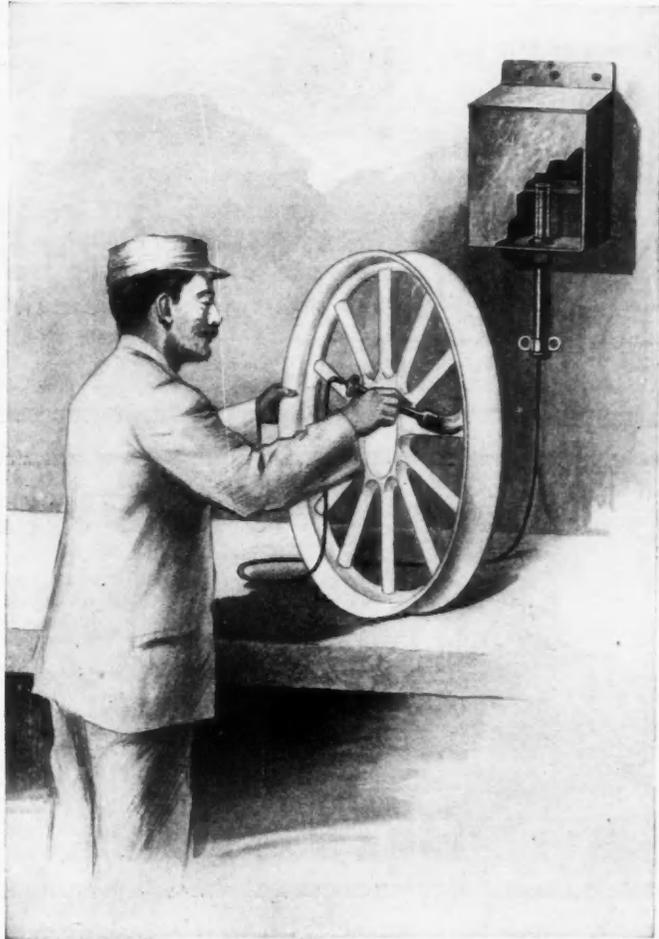
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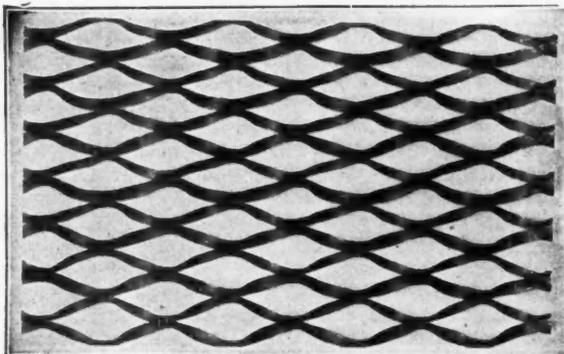
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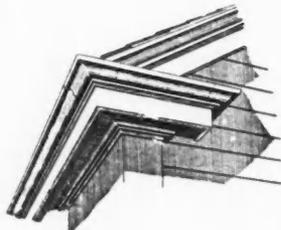
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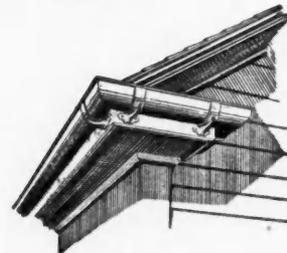
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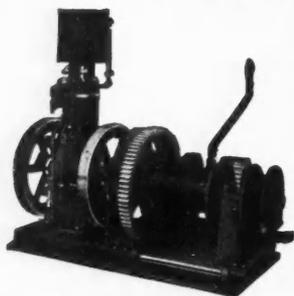


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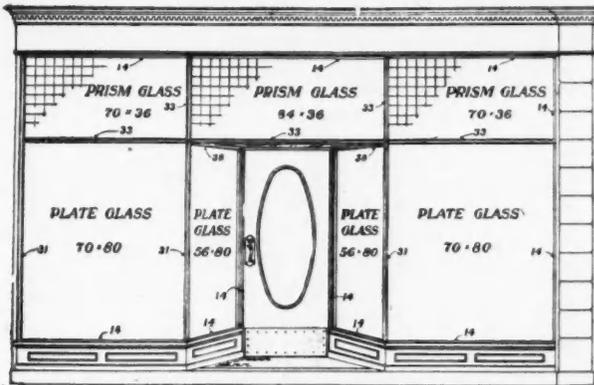


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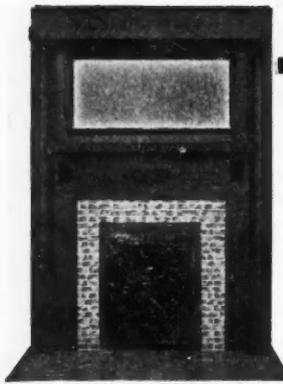
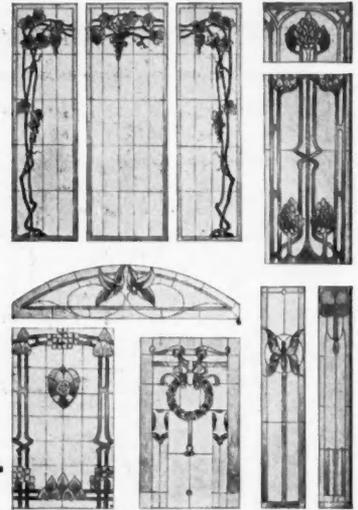
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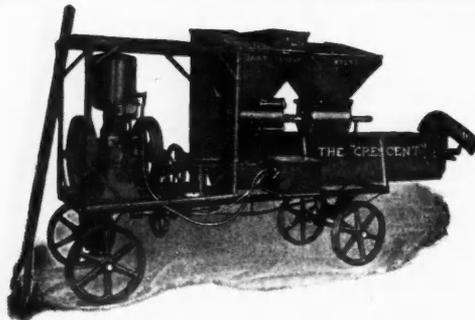
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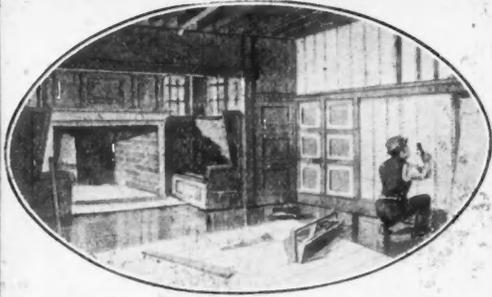
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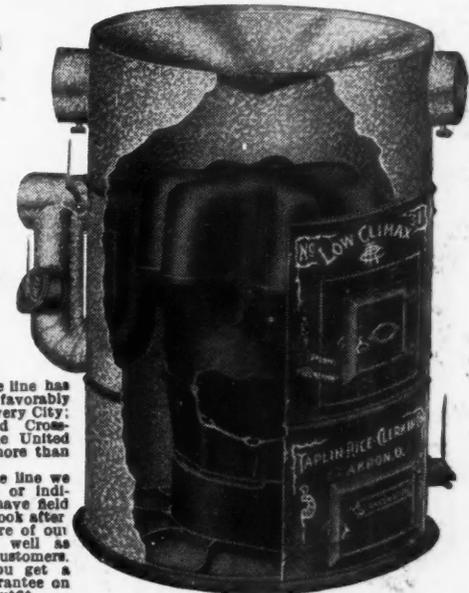
Send for Booklet and Sample

And you can see just what Compo-Board is, and read all about its many advantages and numerous uses.

NORTHWESTERN COMPO-BOARD CO.
5777 Lyndale Ave. No. Minneapolis, Minn.

The border of this advertisement is a cross section view of Compo-Board.

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 Crossroads 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.
4. 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 the 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 Catalog
"Sold in every city, town and cross roads in United States."



THE HOME BEAUTIFUL

can also be made the home durable by erecting

"BERGER'S" Classik
METAL CEILINGS

which have been developed by twenty years of constant manufacturing by The Berger Manufacturing Co., the largest sheet metal works in the world.

Get one of our handsome illustrated Catalogues and show your customers what artistic, durable, sanitary and fireproof steel ceilings you can furnish. There is a good profit in this business.

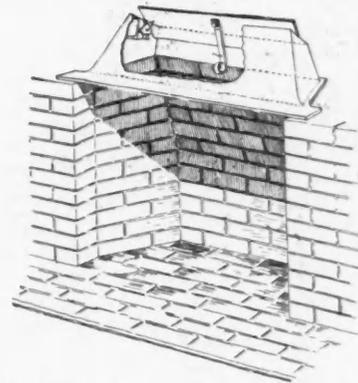
New York
Boston
Philadelphia
Atlanta

Write today

The Berger Mfg. Co.
Canton, Ohio

Minneapolis
Chicago
St. Louis
San Francisco

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER



The "COVERT" Iron Fireplace Throat and Damper

A Smoky Fireplace

is a great annoyance to the owner and a frequent source of trouble and ill-feeling between owner and builder.

No fireplace need smoke—a little knowledge of the proper fashioning of throat and smoke chamber and the proportioning of the flue to the fireplace opening, will prevent all this trouble which is so expensive to remedy if built wrong.

Send for "Hints on Fireplace Construction," sent free on application to

THE H. W. COVERT COMPANY
164 Duane Street NEW YORK

Just Off the Press

ASHBY'S

Designs of Schools and Libraries

display a composition of utility, durability and good, pure architecture without any "gingerbread."

No buildings are too large or too small for our personal and prompt attention.

We develop your own ideas into a practical set of plans and specifications which can be executed to the smallest details into a building that can be built within your means and to your entire satisfaction.

Ashby's "Designs of Schools and Libraries" will be sent to parties interested in the erection of a school building or library for which plans have not yet been procured.

G. W. ASHBY—ARCHITECT
 11th Floor, Medinah Bldg.
 CHICAGO, ILL.

Chehalis Fir Doors

You don't have to educate your customers up to the use of the Fir Door. Just show them a sample of the finish and the price compared to Oak, Mahogany or Walnut; that ends the argument.

Fir is the ideal wood for the stock door. It can be finished to match any trim—Mahogany, Oak or Walnut. It so closely imitates the original that you can only tell the difference by the grain. Matches yellow pine better than white pine does.

Durable Doors

Chehalis Fir Doors are built of Old Growth Yellow Fir and *nothing else*. They are unaffected by heat, cold or moisture. Even if they were not cheaper than other woods, this alone is a strong reason why you should investigate.



Send For Catalog (F)

Gives all details and is free upon request. A dime brings with it samples of Fir done in the natural woods, Oak, Mahogany, Walnut. Write at once.

Chehalis Fir Door Co.
CHEHALIS, WASH.



Profit by Our Facilities

You realize how important the color scheme is to the effect of the completed house. You know how difficult it is to hit upon appropriate combinations. Don't trust to luck. Don't repeat ideas just because they happened to turn out well before. Let us place at your disposal the experience of users of

Lowe Brothers Paint, Varnish and Stain

A postal card explaining your problem will put you in touch with the extensive facilities of our entire organization. Besides making practical suggestions for interior and exterior color schemes we will show you why "High Standard" paint and other products bearing the "Little Blue Flag" pay you best.

Ask for Color Cards and "Harmony in Color" FREE

The Lowe Brothers Co.

450-452 Third St. Dayton, Ohio
Boston New York Chicago Kansas City

WILLIS SKYLIGHTS

A WATER-TIGHT LIGHT - QUICKLY SET UP - WITHOUT TOOLS

IT COSTS NO MORE TO HAVE THE BEST AND THIS IS WHAT YOU GET IN

Willis Skylights

All our skylights are set up in our shop and then knocked down for shipment when practical to do so, thus reducing freight charges and insuring safe delivery.

They are erected without the use of any tools other than a hammer and screw driver. No soldering is necessary. They are water-tight without setting glass in putty.

Every light is guaranteed against defects as to workmanship or material

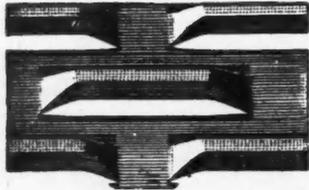
We also make a full line of Cornices, Ventilators, Crestings, Finials and Architectural Sheet Metal.

Our Catalogue "B" on Perfect Light and Ventilation; also, our general Catalogue No. 5 will be sent on request.

Estimates given from plans or specifications.

WILLIS MANUFACTURING CO. GALESBURG, ILL.

