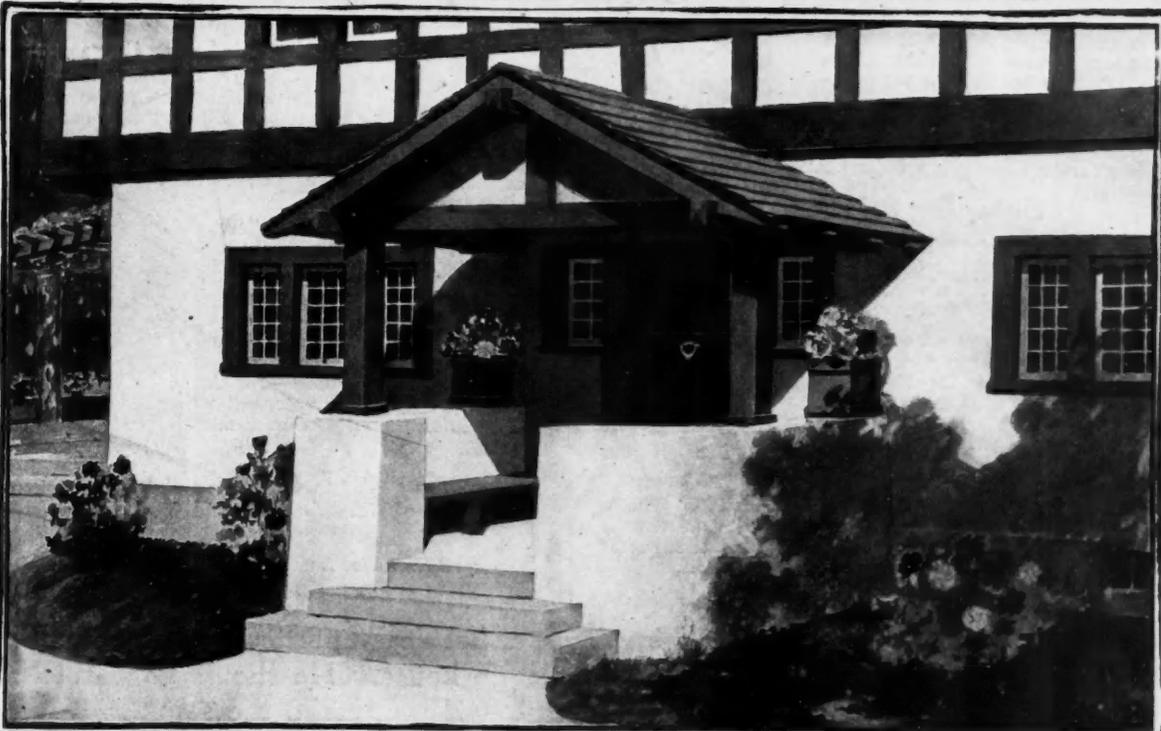


AMERICAN CARPENTER AND BUILDER



THE WORLD'S GREATEST BUILDING PAPER



Which wrist will do the most work?



Save Your Strength—It's Valuable!

The Atkins Perfection Handle prevents all that old-fashioned strain on your wrist and saves your back. More work, better work, with less effort.

For that tired feeling at the end of a day's work, we prescribe a study of the above picture.

One wrist bent and cramped; the other in a perfectly natural, comfortable position. Big difference!

Another big difference is in the effect on the muscles of the back and shoulder, as well as the wrist. The more strain you take off these muscles, the better you'll feel at supper time.

You might as well have the benefit of this improvement, but if you prefer the old-style handle, we'll give it to you.

If you try the Perfection Handle for a day or so, just enough to get accustomed to the change, you wouldn't go back to the old wrist-straining handle.

E. C. Atkins invented this Perfection Handle—one of his many ideas for improving the old-style "good enough" saw.

Other Big Advantages

It's a solemn fact that the steel in an Atkins Silver Steel Saw is not only better than you can get in any other kind of saw, but actually better steel than is used in most of the high-grade razors.

E. C. Atkins worked out the formula for his Silver Steel over fifty years ago. With it he devised a gas-tempering process for this steel. Both are used in Atkins Saws, and in no other saws the world over.

The result is a blade that holds its shape better, stands more hard use, needs less filing, and yet files easier, than any other saw.

A peculiar combination of qualities, isn't it? That's because Silver Steel is peculiar, designed that way in order to make a saw what E. C. Atkins thought it should be.

If your dealer doesn't handle Atkins Saws, or hasn't the particular saw you wish, ask him to order it for you from his wholesale house. He should be glad to do this—it's no trouble—and he will do it promptly if you make the request.

The shape of the Atkins blade is peculiar, too. It isn't merely beveled a little along the back. It is taper-ground—*tapers all the way* from tooth edge to back. The tooth edge being thicker than any other part of the blade, almost no "set" is needed on the teeth. Result is that the teeth cut easier, and make a path plenty wide for the rest of the blade. The Atkins Saw doesn't bend, doesn't stick in the wood.

Runs easier, guides easier and cuts faster than any other saw you ever touched.

ATKINS Silver Steel SAWS

Try an Atkins

Under This Strong Guarantee:—

Go to your dealer and select an Atkins Silver Steel Saw. Take that saw and try it—compare it with the saws you have been using.

If the Atkins doesn't prove itself to be the very best saw you ever used, take it back to the dealer and he will refund your money.

Be sure the blade says "Silver Steel"—that's our best saw. Remember, too, that it isn't the genuine guaranteed Atkins saw unless it bears our name.

FREE—To Carpenters

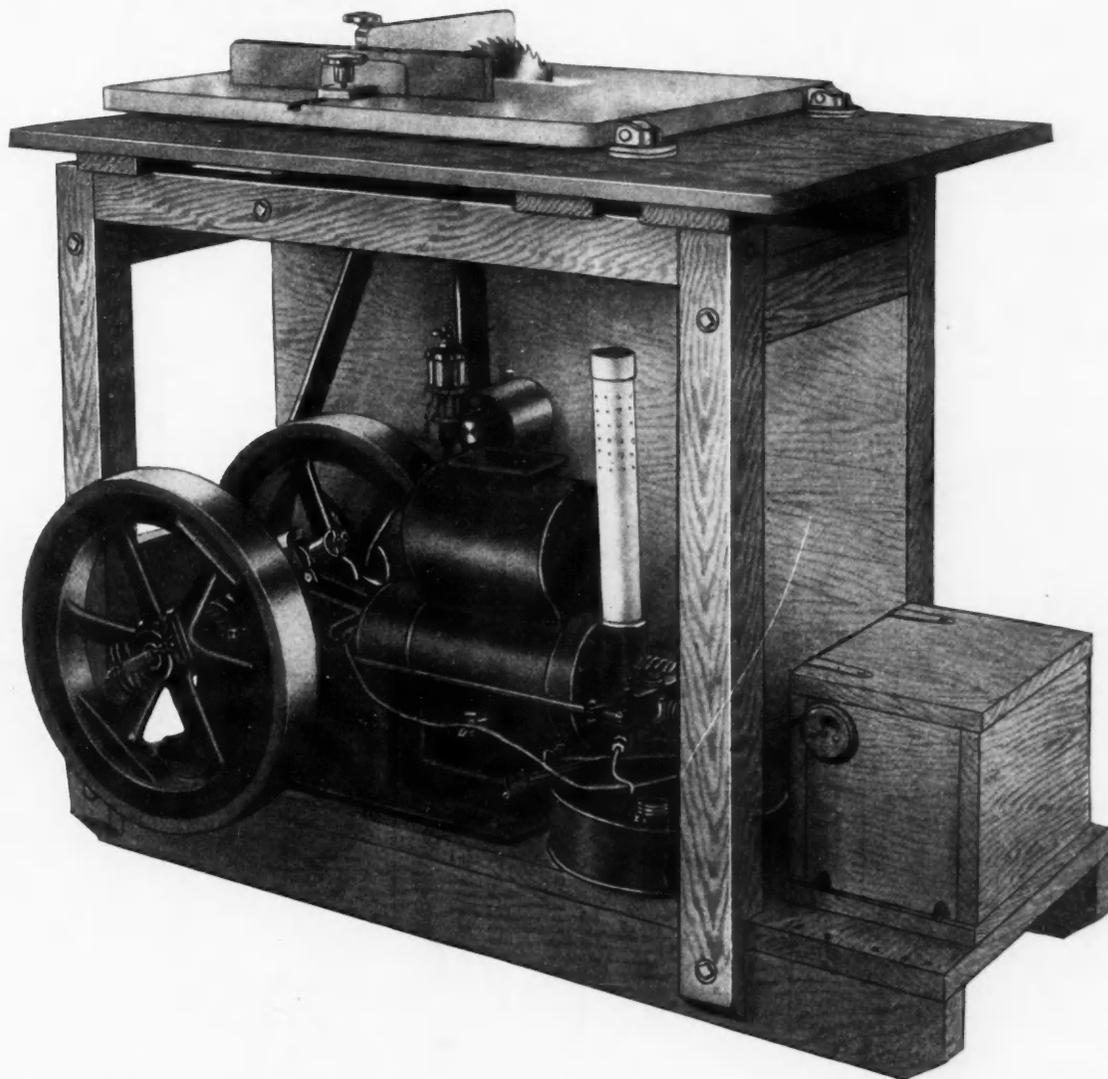
Write us today (enclosing 10 cents to cover postage) and we'll send you free a good strong nail apron and two mighty useful books—our Carpenter's Time Book and our popular "Saw Sense" which contains a lot of handy information. Address our Carpenter's Department.

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

Largest Exclusive Saw Manufacturers in the World

"MAKES THE SAW-DUST FLY"

Better order quick if you want this Portable Saw Rig on the job when you want it. Over 1,000 Rigs now in active use all over the country. No patent price tied to it and all parts from engine up built by us.



The three horse power water hopper cooled engine pulls the 10-inch saw with ease, cutting up to 3-inch lumber.

Our attractive folder describes this time and money saver.

Inter-State Equipment & Engineering Co.

1775 Old Colony Building

CHICAGO, ILLINOIS

WATER-FIRE AND LIGHTNING PROOF

TRADE **TITELOCK** MARK

METAL SHINGLES

MAKE THE BEST ROOF COVERING

NOTE THIS LOCK-JOINT!

LAYING SHINGLE

SHINGLES LAID IN PLACE

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

SEND FOR SAMPLES AND BOOKLET.

"Invisible Joint"
STEEL CEILINGS
SEND FOR CATALOG.

MILWAUKEE CORRUGATING CO.
MILWAUKEE, WIS. - KANSAS CITY, MO.

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

MONITOR SASH LOCKS

(PATENTED)

NEVER BREAK

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

If the upper sash drops, the Monitor "Never Break" Sash Lock will pick it up from 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 PUT SASH WEIGHTS IN YOUR WINDOWS—THEY ARE OUT OF DATE

The "AUTOMATIC" SASH HOLDER

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

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

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

Automatic Sash Holder Company
277 Broadway, New York City.

HAVE YOU

our No. 4 Builders hardware catalogue and net price list? If not, why not? **IT'S FREE**—to contractors and material men.

No. 5311 Old Copper
Inside Lock—as per cut Per
Dozen Sets **\$5.00.**

REHM HARDWARE CO.
1501 Blue Island Ave.
CHICAGO

Carpenters, Here Is the Only Saw Set Ever Made That Will Set the Tooth of Your 12 Point Finishing Saw.

"THE BUCKEYE FOOTPOWER HAMMER SAW SET"

It will set any saw from the finest tooth to the two man cross cut saw, absolutely accurate, as the hammer strikes only the point of the tooth and does not bend the blade of the saw, as is often the case with the pincher sets. Being operated by footpower there is no strain on the wrist, and it leaves both hands free to guide the saw. It takes very little space in the tool chest, wgt. 2½ lbs. Ask your dealer to get it for you, or send us \$1.50 and we will ship you one prepaid. If after you have tried it, you do not find it does all we claim for it, and is not the best SAW SET you ever used, return it, and we will cheerfully refund your money.

We also manufacture a full line of—

Saw Vises, Chain Drills, Hollow Augers, Etc.

Our catalog to dealers on request.

(Patented)

Buckeye Saw Vise Co.

2044-50 W. 55th St.

Cleveland, Ohio

\$1000.00 CHALLENGE

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

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

The Daisy Mfg. Co.

A. L. BLODGETT



H. A. LENSING

SOUTH BEND, IND.

American Carpenter and Builder
Chicago, Ill.

Gentlemen:

Challenge the makers of Floor Scrapers, Floor Planers and Floor Smoother to a competitive test. The Test to be made in Chicago, Ill.

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

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

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

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

Very truly,
The Daisy Mfg. Co.

Per
H. A. Lensing

The "Daisy" Outfit

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

10 DAYS FREE TRIAL OFFER

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

The "Daisy" Triangle

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

THE DAISY MFG. CO. South Bend, Ind.

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

Name

Street

City and State

Occupation

The American Floor Surfacing Machine

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



THE HAVEN FLOOR PLANER

HERALDS THE NEW ERA IN FLOOR SCRAPING

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

Be an agent in your locality for the floor planer of the future.

Particulars on request.

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

Only Perfect Floor Surfacing Machine

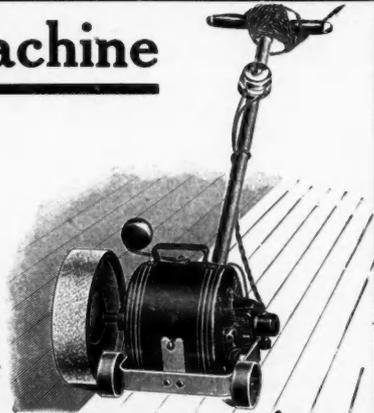
Will do perfect work on any kind of floor, whether even or uneven. Recommended by the best architects and contractors.

A BOY CAN OPERATE IT.

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

Write for further information.

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



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.

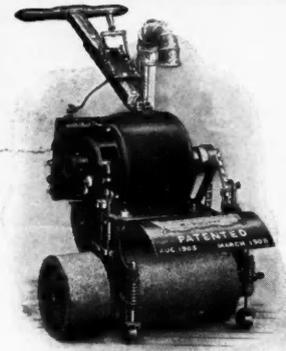
The **Schlueter** will remove all joints or warped edges, and oil, wax, lime stains, or the "muck" from skate wheels, in a most satisfactory manner.

(Earning capacity, \$20.00 to \$35.00 per day)

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

M. L. SCHLUETER, Chicago, Ill.

103 N. Canal Street



Edge Roller easily adjusted to either side.

O. K'd. By Uncle Sam!



The Triple "A" Spring Driven Floor Smoother Stood the Test—where others failed—On 200,000 square feet of Oak and Maple Floors at the U. S. Naval Training Station.

TRIPLE "A" USERS are our BEST SALESMEN

(Note the following letter)

WATSON H. BARBER
CONTRACTOR

WASHINGTON, D. C.
AND
NAVAL TRAINING STATION
NORTH CHICAGO, ILL.

INSTALLING OF CABINET
AND
JOINER WORK SPECIALTIES

Waukegan, Ill., May 26, 1910.

Triple "A" Machine Co., Chicago, Ill.

Gentlemen: I herein express to you my appreciation for the work and capability of your Triple "A" Floor Surfacing Machine, both as to quantity and quality of the work your machine is capable of doing, as I think I have given the machine a hard test as I had about 2,000 squares of Oak and Maple flooring to dress at the U. S. Naval Training Station, North Chicago, Illinois. This flooring was laid about 4 months before cleaning and was full of grit and dirt from being walked and worked over. This floor had to be dressed so as to pass Government inspection. I tried different Electrical Sand Paper Machines without satisfaction, and will say that the Triple "A" Machine is the only one that met the requirements. I would not hesitate to recommend the Triple "A" Machine to any and all that would desire a Floor Surfacing Machine that would do both quantity and quality work.

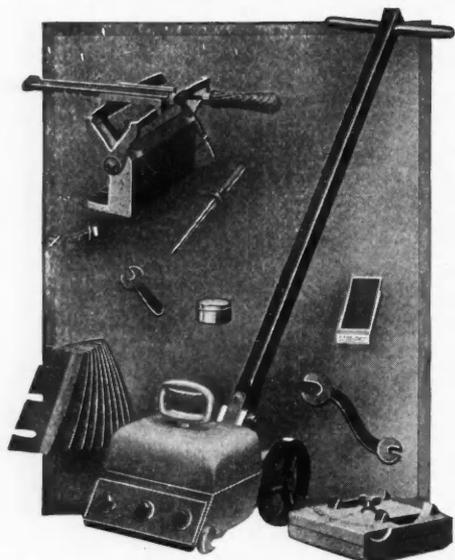
Yours very truly,
WATSON H. BARBER.



Triple "A's" in Operation at Drill Hall, U. S. N. T. S.

Triple "A" Machine Company, 114 South Clark Street
CHICAGO - ILLINOIS

EVER USE A FLOOR SCRAPER?



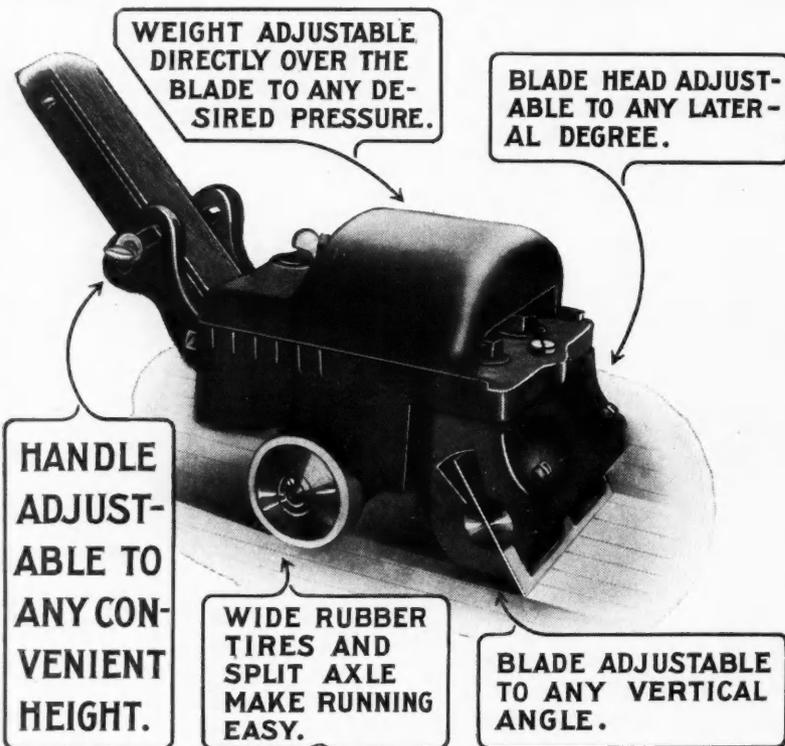
If you haven't then you certainly have wasted many hour's time and labor, which in your case means money. This is no idle statement. It's a fact. Do not take my word for it—make me prove it. I am willing—here is my offer.

"I will ship direct to you, at my expense, the ACME Floor Scraping Outfit on a WEEK'S FREE TRIAL. You have the privilege of working with the machines as much as you please, and if after you have tested them in every way and do not find them satisfactory, pack them up and send them back and you will be under no further obligations to me."

If you want to save money on your floor-finishing work, then it's up to you to write me now for particulars. Do it today and get full information.

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

Look At These Adjustments



All are necessary to do PERFECT WORK on any kind or condition of floor. They are found only in

The ADJUSTABLE

The movable weight enables you to bring any desired pressure to bear directly upon the blade without lifting upon the handle. This pressure remains constant until re-adjustment is made, insuring an absolutely uniform, smooth and TRUE CUT by the blade, whether deep or thin, in hard or soft wood, old or new.

Don't buy until you get my circular No. 17 and my

SPECIAL OFFER FOR JULY

H. P. DIDRIKSEN

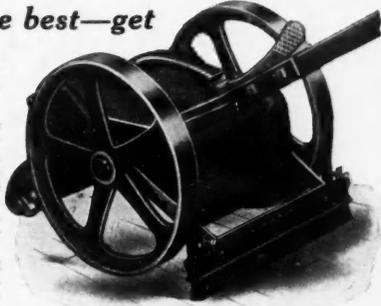
1008 High St.

SOUTH BEND : : : : IND.

Sent on FREE Trial—anywhere

If you want the best—get the Ackermann Floor Scraper

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



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

The Fox Will Save You Time Money and Trouble

SENT ON TRIAL

Fox Floor Scraper No. 1

A Perfect Machine for Perfect Work.

Built on scientific principles, simple in construction, light running, easy to operate.

Will Last a Life Time

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



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

Fox Mfg. Co.
Brooklyn, Wis.

The Black Hawk Floor Scraper

Simplest, Cheapest and Best on the Market
Weight, 75 lbs.



Also Attachments for Floor Scrubbing, Wax Polishing, Tile Rubbing, at Small Extra Cost. Put on in an instant.

Retails at \$18.00.
Enamelled dark blue and gold.



HESS MEDICINE SANITARY 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.



Floor Scraper Satisfaction

I pay the freight

Absolutely does not chatter nor leave waves.

The blade-holder on my scraper is attached to a flexible frame by half-ball-and-socket bearings which absolutely prevent chattering and the leaving of waves in the floor—and it is the only scraper that DOESN'T have these faults. The blades can be instantly set at any angle for perfect work on old or new flooring of all kinds—maple, oak, yellow pine, fir, it makes no difference what. Besides that.

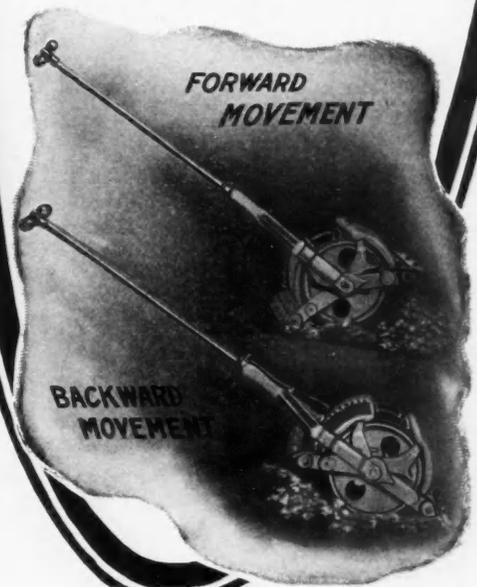
The WEBER DOUBLE ACTING Floor Scraper

has two blades and does just as fine work when pushed as when pulled. You really have two machines instead of one and can do twice the work of a single-bladed scraper; while this double-action and perfect knife-adjustment makes it possible to put an elegant finish on the narrowest floor space right up to the very wall without marring the baseboard in the least. To all responsible contractors, I'm making this offer:

I'll Freight You One on Trial - - Prepaid

and let you test it out for yourself against any others made. If, after a fair trial, you don't think its work is the best you've ever seen, return it and the trial won't cost you a cent. If I hadn't used all kinds of scrapers when I was a contractor—long before I commenced to make them—I wouldn't think of making you this offer. I know what a good scraper should be to meet your needs. Write for price list now, but don't you buy a scraper until you've seen a Weber in action.

JOHN F. WEBER, President
WEBER MFG. CO.
670 71st Ave., WEST ALLIS, WIS.



FORWARD MOVEMENT

BACKWARD MOVEMENT

I pay the freight

Stanley Tools

“45”
Seven Tools in One

- 1.—Beading and center-beading Plane.
- 2.—Rabbit and Fillet Plane.
- 3.—Dado Plane.
- 4.—Plow Plane.
- 5.—Matching Plane.
- 6.—Sash Plane.
- 7.—Superior Slitting Plane.

Extra cutters may be used to advantage by substituting specially formed detachable bottoms.

Send for Catalog giving complete description.

Stanley Rule & Level Co.

NEW BRITAIN, CONN. U.S.A.

COPYRIGHTED, 1909, BY THE STANLEY RULE & LEVEL CO.

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
73 First Street, SAN FRANCISCO

The Fallacy of Buying More Than One Woodworking Machine

The policy of buying an individual machine for each individual class of work is dead and buried. Economic conditions, as exist among carpenters and builders today, have forced this old-time custom to step to the rear and make room for a more practical policy—one that's modern and in keeping with present-day working conditions.

The band-saw that's **only** a band-saw the planer that's **only** a planer—the sander that's **only** a sander—the tenoner that's **only** a tenoner—all these machines are **back numbers**, and impractical ones at that, when compared with the modern, practical and economical **UNIVERSAL WOODWORKER**.

The **WOODWORKER** has come to stay. Its merits have been demonstrated and **proved**. It has passed the experimental stage and stands today as an institution in the woodworking trade.

The modern business policy of carpenters and builders is **not** to use power needlessly, **not** to waste valuable floor space, **not** to sink capital in unnecessary directions. Yet that is precisely what is done when "single-service" machines are installed. Can you help it? Can you change to a better way? Of course you can!

A **UNIVERSAL WOODWORKER** is driven by **one** belt or **one** motor; it occupies the floor space of just **one** machine; it represents the usual investment on **one** machine.

In fact, it is **one** machine but **does** the work of a number. In other words, it's one piece of mechanism which can be adjusted to do a certain line of work, and readjusted to do another kind of work. The variety is determined by the type of machine. The one with the greatest adaptability—which will do the most work—is the "FAMOUS" **UNIVERSAL WOODWORKER**, which is practically "fourteen machines in one."

Pause and consider the proposition before you buy another "single-service" machine. Remember that for little, if any, more than your contemplated investment, you can buy a "FAMOUS" **UNIVERSAL WOODWORKER**, which combines the usefulness of fourteen machines.

Full information may be obtained about the most successful woodworker—the "FAMOUS"—by addressing:



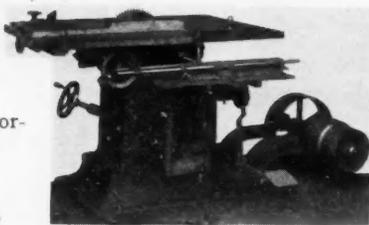
THE SIDNEY TOOL CO.

Builders of the **FAMOUS** Universal Woodworker
Sidney, Ohio, U. S. A.

VARIETY SAW

with or without Boring Attachment.

Write for Catalogue.



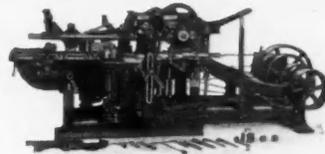
B. M. ROOT CO.

Wood Working Machinery

New York Office,
136 LIBERTY STREET

YORK, PA.

SMITH Machines for Working Wood Are Copied but Never Equalled.



ATTENTION

To get results—which means success—it is necessary to have modern machines—the kind that save power, shorten time and turn out accurate work.

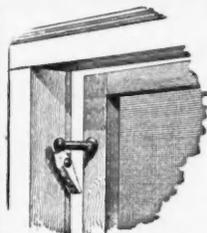
Smith Machines are the culmination of more than Sixty-five years experience in the manufacture of **Wood Working Machines** and positively secure these results.

The annexed cuts show only a few of more than 150 different machines which they make for *working wood*. If experience, and the knowledge which they have secured from thousands of machine operators, are worth anything, then they ought to know *what to build and how to make it*. Send for literature relating to **Up-to-date Wood-Working Machines**.

ADDRESS

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

New York Chicago Atlanta Memphis



Silent Screen Door

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

"Dime"

Screen Door Check

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

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

Why Risk Losing Your Fingers or a Hand?

You are continually risking your life and limbs when using the ordinary, old style Jointer Head.

You Take No Chances when using the Crescent Jointer with Safety Head. The Crescent Safety Head has many advantages over the ordinary square head. One of the most important points is that it is much stiffer than a square head of the same cutting circle; because it is of greater sectional area. This makes a steadier running head, with less tendency to vibrate, and less liable to get out of balance.

THE KNIVES on the Crescent Safety Head are made of high-speed steel which will hold the edge longer and turn out better finished work in less time than can possibly be done on a common jointer with ordinary knives. You can crowd the machine to the limit and the quality of the work remains the same as if run at ordinary speed. **The Price is Reasonable.**

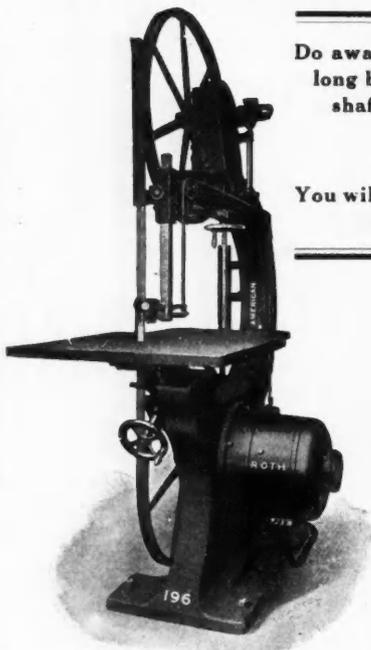
Write to-day for our new 1910 catalogue describing our full line of Band Saws, Variety Wood Workers, etc., etc.



The Crescent Machine Co.,

224 Main Street, Leetonia, Ohio.

If you contemplate moving or the installation of new Machinery—
have **ROTH MOTORS** attached
to drive the Machines individually.



Do away with shafting and long belts and counter-shafts which waste power.

You will be **PLEASED** with the change.

—Ask—

Roth Bros. & Co.

1422 W. Adams St.
Chicago, Ill.

N. Y. Office:
136 Liberty St.

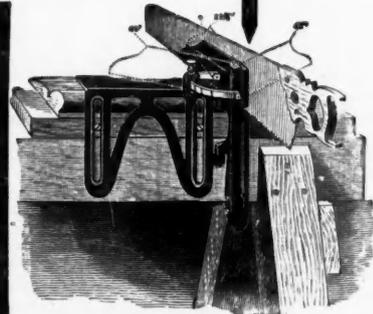
“SEAVEY” MITRE BOX

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.

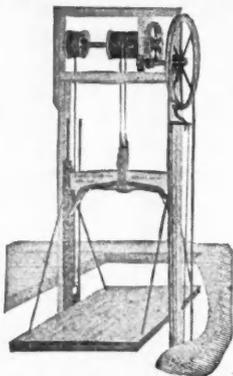


Portable—Can
be carried in
the Tool Kit

Weighs
2

SMITH & HEMENWAY CO.
108 Duane St. New York City.

Pounds



PERFECTION ELEVATORS

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

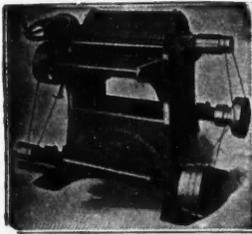
Dumb Waiters, Carriage and Store Elevators, Sidewalk Hoists, Etc., Etc.

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

The Low Cost Will Surprise You

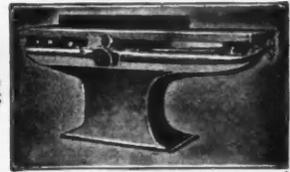
State your requirements, giving capacity, size of platform and number of feet to travel and we will name our lowest money saving estimate.

SIDNEY ELEVATOR MFG. COMPANY, SIDNEY, OHIO



Chicago No. 35 Pony Planer

Machines for Contractors



Chicago Hand Jointer
8, 12 and 16 in.

Do Your Own Millwork!!

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

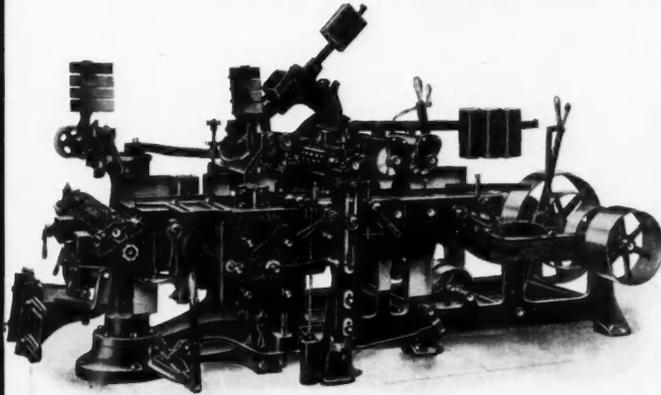
Money Saving Machinery

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

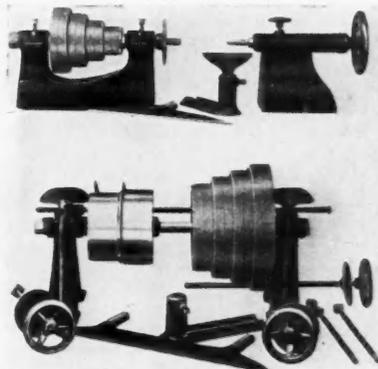
Prices are Favorable Our line is the most complete in the country and our prices are most favorable. All our machinery is of special construction to secure fine finished surfaces and reduce sand-papering to the minimum.

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

Chicago Machinery Exchange, 159-161 North Canal Street Chicago



Hermance New 1909 "Wide-Open" Moulder
Up-to-date and a little ahead.



Wood Turning Lathe and Countershaft
16 and 20 inch



Chicago No. 17 Improved Swing Saw



"A Bit Of Utility"

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

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

Unequaled for Delicate Work

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

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

The Progressive Mfg. Co.

Torrington, Conn.



MACHINE BIT.

BRACE BIT.

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

Made of best quality angle steel, strictly first-class and fully tested. Arms are notched and brace riveted fast in such a way that the strain is carried entirely on the solid metal instead of on the rivets; a single pair carry a ton easily.

4 ft. brackets 1 1/4" x 1 1/4" x 3/8"
5 ft. brackets 1 1/2" x 1 1/2" x 3/8"

See page 92, "Quick Method of Erecting Scaffolds,"

Prompt Shipments Guaranteed.

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

THE TAYLOR STEEL SCAFFOLD BRACKETS ABOUT CLAMPS

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

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

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

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

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

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

Can be used on any Circular Saw Mandrel.

For cutting any width groove from 1/4" to 2" or over. Will cut a perfect groove, either with or across the grain, and leave edges smooth. Will ship to any responsible firm on ten days' approval; if not satisfactory you are at liberty to return at our expense. We also make a specialty of 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.

Showing Arrangement of Cutters.

Try our Scraper Blades and you will use no others.

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1000 University Ave. ROCHESTER, N. Y.

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

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

SEND FOR SPECIAL PAMPHLET

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

A Bench Hand Planer and Jointer
FOR
CARPENTERS, CONTRACTORS, BUILDERS and CABINET MAKERS

Undoubtedly, the handiest and most valuable tool ever invented for planing small work—saves much time, does the work much better and with far less labor than can possibly be done with the hand plane.

With our **No. 254 Bench Hand Planer** you can plane, surface straight or tapering, joint, edge, etc., in the most rapid and perfect manner. The price is so reasonable that the ordinary Carpenter or Cabinet Shop cannot afford to be without it.

Write for Large Illustrated Circular.

No. 254—Bench Hand Planer and Jointer
J. A. FAY & EGAN CO., 545-565 Front St., Cincinnati, Ohio.

"DEFIANCE" WOOD-WORKING MACHINERY



No. 1 Swing Saw

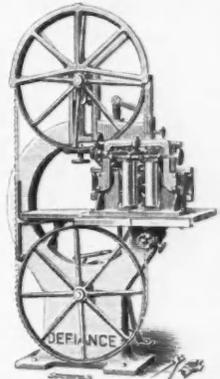
For Making:

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

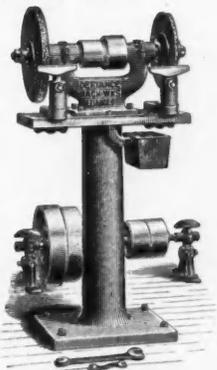
Invented and Built By

The Defiance Machine Works
Defiance, Ohio

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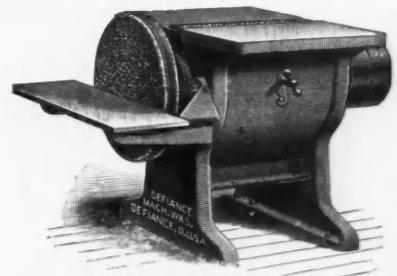
No. 6 Band Re-Saw



Defiance Emery Grinder



12" Hand Feed Planer and Borer



24" Drum and Disc Sander

PARKS' No. 620 and 622

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

Six Machines in One and all in Plain Sight. No unbolting or bolting is necessary before you can see or use all the attachments. Economical, cheap, and a constant money maker for Carpenters and Contractors.

Write for Circular and Prices. Parks' Ball Bearing Machine Co. - Fergus & C. H. & D. Ry. - Cincinnati, Ohio. Originators of the Circular Saw, Band Saw and Jointer Combination, also Foot and Hand Power Machine.

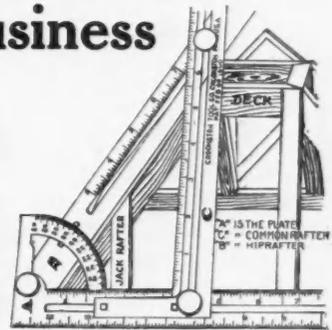
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ALWAYS READY FOR INSTANT USE

Doing Business ON THE Square

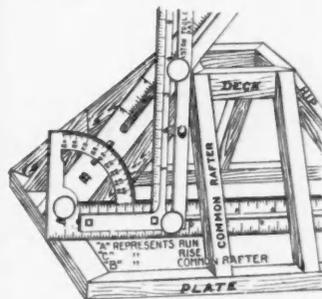
The recommends you have seen from time to time in this publication from men who cannot afford to misrepresent, ought to convince the most sceptical that the ABC Protractor Square is not a toy tool, but one that every carpenter in the country should have.



Members A and C are 12 inches long and member B 16 inches, large enough for any ordinary work, and you can use a scale of 1/4 inch to a foot as well as 1/2 or 1 inch. It is made of hard steel, coppered and nickled and the best of workmanship guaranteed. It is not frail, nor clumsy, but Just Right.

We are building up our enormous business on the Square, and if it is not as represented, send it back, and your money will be cheerfully refunded. Price, \$3.00.

For the next thirty days, we will pay you 10 cents each for 5 names of carpenters, if you buy one of our ABC Protractor Squares. Send us \$2.50 with the 5 names and we shall send you the tool by mail pre-paid.



Crookston Tool Company
Crookston, Minn.

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

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

THE "LIGHTNING" AUGER BIT

WARRANTED



WARRANTED

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

The double thread with the specially formed twist secures its double quick work without increase of power. Only by actual test can the great advantages of the lightning bit be fully realized. Secure from your dealer or sent by mail. Price postpaid.

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

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

FOLDING HANDLE DRAW KNIFE.

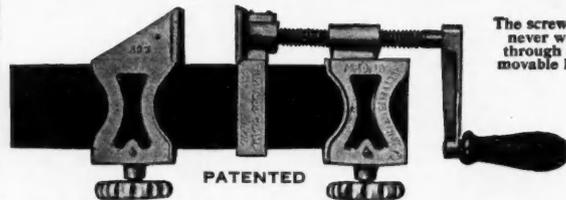
Now the Folding Handle Draw Knife Comes to workmen as a boon; There is nothing that's so handy And it did not come too soon.



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

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

The TODD Clamp Will Save You Money



The screw will never wear through the movable head.

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

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



Carpenters and Cabinet Makers Want RUSSELL JENNINGS BITS

BECAUSE

- They are the most durable.
- They can be sharpened the greatest number of times.
- They bore easily and cut freely.
- The hole bored is of exact size.

RUSSELL JENNINGS MANUFACTURING CO., Chester, Conn., U.S.A.

20

FOREST CITY BIT AND TOOL CO.

Manufacturing Hollow Mortising and Wood Boring Bits and Tools



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

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

Miller's Lock Mortiser Does The Work

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

5000 Mortisers Sold Mean Something
Complete Job in 3 Minutes
Actual Use of Tool ½ Minute

READ, BUILDER, WHAT THE OTHER FELLOW SAYS:

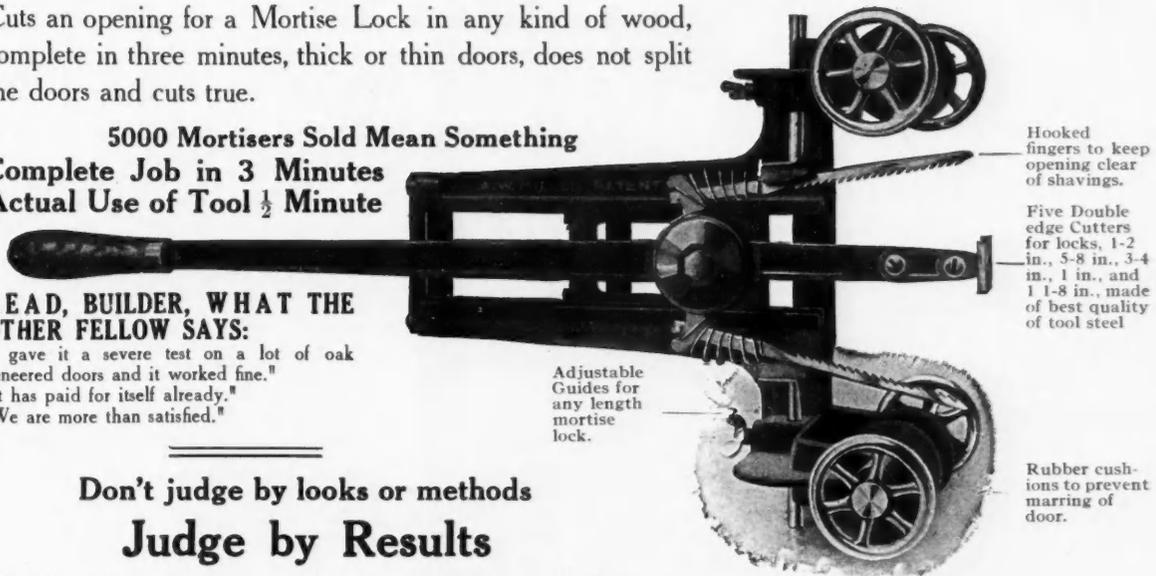
"I gave it a severe test on a lot of oak veneered doors and it worked fine."
 "It has paid for itself already."
 "We are more than satisfied."

Don't judge by looks or methods
Judge by Results

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

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

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



No. 8 "UNION" COMBINATION SAW



A well-built, light power machine, at a low cost, has a wide range for work, will rip stuff up to 3½ inches thick, also cut off, mitre, and with attachments, bore, edge-mould, groove, dado, etc.

The No. 8 Union Saw may be easily connected to electric motor or gasoline engine and complete outfit mounted on skids to move from one job to another.

Send for Catalog A

describing our complete line of Foot, Hand and Light Power Wood-working Machinery.

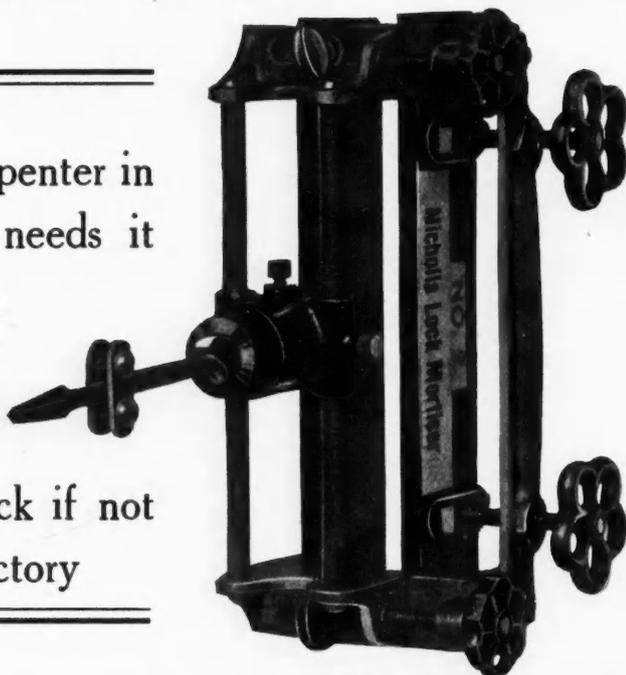
The Seneca Falls Mfg. Co.
 218 Water Street
 Seneca Falls, N. Y. U. S. A.

Nicholls Lock Mortiser No. 2

Every Carpenter in the land needs it

ORDER TODAY

Money back if not satisfactory



\$4.50

Prepaid

to any part of the United States, Canada or England

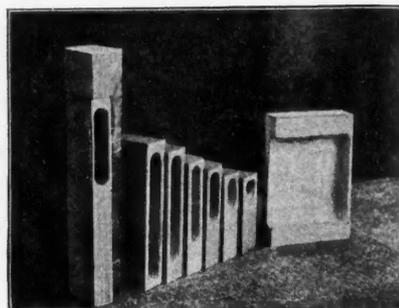
Sax Nicholls Cohn Co., INC. SOLE MANUFACTURERS
FAIRFIELD - IOWA

The Perfection Universal Mortiser

This bit moves up and down while boring.