SYKES METAL LATH



The lath that is positively different to anything else made; different because it combines more good features.

Cup lath is the only Expanded Metal Lath that can be plastered on either side—cannot be applied wrong because both sides are alike.

We make two kinds—Sykes Expanded Cup Lath, and Sykes Trough Lath. Both are supreme for their own purpose.

The top illustration shows Trough Lath, bottom cut depicts Cup Lath.

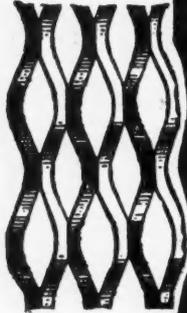
NO PICKLED LATH

Sykes Lath is absolutely guaranteed not to have been pickled in an acid bath. This means that the weight and thickness is not reduced and is less susceptible to rust. Requires no furring out from studs because it is self furring.

It has been approved by U. S. Government and by leading architects, carpenters and builders throughout the country. In fact, when we say it is the best ever made we are simply stating a proven fact.

Samples and prices mailed upon request.

Sykes Metal Lath & Roofing Co.
NILES, OHIO



"TRUS=CON" JOIST HANGERS

Strongest

as shown by University Tests

Made from OPEN HEARTH STEEL.

SAVES cutting and weakening of timber.

SAVES labor in installation.

LOWEST FIRST COST

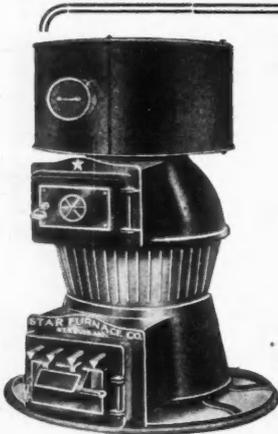
All styles and sizes for brick and Concrete Walls, Steel and Wooden beams.



WRITE TODAY FOR PRICES TO SPECIALTY DEPT.

At the Chicago Cement Show, Feb. 17th to 23rd. Spaces 77, 78 and 79.

TRUSSED CONCRETE STEEL CO.
344 Trussed Concrete Bldg., DETROIT, MICH.



Improved Star Furnace

Meets every requirement for durability, simplicity and ease of management.

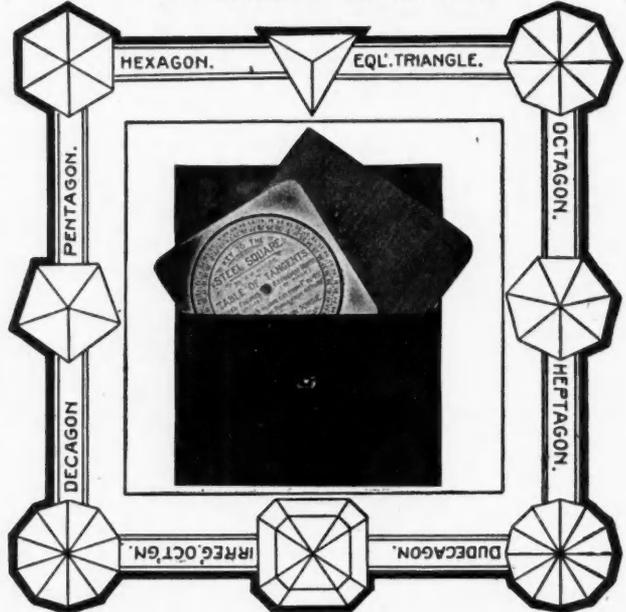
BEST HOT AIR FURNACE ON AMERICAN MARKET

Its heating power is wonderful and cost of upkeep is the minimum

Write for Catalog—It's Interesting
STAR M'FG & F'D'Y CO.
Forest Park Boulevard
St. Louis, Missouri

ALFRED W. WOODS' KEY TO THE STEEL SQUARE

A WONDERFUL INSTRUCTOR



It should be in the possession of every carpenter, or those having work in angles. It tells the whole story of how to use the common steel square, to obtain the cuts in degrees, or by inch rise per foot run for all kinds of framing.

Price \$1.50. Postpaid

AMERICAN CARPENTER & BUILDER
185 Jackson Boulevard, CHICAGO

A WONDERFUL NEW ELLIPSOGRAPH and DIVIDER

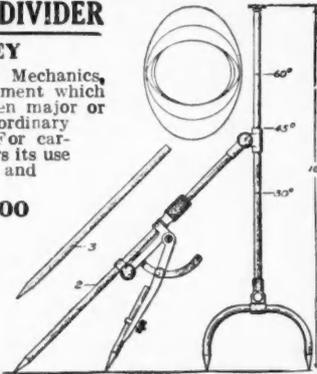
Called the **KELLEY**

Draftsmen, Pattern-makers, Mechanics, etc., can now obtain an instrument which will draw an ellipse of any given major or minor axis, just as readily as an ordinary compass will draw a circle. For carpenters, builders and contractors its use is a necessity for saving time and doing perfect work.

PRICE COMPLETE \$3.00

We positively guarantee satisfaction. Send \$3.00 for this unique instrument and we will send one by return mail and pay charges. It will pay for itself in a saving of time, labor and worry.

J. T. KELLEY
WEST RUSH, N. Y.



The MAN Who Stood Still!



THE man who stood still! You pass him on the street every day. If you take one moment now, you can easily recall at least **one man** who reminds you of this picture. Day after day he follows in the same groove. In good health and in bad he has got to work. Growing older and older, he sees ahead no relief from the ceaseless toil that he has known all through his life. There is no opportunity for him to cease for a **single day** the everlasting "humdrum" that he has known for so long. **He is the man who stood still.**

¶ When he had the chance he failed to seize it. He allowed other men, no smarter, no abler, no better than he, to **crowd him out**. One by one his fellow workers passed him by to better and more profitable work. They left him **always standing** on the threshold of success. But they left him **behind**. He heeded not the beckonings of opportunity. **He is the man who stood still.**

¶ And now at sixty, at seventy or at eighty years you may see him any day if you care to look—a good carpenter, a good builder, a good contractor perhaps—but **that's all**; good in the sense that he can do certain things simply because he has done the same thing **over and over again**—but not good enough to try the new difficult work, the modern up-to-date jobs; the kind that **pay good money**. No, he cannot do these things—he never learned how. **He is the man who stood still.**

¶ You don't want to stick to the plane, the saw and the hammer all your life. If you are a contractor or a builder don't you want **bigger work** than just barns, sheds and now and then a house or two?

¶ If you are a draftsman, an apprentice or assistant in an architect's office you don't want to remain in your present position any longer than you have to; you want to make your present work the stepping stone to a **bigger position**, which will be your **life's work**.

¶ You don't want to **stand still** and see your friends step ahead to enjoyable, well paid, **independent work**, simply because they "snap up" the same opportunities, the same chances that are **offered you**. **It is the natural ambition of man to want to keep up with his fellows.**

¶ The only way that you or any other man **can keep up** is through **study**—study of your chosen work. If there is a certain part of your work that you don't thoroughly understand then some time when that kind of work **has got to be done** some other man is going to **step up ahead of you** and do it. **He learned how. KNOWLEDGE IS THE GREAT LEVELER.** There is no true independence where there is lack of training.

¶ You have the chance **now** within your grasp to get this necessary training. This advertisement is an absolutely direct appeal to **you**. No matter how good a position you hold now—no matter how much work you are getting—no matter how well you are paid for it—this advertisement holds as much interest for you as the man who is actually **looking for work**.

¶ **At no risk to you**—without the slightest obligation on your part—we offer you the really great opportunity of perfecting yourself in your life's chosen work. Don't pass this page by until you have made up your mind to give the rest of this advertisement careful study. Look at the picture again at the top of this page—look at it carefully. You owe it to yourself and to those who may be dependent upon you to take advantage of every possible chance for bettering yourself.

¶ **You cannot afford to be the man who stood still.**

Radford's Cyclopedia of Construction

Ⓒ The up-to-date mechanic in every kind of work trains his **brain** even more carefully than he ever trained his hand. That is the slogan of Twentieth Century Success—the **trained mind in a trained body.**

Ⓒ The man who uses the compass, the steel square, the chisel or the saw has got to have a true eye and steady hand. He learns in his apprenticeship how to train his eye and hand to the top notch of efficiency. Too often, however, this same man of the **trained body** forgets to **train the mind** that **directs** the work of the body. This kind of a man with the **untrained mind**, while he may be able to do **mechanical work** well enough, cannot do **brain work** and is bound to get in a **rut in the long run.** It takes a trained mind to read plans and blue prints; that's why so many workers live and die in the same kind of a position. You have seen the result on the first page of this advertisement. **The untrained man becomes THE MAN WHO STOOD STILL.**

Ⓒ At the cost of thousands of dollars and years of experience of hundreds of the best known practical building experts, architects and construction engineers, we have collected and prepared the material for the greatest, most comprehensive, the most practical, thorough and understandable

CYCLOPEDIA of CONSTRUCTION, CARPENTRY, BUILDING, and ARCHITECTURE

ever before even conceived.

Twelve Great Big Massive Volumes

and one extra large volume of 300 pages of actual plans, drawn by foremost architects.

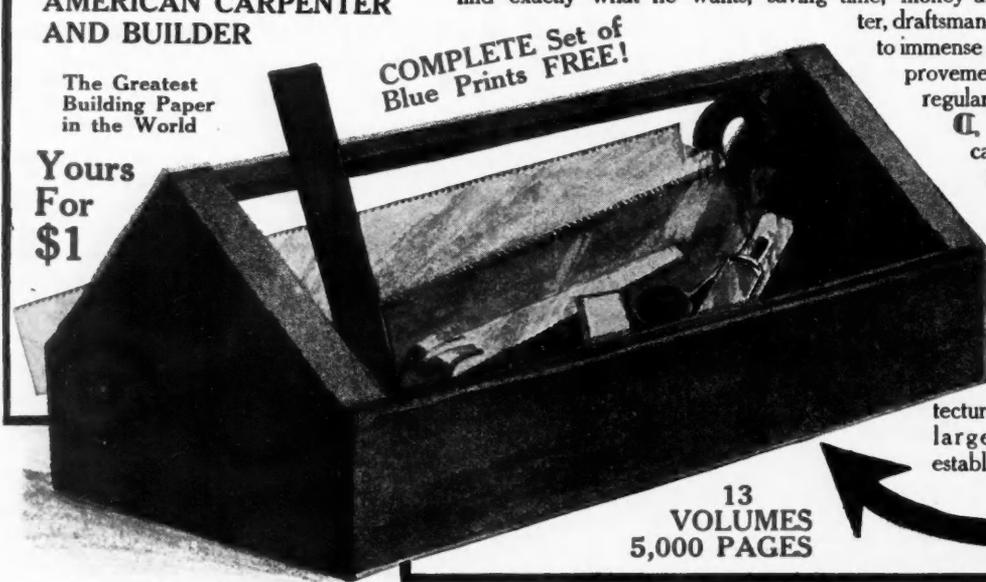
Selected for their excellence, economy of design and popularity along

With a Full Year's Subscription to the
the building classes. The volume of plans is portfolio size, and is in itself worth the special price asked for the complete set.