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



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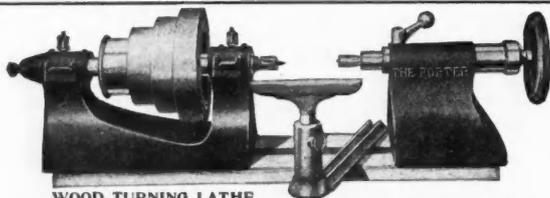


THE GRIMM WOODWORKER

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

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

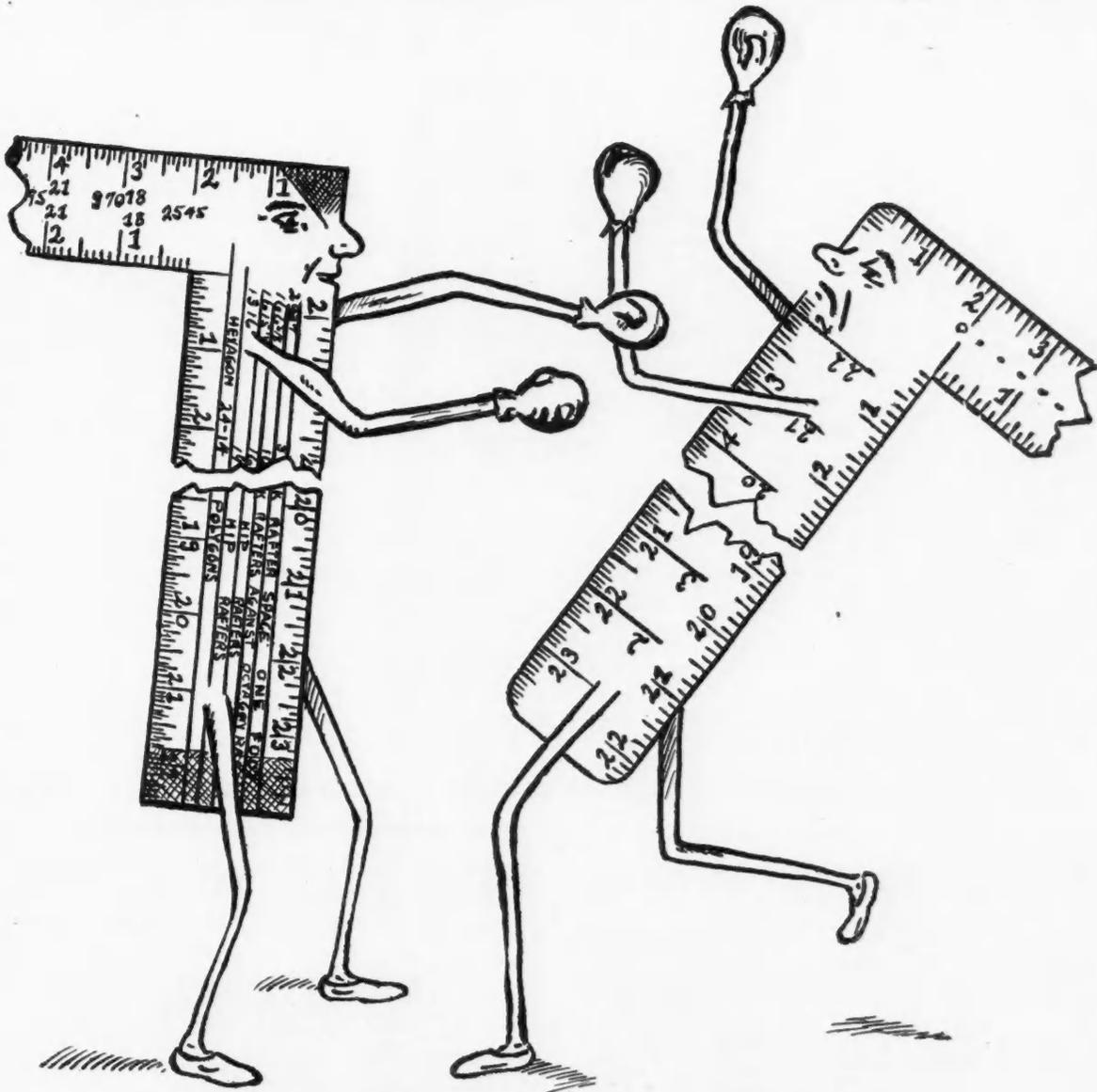


WOOD TURNING LATHE

"THE PORTER" Wood Turning Lathes

for wood turners and pattern makers. Furnished complete with countershaft, rests, steps, bolts, center and face plate. A high grade machine at a reasonable price. We also make Hand Jointers, Shapers, Swing Cut-off Saws, Pony Planers and Post Boring Machines. *Better get our Catalog.*

C. O. PORTER MACHINERY CO., Grand Rapids, Mich.



JOHNSON and JEFFERIES WILL FIGHT FOR

the Worlds' heavy weight championship and a great fight it will be. But there is a greater fight than that. The fight for durability and quality in carpenters' squares. Our hardened corner square will win. They will stand the rough use of every day carpentry and the corners will not wear round, when your soft corner square is knocked out with round corners, and no longer fit to continue the combat. We harden the corners of all our framing squares also No. 100-1-2 and 3. Standard squares. Look for label on wrapper. The only framing square on the market which has a complete framing rule.

No. 100-A—Drafting—with Common and Octagon Roof Framing Rule, brace measure, octagon and 1-100 scale.		
No. 100 A Polished Steel	Oxid. Cop- pered Black or Galvanized	Nickel Plated on Copper
\$2.25	\$2.50	\$3.00

No. 100 and No. 1 Drafting with Common Roof Framing Rule, brace measure, octagon and 1-100 scale. . . . Price No. 100 twenty-five cents less than the No. 100-A in each finish. No. 1 fifty cents less.

If your dealer will not supply you we will send you one DELIVERED upon receipt of price

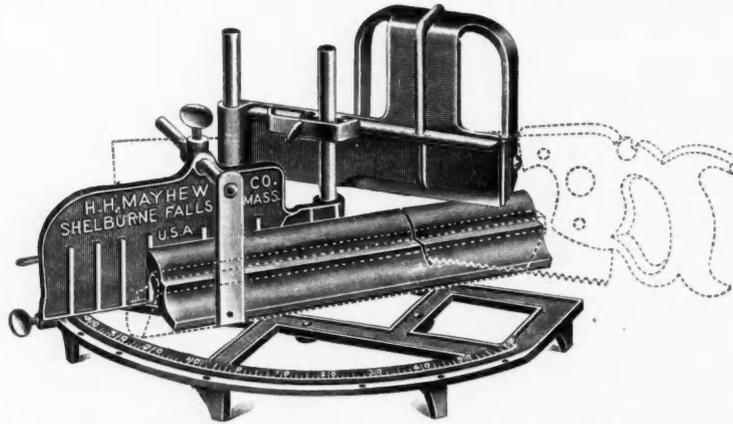
NICHOLLS MFG. CO.
OTTUMWA, IOWA



SPECIAL OFFER

Send in your hardened corner label and we will send you postpaid one 8 oz. duck carpenters' nail apron with three large nail pockets,

MAYHEW 60° MITRE BOX



This box embodies more distinctive features than any other made.
 Designed for Simplicity, Accuracy, and Durability. Strictly a right hand tool for mitering.
 Box embodies a new feature in reversing the principle commonly used on other boxes.
 Any of three saws may be used—Panel—Hand or Back saw.
 Saw guide adjustable for any thickness of saw.

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

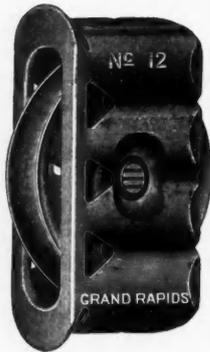
PRICE EACH, \$10.00

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

If You Have Power

You cannot afford to use any but the

Grand Rapids All-Steel Sash Pulleys



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

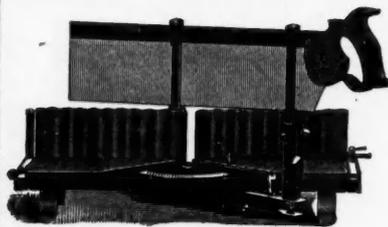
Grand Rapids Hardware Co.

35 Pearl Street,
 GRAND RAPIDS, MICH.



GOODELL MITRE BOX

Made of STEEL - Cannot Break



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

GOODELL MFG. CO., Greenfield, Mass.

Self-Setting Planes are not like other planes. Why not try one, and if it is not worth to you twice its cost, return it at our expense and we will return you the amount you paid us, and the trial will not cost you a nickel. During July, 1910, we will receive this advt. as \$1.00 if the balance of the list price of a plane and 10 addresses of plane users, no matter where they live, is sent us from where the Self-Setting Planes are not sold.

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



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. July 1, 1910.

GAGE TOOL CO., Vineland, N. J.

SARGENT'S IMPROVED STEEL SQUARE



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

Sargent & Company
 1149 Leonard Street
 New York

CARPENTERS

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

Barnes' Hand and Foot Power Machinery

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

SEND FOR OUR NEW CATALOGUE

W. F. & John Barnes Co.

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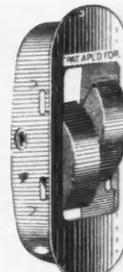


THE LOCK THAT PROTECTS

Just what you have been looking for. Not only locks window, but when desired takes the place of sash weights. No. 1 on upper sash, No. 2 on lower. On balanced windows, use No. 1. Mortised in jamb just above and below meeting rails, as quickly and easily as a sash pulley—no screws.



No. 1. Single Cam Lock



No. 2. Double Cam Lock

Send card to-day for catalogue and prices, giving dealer's name.

Powers Burglar-Proof Sash Lock Co.
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Unlocking Key

The Builder Who Knows: vs The Builder Who Guesses

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

The New Sixth Edition of

THE LIGHTNING ESTIMATOR

shows you how

SIMPLE RAPID ACCURATE RELIABLE PRACTICAL SYSTEMATIC

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

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STARRETT Universal Scraper

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

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Hargrave's New Adjustable "SPECIAL" Clamp.



Hargrave's Perfection "SPECIAL" Clamp.



Hargrave's Joiners' "SPECIAL" Clamp.



Clamps? Sure.

HARGRAVE

STEEL BAR CLAMPS

ORIGINAL and BEST

Steel Bar, Screw and Dog

All Sizes

Write for Circular and Prices, Dept. H. **THE CINCINNTI TOOL CO.,** Norwood, Cincinnati, Ohio



KEEP YOUR TOOLS SHARP

This little Grinder should have a place in the tool chest of every carpenter.

Grinders of this description have already proven their usefulness for sharpening tools. No argument on that point is necessary.

But the *Goodell-Pratt Grinder* leads all others.

It is better designed.

Better and more thoroughly made. It is equipped with a better wheel.

Any up-to-date dealer will confirm our statement.

Ask yours.

Goodell-Pratt Company

Toolsmiths

GREENFIELD, MASS.

U. S. A.

HOW TO READ PLANS

A Valuable New Book

By

Charles G. Pekar

60 Pages (5 x 7 Inches)

43 Drawings in Text

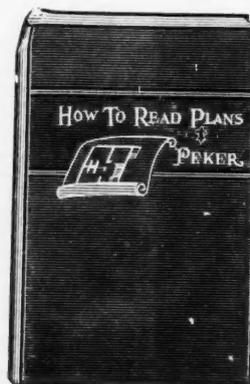
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Handsomely Bound in Cloth

PRICE, 50 CENTS

Sent post-paid on receipt of price.

Your money back if you are not pleased.



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It is for these men that this book was prepared, as it simply explains the meaning of the various lines; plans, views, elevations, sections, scales, blue prints, devices, symbols, etc., to be found on a set of plans.

The book is finely illustrated by 43 illustrations in the text, and 8 large folding plates giving the full plan of a 6-room frame house. This set of plans alone is worth many times the cost of the book; an architect would charge at least \$25 for their equal.

It is one of the most valuable books ever got out for building mechanics, as its information means increasing a man's salary. It is pretty safe to say that to the man who cannot read a drawing now this book will mean at least \$50 more pay during the first year he has it.

INDUSTRIAL BOOK COMPANY

178 Fulton Street,

NEW YORK

On the Square



every builder should have my little works and be a constant reader of the "Cement World," the leading paper of its kind published.



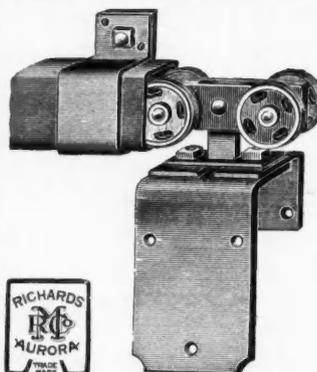
STEEL SQUARE POCKET BOOK.....\$0.50
 FOLDER (in case with pockets)..... .25
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All for \$1.75.

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Send for other Combination Offers.



Every Practical Carpenter knows that Richards Trolley Hangers are the most desirable type for hanging barn, warehouse and garage doors.

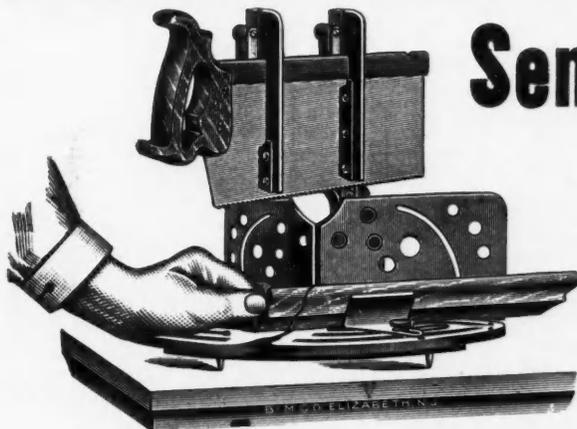
Richards Trolley track forms complete covering for the roller bearing hangers.

No jumping the track. Hangers easy running, easy to put up and adjust. Nothing to get fussy.

For an easy and satisfactory job insist on "Richards" Hangers, at your dealers. Have you our complete catalogue?



THE RICHARDS MANUFACTURING CO., AURORA, ILL.



Sent on 10 Days Trial

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



Compound Miter

Send for Booklet Called "Tools That Last"

OUR "CHISEL" GUARANTEE

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

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

SPECIAL OFFER

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



BEVELED EDGE BUTT CHISEL



SOCKET BUTT CHISEL

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



The Carpenters Ever Ready
DOOR CLAMP

Durable, Efficient and Inexpensive

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

**SATISFACTION GUARANTEED
OR MONEY REFUNDED**

— Write for Free Trial Offer —

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

WILLSHIRE CLAMP CO.
WILLSHIRE, OHIO

THE NEW SASGEN CIRCLE SWING DERRICK

No Stiff Legs
No Guy Lines



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

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

Sold on trial to all reliable contractors. Catalogue FREE.

Manufactured by
SASGEN BROS.,
2053-2057 Racine Ave.
CHICAGO, ILL.
New York Office: 103 Park Ave., N. Y.

"Sterling" Convertible Level

Two Instruments in One



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

Price complete \$65.00

Send for 1910 Complete Catalogue.

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

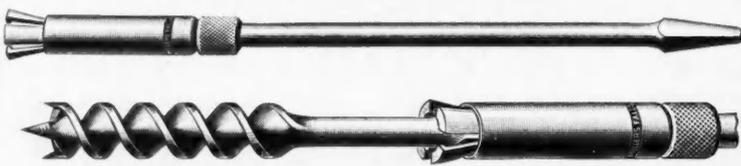
LUFKIN

Tapes & Rules

are Standards of Accuracy, Durability and Workmanship.



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



Extension Bit Holder No. 5

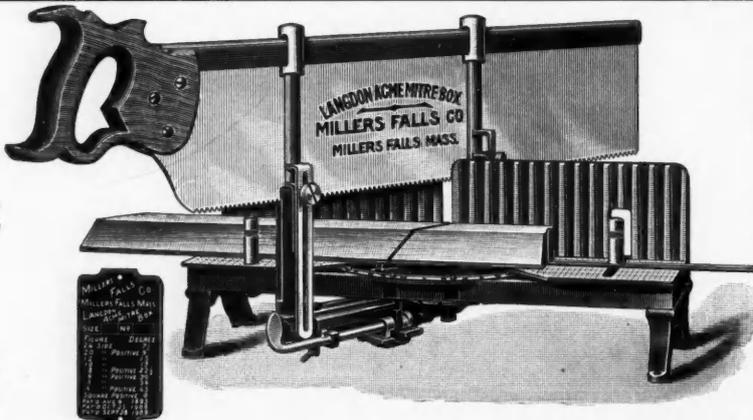
It has been found difficult to make a Bit Extension with Chuck small enough to follow a $\frac{3}{8}$ -inch Bit into a hole and strong enough to stand the strain put upon it, but we have succeeded in producing a satisfactory Extension of this description in our No. 5 as illustrated above.

The Chuck is positive and there is no danger of the bit becoming loose and lost between partitions.

The four jaws are made from one piece of steel and grasp the corners of the bit shank securely. Electricians and plumbers will find this Extension most useful and satisfactory.

Ask for one of our catalogues showing our full line of tools.

Millers Falls Co.
28 Warren St., NEW YORK



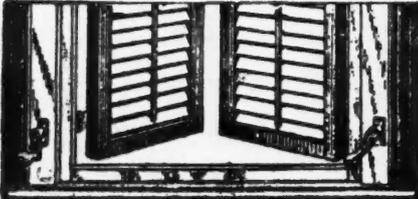
THIS IS THE MITRE BOX YOU WANT

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

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

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

MALLORY'S



Standard Shutter Worker

New and improved patterns and designs.

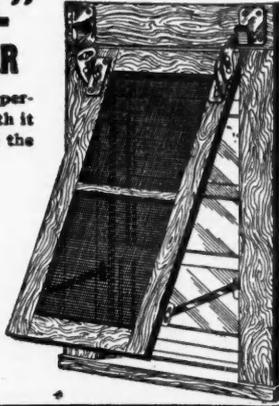
Opens and closes the blinds without raising the window. Automatically locks the blinds in any position desired.

Made of gray and malleable iron. The best and most durable blind hinge. Incomparable for strength, durability and power. Can be applied to old or new houses of brick, stone or frame. Send for Illustrated Circular. If your hardware dealer does not keep them send direct to

MALLORY MANUFACTURING CO.

204 Flemington National Bank Building. FLEMINGTON, N. J.

The "UNIVERSAL" ADJUSTABLE HANGER

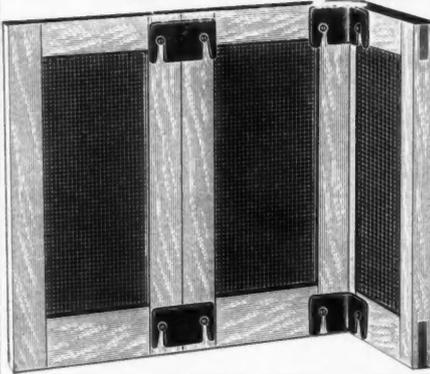


can be used anywhere. It forms a perfect, practicable lock; sash hung with it cannot be opened or removed from the outside; it cannot be blown open by storms; makes practicable the only substitute for the half-sash sliding screen; is sold in sets, half sets, or in any other way the trade demands; indestructible;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

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

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

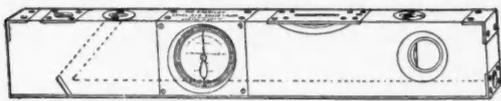
The Big 4 Couplings



Cuts representing the Big 4, Corner Bra e and Couplings made for putting up storm houses, porch screens and portable screen cottages, or stiffening box corners. In fact they can be used in many places where a rigid corner or coupling is desired. These couplings are valuable to the carpenter and contractor as well as to the consumer, as they can be attached or detached very readily by simply loosening the screws so that they can be slipped on or off at will. These couplings are sold only in gross lots. Prices quoted on application.

Manufactured by
Diehl Novelty Co.
Sheboygan, Wis.

THE AMERICAN Combined Level and Grade Finder



All Progressive and Up-to-date Mechanics as well as Manufacturers, having use of a Level, are getting one.

An instrument with which at one glance you can get the true slant on any line or grade either in degrees, inches or percentage, or all at the same time, and will at once give the exact distance needed to plumb up to a true level.

A Civil Engineer that you may have with you at all times. The most practical, durable and convenient instrument of the day. The longitudinal recess which is shown in cut is well worth the low price of the instrument.

Write at once for large list of testimonials from all over the United States, and special introductory price given only to first applicants with privilege of taking agency. Address

EDWARD HELB, P. O. Box 55, Railroad, Pa.

ON INLAND SEAS



YOUR VACATION TRIP

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

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

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

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

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

Detroit & Cleveland Nav. Co.

The L. & I. J. White Co.
 Buffalo, N. Y.

The BEST that Money Can Buy

**GUARANTEED
 PERFECT**
*In Quality, Shape,
 Material and Temper*

The strongest, finest finished and most accurate Edge Tools made. For use on any wood, any job at any time. Always ready, sharp, accurate and perfect. *The Best tools for Best work.* If not at dealers, write us.



The Mark of

BEST EDGE TOOLS

Dep't
 A

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.

"Last a Lifetime and Give Satisfaction To the End"



BUTT CHISEL

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

THE CELEBRATED BARTON TOOLS

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

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



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

"SILVER LAKE"

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



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

"OHIO" CHISELS

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



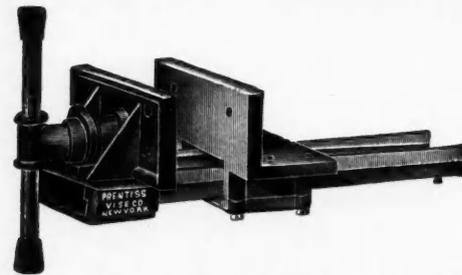
Every "Ohio" Tool is fully warranted. They have been on the market a great many years and the experienced mechanic who does not care to take any chances on tools of doubtful quality always insists on having "Ohio" Tools from his dealer. He knows them to be good tools, with keen and tough cutting edges.



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

OHIO TOOL CO., Columbus, Ohio

BLAKE QUICK ACTING VISE



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



SAMSON SPOT SASH CORD



TRADE MARK

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

WE'RE GLAD TO SEND SAMPLES AND FULL INFORMATION.

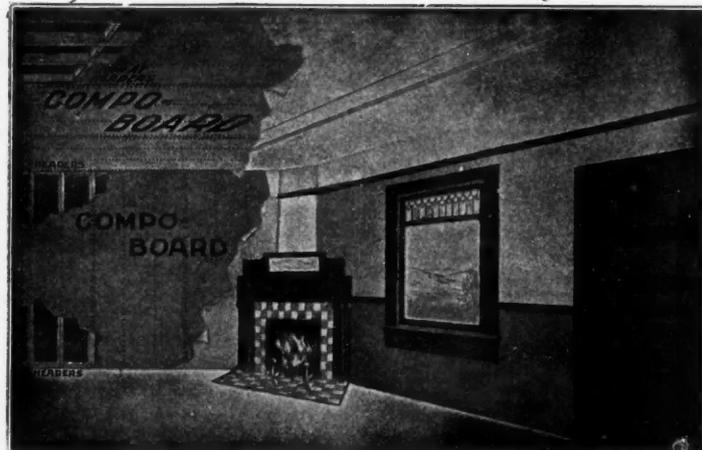
SAMSON CORDAGE WORKS, BOSTON, MASS.

COMPO-BOARD

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

For Sample, Price and full Description, Write

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



BURLINGTON



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

Venetian and Sliding BLINDS Screens and Screen Doors

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



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

BURLINGTON VENETIAN BLIND COMPANY
341 Lake Street, Burlington, Vermont

PHOENIX INSIDE SLIDING BLINDS

WILKES BARRE, PA.

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

**Comfort!
Economy!**

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

The lately improved springs and corrugated steel rods put the "PHOENIX" far in lead of less improved styles. Write for Catalogue "C" and free samples, showing construction.

Commonwealth Hotel

OPPOSITE STATE HOUSE, BOSTON, MASS.



Offers rooms with hot and cold water for \$1.00 per day and up, which includes free use of public shower baths.

Nothing To Equal This in New England

Rooms with private baths for \$1.50 per day and up. Suites of two rooms and bath for \$4.00 per day and up. Dining Room and Cafe First-Class. European Plan.

Absolutely Fireproof

Stone floors, nothing wood but the doors. Equipped with its own Sanitary Vacuum Cleaning Plant.

Long Distance Telephone in Every Room

Strictly a Temperance Hotel

SEND FOR BOOKLET

STORER F. CRAFTS, Prop.



The Latest and Greatest

"YANKEE" Breast Drill

With Automatic Double Ratchet

Adjustable Ball Bearings—Cut Gears

Differs from all others in what it does and how it does it.

The little shifter between gears converts it instantly into a plain drill—A Left-Hand Ratchet for removing taps, etc.,—A Right-Hand Ratchet,—or an Automatic Alternating Right and Left Hand Ratchet, the bit turning continually to the right regardless of the motion of the crank. A great advantage at close quarters where only a short throw of crank can be obtained. A real time-saver.

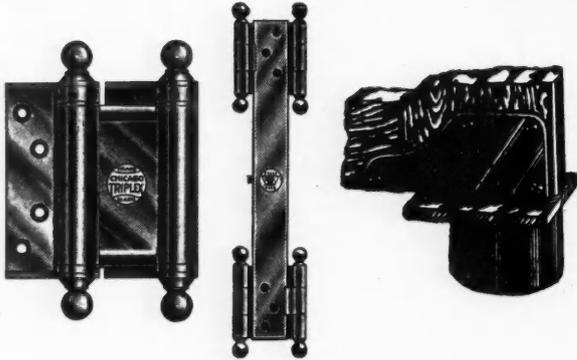
Lever A—For change of speed with forefinger, without releasing hold on crank or removing bit from hole.

This tool must be seen to be fully appreciated. Let your dealer show it to you.

Send for BOOK of LABOR-SAVERS—it's FREE

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

CHICAGO SPRING BUTTS



A PRODUCT OF RECOGNIZED SUPERIORITY

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

Chicago Spring Butt Company,

CHICAGO



NEW YORK

Send for Catalogue C-26.

A New Book About STEEL CEILING—



that *YOU* need if you want to be sure of getting a design exactly suited to each particular job—no matter how particular.

Sent *FREE* on request only to interested persons living

WEST of the Mississippi river. Ask for your copy now. We'll co-operate with you to insure best results.

Knocked Down Skylights

Strong but not bulky. Take low freight rate. Easy to erect. Comply with all insurance rules. Storm-proof and condensation-proof. Shipped anywhere *WEST* of Mississippi river. Ask for catalogue No 11.

Other Products

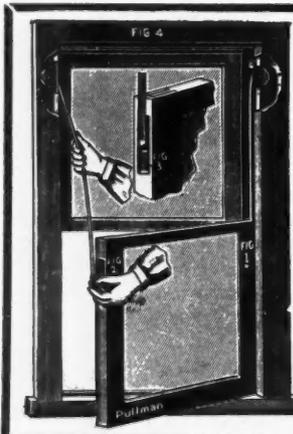
Roofings, Cornices, Gutters, Ventilators, Crestings, Fire-proof Windows and Doors, etc.



ST. PAUL ROOFING, CORNICE AND ORNAMENT COMPANY

"The Leading Sheet Metal Plant of the West"

ST. PAUL, MINNESOTA



PULLMAN SPRING SASH BALANCES

Require only a mortise in the frame. No pockets, cords, weights, etc. Let us send catalogue.

Pullman Mfg. Company
ROCHESTER, N. Y. U.S.A.

MORRILL'S NO 1 BENCH STOP.

This is the

**Strongest
Simplest
Most Durable**

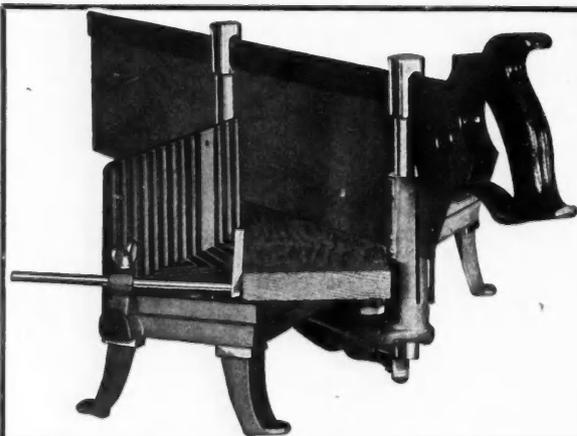


BENCH STOP

That is on the market and in the long run is

THE CHEAPEST

CHAS. MORRILL, 283 Broadway
NEW YORK, N. Y.



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

Saw and all attachments are included.

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

Illustrated circular on request.

H. C. MARSH COMPANY

606 Race Street

Rockford, Illinois

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<p><i>The</i> World's Greatest Building Paper</p>	<p>Important Notice When your subscription expires, renew at once, using the blank enclosed in your final copy. If it expires with this issue your renewal must reach us before July 25 to avoid missing the August number. Use P. O. or Express Money Order if possible, but bills or 2-cent stamps may be sent at our risk.</p>	<p><i>The</i> World's Greatest Building Paper</p>
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American Carpenter and Builder

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VOL. IX JULY, 1910 No. 4

SUBSCRIPTION RATES

One year, \$2.00; six months, \$1.00; payable always in advance. Single Copies, 20 cents. Canadian Subscriptions, \$2.50. Foreign Subscriptions, \$2.00.

ADVERTISING RATES

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

Wood Shingles not Proper Roofing

AT a recent meeting of the Board of Trade of the city of Worcester, Mass., F. H. Wentworth, secretary of the National Fire Protection Association, discussed the subject of the shingle roof. In his opinion the wooden shingle is not a roof covering, but its use for this purpose is a genuine crime. "Except that they are not placed with malicious intent, wooden shingles have all the dire qualities of fagots piled about the victim to be burned at the stake. Any person who witnessed the Chelsea conflagration cannot be other than the enemy of the shingle roof.

"If the roofs of a city are incombustible, any conflagration in it will have a distinct fire line, and this

fire line will, of course, extend itself, as the conflagration advances. In Chelsea, after the first hour, there was no fire line. The whole city was afire from the different centers, caught from shingle roofs. The belated citizens who sought to save their goods knew not where to fly. Horses, dogs, men, women, children, cats, and swarms of rats ran in the streets together, the live coals dropping upon them as they sought avenues of escape. They were impoverished victims of the shingle roof, but for which half the household goods in Chelsea might have been saved."

These words of Mr. Wentworth should be pondered by all builders. The shingle roof is a relic of the days when our population was small, in comparison with its present size, and large cities were not crowded with buildings. The notion of protection against fire had scarcely been thought of in those times, so little was the chance of serious danger from this source. Should a fire occur in a house, it could generally be extinguished without communicating to another. But in these days when large areas are covered with adjoining buildings, the power of flames to spread has been multiplied enormously, and the protection of the roof is one of the first necessities which the growth of this destructive power has created. Non-combustible roofs should be one of the leading demands of the cautious home-builder now.



Corncob Lumber

CORNCOB lumber is the latest substitute for the real thing. It is said to be "just as good." A gentleman named Schaffer, of Rochester, N. Y., is said to have figured out that 3,000,000,000 bushels of corn are a little more than half cob and that if pressed into lumber would yield 1,930,000,000 feet of artificial lumber. In other words, each bushel of cob would yield approximately twelve feet of lumber, board measure.

Of course, the cobs can be bought, accumulated and manufactured into lumber much cheaper than can logs, and the product is much superior to the old-fashioned lumber. It seems strange that people will persist in making lumber in the old way when a much better

article can be made out of corncobs, straw, tin cans, or any other class of refuse that comes handy.

All honor to the corncob! It has solved the conservation problem. Multiply the corn crop by four and enough lumber can be produced from the cobs to supply the trade of the world.



How We Forget

EXPERIMENTS have proved that the average "forgettery" works very fast.

Within 20 minutes we forget 40 per cent of our present experience; after 30 minutes, 50 per cent.; after 2 days, 72 per cent; after 30 days, 80 per cent.

No wonder it is necessary to keep at it, and keep at it, in order to make advertising a success; that is, in order to remind the public that you want them to buy your goods.



Manipulating Words



of the annex.

A tourist hotel advertised itself as "A seven-story building." A traveler noticed that the hotel was a rather low structure, and took the manager to account. Whereupon the latter explained that this meant "four stories of the main building, and three stories

"ROOF SALAD."



Cutting Prices—A Contractor's Soliloquy

(WITH APOLOGIES TO HAMLET.)

To cut or not to cut. That is the question.
Whether it is not better in the end
To let the chap who knows not the worth
Have the business at cut-throat prices, or
To take up arms against his competition,
And by opposing cut for cut, end it.
To cut— and by cutting put the other cutter
Out of business—'tis a consummation
Devoutly to be wished. To cut—to slash
Perchance myself to get it in the neck—
Aye—there's the rub; for when one starts to meet
The other fellow's prices, 'tis like as not
He's up against it good and hard,
To cut and to slash is not to end the confusion
And the many evils the trade is pestered with:
Nay, nay, Pauline; 'tis but the forerunner
Of debt and mortgage such a course portends.
'Tis well to get the prices the goods are worth
And not to be bluffed into selling them for what
So-and-so will sell his goods for.
Price cutting doth appear unseemly
And fit only for the man who knows not
What his goods are worth, and who, ere long,
By stress of making vain comparison
'Twixt bank account and liabilities,
Will make his exit from the business.—Anon.



SOME people try so to get ahead, and nearly everything they do shows they need one.

He pressed his suit
And had her guessing.
They're married now—
She does the pressing!

Too Much to Expect

Barber—Have anything on your face when I get through, sir?

Victim—Some skin and a nose, I hope.—*Boston Transcript.*

Lucky for Pat

"Pat, do you like lettuce?"

"No, sor, Oi don't; and phat's more, Oi'm glad Oi don't; for av Oi did, Oi'd ate it—and, begorra, Oi hate the stuff!"

Quite Different

Mrs. Subbubs (who has hired a man to plant shade trees)—Digging out the holes, I see, Mr. Lannigan.

Lannigan—No, mum. Oi'm diggin' out the dirt and lavin' the holes.—*Catholic News.*

One on the Plumber

A plumber up in Pennsylvania willed to his brother a certain repair job he had in the house of a rich man. In his will he expressed the regret that he could not leave more to this relative, but said by proper management this job should keep his brother from want during his life time.



"Taking His Measure"

Mantels for the Modern Home

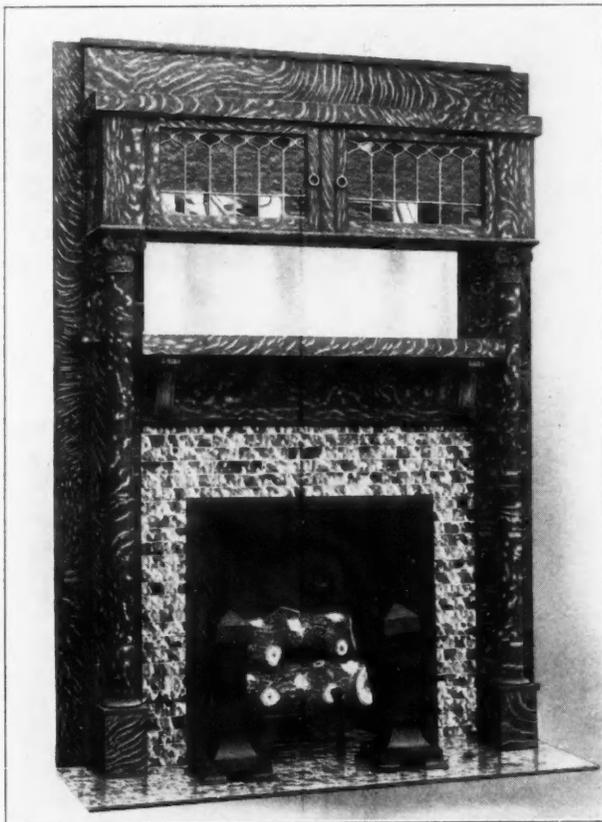
GROWING POPULARITY OF THE OPEN FIREPLACE IN MODERN HOMES—THE VALUE OF PROPERLY DESIGNED MANTELS

HAPPILY for the American home, the return of the saner type of architecture in house building has brought about a revival of one particular feature we all hold most dear—the open fireplace with its classic wood mantel. It is safe to say that during the past two or three years there has not been a house built, of any pretensions toward modern completeness, which has not had one, sometimes two or three, fireplaces.

The reason for this is obvious. A few years ago we all installed systems of hot air, steam or hot water heat because it is a part of our nature to welcome and test every new thing. But it is also a part of our nature to cling to what is permanent and beautiful among our ancient traditions, and we soon realized that gathering around a register or radiator was not at all the same thing as drawing close to a glowing grate or a crackling, leaping fire of logs.

Accordingly, in the modern houses, no living-room is now considered at all complete without its open

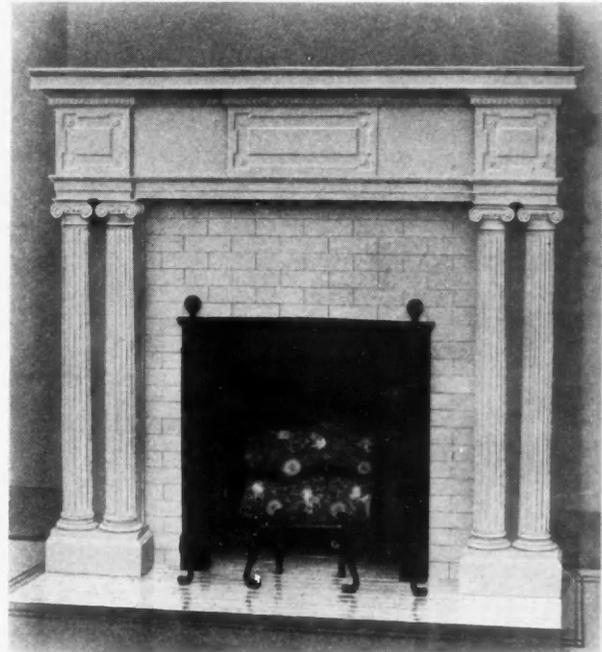
less draft and heat, in brick and tile fireplaces. Accordingly, it will not be necessary to go into that phase of the matter here. It is desired, however, to call attention to some points in wood mantel design and to show the advantages, not only to the carpenter and builder, but also to the owner, of putting high-grade mantels into all houses.



Quarter Sawed Oak Mantel for the Library

grate and mantel, around which the family circle may gather. And other rooms also are similarly equipped, as circumstances permit—the reception-hall, the dining-room, the den or library, the several chambers, are all increased in comfort, coziness and beauty by the presence of properly designed fireplaces.

In previous numbers we have taken up the matter of correct grate and flue construction for good smoke-



Classic Wood Mantel to Suit the Most Refined

As we enter the room, the first thing to catch the eye is the fireplace. The mantel—the framework of the fireplace—is the most important feature of the room. It is more than a mere architectural detail; it is an essential part of the furnishing.

You may build the outside of your house of stone, brick, cement, tile or wood—the inside is always finished with wood; the furniture is invariably of wood—mahogany, oak, birch, maple or some other hardwood finished in its natural color or stained to harmonize with the general decorative scheme. The mantel, the most important feature, the chief piece of furniture in the room, should harmonize with the woodwork and furnishings.

In the popular Colonial style of architecture, many of the rooms are finished in white, either in gloss or enamel finish or in flat—paint—without luster. In this style, the wood mantel, delicate and refined in its classic outlines and its ornamentation, is the most important feature of the room. It should be finished, of course, to correspond with the general woodwork.

Consider the beauty of a hardwood mantel, the exquisite markings of the grain of the wood, wrought by the hand of Nature with infinite patience and developed into fullest beauty by the aid of the hardwood finisher. For the money expended you can obtain far

more effective and attractive results with wood mantels than with any other kind.

Such mantels are manufactured like furniture; are finished with the same care as any other pieces of furniture, and are sent to the job entirely finished and ready to be set in position. They are secured in place by concealed hooks driven into the wall, and easily set by the carpenter, without danger of damaging the floors, hearth, fireplace or tiles.

Even in the most modest cottage the wood mantel is an essential feature. Where every dollar counts in the cost of building; where the owner must carefully calculate every item of expenditure, there is nothing which will add so much effectiveness to the home for so little money as an appropriate mantel.

The library or living-room gains an added attractiveness from a well-designed mantel with tall cupboards having leaded plate-glass doors, on either side or above. Here you may keep your favorite books, handy to read as you sit before the fire. Or perhaps you may have some choice curios that you wish to display and still keep them out of harm's way. In the dining-room these cupboards make convenient places to keep choice pieces of glass and china.

For the bedroom, simple forms are desirable—broad, flat surfaces and refined detail. One of the illustrations shows a well-designed, bedroom mantel; the beveled plate-glass mirror above the shelf making it very much more attractive. And here let us call

changing air, and science tells us that there is no more certain and economical method of ventilating a room than an open fireplace—all scientists agree to this. And



Wood Mantel With Tile Opening and Metal Hood

in the spring or fall, when the weather is too warm for steam or furnace heat, a cheerful, open fire takes the chill off the room and saves many a doctor's bill. Even where there is no chimney, a properly arranged gas grate can be used to give the cheerfulness and warmth of the open fire. There is no need to forego the advantages which the wood mantel affords—both in the way of utility and beauty—just because there happens to be no open fireplace.

Sometimes mantels are omitted through mistaken notions of economy. The cost of suitable wood mantels in every room in the house is many times returned in added value should the owner ever desire to sell the house—to say nothing of the added pleasure derived from their attractiveness. If a house or apartment building is being built for sale or rent—it pays to spend money to make it more effective and attractive in the eyes of the prospective tenant or purchaser. Expenditure of this kind usually yields many times the original cost in increased returns.

Here's an actual example of the value of artistic wood mantels in this way:

A certain builder of homes was erecting an apartment house in the city of Buffalo. As it neared completion he went to one of the leading wood mantel dealers in that city to select mantels. He had fixed upon a price which was not sufficient to buy mantels of a grade

that would correspond with the general character of the building and the rentals which such an apartment house ought to bring. After talking to the builder,



Mantel with Mirror for Living Room

attention to the desirability of providing every bedroom with a fireplace, because of its efficiency as a ventilator. Health demands pure and constantly

the mantel dealer persuaded him to pay twelve dollars more for each mantel than he had decided to pay, upon this condition: That if each apartment did not rent for three dollars more per month than the builder had expected to rent them for, the mantel dealer would allow the builder to deduct twelve dollars from the price of each mantel purchased. Less than a month after the completion of the apartment house, the builder called upon the mantel dealer, paid his bill in full and said:

"Louis, I never made a better investment in my life. All my flats are rented; my tenants are delighted and all willingly paid the increased rent. In four months I'll have the excess cost of my mantels back, and after that a whalin' big interest. Good investment, well I should say so. No more cheap, common mantels in any of my houses."

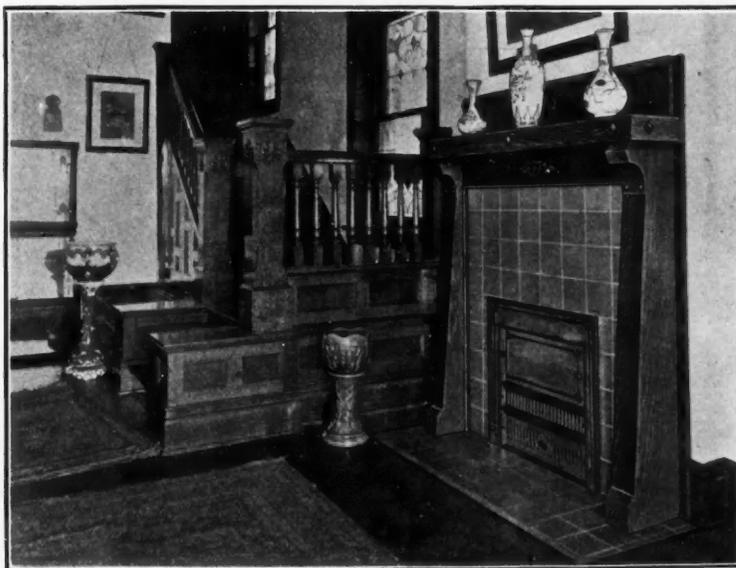
And this is but one case out of hundreds that might be cited. Make a practical test, like this Buffalo builder—put more and better wood mantels in the next house you build, or advise the owner to do so, whether for sale or for rent, and note the results. Attractive wood mantels and open fireplaces appeal to the prospective buyer and often turn the scale and clinch the bargain. Good mantels are silent salesmen and help to rent or sell your houses at increased rates.

necessary feature will be a new facade for the front of the palace as it now stands is about as ugly as an old weather-stained barracks.

The gorgeous Victoria Memorial, even in its present unfinished condition, makes the king's residence appear



Open Fireplace for Warmth and Ventilation in the Bedroom



Attractive Wood Mantel as Part of a Hall Design

Buckingham Palace to Be Rebuilt

A recent dispatch from London to the New York *Herald*, states that, as a national memorial to King Edward, Buckingham Palace is to be largely rebuilt and made more worthy to be the royal residence. A

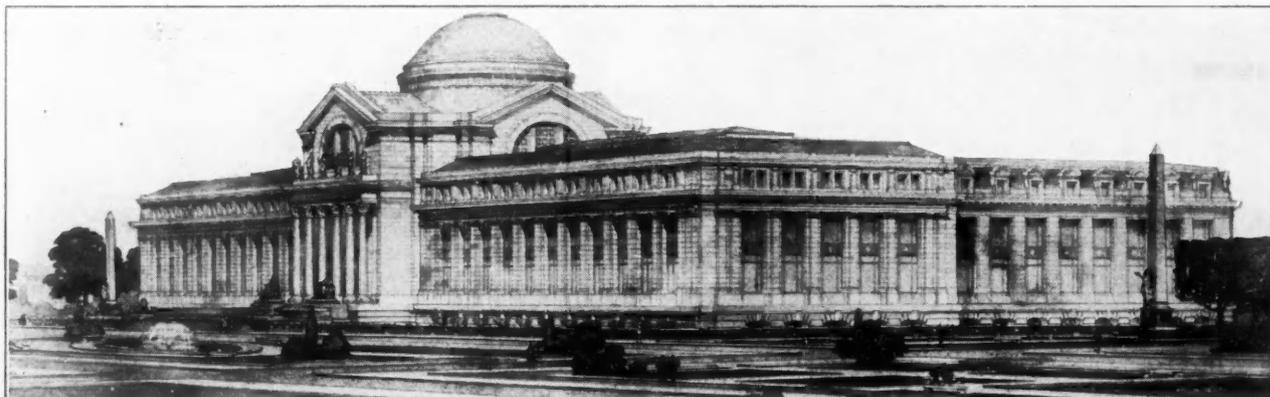
by comparison mean, shabby, dwarfed and squat. When the memorial is completed the public will be shocked by the contrast, and it will be surprising if there be not an outcry for a new Buckingham Palace which will really be worthy of the king.

One prominent member of the Institution of British Architects, William Woodward, advocates the complete demolition of the palace and the erection on its splendid site of a new residence on a modern and really grand style, fit to compare with the royal palace of Brussels, Madrid and Vienna. He considers that if this were done the Mall, or new processional road, would then be the finest avenue in Europe. The present facade of the palace is of painted bath stone, a particularly poor combination, and the whole tone of the building is commonplace in the extreme.

Mr. Woodward has a vision of a new Buckingham Palace, with a grand central arch leading to a quadrangular courtyard. It should be built of Portland stone, the material employed in St. Paul's Cathedral, the Horse Guards and the Admiralty, the only material which will last in the metropolis. The present facade was erected shortly after Queen Victoria's coronation at a cost of \$750,000. Such a scheme of drastic rebuilding could certainly not be carried out for less than \$5,000,000.

Yellow Pine for Interior Finish

THE GROWING POPULARITY AND USE OF THIS RELIABLE WOOD FOR BEAUTIFUL INTERIOR TRIM, DOORS AND FLOORING IN MODERN BUILDING



National Museum at Washington, D. C., 127,000 ft. of Edge Grain Flooring used; Hornblower & Marshall, Architects

EVERY builder is more or less familiar with southern yellow pine, not only as a strong, reliable structural wood, but also in its manufactured state as finish, flooring, sash and doors, etc., for interior work. Of late there has been a new appreciation of this wood for fine interior trim, and it is in this connection we desire to speak. The builder will

merits of southern yellow pine.

Yellow pine is a native of the southern states exclusively, and is often referred to by the builder as "hard pine," "pitch pine," "Georgia pine," "short leaf," "long leaf," etc., but it is all "southern yellow pine."

The physical characteristics of this wood make it



Flemish Dining Room of the "Yellow Pine Cottage," St. Louis World's Fair; Louis Smetana, Architect

find it to his own advantage as well as to that of his client, the owner, in searching for a wood of rare beauty that will stand the wear and tear of hard usage, yet of moderate cost, to thoroughly investigate the

particularly suitable for every building purpose, from heavy structural work to the most exclusive interior decorating scheme, either in veneers or solid. It lends itself readily to the architect's individual design. It

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is not a material which answers the purpose merely because it can be had readily from any good mill or lumber yard, but because the wood is thoroughly good from every stand point.

As a fine finishing lumber it is sometimes equalled but seldom excelled in its finished appearance, and the beauty of its natural grain. It is very susceptible to high polish, and when the wood is finished as it can be finished (and as all hard woods are finished) it com-

ting joints and narrow widths. Yellow pine "edge grain" flooring (sawed on the quarter) meets every demand and requirement for a first-class floor, where artistic appearance, durability and staying qualities are absolute necessities. The technical term for quarter-sawed yellow pine flooring, variously designated as "rift sawn," "vertical grain," "comb grain," etc., all being commercially synonymous terms, is "edge grain." Edge grain stock is especially desirable



Tyrolean Room of "Yellow Pine Cottage," now one of the Art Rooms at Kennard's, St. Louis

pares favorably with any finishing wood, while the cost is so much less that builders generally find it to their advantage to specify and use it—thereby saving their clients money and giving them complete satisfaction.

This wood is hard, of even grain, dense in its fiber, and strong; therefore, giving good service. It stands the heat test in a most satisfactory manner. Being naturally filled with resin ducts, it is sanitary, and does not absorb dirt or moisture readily.

As a flooring material, for many purposes, yellow pine deserves particular consideration. The day of the old rough floor is practically ended, and the new smooth, hardwood floor is here to stay. The carpet covering for the entire floor has been replaced by rugs, and naturally the part of the floor exposed is sought to be made artistic and smooth with close fit-

for flooring and admits no piece in which the angle of the grain exceeds 45 degrees from vertical at any point, thus excluding all pieces that will sliver, or shell from wear. It is of acknowledged worth on account of its strength and durability, having been specified by leading and conservative architects for the past thirty years. It is stated by the manufacturers that southern yellow pine edge grain flooring costs less to buy and less to lay than any other first-class flooring in the market. The standard widths are $2\frac{1}{4}$ and $3\frac{1}{4}$ inches; the standard lengths, 5 to 20 feet; and the standard grades, A, B and C. We recommend an intelligent inquiry as to the true merits of southern yellow pine edge grain flooring in view of its durability, availability, and moderate cost.

Yellow pine doors, veneer or solid, are as practical

and desirable as any hardwood door of similar pattern or make. The Yellow Pine Lumber Manufacturers have always given considerable attention to the demand of the public and have been instrumental in causing to be placed on the market this spring a yellow pine veneered door. The first firm to take the initiative in making yellow pine veneered doors is the

satisfactory door. However, there are some architects and builders who prefer a veneered door. In commenting on this the *American Lumberman* points out that yellow pine doors have been made, since time immemorial, solid stiles and panels; that yellow pine has been used as the groundwork for hardwood veneered doors; that it is employed as panel stock with white



Illustrated by courtesy Rock Island Sash & Door Works.

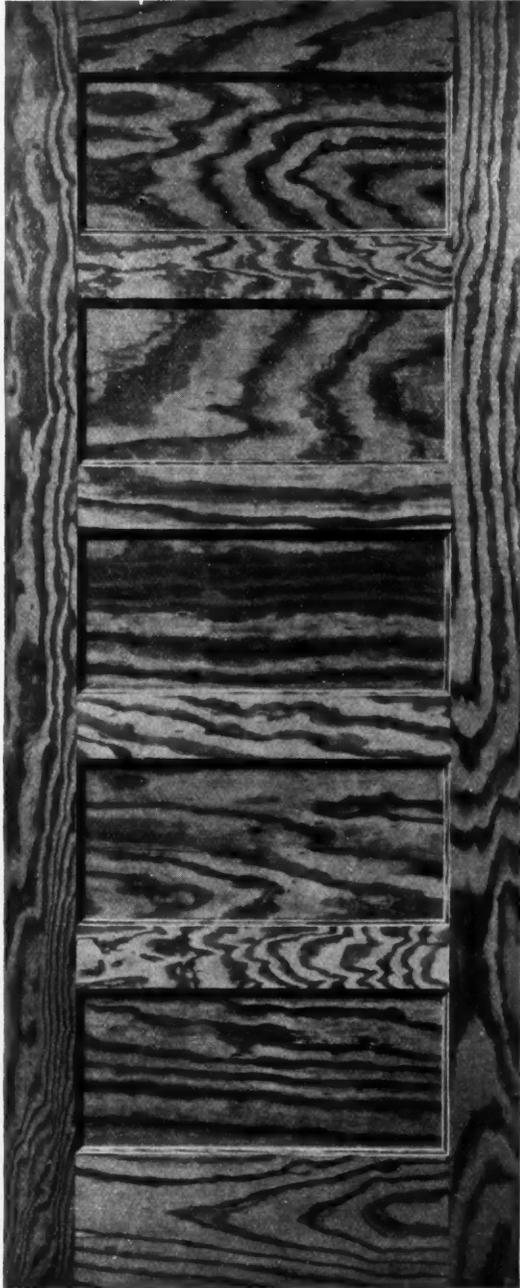
Popular Two-Panel and Slab Doors in Rotary Cut Veneer Yellow Pine

Rock Island Sash & Door Works, Rock Island, Ill. They realized that builders want such a door to combine to make a complete and harmonious yellow pine interior finishing scheme.

The solid yellow pine door, if properly manufactured from kiln-dried lumber, is a very desirable and

pine stiles; but the yellow pine veneered door is a recent development. It is as easy to work yellow pine in this manner as hardwoods or almost any other class of material. The treatment is substantially the same as that given to hardwoods and results are said to be satisfactory in every particular.

In point of fact, yellow pine has not been appreciated largely because it has been cheap. The building trade of America has not yet been educated to a point where it will take what it wants because it wants it. Seemingly there is a preference for expensive materials, which can not be wholly accounted for on the score of their beauty as contrasted with others that



Illustrated by courtesy Rock Island Sash & Door Works.

Five-Cross-Panel Door in Rotary Cut Veneer Yellow Pine

can be secured at lower prices.

Southern yellow pine adapts itself to any color scheme. In the hands of intelligent and competent wood finishers, the wood is replete with suggestions of tone, high light and color for beautiful architectural interior decoration. Even oak, mahogany and birch

require stain and careful experienced treatment to bring out the beauty of the wood. Why not substitute an available and less expensive wood—yellow pine—if the general results are as creditable and satisfactory? Today, as we travel in the south, may be seen artistic old Colonial homes and public buildings, of unique design, built of southern yellow pine from seventy-five to one hundred years ago, and, at this writing, still the homes of the very best families as permanent dwellings. The preservation and beauty of this wood is a source of wonder to all who see it.

Southern yellow pine was introduced into the English and other foreign markets, notably the French, about forty years ago. Commenting on this, a recent issue of the *American Lumberman* remarks:

"The average American will be amazed to learn that much of the furniture of medium class used in Paris is made from American yellow pine. When first this fact became known, it was assumed that the comparatively low cost of yellow pine led to its use, but the truth is, that in Paris high-grade yellow pine is not cheap, and its cost has not had anything to do with its introduction. The reason for its introduction and use is in the Frenchman himself. He is fond of yellow pine effects, and in that fondness he entertains no thought of price. When a decade or so ago, yellow pine manufacturers were advised to encourage the use of yellow pine in the manufacture of furniture, they treated the proposal as unworthy of consideration, and questioned the sanity of the proponent. Later, when the decorative possibilities of yellow pine as a finishing material were brought into startling prominence at the World's Fair in St. Louis, these skeptical lumbermen promptly changed their views, and confessed that they had been under-estimating the possibilities of their own product."

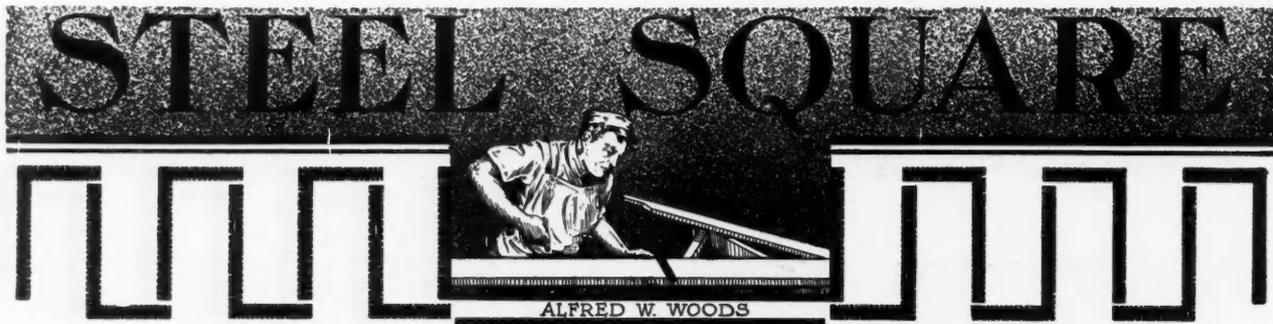
If a list could be compiled of specifications, we would find that almost every building or dwelling constructed within the last thirty years included southern yellow pine to a considerable extent.

Fortunately there is rough timber and trees in adequate quantity in the forests of the south today to supply the entire country with yellow pine finishing wood, flooring and siding after all the hardwoods have disappeared. The country, in yellow pine, has a heritage that is only beginning to be realized by the building trade generally.

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Glazing With Black Putty

Usually when a window has to be glazed with black putty, the rest of the work being white, we make up a black putty. But here is a very cheap, good and easy way to accomplish the same result: After glazing the sash with ordinary putty, dust some dry lamp-black over it, and enough will adhere to make a good black finish. Use the duster for removing surplus black. Such little kinks as this are worth money to the painter.



Problems of Roof Framing Solved

SEVENTH ARTICLE—GENERAL RULE FOR FINDING THE LENGTHS AND CUTS OF RAFTERS FOR ANY SHAPED CORNER—DEGREES TRANSFERRED TO THE STEEL SQUARE

JUST as we had our pencil sharpened and casting about for something to talk about, we received the following letter from one of our friends down in North Carolina, and as it touches along the line and at a place that fits in nicely with what we have been giving in this series of articles, we publish it in full, as it furnishes a cue for this article.

HENDERSONVILLE, N. C.

To the Editor: I have not previously written for information, but now would like to have you explain how I may lay

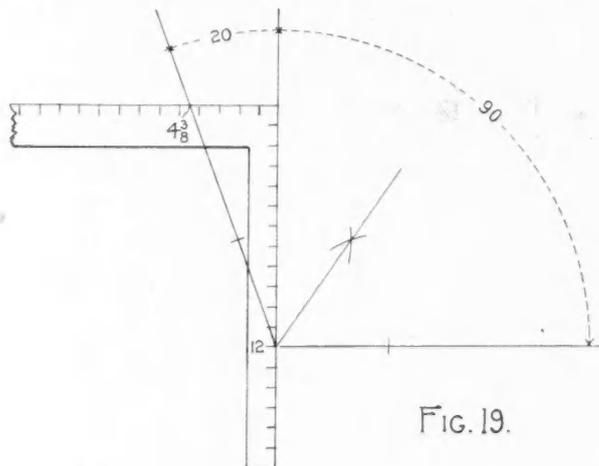


FIG. 19.

out a hip or valley rafter for a house with a corner out of square, say 110 degrees.

I am working on a house with just about such a turn, but the thing I want is to learn how I may step out a rafter for any kind of corner, whether it be more or less than a square, or 90 degree, corner. As I step all my rafters in common work, I would like for you to tell me just how to get the step for this kind of work. Also the difference in length and cuts of jacks.

I would like to see this explained in the AMERICAN CARPENTER AND BUILDER, as it would be very valuable to every reader.

J. H. K.

Not that there is anything new about, or that it requires a different solution from any other angle; though seemingly so, it does not. The principle as illustrated and described in our last article for a square cornered building is just as applicable to the building out of square. The only thing that may be counted out of the usual is that it calls for an angle in degrees not readily found on the steel square, since the angles in degrees are not given on those that are in general

use, except for 90 degrees or square corner. It then becomes necessary to first find the desired angle with a protractor, then proceed, using the same principle as described last month for the square corner. Or the angle may be obtained directly from the steel square, provided the proper figures to use are known.

In Fig. 20 we have compiled the angles in degrees referred to 12 on the tongue as center, and up to 45 degrees on the blade. This shows the figures to use to obtain any angle that may be desired. The diagram is confined within one-eighth part of the circle, or up to 63 degrees. It is really not necessary to go above 12 on the blade for any angle, since the 46 degree is the same as 44 degrees reversed.

Now, let us find the angle in question—that is, 110 degrees. It is found by the addition of 20 to 90 degrees. Referring to the diagram, we find that the 20-degree angle falls at $4\frac{3}{8}$ on the blade, and the desired angle of 110 may be readily obtained from the simple diagram, as shown at Fig. 19. By bisecting this angle, we have the seat line of the hip, which of course, will rest at 55 degrees from the plate lines. This is, we believe, the sim-

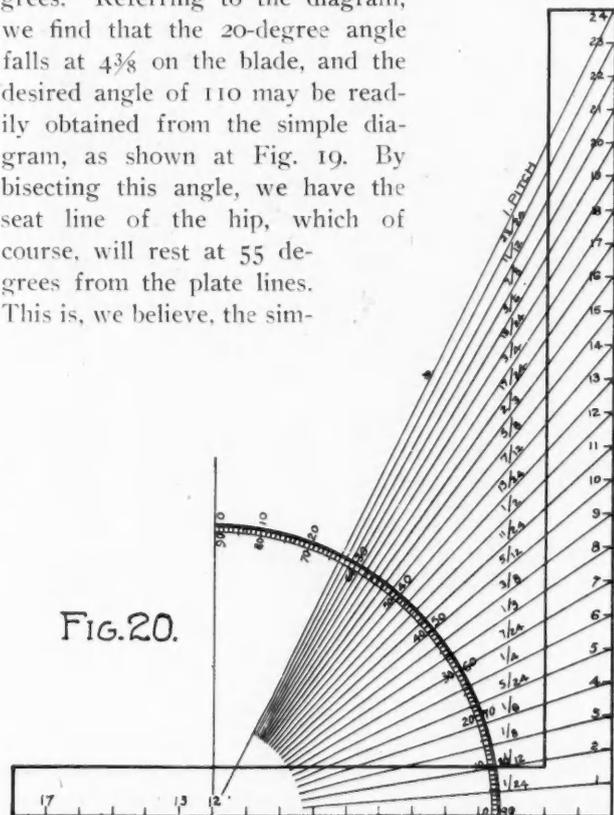


FIG. 20.

plest way the angle may be obtained with the square.

Fig. 21 shows the layout for a roof of this kind—

9-inch rise—with the square applied to the different rafters for obtaining the length and cuts, except for the side cuts for the jack and hip. For the jack, it is:

the jack is shown to be placed 16 inches from the corner and the stepping is less than two times. The stepping for the corresponding hip is found to be at $14\frac{1}{2}$

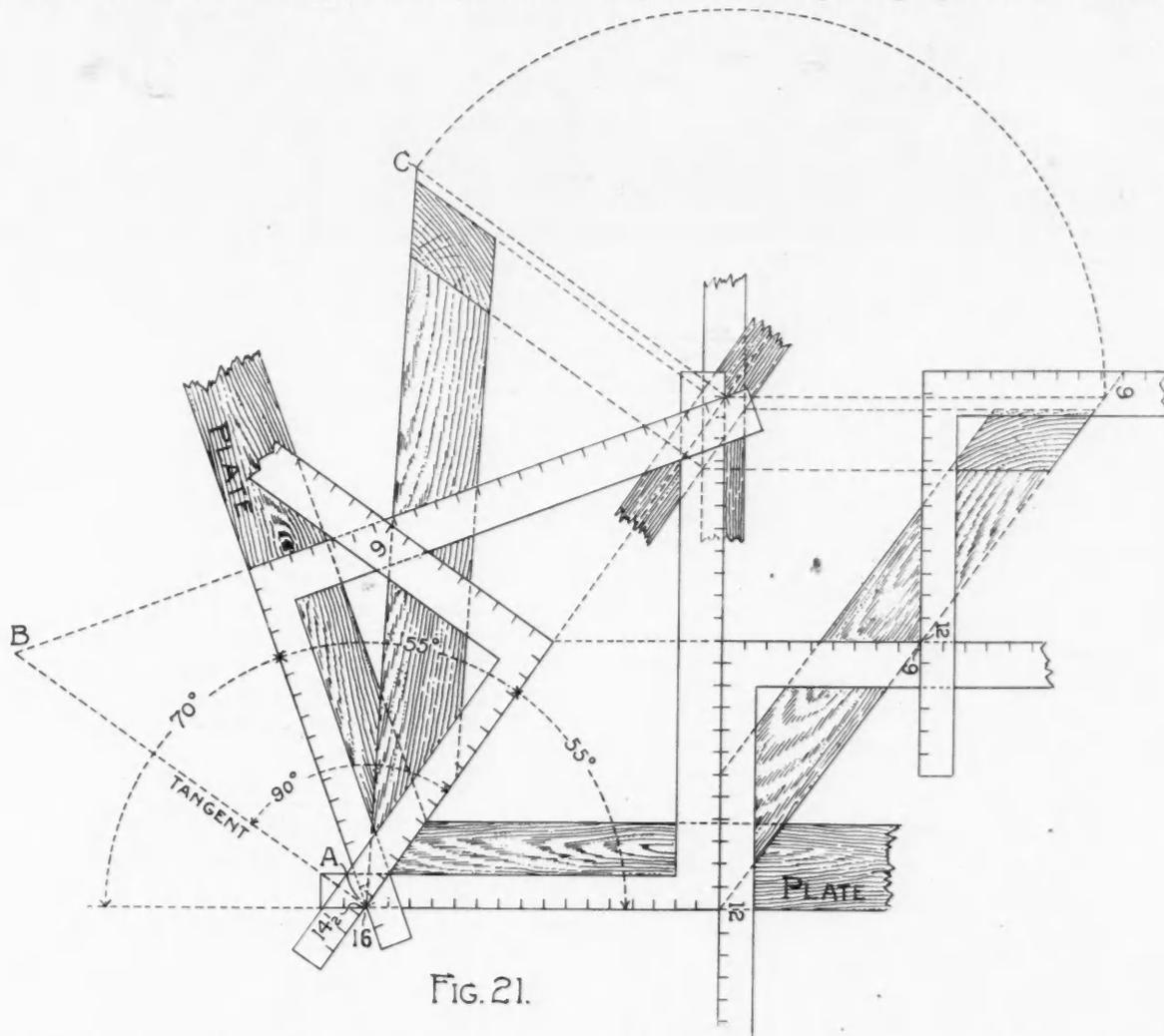


FIG. 21.

Take the distance from the corner to its seat and the jack's length; cut on length. For the hip, it is: Take the distance AB and AC and cut AC for the jacks, the cut is based on the spacing of the first jack from the corner of the plate. It could be from the second or third jack or any other point just as well, as it makes no difference so long as the ratio is mentioned. But we note that although the workman likes to keep the step, he will find himself going some and probably in a genuine reel before he can readily accomplish this; because when the building is out of square, it is practically necessary to first find the angle by diagram, as shown in this case. The same is true in regard to the lengths of the rafters and the proper amount to deduct caused by the intersection of the jack to the hip, the hip to the ridge, etc. In the illustration, these are shown by the graphic method. It is an easy matter then to apply a bevel or square to these angles to obtain the cuts on the timbers. 12 and 9 are used for the stepping of the jack just the same as for the square cornered building, but just how many times to step is the question that has to be determined before the jack can be cut to the proper length. In the illustration,

and 9 and the same fault will be found as mentioned for obtaining the length of jack. Therefore, under such conditions, without one is well up in calculating angles, is better to rely on a scale diagram for the lengths, etc., with full size sectional drawings to obtain the proper deductions to make at the joinings of the different rafters.



Killing Pine Knots

There are several plans for hiding pine knots and sap so that they will not show under the paint. The old stand-by is shellac varnish, made thin, but this will not always do the trick, at least, not when wood alcohol is the solvent. If it is a fine job, silver or even gold leaf should be used. No, that is not expensive, a few cents would do many knots. Shellac will sometimes cause the paint to peel off, outdoors, and will not always keep the pitch from striking through. Some use and highly endorse red lead and glue knotting others use red lead and gold size, with a drop of boile oil added. The trouble with glue size is that one must keep it hot or it will not work.



Valuable Data For Builders

FOURTH ARTICLE—VARIOUS WEIGHTS THAT ROOF TRUSSES ARE CALLED UPON TO SUPPORT—PROPORTION OF THE LOAD BORNE BY EACH MEMBER

By Paul T. Lesher

ROOF trusses are generally designed for the purpose of supporting the roof of a structure, although sometimes in addition they also support ceiling loads, shafting, etc. By a member of a truss is meant any straight or curved piece of wood, or metal rod which connects two adjacent joints of a truss, and acts either as a tie or a strut. When a member is subjected to a pulling strain—that is when it is in tension, the member is called a *tie*. When a member is subjected to compression, it is called a *strut*.

In wooden trusses the struts are usually made of wood, while the ties are made of iron or steel rods.

A snow load is generally taken at about 12 pounds per square foot of roof (horizontal projection). By horizontal projection or area, we mean the span of the truss multiplied by the distance between center lines of trusses. The number of square feet thus obtained, multiplied by the weight per square foot, will give the total load carried by the truss. In the first article (December number) containing data on wind loads, the wind pressure per square foot was given for roof trusses of various pitches. The pitch of a roof is the height of the truss divided by the span of the truss.

The following table gives the weight that is necessary to add per square foot for the weight of the truss itself.

WEIGHT OF WOODEN ROOF TRUSSES (WELL PROPORTIONED)

SPAN IN FEET	POUNDS PER SQ. FT. OF ROOF SURFACE			
	1/2 PITCH	1/3 PITCH	1/4 PITCH	1/6 PITCH
30	1.417	1.63	1.79	1.90
35	1.588	1.87	2.01	2.13
40	1.764	2.08	2.24	2.37
45	1.941	2.29	2.46	2.61
50	2.115	2.49	2.68	2.85
55	2.293	2.70	2.91	3.08
60	2.470	2.91	3.13	3.32
65	2.646	3.12	3.35	3.56
70	2.823	3.33	3.58	3.80
75	2.999	3.54	3.80	4.03
80	3.176	3.75	4.03	4.27

If it is not desirable to lay out frame and stress diagrams of a roof truss to determine the stresses in the various members, the stresses can be obtained for certain pitch roof trusses by using the following tables.

These pitches are the ones most commonly used in building construction. It must be noted that these tables apply only to trusses that are uniformly loaded and have no knee braces.

WEIGHT OF VARIOUS MATERIALS SUPPORTED BY ROOF TRUSSES.

	WEIGHT IN LBS. PER SQ. FOOT
White pine and hemlock boards, 1 inch thick.....	2½
Yellow pine boards, 1 inch thick.....	4
Slate, for each ⅛ inch thickness, laid with usual laps.	4½
Corrugated iron, say No. 20 as laid, (about).....	2¼
Tin as laid.....	¾
Ordinary lath and plaster (as for ceilings).....	6
Glass, for each ⅛ inch thickness.....	1¾
Plain tiles, about ⅝ inch thick, as usually laid.....	18
Thin Spanish tiles as usually laid.....	8½

Explanation of Tables

The following tables give the *percentage* of the total load on a roof truss, which *each member* of that truss bears. This load is made up of the weight of the roof covering, weight truss itself, and also the snow and wind loads. The sum of all these for a surface whose length is the total width of the roof from eave to eave, and whose width is the distance between the center lines of adjacent spans, is the total load on each span.

Having found the total load, select a suitable form of truss from the following skeleton diagrams. In these diagrams the tension members are represented by single lines, and the compression* by double lines.

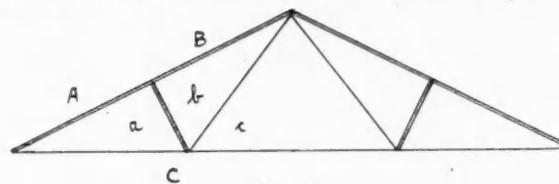


Fig. 13

Under the column representing the desired pitch of roof will be found the co-efficient for each member of the truss. This co-efficient, multiplied by the total load, gives the tensile or compressive stress, as the case may be, for that member. Knowing the values or amounts of these stresses, suitable sections may be calculated, by using the data given the previous articles.

As the trusses are symmetrical about a vertical cen-

ter line and the stresses in symmetrical members are equal, when the truss is uniformly loaded, only one-half of the truss will be lettered. Each member is named by the letters in the spaces at each side of it.

PERCENTAGES OF THE TOTAL LOAD BORNE BY THE SEVERAL MEMBERS.

MEMBER OF TRUSS, FIG. 13.

MEMBER OF TRUSS	1/3 PITCH	30° PITCH	1/4 PITCH	1/5 PITCH
Aa	.675	.750	.838	1.010
Bb	.537	.625	.726	.917
Ca	.563	.650	.750	.938
Cc	.375	.433	.500	.625
ab	.208	.217	.224	.232
bc	.188	.217	.250	.313

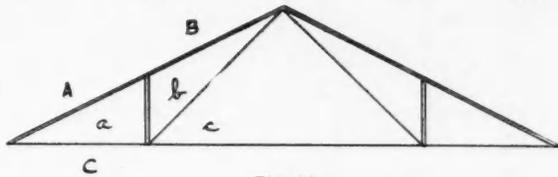


Fig. 14

PERCENTAGES OF THE TOTAL LOAD BORNE BY THE SEVERAL MEMBERS.

MEMBER OF TRUSS, FIG. 14.

MEMBER OF TRUSS	1/3 PITCH	30° PITCH	1/4 PITCH	1/5 PITCH
Aa	.676	.750	.840	1.010
Bb	.676	.750	.840	1.010
Ca	.563	.650	.750	.938
Cc	.375	.433	.500	.625
ab	.250	.250	.250	.250
bc	.313	.330	.353	.400

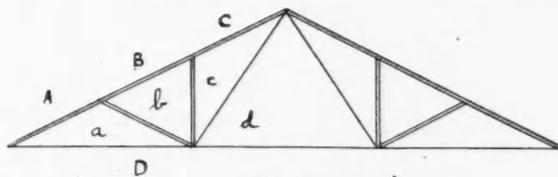


Fig. 15

PERCENTAGES OF THE TOTAL LOAD BORNE BY THE SEVERAL MEMBERS.

MEMBER OF TRUSS, FIG. 15.

MEMBER OF TRUSS	1/3 PITCH	30° PITCH	1/4 PITCH	1/5 PITCH
Aa	.745	.833	.935	1.122
Bb	.585	.666	.758	.930
Cc	.560	.666	.782	1.00
Da	.625	.721	.833	1.042
Dd	.375	.433	.500	.625
ab	.155	.167	.180	.202
bc	.155	.167	.180	.202
cd	.250	.288	.333	.417

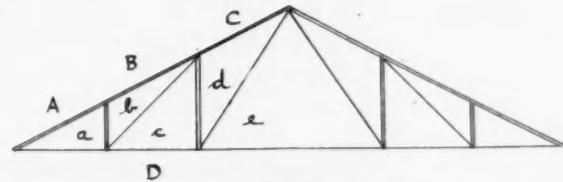


Fig. 16

PERCENTAGES OF THE TOTAL LOAD BORNE BY THE SEVERAL MEMBERS.

MEMBER OF TRUSS, FIG. 16.

MEMBER OF TRUSS	1/3 PITCH	30° PITCH	1/4 PITCH	1/5 PITCH
Aa	.750	.830	.930	1.120
Bb	.750	.830	.830	1.120
Cd	.600	.665	.745	.896
Da	.625	.720	.830	1.040
Dc	.500	.575	.665	.830
De	.375	.430	.500	.625
ab	.165	.165	.165	.165
bc	.206	.220	.235	.265
cd	.250	.250	.250	.250
de	.275	.285	.300	.325

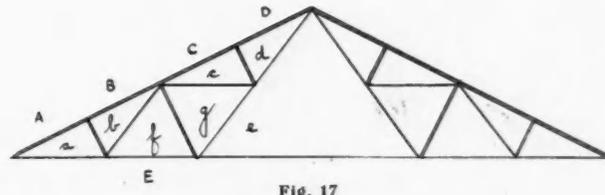


Fig. 17

PERCENTAGES OF THE TOTAL LOAD BORNE BY THE SEVERAL MEMBERS.

MEMBER OF TRUSS, FIG. 17.

MEMBER OF TRUSS	1/3 PITCH	30° PITCH	1/4 PITCH	1/5 PITCH
Aa	.785	.873	.975	1.175
Bb	.716	.810	.920	1.130
Cc	.648	.750	.865	1.085
Dd	.580	.686	.810	1.038
Ea	.655	.758	.875	1.094
Ef	.560	.650	.750	.938
Ee	.375	.430	.500	.625
ab	.103	.105	.110	.115
bf	.094	.110	.126	.158
fg	.206	.215	.222	.230
gc	.094	.110	.126	.158
cd	.103	.105	.110	.115
ge	.185	.216	.250	.310
de	.280	.325	.375	.470

Knots, Bends and Hitches Used in Building

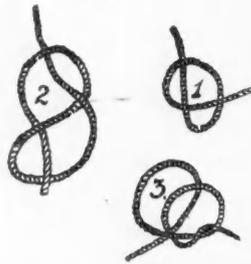
HOW ROPES ARE USED TO ADVANTAGE FOR SECURING SCAFFOLD TIMBERS AND FOR HOISTING—SOME VERY USEFUL KNOTS, BENDS, HITCHES AND TIES DESCRIBED

IT HAS been very wisely said that every builder who employs scaffolding to any considerable extent—and all must do so more or less—would find it would pay, and insure safety, to engage the services of an old sailor to look after the connections. It is well known that sailors particularly man-o'-war's men, know more about ropes than any other class, and their services may well prove to be invaluable. Almost, if not all the knots and other connections used in scaffolding are such as are commonly employed by sailors.

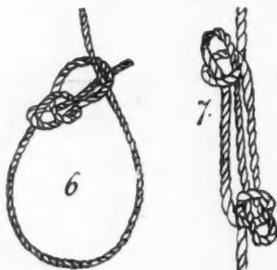
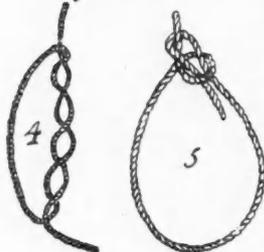
In an interesting article the London *Building News* recently discussed this subject at length.

The holding power of a knot depends entirely upon friction, and the amount of friction is in proportion to the pressure with which the ropes or strands are forced together. The object, therefore, in forming rope connections is to arrange the parts that those which must move on each other, in order to allow them to separate, will be pressed together with the greatest amount of surface. This is one of the general prin-

principles in tying knots which must be observed, and should be thoroughly understood, in order to insure safety—it is, in fact, the great principle of all; but there is another rule, and that is, that the standing part of one rope and the end of the other which has to be



Single Rope Knots



connected with it should not lie side by side. Now, the standing part is that which is attached permanently to the rigging in the case of a ship, and to the scaffolding in the case of builders' work. This part should always be held in the left hand, the free end being towards the right. There are certain ties in common use, such as the "granny" and the "slippery hitch," which do not conform to this rule; but they are never used by sailors or by scaffolders; they are the ladies' favorites for tying bows; but they are of very little value.

There is yet another rule which the unskillful will be sure to break. The standing part of no rope should leave the knot just after crossing any other part at right angles; if it does, one of the ropes will be easily cut or broken, as may be seen in the common method of breaking a piece of string by crossing it over the palm of the hand. Correctly speaking, knots, bends and hitches are quite different things; they are all known as knots in common parlance. A true knot is made of one rope only; a bend is that which is employed to join two ropes or the two ends of a single rope; and a hitch is a twist of rope around something solid such as a scaffold pole or the hook from a pulley. The most useful single rope knots—in other words, true knots—are shown in Figs. 1—7. Of these, No. 1 is the common knot, properly known as the "overhand" or "thumb" knot; it is used in scaffolding for preventing a rope from unravelling, or to give it additional thickness at its end so that it shall not pass through the opening of a pulley-block. No. 2, known as the "figure 8," is only a complication of No. 1, giving a larger knot and so doing the work more thoroughly; while the "artificer's" knot (No. 3), somewhat differently made, serves nearly the same purpose. No. 4 goes a little further—it is more difficult to pull up to the form of a simple knob or knot, but is most useful where the rope is not of any great substance, and it is required to give it additional thickness for handling purposes. It is used more by shopkeepers for making handles to parcels than by scaffolders, though occasionally it is of considerable value.

The "bowline" knot (No. 5) is one of the most valu-

able; but it is not entirely easy to make. Nobody ought to attempt it merely from an illustration; it is quite essential to have it explained and then to try it again and again, until success is achieved, under competent instruction. (This may be said of almost all the others which we shall be describing.) Its great value is that it forms a loop which will not slip.

Another form of the "bowline" is shown in No. 6; but this is known as the "running bowline," as it is a slip noose and not a fixed loop. In case of need, this knot can be used for lowering an insensible person from a great height by running it round the body beneath the arms, while it makes a comfortable seat if a piece of board is placed across the loop.

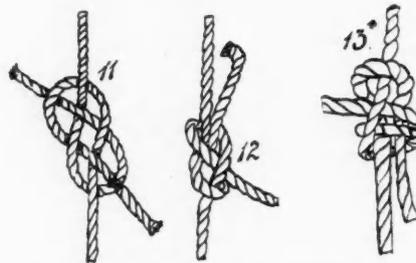
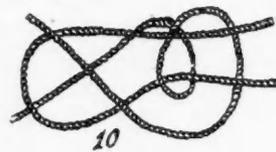
No. 7 is a contrivance for shortening rope without cutting it, known as the "sheep-shank." Its employment not only prevents waste, but often avoids a mistake. It is easy to undo this and do it up again, taking up a little less rope than before; but it is not so easy to lengthen a rope once it has been cut. It is readily made by taking hold of each end of the section required to shorten, bringing the hands together, drawing them apart again, and then hitching the loops.

It may be noticed that all these knots are exceedingly easy to undo. It is generally a sign of a bad knot if it cannot be taken apart with readiness as soon as the pressure is removed.

Bends, which are also familiarly known as knots, are, perhaps of more importance. Of these, the well-known "reef" knot or bend (No. 8), is that which is in



Two-Rope Knots or Bends



most common use; it is much like the common "granny," but is made by first turning right over left and then left over right. It is quite easy to make and undo.

No. 9, which is the "weaver's" knot, is much more difficult to make, simple as it looks. It is used in scaffolding for joining ropes together more securely than can be done by means of the reef, and it can be

also employed for attaching a rope to an open bight or loop of another.

No. 10 is known as the "double" bend. This is most useful for attaching a small rope to a larger one. It is not unlike the plain bend (which is another name for the weaver's knot, No. 9), but another turn is given round the bight, a considerable increase of strength being the result. Needless to say, the bight is on the thicker rope.

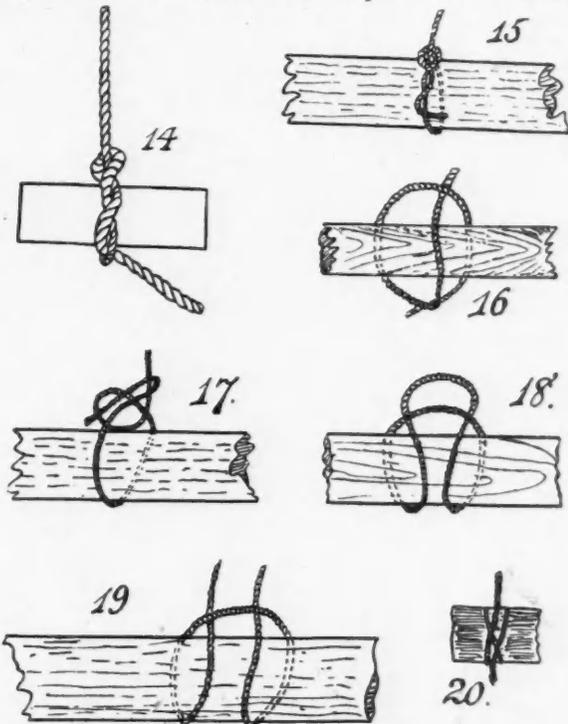
No. 11 is known as the "Carrick" bend. It is used when it is desired to make a large knot where the junction of the ropes take place, in order to furnish a hand grip, and it is also employed to tie up the hand ropes of gangway ladders or other similar things when not in use. When pulled tight, it is as shown in No. 12.

No. 13 is similarly the tightened-up form of the double bend (No. 10), which is the strongest bend that there is for connecting the ends of ropes securely.

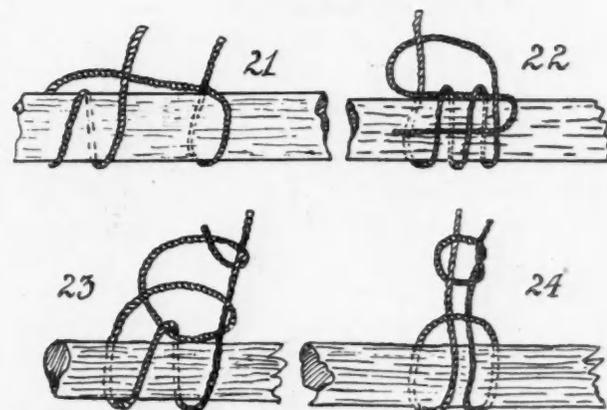
Properly speaking, a hitch is a twist of rope round some other firmer substance. It, therefore, differs materially both from a knot and a bend. Similarly, a tie is such a series of twists as will bind two other objects together. Both hitches and ties are used to a considerable extent in builders' work.

The common "timber-hitch" is shown in Fig. 14; in reading this illustration it must be remembered that the vertically rising portion which suspends the pole passes behind it out of sight, and comes up again underneath to the front. It is then quite easy to understand, and the method of making it is obvious. No. 15 shows it perhaps a trifle more clearly, being in perspective, and illustrating it before it is fully tightened up. It is commonly used for carrying scaffold poles. No. 16 is also exceedingly simple to make. It is the "wolding-stick hitch," which can also be employed for lifting; but more often the ends are tied up to something more substantial, and the suspended pole can then be employed as a lever. No. 17 shows how the "bowline" (No. 5) can be employed for lifting purposes. It is, perhaps, more useful if the action be reversed, the pole being a fixed one, and the bowline being used to tie the rope securely to it. Nos. 18 and 19 are variations of the same hitch, or, rather, double hitch, which is known as the "clove-hitch" when the ends are free, as shown in No. 19, and as the "bale sling" when the ends are connected as shown in No. 18, in which form it is most convenient for lifting purposes, either by slinging it on to the hook suspended from a pulley, or by using it in the hands. The "clove-hitch," as shown in No. 19, consists simply of two reversed turns round a pole, and is one of the most secure fastenings which can be made with rope to timber, especially if another reversed turn be given. It is commonly used by sailors when fastening the loose end of a rope to a post or mooring ring. No. 20, which also consists of two half hitches or single turns, somewhat differently made from those of the "clove-hitch," is known as the "builder's-hitch," and is perhaps more used than

any other for tying ledgers to standards, in which connection it will be referred to again later on. No. 21, known alternatively as the "magnus" or "rolling-hitch," also consists of two half hitches, one of which is given a double turn round the pole. No. 22 is more

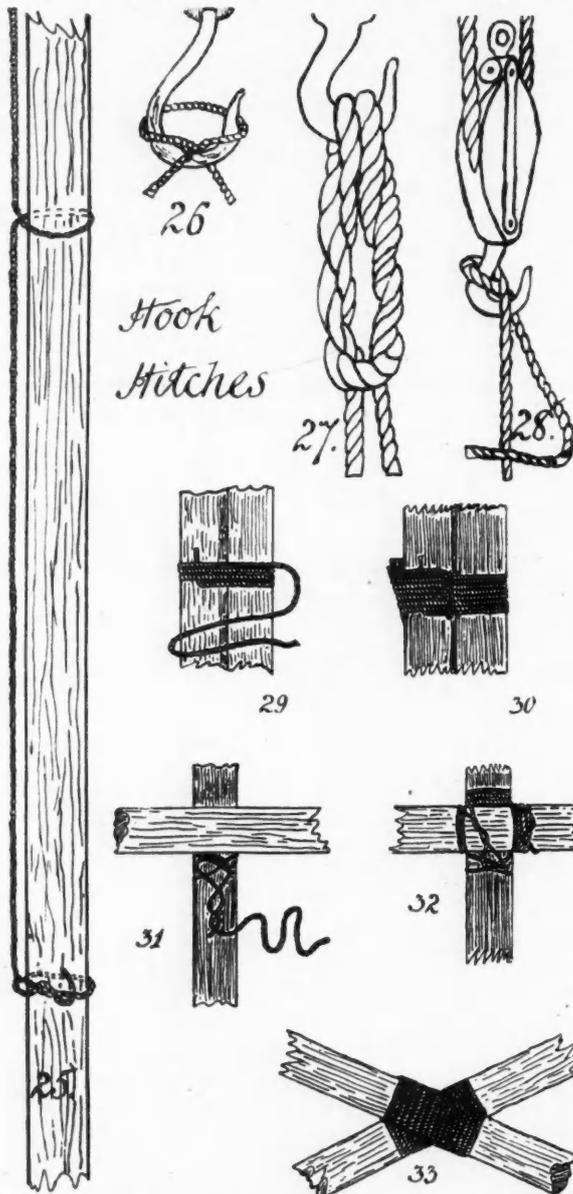


Timber Hitches



complicated; it is known to sailors as the "topsail-halliard bend," though it is used here as a hitch. It is a very secure connection, indeed. No. 23 is made with two turns round the pole and two round the rope; it is known as the "fisherman's hitch." No. 24 is a variation of the "clove-hitch" (No. 19), made by subsequently tying an ordinary thumb knot (No. 1) round the standing end of the rope; it is known as the "lark's head." No. 25 shows the method of connecting a rope to a scaffold pole in order to lift it vertically. The "timber-hitch" (No. 15) is employed at the extremity of the loose end and an ordinary half hitch somewhat further up. More half hitches can be added in order to keep the pole in line if desired. All the above are timber hitches.

A small series of hitches, Nos. 26, 27, and 28, are used almost entirely in connection with hooks. Of these, No. 26 is known as the "midshipman's-hitch"; but it can only be employed when the point of the hook turns outwards as well as upwards, as it is otherwise somewhat liable to slip. No. 27 is very much stronger; it is called the "catspaw," and is used for hoisting barrels or other light weights. As will be noticed, it can be formed on an endless loop of rope.



No. 28, simple as it looks, is also extremely strong, though a mere twist of the rope. It is well known as the "Blackwall-hitch."

Scaffold ties form a class by themselves and are divided into those which connect parallel members and those crossing at right angles and diagonally. There is practically only one method employed for each of these connections. Nos. 29 and 30 show the usual "marrying" or "splicing-bend tie" used for connecting parallel poles. The commencement is made as shown in No. 29; but when a number of turns have been made so as to nearly cover the short end, the rope is taken

twice between the poles and round the turns already made, and is finished with what are called "jamming" turns round cross-pieces. A wedge has been included within the turns, and this is driven home for tightening. Nos. 31 and 32 show the method of connecting a ledger with a standard, or any two poles at right angles to another. The start is made with two half hitches, as No. 20, round the standard; then the ropes are twisted together, the ledger is placed in position above the hitches, and the twist is carried diagonally across the ledger, and the loose end is then taken round the standard above the ledger, and afterwards round the ledger—first to the right and then to the left, finishing with jamming turns. A greater or lesser number of twists can be given as may be thought necessary, alternately round the standard and round the ledger, either to left or right, then round the standard again, and back round the ledger on the other side. The "Portuguese-knot" or tie, shown in No. 33, is more difficult to explain by a sketch. It is used for tying diagonals, and is made by taking several turns round each of the poles and interlacing the ends.

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Waterproofing Wall Paper

To render wall paper adaptable to washing with soap and water without destroying the colors, make a solution of two parts of borax and two parts sticklac, shellac or any other lac in 24 parts of water. Strain the solution through a fine cloth filter and coat the paper with it several times, rubbing the latter with a soft brush after every application until a brilliant polish is obtained. It makes no difference whether the paper is pasted on the walls or is still in the roll.

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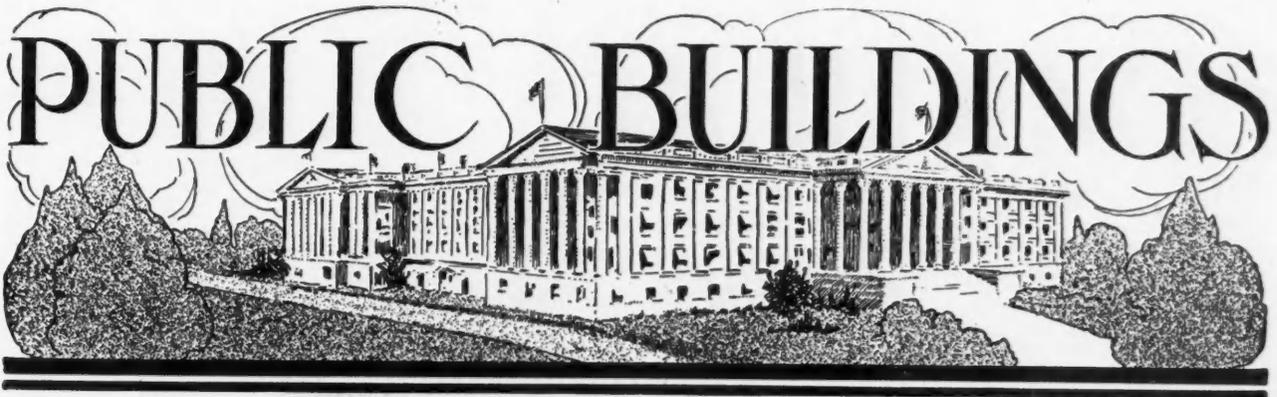
Setting and Balancing Knives

One who has had occasion to set the knives on a cutter-head will be surprised at the many ways in which they can be set wrong.

I saw, recently, a man "cutting and trying" with dividers on a machine. As soon as they are slightly worn the adjustable bed planers get so much lost motion that the index is not reliable. The most satisfactory and quickest way is to have a templet precisely 1 inch thick. Lay this on the bed-plate, and set each knife by bringing it down on the templet. With the index set at 1 inch the space will be true for 1 inch and for other spaces above and below.

Along with the setting comes the insistent problem of "balancing," and here we find something that is obvious, that can be proved by mathematics, and yet is not true. Knives of equal weight at rest would seem to be of equal weight in motion, but they are not.

If you will see that your knives are of equal weight by the balances, then of equal dimension in every part, you will have a smooth motion that will give a good surface, prevent hot boxes and prolong the life of your mill.