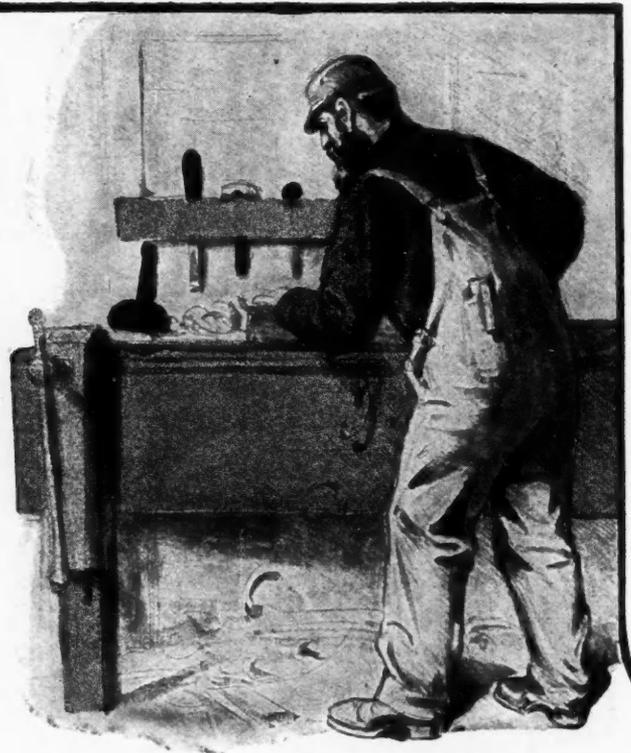
AMERICAN CARPENTER
AND BUILDER

The Greatest
Building Paper
in the World

Yours
For
\$1



13
VOLUMES
5,000 PAGES



Two Kinds of Two Kinds

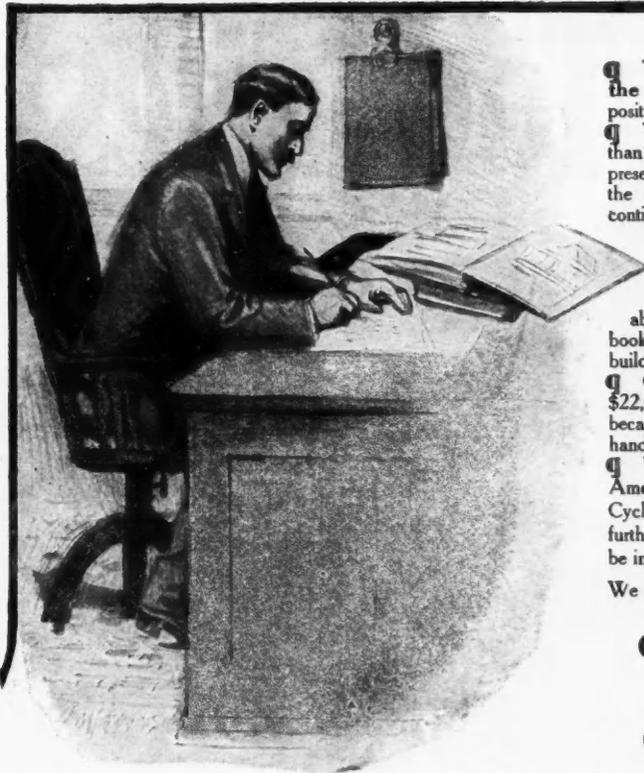
THAT IS NOT ALL YOU GET

We positively guarantee to furnish, free of all extra cost, one complete set of working blue prints, to be selected from any of the 300 plans shown in the big portfolio—the appendix of plans. These blue prints are guaranteed in every way for accuracy in printing, measurement and design.

Ⓒ The contractor and builder can use these plans to get business by showing them to **prospective** builders. The man who intends to build will find exactly what he wants, saving time, money and expense. The carpenter, draftsman and apprentice can use them to immense advantage for study and improvement in connection with the regular features of the Cyclopaedia.

Ⓒ The only reason that we can make you an offer like this is because The Radford Architectural Company, publishers of the Cyclopaedia, are the largest publishers of architectural and building books in the world and in addition the Radford Architectural Company is the largest architectural establishment in the world.

12 BIG VOLUMES SENT FOR ONLY \$1.00



¶ The difference between the man at the desk and the man at the bench is training—the kind of training that demands well paid positions of dignity and importance.

¶ We don't mean by this that the desk job is always better than the bench job. We don't mean that you should change your present work. We do mean, however, that you must combine more of the desk man's kind of training with your work if you want to continue a live factor in your trade.

¶ The desk man uses one kind of tool that too often the bench man neglects entirely. That tool—the best one in the whole kit—is books; practical books that tell how to do your work in the easiest, the best and latest ways; books that tell you all about each and every feature of your work to the smallest detail; books that keep you in touch with the biggest and smallest details of building construction.

¶ Government Statistics prove that the average desk man earns \$22,000.00 more in a lifetime than the average bench man simply because of this main fact—he trains the brain as well as the eye and hand.

¶ We have made special arrangements with the publishers of the American Carpenter and Builder so that we can offer a few sets of the Cyclopaedia to readers of the paper simply as an advertisement. We have further arranged to include the paper in our offer. We know that you will be interested in this stupendous work which applies so particularly to you.

We are shipping the books now, on the second edition

**Cheaper than even Second-hand Books
were ever sold**

One-Fourth Regular Price

**ONE THOUSAND SETS AT TWENTY-ONE
CENTS ON THE DOLLAR**

Workers and of Tools

¶ We are just off the press with the Brand New Second Edition. The cost of getting together this set of books has been incalculable. The task of preparing it has been gigantic. It has taken the entire time of hundreds of writers and editors. Our entire organization has had a hand in preparing it and we have picked outside help here and there from the best and most practical material available. We want to advertise this

set of books at the start in the most effective way, and we believe that we can do this by selling a few sets if necessary at a loss for the sake of the advertising it will give future editions. You can reserve a complete set now for

\$23.80 instead of \$79.00

**Free on five days' approval---No risk to you---No obligation
No expense, all express charges prepaid**

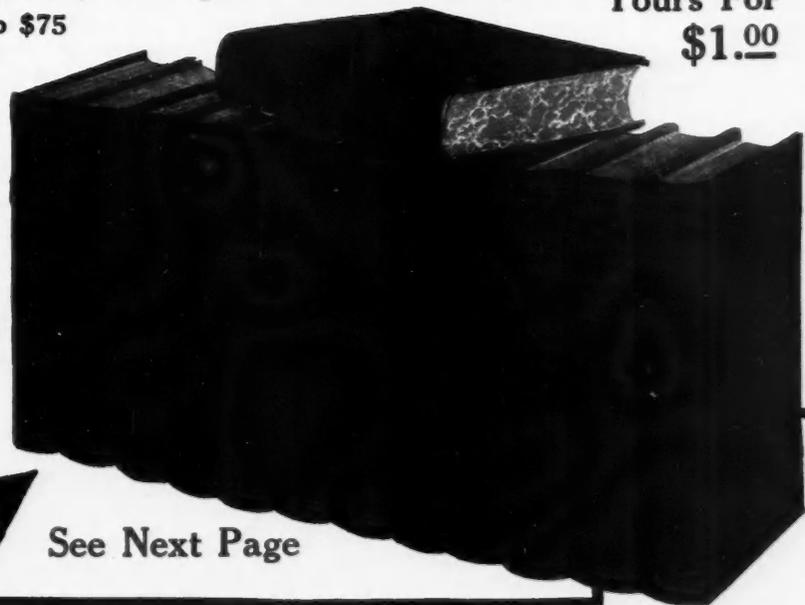
Blue Prints Alone Worth \$50 to \$75

¶ We do this simply because we know you will advertise the books—you will recommend them to your friends if you find them as good as we say they are. We are willing to put out the first one thousand sets at a loss simply for the sake of your good will. Any printer friend of yours will tell you that thirteen such volumes and a complete set of blue prints (regular price of blue prints \$50 to \$75) cannot be sold for \$23.80 at any profit.

Price without magazine is \$22.80.

¶ 5,000 pages—thousands of illustrations, diagrams, charts, plans and working drawings; handsomely and durably bound; de luxe books in every particular.

**MASSIVE
PORTFOLIO SIZE
VOLUME OF
PLANS
EXTRA!**

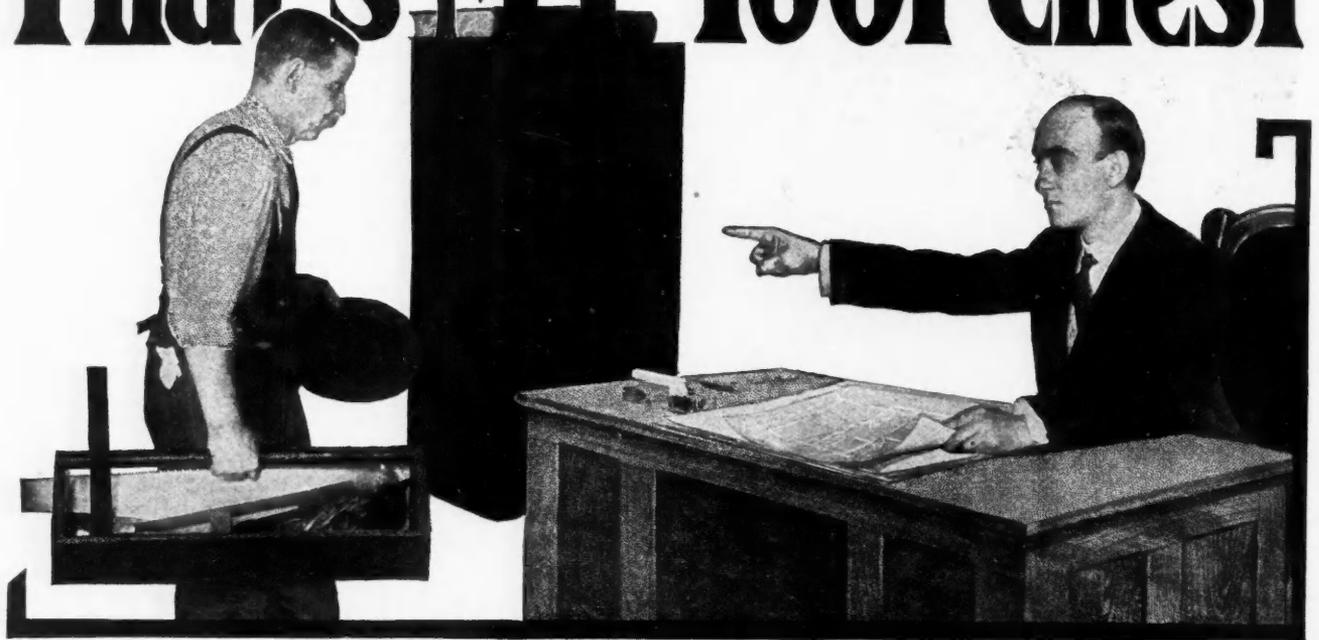


See Next Page

**Yours For
\$1.00**

EXPRESS PREPAID

That's MY Tool Chest



You can almost hear the man at the desk say: "Kelly, this job has got to be done **right**. I haven't anyone else to send and you will have to do. If you had ever studied that set of books there you would know how to do this work now. But there is no time now to find out; do the best you can and let this be a lesson to you to learn more about your own work. Why, man, I am finding out new things every day; finding them out through these books. It is the way I hold my job—**THAT'S MY TOOL CHEST.**"

SMALL LIST OF CONTENTS

To Realize their Tremendous Scope You Must See the Books

Sent for only \$1.00—Subject to your approval—Express prepaid

Carpentry
Stair Building
Steel Square

Correct Measurements
How to Test Steel Square
Key to Steel Square

Possibilities of Steel Square
Test Questions, Practical
Problems, Reviews

Framing
Roof Construction
Roof Trusses and Mill
Building Construction
Strength of Material
Shingling—All Kinds
Roofing Materials
Foundations, Retaining
Walls, etc.
Piles and Caissons

Excavating
Masonry
Brick Laying
Stone Cutting
Mortars, Limes, Cement, etc.
Sewers and Drains
House Drainage and Sanitation

Estimating and Superintendence
Laws of Building Contracts
Painting and Glazing
Plastering Hardware
Blue Printing
Handicraft Work in the Home
Finishing Wood of all Kinds

This set of books is built from the ground up. It's for the practical man. It tells the how and why of everything pertaining to building construction without difficult mathematics. "Be practical, thorough, self-explanatory"; that's the instructions under which every page of this stupendous work was written.

Radford
Architectural
Company
11th Floor, Medinah
Building, Chicago

Please send set of your 13-volume Cyclopedia of Construction to me for five days' free examination, express prepaid, under the terms of your Advance Offer. I enclose \$1.00 deposit which you agree to return if I decide not to buy the books after examination. If I keep the books I will pay \$2.00 a month until the special price \$23.80 is paid (including year's subscription to Am. Carp. & Bldr.); otherwise I will notify you within five days after receipt of them. You also agree to furnish set of blue prints, if ordered within 2 months after acceptance of books.

Name _____
Address _____
Employer _____

We are just off the press NOW with the first edition. **CUT THE COUPON AND MAIL IT NOW; YOU CANNOT LOSE ANYTHING.** You will save \$55.20 if you finally buy after you have seen the books and have them in your possession for five days; you will doubtless buy LATER anyway, but you will not be able to buy at this BARGAIN ADVANCE PRICE. Why hesitate—why delay—when we take all the risk? Read the coupon—you don't risk even one cent.

Specifications for Portland Cement
How to Test Cement
Standard Specifications for Concrete Blocks
Establishing a Concrete Block Business
Concrete Block Systems
Proportions—Sand, Stone, Gravel and Water
How to Overcome Concrete Troubles
Curing Stone by Steam
Color of Concrete Blocks
Waterproofing
Cement Plaster Work
Cement Mortar

General Principles
Practical Applications
Practical Problems in Construction
Fireproofing
Use of Tiles
Ventilation and Plumbing
Heating—Steam, Hot Air, Hot Water, Furnace

Cement Construction

Never before has this subject been so completely treated

Monolithic Concrete Construction
Sidewalks, Pavements and Floors
Expansion Joints
Concrete Floors
Walls and Foundations
Steps and Stairs
Concrete on the Farm
Concrete Tanks and Cisterns
Roofings, Chimneys, etc.
Reinforced Concrete Bridges
Railroad Work, Concrete Ties, Abutments, Culverts

Steel Construction

This subject is handled thoroughly

Placing Radiators
Placing Flues, etc.
Steam Fitting, Gas Fitting, etc.
Architectural, Mechanical, Free Hand and Perspective Drawing
Thousands of other subjects too numerous to mention.

Concrete Dams
Retaining Walls
Reinforced Concrete
Various Systems, Tables
Showing How to Reinforce
Lawn Ornaments—Fountains, Seats, Vases, Sun Dials
Cement Ornamentation—Porches, Columns, Fences, Capitals
Farm Buildings
Hundreds of Perspective Views and Floor Plans of Cement, Plaster and Concrete Block Houses

Rendering in Pen and Ink and Wash
Lettering
Practical Problems in Mensuration
Water Color Effects
The Five Orders
Numerous to mention.

The addition of the American Carpenter and Builder insures complete "up-to-dateness," coming as it does every month, describing the latest and newest features of building construction.

RADFORD ARCHITECTURAL CO.

ENTIRE 11TH FLOOR, MEDINAH BLDG., CHICAGO

SENT FOR ONLY \$1.00 IMMEDIATE DELIVERY

INTERESTED IN TOOLS?

The largest display that has ever been made will be at the Coliseum, Chicago, Feb. 28th.-March 4th, inclusive. The best saw display there, will be that of the **Geo. H. Bishop & Co.** (south end of center aisle). Tool users wishing to attend can secure fifty cent tickets of admission for ten cents, by calling at their Chicago office, 134 E. Lake St. Over 500 prizes will be distributed among the visiting tool users who secure proper tickets through their hardware dealers or at the above address.

GEO. H. BISHOP & CO., Lawrenceburg, Indiana, U.S. A.

Makers of

Fine Hand Made Hand Saws

The Purest of Quality Our "GREYHOUND" Hand Saw



IN introducing our "GREYHOUND" brand of Saws to the trade, we have departed from our usual custom in naming instead of numbering the saw. This saw will be known as our "GREYHOUND" and will be the only Bishop brand of saw known by name.



We have had a Chemist experimenting for years to originate a purity of steel with a fine grain and tough body that would stand up under such a fearless warranty as we place on our "GREYHOUND" brand of saws. We now have it. We know its worth as well as its value. As workers of steel we understand it. We had to name it and we have christened it Bishop's Refined "GREYHOUND" Steel, associating our trade mark with its name. We have in this "GREYHOUND" Saw blade a purity of steel that is tough, tempers accurately and even—together with the special way it is made—enables us to guarantee that this "GREYHOUND" brand of Saws will cut faster and run easier in all kinds of wood, hold its sharpness and set longer than any other makes of good Saws in the world. We Refund the Money if 30 days' trial does not prove our guarantee. Our pride is quality with an honest opportunity for the purchaser to judge. Each Saw is tagged with our warranty on it. No expense has been spared to make this Saw the most perfect in the world. We invite correspondence with anyone who has our "GREYHOUND" brand of saws in use.

Made in both straight and skew back. Packed One in a Box.

In workmanship this saw possesses all the skilled mechanical features known to the art of saw making. The hang of the blade has been carefully studied and adjusted, to suit the fancy of the most critical.

If this saw cannot be found in the Hardware Store and they will not order it for you, write to us. Price for 26 in. saw, \$3.00 delivered. We make anything in Carpenters' Saws.

Architects & Engineers' Supply Co.

DRAWING & SURVEYORS INSTRUMENTS

BOUGHT, SOLD AND REPAIRED

ARTISTS' MATERIALS

1010 Grand Avenue

::

Kansas City, Mo.

PETRO PULP FLOORS

CAN BE LAID On Wood or Concrete Base.

ARE SANITARY, FIREPROOF AND WATERPROOF THE IDEAL FLOORING FOR PUBLIC BUILDINGS OF ALL KINDS.

Laid in two coats. Elasticity of first coat takes care of shrink and swell

FLOOR WILL NOT CRACK.

WE GIVE A SURETY BOND.

EASY TO CLEAN AND WALK ON.

WRITE US TO-DAY AND LET US TELL YOU ALL ABOUT IT.

PETRO PULP FLOOR CO.,

250 New York Life Bldg., KANSAS CITY, MO.

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

SHULTZ MODERN Store Fronts
 of Steel and Brass
 CORNER POSTS, MULLIONS AND TRANSOM BARS



Handsome, 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.

\$10 Down and \$10 Monthly

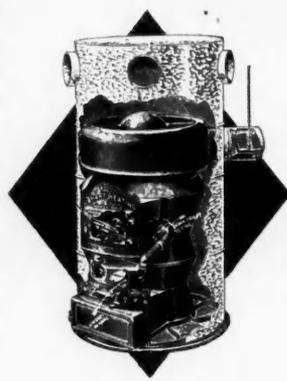
Buy the Jahant Down Draft Furnace.

Send us the floor plan and \$10. The furnace will be sent all ready for you to install.

Year's Trial

Money back if not satisfactory. Send for our big, free furnace book—it tells all about heating systems

The Jahant Heating Co.
 1 Mill St. Akron, O.



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.

CONTRACTORS and BUILDERS
 THIS WILL INTEREST YOU

A furnace for small houses, cottages and bungalows, at a small price.

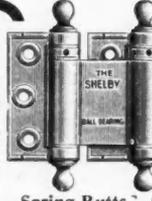
NO PIPES—NO LOST HEAT

Write us for particulars about the Great Bell Furnace.

American Bell & Foundry Company
 NORTHVILLE, MICH.



Don't Forget The Shelby "CHIEF"



Double Acting Ball-Bearing Floor Hinge when you are making up your specifications for hardware.

We also make double and single acting, ball-bearing Spring Butts, Door Holders, Door Bumpers, Push Plates, Inside Door Latch Sets, Mortise Latches, Sash Locks, Sash Lifts, Seven Styles of Screen Door Hinges, Nine Styles of Coat and Hat Hooks, and many other articles of builders' hardware.

The CHIEF Floor Hinge

Spring Butts

Write us or ask your dealer about our line of hardware.

The Shelby Spring Hinge Co.
 SHELBY, OHIO

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

When Rebuilding
 Don't forget that

Pullman Spring Sash Balances



May be fitted to old style windows without any change in the woodwork. Merely cut in a mortise in the frame. Let us tell you about them.

PULLMAN MFG. CO.
 13 Allen St., Rochester, N. Y.
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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

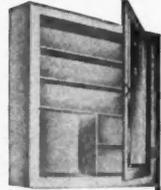
Costs less than wood and is better. Should be in every bathroom.

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

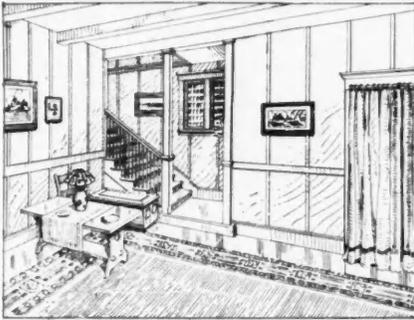
Made in four styles and three sizes. **Price \$7.00 and up.** Send for illustrated circular.

HESS, 920L, Tacoma Bldg., Chicago

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

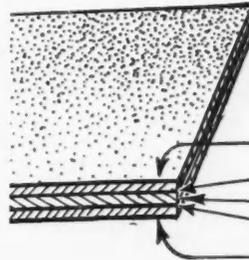


UTILITY WALL BOARD



Samples are FREE Send for FREE SAMPLES and CIRCULARS Quick

A Fibrous Waterproof Board in Sheets To be Used Instead of Lath and Plaster For New Buildings or Repair Work



MR. CONTRACTOR:

This is your chance to make more money and finish your jobs quicker.

Every up-to-date builder should use Utility Board at once.

Remember that all the delays of the plasterer are a thing of the past for those who use this modern building material.

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.

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 dirt—no ruined decorations—warm in winter and cool in summer.

THE HEPPE'S COMPANY, 4503 Fillmore Street, CHICAGO, ILL.

Artistic Domes and Fire Screens

Mosaic or Inlaid Glass for Wainscoting or Wall Decorations. Perfect and Permanent Reproductions on Glass from Photographs or Paintings of Persons and Places.

ARTHUR MICHAUDEL

AMERICAN ART INSTITUTE FOR STAINED GLASS WINDOWS

542 N. Paulina St., Cor Ohio St., CHICAGO



To Prove to You the high, standardized construction and composition of Carey's Roofing, we want to send to you Booklet and Sample FREE and give you practical information regarding Carey's Roofing based on 25 years' actual time-proved tests. Carey's Roofing is equally adapted to flat or steep surfaces, wood-sheathing, tile or concrete. Whether your contract is large or small, we want to show you the advantage of using a standardized roofing material.

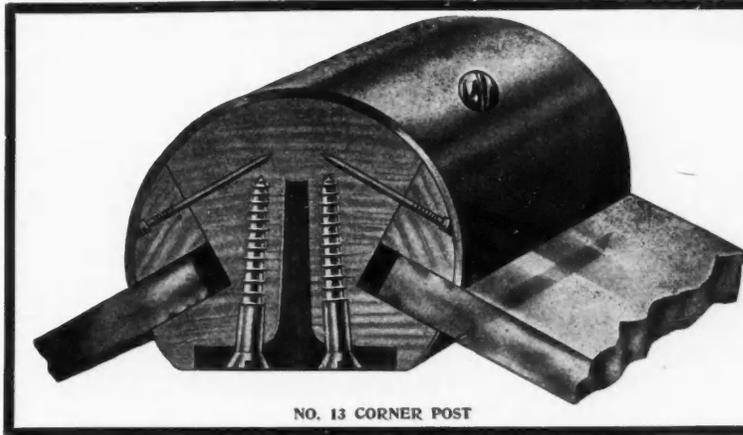
THE PHILIP CAREY MFG. CO.

58 Wayne Avenue

50 Branches

Cincinnati, O.

"FAMOUS FOR DURABILITY"



NO. 13 CORNER POST

The Coulson Patent Store Front Construction

makes the most practical, complete and modern store front and enables the merchant to display his goods to the best advantage.

It is specified by the leading architects for both new and remodeled store fronts, and recommended by Plate Glass Insurance Companies.

Write for Illustrated Catalogue "E-800".

J. W. Coulson & Co.

234 N. Third St.,

Columbus Ohio



We Want a Builder In Every Town

We Have An Attractive Proposition For One Carpenter Or Builder In Every Community To Take Orders For Our Widely Advertised

Edwards' Metal Spanish Tile

ARE EASILY SOLD BY OUR AGENTS

Home Owners Everywhere Are Reading Our Advertisements In The Leading Magazines

Edwards' Interlocking Metal Spanish Tile

ARCHITECTS EVERYWHERE SPECIFY THIS ATTRACTIVE ROOFING

Edwards' Metal Tile are stamped out of the highest quality Worcester Grade Terne Plate, size 10 x 14 inches, furnished either painted or heavily galvanized. They are provided with our patented interlocking device, which conceals all nails, makes it possible to get a perfectly moisture proof roof without soldering and without danger of having the tile crack open in extremely cold or hot weather. Edwards Metal Spanish Tile looks exactly like the best Terra Cotta Tile. They have the decided advantage of being much lighter, easier to apply, longer lived and cost much less.