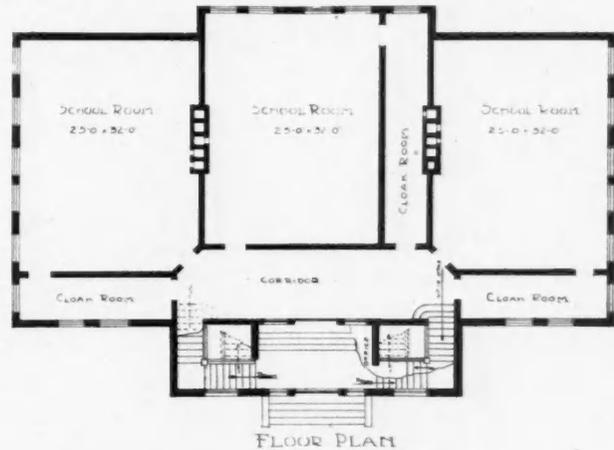


Well-Built Three-Room School

RENDERED PERSPECTIVE AND FLOOR PLAN OF AN ATTRACTIVE SMALL SCHOOL BUILDING OF SATISFACTORY CONSTRUCTION AND DESIGN

THE accompanying design shows a three-room brick school house, approximately 50 by 80 feet on the ground and high enough for a full height basement, the main floor, and a principal's office upstairs over the entrance. The classrooms are each 25 by 32 feet and are so arranged that the light in each is from one side only. It is a well-recognized principle of schoolroom lighting that the windows and the desks should be so placed that the light should all come from one side and should pass over the pupil's left shoulder. It has been stated that where rooms are wider than 22 feet and the light is brought in from one side only, the window area should be at least one-fourth of the floor area. Another good rule is that there should be 1.6 square feet of window surface allowed for each pupil. In this design the light-

ing, as well as the ventilating, of both classrooms, cloak halls and corridor is very well provided for.



Substantial Three Room Village School of Neat Design, G. W. Ashby, Chicago, Architect.

DETAILS of CONSTRUCTION AND FINISH



CHARLES P. RAWSON

Bedroom and Porch Details

INTERIOR FINISH FOR A BEDROOM CONVENIENTLY ARRANGED WITH BUILT-IN WARDROBE AND CASES—DESIGN AND CONSTRUCTION OF A COLONIAL PORCH

WE SUBMIT this month another of the series of rooms which was started in the January number; it is a bedroom with a communicating bathroom and clothes closet. The floor plan and room elevations are drawn to the scale of $\frac{1}{8}$ -inch equals 1 foot, and constructive details to the scale of 3 inches equals 1 foot. The clothes closet contains a case, and there is also a large wardrobe with shelves, hooks, and a rod for holding coat and suit hangers. The doors of this wardrobe are of the same size as all other bedroom doors, and like them are set with full length beveled mirrors. This entire wardrobe is lined with cedar. The case in the closet contains boxes for shoes and hats—the hat boxes having doors—open shelves and closed shelves for bedding. In addition there are the regular hooks and a rod for coat hangers.

Above the lavatory in the bathroom there is a medicine case with a mirror door and movable plate glass shelves, the latter being preferable to wood on account of cleanliness. Details for constructing all of the above work are given.

The interior finish of the rooms is very plain. The bedroom has a continuous head trim without mouldings, 12 inches below which is located the picture moulding. In decorating this room we suggest a plain surface for the walls and ceiling, the latter coming down to the head casing, between which and the picture moulding may be located a decorative frieze. This scheme in the proper tints will make a very attractive room. The doors and windows are so placed, as they should always be, that they become a part of the whole structural scheme, and in shape and proportion as well in position as they are in harmony with the rest of the room. Attention is called to the omission of the ordinary stool and apron from the window sills, and the use instead of simply a piece of the side casing.

Porch Details

The construction of porches is of vital importance to the contractor, as in addition to new work for which, in the majority of cases, no details are given, there is always a demand for new porches on old houses. Many carpenters who are called upon to build the same are at a great loss to know what style of a porch

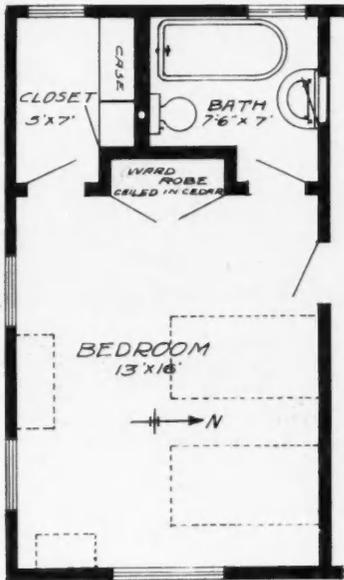
to construct. In the great majority of cases it has been found by experience that a simple style like that shown in the accompanying drawings best meets the requirements and harmonizes best with the old structure. The porch shown, being neither extremely expensive nor very cheap, is planned to meet the requirements of the ordinary work, and the cost may be raised or lowered somewhat, as desired, by changing the details.

The drawings comprise an elevation of one column with a portion of cornice, rail, etc.; section through the same; and plans taken at various heights; all drawn to the scale of $\frac{3}{8}$ inch equals 1 foot.

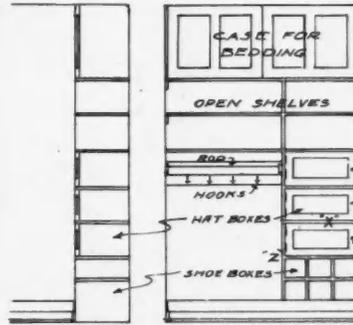
A porch of this kind should never be made less than 8 feet in width, and a width of 10 feet or 12 feet will be found still better. Many carpenters make the mistake of building their porches too narrow.

By looking at the drawings, it will be noted that the soffit of the cornice equals in width that of the neck of the column and that the same is centered over the column. Attention is called especially to these two facts, as probably no two mistakes are made more often by carpenters with more disastrous results from an architectural standpoint than the ignoring of these two rules. In many cases the carpenter makes the outside of his frieze the same size of and directly over the masonry foundation of the porch. Then, when the columns are put in place, the base necessarily has to overhang the foundation, or the frieze project in front of the column, one result being as bad as the other. Then usually the diameter of the neck of the column is not considered in making the cornice, with the result that a 6-inch soffit is often placed above a 10-inch or 12-inch column.

By the use of a plumb line, after having located on the floor the exact future position of the center of the column, there can be no difficulty experienced in locating the soffit in the proper position. The writer has found that, when piers only are used for foundation under columns, it is better not to have them built until after the superstructure is completed and the columns in place. When an ordinary 12-inch stock column is used, tapering to a 10-inch neck, it will be found that the frieze will set back 3 inches from the face of the masonry foundation.



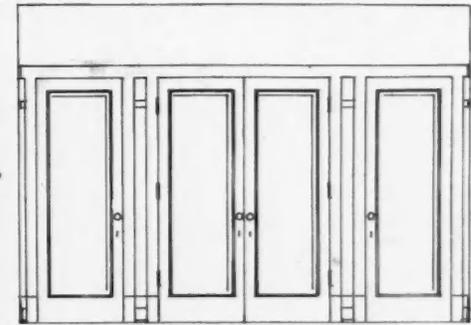
FLOOR PLAN OF ROOMS



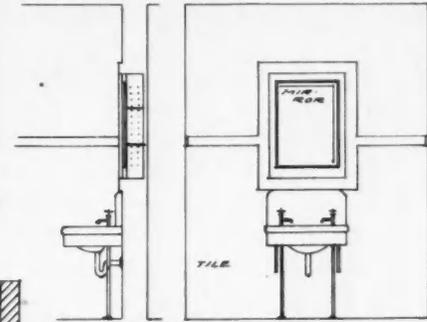
SECTION AND ELEVATION OF CLOSET CASE



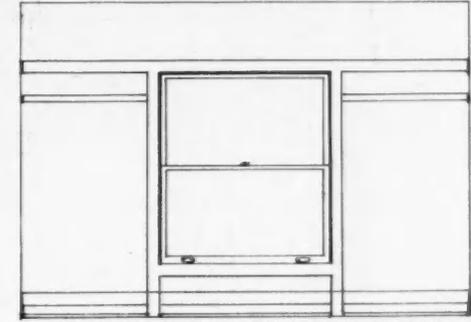
SECT OF WARDROBE



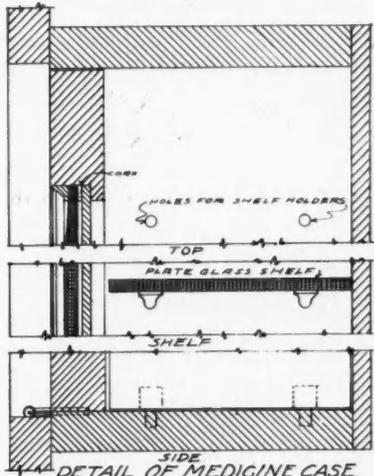
WEST ELEVATION OF BEDROOM



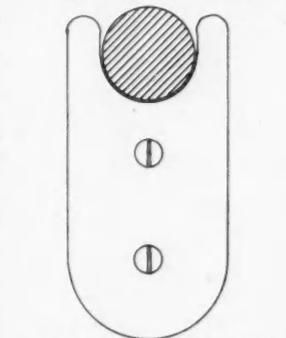
SECTION AND ELEVATION OF MEDICINE CASE



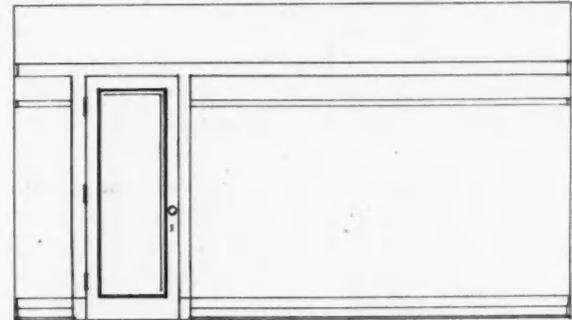
EAST ELEVATION OF BEDROOM



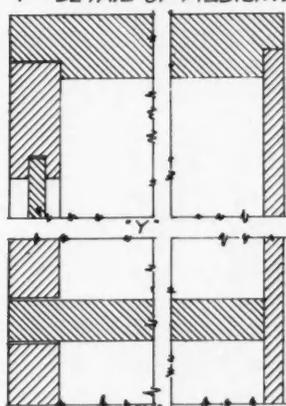
DETAIL OF MEDICINE CASE



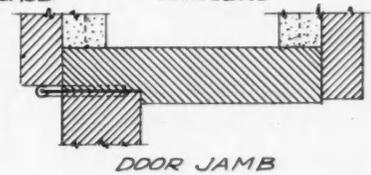
DETAIL OF ROD FOR COAT HANGERS



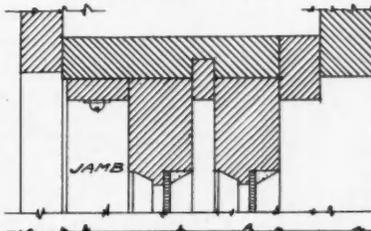
NORTH ELEVATION OF BEDROOM



DETAIL OF HAT BOXES



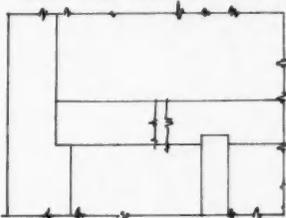
DOOR JAMB



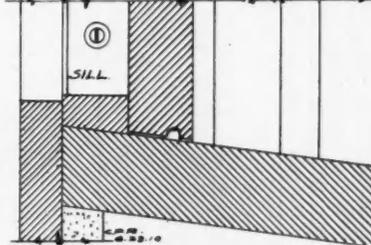
JAMB



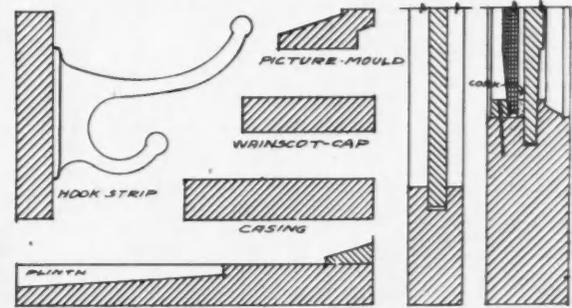
SOUTH ELEVATION OF BEDROOM



FRONT ELEVATION OF "Z"



WINDOW DETAILS

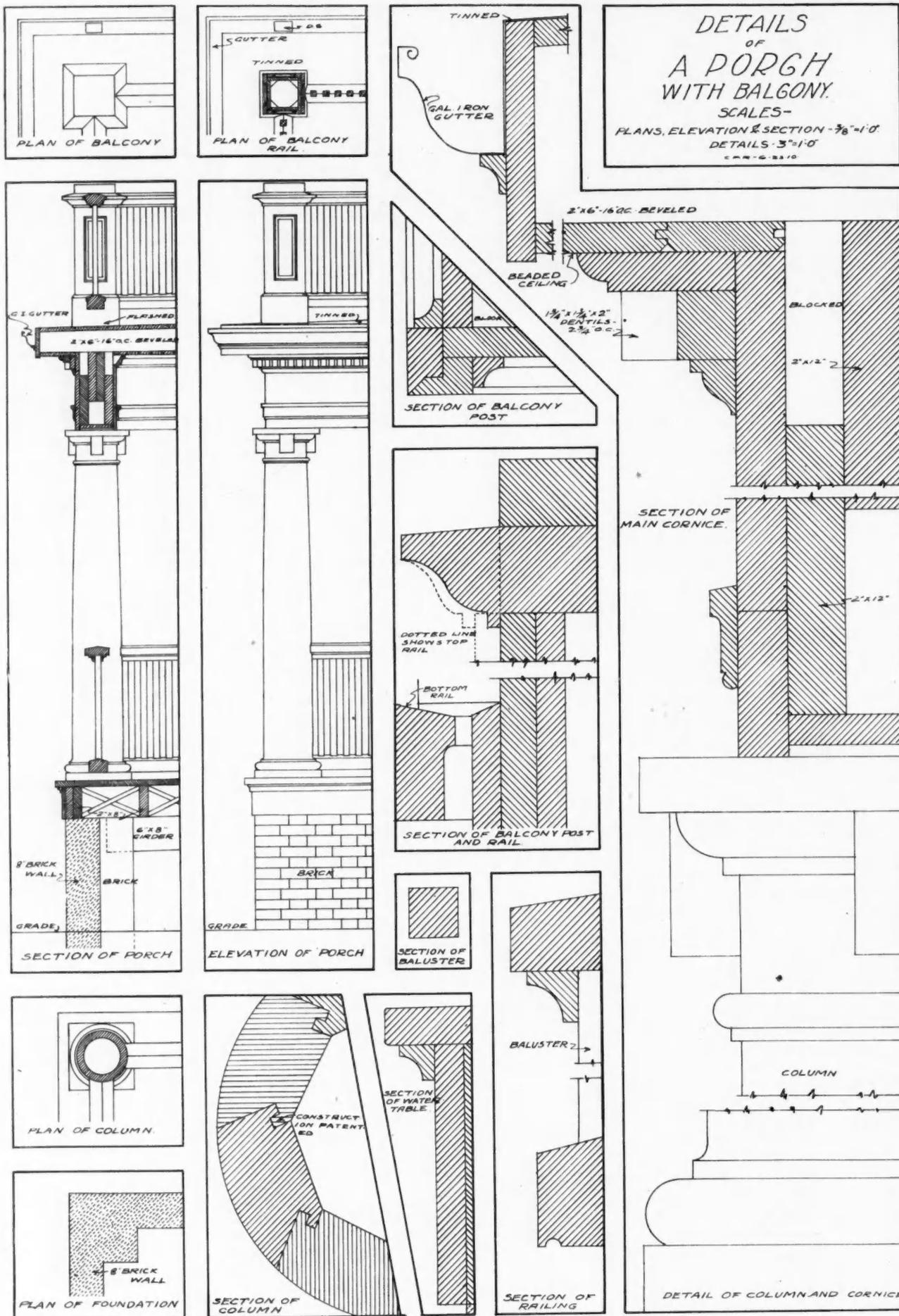


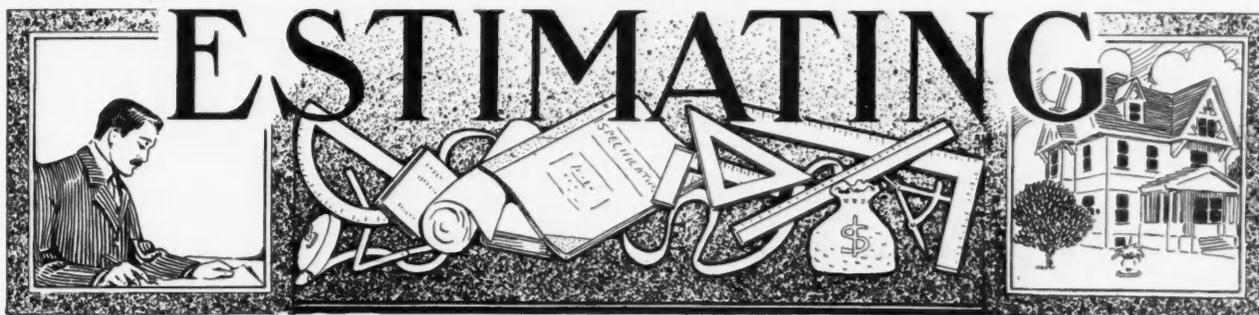
DETAILS OF TRIM.

PLAN OF BEDROOM, BATH AND GLOSET WITH DETAILS FOR SAME

SCALE OF PLANS AND ELEVATIONS = 1/8" = 1'-0"

3" = 1'-0" SCALE OF DETAILS.





The Place of Estimating in Construction

FIRST OF A SERIES OF ARTICLES—UNCERTAINTY OF ESTIMATING—WHY THE ARCHITECT FIGURES LOW AND THE CONTRACTOR HIGH—KINDS OF CONTRACTS

TO PREDICT with accuracy what it will cost in time or money, or both, to accomplish work, is at best an exceedingly difficult task. Many of the conditions are speculative. We do not know the personalities of most of the men who are to be employed; we do not know how much rain or frost we shall have to contend with; and we are required to work under contract many of the terms of which are vague, and some of them prohibitory. What wonder that estimates for the same work differ—and differ widely? There is a certain cost at which projected work is going to be done; but no two men will guess alike before the fact; and, after having guessed, no two men would come out with the same figures of performance on identically similar jobs, if it were possible to get together two identically similar jobs. An ideal estimator should take into consideration *all* the conditions which affect costs, and should allow each condition to have just the correct influence upon his figures.

Conditions Affecting Cost

The conditions affecting the cost of construction work will naturally group themselves into three classes:

1. Those whose quantitative effect upon cost can be reasonably predicted.
2. Those of which the quantitative effect can be determined only in advance.
3. Those conditions the influence of which may be to increase the cost above or perhaps to decrease it below an assumed normal.

By way of example, (1) we can say in advance about how much more it will cost to haul bricks two miles along a known highway than to haul the same bricks only one mile along the same road; (2) we know that when we have to blast out a medium-hard shale, the work will cost more if the rock is full of seams and faults, with dikes of hard material, than if ordinarily regular in structure; but just how much more, or even nearly how much more, we cannot predict. Again, (3), the coming of new foreman upon the work will surely have an affect upon it, good or bad; but until he has been tried out, there is no telling which it will be. The last-mentioned fact accounts in large measure for the reluctance with which contractors let their old men go after they have run out of contracts.

In addition to the above, there are emergency and

unforeseen conditions that from time to time unexpectedly arise and make a carefully prepared estimate seem like a poor affair.

Obviously it is impossible to eliminate the element of uncertainty in estimates. The problem for us is how to make the closest estimate possible from the known facts. The most careful rules and the most elaborate system, if followed, would not reduce the art of estimating to an exact science. Much must depend upon the intelligence, the information, the aptitude, and—above all—the experience of the estimator; lastly, he must have the elusive and intangible but nevertheless positive and essential quality of judgment, without which all theory is helpless.

It is possible, however, by the use of cumulative evidence, to reinforce a man's experience with the facts contributed by other men; and it is possible, by the presentation of correct theory, to show a man how to make his own experience of the most value with the least effort and fatigue. As a step in this direction, the present series of articles has been prepared.

Estimates in general are made by two classes of men:

1. The architect, who makes them as the basis for designs, preliminary to obtaining contracts.
2. The contractor, who undertakes to carry out the work.

Why the Architect Figures Low

1. The architect who makes his estimates as a guide to his client in deciding what work shall be planned, is usually in the position of the man who estimates without having to carry out the work himself; and he is always in great danger of making his estimates too low. The reasons for this are not generally appreciated. Some of them are as follows:

(a) His client is seldom willing to pay for a thorough investigation of the conditions that are to be met, it being assumed that since a contractor is willing to spend his own money in making an estimate on the chance of obtaining a profitable contract, the cost of estimating is so low that the architect can do it himself out of what he receives as his fee, and that it should therefore be a part of his office expenses. He cannot afford to make an extended investigation at his own expense, and thus fails to take into considera-

tion many conditions which are more likely to increase the cost than to decrease it.

(b) As the business of the architect is to make designs, and as he is not particularly concerned with their execution except as an overseer, he seldom has actual experience of what it costs to do work, and is obliged to depend upon his records of contractors' bids on work of the class that he is contemplating. Since his figures on these bids are not in sufficient detail to make them applicable to his work except in a general way, he is at a serious disadvantage as compared with a contractor; and his disadvantage consists specifically in not having at hand a large number of facts which go to make up the contractor's cost. The architect seldom considers—because it has not been brought to his attention—the fact that the contractor must pay from 1 to 10 per cent of his payroll for liability insurance, and, after he has paid for liability insurance, he has such items as bad bills, lawsuits (outside of his liability insurance), discounts, and the like, all of which have to be taken care of by his average receipts. The estimating architect is therefore prone to make use of published data of costs, without adding anything for these special contingencies, thus frequently getting into serious trouble.

(c) The owner, or his representative, usually draws a contract which the contractor is expected to sign; and this contract contains clauses intended for the reasonable protection of the owner, but which are too often liable to result in an unreasonable hardship upon the contractor. Often the man who draws a contract by way of insurance puts in clauses which are intended for protection against certain contingencies, but which may become operative in a number of other ways; and the contractor is obliged to put on a high price, rather than run the risk of large financial loss in the event of such clauses becoming operative.

Ambiguous specifications will force a careful contractor to bid high, and, by offering a reckless contractor an inducement to bid low, will result in almost surely placing the contract where it will be inefficiently performed. The reckless contractor is not generally a good manager; and the careful contractor, if he gets the contract, will require more money than would have been necessary had the specifications been precise.

(d) When the work is done under national, state, or municipal authority, the law usually provides that the contract shall be let to the lowest responsible bidder; and everyone has an opportunity to bid. On private work, on the other hand, usually a selected number of contractors are invited to bid. In the former case, the architect has to guard against a contractor taking advantage of loose clauses, and must fortify himself—which he usually does—by making the terms as much one sided as he can. The contractor who knows him personally, who knows the object for which the strict clauses were drawn and the extent

to which they are to be enforced on the work, is thus enabled to make much lower prices than the man to whom the individual in charge is an entire stranger. This accounts for part of the large diversity of bids on any public work, and is a further reason why such bids, when published, are a very poor basis on which to make estimates.

Why the Contractor Figures High

In making estimates, the contractor is generally more expert than the architect, because he is continually being confronted with the financial problem, and naturally makes more of a study of it; nevertheless his estimates are very difficult to make properly, for reasons among which are the following:

(a) The contractor rarely, if ever, receives compensation for his labor in preparing an estimate, and that labor is frequently very considerable; therefore he makes the estimate with as small a cost to himself as possible.

(b) The time within which the contractor must prepare his estimate is limited, and generally too much limited, so that he seldom has opportunity properly to investigate the conditions under which he is to bid.

(c) When ten men are to bid on one piece of work, it is manifestly unfortunate that each of the ten men should pay for an investigation which can as well be made by one; and yet it is seldom practicable for the bidders on a piece of work to combine and obtain all the information. For instance, in a job involving earth and rock work for foundations, unless the job is very large the owner rarely makes sufficient test borings to thoroughly determine the existing field conditions; and yet the total cost of one investigation made by the owner would be very much less than the cost of all the investigations made by each contractor individually. The owner's point is that the successful contractor will make enough money to pay for the investigation; but it is almost never appreciated that when a contractor obtains a contract, he must make enough profit to pay for the investigation not only on that contract but for all those on which he has been unsuccessful as well; and the average of his bids must therefore be correspondingly higher than if it were the general practice among the owners to furnish complete statistics when asking for bids.

The writer had occasion to bid on a large bridge for a municipality in West Virginia, on which almost no information from the municipality was forthcoming. Each contractor made an investigation more or less thorough, and was obliged to furnish his own design. The result was that over fifty bids, fifty investigations, and fifty designs were submitted, ranging from a minimum of about \$40,000 to a maximum of about \$140,000. All bids were rejected; and the municipality, reinforced and greatly benefited by the discussion that arose, re-advertised for bids. It is needless to add that the author did not bid again; but the question is, *who paid for all those estimates?*

(d) After bidding upon work under a certain architect whom he knows, and whose attitude on certain clauses in his specifications he considers himself reasonably able to predict, the contractor may be confronted by a change of architects, and the new man may be more strict than the old. This is a danger more to be feared in long contracts than in short ones. In the former case, it is likely to be a very serious matter and frequently offsets the advantage of having time thoroughly to organize and systematize the work.

The Remedy

It will be noted that all of the causes for inaccurate estimates which have been pointed out above could be very largely remedied if two rules were rigidly adhered to by parties who ask for bids—namely:

First—*Make specifications as specific as the limitations of language will permit.*

Second—*Obtain all available information before asking for bids, and furnish it to the contractors.*

Forms of Contract

After the estimate comes the contract in one of the following forms:

1. Lump Sum;
2. Unit-Price;
3. Cost plus a Fixed Sum;
4. Cost plus Percentage.

1. The first and most common form involves the describing, by means of plans and specifications, of what is to be done, and a guarantee by the contractor to perform all the work for a fixed price. After the contract is signed, it is up to the contractor to get the work done, and the owner is supposed to have no responsibility beyond making the specified payments. The contractor assumes all risk, and meets all difficulties whether foreseen or unforeseen.

2. In the second form of contract mentioned—the Unit-Price—the contractor receives an established price per yard, per pound, per ton, etc., and the owner assumes responsibility for the quantity. Since changes in plan involving increase or decrease of the amount of work can be expected in most contracts after the contracts have been signed, this type admits of more elasticity than the first for meeting this condition.

3. Of late years, in order to permit of freedom in making changes without interfering with the liability of the parties, to save time, and for other reasons, the cost-plus-a-fixed-sum type of contract has come into vogue. Its advantage, among others, is that the contractor is under no risk, and therefore cannot be put out of business; and where the quantity and conditions cannot be determined beforehand, it has much merit. One argument against it, from the standpoint of the owner, is that the contractor, not having anything to lose, will not be likely to strive as hard for economy as he would if he guaranteed the price.

4. The fourth form of contract—Cost plus Percentage—has long been used on railroad work, and usually provides that the contractor is to receive as

his compensation and for his overhead charges a certain percentage of his pay-roll, with plant rental added. On this basis the contractor has nothing to lose; and the owner is at the disadvantage that the less the contractor's economy of operation, the greater is the contractor's financial gain, so that the contractor apparently has an incentive to wastefulness.

Importance of Estimating

The man who is entrusted with the making of important estimates has resting upon him a large responsibility. His blunders may beggar himself or his employer; yet too often cheap men of limited experience are employed on this work, and rules are accepted as substitutes for judgment. Effort has been made in these articles to make the methods of estimating simple and the theory clear. To the younger men of the profession, it may seem that estimating is easy. Nothing could be farther from the truth. All that we can hope to have done is to boil down some of the gambling features of estimating, and place estimating upon a rational plane. To claim more would be dishonest and misleading. When a man says that he can safely estimate the cost of outside work within two per cent of performance, he may at once be written down as a fool or a liar. The difference in cost between a job that is run with ordinary methods and ordinary management, and the same job with proper cost analysis and thoroughly up-to-date management, handled with push and snap, may easily be 30 per cent; and the claim of ability to guess within two or three per cent, without knowing a large number of the uncertain elements, is absurd. Therefore, in making use of these articles, the reader must bear in mind that it is not attempted to predict what he or his organization will be able to do.

In this article it has been attempted to bring out the importance of estimating and to show in a general way the factors that condition it. Next month a schedule will be presented showing what the building contractor must take into the account and allow for in estimating a job.



Double Plank Sides for Terrace Steps

We could not afford stone steps on the terrace in front of our house, writes a correspondent to *Country Life in America*, so had them made of wood. They were made in the usual way, the step planks letting into the sides. But these sides, being next to the wet earth, soon decayed, and we were obliged to replace them. This time I had two side pieces made for each side. They were separated from each other about six inches by means of a board about eight inches wide nailed on top, leaving an air space, and preventing the board into which the step planks were fastened from decaying. It will be an easy matter to renew the outer sides without much cost, but we found it very expensive to renew the sides on the old-style steps on account of the labor involved in fastening in the step planks.

What Kind of a Roof?—Tin

THE ECONOMY AND PRACTICAL ADVANTAGES OF USING A PERMANENT, FIRE-RESISTING ROOFING—
THE CASE STATED FOR HIGH GRADE SHEET TIN

By H. N. Taylor

This is the first of a series of articles on the various types of high grade roofing that can be recommended for modern building. We feel that the great majority of builders in this country are too much wedded to wood shingles, which experience has proved to be short-lived, dangerous and expensive. It is hoped that these articles, which will be presented month by month, each devoted to some one particular form of durable roofing and written by a well-known authority in that line, may serve to interest and instruct the readers of the American Carpenter and Builder in a practical way in the cause of better roofing.—EDITOR.

TIN roofs are probably the best known type of roofing used in this country. For more than one hundred years good, heavily-coated, hand-made roofing-tin has had the call for use on buildings of all kinds wherever permanent roofs are wanted.

Tin roofs are peculiarly well suited to our severe climatic conditions. Wide extremes of temperature, high winds, driving snow and rain, excessive humidity, etc., render many kinds of roofing unsuitable for our use.

The tin roof presents a continuous, unbroken sheet of durable metal as a bar to the progress of fire, and to all attacks of the elements. If good tin is selected and put on the roof in accordance with standard practice, the tin can reasonably be expected to last as long as the building stands. It is simply a matter of selecting the proper material and employing competent workmen.

Such enormous quantities of tinplate are required for roofing purposes in this country that it is only natural that some cheap, inferior material has found its way upon the market, and slipshod workmanship has caused some complaints; but the vast majority of tin roofs—including all those of good material, properly applied, continue to give entirely satisfactory protection to the buildings they cover. Such roofs will last indefinitely, requiring no attention other than an occasional coat of paint at four or five year intervals, or longer, depending upon local conditions and the

age of the roof. The older the roof the less painting is required. Moreover, a roof of good tin does not deteriorate in appearance, with age. One of the accom-



A 75-Year Old Roof, Residence At Moorestown, N. J.

panying illustrations shows a roof of heavily coated hand-made tin, put on 57 years ago, in appearance practically the same as the day it was completed. A roof of this kind is perfectly clean, neat in appearance, and is not affected by heat or cold.

Again, tin roofs are very light—an advantage often overlooked—one-eighth the weight of slag—one-tenth that of slate—one-twentieth the weight of tile—this often permits a considerable saving in the cost of the roof framing and supporting walls.

Roofing-tin is easily applied, and is suitable for covering any shape or slope of surface from a flat deck to a vertical wall. The accompanying illustration shows its use for covering a dome or hemisphere, the sheets being cut square, decreasing in size from bottom to top.

In spite of its high first cost a high-grade permanent roof is economical. It is an investment, not an expense. A building covered with a roof that requires but little attention when compared with its life, is vastly superior to one having a limited life and liable to cause considerable damage if this is exceeded. The damage to the interior of the building from leaks in an inferior roof often amounts to the cost of a good tin roof. In case of any damage to a tin roof permanent repairs can be made quick-



Tin Roofing for Curved Surfaces—Square Sheets Laid Diamond Shape

ly and cheaply, and without waiting for clear weather.

With business establishments of the better class, tin roofs are preferred for covering any good, substantial buildings. A permanent roof of this kind is obviously unsuited to many kinds of factory buildings of a more or less temporary nature. As an illustration of the neat, attractive appearance of a well-laid tin roof, an illustration is shown of one of the factory buildings of the American Pad and Textile Company, of Greenfield, Ohio.

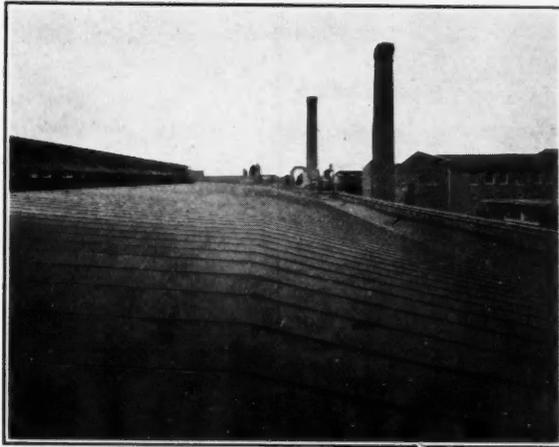
The value of a well-laid tin roof as a bar to the progress of fire is well known. As a protection to the building against fire from outside sources, the tin roof acts in much the same manner as a tin-covered fire-door or shutter, the approved standard type.

Tin roofs are rated by the National Fire Protection Association at the head of the list of roofings, for use on sheathing-boards. Fire has been known to leap fifty feet across a tin roof and set fire to a shingle roof on the other side. Numerous cases are on record

first-class tin, readily obtainable today, acknowledge these facts. Attempts have been made to discredit the value of this time-tried roofing material by calling attention to the failure of cheap tin—the inferior out-



Tin Roof that Kept the Fire Inside, Itself Holding Fast After Supporting Timbers Had Burned Away



Tin Roof for Factory Use

where tin roofs have served to check the progress of a conflagration.

Tin roofs also possess the important feature of serving in many cases to confine a fire within the building where it originated. In such cases the tin roofing holds together, often intact, serving as a blanket to the flames. Two of the accompanying illustrations show this feature in a striking manner.

In these illustrations it will be noted that the sheathing-boards have been burned completely away beneath the tin, which has nevertheless held together practically without a break. The value of this feature in preventing a strong upward draft, cannot be overestimated. Many other forms of roofing made of inflammable materials, add fuel to the flames and readily collapse. It is safe to say that no other kind of roofing compares with a tin roof from the fire-protection standpoint.

Those who have had experience with roofs of good,

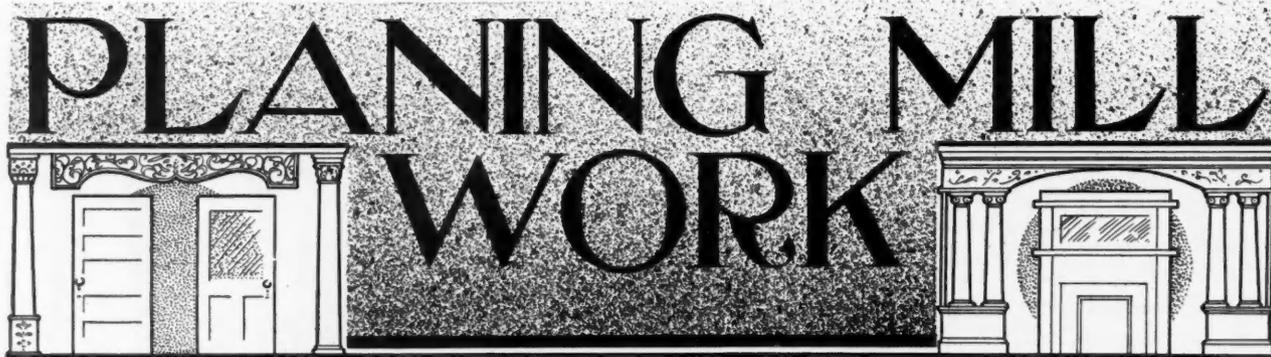
put of a large and growing industry. It has been said that a locality is known by its roofs, and this is strictly true. Tin roofs will be found in the majority in any



View from Within—Building Shown Above. The Wooden Props Were Put In After the Fire to Keep the Tin From Collapsing in The Wind

well-ordered, prosperous community. Few building materials can show a similar record of continuous use of one hundred years or more, with the old-time high standards of manufacture strictly maintained.

PLANING MILL WORK



Science and Art of Hand Smoothing

BLAYSDELL GOES TO CHURCH AND LEARNS MUCH ANENT HAND VS. MACHINE SMOOTHING—A SHORT AND PRACTICAL SERMON TELLING HOW THIS WORK SHOULD BE DONE

By W. D. Graves

OF A RECENT Sunday Blaysdell went to church; but not from force of habit. Being wakeful, there were moments during which his attention wandered to the woodwork about him. It was of pine, plain, and mainly machine finished; but, on the pulpit an attempt had been made to improve on the machine work by hand-smoothing. The result of the attempt was far from being an improvement; and, as such abortive attempts are not uncommon, it may well serve as a text for a short talk.

House trim is now so exclusively finished in the mill that the young house joiner rarely has much teaching in the art of smoothing wood; yet, for occasional need, it is well worth while to know how. Let it be said, "before beginning," that, unless one is competent and willing to make a thorough job all over the piece or panel attempted, he had better leave it as it came from the planer. In most cases it is impossible to hand plane stuff, without a thorough after-treatment with scraper and sandpaper, so but that glossy paint, or varnish, will make it look worse than when it came from the planer. The planer leaves a series of corrugations—a washboard effect if you choose—but they are regular. The hand-plane also leaves a series of corrugations—much wider, and the other way of the grain, it is true—but irregular, and often with a series of jumps where the cut begins. While these irregularities may not be visible to the eye while the wood is in the white, varnish will bring them out. The regular and uniform corrugations left by the planer, or even a sliver knocked out here and there, are much less likely to be offensively visible than is the irregular, hewn, effect of bad hand-smoothing.

A good job of smoothing begins with the proper fitting of the plane, and ends—well, don't worry about the end; but simply keep at it till done. If in a hurry, let it alone. The plane iron should be ground straight across the edge. In whetting, the corners may be rounded just enough to insure against their making scratches. This need be very little, as a smoothing cut should be light, and one wants to avoid the corrugated

effect as much as possible. If the work is all with the grain, the cap may be set well back; but if, as is pretty sure to be the case, any of it is against the grain, the cap must be set well down to the cutting edge. If well fitted, as it always should be, it need be back scarcely more than the thickness of the shaving.

Set the tool so that it will take a fine, clean, wide shaving, and begin. Don't start at the rear end of the board and work ahead; but at the front end and work back. There is a reason for this; and, if you will varnish a piece smoothed each way—without having scraped or sandpapered it—you will see the reason.

If your work is coarse you can see, without varnish, that the plane makes a series of jumps at the beginning of the cut—or at least, takes hold abruptly—while it comes out of the cut more gradually and smoothly. The beginning of a cut is *always* more visible than the finish.

Begin, then, at the front end of the piece, and plane, for the whole width, a strip as long as you can comfortably reach; always keeping the plane straight with the work, and pushing it straight. Back up a step and make the next cut lap over the first, and so continue; removing, each time, the mark where the iron started on the previous cut. If your plane is in good order, and if you have done the work carefully, the job will probably *look* all right. Run the palm of your hand lightly across it—*across* it, mind you—and you will feel that the surface is slightly wavy. This waviness must be removed, else it will show distinctly when the job is varnished.

In case of very soft woods, like basswood and some pines, especially if the work is to be heavily painted, this may be done by sandpapering crosswise. On hard wood, or on any work which is to be finished natural, sanding must be done lightly and with the grain; or scratches will show. In case of the softer woods, if the planing has been carefully done, lengthwise sandpapering may do; but it is usually necessary to use a scraper first.

As any one who has a chance to "swipe" a piece

of an old saw blade can make a good scraper in a few minutes, and as it takes up no appreciable room in the kit, there appears no good reason why one should not always be at hand. No handle is required, and it is the better for being slender enough so that it may be sprung a trifle in using. A piece 6 inches long, off a moderately heavy buck-saw blade, makes as good a scraper as can be desired. Some workmen make the cutting edges square, turning up a burr on each side; but Blaysdell prefers to grind at an angle of about 70 degrees with the face. After the edge is ground and whetted smooth, it should be turned forward by running it over some smooth, hard, and preferably rounded surface; like the back of a gouge. The point of an awl, or of a pair of dividers, run along the burr on the front side will tend to smooth the cutting edge. When well fitted it should take off a shaving nearly as continuous as does a plane.

It should be grasped by the ends, with the thumbs lying along the back side and pointing toward the center. With this grip it may be slightly sprung so that the corners will not scratch; and so that it will accommodate itself to slight irregularities. Scrape until, in running the palm across the job, no waviness can be felt; then a light sandpapering lengthwise will finish the job.

There is a lot of educative value in smoothing up a piece of stuff, varnishing it, and examining it from all points in a good light. A job which appears all right when examined from directly in front, or in the shade, may look all wrong when seen at an angle in the direct light. On the unvarnished work the palm of the hand is a far better detective than the eye.



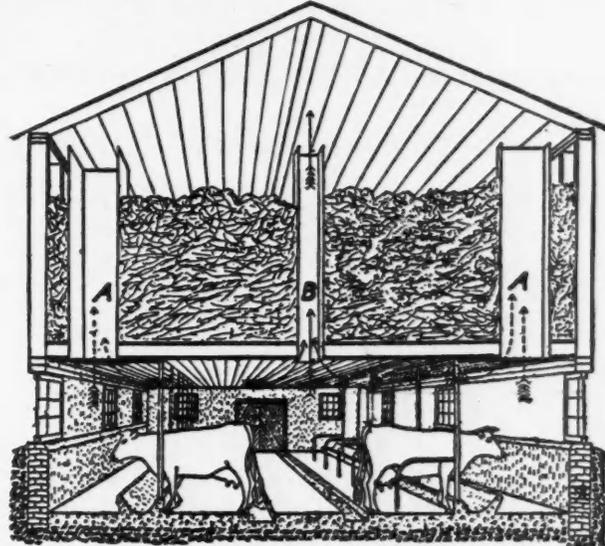
Cows Need Fresh Air

Some years ago Prof. F. H. King of Wisconsin made an experimental study of the effect of ample and deficient ventilation upon twenty milch cows. The experiment was made in a half-basement stable, represented in accompanying figure, having three outside doors, thirteen large windows and a door leading by a stairway to the floor above. The ceiling was nine feet above the floor and the stable contained 960 cubic feet of space per cow. Leading upward from the ceiling were two hay chutes, two by three feet in cross sections, 20 feet high, which could be opened or closed at will, and a ventilating shaft terminating near the ridge of the roof inside.

During the trial the cows were kept continuously in the stable with the hay chutes closed during two days and then with them open two days, the trials being repeated four times. Following these four trials the hay chutes were left closed during three consecutive days for poor ventilation and left open the following three, making fourteen days in all.

It was found that measurably the same amount of feed was eaten under both conditions of ventilation.

But during the days of insufficient ventilation the cows drank, on the average, 11.4 pounds more water each daily and yet lost in weight an average of 10.7 pounds at the end of each period, regaining this again when good ventilation was restored, and this, too, when they were drinking less water. During the good ventilation days, too, for each and every period, the cows gave



more milk, the average being .55 pounds per head per day.

At the end of fourteen days the cows were turned into the yard and exhibited an intense desire to lick their sides and limbs, doing so in many cases till the hair was stained with blood.

Examination showed that during the interval a rash had developed which could be felt by the hand, in the form of hard raised points, and the rasping of these off caused the bleeding.



Things to Forget

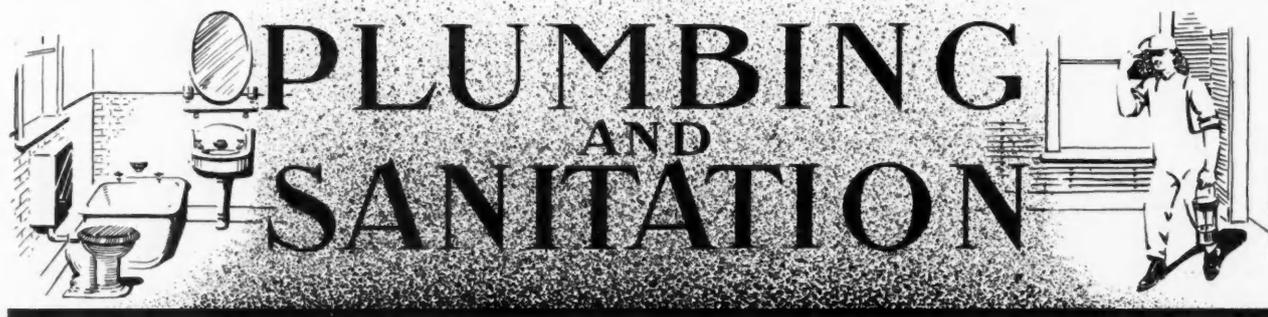
If you see a tall fellow ahead of a crowd,
A leader of men marching fearless and proud.
And you know of a tale whose mere telling aloud
Would cause his proud head to in anguish be bowed,
It's a pretty good plan to forget it.

If you know of a skeleton hidden away
In a closet and guarded, and kept from the day
In the dark; and whose showing, whose sudden display
Would cause grief and sorrow and lifelong dismay,
It's a pretty good plan to forget it.

If you know of a thing that will darken the joy
Of a man or a woman, a girl or a boy,
That will wipe out a smile, or the least way annoy
A fellow, or cause any gladness to cloy,
It's a pretty good plan to forget it.

If you know of a thing, just the least little sin,
Whose telling would cork up a laugh, or a grin,
Of a man you don't like, for Lord's sake keep it in!
Don't, don't be a knocker, right here stick a pin.

It's a pretty good plan to forget it.—Selected.



Incompleteness of Plumbing Specifications

A PAPER READ BEFORE THE AMERICAN SOCIETY OF INSPECTORS OF PLUMBING AND SANITARY ENGINEERS—LACK OF DETAILS PREVENTS CLOSE FIGURING—WHAT PLANS SHOULD SHOW

By O. B. Craig

THERE is nothing entering into the construction of the modern building which is more intimately associated with the health and comfort of its inmates than the plumbing. Under this general term is included the drainage from and water supply to the fixtures, the proper arrangement of all traps and vent lines, the heating of the water and the apparatus therefor, the proper installation of all plumbing fixtures, and such mechanical appliances as house and fire pumps, suction and supply tanks, etc.

The plumbing system for a building may be very aptly compared with the circulation and intestinal systems of the human body. The water supply lines are the arteries which carry the life giving fluid to the remotest corners of the structure; the sewers the intestinal canal through which the waste matter is discharged. The proper action of the one is just as important to the building and its inmates as is the function of the other to the human body.

Architects, Plans, Lack Information

Notwithstanding the important bearing of the plumber's work it is, as a rule, given very little study by the average architect in the preparation of his plans and specifications. He will elaborate most exhaustively on his construction and materials which go to make up the superstructure, making numerous full size detail drawings of doors, windows, interior and exterior trimmings and decorations, but when it comes to the plumbing, the most important of all from the standpoint of health and convenience, he is woefully lax in his instructions to the plumbing contractor. And it is greatly to the credit of the much maligned plumbing trade that such good work is produced with such meagre assistance as the plumber gets from his plans and specifications.