Write us today about your territory. Here's an opportunity you should not miss. Many carpenters and builders have been so successful taking orders and laying out Metal Spanish Tile that they now devote their entire time to this business. Others have made big profits selling and laying our metal tile roofing "between jobs." We show you how to build up an independent, profitable business in your own community. Write for our proposition today. The territory is going fast. Don't be too late. Send a postal right now.

The Edwards Manufacturing Company

"THE SHEET METAL FOLKS"

401-417 Eggleston Avenue

Cincinnati, Ohio

THE WORLD'S LARGEST MANUFACTURERS OF METAL ROOFING, METAL SHINGLES AND METAL CEILINGS

Bradford Reds

BRICK MANTELS
— AND —
FRONT BRICK



Trade Mark—Reg. U. S. Pat. Off.

MANTEL CATALOGUE AND
BOOK OF HOUSE DESIGNS
— FOR DISTRIBUTION —

Write Us for Information.
IF WE SELL IT, IT'S RIGHT.

Bradford Pressed Brick Co.

BRADFORD, PA.



MONTROSS METAL SHINGLES

For over 22 years the most Durable, Economical and Serviceable Roofing. Last life of building. Reduce maintenance charges. Endorsed by Architects, Builders, and ALL who have ever used them.

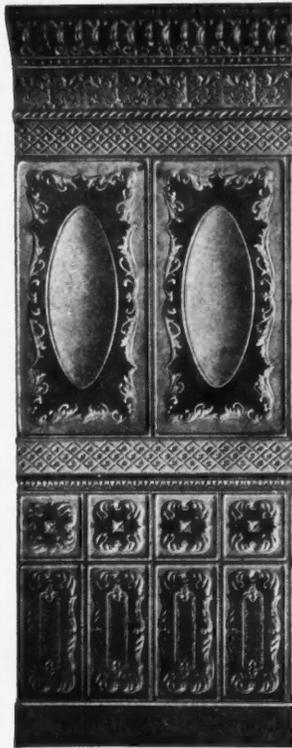
Testimonials of Montross Metal Shingle Users Prove Their Superiority

"On my house 12 years; good today as when put on."—I. L. Hedgers, Copake, N. Y. "Especially adapted to this climate; wood shingles dry out and crack, or torn to pieces by hail storms and winds."—F. J. Israel, Glendine, Mont. "20 years ago I covered my roof with them; are in excellent condition at present time."—Chas. A. Heidrich, Architect, Schenectady, N. Y. "My roof was struck with lightning, but charge was scattered and did no harm."—U. S. Moore, Lomax, Ill. "On my roof 14 years and not a leak so far; best roofing I have ever used."—B. L. Blue, Lawrenceburg, Tenn.

Montross Metal Shingles are made of prime tin plates, embossed in practical designs, and then galvanized or painted. Patent side-lock allows for contraction and expansion of metal and prevents any leakage. Won't rattle or blow off. Easily laid; no soldering. Lighter than slate or tile and outwear wood shingles or composition roofing. Are suitable for all buildings. Allow you a good profit on your work and sure to satisfy your customers.

LOCAL AGENTS WANTED. We have an attractive proposition to offer you to act as our agent in your home town. If you are a hustler and want to make money, write us, TODAY. Send for Illustrated Catalogue, Testimonials, Prices, etc., and get in line for more business and more profits this Spring.

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



THE most artistic and best metal ceiling on the market.

Beautiful designs—double beaded invisible dust proof joint—easiest ceiling to apply and costs no more than the other kind.

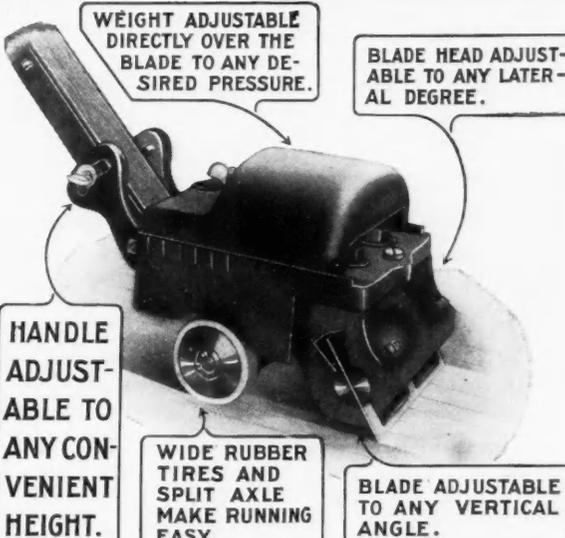
Let us convince you. Send us dimensions of surface to be covered and we will submit plans and prices that will interest you.

If you are in need of good goods at a moderate price write to us for our catalogue before placing your order.

The Tiffin Art Metal Company

Broad and Second Ave. TIFFIN, OHIO

METAL SIDEWALL
Manufacturers of
Never-Leak Metallic Shingles, Painted and Galvanized Corrugated and V Crimp Roofings, Eaves Trough, Conductor Pipe, Ridge Rolls, etc.



Don't take my word for it that the Adjustable Floor Scraper

is the BEST ONE MADE. I will ship one ON APPROVAL and let you be your own judge. Use it three days and then if not perfectly satisfied, return it at MY EXPENSE. Price complete, with blades, sharpener and wrench \$40, no discount. Tell me NOW to ship ON APPROVAL.

H. P. DIDRIKSEN
941 Riverside Drive South Bend, Indiana

\$13,245 IN 110 DAYS

R. V. Zimmerman, an Indiana farmer, (address upon application), as sales agent for our

NEW INVENTION

ordered \$13,245 worth in 110 days, and his orders for 9 months total **OVER \$30,000.00**

His first experience selling goods. Started at home in spare time while farming. Another agent, M. G. Stoneman, an artist, of Nebraska (address upon application), devoting only spare time, total orders amount to **OVER \$15,000.00**

and placed one order for over \$6,000. He writes: "Best thing ever sold. Not one complaint from 2,000 customers." Another agent, Wm. McCoubrie, a student of Kansas (address upon application), comes next, with total orders of

OVER \$8,000.00

Another agent, C. A. Korstad, a carpenter, of Minnesota (address upon application), furnishes added proof that we offer an extraordinary winner, by ordering

\$2,212 WORTH IN 2 WEEKS

These are just a few of hundreds who have made big money as agents salesmen, managers, for

ALLEN'S POWERFUL PORTABLE BATH APPARATUS



M. Juell



R. V. Zimmerman



M. Stoneman

Nothing like it. Gives every home that long desired blessing—Modern bathing facilities for only \$6.50. Abolishes tubs, bowls, buckets, wash rags, and sponges. Turns any room into a bath room, with hot or cold running water. Think of it. So energizes water, one gallon ample; cleanses almost automatically; no plumbing—no water works—self heating. Gives cleansing, friction, massage, and shower baths. Makes bathing 10 minutes operation. Operates wherever water is obtainable. Easily carried from room to room or packed in grip when travelling. So simple—child can operate. Truly delightful; bathing without the drudgery, inconvenience, annoyance, muss of lugging water, filling tubs, emptying, cleaning, putting away. Surely it has all the features of a popular, easy, quick seller. Think of millions who need—want modern bathing facilities—who will welcome this chance to modernize their homes.

Agents very successful. See what others are doing. Actual results that make you want to seize this opportunity. Investigate anyhow.

See what these agents have ordered. (Address supplied upon application).

M. Juell, Canada, (clerk) over \$7,200; C. C. Fritzel, Iowa (lawyer) over \$6,800; W. S. Harlow, Nebraska, (farmer) over \$6,400; E. Edwards, Nebraska (solicitor), over \$6,300; B. F. Magee, Florida (Physical Director) over \$6,100; A. J. Wilson, Kentucky (Bank Organizer), over \$4,000, and writes:

"Sold 102 Outfits In 14 Days"

F. Oviatt, Iowa, (Minister), over \$800 in 11 days, \$4,000 to date; A. Rogers, Kansas, (Surveyor), over \$3,000 and writes: "Selling baths got me one piece of property;" W. H. Byrd, North Carolina, (Mechanic) over \$2,200, and so it goes. O. P. Schleicher, Ohio, (Minister), writes:

"First 12 Hours' Work Sold 30 Outfits" (PROFIT \$107.25)"

A. P. Lodewick, Maine, (Solicitor), writes: "Lucky I answered ad; it's great; money coming fast; 17 orders to-day; sells on sight." J. B. Hart, Texas, (Carpenter), total orders exceed \$5,000 and writes: "Took 16 orders in 3 hours. Appeals to all. Can't keep from selling it if it is properly demonstrated." Reece of Pennsylvania, (Carpenter) solicited 60 people—sold 55

Don't Envy These People—Let Us Give You an Appointment with exclusive right to demonstrate, sell, deliver, collect, appoint, supply and control sub-agencies, at home or travelling, all or spare time. Previous experience, capital unnecessary.

FREE SAMPLE AND CREDIT

to active agents. Test your ability once, with a real opportunity. Surprising what a little hustle will do. Think what this business means. No competition. New patent—field unworked—demand enormous—price insignificant—fascinating, dignified, exciting work—everything just right for a good business. Allen's Powerful Portable Bath Apparatus is no experiment. Quarter million already sold. Used by U. S. Government. Praised by thousands. Delighted customers say don't see how they ever got along without it.

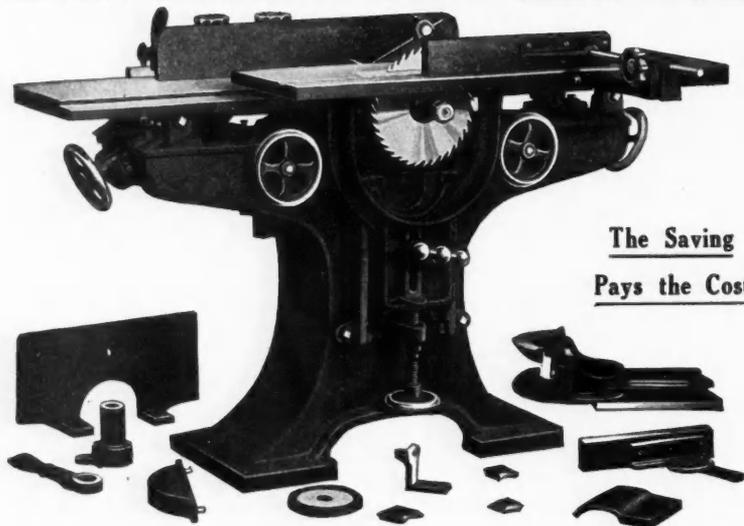
SEND NO MONEY—INVESTIGATE FIRST

Just spend 1 cent to-day—a postal—to get our free catalogue and high grade agency plan. Act now—be first—don't let someone else get territory you want.



The Allen Mfg. Co.
3221 Allen Building, Toledo, O.

Buy a real variety woodworker—get a machine that makes you independent of local mills, and enables you to obtain cheaper and quicker millwork service



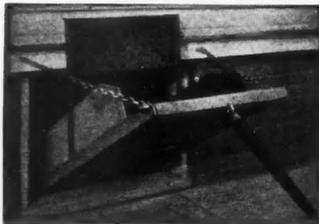
The Saving Pays the Cost

Our 1910 catalog tells all about this wonderful woodworker—and describes other famous CRESCENT woodworking machines. A copy will be sent free upon request.

CRESCENT VARIETY WOODWORKER

HERE'S a Jointer, Borer, Saw-Table, Pole-Rounder, Shaper and Emery Grinder—all combined to form one machine. And every carpenter and builder who wants to run his business on the most economical lines, *needs* one of these machines. The cost is small and the saving in cost of producing millwork, time, labor and worry is great. It can be readily transported from place to place and, in this way, can be used for outside work or in the shop. Simple in construction and operation and is made from the well-known CRESCENT quality materials. Can be driven with equal success with gasoline engine or electric motor.

The Crescent Machine Co., 224 Main St., Leetonia, Ohio



TAYLOR FOLDING COAL CHUTES

FIT ANY WINDOW ARE OUT OF SIGHT WHEN NOT IN USE
They are handy and durable, keeping basement windows in harmony, and they afford a light coal bin. Handles either wood or coal. **OURS IS THE COMPLETE LINE.**

WE CATER TO THOSE WHO WANT THE BEST
TAYLOR COAL CHUTE CO. KEWANEE, ILL.