The architect in drawing up his contracts usually stipulates that the plumbing must conform to the drawings and specifications, which would necessarily imply that the drawings and specifications contained all the information that might be necessary for the plumbing contractor to not only give an intelligent figure on the work required, but also to carry out his contract in a manner to insure the very best results obtainable.

But let us turn to those same drawings and specifications, and what do we find? The average building plans show us a toilet room located here, a sink there, lavatories scattered promiscuously, with a few lines on the basement plan to indicate the general direction of the sewer, but nothing more. It is up to the plumber to figure, if he can, how he is to reach the various fixtures with his lines; where to locate his water heater, pumps, tanks, etc.; where to install his risers and vent lines, and how he is to keep out of the way of the steel contractor, the heating contractor, the electrician, the sheet metal contractor, and, in fact, every other artisan on the job; for it seems to be the generally accepted rule that the plumber must give way to all of these more favored trades and crowd his work into impossible out of the way places, working under handicaps which would hardly be tolerated in other lines of building construction.

On the drawings he finds not a line to indicate where his water lines are to go or the size thereof; and as for locating his basement machinery, let him get along with whatever space the other contractors have no use for. The incomplete nature of the drawings is oftentimes to some extent recompensed by a carefully detailed specification, but, unfortunately, the specification is generally indefinite and inadequate, abounding in such terms as "pipes of ample size," "valves satisfactory to architect," "water heater of sufficient capacity," etc., thereby placing upon the plumber almost the entire responsibility for the designing and proper working of the system, and woe betide him should his judgment be at fault.

Meager Details Prevent Close Figuring

A case in point came to the writer's notice not long since. A large building involving more than the usual amount of plumbing was designed, and plans were submitted to some half dozen plumbing contractors with request for bids on the work. Beyond showing the location of the various toilet rooms and the fixtures therein, there was not a line in the drawings to guide the bidder, and, as for specifications, there were absolutely none, each bidder being requested to submit his own specification with his bid. Each of the bidders,

after spending a great deal more time in figuring the job than would otherwise have been necessary, submitted his proposition, but all to no purpose, as such a wide variation of ideas was found and such a lack of uniformity in the cost of the work that the designers were compelled to readvertise for bids on a uniform and carefully drawn plumbing plan and specification.

What Plumbing Plans Should Show

The plumbing for a building should be so indicated in the drawings and described in the specifications as to cover everything required, and so clear and concise as to be readily understood by the average plumbing contractor. The positions of all mechanical appliances in connection with the plumbing should be clearly shown upon whatever floor plan such appliance may be located. All runs of piping through basement, together with the size of same, should be concisely indicated in the basement drawing. House traps, bell traps, area drains, sump pits, conductor lines, etc., should be located beyond dispute. Branches to risers, with size plainly indicated, together with location of such risers, should be shown, and valves and stop cocks should be plainly indicated.

In addition to the plumbing lines shown on the plans there should be prepared a riser diagram showing the serving of each and every fixture on each floor of the building. This riser diagram should show clearly all water lines, waste lines, soil lines, vent lines, fire lines, etc., at each and every floor throughout the building giving the relative position and arrangement of the waste and vent lines for each fixture with the sizes of all lines plainly designated. Pipes of the various characters can be indicated by different kinds of broken or dotted lines, with a properly arranged index on the drawing, showing the kind of service each line performs.

Where there are groups of fixtures, and where it is desirable to show connections to pumps, house tanks, filters, etc., it is advisable to prepare, on a larger scale than is ordinarily used, a detailed drawing showing the exact arrangement of all piping, together with all fittings, joints, valves, traps, etc., but where the plumbing is ordinary straight and simple work such detailed drawing may be omitted.

The specifications should indicate in the clearest possible manner the quality of the materials to be used and the method of installation. The location, size, depth and general direction of the street sewer, if there be any, should be clearly described, and if there be no street sewer, the final disposition of the sewage should be given in detail.

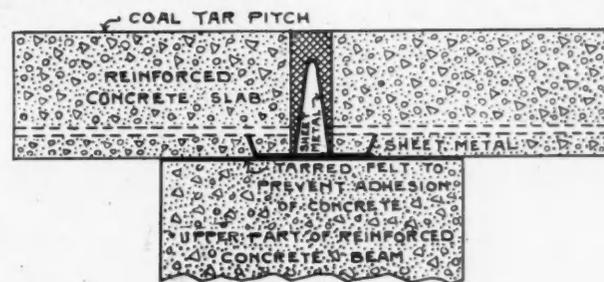
The location and size of the city water main from which the water supply is to be taken should be plainly stated along with the water pressure at source of supply. This information can be obtained in any well regulated municipality, where it is always kept on file. The specification should list accurately the number of each style of fixtures to be located on each floor of the building and should give such an accurate and

detailed description of such fixtures and the trimmings as to leave no doubt as to what is desired.



Expansion Joint in Concrete Roofing

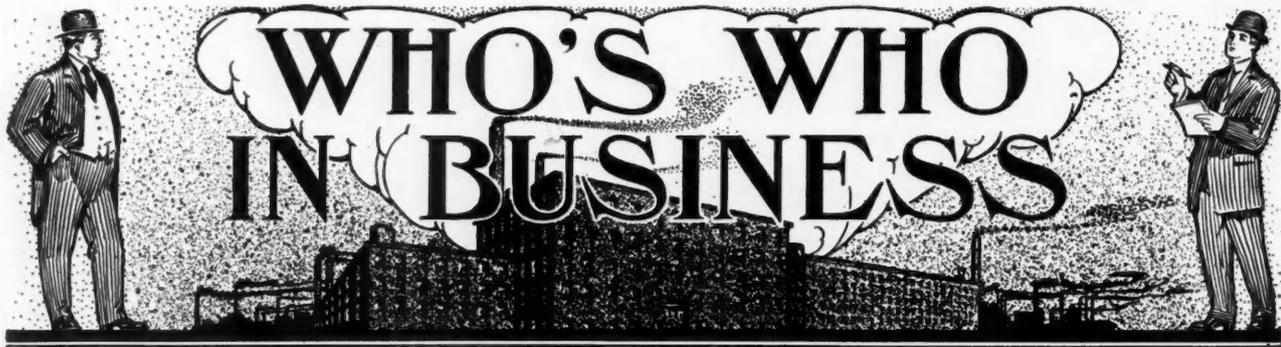
In an article on the construction of walls and roofs for a building in a recent issue of *System*, O. M. Becker, industrial engineer, and William J. Lees, construction engineer, of the International Harvester Company, made some interesting observations on the use of concrete in factory roof construction. Recognizing that the qualities desirable in a roof are strength combined with lightness, resistance to heat conductivity, fire and acid resistance and weather tightness, they hold that except possibly for the last named quality these desirable qualities are all to be found in a monolithic concrete construction to a greater extent than in any other one material. By a roof of this description they mean, of course, one that is laid in place by putting the mixture of cement, sand and broken stone, when freshly made, into forms, and allowing it to harden or set in a more or less homogeneous mass.



EXPANSION JOINT IN CONCRETE ROOFING.

As exponents of the concrete roof they add further that such a roof does not condense moisture on the under surface so much as other materials, with the exception of wood. The objection that is sometimes made to concrete roofs, however, that they are not impermeable to water, can, they claim, be overcome by mixing a good cement water-proofing compound with the top dressing of the concrete, providing also that the roof is designed to permit of expansion and contraction without causing cracks.

A type of expansion joint to allow for expansion changes is shown in the accompanying sketch. This shows that the space between the abutting ends of the concrete slabs contains a fold of sheet metal imbedded at each end into the concrete, but allowing for flexibility without giving a direct opening of any kind through the roof at the joint. A filling of coal tar pitch is employed to fill the joint flush with the roof surface and as a flexible material which is also counted to resist the leakage of water. It will be noted that the concrete beam on which the slabs rest was especially covered with tarred felt to prevent adhesion of the concrete slab itself, so that the slabs can have the freedom of lateral movement to accommodate such changes as take place with changes in temperature.



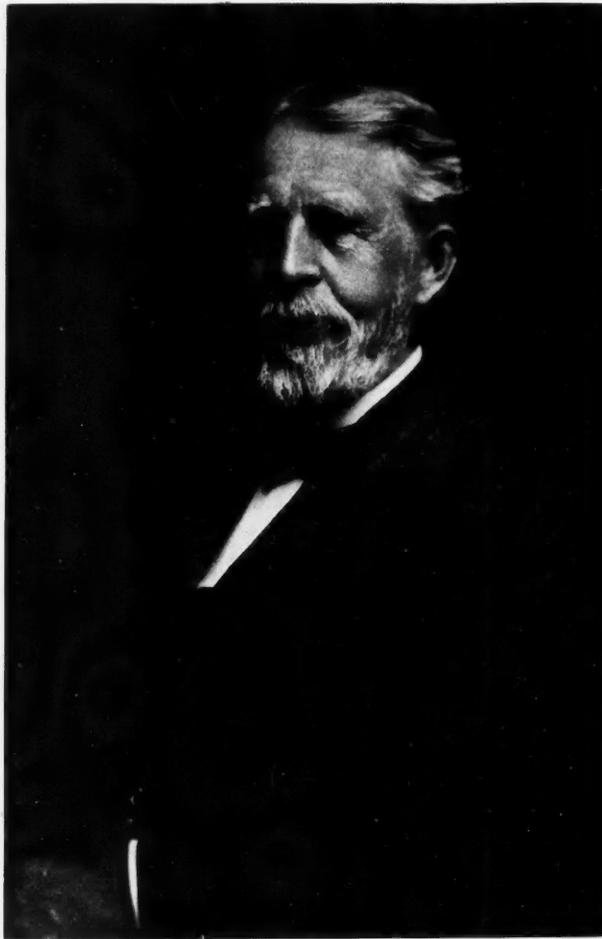
L. S. Starrett—President The L. S. Starrett Co.

MR. L. S. STARRETT was born in China, Maine, 25th April, 1836, and is of Scotch descent. At the age of 17 he came to Massachusetts and for some years carried on a stock farm in Newburyport. His inventive genius was working out all this time and in 1864 he was granted a number of patents. The next year he started a small machine shop in Newburyport.

In 1868 he was induced to remove to Athol, where he became connected with the Athol Machine Company which was formed for the special purpose of manufacturing the American meat chopper and other articles of Mr. Starrett's invention. He remained connected with this company about 10 years. Business conditions not being exactly to his liking, he resigned from the Athol Machine Company and started on his own account, renting a corner of the C. F. Richardson shop on Main street. It is an interesting fact that after making the success he has in developing the business which now bears his name, he has recently come into possession of the Richardson property and owns a controlling interest in the Athol Machine Company, both of which places are identified with his early struggles.

When he started in business for himself the first tool of his manufacture was the combination square which is now as staple an article of hardware as ten-penny nails. The patents on this tool have long since expired and many imitations of the square are of course

on the market. The combination squares, though greatly improved in appearance and finish, are just the same in principle as the original 1880 square. Mr. Starrett's first "catalogue" consisted of a single green poster describing his combination square.



L. S. STARRETT

Soon after, he rented the first floor of the building on the east side of Crescent street, near the dam, owned by Bennett & Van Valkenburg, which has since been removed. He began adding steel rules, surface gages, screw pitch gages, etc., to his list and business increased so that after occupying the whole of the building above mentioned and finding it too small, he bought the factory which had recently been built on the other side of the street. In 1888 two stories were added to this and in 1894 the present middle and southern parts were built.

In 1901-2 the brick office building and the main machine shop on Crescent street were built on the sites of the historic "boarding-house" and the old Bennett and Van Valkenburg cotton mill. In 1906 a large extension was built on the river bank connecting with the main factory.

The total floor space of all the buildings is about four and one-half acres. The factories are equipped throughout with high-class machinery and every up-to-date appliance obtainable for protection from fire, for the comfort and safety of employes and for the accurate production of fine mechanical tools. The company has its own electric light plant. Pure water

is obtained from a 450-foot artesian well.

The Starrett plant has for years been the largest plant in the world devoted exclusively to the manufacture of small tools for mechanics. The variety of tools it makes is far greater than that made by any other concern. The line consists of gauges and precision tools of all kinds besides tools for all workers in metal or wood. Over 80 different micrometers, over 200 styles and sizes of calipers and dividers, and over 400 styles and sizes of steel rules, are made. All measuring tools and instruments of precision are made according to the metric system as well as the English.

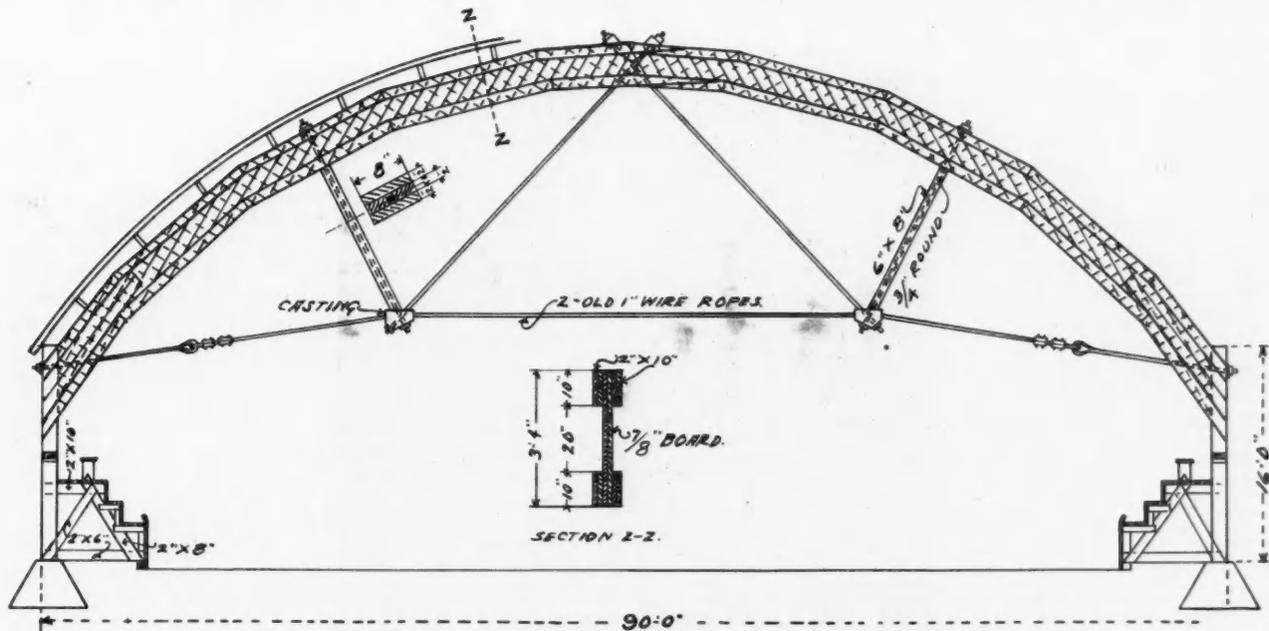
The business of the company is done through the solicitation of a dozen high-class traveling salesmen and through constant advertising in mechanical and trade publications. Ten salesmen cover the United States, Canada and Mexico and two salesmen are constantly in Europe. The Company has its own stores in New York, Chicago and London, at each of which

most progressive citizens of the town.

The L. S. Starrett Company was incorporated the 1st of January, 1900, to continue and extend the business started by L. S. Starrett in 1880. Mr. Starrett always has been and still is the active and energetic head of the business.

Built-up Arch Truss

An interesting built-up arch truss, erected by local carpenters at Houghton, Mich., is described by the "Engineering Record." These trusses, set 16 feet on centers, support the roof for a 90 by 200 foot skating rink. The trusses are wooden plate girder arch ribs with wooden radial braces at the quarter points trussed with steel rods and ropes. The rib, 40 inches deep, is curved to a two-centered circular arc of 50-foot radius of the intrados, and has a single vertical web made of two solid courses of crossed diagonal $\frac{7}{8}$ -inch boards nailed together and nailed to four 2 by 10 inch pieces,



places a manager and four or five assistants are employed.

A very effective method of advertising used by this company is that of show cases which are made in a variety of styles and are fitted up with sample tools. These cases are made in the wood-working department of the company and are fine examples of the cabinet-maker's art. The usual show-case contains a variety of tools amounting to about \$150.00, but several have been built for merchants in large cities containing an assortment of \$1,000 worth of tools. About 3,000 of these cases are in hardware stores—not only in the United States, but in Canada, Mexico, England, France, Germany, Italy, South Africa, Australia, Japan, and even in Ceylon and the Straits Settlements.

The character of the company's employees, numbering about 600, is a matter of considerable pride to Mr. Starrett, and visitors going through the works almost invariably remark upon the intelligent appearance of the workmen, many of whom are among the best and

breaking joints like scarf boards in both top and bottom flanges. The top flange pieces have radial butt joints and the bottom flange pieces have overlapping pieces connected by bolts $\frac{1}{2}$ inch in diameter. The struts have solid cross-sections built up of four pieces of 2-inch planks with axial clearance for an interior tension rod with nut bearings at both ends. The feet of the struts engage cast-iron angle blocks, which also afford bearings for the nuts on the ends of the tension members. The bottom chord is made of two parts of old wire cables fastened together by clamps and having turnbuckle adjustments. The trusses were assembled complete on the ground and erected by a gin pole.

To get swelled up with anger and pop off at the mouth is like steam blowing off at the safety valve of the boiler. It is wasted energy; yet sometimes with people, as with the boiler, if there were not a popping off of suppressed energy something would have to burst.



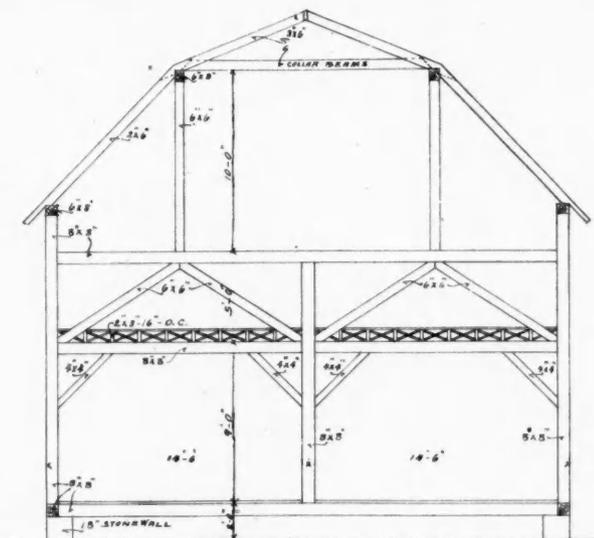
Small General Purpose Barn

FULL SET OF PLANS FOR GAMBREL ROOF BARN, 29 BY 47 FEET, ACCOMMODATING 7 COWS, 3 HORSES WITH SPACE FOR HAY AND GRAIN STORAGE

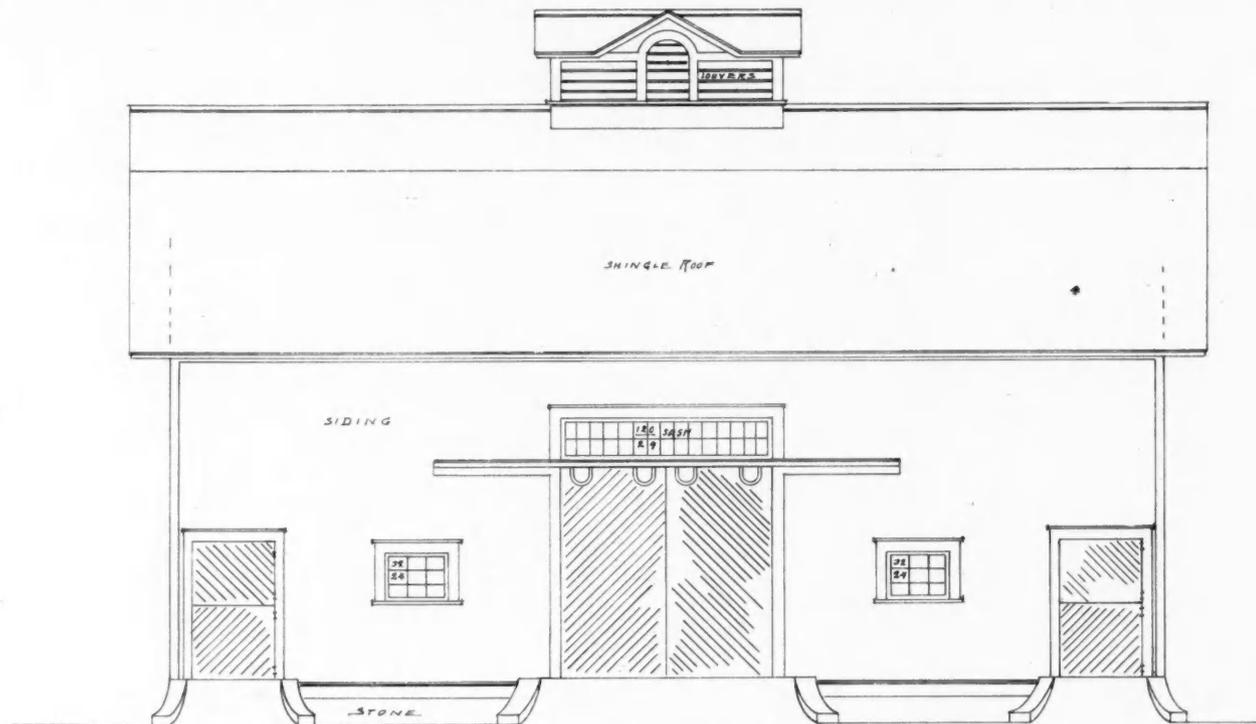
A BARN of very neat, well-proportioned appearance and of a very desirable size is shown in the accompanying plans. It is a design and arrangement that has found much favor with the farmers; and the drawings are presented here because of the suggestions they may offer to anyone desiring to put up a farm building of this sort

Heavy timber framing is used, all members being mortised and tenoned; sills and main posts 8 by 8 inches, purlin posts and long braces, 6 by 6 inches, short braces 4 by 4 inches, plates and purlins 6 by 8 inches, rafters and collar beams 2 by 6 inches, and floor joists 2 by 8 inches, 16 inches on centers.

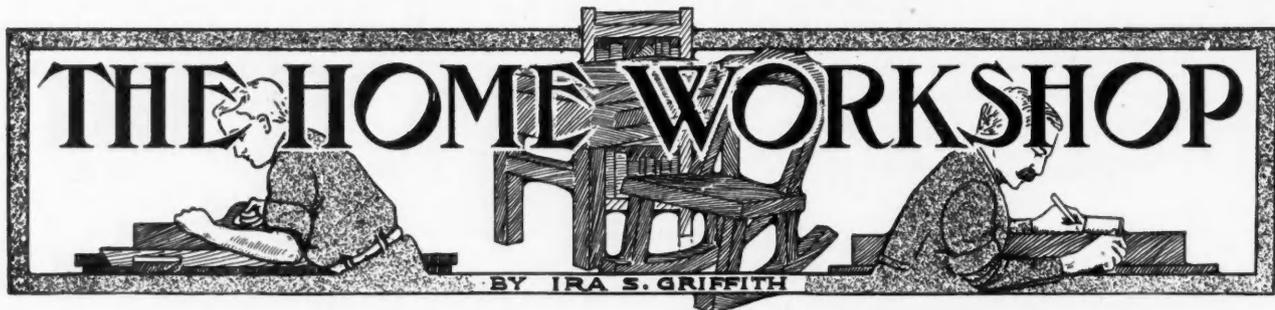
The floor plan shows the arrangement of space in this barn to be both convenient and economical. A 16-foot driveway extends through the center with double rolling doors and gentle incline at each end. To the right a little more than half the space is used for three horse stalls, the balance being the granary.



CROSS SECTION (4 THUS)



FRONT ELEVATION OF BARN



How to Make Writing Desk and Chair

COMPLETE DETAILED INSTRUCTIONS WITH WORKING DRAWINGS, STOCK BILLS, AND PHOTOGRAPHS OF THE FINISHED PIECES

THE writing desk shown in the accompanying illustration would best be made out of quarter-sawn white oak. Especial care should be taken that only well seasoned lumber is used, otherwise the warpage in the wide boards might cause serious trouble.

STOCK BILL FOR WRITING DESK.

- Sides, 2 pieces, $\frac{3}{4}$ by 10 by 52 inches, S-4-S, Oak.
- Top and bottom shelves, 2 pieces, $\frac{3}{4}$ by 10 by 34 inches, S-4-S, Oak.
- Middle shelf, 1 piece, $\frac{3}{4}$ by $9\frac{5}{8}$ by 30 inches, S-4-S, Oak.
- Drawer support frame, 2 pieces, $\frac{3}{4}$ by $2\frac{1}{2}$ by 30 inches, S-4-S, Oak.
- Drawer support frame, 2 pieces, $\frac{3}{4}$ by $2\frac{1}{2}$ by 6 inches, S-4-S, Oak.
- Lid, 1 piece, $\frac{3}{4}$ by 15 by $29\frac{1}{2}$ inches, S-4-S, Oak.
- Back, 3 pieces, $\frac{3}{8}$ by 10 by 41 inches, S-2-S, Oak.
- Back, 2 pieces, $\frac{3}{8}$ by 2 by 40 inches, S-4-S, Oak.

DESK DRAWER.

- Front, 1 piece, $\frac{3}{4}$ by 5 by $29\frac{1}{2}$ inches, S-4-S, Oak.
- Sides, 2 pieces, $\frac{3}{8}$ by 5 by 10 inches, S-4-S, Yellow Poplar.
- Back, 1 piece, $\frac{3}{8}$ by 5 by 29 inches, S-4-S, Yellow Poplar.
- Bottom, 1 piece, $\frac{3}{8}$ by 10 by 29 inches, S-4-S, Yellow Poplar.
- Keys for tenons, 8 pieces, $\frac{1}{2}$ by $\frac{1}{2}$ by 4 inches, S-2-S, Oak.

STOCK FOR PIGEON-HOLES.

- Verticals, 2 pieces, $\frac{1}{4}$ by 8 by $14\frac{1}{2}$ inches, S-4-S, Yellow Poplar.
- Verticals, 12 pieces, $\frac{1}{4}$ by 8 by $3\frac{1}{2}$ inches, S-4-S, Yellow Poplar.
- Horizontals, 3 pieces, $\frac{1}{4}$ by 8 by 29 inches, S-4-S, Yellow Poplar.

DRAWERS IN PIGEON-HOLES.

- Fronts, 2 pieces, $\frac{3}{8}$ by 3 by $8\frac{1}{2}$ inches, S-4-S, Oak.
- Sides, 4 pieces, $\frac{1}{4}$ by 3 by 8 inches, S-4-S, Yellow Poplar.
- Backs, 2 pieces, $\frac{1}{4}$ by 3 by 8 inches, S-4-S, Yellow Poplar.
- Bottoms, 2 pieces, $\frac{1}{4}$ by 8 by 8 inches, S-4-S, Yellow Poplar.

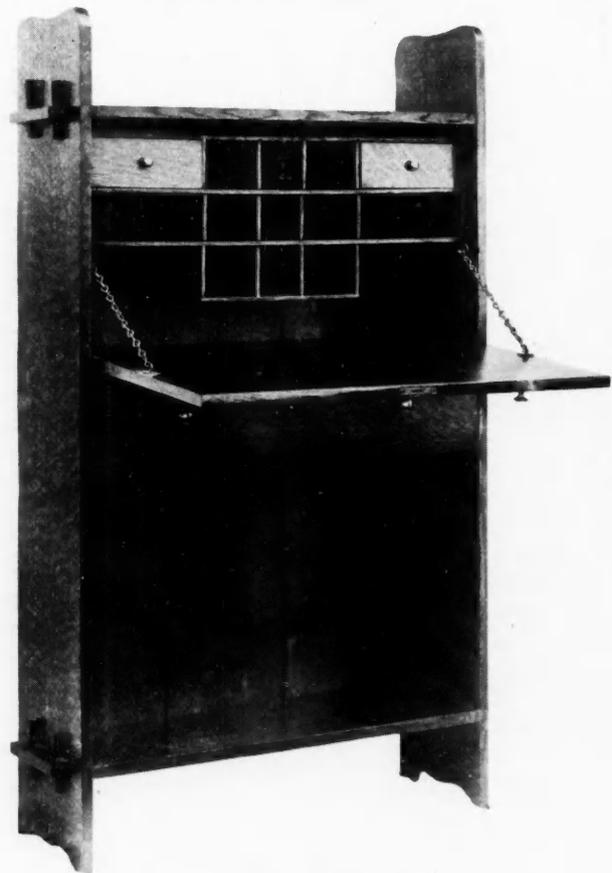
Begin work on the sides first. Shape the tops and bottoms—the designs shown are merely suggestive, there are other forms that may be used. Lay out and cut the top and bottom shelves to the correct length, squaring the ends. Lay out the tenons on the shelves and the mortises in the side pieces into which they are to go. Before cutting the shoulders of these tenons the mortises for the keys should be laid out.

The back edges of both shelves are to be rabbeted so as to make recesses into which the ends of the backing can rest.

The frame which is to support the drawer may next be made. It is to have its parts mortised and tenoned together, good hot glue being used in the fastening.

While the glue of this frame is setting, the middle shelf may be prepared. Its ends should be shouldered at the front slightly and then "let in" to the sides a good three-eighths of an inch. It will be a good plan to let the frame, that supports the drawer, into the sides in a similar manner. A less satisfactory way is by using dowels.

These parts can be scraped and put together and the back fitted. It is intended that the 2-inch pieces of the back shall be "let in" to the shelving so as to



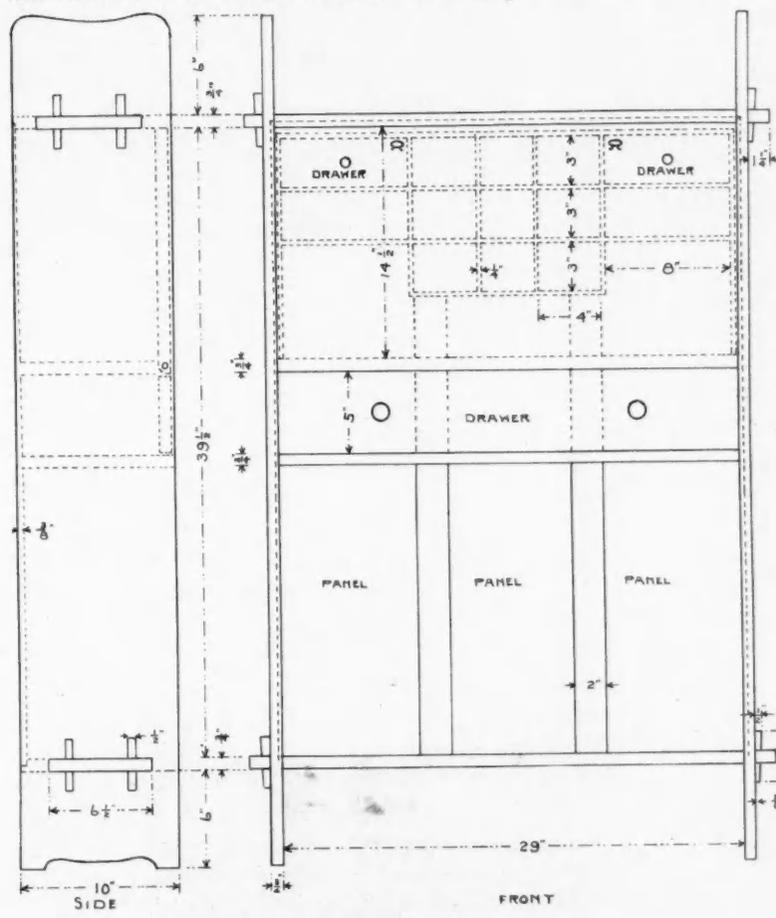
Writing Desk—Easily Made and Worth While

allow the other backing to rest flush on the edges of the shelves. Before fastening the backing it will be found advantageous to put on the stain and filler.

Make the keys as shown in the drawing or as fancy dictates. Make the drawer next. The ends should be

dovetailed to the front. As for the rest of the construction, an examination of any table or desk drawer will show how the bottom is to be set into grooves in

have oak fronts, but the rest is to be of yellow poplar. The yellow poplar should be finished in white shellac, no stain being used.



WRITING DESK.

the sides and the back into grooves in the sides also. The lid may be fitted to place and the hinges and lock placed. Hardware for the lid and drawers can be bought at any hardware store.

of the tenons all cut square. The chair shown was made out of black walnut, though any hard wood will serve.

There will be needed pieces as follows:

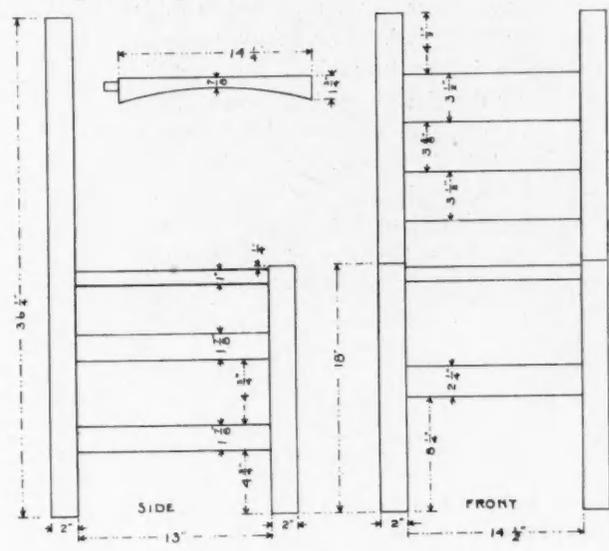
STOCK BILL FOR DUTCH CHAIR.

- Posts, 2 pieces, 2 by 2 by 18 1/2 inches, S-4-S.
- Posts, 2 pieces, 2 by 2 by 36 3/4 inches, S-4-S.
- Side rails, 4 pieces, 7/8 by 1 1/8 by 14 inches, S-4-S.
- Front and back rails, 2 pieces, 7/8 by 2 1/4 by 15 1/4 inches, S-4-S.
- Back rails, 2 pieces, 1 3/4 by 3 1/2 by 15 1/4 inches, S-4-S.
- Seat rails, 2 pieces, 1 by 1 1/2 by 14 inches, S-4-S.
- Seat rails, 2 pieces, 1 by 1 1/2 by 15 1/4 inches, S-4-S.

In this stock bill the pieces are specified mill-planed to exact thickness and width, so that all that needs be done to these surfaces in squaring them up is to remove the mill-marks by means of the smooth plane set very shallow, following with scraper and sandpaper. In squaring the ends of the posts to length, chamfer the corners slightly to prevent their being splintered.

Stand the posts upright in the positions they are to have relative to one another and mark the approximate positions of the mortises. After this has been done they may be laid on the bench and the ends of like pieces evened and the tops and bottoms of the mortises marked accurately with knife and trysquare.

The sides of the mortises may next be gauged.



A DUTCH CHAIR

In making the pigeon-holes the different parts should be carefully grooved together and all well smoothed before assembling. The drawers of the pigeon-holes

Thoroughly scrape all the parts; then put the back and the front together, using good hot glue. After the glue on these parts has set, remove the clamps and insert the side rails. See that the chair frame squares itself. This can be told by measuring the two diagonals. If the diagonals are not the same length cut a piece the length of the medium of these extremes and insert it so as to hold the frame square until the glue can harden.

For a seat leather may be used either solid or cross woven. A rush seat such as is shown is not beyond the amateur, but requires more labor. The seat rails should have the sharpness of the edges removed before the chair is assembled. To make the flag seat, the rushes will need to be soaked in water until they are pliable, after which they should be run through a wringer to remove the surplus water. Begin the weaving at one corner of the chair and carry the rush over one rod, then under the adjacent rod—the other rod



Dutch Chair with Rush Seat

which enters this same post. From this carry the rush entirely across the chair and under the opposite rod. Bring it over this rod, then under the adjacent rod. Continue in this manner until the center has been reached. The rushes are to be added from time to time by wrapping them in in spiral fashion, being careful to do so in such a manner as to bring the joints on the under side. It is possible to purchase these rushes, though the writer has found it interesting to gather his own from the marshes in the fall.

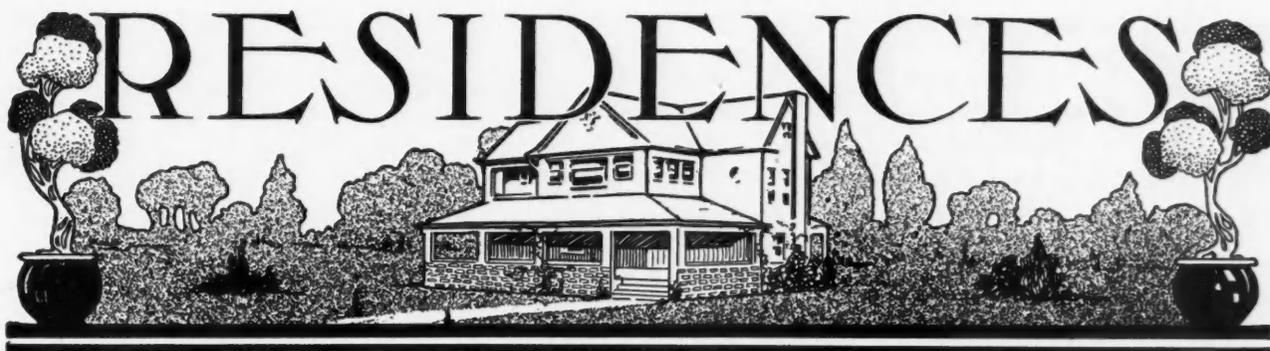
COURT DECISIONS AFFECTING BUILDERS

PERSONAL INJURY—NO CAUSE FOR ACTION.—A competent and experienced carpenter was injured while assisting in placing a beam in a building by being struck by the beam when it swung. The work was comparatively simple in its nature, and he knew that the beams, which were not large, were liable to swing. He knew the facts, including the location of the derrick and its relation to the column, the wooden horse on which he stood, the wall, etc. He knew of a position, perhaps safe, which he might have taken to avoid the accident which happened. *Held*, as a matter of law, not to show any negligent failure of duty on part of the employer's superintendent in failing to change the location of the derrick, or in failing to give the employee any warning as to his conduct.

Lanoue vs. Nelson, Massachusetts Supreme Judicial Court, 89 Northeastern Reporter 95.

AMOUNT OF RECOVERY ON SUBSTANTIAL PERFORMANCE.—It is generally held in most of the American states that if a building contractor has attempted in good faith to perform his contract and has substantially performed it—although by inadvertence he has failed to perform it literally according to its terms—he may recover under the contract, with a proper deduction to the owner for the imperfections or omissions in the performance. While the plaintiff, in cases of this kind, recovers under the contract, not the contract price, but the contract price less the deduction, he ought to aver, not absolute performance, but only substantial performance of his contract and a right to recover only the balance after allowing the owner a proper sum for the failure to do the work exactly in the way required. The rule very generally adopted is that, to entitle the plaintiff to recover, he needs to show only that he proceeded in good faith in an effort to perform the contract, and that the result was a substantial performance of it, although there may be various imperfections or omissions that call for a considerable diminution of the contract price. The reason for this construction of such contracts is in part the difficulty of attaining perfection in the quality of the materials and workmanship, and of entirely correcting the effect of a slight inadvertence, and the injustice of allowing the owner to retain without compensation the benefit of a costly building upon his real estate, that is substantially, but not exactly, such as he agreed to pay for. In the case at bar the contract price was \$96,500 and there were ten different particulars in which was found that the contract was not performed, the deductions allowable for which were found by the referee to amount in the aggregate to \$4,071.

Dodge vs. Kimball, Supreme Court of Massachusetts, 89 Northeastern, 542.



Complete Plans for Well-Designed House

SET OF ARCHITECT'S SCALE DRAWINGS OF A LARGE EIGHT ROOM HOUSE OF THE MODERNIZED DUTCH COLONIAL TYPE

HERE is a house of generous size, combining the simplicity of former days with our present-day ideas of comfort and convenience. It is one of the modified Colonial types which now are enjoying such popularity for city building in the middle west.

The exterior is finished in light colored stucco or cement plaster, except the porch piers and the rather high foundation, which is of dark brown brick veneer.

The interior of this house shows many good points. The central hall arrangement can be noted at once as being most satisfactory. If the floor plan is wide enough this is always about the best arrangement possible. The tendency these days is to make the living-rooms very large and the dining-rooms smaller than heretofore. The screened porch is a feature that is very desirable; this design provides for two, one on each floor. The second floor arrangement is excel-



Attractive Dutch Colonial Residence Designed for George H. Tomlinson, Evanston, Ill.

The door and window casings, cornices, and other exposed woodwork is painted dark brown to match. The whole effect is simple, dignified, and homelike.

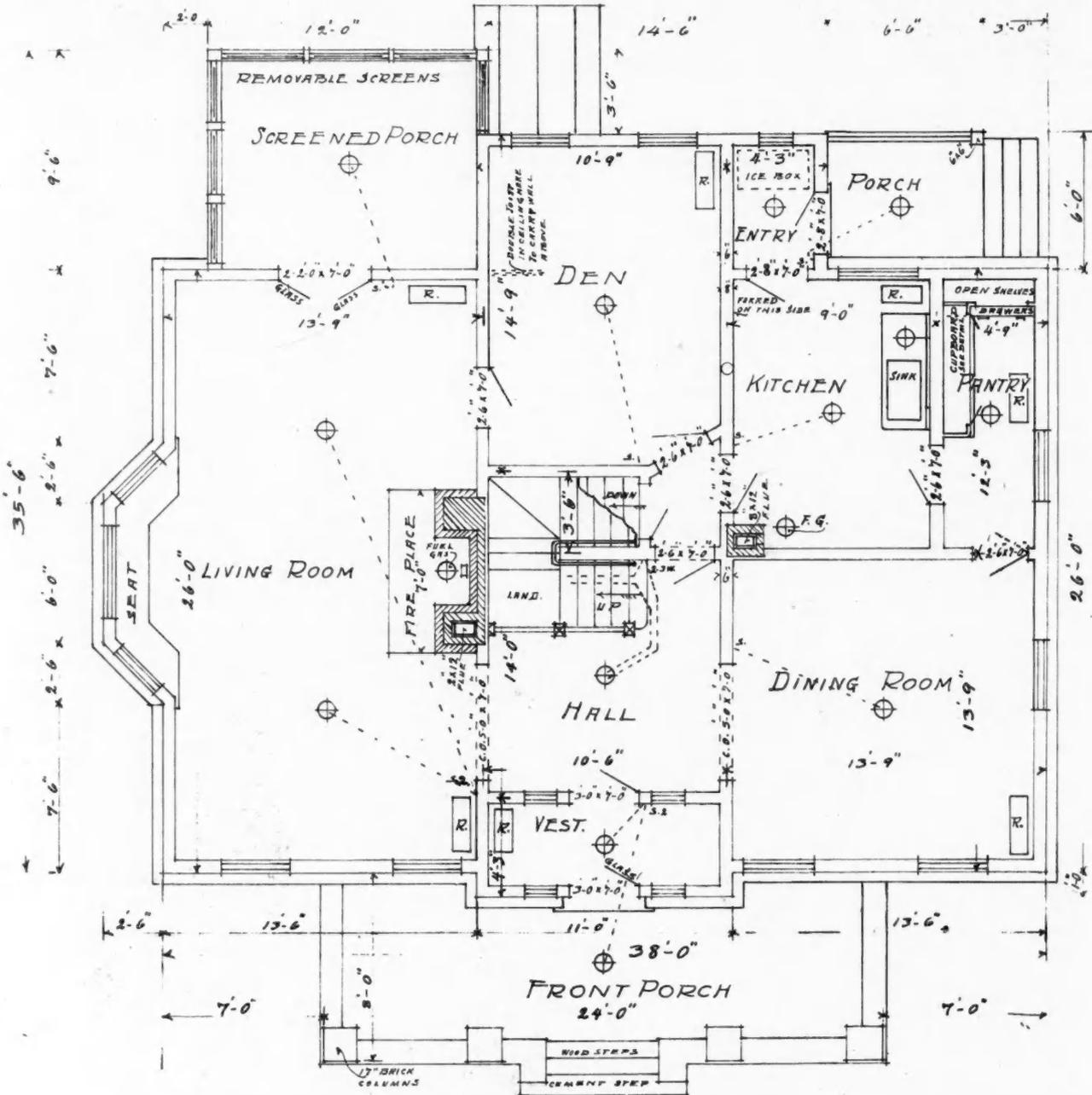
lent, in that each of the four bedrooms has cross ventilation. There is also an extra generous amount of closet space conveniently placed.

Some Hints on Color

No other one factor plays so important a part in the final effect of a room as the treatment of the walls. We may have famous pictures on the walls, artistic and costly furniture may be in the room, and marvelous foreign rugs may bejewel the oak floors—it is all

room than will the improving of all the other features in the room.

The rooms which we most use, as the living room, or study, should be tinted in the least irritating, in other words, the most restful colors—the grayed greens (such as sage green or olive green) or browns. These colors which are so dominant in nature's back-



FIRST FLOOR PLAN—HOUSE PAGE 65

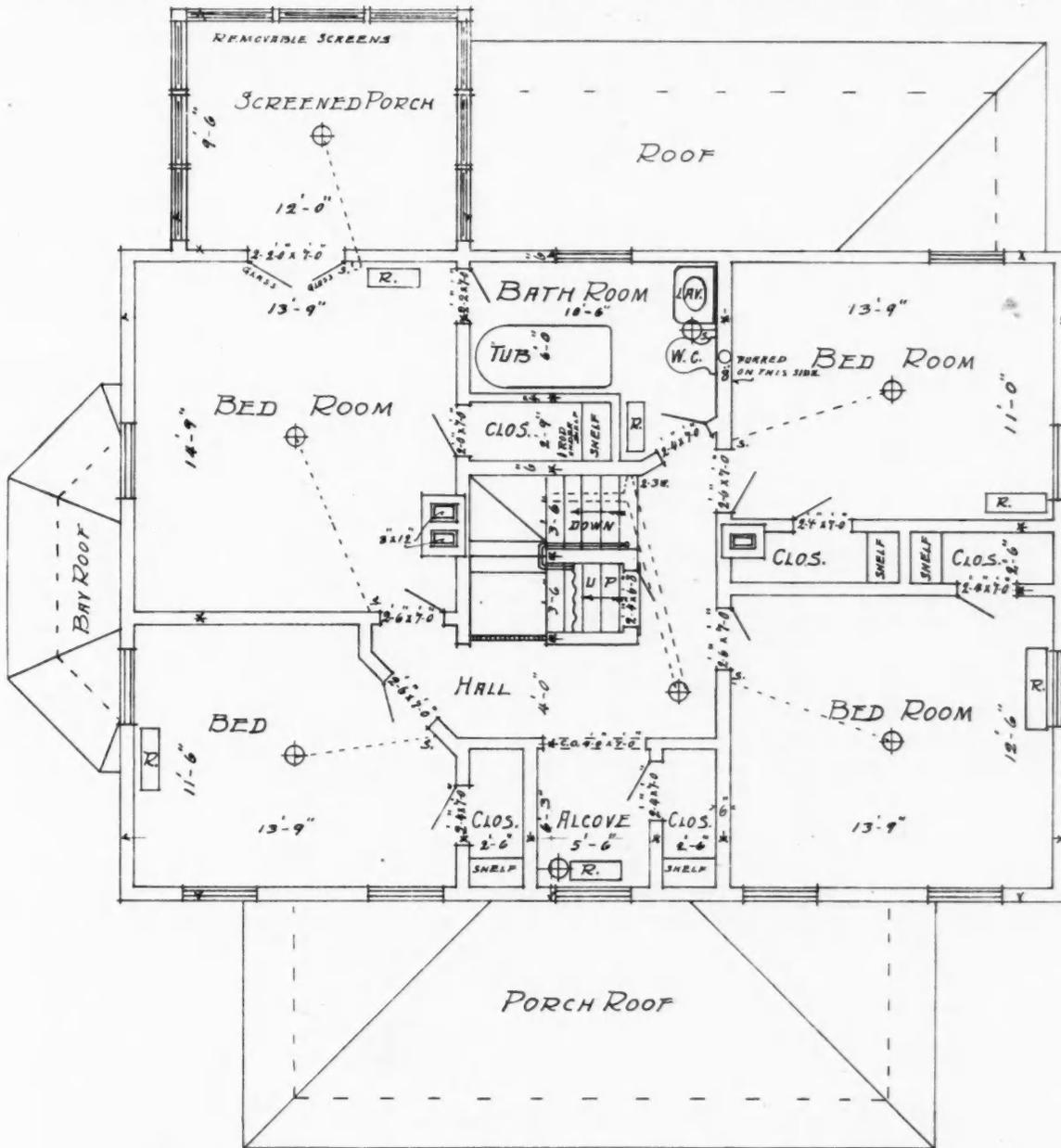
to no avail if the walls are provokingly and persistently out of tune. Nothing can redeem the room with discordant walls, for they destroy absolutely and for all time the unity which a room should have. We will suppose that walls, pictures, furniture and floors are all of poor quality. Changing the unsatisfactory wall covering for one which is really fine in color and design, will do more to enhance the appearance of the

grounds form the very best backgrounds for people, pictures or furniture.

Red is the color of good cheer, and has in art for centuries been the symbol of love. It is an admirable color for the front hall, offering a cordial welcome to the entering guest. It is also adapted, from its nature and symbolic association, to the dining-room in which we offer our hospitality. Venetian red, or a red com-

bined with orange, is better than a red influenced by purple or blue. It should be dull rather than brilliant in tone, for we must always remember that of all things in the room the walls should ever remain as the background for other things. For other rooms where warm color is desired, yellow or a sunny brown is preferable, for red is a color which should be used with caution, because it is the most exhilarating of

ern home-builder is, whether he prefers to pay the doctor's or the plumber's bill. If the plumber does his work conscientiously and well, it will act as a preventive against disease; if he does it carelessly, or inefficiently, the services of the physician will certainly be required in the home. The plumber says "Shoppell's" prevents the contraction of many diseases, which, when contracted, the doctor must be called in



SECOND FLOOR PLAN—HOUSE PAGE 65

colors, and for this reason it is carefully avoided in insane asylums.

The bedroom with its light woodwork should have a light, delicate tint, cheerful and refreshing in color—dainty pinks, blues or yellow-greens on a very light ground meet the requirements.



The Plumber and the Doctor

One of the first questions which confronts the mod-

ern home-builder is, whether he prefers to pay the doctor's or the plumber's bill. If the plumber does his work conscientiously and well, it will act as a preventive against disease; if he does it carelessly, or inefficiently, the services of the physician will certainly be required in the home. The plumber says "Shoppell's" prevents the contraction of many diseases, which, when contracted, the doctor must be called in to cure. Whether, in the end, the bills of the physician will not be larger than those of the plumber, is a mere question of the nature of the disease which afflicts the family, and the length of service which it requires from the healer. So that economy becomes a factor in the problem of the doctor and the plumber, and economy is one of the most serious problems with which the home builder has to grapple, in the making of his plans.

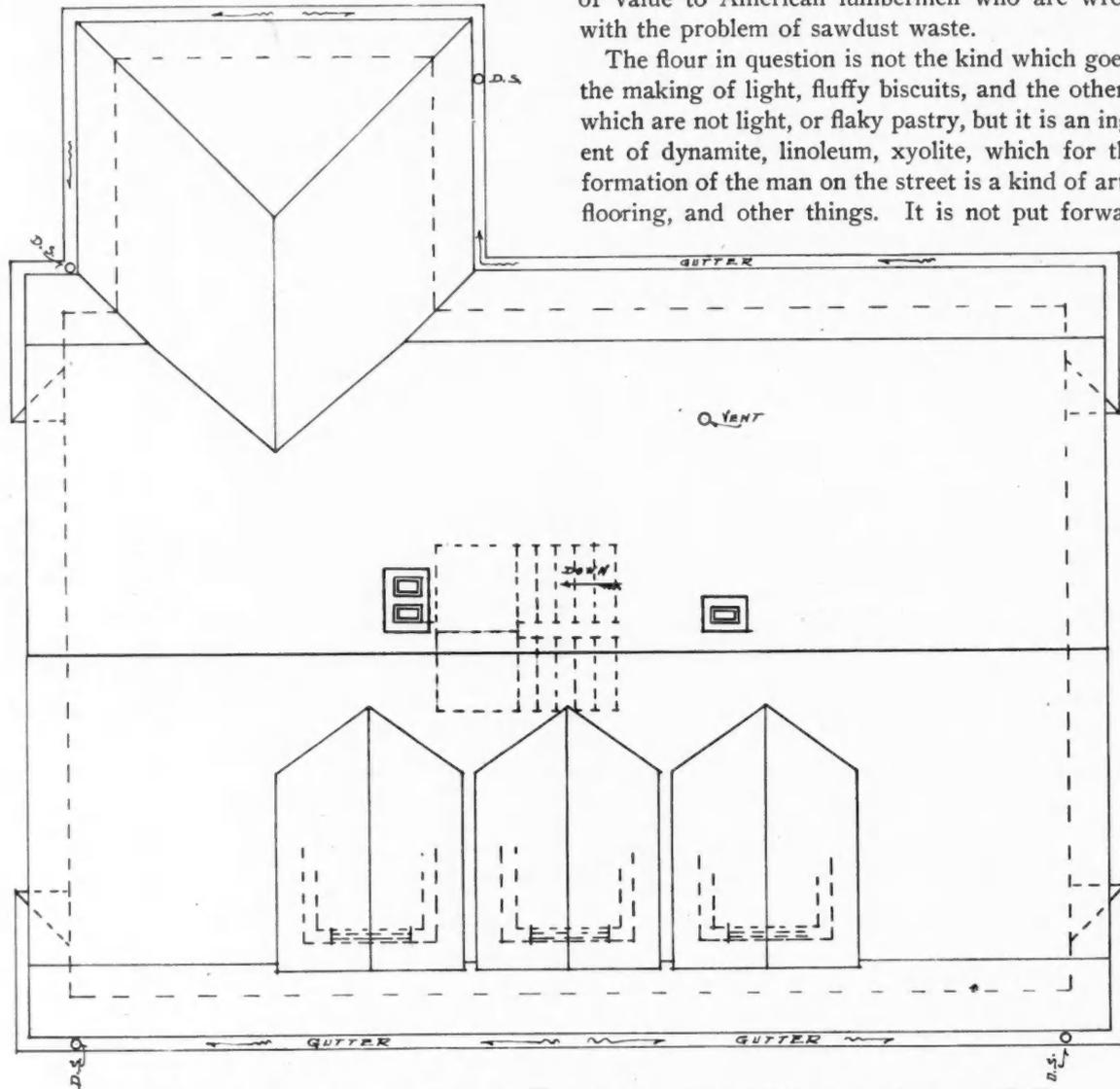
Proper sanitation, in these modern days is sought for in the construction of all new buildings, and it is upon the shoulders of the plumber that the responsibility for securing this chiefly rests. In olden times the plumbing fixtures of a house were hidden away in poorly lighted, poorly ventilated, out of the way places. Now they occupy conspicuous places, are exposed, so far as possible, and are looked upon rather as luxuries, than as mere necessities. The essentials of an effective system of plumbing are, an adequate supply of water

The plumber is the man who can save the doctor's bills, and keep away many diseases from the home, through his skill and knowledge of what good plumbing really means.

Wood Flour from Sawdust Waste

Flour from sawdust is another step in the movement for the conservation of forest resources. The United States consul at Christiania, Norway, has sent to this government a suggestion along this line which may be of value to American lumbermen who are wrestling with the problem of sawdust waste.

The flour in question is not the kind which goes into the making of light, fluffy biscuits, and the other kind which are not light, or flaky pastry, but it is an ingredient of dynamite, linoleum, xylite, which for the information of the man on the street is a kind of artificial flooring, and other things. It is not put forward as



ROOF AND ATTIC PLAN—HOUSE PAGE 65

to flush the various fixtures; enameled iron or porcelain fixtures, in well-lighted and well-ventilated rooms; waste pipes large enough to carry of all waste material, but not too large to be self-cleaning; a system of ventilation so arranged that it will ventilate every portion of the drainage system properly; a quality of piping for soil-pipes and drains that will not corrode, or be affected by sudden changes in temperature; and a thorough system of testing and inspection by practical men, not only when the work is finished, but during the installment of all the piping.

a new discovery, for it has been in use for several years in Europe, and to a small extent in this country.

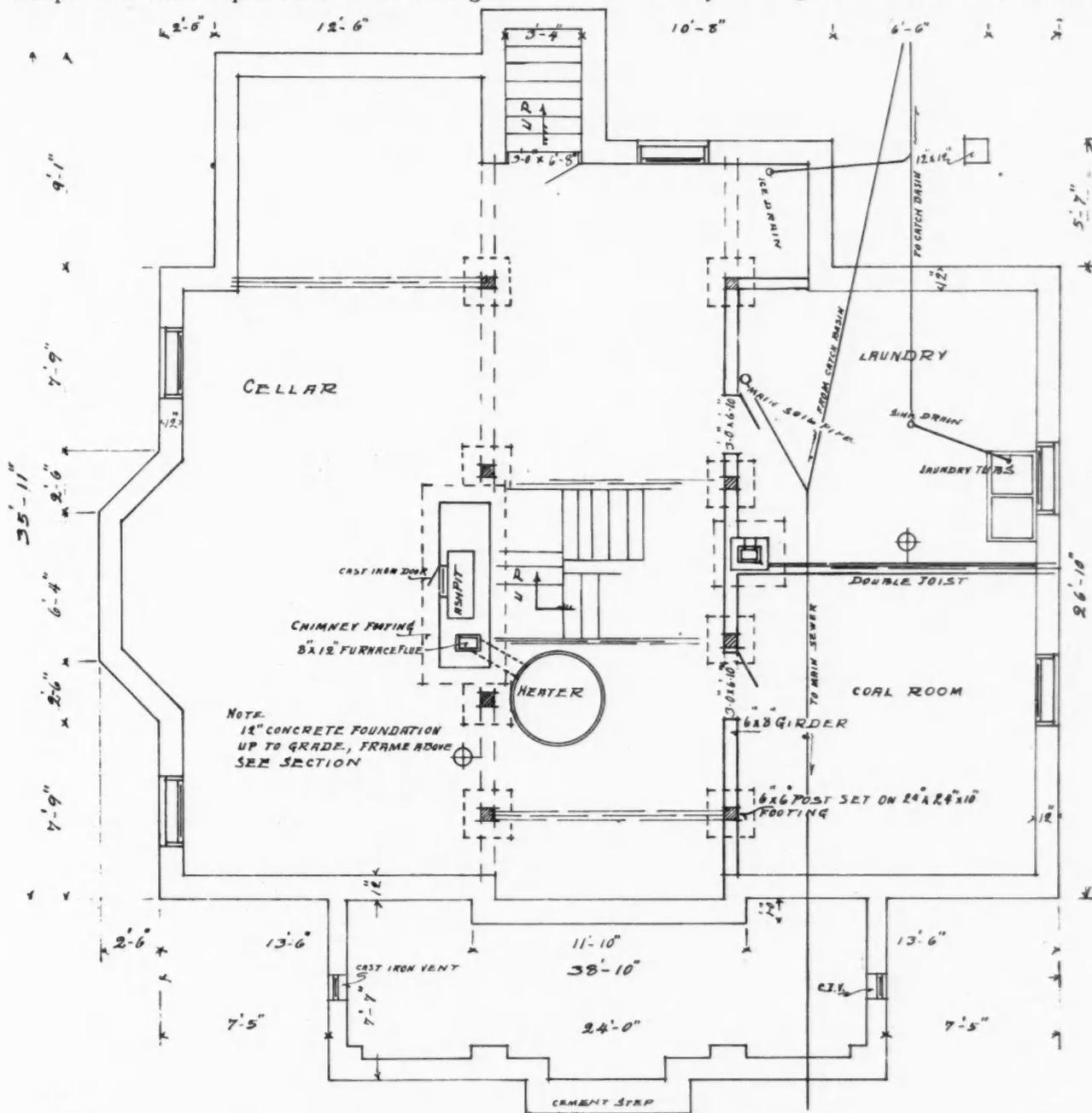
The wood flour is ground in a cheap mill, very similar to those which grind corn and rye. Pine and spruce sawdust is used in Europe, and after passing through the stones and the bolting chest, it is sacked or baled for shipment. It is then worth twelve to thirteen dollars a ton.

The flour has a number of uses, one of which is in the making of dynamite. It is the absorbent for the nitroglycerine, which is the explosive ingredient. Wood

flour dynamite is inferior to that made with infusorial earth as the absorbent; but it serves many purposes, and is cheaper. But dynamite is one of the smallest prospective uses for the product. Linoleum makers mix it with linseed oil and give body to their floor coverings. It is not considered quite equal to ground cork for this purpose, as it is less elastic; but it is cheaper and meets requirements for medium grades.

not liable to take fire or splinter if struck by shells.

Many additional uses for wood flour will probably be found. The amount of sawdust to be had in this country is practically unlimited, and millmen will welcome any plan that will lessen the waste at the sawdust dump. Norway exports thousands of tons of this sawdust flour yearly, and the United States takes some of it. Germany is a large manufacturer also, and has



FOUNDATION AND CELLAR PLAN—HOUSE PAGE 65

The flour fills an important place in the manufacture of xyolite, a kind of artificial flooring, resembling wood in weight, and stone in other respects. It is used for kitchen floors, and in halls, corridors, cafes, restaurants, and public rooms. It is impervious to water, and is practically fireproof. It is floor material in some of the German war vessels. It is so used because it is

been for years. England is an extensive buyer, and much goes to France.

More Building at Gary, Ind.

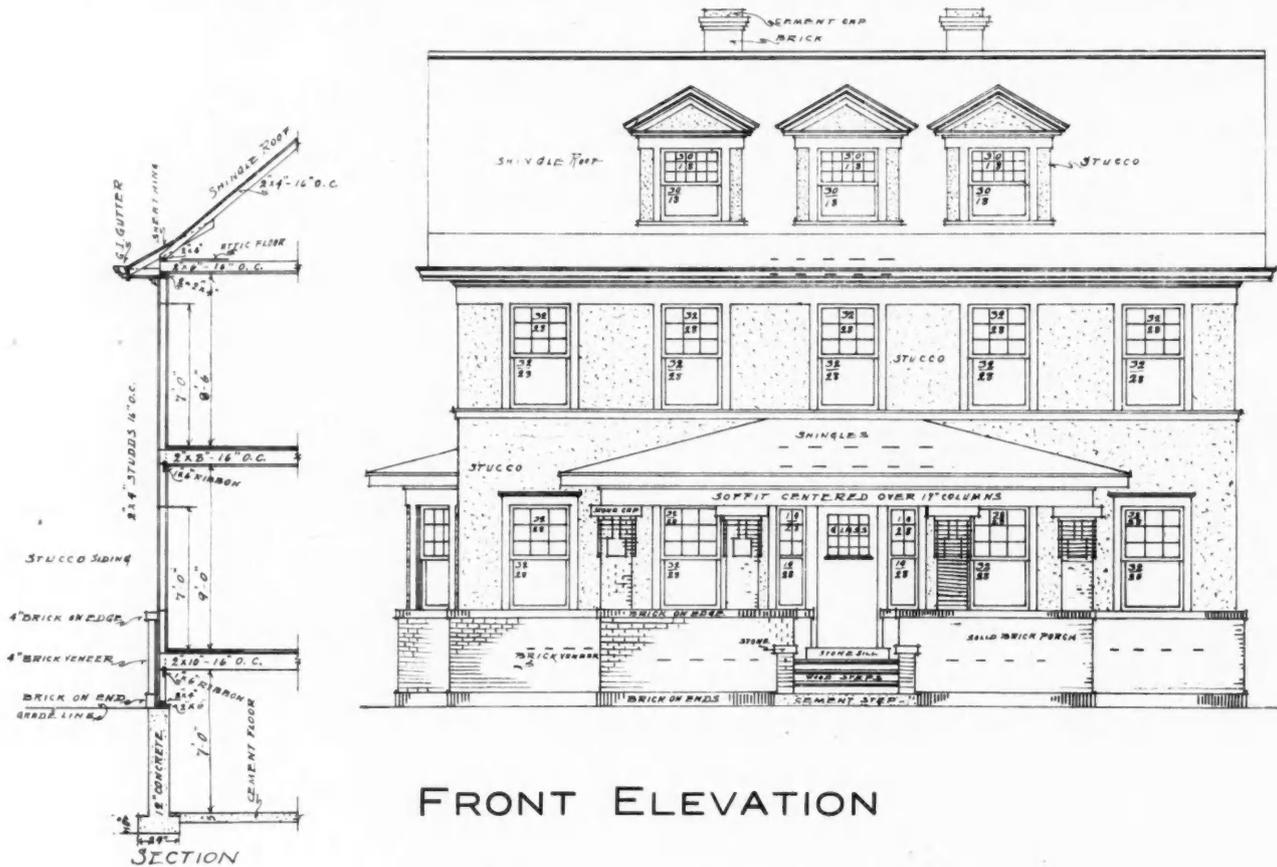
Exclusive of the vast construction work of the United States steel corporation's various plants, building operations in Gary, Ind., now under way or to be

started shortly, total \$3,500,000.

There is more building under way in the steel city than any other municipality in the middle west, Chi-

ago excepted. On Broadway and Fifth avenue, the business streets, numerous imposing structures are being erected, while one thousand more dwellings are

to be built in the residential sections of the city. Among the structures are the Carnegie library, \$100,000; Mercy hospital, \$100,000; Federal building, \$100,-



FRONT ELEVATION



REAR ELEVATION—HOUSE PAGE 65

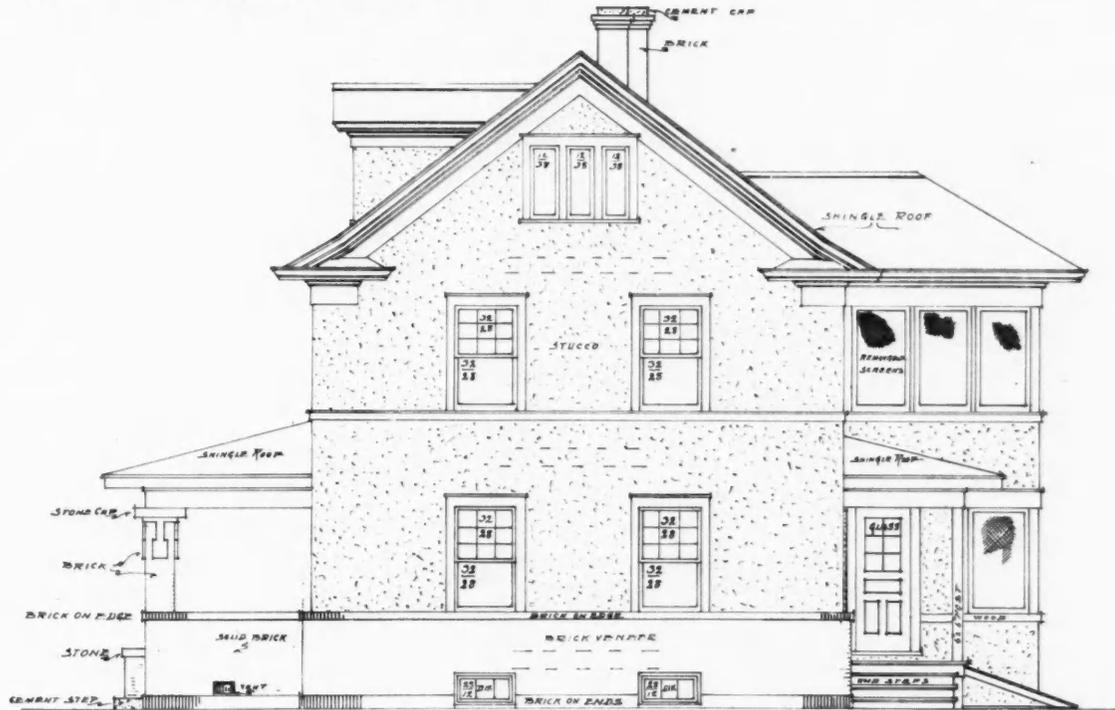
cago excepted. On Broadway and Fifth avenue, the business streets, numerous imposing structures are being erected, while one thousand more dwellings are

000; South Side school, \$225,000; Bacon apartments, \$50,000; Y. M. C. A. building, \$200,000; South Side bank, \$25,000; American Bridge company office build-

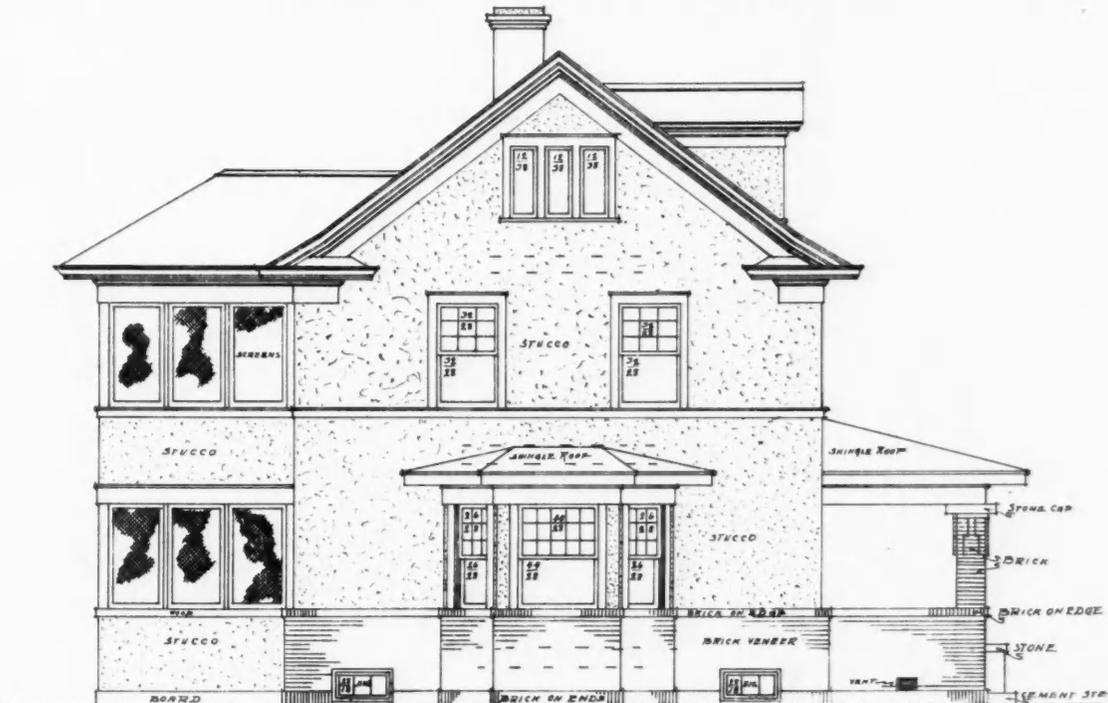
ing, \$75,000; Christ Episcopal church, \$35,000; and a dozen apartment houses.

Contracts are to be let shortly for 250 houses for employees of the American Sheet Steel and Tin Plate company, which is building a plant in Gary. The cost

structing twenty-five streets through territory that was a wilderness of scrub oak and sand dunes. Skilled labor is scarce in Gary and contractors make daily trips to Chicago seeking carpenters, masons, and other



RIGHT SIDE ELEVATION



LEFT SIDE ELEVATION—HOUSE PAGE 65

will be \$650,000. The American Bridge company is grading ground upon which it will erect 300 houses at a cost of \$1,000,000 for employees of its plant.

In addition to this, the Gary Land Company, the real estate department of the steel corporation, is con-

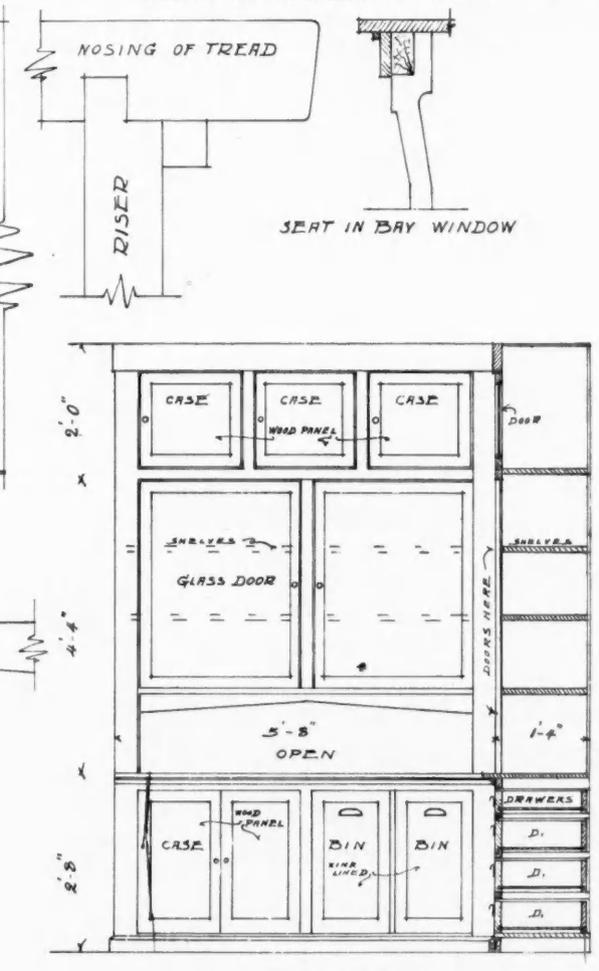
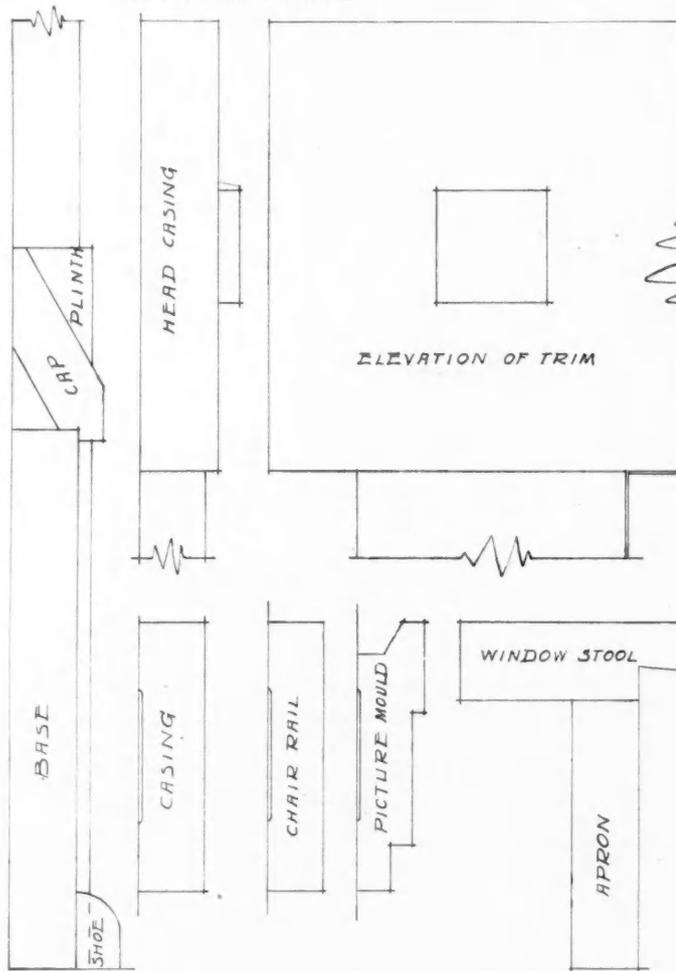
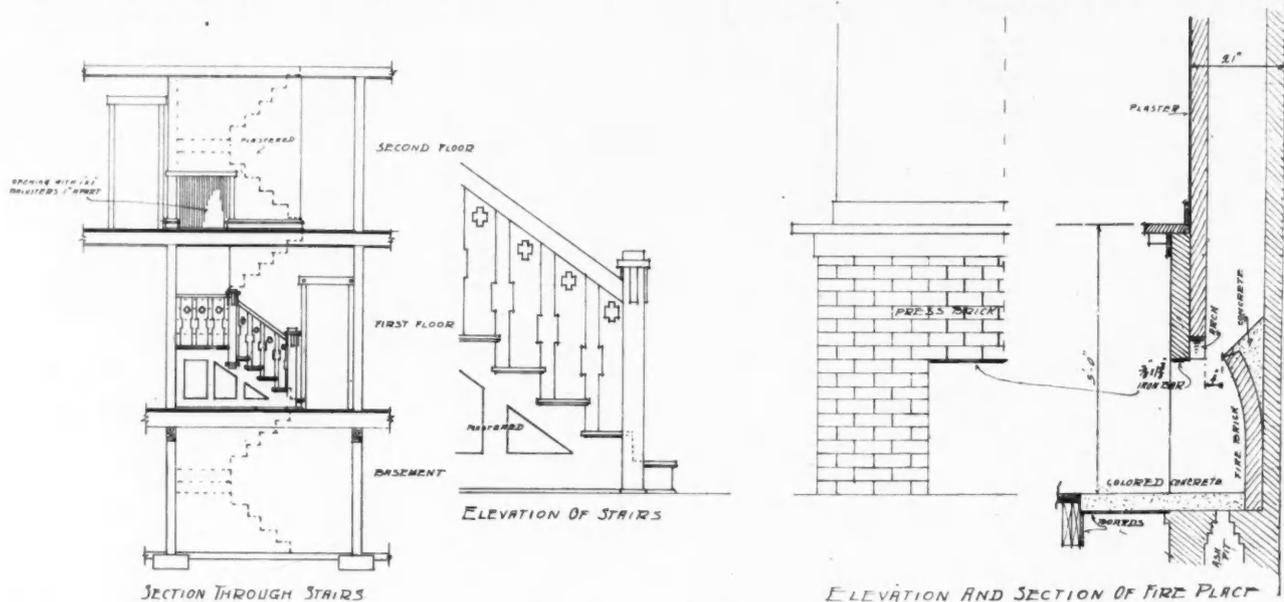
artisans. It is expected that 2,000 men will be added to the contractors' forces during the summer.

◆
Steel as a Building Material

The position which steel has assumed as a building

material is one of the wonders of the twentieth century. In these days very few large buildings are erected, of which steel is not a prominent part. As a reinforce-

were placed which call for about 150,000 tons of structural steel, and in the last week of the month alone, the calls for this material aggregated some 20,000 tons.



DETAILS OF INSIDE TRIM #1203. CUPBOARD IN PANTRY
DETAILS OF INTERIOR FINISH—HOUSE PAGE 65

ment of concrete, which is rapidly becoming popular as a building material, is has as yet no equal. It is estimated that during the month of May building contracts

During the first five months of the present year the demand for steel for building purposes amounted to 625,000 tons or an average of 125,000 tons per month.

CORRESPONDENCE



Prism Glass Lighting

To the Editor: Traverse City, Mich.
 I have a store front to figure on. I don't agree with our architect on some of his theory on prism glass. He claims he can throw light as far from a north opening as from a south one. My idea is he can't. I claim there is more radiation from high light or from south than north. I think the south light throws the rays while the north light has to pull it. Please give your opinion.

LEON CLYDE.

Answer: As we understand prism glass, its chief object is to diffuse the light and spread it over a larger area than would be affected by the direct rays of light through an ordinary window. We understand that a prism glass window would diffuse the light as effectually from a north window as from a south, but the intensity of the rays would vary with the strength of the light. Therefore, the reasoning would seem to be that with the same intensity of light, the effect in the room would be the same from either exposure, since the angles of the prisms control the direction of the rays which are thrown. As to the brightness of the light thrown, that would seem to depend upon the original intensity. EDITOR.



Metal Face Mould for Foundations

To the Editor: Arcadia, Mich.
 Enclosed you will find photo of monolithic block work. Will explain how I did this and it may help some of the boys out, as it makes a neat, cheap foundation for many kinds of buildings. I first put up forms for outside wall, using 1 or 2 inch stock, well staked. Then I took rock-faced steel—such as is put on outside of cheap buildings, and nailed this

neatly on. Then I put up inner form desired width of wall, tying to outer wall with cleats, to make all solid. The surface of steel may be oiled—then go ahead with concrete, working fine stuff to front. Tap on outside wall to jar coarse stuff from surface and tamp well, and you will have a wall that will please you. This one shows fine headed mortar joints. This scheme originated with me about four years ago. Carry the work up all around at same time, that is, keep level even layers of concrete.

W. H. MATTESON.



Take and Give

To the Editor: Winchester, Ohio.
 I enclose herewith check for my renewal; am one of your charter members and glean lots of good things from THE AMERICAN CARPENTER AND BUILDER. Among others was the scheme presented by A. D. Douglass of Malcom, Iowa, in the May number for barn raising. Coming as it did at an opportune time with me I concluded to give it a trial, and must say that it worked far beyond my expectations. It had always been customary with us in this section to use a tall pole held with guy lines; more trouble to raise, by the way, than the barn itself by Douglass' method. I think that one idea well worth to me all I have ever given for subscription, to say nothing of numerous other "kinks" I have learned from the "Question Column."

I am going to give you a little one of my own for marking pulley stiles. I have seen several different varieties described but nothing that would come up with mine for speed and accuracy; and it is so very simple. Just take a scrap of pulley stile from 8 to 10 inches long; space the points off to bore from, just as if you were going to bore it for a frame,



Poured Concrete Foundation Made to Resemble Blocks by Use of Rock-Faced Sheet Metal

being careful to locate the first point the exact distance from one end that you want your pulley down from top of frame (usually from 4 to 5 inches). Drive a small nail part way into each place you have marked, leaving about one-eighth of an inch projecting through; take a file and file them to a point. Nail a piece of parting strip in the groove; a piece of blind stop across the end to serve as a fence. Have your pulley stiles cut to length and lay your pattern on with the piece of parting strip in the groove and the "fence" snug up against the end of pulley stile; and hit it with a hammer or mallet; and there you are the eight holes marked at one operation.

A. C. STIVERS.

Built of "Ivory Soap" Stone

To the Editor:

San Carlos, Ariz.

The accompanying is a photograph of the church building I put up at this agency at the request of the superintendent who was here at that time. The building is not of concrete blocks, as it would naturally appear from the picture, and which you presume it to be. It is built of a kind of soft rock called tufu, or tufa, which is found on this Indian Reservation, and probably nowhere else. The rock, when dry, is so light that it floats in water. It is porous and soft. Under my supervision these rocks were cut out of the quarry by the Indians, then trimmed down to the proper shape, and put in position and cemented together.

Every bit of work is the result of my personal labor by hand, as I have had no machinery to do the work with. The windows and the door, the roof and the fancy front, the interior decorations of the walls and ceiling, all were done by hand out of rough material furnished me. There was no plan laid out for me, nor was I sure one day what I was going to work with the next day. I simply had to plan as I went along, and to pick my way at each step. The window



Indian Reservation Church of Tufu (the Stone that Floats)

sash had to be made to take up a lot of odds and ends of pieces of glass that could not otherwise be utilized. After doing a piece of work for the Indian helpers to understand how I wanted things done, I left the work with them to continue until I was ready for them with the next thing. I had

to plan out and supervise the making of tools as well as of dressing down lumber or laying of shingles.

The entire building is one room, 20 by 30, with a large alcove in the back end, not shown on the picture. The structure is very much admired by the people coming to visit this Indian reservation, especially when they are told that it was built by Indians. The only objection to the building might be found in the fact that in this country, under the very strong light of the sun, the whiteness of the rock causes one to squint his eyes when he approaches the building. But the color is natural and otherwise very showy. Owing to the porosity of the rock, the walls never get hot, and the interior is always comfortable, as the heat does not penetrate into the interior, while the white color of the rock reflects the hot rays, helping to keep the walls cool.

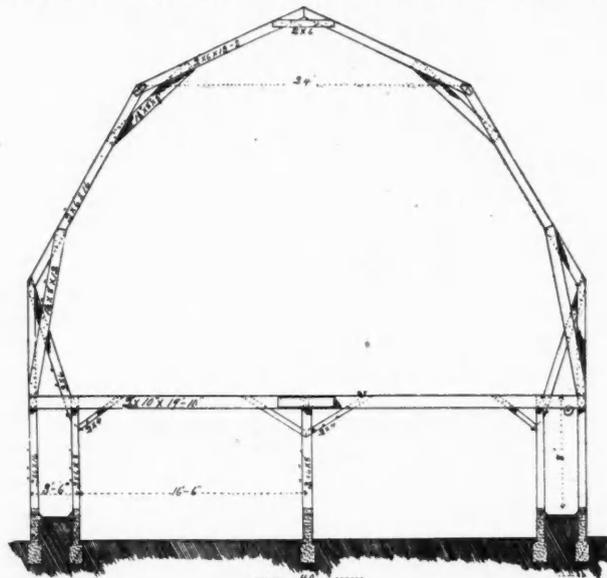
JOHN R. KEMP.

"Rib Framed" Barns

To the Editor:

Greensburg, Ind.

Enclosed find cut showing the system of framing of the "rib-framed" style barns. I have built a great many of these



Plan of a Rib

barns and they have stood the test and inspection of some of our best farmers and stockmen.

W. A. SMITH.

For Cleaning Marble

To the Editor:

Austin, Texas.

In answer to Mr. McBryde's inquiry in the June number as to how to brighten and polish marble, I give here two formulæ which may be of service to him.

1. Remove all dust from pieces to be cleaned, then apply with a brush a good coat of gum arabic, about the consistency of good mucilage; expose to sun or dry wind. In a short time it will crack and peel off. If all the gum should not peel off, wash it with clean water and a clean cloth. If the first application does not have the desired effect it should be applied again.

2. Make a paste of soft soap and whiting. Wash the marble first with it and then leave a coat of the paste upon it for two or three days. Afterwards wash off with warm (not hot) water and soap. Marble may be repolished by rubbing it with a linen cloth dressed with oxide of tin (putty powder). For this purpose a couple or more folds of linen should be fastened tightly over a piece of wood, flat or otherwise, according to the form of the stone; keep linen and putty powder constantly wet.

Chips in the marble must first be rubbed out with emery and water.

WINTER KING.

All About Terrazzo

To the Editor: Atlanta, Ga.

The process for laying Terrazzo is very simple and can be done by any intelligent workman. The price obtained for Terrazzo flooring is extremely low in comparison with other permanent flooring, as the following will show:

Marble mosaic flooring, 60 to 75c per square foot.

Ceramic tile flooring, 35 to 50c per square foot.

Terrazzo flooring, 20 to 30c per square foot.

The best results in making Terrazzo flooring are to be obtained by using "Whitestone Granito" and the best grade of gray Portland cement, two parts Granito to one of cement. This is thoroughly mixed and spread on a concrete base (preferably) to a depth of from 1 to 2 inches, and troweled to an even surface. The larger pieces are then spread thickly on top and rolled in with an iron roller. The cement is then allowed to set, when it is finished by rubbing with emery blocks to a perfectly smooth surface. In order to figure the cost an allowance of 6 pounds of Granito and 3 pounds of cement should be made to the square foot of 1-inch flooring. To this must be added the cost of labor, that is, the cost from mixing to final polish, which is about 8c per square foot. This, of course, will vary in different localities, but this price is figured on a basis of labor of one foreman at \$5.00 per day and common labor at \$2.00 per day. The necessary tools for Terrazzo work are very simple and can be supplied by any cement worker, with the possible exception of emery blocks with which to finish the floors; and these can be secured from any supply house.

A proof conclusive that Terrazzo flooring is the most economical in point of economy in construction and durability is evidenced by the fact that all modern buildings contain a large percentage of Terrazzo. The Hudson Terminal building in New York City has 250,000 square feet.

The following is a specification for laying Terrazzo flooring:

The Terrazzo floors shall be made in the following manner: Put down first 3 inches of concrete, composed of five parts of clean gravel and one part of ——— Portland cement. Ram same solid and on top of it put down ½ inch of fine concrete, composed of one part ——— Portland cement and three parts of clean, sharp sand, free of loam. This must be spread perfectly level and pressed with straight edge, so it adheres firmly to bottom concrete. On top of this concrete lay 1 inch Terrazzo, composed of one part cement and two parts Granito, which has been previously mixed dry in a proper manner. Then wet this to a consistency of paste before applying it. Care should be taken to clean the top of the concrete well before laying the mosaic. After it is laid spread enough marble on top, uniformly, and dense enough so that the floor, when finished, will show not less than 80 per cent of marble surface. After it has been laid for two days rub the floors down to a smooth finish and grout them with pure cement, using a hone stone to grind the cement into the pores and holes. When this cement has dried out and set hard enough, rub it down again with a hone stone, and leave same in a perfect condition, satisfactory to the owners and architects.

Borders, to be of either brown, blue-black or green, as may be selected by the architects. All borders must be straight, with even sharp edges, and all floors level.

Wherever necessary, provide straight joints for expansion, and where possible these to occur on top of iron beams, and at intersection of corners. All mosaic shall be warranted against cracking or other defects for a period of two years.

WHITESTONE MARBLE CO.,

J. S. Kennedy, Pres.

To Frame a Broken Hip Roof

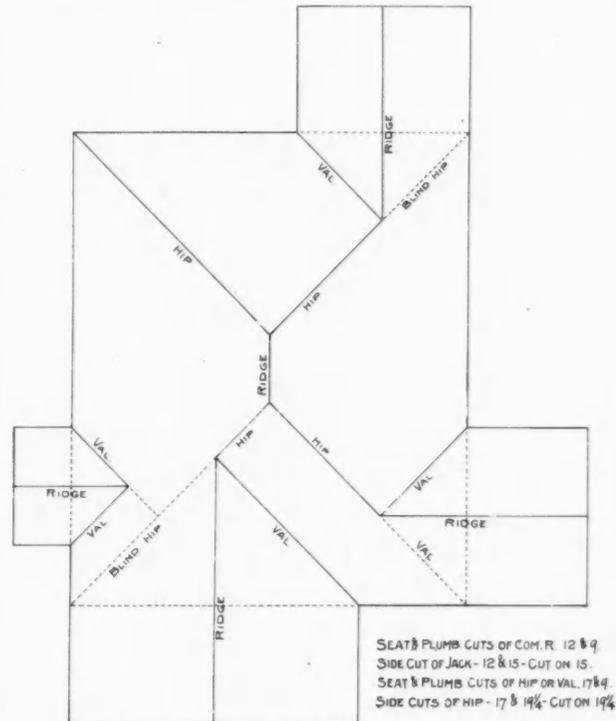
To the Editor: Vining, Kan.

You will find enclosed a sketch for a roof plan on which I wish to know how to set the hips so that the roof will be

substantial and not sag where the hips are broken. The pitch will be ¾. Please give the figures to use on the steel square for the several cuts required to frame this roof.

J. V. MARTIN.

Answer: The accompanying illustration is a roof plan for the house in question. To begin with, the roof is rather ill shaped to look well on account of two of the corner projections being too small; but as the question is how to frame it, we will pass that by. The best way to frame a roof of



this kind is to take the square of the main body of the house and frame the four hips just as though there were to be no projections at all. They will all be the same length, set them in place and frame the valley rafters to them. The cut to fit against the hip is simply a plumb cut as it butts square, or at right angles to the hip, consequently the cut across the back of the valley is square across. The jacks and cripples should then be framed in between the hip and valleys in the usual way. The pitch being ¾ or 9-inch rise to the foot, the figures to use on the square are as shown on the plan. Other figures of course, can be used, but they must be in the proportions as here given.

Another point that might be well to call attention to, is the length of the ridge of the main part. This is governed by the difference in length and width of the main body of the house provided the pitch is the same on all sides. Thus if the body of this house is 27 feet 6 inches by 32 feet, the ridge would be 4 feet 6 inches long.

A. W. WOODS.

An Exterior Paint That Will Wear Well

To the Editor:

Cosby, Mo.

Will you please tell me how to mix white lead for the last coat so as to make the best job—a job that will not chalk off, and at the same time won't crack or peel off? And what is the best color to use to color the paint, either a warm gray or light stone color, or something along that line?

H. M. THOMAS.

Answer: It is the consensus of opinion among leading master painters, who have given the subject attention, that the ideal exterior paint, or as near to the ideal as we can get, is one made up of white lead 60 per cent, zinc white 30 per cent, and finely pulverized and floated barytes 10 per cent.

Such a paint can be mixed by any one, as the ingredients can be had at any paint supply store, but the best way will be to get a prepared paint that approximates the above formula. That is, it will be better ground by mill than you can mix by hand. Use pure raw linseed oil to mix it with; no turpentine on finishing coat at least; and very little japan driers, and that little the best. White lead chalks, zinc white cracks and peels, but mixed together the one counteracts on the other, and with the neutral pigment, barytes, to keep down chemical activity among oil and lead and zinc, you get a good-results paint. As for coloring, burnt umber gives very pleasing, soft grayish shades, as does also raw umber. It is best to use a single pigment for coloring, as it then becomes a more simple or less complex matter to match color when required. It is also found that where the body color, say, is done with burnt umber tint, the shade color for cornice and other trim can be made with same pigment, only much darker. In other words, use the same pigment or pigments all through a job, rather than two or more different ones.