GENUINE BANGOR

**Roofing Slate
Structural Slate
Blackboards**

Large Facilities, Prompt Deliveries

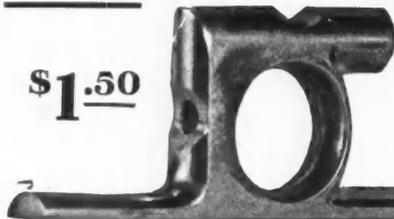
EAST BANGOR CONSOLIDATED SLATE CO. East Bangor, Pa.

DOW
Wire & Iron Works
(Incorporated)
LOUISVILLE, KY.

IRON LINTELS

**Beams, Angles, Anchors, Hangers.
Ornamental Cast Iron Fronts and Stairways.**

\$1.50

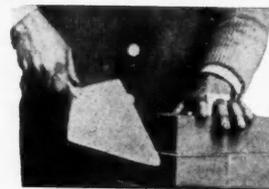


Improved Hand Plumb and Level

SAVES its cost every day in the year. Takes place of the old style plumb and level. Can be worn on either hand without hindrance. Guaranteed absolutely accurate. Its price is the only cheap thing about it. It will last a lifetime. Send us \$1.50 and if not satisfied money will be refunded.

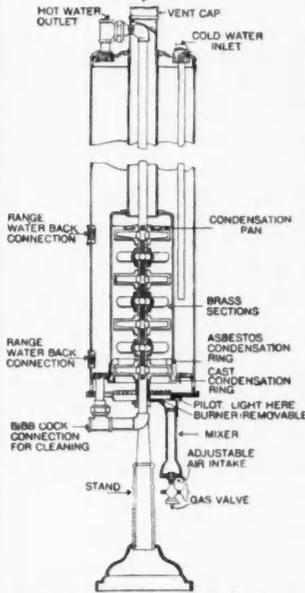
Armstrong & Edwards

Centralia, Ill. Ref.; Old National Bank



Electric Weld

Combination Boiler and Gas Water Heater

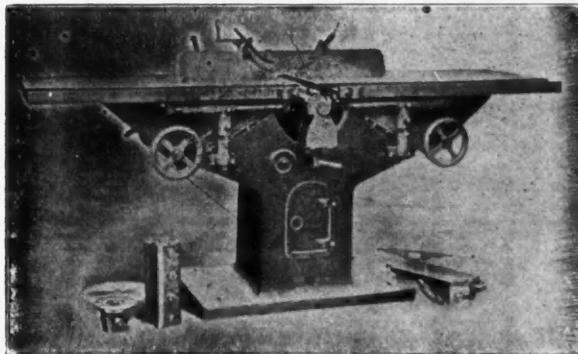


The self-contained storage system. Illustration shows arrangement of enclosed Heating Chamber, Vent, and parts. The advantages of this Type are many, in addition to the maximum efficiency thus obtained. Adapted to Large or Small requirements, without change in design of fixture or method of installing. Widest choice as to location of fixture. Economy of space. Absence of delicate or intricate parts. No special Meters or Service pipes required. Lowest possible maintenance cost. Moderate initial cost. Minimum cost of operation (service considered.) Double Circulation. Primary Circulation equal to other types. Secondary Circulation equal to thirty-five per cent. of total efficiency—altogether absent in other types. Automatic or Intermittent Service optional, without adjustment of parts or breaking connections. Range or Furnace Connections provided for. Auxiliary Steam Coil, for High or Low Steam Pressure, if desired. This type represents one-twentieth of total number of Gas Water Heaters in service, and is essential if water heaters are to be popularized.

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CONSHOHOCKEN, PA.
 Branches Throughout United States

Universal Wood-Worker

Planes, Joints, makes moulding, Rips, Cross-cuts, Gains, Dadoes, Rabbits, Tenons, Raises Panels, Bores, Mortises, in fact its range in general work is unlimited



It is a machine every shop of any importance should have. It is ten years ahead of any other wood-worker on the market. Write for photographs, circulars, prices, etc.

The Cordesman-Rechtin Co.
 Cincinnati, Ohio



"That Coupon Gave Me MY Start"

"It's only a little while ago that I was just where you are now. My work was unpleasant; my pay was small. I had my mother to take care of, and it was tough sledding trying to make ends meet. I hadn't had much schooling. I didn't know enough to fill any better job than the one I had.

"One day I saw an advertisement of the American School. It told how other men got better positions and bigger salaries by taking their courses. I didn't see how a correspondence course could benefit me, but as long as it didn't cost anything to mark the coupon I thought it was worth investigating at least. I marked the coupon and sent it in on the next mail.

"That was two years ago last April, and now I'm drawing more every week than I used to get in a month."

If YOU want a better position, if YOU want to get into congenial work, if YOU want a salary that's worth while—

Sign the Coupon NOW

American School of Correspondence
 CHICAGO, U. S. A.

Opportunity Coupon

American School of Correspondence, Chicago, U. S. A.

Please send me your Bulletin and advise me how I can qualify for the position marked "X."

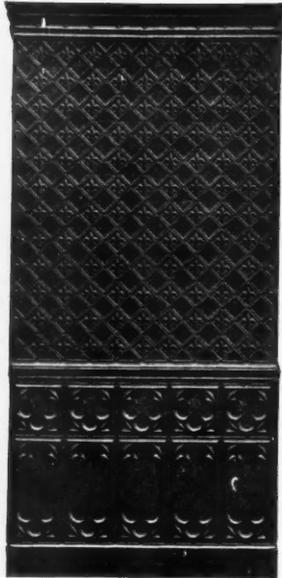
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| ... Bookkeeper | ... Draftsman |
| ... Stenographer | ... Architect |
| ... Accountant | ... Civil Engineer |
| ... Cost Accountant | ... Automobile Operator |
| ... Systematizer | ... Electrical Engineer |
| ... Cert'f'd Public Accountant | ... Mechanical Engineer |
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NAME

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Kanneberg's
ART
METAL CEILINGS
and
SIDEWALLS

We show here one of the many handsome designs shown in our new catalogue of metal ceilings and sidewalls. **Your copy is waiting for you. Write for it today**

Our plain instructions make measuring and erecting easy for the carpenter and builder; we also furnish detailed drawings showing just how to do it

Send us a letter today, asking for catalog and special inducement to new representatives. We want one carpenter or builder to handle our products in each town, everywhere.

Let us figure with you and help you get the Metal Ceiling business in your town now.

THE KANNEBERG ROOFING & CEILING CO.
Canton, Ohio

Manufacturers of Art Steel Ceilings, and Sidewalls; Metal Roofing; Architectural Sheet Metal Work; Eave Trough and Conductor. Catalogs Free.



The IRWIN
(REG. U. S. PAT. OFFICE)

That's All You Need To Know About An Auger Bit

If it bears the Irwin stamp it is all that a bit can be—truest, strongest, easiest, fastest. Every Irwin bit is guaranteed; price refunded if not satisfactory.

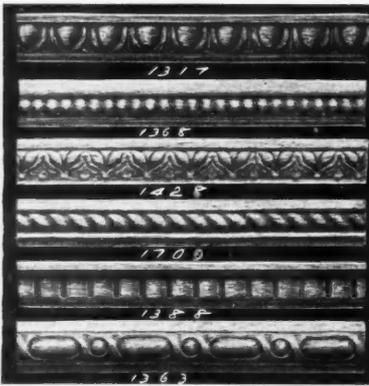
The only solid-center-stem auger bit made in all sizes and styles for every purpose.

An Irwin cleaves true and rapidly through the hardest wood. A knot or even a nail doesn't stop it. And it bores a clean, smooth hole through soft woods—never tears or clogs.

Conscientious dealers recommend the Irwin, knowing they mean better work, longer service, most satisfaction.

Write us if you have trouble getting an Irwin.

Irwin Auger Bit Company
Station B 18 WILMINGTON, OHIO



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

If It Pays Over 1000 Contractors To use CONVERTIBLE BUILDERS' LEVELS



it will pay you to investigate why the "STERLING" is the strongest and most accurate Convertible Level made, and how its use will save you its cost in one season's work.

Send for Catalog, Manual and Special Offer for this month.

ISZARD-WARREN CO., Inc.
SOLE MAKERS
136 N. 12th St. Phila., Pa.

PRICE COMPLETE \$60.00
Level guaranteed for two years

THE OLDEST and BEST "THE EUREKA" Push on the end and the screw goes in



Made in two sizes. No. 1 Small, No. 2 Large.

SOLD BY JOBBERS EVERYWHERE. Manufactured By **DECATUR COFFIN CO.,** [Dept. "G"] Decatur, Ill.

"The Slate that Lasts a Lifetime" GENUINE FRANKLIN TUNNEL

ROOFING SLATE, BLACKBOARDS, STRUCTURAL AND ELECTRICAL SLATE

The increased demand for these slate is the best evidence of their satisfying qualities.

Sole Quarriers and Manufacturers **SLATINGTON SLATE CO.** Established 1852 **SLATINGTON, PA.** Write for Booklet and Price List

"Victor" Scroll-Saw

FOR FOOT AND POWER



Suitable for carpenters, pattern and cabinet-makers and all wood-workers requiring accurate work, also for sawing soft metals. Will cut up to 3 inches thick, swings 24 inches, has powerful tread motion, cuts rapidly and is easy to operate. Has adjustable tension spring on upper spindle, dust blower, drill attachment, iron tilting-table, etc. Will furnish tight and loose pulleys for power in place of treadles when desired.

This is acknowledged to be in all respects the most complete foot-power scroll saw made.

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

SEND FOR CATALOG A!

THE SENECA FALLS MFG. CO.

218 Water Street,

SENECA FALLS, N. Y., U. S. A.

172

Parks' Woodworker

The FIRST and ORIGINAL COMBINATION of Circular Saw, Jointer and Band Saw, ever placed on the market.

Reversible Spindle Shaper, Boring and a dozen other valuable attachments can be added.

Each machine is sold separate or can take a circular saw and add to it all desired.

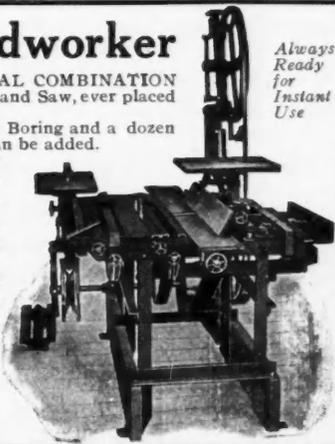
The long base best arranged for Portable Use.

BUY from the ORIGINALATORS and LEADERS in improvements and you will be sure to get the best.

Our Ball Bearing Machines are the greatest improvement ever made in Foot and Hand Power Circular and Band Saws.

Write for Catalog and Prices

Parks' Ball Bearing Machine Co.
Fergus & C. H. & D. Ry.
Cincinnati :: Ohio



Always Ready for Instant Use

Band Saw

with 36 inch Steel Wheels.

Write for Catalogue.

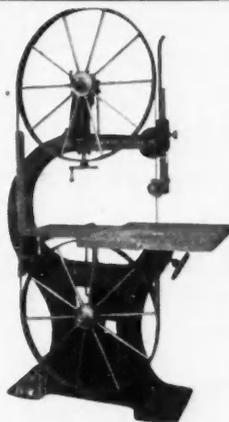
B. M. ROOT CO.

Wood Working Machinery

YORK, PA.

New York Office:

136 LIBERTY STREET



In This Improved Swing Saw Machine the Saw Arbor Travels in a Perfectly Straight Line

PRYIBIL No. 5 Parallel Swing Saw

Also for grooving, gaining, rabbeting, tenoning, etc. Send for prices and catalog.

P. PRYIBIL

520 W. 41 St.

NEW YORK



This Machine Cuts.....(Parallel with Table)

Disston Telegraph Screw Driver



The Disston Telegraph Screw Driver has a round blade of Crucible Steel. It is hardened and Tempered with the greatest of care. Bright finish.

Handle of hardwood, stained cherry. Like all Disston tools it is unequaled for durability and efficiency. Neat and well finished appearance.

Henry Disston & Sons INCORPORATED

Keystone Saw, Tool, Steel and File Works

PHILADELPHIA

Branches: Chicago, Cincinnati, Boston, New Orleans, Memphis, San Francisco, Seattle, Portland, Spokane, Vancouver, and Toronto.

FREE TRIAL.



We will send you for \$2.00 the ABC PROTRACTOR SQUARE, which we guarantee to give satisfaction. If not, return the tool in 10 days and your MONEY WILL BE REFUNDED.

Carpenters, Builders, Contractors, Architects and Manual Training Schools should not be without the tool.

No New Method. Just the old one made easier. The tool is nicked with dull finish, not clumsy, nor frail, but JUST RIGHT. It has no equal for ROOF, STAIRWAY and CIRCULAR Work.

Send for the Tool today, with Illustrated Directions.

CROOKSTON TOOL CO.
Crookston, Minn.

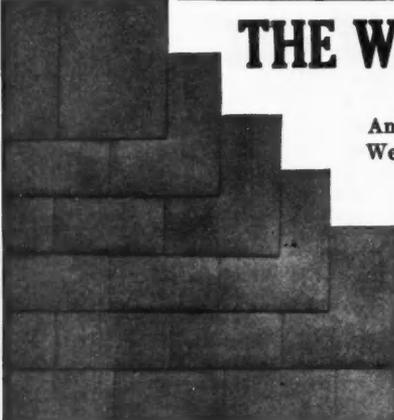
COMPLETE OUTFIT PRICE \$15.00
HAND AND FOOT-POWER MACHINERY



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

Send for Catalogue.

W.F. & Jno. Barnes Co.
74 Ruby St. ROCKFORD, ILL.



THE WINTHROP SOLID TAPERED ASPHALT SHINGLES
ARE OF A COOL, GRAY SLATE COLOR

And have all the Durability of Asphalt—the Fine Appearance of Slate and the Light Weight and Low Cost of Wood Shingles. Laid with regular Shingle Nails, the same as Wood Shingles. **NEVER REQUIRE PAINTING.**

Write for Free Booklet and
SPECIAL INDUCEMENTS TO THOSE WHO APPLY FIRST ROOF IN EACH TOWN

Winthrop Asphalt Shingles are Fire-resisting, Weather-proof, Wind- and Sun-proof, and never Crack, Break or Fall Off.

WINTHROP ASPHALT SHINGLE CO. 1101 The Temple CHICAGO, ILL.

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

Honeywell Hot Water Heating

THE HONEYWELL SYSTEM

It is not only the cheapest system to install, but by far the most slightly, efficient, responsive and economical system on the market it contains one-third less water and heats one-third quicker, with a resultant saving in fuel. The water circulates from the boiler to the radiators from *three to five times faster* than in the old style system, hence quick results from firing with a minimum loss of heat in transmission. No large, unsightly piping through the rooms with this simple system. Owing to the very rapid circulation of the water $\frac{1}{2}$ " pipes are amply large to supply any sized radiator on the upper floors.

Every Radiator heats perfectly with the water at a temperature as low as 85 degrees, which can be increased to a temperature of **240 degrees without boiling** inside of a *few minutes*, giving the system the efficiency of steam at 10 lbs. pressure to meet extremely cold weather, while retaining all the valuable features of the mild temperatures of hot water.



THE HONEYWELL TIME CLOCK THERMOSTAT

45,000 SYSTEMS IN USE

Endorsed and Sold by the Leading Manufacturers of Heating Materials.

Free engineering advice given the trade on all installations. Failures absolutely guaranteed against.

If you have an unsatisfactory job of hot water heating, we can cure it at a very small cost and without remodeling.

Write us for full information regarding this eminently successful system that has revolutionized hot water heating.

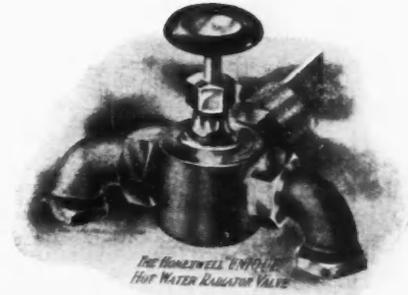
In use throughout the U. S., Canada and Foreign Countries.

Honeywell Heating Specialty Company

Plant and General Offices

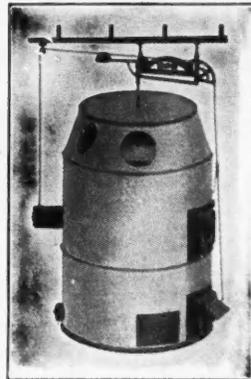
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THE HONEYWELL IMPROVED HOT WATER RADIATOR VALVE

A PAYING SIDE LINE FOR YOU



The Kees Regulator

works the drafts of a hot air furnace automatically, so as to keep the temperature even. It prevents waste of fuel through overheating, makes the home more comfortable and healthful and practically "runs" the furnace. Every furnace owner needs one. The price is moderate.

You can make a good many extra dollars this fall selling and installing them.

Drop us a card for full particulars.

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AT WHOLESALE



When in the market for Plumbing Supplies and you wish to

SAVE

20 to 40 Per Cent

on every article write for my free illustrated Catalog. The only house that sells first class guaranteed goods at wholesale prices direct. Shipments are promptly made from a very complete stock.

Small orders are as carefully handled as large ones.

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This is the inner radiator of the HESS STEEL FURNACE

It's all steel and contains the fire, with its gas, smoke and dust. Radiator leakage in other furnaces sends gas and dust to the rooms, but never in the HESS. for every joint and seam in a HESS radiator is sealed tight WITH MELTED STEEL. EVERY JOINT IS WELDED AND STAYS TIGHT FOREVER Inferior furnaces are not built that way. Cemented radiators always open after a while and give trouble. It's impossible with the HESS

HESS FURNACE

You can buy our furnace direct from our factory, at the factory price, and test it 60 days in winter weather. If not pleased, return it at our expense for freight both ways and pay us nothing. This offer and lots of good furnace information will be found in our free 48-page furnace booklet. Ask us for one. A postal card will do.

HESS, 916 Tacoma Bldg. - CHICAGO



**The VOLTZ
UNIVERSAL
SASH
BAR**

Makes any angle.
Allows for the setting of building.
The most beautiful, practicable and durable Bar in the world.

"Holds with a grip of Iron yet with a touch of Velvet"

Glass set from the outside. More good features explained in our catalog. Send for a copy before you repair or build. Write today.

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E 246 FINE ARTS BLDG.
Battle Creek, Mich.



100 BUILDING PLANS FREE

Send us the names of all the contractors, carpenters, cement workers and prospective builders you know of. Keep each class separate. We will send you a big portfolio containing perspective views and floor plans of over 100 Modern Bungalows, Cement Houses, Residences, Cottages, Farm Buildings, Churches and Stores, selected from 1500 prize designs absolutely free. Write

RADFORD ARCHITECTURAL CO., Dept. A, 185 Jackson Boul., Chicago

Patents

C. L. PARKER, Patent Attorney, Ex-Examiner Patent Office, 920 G St., Washington, D. C. Write for inventor's handbook.

For Sale

Planer, Shaper, Sander, Mortiser, Turning Machine, Gas Engine, Belting, Shafting, Hangers, etc., cheap. A. F. REINEKE, Perry, Ill.

CONCRETE BLOCK MACHINES, \$20 and \$50. Hand concrete mixer, \$35. 2524 A Bacon St., St. Louis, Mo.

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Draftsmen's, Builders' and Foremen's Courses; day, evenings or by mail. Maack's Academy of Architecture, 1742 Chouteau Ave., St. Louis, Missouri.

ABLE-BODIED CARPENTER, 28 years, with ten years' experience, good inside finisher, member Local Union 239, wants position with a reliable contractor. Address Box 62, Raubsville, Pa.



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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 Catalog** of high grade bicycles and sundries and learn our **unheard of prices and marvelous new special offers**.

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TIRES, Coaster-Brake rear wheels, lamps, parts, repairs and sundries of all kinds at half usual prices.
MEAD CYCLE CO. Dept. M-122 CHICAGO

Quality Is
Economy.

*MURPHY QUALITY
Means Lower Cost than
lower price varnish can give.*

Transparent Wood Finish *flows* over the wood; does not need to be dragged over. It needs a few sweeps of a moderately soft brush; no tugging with a stiff brush. It spreads itself to a perfectly smooth surface, ready for the next coat or the easy rubbing.

It shows no laps or brush marks; saves the labor of smoothing down.

The savings on labor and varnish are more than the extra price.

Murphy Nogloss Varnish, Murphy Oil Colors, Murphy Stains and Enamels and Konkreto, all have the like Economic Qualities.

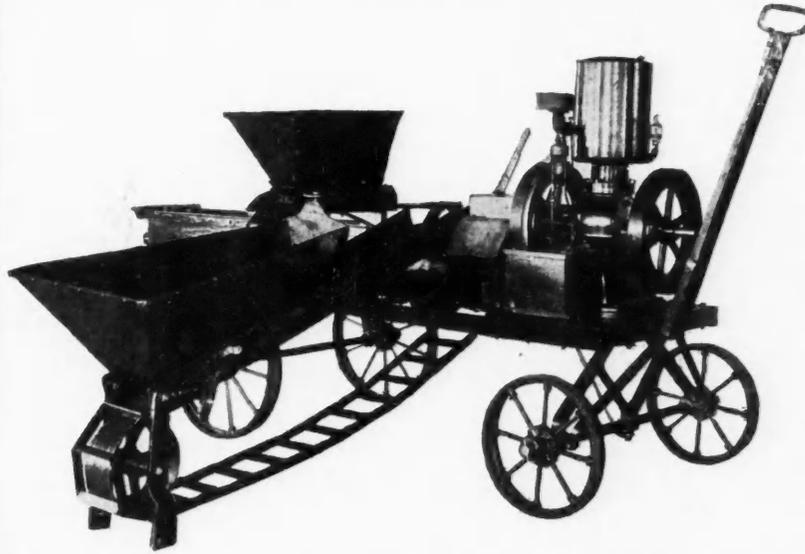
THE VARNISH
THAT LASTS
LONGEST

Murphy Varnish Company

FRANKLIN MURPHY, President NEWARK, N. J.
Associated with Dougall Varnish Company, Limited, Montreal, Canada

BOSTON
CLEVELAND
ST. LOUIS
CHICAGO

Low Down Force Feed Concrete Mixer



Reduces the mixing of Concrete one-fourth in labor; measures with absolute accuracy cement, sand and crushed stone. The chain elevators forces the ingredient wet or dry and is always in sight. Mixing trough can easily be cleaned because it is not covered up with hoppers. With the low down hoppers one man can do the work of two. It does not depend on gravity to feed, which is more or less uncertain. From three to twelve cubic yards per hour.

See us at the CHICAGO CEMENT SHOW, Space No. 30
ELITE MANUFACTURING CO.



MONEY MAKING CONCRETE

Mr. Block-Maker

Wet Process is Right.
Face down is Right.
Three blocks at a time is Right.
Triple Tying is Right.
Damp Curing is Right.

The Mogul Invincible Block Machine

COMBINES ALL THESE

IT IS RIGHT

It is 48 inches long and will make three 16" or two 24" blocks at one operation. It makes sills, caps, copings, rails and steps, faster and better than a special sill machine. It has every adjustment that any other machine has and many that no other machine has.

PRICE—Machine and Outfit, \$75.00

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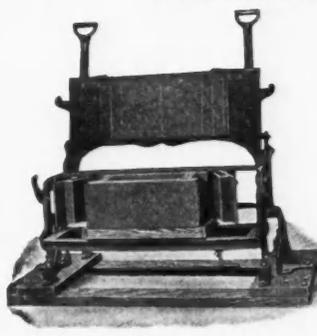
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THE MILES MFG. CO. JACKSON, MICH.

THE MILES SIMPLEX MIXER

Continuous Feed, Batch Mix, Low Down Steel Frame, 3 Hoppers, Positive Feed, Attractive Price



"The Miles" No. 5, Down Face, Wet Concrete Block Machine

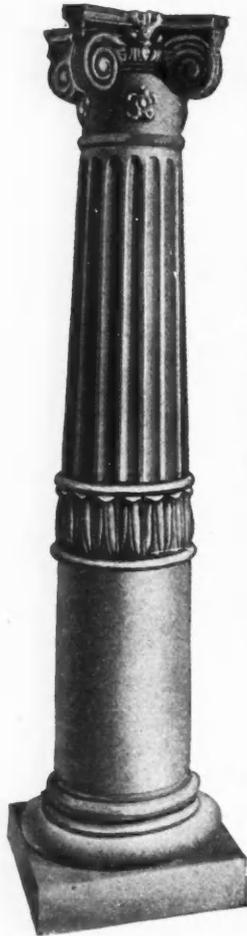
Makes Stone in Lengths, 4", 6", 8", 10", 12", 16", 18", 20", 22", 24"; in Width, 4", 6", 8", 10", 12"; in Height, 4", 6", 8". Also Angle Stone, Circle Stone, Gable Stone, Hollow or Solid Stone.
The Contractor's Friend Simple, Strong and Rapid.
Lowest in Price.