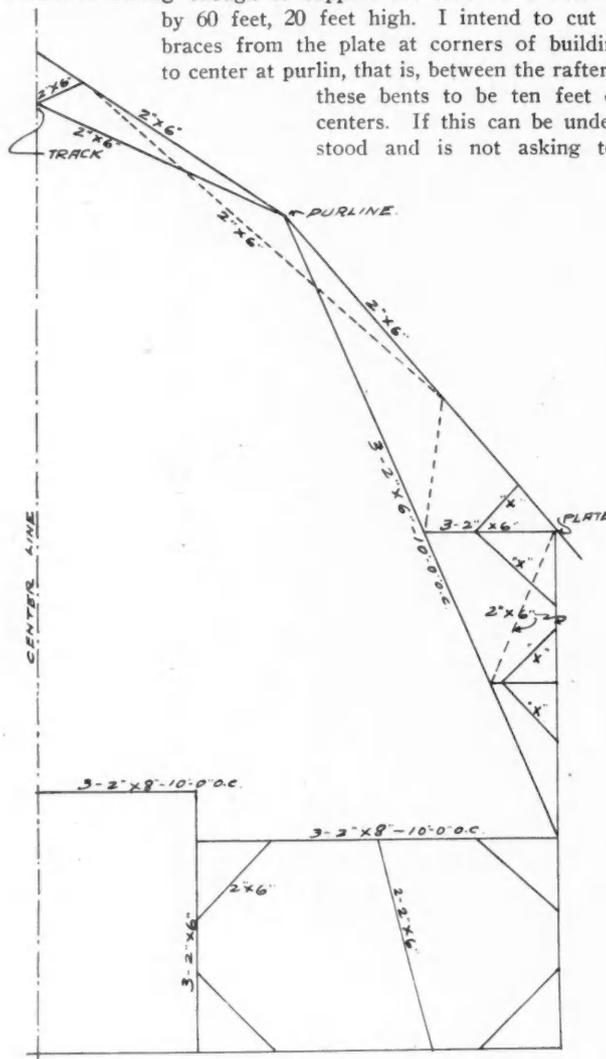
A. ASHMUM KELLY.

Self Supporting Gambrel Roof

To the Editor:

Asbury, Mo.

Enclosed please find rough sketch of bent for barn built of three 2 by 6's spiked together. I would like to ask if this would be strong enough to support the roof on a barn 40 by 60 feet, 20 feet high. I intend to cut in braces from the plate at corners of building to center at purlin, that is, between the rafters; these bents to be ten feet on centers. If this can be understood and is not asking too



much, would like to hear in next journal. I always look forward to the arrival of the AMERICAN CARPENTER AND BUILDER.

LESLIE L. HALL.

Answer: The sketch shows the framing that you proposed to use, drawn in solid lines. To strengthen this and make it thoroughly safe and satisfactory to withstand wind pressure, snow load, etc., we would add 2 by 6 timbers as indicated by the three dotted lines. The timbers marked "X" which you proposed to use would not be needed since they do not assist in any way the real truss construction.

This is a very good type of self-supporting roof construction and is very much used. It allows for a very large hay storage space, is of economical construction, especially when built up out of 2 by 6 lengths, and is thoroughly strong and safe.

EDITOR.

To Lay Out a Circular Segment

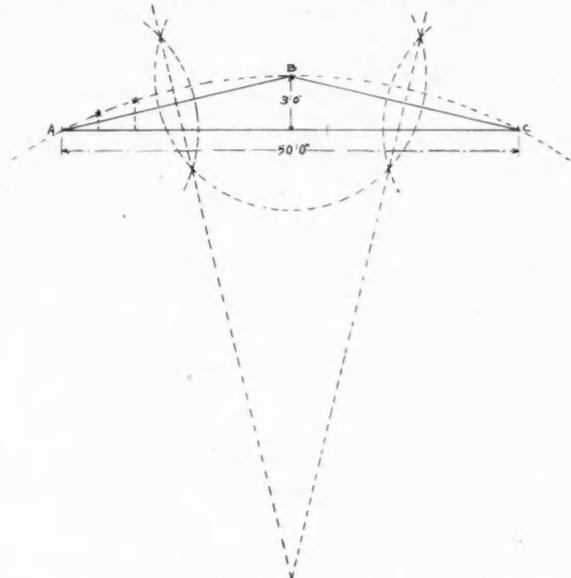
To the Editor:

Houston, Tex.

Please advise method of laying out 50-foot segment with 3-foot rise, when the work must be done in a narrow space where there is not room to strike the required arcs direct.

G. R. COULTER.

Answer: Make on paper a careful scale drawing, 1/2 inch equals 1 foot, laying out the line AC, equals 25 inches. Lo-



cate B at a distance of 1 1/2 inches above the middle of the line AC, and draw the lines AB and BC. From B, with a radius greater than 1/2 AB, draw a circle about B as a center. From A and C, with the same radius, draw two other arcs of circles until they cut the circle drawn about B as a center. Then draw straight lines through the points of intersection of the circular arcs, and where these two straight lines meet will be the center of the circle of which the arc ABC, which you desire, is a part.

Now divide the line AC into a large number of equal parts, and from each one of these points of division, draw a perpendicular line until it crosses the arc ABC.

Now to lay off the real work. Lay off a line 50 feet long and divide it into the same large number of parts that you did the 25-inch line in the drawing. At each one of these division points draw a perpendicular as you did in the drawing. Now take the drawing and measure in inches the distance from the line AC to the curve on the first perpendicular to the other side of A, and lay off on the corresponding perpendicular on the real work 1 foot in length for each 1/2 inch in length on the drawing. Do the same with the second perpendicular, and with all others along the whole length AC.

When you have laid off all of these distances on the real work, just draw a series of short lines through the points which you have laid off at the top ends of these perpendicular lines, and the result will be the curve you desire. EDITOR.

Costs for Carpenter Work

To the Editor: Bingham, Neb. Will you tell me how you estimate the price to contract just the labor for a house 28 by 28, with 10-foot studding, 10-foot partitions, 8 windows, 6 doors, square roof, plain casing. H. D. MELINS.

Answer: We are unable to give you direct figures since we do not know the price of labor in your community. Also to give you such information in an intelligent manner, we would have to have complete plans and working drawings of the house of which you speak.

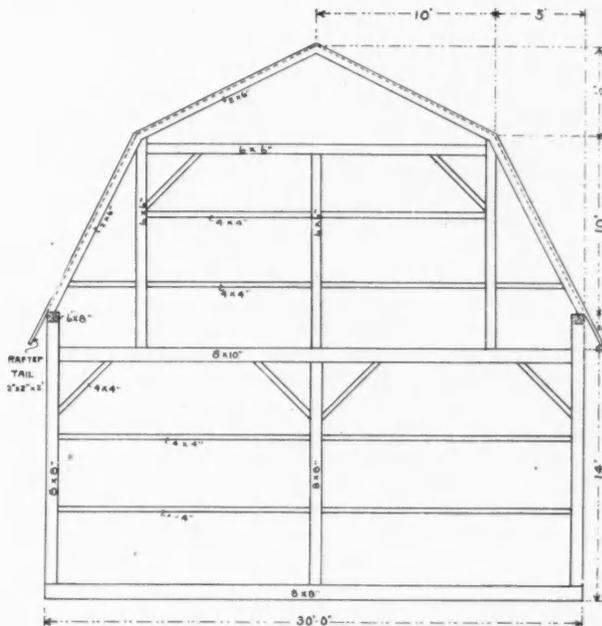
The following approximate prices may be of aid to you in judging of this matter. They are based on labor at 40c per hour:

Table listing costs for carpenter work: The cost for framing outside walls per 100 square feet of surface... \$0.80; Cost of sheathing sides, 6oc to... .90; Sheathing roofs... .70; Papering before siding... .20; Siding... 1.75; Framing ceilings... .70; Laying 4-inch flooring... 1.50; Laying 6-inch flooring... .90; Shingling... 1.60; Ceiling of rooms... 1.50; Making plain window frames... \$1.20 each; Making plain door frames... 1.00 each; Setting frames in building... .35 each; Fitting and hanging sash (per window)... .50; Finishing windows, casing, stops, etc... 1.00 each; Casing doors, 2 sides... 1.00 each; Fitting doors... 1.50 each.

EDITOR.

How to Proportion a Gambrel Roof

To the Editor: Holly, N. Y. If I may answer Brother Knott, of Lake Odessa, Mich., I would say that the true gambrel roof is obtained by going



in from plate one-sixth the width of barn and up two-sixths; in two-sixths and finally up one-sixth to peak, or ridge, as shown in sketch enclosed. This sketch illustrates the accepted model for Western N. Y. gambrel roofs. We use 4 by 4's for 3-foot run braces only and put them practically every-

where one will go. If the barn is over 32 feet wide, the timbers should be 10 by 10 inches and the rafters 2 by 8 inches. We make them all lengths from 40 to 100 feet, or more. We build either self-supporting or purlin support roofs; the former are more popular on account of clear space in mow.

I cannot understand why Bro. Burgel of Napoleon, Ohio, needs 2 by 8's doubled for braces in addition to the three and four foot runs. Our barns braced as I have indicated, stand firm in the frame while being unroofed by the wind. Our wind braces are made by cutting in rafter pieces between the rafters in diagonal line from gable end or frame of first peak or hip where pitch changes, downward and inward to plate. I would like to suggest to Bro. Burgel if he finds it is necessary to put in braces in addition to 3 by 3 foot, and 4 by 4 foot braces, to use 2 by 8 inch pieces single and let it into the girts from the outside flush, and then thoroughly nail the siding to it. J. F. HOUCINS.

For Coal Pockets

To the Editor: Dresden, Kan.

A party here wants to build coal bins without a floor. They are to be 10 by 14 feet in size and 8 feet high to the plate. He proposes to make cement foundation at the partitions, and his company have instructed him to make a plate of a 4 by 6 and toenail the 2 by 6 partition studding to these; then to use a 2 by 8 on each side of the partition, at the bottom, letting it lap over on the 4 by 6 4 inches and up on the studding 4 inches, thus making a box for the studding to rest in. I built some coal bins with floor; I had 4 by 6 plates, 2 by 6 studding toenailed to the plates, and had 2 by 8 floor joists securely spiked to the studding, and I found that the end bins gave way with this; so I am doubtful if a 2 by 8 placed the way they have suggested would hold. For, if a good straight-grained 2 by 8 was spiked on in this manner and one bin be full and the next one empty, I think that the pressure of the coal would split the 2 by 8 from end to end.

Please advise the proper way to build these bins.

H. W. BREWER.

Answer: You are right about the possibility of the 2 by 8 splitting when one bin is empty and its neighbor full. We have seen this difficulty, which is due to the buckling of the 2 by 6 verticals, overcome to a large extent by the use of 3/4-inch diameter tie-bolts, fitted with turn-buckle, large iron plate washers and nuts at ends, extending across each bin with the plate washer on the opposite side of the bin wall. These rods are generally located in the middle and at about one-third the distance up from the bottom of the bin.

Another scheme which does away with the use of the 4 by 6 sill and the 2 by 8 sideboards is briefly stated as follows. Along the bottom of each partition is built a solid concrete trough with center part about 5 inches deep. This allows the 2 by 6 studs to be placed in position, and then the trough filled in with cement mortar, rounding up the surface well around the ends of the 2 by 6's so that moisture cannot remain around them.

These 2 by 6's should not be spaced further than 12-inch centers in either construction. The top, side and corner framing should be made as strong in proportion as the partitions, in order that rigidity may be obtained. EDITOR.

Cement to Withstand Alkali

To the Editor: Wolford, N. Dak.

How shall I keep the alkali from destroying cement work in a damp cellar or in a cellar where alkali is in great quantity?

JAKE JUHL.

Answer: Use a dense mixture of concrete, say a 1:2:4, with some good integral method of water-proofing. We would also suggest that such concrete be mixed with water free from alkali, and that the sand used should be washed to remove any traces of alkali from same. EDITOR.

To Frame Uneven Pitches

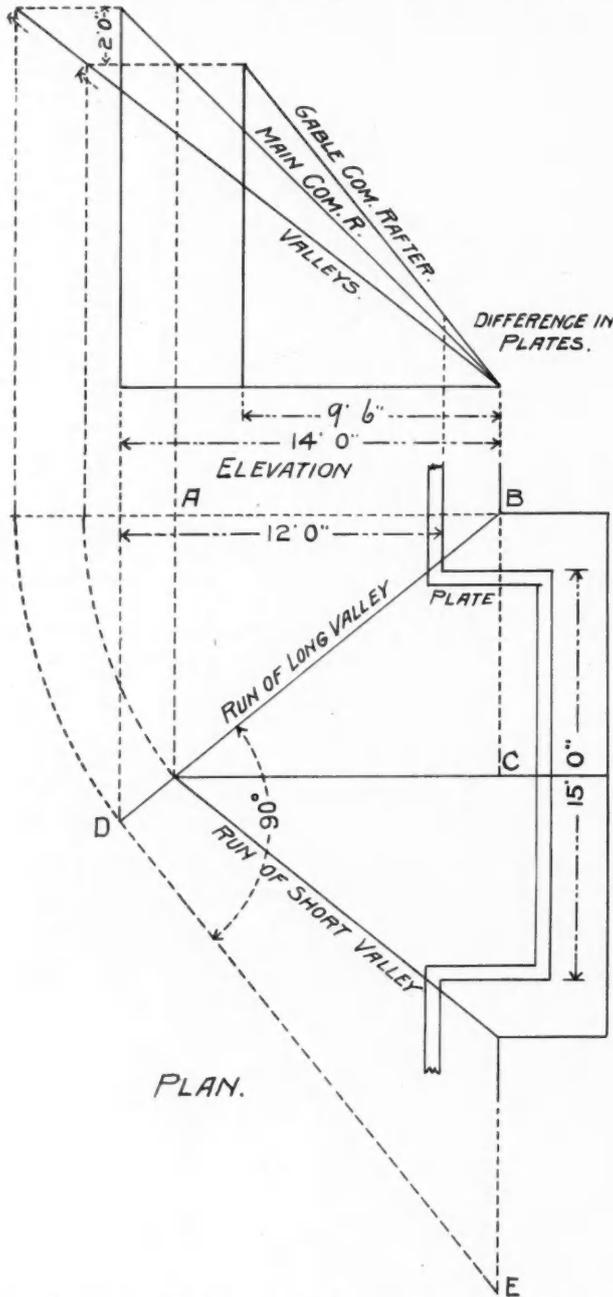
To the Editor:

TOWANDA, PA.

In looking over books that I have, I fail to find information on a subject that I must know. Will try and explain it to you. It is: How to frame an irregular roof with valleys and different pitches. The main roof is 24 feet wide with 1/2 pitch and the side gables are 15 feet wide with ridge 2 feet below the main ridge.

G. T. HOLLENBECK.

Answer: We have answered questions similar to this many times but still they come. Like all problems there are different ways of illustrating and though we may or may not have



used the accompanying illustration, we are going to try to make it so plain that the would-be framer cannot help but understand it.

First, we will say, the roof has a projecting cornice of 2 feet, on which for a roof of this kind, the plancier should be level. The reckoning for the base or run of the rafters should include the projection. Thus, the run of the main part being 12 feet plus 2 feet equals 14 feet for the run of the main rafter. This has a 1/2 pitch. The gable has 7 feet 6 inches for its run plus 2 feet for the projection, which makes 9 feet 6

inches for the run of the rafter. Now, lay off the main rafter in a plain line, drawings as shown in the elevation, and since the ridge of the gable is to be 2 feet lower than the main ridge, measure off that much from the top of the rise and square over to the rise line of the gable; the point of intersection with this line will be the upper end of the rafter and by drawing a line from this point to the toe of the main rafter we have its pitch. Next lay off the plan as shown below the elevation. The plumb line from the intersection of ridge to the intersection of the gable ridge in the plan, will be the point for the long valley to pass through, also the resting point for the short valley against the long one; by swinging these around parallel with the run of the common rafters and squaring up to the elevation, their respective lengths are found as shown. The plate on the gable must be raised as much as the difference between the two pitches at the point where they pass over the plate, as shown in the elevation. As for the cuts, the seat and plumb lines are obtained from the run and rise, as shown in the elevation. For the side cut of the jack for the gable, take AB and the length of the common rafter for the gable; cut on the latter. For the main roof side, take BC and the length of the common rafter covering AB; cut on the latter. For the side cut of the hip against the ridge board, take DE and the length of the long valley and cut on the latter. The same principle applies to the cut of the short valley against the long one.

A. W. WOODS.



Placing of Locks and Hinges

To the Editor:

Carrollton, Ohio.

I will try to answer some of W. T. Marshall's questions in the June number. The rule for door locks and butts is as follows: 3 feet 6 inches to center of knob for the locks; there should be 9 inches from the top of door to top of hinge; and the bottom hinge should be 12 inches up from the bottom of the door. I always use 8-inch base with a 2 or 2 1/2 inch mould on top.

RILEY LUCAS.



Concrete Tank for Crude Oil

To the Editor:

Eustis, Fla.

I would like to know if you can give me the name of any preparation that would do to coat the inside of a concrete tank that is to contain crude oil. I have three of these tanks to build, and the man for whom I am building them is afraid the oil will cut the concrete and suggests hot rosin. Kindly give your opinion.

WM. H. JOLLY.

Answer: The results of numerous tests that have been made by engineers to settle the very point you bring up have gone to show that mineral oil has no deleterious effect upon good concrete. This, however, is not the case with animal oils. As your tanks are to contain crude oil, best authorities would therefore indicate that you can safely build them of Portland cement concrete. In doing so, you should take the same precautions that you would in constructing a water tank. You should use only a good standard brand of Portland cement, a rich mixture (say 1:2:4), and see that your aggregates are carefully graded, and all ingredients properly proportioned to give a very dense concrete. The mix should be very wet, and the whole of the job should be done in the shortest possible time, so that the laying will be practically continuous. If work is stopped one day to be continued the next, be sure that the proper precautions are taken to insure a perfect bond between the later and earlier layers, thus preventing any possible formation of cracks or openings that would allow penetration of the oil. It would be well to coat the interior of the tank with a rich mortar of cement and sand, mixed in proportion to 1:2. If these precautions are observed, we do not think that there will be any trouble from the oil.

EDITOR.

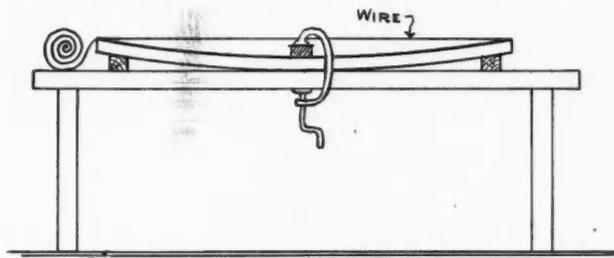
How to Stretch Screen Wire

To the Editor:

Atlanta, Ga.

In answer to A. E. Fasett, I offer the following for a screen wire stretcher.

Place the door or window frame on two strips of wood, say 1 inch thick for a 6 foot 6 inch frame, across the full width



of door at both ends, as per sketch; (for shorter frames, the strips need not be as thick). Now, clamp the door down in the middle to the bench, and nail on the wire at the ends, stretching with the hands only and put on the end strips to cover the wire and nail them down. Now, take the clamp off and finish nailing the wire in the stiles, or length of frame and put on the side strips. The wire will be tight and job is complete.

E. GARRAUX.

He Wants to Know

To the Editor:

Convent, La.

Would like to be informed through our paper, the best and most improved methods of removing old sills from a frame building and inserting new ones. Please give the "hows" and "whys."

Also would like to know the ultimate strength of cypress wood and its approximate weight per cubic foot. This question I desire to ask, because nearly all of the building in this section of the country is done with cypress. The framing timbers are usually very green.

B. F. TUREAUD.

Answer: In answer to the first question, we know of no better way than shoring up the parts necessary for the safe removal of the decayed parts. It is largely a matter of judgment on the part of the foreman in charge of the work. First of all is safety to life and limb of the men that work under his direction. Knowingly hazardous positions should not be permitted and precaution should ever be the watchword.

As to strength of cypress, we fail to find special tests dealing with it individually, but some authors class it favorably with spruce, using the same tables for reckoning purposes. It is not as strong as yellow pine, the difference running about 25 per cent less. "Baughman's Lumber Book" gives the shipping weight per thousand feet board measure, as follows:

Norway pine, 2,521; white pine, 2,900; yellow pine short leaf, 2,826; yellow pine, long leaf, 2,800; cypress, 2,300. As the white and yellow pines become scarcer, cypress will naturally come more into general use, and while it does not possess the strength of yellow pine, its lasting qualities are superior, besides giving a better finish for inside work.

EDITOR.

A Lodging-House Puzzle

To the Editor:

Barkerville, N. Y.

We read in the correspondence department that some do not understand the solutions given. To these I would say, "Perhaps you do not study them enough. Keep your papers handy and at every opportunity read them. You will find that things you did not understand at first at some other time you will solve quite easily."

I have seen some simple problems which at first seemed impossible of solution. Here is one: There once was a clever landlord who kept a wayside inn which contained but 9 bedrooms and each room a single bed, marked after the first 9 letters of the alphabet.

Ten weary footsore travelers, all in a woful plight,

Sought shelter at a wayside inn one dark and stormy night,
"Nine beds, no more," the landlord said, "I have to offer you,
To each of eight a single room, but the ninth must serve
for two."

A din arose; the troubled host could only scratch his head,
For of those weary men no two would occupy one bed.

The troubled host was soon at ease, he was a clever man,
And so to please his guests, devised this most ingenious
plan:

In room marked A, two men were placed, the third he lodged
in B,

The fourth to C was then assigned, the fifth retired to D,
In E the sixth he tucked away, in F the seventh man,

The eighth and ninth in G and H, and then to A he ran,
Wherein the host, as I have said, had laid two travelers by,
Then taking one, the tenth and last, he lodged him safe in I.
How could he do it?

EDWARD BARTON.

From a Home Workshop

To the Editor:

Grand Rapids, Mich.

No doubt all readers of the AMERICAN CARPENTER AND BUILDER are interested in the home shop and its product.

Realizing this, I am enclosing herewith a photograph of a table, built when at leisure, with a home shop equipment by an amateur.

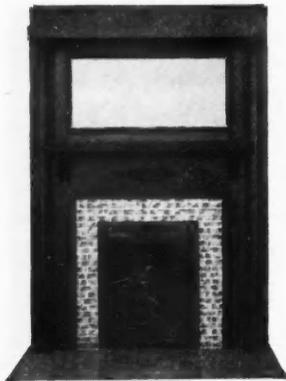
THOMAS WIENAND.





Satisfactory Mantel Service

A mantel today is a necessity in every home irrespective of its size; it not only beautifies the home, making it more pleasant to live in, but it is healthful. It is, without doubt, the best known ventilating device. A good many people are under the impression that mantels are expensive and that in the moderate priced house their cost is prohibited; but such is not the case. The White Mantel and Tile Company of Knoxville, Tenn., make mantels to suit every purse, mantels that are adaptable for any manner of house either new or old. Their designs are exclusive, yet the cost is very moderate. The accompanying cut illustrates this. It is one of their most



popular designs. The dimensions of this mantel are: height, 6 feet 10 inches; width, 4 feet 6 inches to 5 feet; tile opening, 36 inches wide by 36 inches high; columns, 3 inches in diameter; French bevel plate mirror, 18 by 40 inches; profile, 4 inches. First quality enamel tile of any color desired may

be had with this mantel.

The White Mantel and Tile Company publish a beautiful catalogue which shows that every mantel built by them is a work of art. It should find a place on your desk; write for it.

Edge Tools of Quality

Who are the makers of the poor tools?

If statements by manufacturers in advertisements are trustworthy there are no poor tools. They all make the best or at least tools of very high quality. This being the case, how is the mechanic, wanting the very best tools, to find out which really are the best? The answer is simple. Ask experienced mechanics who are users of the tools.



The experienced mechanic knows what tools give the best satisfaction and when chisels such as are herewith illustrated, can be produced as actual examples of the good quality it is safe to purchase them.

Above are shown cuts made from a photograph—two chisels

Investigate

—in materials, designs, workmanship and efficiency will at once appeal to you. It embodies all the essentials of good store front construction, leaving no unsolved problems—giving double value and service for every dollar invested.

The first important step toward the selection of a "good store front" is to investigate. No argument can prove more convincing than to view with your own eyes the merits of a "Kawneer System" front as it works, day in and day out, for the live wide-awake-merchant.

Its superior **quality**—and quality talks

Kawneer System
of Store Fronts

Ventilation and Drainage

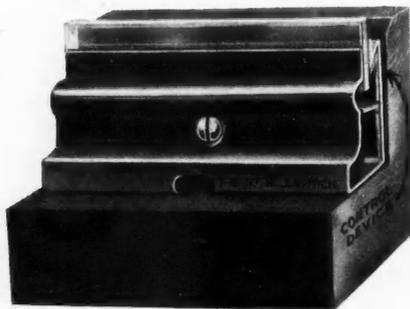
is one of the vital factors in modern store front construction. Without an efficient system there is an accumulation of frost and sweat on glass in the winter; obstructing effective displays and damaging valuable merchandise.

The Kawneer System No. 30 Sash—equipped with the **patented regulating slide** obviates all trouble. It provides a means for the control of ventilation and drainage and when circulation of air is entirely shut off gives air-tight and



Dust Proof Show Windows

Key No. 2



No. 30 Sash

Protection To All Glass

is another prime essential. Endless trouble and annoyance arises from frequent breakage of glass, and in this protective feature alone the value of the "Kawneer System" is inestimable. It is the only complete all-metal construction designed to reduce obstruction to the minimum, yet affording ample strength and durability. All parts are made from either Copper, Brass, Aluminum or Bronze—a double guarantee against rusting, rotting or warping, giving you honest value and service with the added advantage of the



All-Metal and All-Glass Effect

KAWNEER MFG. CO., NILES, MICHIGAN

HOME OFFICE:

BRANCH OFFICES: Chicago New York Philadelphia Kansas City St. Louis Milwaukee Detroit Cincinnati Pittsburg Indianapolis Lincoln, Neb. San Francisco Spokane Minneapolis Sioux City, Ia. Denver Atlanta London, Ont. Los Angeles Vancouver, B. C. Seattle Des Moines, Ia. Salt Lake City Portland Houston El Paso Syracuse, N. Y. Washington, D. O.

SEE DETAILS IN SWEET'S INDEX



Dr. Jekyll *and* Mr. Hyde At the Telephone

Courteous and considerate co-operation is as essential at the telephone as in the office or home.

In every use of the telephone system, three human factors are brought into action—one at each end, one or both anxious and probably impatient, another at the central office, an expert, at least as intelligent and reliable as the best stenographers or bookkeepers.

For the time being, this central office factor is the personal servant of the other two and

is entitled to the same consideration that is naturally given to their regular employees.

Perfect service depends upon the perfect co-ordinate action of all three factors—any one failing, the service suffers. This should never be forgotten.

All attempts to entirely eliminate the personal factor at the central office, to make it a machine, have been unsuccessful. There are times when no mechanism, however ingenious, can take the place of human intelligence.

The marvelous growth of the Bell System has made the use of the telephone universal and the misuse a matter of public concern. Discourtesy on the part of telephone users is only possible when they fail to realize the efficiency of the service. It will cease when they talk over the telephone as they would talk face to face.

**AMERICAN TELEPHONE AND TELEGRAPH COMPANY
AND ASSOCIATED COMPANIES**

One Policy,

One System,

Universal Service.

are shown, one a new chisel, the other one that has been in use for many years. The photographs were taken on a plate at the same time to show exact relative lengths. The old one belongs to Mr. Adolph Ensmann, an old employee, a maker of planes, who began work in 1869, and at that time bought a set of Barton chisels, and he is still using with satisfaction some of these old chisels, bought over forty years ago. He states that he would have used a half dozen or more cheap chisels in that time which goes to prove that there is no economy in cheap tools. Mr. Ensmann has had the pleasure of using these fine tools with the keen hard edges for over forty years at a much less outlay than a lot of quickly worn-out tools would have cost.

Mack and Company, of Rochester, N. Y., the manufacturers of Barton tools have issued a small booklet telling about Barton tools which will prove interesting to every carpenter. It will be forwarded on request.

The "Daisy" Issues Challenge

During the past five years there have been great developments in the methods and in the business of floor surfacing—also considerable rivalry between the various manufacturers as to which machine does this work fastest and best. It now appears that this question is going to be settled.

The Daisy Manufacturing Company, whose machine, the

We do not ask that the maker of any floor scraper, planer or smoother that desires to compete in test, forfeit or donate any money; the entrance is to be free to them.

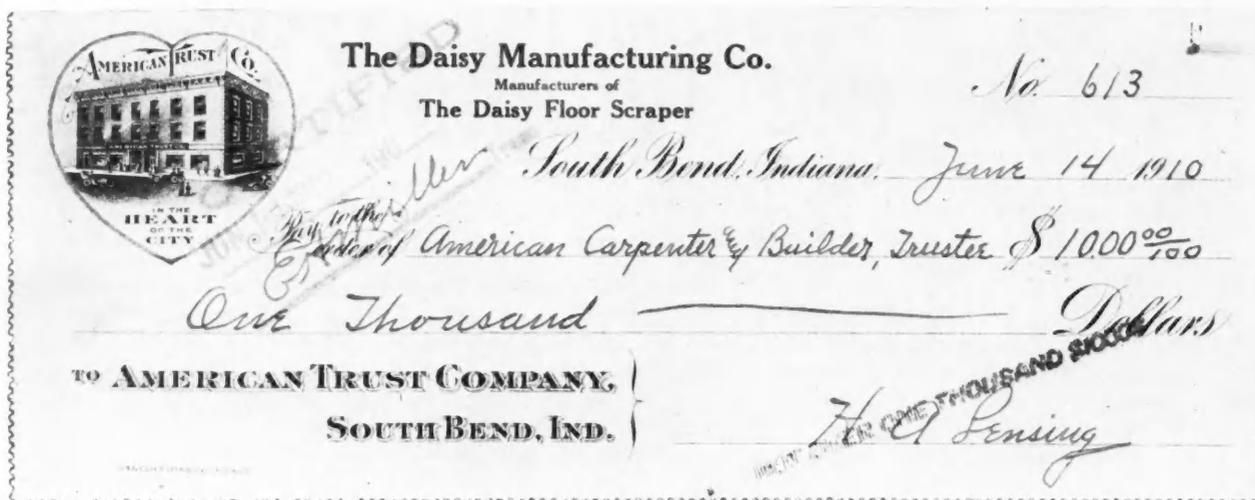
We have requested the following five well-known men, who are expert judges of dressed floors, to act as a committee, to decide at any test which section of floor is most perfectly and rapidly dressed.

Mr. H. B. Barnard, president Carpenters' and Builders' Association; Mr. Wm. C. McCumber, secretary Carpenters' and Builders' Association; Mr. John A. Metz, president Carpenters' Executive Council; Mr. John J. Brittain, secretary-treasurer Carpenters' Executive Council; Mr. Daniel Galvin, secretary-treasurer Carpenters' District Council.

Yours very truly,
The Daisy Manufacturing Co.,
Per H. A. LENSING.

It is stated that if this challenge is accepted platforms or sample floors will be made 8 foot square with a baseboard all around outer edge. Each platform is to be made of oak, maple, pine and all kinds of the various woods used for flooring, the various woods forming sections of the floor throughout each platform. Each contestant is to take one platform.

The Daisy Manufacturing Company will pay for the platforms, pay for some hall or vacant store room where the



"Daisy" floor scraper, was first introduced to the building trades early this season, have issued a challenge to all makers of floor scrapers to enter a competitive test with the "Daisy" for rapidity and perfection of floor surfacing. (See page 5.)

Moreover the Daisy Manufacturing Company back up this challenge with their certified check for \$1,000.00, which they agree to forfeit, should the "Daisy" not be able to maintain its supremacy. This check has been deposited with the AMERICAN CARPENTER AND BUILDER as trustee, and is now in our vault for safekeeping till the contest is decided.

The following letter which accompanied this check explains the challenge:

South Bend, Ind., June 14, 1910.

AMERICAN CARPENTER AND BUILDER, Chicago, Ill.

Gentlemen: We are challenging the makers of floor scrapers, floor planers and floor smoothers to a competitive test. The test to be made in your city.

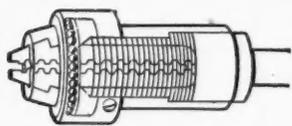
We agree to forfeit the inclosed \$1,000.00 certified check, to some charitable cause, preferably to the Carpenters' Benevolent and Relief Fund, if any other floor scraper, planer or smoother can do straight-edged or whole-hand smooth floor dressing as perfectly and rapidly as the "Daisy" floor scraper.

test can be held, and will advertize an invitation in the AMERICAN CARPENTER AND BUILDER and in the Chicago daily papers inviting those interested to witness the contest.

"Willis" Sheet Metal Goods

In the course of a building's construction there are many instances where metal can be used; in fact it is practically impossible to build almost any sort of a building without it being used. The Willis Manufacturing Company of Galesburg, Ill., are one of the leaders in this line. Anything in metal that you may need is fully illustrated in their little catalogue which will be sent to you on request.

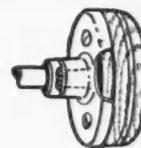
Willis ventilators for the ventilation of churches, schools, factories, or in any building where a circulation of air is desired, cannot be equaled, and it is claimed that they produce the best possible results. Their absolute simplicity will not let them get out of order. The dampers in these ventilators are perfectly balanced on pivots, closing by gravity. Willis sky lights are the product of twenty years of experience in this line of work. An added advantage to these sky lights comes from the fact that they are shipped to you knocked



The Ball-bearing Chuck, Found in No Other Brace.

You can tighten it with your bare hand to a tighter grip than you can any other chuck with the aid of a vise. It holds round, square, or taper shank drills.

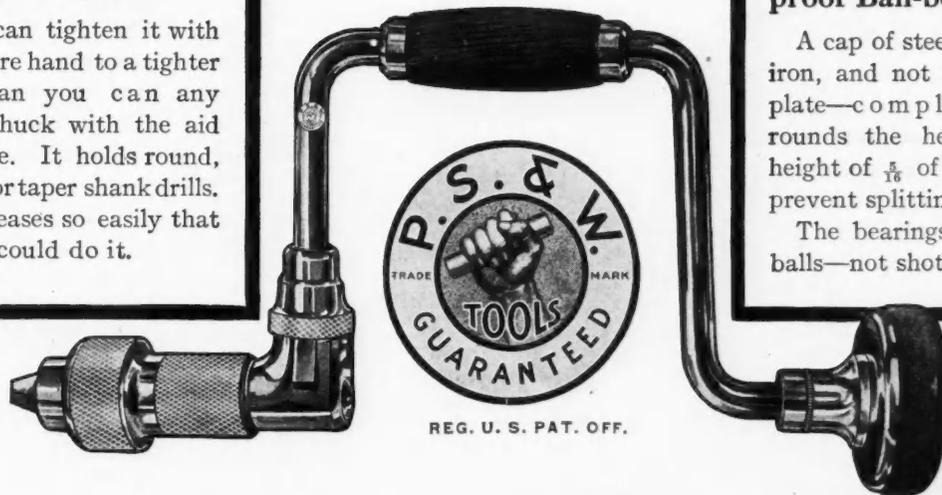
It releases so easily that a child could do it.



The Steel-clad Head, with Dust-proof Ball-bearings.

A cap of steel—not cast iron, and not a flat steel plate—completely surrounds the head to the height of $\frac{1}{8}$ of an inch to prevent splitting.

The bearings are steel balls—not shot.



The P. S. & W. SAMSON BRACE

The brace that has bored ten-penny nails through solid oak. The brace that has twisted 5-16 inch steel rods to the breaking point. Like all P. S. & W. Guaranteed Tools, it is

branded with The MARK of the MAKER

Send for our 160 page "Mechanics' Handy List," containing valuable information and a list of over 200 tools for Carpenters, Machinists, Electricians and Tinsmiths, sent free at your request. It should be in every carpenter's tool kit.

P. S. & W. tools are sold by hardware dealers the world over. Look for The MARK of the MAKER and insist upon having it. Remember that we make a large line of Braces and other Guaranteed tools for Carpenters.

The Peck, Stow & Wilcox Co.

MFRS. of the Largest Line of Mechanics' Hand Tools Offered by Any Maker

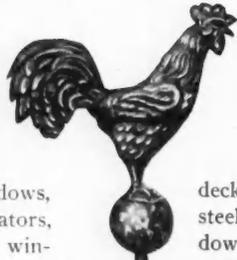
Address Correspondence to 22 Murray St., New York City

ESTABLISHED
1819

FIVE LARGE
FACTORIES



down and are erected with hammer and screw driver. This method of shipping saves cost in freight rates and also insures their safe carriage matter, and to set them up without the use of putty. The Willis Manufacturing Company makes a full line of crests, store fronts, gables, bay windows, ornaments, ventilators, walls, fireproof windowings and sidings, namental stamp work. Attention to the Willis equipment of their plant be handled quickly and sure. This means a are in a hurry and want It would pay every CAN CARPENTER AND with these people and



age. It is a very a simple one too, and it is done of putty. The Willis Manufacturing Company of crests, finis-ky lights, cor- deck crests, gable steel ceilings and side dows and doors, steel and all manner of or- They call particular at- hip shingles. The is such that orders can prompt shipment is as- whole lot to you if you your material quickly. reader of the AMERI- BUILDER to get in touch have their catalogue on



your desk. A post card addressed to the Willis Manufacturing Company, Galesburg, Ill., will bring it to you.

Asbestos Shingles and Lumber

The great invention covered by L. Hatschek's Reissued U. S. Letters Patent, No. 12,594, under date of January 15, 1907, for a fireproof building material composed entirely of Asbestos fibre and hydraulic or Portland cement, marks an epoch in the building industry, and a new birth in the matter of fire protection, so far as fireproof construction is concerned.

Perfectly fireproof and not affected by continuous moisture, frost, or subject to deterioration by the elements in any way, it is obvious that Asbestos Building Lumber may be employed freely and confidently in a vast variety of places where ordinary wooden lumber has failed.

Primarily designed to replace the ordinary roof coverings only, its merits have been found to be so supreme that its employment by our best architects and engineers has extended to all classes of light constructive work wherein its many desirable qualities have supplanted other materials heretofore commonly in use.

It is perhaps superfluous to an educated person to say to him that Asbestos Shingles, Slates or Sheathing, made wholly of mineral fibre Asbestos and hydraulic Cement, are both fireproof and indestructible.

Both Asbestos, or mineral flax as it is often called, from its peculiarity of crystallizing in fibres instead of in ordinary crystals, as is the usual case with mineral substances, and hydraulic Cement have been known from the earliest times as among the most refractory of substances. Asbestos fibre has remained exposed to the elements for unnumbered centuries without deterioration, while its well-known fireproof quality renders it the most suitable fibre upon which to agglutinate the Cement deposited thereon in the course of manufacture. It is therefore evident, from the well-known natural qualities of these two materials, that nothing could have been selected that would have been more fireproof, indestructible or everlasting than Asbestos fibre and hydraulic Cement as raw materials from which to prepare a permanent building material such as we have in Asbestos Building Lumber and Shingles.

The Keasbey and Mattison Co., Ambler, Pa., the manufacturers and selling agents of Asbestos "Century" shingles and building lumber have issued a very instructive and interesting book telling all about what these materials are and how they should be used. Every reader of the American Carpenter and Builder should have a copy of it. It will be sent free on request.

New York Cement Show

Attention in the immediate future will be chiefly centered in the New York cement show, owing to it taking place prior to the middle west event. Madison Square Garden, probably the most historical exhibition building in the world, will for the first time in history, resound with the noise of the concrete mixer. In years past, its reputation alone has added success to the successful shows held within its walls and there is no gainsaying the fact that the success which will attend the New York cement show, will accrue in the selfsame manner.



Hercules
IT STRENGTHENS

Hercules
IT WATERPROOFS

Hercules
IT IS DANGERPROOF

At Last a Waterproofing Compound for Cement that not only waterproofs but increases the tensile strength of Concrete, does not require an expert to mix—2% of the Compound is all that is necessary, 10% won't harm or break down the concrete.

It is reliable. It is reasonable in price and should be used on all concrete structures.

Special Prices for Sample Orders.

Write for copy of Tests and General Information on Waterproofing

Hercules Waterproof Cement Co.

255 Washington Street,

BUFFALO, N. Y.

Transom Operation Perfected

The many faults of appearance and operation characterizing the old style transom rods, so objectionable to everyone are overcome in the

"RICHMOND"

**Concealed
Transom Lift**

Simply turn the knob on door trim and transom opens or shuts to the required angle and is held steady there until the knob is again turned. No locks, hinges or catches are required.



In the **RICHMOND** Concealed Transom Lift all parts as implied by the name are concealed, excepting only the knob. The fixture is completely assembled before leaving our factory. Booklet descriptive of the operation and installation of this fixture will be mailed upon application to

THE McCRUM-HOWELL CO.

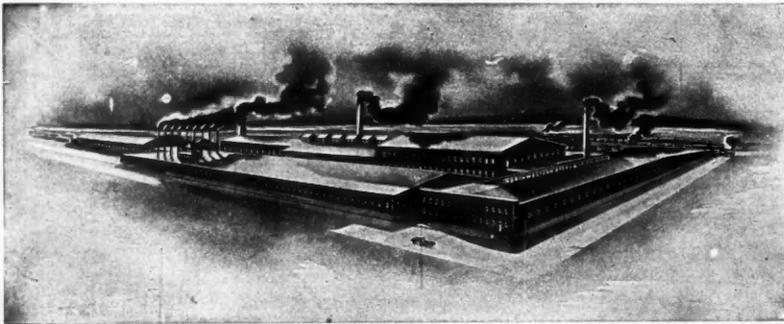
MANUFACTURERS

Park Avenue and 41st Street

NEW YORK CITY

Largest Factory for Manufacture of Concrete Machinery

The illustration shows a good view of the "Northwestern" Steel and Iron Works plant, Eau Claire, Wis. The growth of the concrete industry has been phenomenal within the past twenty-five years and over five thousand carpenters and masons have taken up this line of work both in connection with their regular work and also as their sole business. The manufacture of concrete blocks, porch columns, lawn vases, burial vaults, tomb stones, fence posts, gate posts, drain and sewer tile, well curbing, silos and various other articles offers unparalleled opportunities for big profits and a line of business which is growing so fast that contractors can no longer keep up with their orders.



The Northwestern Steel and Iron works are offering wholesale prices and their big 1910 catalogue is not only most complete and up-to-date but gives valuable information on all subjects and complete instructions for the operation of every machine and mould so that anyone can manufacture these

articles with little experience. We urge all our readers to write for their catalog as it makes a fine reference book and shows one of the finest line of concrete machinery made. It is worth your while to have a copy.

Miller Lock Mortiser

The Miller hand mortiser is a machine made especially to cut openings in doors for mortise locks. The time required for the complete operation is only three minutes for each door. The actual time required to cut an opening is half a minute. The balance of the three minutes is for boring holes and adjusting the tool to the door.

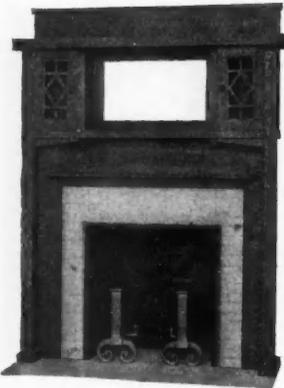
The time saved by the Miller mortiser is at least five hundred per cent over the old method with chisel and bit. In addition, there is also a saving in labor, as the Miller hand mortiser can be operated as skillfully by an apprentice, as a high-priced journeyman.

The total cost of cutting an opening is reduced to a minimum. The work done by the Miller mortiser is cleaner and better than when performed by the bit and chisel. The cut is parallel with the door, and the job is true, clean and neat, and, when completed, gives the best of satisfaction.

The mortiser is simple in construction; it will not wear out, and requires but very little care. The main parts are made of the best malleable iron. Each tool is provided with five cutters, cutting in width from 1½ inch to 1⅞ inch in size. These cutters are double edge,

and are made of the best quality of steel, and, when performing the work, cut on the up stroke as well as on the down stroke.

The tool is provided with four clamps—two on the right and two on the left. The left hand clamps have lock nuts,



CONFIDENCE!

Can be Gained Only by Square Dealing

BURRITT MANTELS

Enjoy the Confidence of a large number of Contractors and Builders because they are found to be Exactly as Represented—Always.

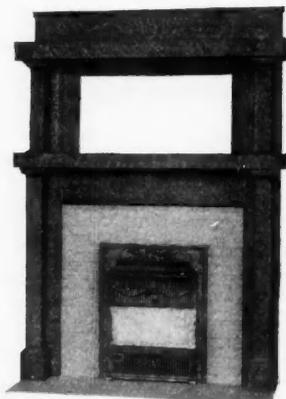
It will be worth your while—if you intend buying Mantels—to write for our Beautiful Handbook "A," sending your business card and advising us of your requirements.

THE A. W. BURRITT CO.

"THE MANTEL FOLKS"

349-473 Knowlton St.

BRIDGEPORT, CONN.



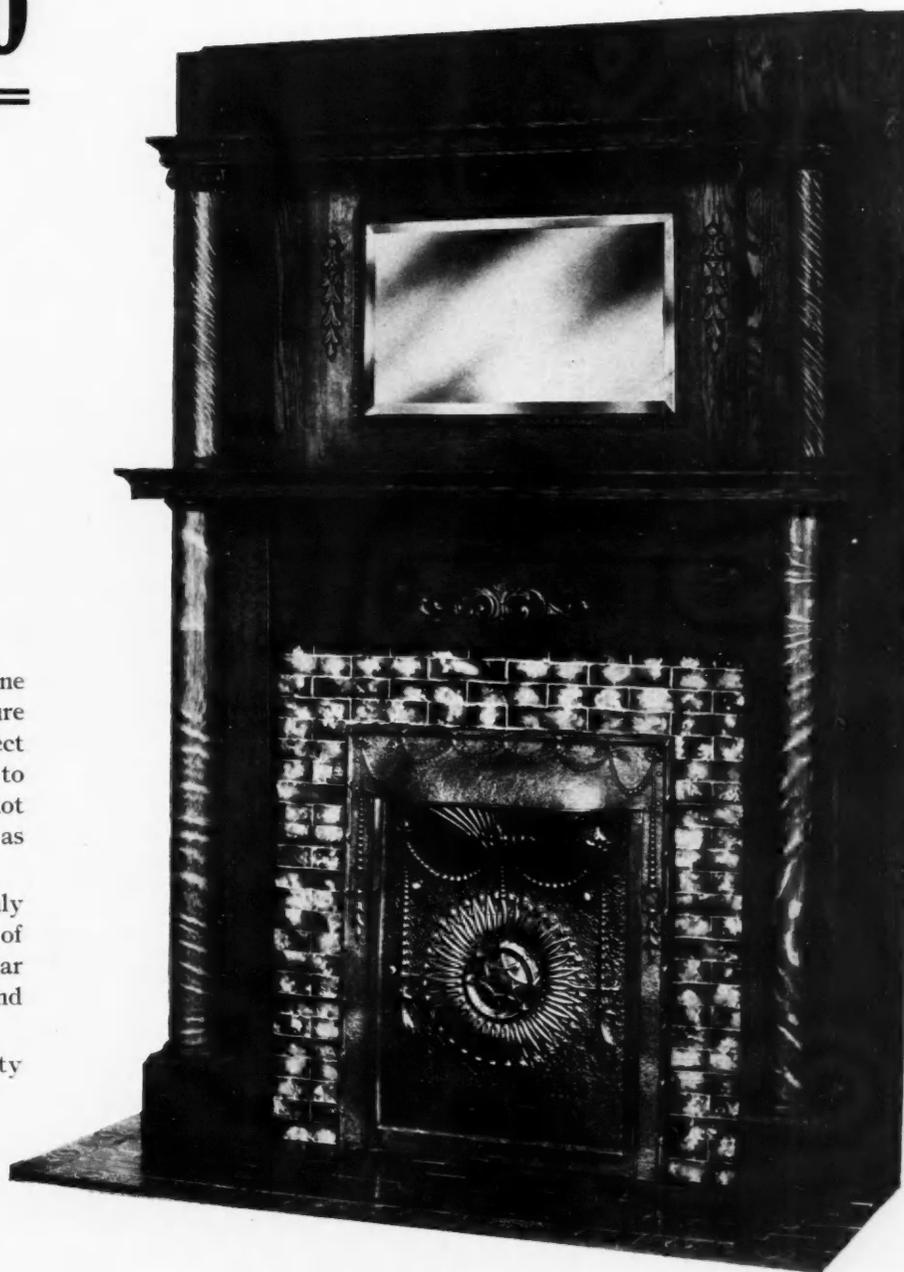
\$22.00

Beautify Your Parlor or Living Room

by putting in one of our fine wood Mantels. No other furniture can compare in decorative effect with a Mantel, in addition to which the fireplace itself is not only ornamental but useful as well.