WRITE FOR NEW 1911 CATALOGUE

THE MILES MFG. CO., Inc.

309 E. Franklin S., JACKSON, MICHIGAN

Profits in Porches



The profits in the cement business today are in special products.

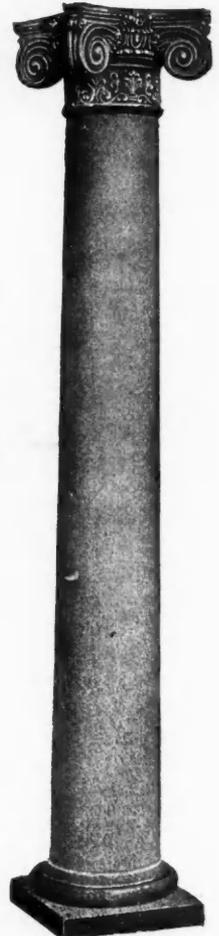
Ornamental columns, balusters, and Lawn Vases are in demand everywhere.

Cement Columns look well on block, brick or frame buildings.

Profits 300% when meeting prices of wood and iron.



Enter the cement field. Modern builders demand fireproof construction — investigate now and start a cement plant this Spring, and include **Miracle Porch Molds** in your order.



[Write now for special ornamental mold circular.]

Big 128-page catalog showing everything in concrete machinery and supplies sent free to anyone interested in concrete as a business. Ask for catalog "K." Address

MARSH CO., 975 Old Colony Building, CHICAGO



Try Them

—and then buy them

That's a safe way to buy. And, you know it is one meritorious article that can be sold this way.

The molds which make this pier and chimney will make a variety of other things.

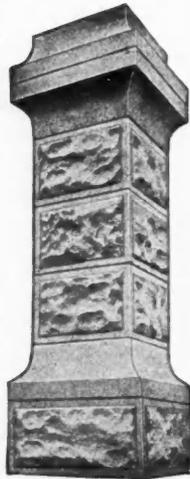
Molds

to make this chimney and pier

\$19.00

Send for a Catalogue

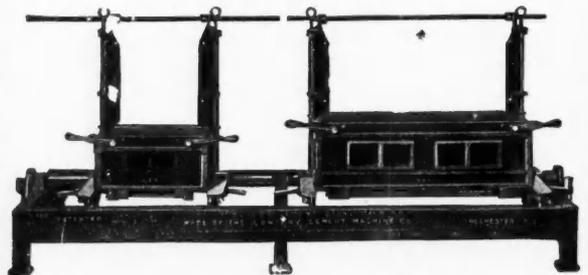
You'll see how one mold will make different sized blocks from two to twenty-four inches — how another set of molds makes twenty-one different sizes. Do not overlook this, send today.



W.E. Dunn Mfg. Co.
4132 FILMORE ST. CHICAGO, ILL.

The HERCULES Concrete Block Machine

A PPEALS to discriminating Contractors and Builders because: It meets every requirement where Concrete Blocks are used. It allows the use of a coarse wet aggregate, combined with a special fine facing—producing blocks that are handsome, strong and durable. Blocks can be made one, two and even four at one time, because HERCULES MACHINES ARE UNLIMITED AS TO PRODUCTION.



Hercules Block Machines have a world-wide reputation. You can make no mistake in buying a tried, proved, known machine backed by reputation, popularity and a reliable company.

Send for catalogue today. It will pay you.

Century Cement Machine Co.
290-300 St. Paul St., ROCHESTER, N. Y., U. S. A.

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NOTICE TO ADVERTISERS

Forms for the March number of the American Carpenter and Builder will close promptly on February 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 AND SHEATHING

ANY WEATHER is "Good Building Weather" when you use *Bishopric Wall Board* as a substitute for lath and plaster. It is cheaper and better and does away with all delays in building. It is nailed to studding dry, ready for immediate application of paper, paint, burlap, or any other kind of decoration.



Bishopric Wall Board Easily Applied

This substitute for lath and plaster is made of kiln-dried, dressed lath, imbedded in hot Asphalt Mastic surfaced with sized carboard and cut at the factory into 4x4 feet sheets, which are easily and quickly nailed to studding, ready for immediate application of wall paper, paint, burlap, or other decoration.

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.

It is suitable for dwellings, factories, new partitions in old buildings, finishing attics, porches, laundries, cellar ceilings, garages, etc.



Applied Dry Winter or Summer

Shows Construction of Bishopric Wall Board

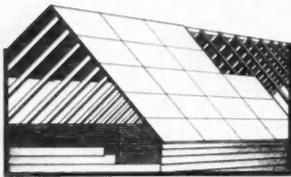
PRICE AND SHIPMENT—Crate of 16 sheets, covering 256 square feet of surface, \$6.40 per crate, or \$2.50 per 100 square feet, f. o. b. New Orleans, La., Cincinnati, or Alma, Mich. We ship from nearest point.

Cheaper than Lumber. Saves 75% on Labor. Does away with Building Paper.

BISHOPRIC SHEATHING

Ideal Material for Cement Buildings or Stucco Exteriors. Proof against Dampness.

Bishopric Sheathing is made of same materials as Wall Board, but finish is not necessarily so fine, therefore costs less. It is of uniform thickness, insuring a perfectly even surface when applied.



Shows Bishopric Sheathing over rafters ready for Bishopric Roofing, also Weather boards over Bishopric Sheathing.

Bishopric Sheathing is nailed to studs, with lath and asphalt side exposed. Over laths weather boards are nailed or cement applied.

Bishopric Sheathing makes a more solid and substantial wall than lumber. There are no gaping joints; no widening cracks due to shrinkage; no knot holes.

The Asphalt Mastic in Bishopric Sheathing is a non-conductor, moisture cannot penetrate it. It is proof against vermin. The pests cannot bore through the tough, gummy Asphalt Mastic. In applying weather-

boards over the laths, dead air space is left between the laths, forming splendid insulation. Does away with the expense of building paper and cost of its application.

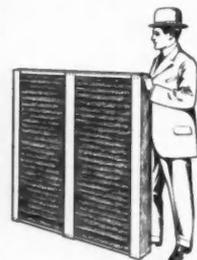
One wagon load of Bishopric Sheathing covers an area from six to ten times as great as one load of lumber—a tremendous saving in hauling. Five thousand feet can be hauled in an ordinary wagon.

The cost of applying Bishopric Sheathing is but \$2.50 per 1,000 feet—A SAVING OF ABOUT 75 PER CENT. Furthermore, 1,000 square feet of wood sheathing covers but 750 feet of surface, 20% less being due to tongue and groove. In Bishopric Sheathing 1000 square feet covers 1000 square feet of space.

In applying ordinary lumber, heavier scaffolding, more tools and greater scaffold floor-space are required. In applying Bishopric Sheathing, one man drives a few nails in each sheet; a common laborer or boy can finish the nailing.

Bishopric Sheathing insures comfort during the construction of the building. As soon as the building is closed in with Bishopric Sheathing, the men may work in comfort on the inside during bad weather, finishing the outside on suitable days. This insures continuous work, without loss of time, enabling the contractor to hold his men and complete the work in the least possible time.

Bishopric Sheathing is used with equally splendid results under flooring and roofing boards. Used under floors, it serves as a sound deadener and keeps out dampness, used under the shingles, it keeps out summer heat.



Wall Board and Sheathing are shipped in crates

ITS MANY USES—Bishopric Sheathing also is used with excellent results as a lining for dairy barns, ranch houses, poultry houses, driving stables or any out-door building where protection from the elements, Summer or Winter is desired.

Bishopric Sheathing is the ideal material for cement exterior or stucco work. Cement firmly adheres to the laths and Asphalt Mastic and makes a solid, smooth exterior. For factory or residence this form of concrete or stucco construction is the cheapest and best known.



Bishopric Sheathing Construction.



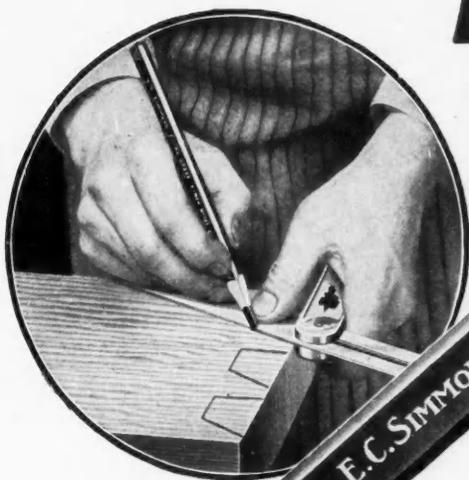
Ideal home showing Weather-boards over Bishopric Sheathing, lath side exposed, also Bishopric Roofing over Bishopric Sheathing. (smooth side of sheathing exposed)

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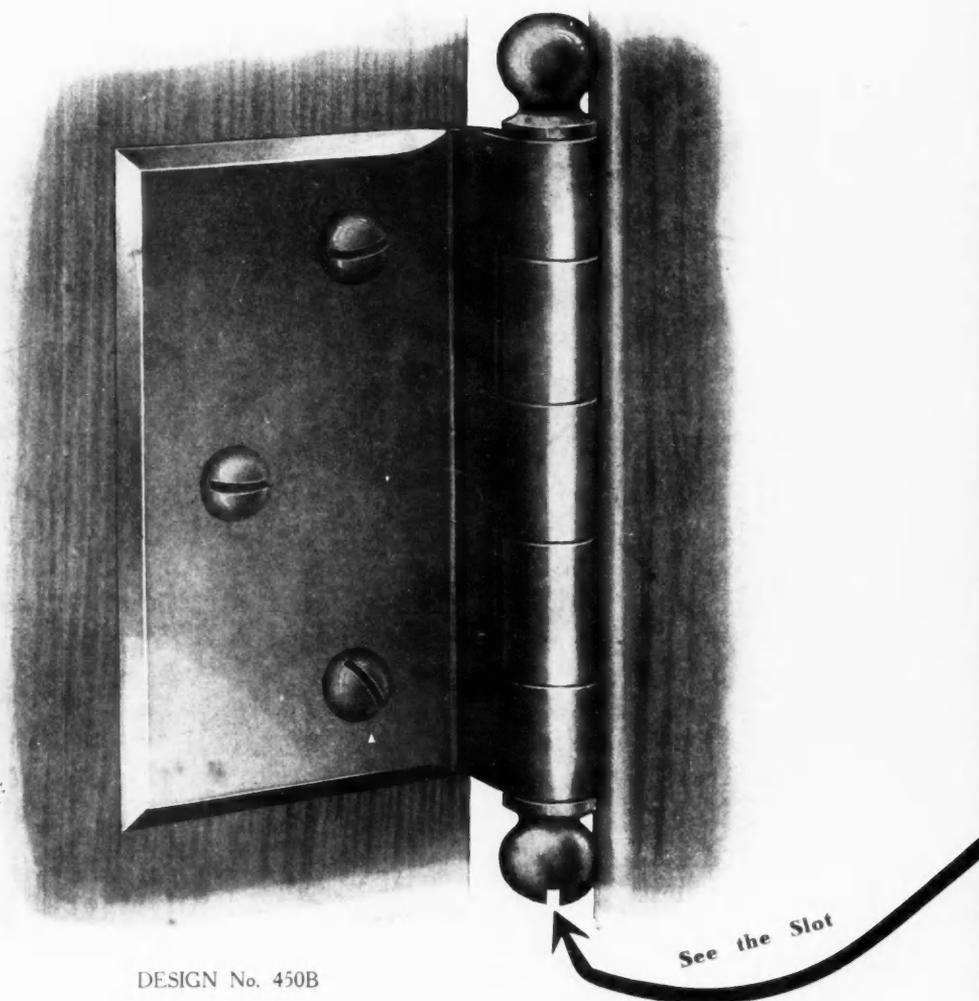
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