The Mantel shown here is only one out of a great number of others so that if this particular design does not suit let us send you illustrations of others.

We have also a large variety of brick and tile mantels in beautiful color effects, Consoles of up-to-date patterns, China Closets of all kinds, tiles and mosaics for floors and walls, in fact everything that goes with a well equipped mantel and tile business.



IDEAL PARLOR MANTEL No. 1

for this beautiful Oak Mantel complete with glazed tile hearth and facing and Combination Coal and wood burning grate with plated frame and summer front

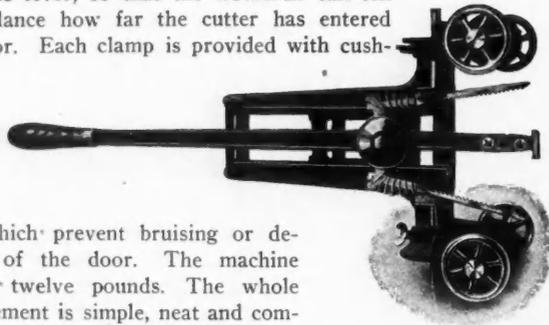
\$22.00

Chas. F. Lorenzen & Co.

No. Ashland Avenue and Superior Street
CHICAGO - - - ILLINOIS

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

and when the tool is first adjusted the nuts lock the clamps, thereby keeping the tool always in a center with the door, and, in releasing the mortiser from the door, the right-hand clamps are released only. A scale of inches is cast on the frame parallel with the lever, so that the workman can tell at a glance how far the cutter has entered the door. Each clamp is provided with cush-



ions which prevent bruising or defacing of the door. The machine weighs twelve pounds. The whole arrangement is simple, neat and compact. Each machine is carefully fitted and inspected by a competent mechanic before shipping, and is packed in a box, insuring safe carriage. It is stated that all parts breaking from hidden defects will be replaced free of cost.

To operate the mortiser, run the clamp screws out far enough to receive the door, adjust the screws on the left side having the lock nuts, so that the cutter will work in the center of the door stile, on both up and down stroke. Tighten the lock nuts so that screws will not change. The right-hand screws are the only screws used in changing from door to door same thickness. Each stroke of the lever must be full and steady. This will cut each shaving off, and the machine will easily clear itself and keep the mortise clean. The hooked fingers are for the purpose only of helping to remove the shavings from the mortise, and are guided in their proper places by the little wooden guides. Obstinate bunches of

shavings are quickly removed by grasping the bunch between the cutter and hook and pulling the bunch out of the opening, which is done in less time than it takes to think. Full directions for using accompany each tool.

Full information may be had by addressing the A. W. Miller Manufacturing Company, Cincinnati, Ohio.

\$204,000,000.00 Goes Up in Smoke

Over a million times during the past ten years we have witnessed the thrilling sight of burning buildings. In the year 1889 this cost the nation \$123,046,833.00; ten years later the loss amounted to \$153,597,830.00; while last year \$204,000,000.00 worth of property was destroyed by fire. This constantly increasing annual fire loss in the United States has induced engineers interested in fire protection to seek with renewed zeal for all practical methods of lessening the danger of ignition and spread of flames. As a result of this, tile, vitrified facings, terra cotta, concrete construction and numerous other fire-resisting materials have been developed for use in all parts of buildings except the roof, while but few important improvements have been made in roofing materials, notwithstanding the fact that authorities claim that from 27 per cent to 50 per cent of the conflagrations are the result of flames being communicated to adjoining buildings by burning sparks and embers falling on an inflammable roof.

Factories, barns, etc., are probably more at the mercy of burning sparks and embers than other types of buildings, because they are usually covered with so-called ready roofings, and nearly all roofings of this type are made of wool felt, rag stock, paper, coal tar and other highly inflammable materials. There is one roofing of this type, known as J-M Asbestos roofing, which is being largely used on factories and large buildings, which seems to overcome the objections to all others of this type. It is said to be so fire-proof that it will with-



The Only Sanitary Closet Seats and Covers

Wooden seats and covers have pores, cracks and crevices which offer lurking places for germs. They often spread disease, especially when used in public buildings.

J-M SANITOR SEATS and COVERS are made of a hard, smooth, non-absorbent and non-porous material. They are molded in one piece and have no joints. *Are absolutely sanitary.*

J-M Sanitor Seats and Tanks

are stronger and more durable than those made of wood. They will not crack, warp, swell or sweat.

Will last as long as the building in which they are installed, with ordinary usage.

No lining is needed to make the Tanks watertight. They cannot swell, shrink or warp and throw inside fittings out of adjustment.

Furnished in mahogany, oak and white enamel finishes, complete with fittings. In appearance they cannot be distinguished from wood.

Write nearest Branch for Booklet—or simply write your name and address on margin of this advertisement and mail it to us.

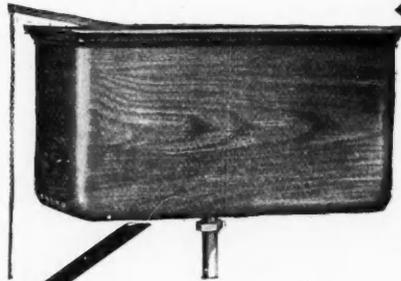
H. W. JOHNS-MANVILLE CO.

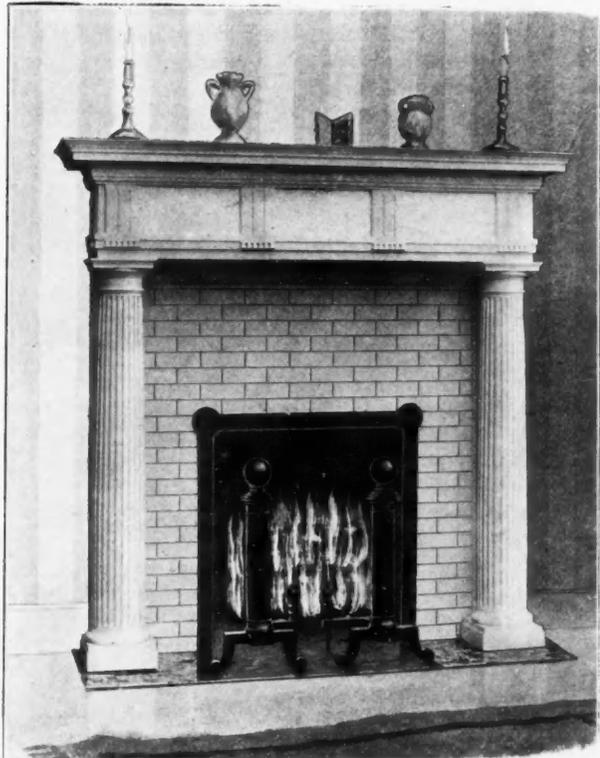
ASBESTOS

Manufacturers of Asbestos and Magnesia Products, Asbestos Roofings, Packings, Electrical Supplies, Etc.

Baltimore	Dallas	Milwaukee	Pittsburg
Boston	Detroit	Minneapolis	San Francisco
Buffalo	Kansas City	New Orleans	Seattle
Chicago	London	New York	St. Louis
Cleveland	Los Angeles	Philadelphia	

954





Every *Voss* Mantel
QUALITY

You Put Up Means a Satisfied Customer

The variety of designs of Voss Mantels, and the excellent workmanship and materials, recommend them immediately to every home builder and home owner.

Competent artists design Voss Mantels, capable workmen build them. Nothing but the best quality of wood is used—every piece is selected for suitable coloring and grain—carefully tested for soundness and density—thoroughly seasoned—accurately machined. Every completed mantel is finished by experts.

Voss Mantels are made in all styles—from Colonial to Mission—in all woods and finishes.

“Mantels For the Home”

a beautiful illustrated booklet—showing many styles in wood mantels will be sent to anyone building or remodeling.

If you want mantels for the home you are now working on—it will pay you to get detailed information on Voss Mantels. Drop us a postal today.

VOSS MANTEL COMPANY, (Inc.)
“Master Mantel Builders for 25 Years”
 828 South 16th Street - LOUISVILLE, KENTUCKY



\$24.75 Special \$23.75

Bargains

No. 239 **No. 228**

at the above prices we include **MANTEL** with **Tiling and Grate**, also **Plated Frame and Front and Ash Screen**

Write for our 50 page catalogue. Sent free on application

MOORMANN & OTTEN
 611-613 Main St. Cincinnati, Ohio

WHITE MANTELS make home-like homes

Mr. Contractor:

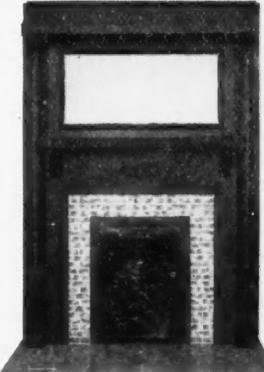
Our Catalog should be in your hands. It shows Mantels of Wood or Tile of every description every one of which can be installed **AT A GOOD PROFIT.**

Our Designs Are Exclusive

Every one can and should install a White Mantel. They are made to accommodate the small cottage or the modern mansion at prices to suit any purse.

*White Mantels are made to Heat as well as Beautify
 Our Catalog is worthy of a place on your Desk*

WHITE MANTEL & TILE CO.
 100 Jackson Ave. Knoxville, Tenn.



Price of Mantel only \$14.85.
 Price of mantel as shown above with combination coal burning grate and first quality enamel tile, any color for hearth and facing—\$22.40.

stand the flame of a blow-torch for an hour without being injured. This roofing is made by the H. W. Johns-Manville Company, of New York, well known as manufacturers of asbestos products.

From the manufacturers we were able to get the following interesting information regarding the manufacture of this roofing, which is made of asbestos (a stone) and Trinidad Lake asphalt (a mineral.)

The asbestos rock when it comes from the mines is in appearance much the same as other rock, as will be noted from illustration. When scientifically crushed, this rock produces long, tough fibres which are woven into cloth for asbestos theatre curtains, made into sheets of felt for roofing, and treated in various ways for making hundreds of different fireproofing materials.

In making this roofing, several sheets of this asbestos felt are thoroughly saturated with genuine Trinidad Lake asphalt, well known as the most permanent waterproofing material. These sheets are then cemented firmly together with this asphalt, making one homogeneous mass. This, then, constitutes an actual covering of stone, which, because of its all-mineral nature, not only offers to a building protection against fire, water, wind and weather, but which also naturally cannot rot, rust, melt, run or crack, and requires no painting to preserve it.

A copy of the very handsomely illustrated catalog, which we received from the manufacturers, will gladly be sent by them to any of our readers inquiring for it.

Miracles Sell Out

The important announcement is made that the business of the Miracle Pressed Stone Company, of Minneapolis, Minn., has been transferred to Mr. Geo. C. Marsh of Chicago, who

will hereafter conduct the sale of the Miracle machinery. While all the friends of the concrete block industry must regret the retirement of Messrs. R. O. and O. U. Miracle from the block machinery business in which they have won such signal success it will be a pleasure for them to know that these wideawake men have entered the larger field of contracting and that they will maintain a headquarters in Minneapolis. They have a number of paving and other contracts in Iowa, the Dakotas and Montana which will require much attention.

It is not going beyond the bounds of truth to say that the Miracles have done more to place the concrete block industry in the position it occupies today in the construction world than any other two men living. That they will succeed in the larger field of contracting goes without question.

In passing into the hands of Geo. C. Marsh, the Miracle pressed stone machinery business could not be placed under a more competent or better head, for Mr. Marsh not only is energetic and full of push as a selling force, but personally he possesses thousands of friends in the business who will not only wish him success but help him win more laurels for the Miracle name. Mr. Marsh has been in the concrete machinery business many years in Chicago, first in connection with one of the contractors' supply companies and later as the head of the Marsh Company and a member of the firm of the Marsh-Capron Company. The addition of the Miracle line to the machinery he already sells will make his "sorts" complete.

Mr. Marsh has offices in the Old Colony building.

"On June 6th," said Mr. O. U. Miracle, "we consummated a deal whereby the Marsh Company, 970 Old Colony building, Chicago, take over the entire manufacturing and selling interests of the Miracle Pressed Stone Company of Minneapolis. The headquarters of the concern will be at the above mentioned location.

"Mr. George C. Marsh is too well known to contractors

HARDWOOD FLOORS

Builders and Contractors know the vital importance of **Oak Flooring** in a home, and are fast learning the difference between a house floored with old-fashioned soft wood or cheaper substitutes in hardwood flooring, and the home-making qualities of a house with **Oak Flooring**. The living, renting and selling values of any building, large or small, is **vastly increased by Oak Flooring**.

Oak Flooring $\frac{3}{4}$ inch in thickness may be laid over old floors very economically, taking the place of carpets, without in any way interfering with the woodwork of a room. The highest quality of Clear Quartered **Oak Flooring**, $\frac{3}{4}$ inch thick by 2 inches wide, can be bought, laid and polished for about half the cost of a fair quality of carpet, which proves that carpets are an expensive luxury as compared with **Oak Flooring**.

Oak Flooring gives an air of refinement and elegance to a home, is rich in color, and if given attention will never wear out. $\frac{1\frac{1}{8}}$ inch **Oak Flooring** laid thirty-three years ago, in Detroit, Michigan, after very hard service, is still in good condition.

Write us for further information.

OAK FLOORING BUREAU
405 Hammond Building
DETROIT, - - MICHIGAN



\$25.85

For this elegant, massive selected oak or birch, mahogany finished mantel.

"From Factory to You"

Price includes our "Queen" Coal Grate with best quality enameled tile for facing and hearth. Gas Grate \$2.50 extra. Mantel is 82 inches high, feet wide. Furnished with round or square

"Reputation and Quality Count"

columns, full length or double as shown in cut. Dealer's price not less than \$40.

CENTRAL MANTELS

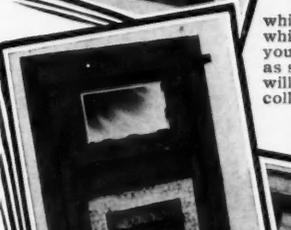
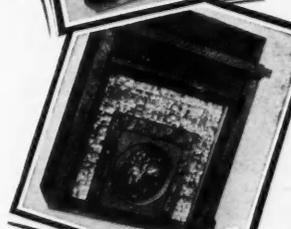
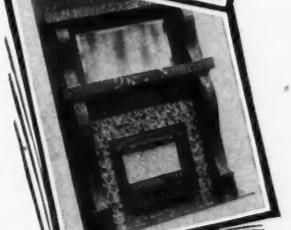
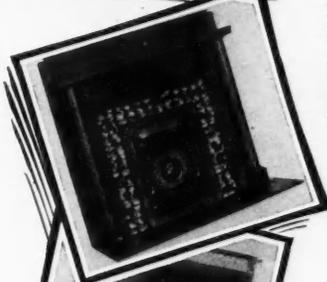
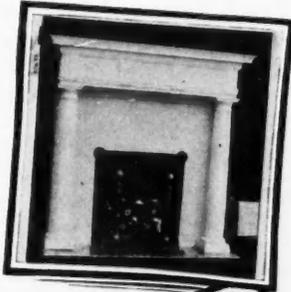
are distinctive in workmanship, finish and style. Twenty years' experience enables us to know and satisfy the needs of those who want mantels of quality, different from the rest. We build all styles—Colonial to Mission.

CATALOGUE FREE—Will send our 112 page catalogue, the finest ever issued, free, to carpenters, builders, and those building a home

CENTRAL MANTEL COMPANY,
1247 Olive Street, St. Louis, Mo.

The Mantel Market Stunned

by Our **Fearless CUT-PRICE SALE**
of **MANTELS and GRATES**



Regardless of the opposition our action is arousing among retail dealers in mantels and building materials, we have made **unprecedented price reductions** on Mantels, Grates and Fireplace Fittings. Actual comparison, grade for grade and style for style, proves that we have cut the established prices from 25 to 50 per cent — in some cases even more.

Means More Profits for Contractors

The Gordon-Van Tine **Cut Prices** not only increase the profits of carpenters and contractors on these goods, but **widen the mantel market** by placing them within reach of hundreds of home-owners who have heretofore found mantel prices prohibitive.

Every wide-awake Builder will see at once that it is going to pay him to **push mantels**. There's a handsome margin of profit for you on every Gordon-Van Tine Mantel you install, whether it be one of the more elaborate, artistic creations or the simple, inexpensive styles.

Grand Free Catalog Shows Over 100 Combinations New and Beautiful Designs—For Any Finish

Our stock of Mantels, Grates, Consoles and Fireplace Fittings is distinguished by the variety of styles, in fine woods and artistic tiles, to harmonize with any class of architecture, any decorative scheme, any interior finish. The materials are of the finest, the workmanship is of the best, and every detail of construction is correct.

In building these mantels, **ease of installation** has been kept in view. We furnish detailed instructions for setting up our Mantels and Grates.

We are the Mantel Headquarters of America

We sell thousands of Mantels every year—ship them all over the United States—guarantee quality, safe delivery and satisfaction.

We dominate the Mantel Market by giving greater value, more artistic styles, a more comprehensive selection than any other concern.

The cut prices we are now making mean an actual division of profits with our customers.

Send the Coupon for the Grand Free Catalog. See for yourself what a magnificent line of mantels we are offering at prices that simply stagger competition.

Gordon-Van Tine Co., 534 Federal St., Davenport, Ia.

We issue a very fine Special Mantel Catalog which includes ideas for interior finish, etc., which costs us \$2. We will be very glad to loan you a copy, with the understanding that as soon as you are through with it you will return same, charges collect.

(42)

GORDON-VAN TINE CO.

534 Federal Street, Davenport, Iowa

Gentlemen:—Please forward your regular Catalog of Mantels and Grates offered at cut prices.

Name _____

Address _____

Occupation _____

Cut-Price Coupon

and concrete machinery interests to require any comment. We feel in turning the business over to the Marsh Company that a more worthy successor could not have been found.

"It is with many feelings of regret that we retire from the activities involved in the conducting of the business of the Miracle Pressed Stone Company. We are not unmindful of the obligations we owe to the trade papers and to our thousands of customers and friends, who have made it possible to build up the largest business of the kind in this or any other country. Our active and successful customers are found in nearly every civilized country on the globe, and it is with some pride that we realize that we have made the name 'Miracle' known wherever concrete is used.

"We wish to assure these thousands of customers and friends, as well as the many new customers that will come to the new concern, that they will receive the same courteous and fair treatment from the Marsh Company as they have received in the past from this concern."

Quick Method of Erecting Scaffolds

If you wish to put up your scaffolds the quickest way possible, and yet have them absolutely safe, start by boring one-inch holes simply through the sheathing, but right alongside the studding; have these about eight to ten feet apart, and when possible, near windows.

From outside, slip the hook-bolt of a Taylor bracket through each hole, and hook it around the studding; slide your bracket on to the straight end of the bolt which projects outside, and fasten it firmly in position against the building by screwing on the wing nut. Then put on the platform, and you are ready for work.

One man can do this alone, and it takes very little time. The brackets are amply strong, for two of them will carry

a ton in weight without even springing, and as the bolts are fastened from the outside of the building, there is no danger of accidents from meddlers loosening them.

If the weather is cold, and you are afraid of the platform slipping on the steel, the brackets are provided with holes, so that by use of a few 1/4-inch carriage bolts, strips of wood may be permanently secured to the arms of the brackets, and on these the platform is just as firm as on a wooden bracket.

Taylor brackets are reversible, and where space is limited between two houses, the short arm may be used to support the platform.

A cut of these brackets is shown on page 14 of this magazine and further information with regard to prices and special trial offer will be furnished if you write to James L. Taylor Manufacturing Company, Bloomfield, N. J.

Disston Plant Enlarges

Henry Disston & Sons are making improvement to their great establishment, the Keystone, Saw, Tool, Steel and File Works, in Philadelphia which will represent an additional investment of about \$500,000.

This includes the building operations completed in the last fourteen months, which takes in the erection of a storage warehouse; a pattern storage building, a blacksmith shop and a new machine shop with up-to-date equipment.

Foundations are now being laid for a two-story structure 180 by 43 feet, which will be another addition to the extensive file making department. The building will be equipped, of course, with all modern operating machinery, all of which has been designed and built by the Disston organization.

In a few days work will be started on a two-story building 290 by 63 1/2 feet with an L 181 by 69 1/2 feet, to accommodate the machine knife and jobbing departments, wherein are made

HAVE ONE ON THE HOUSE

"A Roof of GAL-VA-NITE"

This is our treat—we want every man that reads this paper to send for one of our CARPENTER & CONTRACTOR ESTIMATE BOOKS—something every builder should have. It is handy and valuable and we will send it to you FREE. We also want every man interested in building to know all about the best ready roofing manufactured—"the triple asphalt-coated, mica-plated" GAL-VA-NITE.

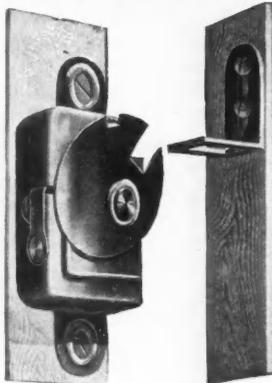
GAL-VA-NITE is made to wear—not to wear out. We can convince you that it is the roofing you will specify and use hereafter. Just let us send you samples. The celluloid covered estimate book will also be sent you without cost. A postal today will do.

"Owners of The Mills That Quality Built"

1109 E. 7th
Street

Union Roofing & Mfg. Co.

St. Paul,
Minn.



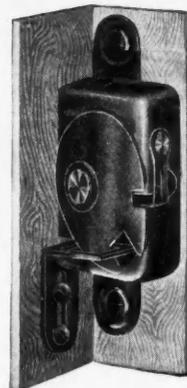
The No. 21 Watrous Screen Door Catch

The Latest and Best Thing in Screen Door Catches
THE CATCH WITH THE POSITIVE LOCK

The case comes flush on door jamb. The strike is adjustable. Needs no templet. A child can set it without making a mistake. A light trip and a strong hold. Positive lock does away with necessity for hook-and-eye, or other fastener.

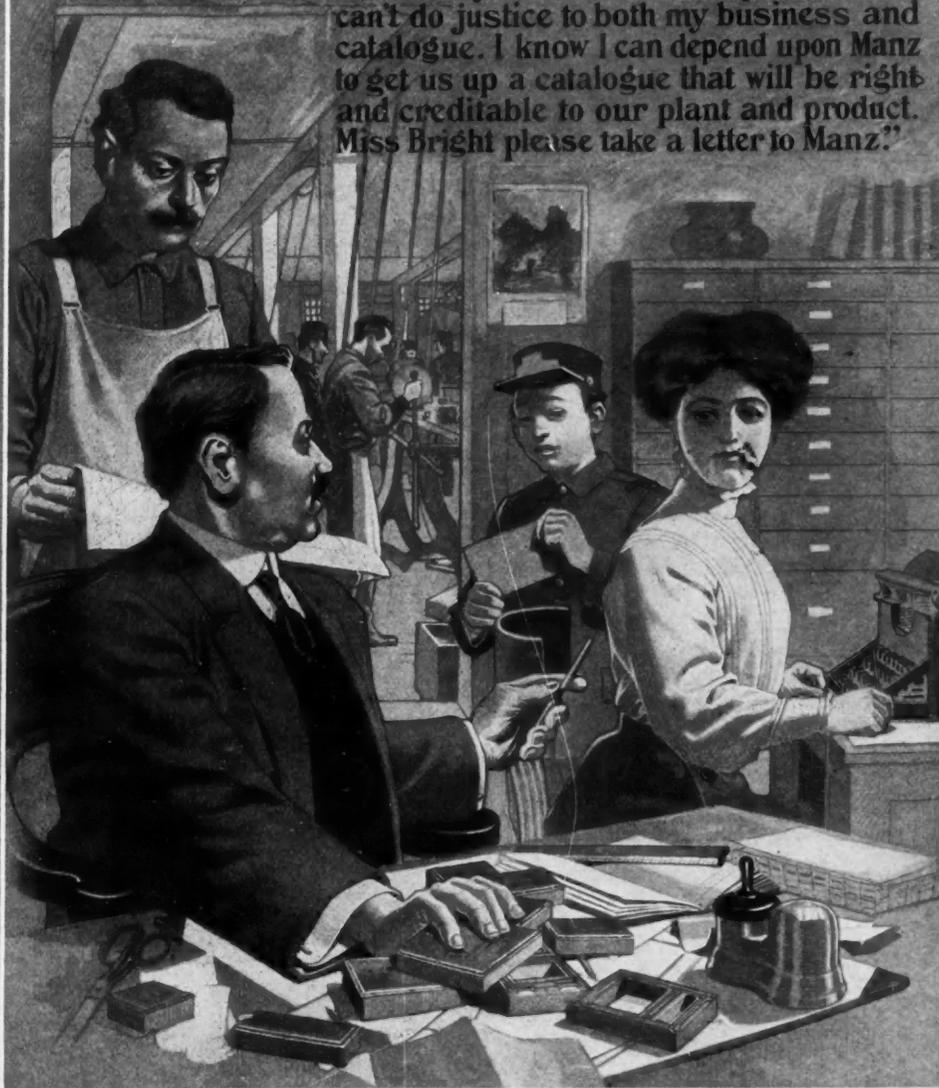
Sells at Sight

THE E. L. WATROUS MFG. CO., DES MOINES, IOWA

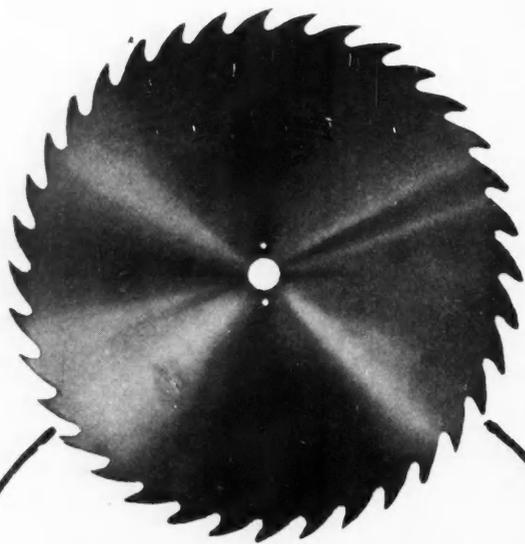


WRITE TO MANZ

"Here - Pack up all these cuts and this copy and send them to Manz at once. With the necessary business interruptions here I can't do justice to both my business and catalogue. I know I can depend upon Manz to get us up a catalogue that will be right and creditable to our plant and product. Miss Bright please take a letter to Manz."



MANZ ENGRAVING COMPANY, CHICAGO.



SIMONDS SAWS

Why you should buy them

There is only one reason why you should buy one thing rather than another when there is a choice of several kinds.

That reason is the best value for your money.

Simonds Saws will give you full value for every cent you pay for them. That's the way they are made. That's the way they are warranted.

We are not talking about cheap goods—you pay a fair price, but you get what you pay for. They are **Made of Simonds Steel**, the best saw steel in the country. Teeth that hold their cutting edge longer and require less filing than other saws. A blade that saws true. Evenly tempered. Nicely finished. Well fitted, carved and polished apple handles. These are some of the evidences of quality in our saws.

Tell us what saw you want and we will send address of Hardware Dealers near you handling Simonds Saws, and we will also send you a free copy of an interesting booklet, "Simonds Carpenters Guide"

SIMONDS MFG. CO.

Fitchburg, Mass.

Chicago San Francisco
New Orleans Seattle
Portland New York
London, Eng.
Montreal



Look for this trade mark etched on every saw.

the various kinds of machine knives, such as woodworking knives, chipper, bed and hog knives; paper trimming, leather-splitting knives; shear blades, etc., while in the jobbing department are turned out steel plates for cutting and creasing machines; cylinder presses; pattern plates; lawnmower, circular cloth, candy, paper knives, etc., multiple clutch discs and flat steel springs of all descriptions.

Incidentally, a large amount of new machinery, perfected by Disston experts, is being installed in all departments of the establishment.

At an early date, work will be started on a new and enlarged two-story fireproof building for the cold rolling department.

The Disston management reports that business has never been as heavy in the history of the organization as it is at present. The volume of repeat orders is very large.

"It is a business axiom," said an official of the company, "that repeat orders are the strongest evidence of solid, substantial merit. We are receiving them in constantly increasing volume, thus necessitating these further extensions of the plant in general.

"The new buildings have been specially designed with a view to obtaining the maximum amount of light and the best possible ventilation. No expense or pains are spared to provide every convenience for the workmen, and such a policy has done much toward producing the high quality that characterizes the Disston products."

Cherry

Cherry is a rare wood, and but few logs of it come to any one mill in the course of ordinary hardwood lumber manufacturing. Nearly one-quarter of the total cut is produced in West Virginia. Pennsylvania ranks second, while other states of some importance in the manufacture of cherry lumber are Indiana, New York, Ohio and Michigan. The reported production of cherry lumber in 1907 was 9,087,000 feet, and in 1908, 18,054,000 feet B. M.

New "Yankee" Hand Drill

North Bros. Manufacturing Company have recently placed on the market a new "Yankee" hand drill, a smaller size of



the well-known "Yankee" breast drill, but has instead of a breast plate a handle that can be held in the hand or against the body when in use. It has every feature that has made "Yankee" breast drills so popular, and built on same mechanical lines of a tool rather than a piece of hardware.

The special feature of "Yankee" breast and hand drills is the simple mechanism for changing action of the tool and operated by merely moving the shifter on cylinder between the small gears on spindle and the simple device for changing speed.

Note the little slide on cylinder between gears and the notches. With slide in first notch (at top), it is a plain drill, in second a left-hand ratchet, in third a right-hand ratchet, in fourth a double ratchet where

Cement Houses and How to Build Them

The best, largest and most popular book of its kind ever published

COMPLETE INFORMATION FOR

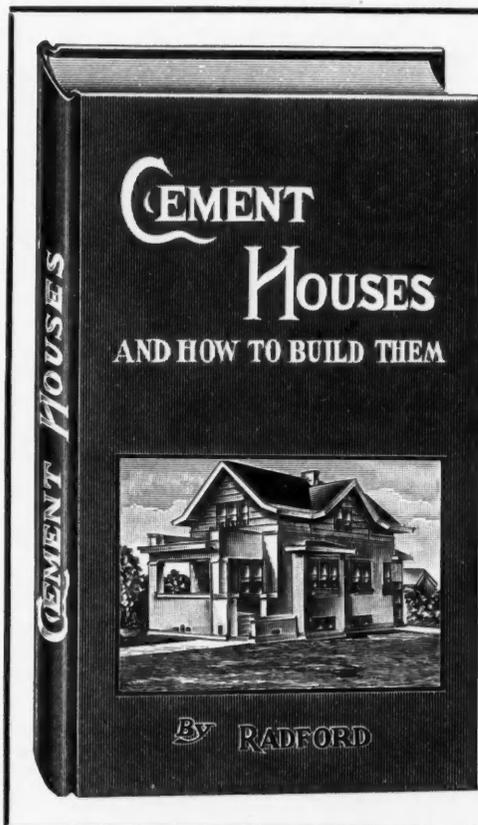
Cement Workers, Contractors and Prospective Homebuilders

(Copyrighted 1909)

176 pages, size 8x11. Over 200 illustrations, with Perspective Views and Floor Plans of

87 — Eighty-Seven Cement Plaster and Concrete Block Houses — 87

All types and designs of houses are shown, ranging in price from \$750 to \$4,000. Plans were all drawn by licensed architects and are guaranteed to be absolutely correct in every detail.



This Large Book Contains

Illustrated Details of Cement Construction,
Standard Specifications for Cement,
Standard Specifications for Concrete Blocks,
Valuable Information Concerning
Waterproofing, Coloring, Aggregates,
Proportioning, Mixing, Paving,
Reinforcing and Monolithic Work,
Foundations, Walls, Partitions,
Steps, Stairs, Floors, Sidewalks,
Sewer Pipe, Tile, Cement Shingles,
Chimneys, Porches, Tanks and Cisterns,
Expanded Metal Meshing, Metal Lath,
Establishing a Concrete Block Business,
Cement Plaster and Stucco Work,
Concrete on the Farm, Cement Brick,
How to Overcome Concrete Troubles,
Causes of Cement Failures, Freezing,
How to Select Proper Aggregates,
Applying Stucco to Old Walls,
Examples of Strength, Tension and Compression,
Placing Reinforcing Rods, Adhesion,
Dimensions for Beams, Vibrations,
Miscellaneous Information of Every Kind.

Perspective Views and Floor Plans of

Concrete Block and Cement Plaster Houses

FINEST EVER DESIGNED

All houses illustrated with fine half-tone cuts, printed on enameled paper. The illustrations show the houses exactly as they will look when built and give a very clear idea of their appearance. All the floor plans are shown, giving the location and dimensions of all rooms, closets, porches, etc., with detailed information as to both interior and exterior. The houses illustrated range from the small to the medium large in size, such as will appeal to the average man or woman who intends to build a home.

Handsomely bound in silk cloth. Price, \$1.00 postpaid

HOW TO OBTAIN THIS BOOK **At Half Price** OUR GREAT SPECIAL OFFER

THE CEMENT WORLD will send a copy of this valuable book, "CEMENT HOUSES, and HOW TO BUILD THEM," **At Half Price, Postage Prepaid**, to all new and old subscribers whose subscriptions or renewals are received before Aug. 1, '10. In all cases cash in full to cover one year's subscription to the CEMENT WORLD, and 50c additional for book, \$1.50 in all, must accompany the order. All renewals will be credited from the date present subscriptions expire. Address

CEMENT WORLD, 241 Fifth Avenue, - - Chicago



When the Boss "Wants to Know"

You won't have to "guess," "suppose," "think," or "believe," if you have had the training given by the International Correspondence Schools. You will know and can give the boss instantly the information he wants. It is the ability to furnish the right information at the right time that raises salaries and wins promotions. The best evidence of the salary-raising power of the I. C. S. is the monthly average of three hundred letters voluntarily written by students reporting increases in salary and position as the direct result of I. C. S. help.

How many untrained men are constantly watching the "want" columns of the newspapers—only to be painfully reminded of the positions they can't fill and the work they can't do! Engineers are wanted; Electricians are wanted; Machinists are wanted; Draftsmen are wanted; Bookkeepers are wanted; Advertising Men are wanted; and the Government is offering big pay to those qualified for Civil Service positions. But there is seldom a chance for the untrained man. Because of his lack of training he must stay at uncongenial and unprofitable work.

Let the I. C. S. tell you how to become a trained man—a skilled workman—a foreman, superintendent, or manager. The training can be secured in spare time at home. Let us show you how you can change "wages" into "salary."

Mark and Mail the Coupon NOW!

International Correspondence Schools

Box 910, SCRANTON, PA.

Please explain, without further obligation on my part, how I can qualify for a larger salary and advancement to the position before which I have marked X.

Architect	Estimating Clerk	Automobile Oper.
Arch'l Draftsman	Civil Engineer	Foreman Machinist
Contractor & Build.	Surveyor	Sh.-Met. Pat. Drfts.
Building Inspector	Mining Engineer	Textile Expert
Structural Eng.	Mechanical Eng.	Bookkeeper
Struct'l Draftsman	Mechan'l Drafts'n	Stenographer
Plum. & Heat. Con.	Stationary Eng.	Advertising Man
Supt. of Plumbing	Electrical Engineer	Window Trimmer
Form. Steam Fitter	Elec.-Light. Supt.	Illustrator
Plumbing Inspect'r	Elec.-Rail'ry Supt.	Civ. Service Exams.
Heat and Vent. Eng.	Concrete Engineer	Chemist

Name _____

Street and No. _____

City _____ State _____

any movement of crank forward or backward, causes the drill to cut continuously, a time saver and convenience when working in corners where crank cannot be turned. In fifth (at bottom) gearing, etc., is locked to open or close chuck.

The change of speed, fast or slow, is made by simple movement of lever on hub or gear and without removing drill from work, and with any of the movements named above.

The two-jaw chuck holds accurately and securely both square or round shanks, and three-jaw round shanks only, up to 3/8-inch.

Adjustable ball bearings takes all strain or thrust.

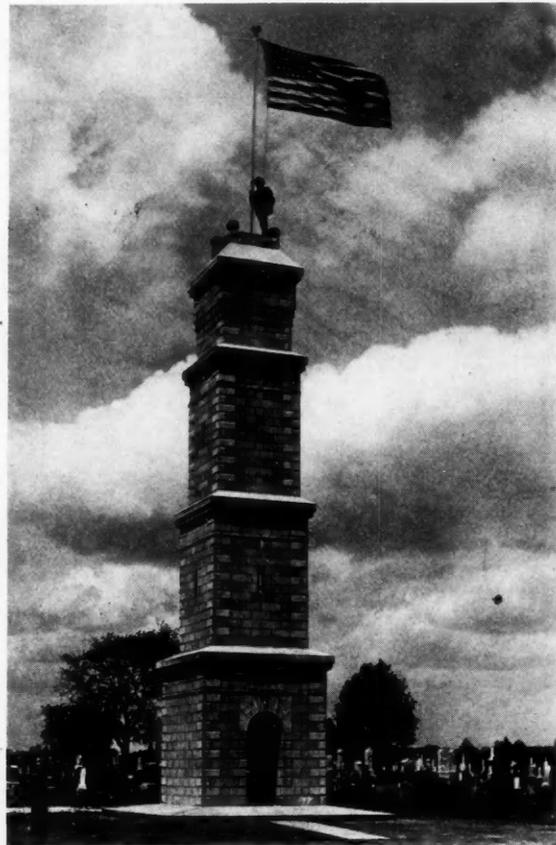
The side handle can be unscrewed and has screw driver bit to fit screws in drill.

The frame is malleable iron, finished in dead black color. The chuck body is malleable iron, polished and nickel-plated. The jaws are of steel, drop forged and hardened. The spindle of steel and gears are cast iron with cut teeth. The driving gears are 4 1/2 and 2 inches diameter, and driven gears on spindle 1 1/2 inches diameter.

The wood handle is 4 1/2 inches long, large end 2 1/2 inches diameter, and can be detached from frame by the milled nut, and thus use interior of handle as a magazine for drills. Extreme length of drill is 16 1/2 inches.

Beautiful Monument of "Pettyjohn" Block

The accompanying illustration shows a soldiers' monument erected in Casey, Ill., and which was completed in time for the G. A. R. decoration and dedication held in Casey, Ill., on



Monument of Concrete Blocks at Casey Ill.

May 28th.

The monument rests upon a monolithic foundation 18 feet square and 6 feet deep in the ground, and 18 inches above ground, with slanting top, as shown in the photograph.

The monument proper is built from wet process hollow concrete blocks made on the Invincible face-down, wet-process machine manufactured by the Pettyjohn Company of Terre

The advertisement is a collage of architectural drawings of school and library buildings. The drawings are arranged in a circular pattern around a central text block. The buildings vary in style, from grand classical structures with columns to more modest, practical designs. Some drawings are in rectangular frames, while others are in circular frames. The central text block is a white oval shape with black text.

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.

YELLOW PINE FLOORS, TRIM AND DOORS

The standard wood for general specification, because it can be relied upon to the fullest extent, and the price is satisfactory.

Sanitary, non-absorbent, hard and durable—easily kept clean and in perfect condition, readily receives, and satisfactorily holds all finishing materials.

Yellow Pine Edge Grain Flooring is manufactured in standard grades, widths and lengths.

Grades—A, B and C.
Widths— $3\frac{1}{4}$ " and $2\frac{1}{4}$ ".
Lengths—5 to 20 feet.

Some woods are seriously affected by the regular and frequent wetting necessary in all modern buildings, where floors have to be thoroughly cleansed, and bulging and buckling often the result, but **Southern Yellow Pine Edge Grain Flooring** will not *sliver, buckle or curl* under such treatment, and is a thoroughly dependable and available material at any price.

Manufactured in long lengths, it COSTS LESS to lay, and less to buy, and avoids unsightly joints.

A & B Yellow Pine Finish insures clear, bright stock, and decorative grain for interior design.

Yellow Pine Stock Doors—solid or veneer—two or five panel. As practical and desirable as any hard wood door of similar pattern or make.

Always for sale by first class lumber dealers and planing mills.

For any information regarding Southern Yellow Pine, address

**Yellow Pine Manufacturers'
Association**

Suite 707 Wright Bldg., ST. LOUIS, MO.

Haute, Ind. It is of unusual interest that the monument was designed and all of the stones laid by Mr. Joel Weaver, a veteran seventy-five years of age, and who is seen at the top of the monument in the photograph.

The size of the monument proper is 10 feet 2 inches at the base and 47 feet high above the base. Its estimated weight is 225 tons. It is erected in a comparatively level country and forms a landmark for many miles around.

The corner stones of the monument are made with a facing of white Portland cement and white sand, and are therefore pure white in color and are of panel design. The other stones in the monument are made with a facing of crushed blue granite obtained from New Hampshire and are perfectly plain face laid up with a neat mortar joint. The heavy water tables are made in place in forms, the erection of which was supervised by Mr. Weaver.

The monument has attracted much favorable attention in the community and Mr. Weaver was showered with congratulations during the recent decoration and dedication.

"Pullman" Double Extension Bolt

The accompanying illustration shows the "Pullman" double extension bolt for casement windows and French doors. When applied it is entirely concealed, the only parts visible being the handle and escutcheon. This does away entirely with the objectionable features of the surface bolt.



The bolt lies in a groove and is covered with an astragal, attached to the meeting rail of the door or window containing the bolt.

The "Pullman" double extension bolt locks the door at both top and bottom with one-quarter turn of handle only, and it is reversible. This permits the use of the bolt on either right or left hand doors or both, and furthermore, handles can be attached on both sides of the door when desired.

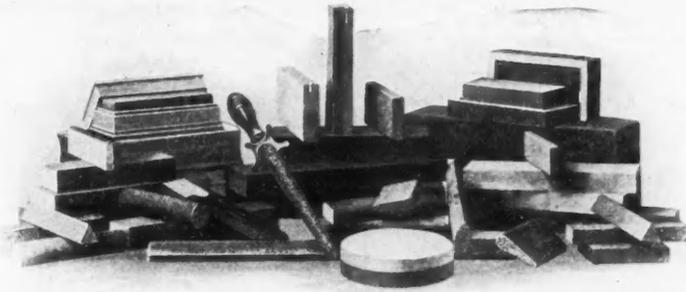
Another advantage of the "Pullman" bolt is the depth of the back-set or distance from front edge of bolt case to center of knob. This makes it possible to install the bolt by ploughing a very shallow groove in the edge of door, yet allowing the placing of knob near the center of rail and far enough back to clear the lap of astragals.

This extension bolt is also furnished with locking device when desired. The only part visible is a small knob. The lock securely fastens both upper and lower bolts, so door cannot be opened from outside, thus making it burglar-proof.

The Pullman Manufacturing Company, Rochester, N. Y., will send full information about this and their other improved builders' hardware fixtures on request.

Dixon Crucible Company Meeting

At the annual meeting of the stockholders of the Joseph Dixon Crucible Company, the old board consisting of Geo. T. Smith, William Murray, William H. Corbin, Edward L. Young, Geo. E. Long, William H. Bumsted and Harry Dailey, were unanimously re-elected. The board of directors re-elected the former officers, namely, Geo. T. Smith, president; William H. Corbin, vice-president; Geo. E. Long, treasurer; Harry Dailey, secretary; J. H. Schermerhorn, assistant treasurer and assistant secretary. William H. Corbin was also re-elected as counsel.



CARBORUNDUM SHARPENING STONES

Cut very fast and very clean—Put a keen, smooth edge on a tool in less time and with less labor than any other sharpening stone—

No man who uses edged tools can afford to be without them.

No. 107	Carpenter's Round Combination Stone	- - - - -	\$1.00
No. 108	Oblong Combination Stone in Aluminum Box	- - - - -	2.75
No. 146	Pocket Stone in neat Leather Case	- - - - -	.35

Ask your dealer for Carborundum Sharpening Stones—If he doesn't have them send direct—Don't be satisfied with anything else—

The Carborundum Company
Niagara Falls, N. Y.

Hot Water \$215 HEATING

man or woman cannot fully understand without special training. A steel boiler will transmit heat from fuel more rapidly than will heavy cast iron. That gives quick response to your fire. The Andrews regurgitating safety valve and group system of piping make 100 feet of radiation do the work of 150 feet by other systems. You can install your own Andrews heating plant or hire a carpenter or handy man to do it. It isn't any more difficult than screwing a nut on a bolt or setting up a stove and stove pipe.

Our Book Tells. Send for it.

Plumbing \$120

THE ANDREWS PLUMBING EQUIPMENT for a house is now made so that no plumber is needed. The pipes are all screwed together and the fixtures are easy to set up. This saves the excessive cost of the proverbial "plumber's bill." The Andrews Plumbing Equipment shown in the illustration, is so reasonable in price and so dependable in quality that no home owner can afford not to know all about it.

Our Book Tells. Send for it.

Write Today for Our Big Book, "ANDREWS 4 SYSTEMS"

72-page Portfolio—Over 300 Fine Illustrations. Every page worth reading. Tells you how to make your home Modern, Comfortable and Sanitary.

ANDREWS SYSTEMS OF HEATING are built upon principles that appeal to the common sense of the purchaser. There is no secret about a heating plant that any full grown

\$75 Air Pressure Water Supply

house using the Andrews air tight tank in the basement or in the ground outside. This is filled by the use of a pump, worked either by a gasoline engine, windmill or hand power, the water being delivered under pressure. It has all the advantages of an overhead tank, but it never freezes, never runs over and the pressure is usually sufficient to throw water over the house, thus giving ample fire protection.

ANDREWS AIR PRESSURE WATER SUPPLY gives to the country home or farm house the essential convenience of city water. You can have running hot and cold water in your house using the Andrews air tight tank in the basement or in the ground outside. This is filled by the use of a pump, worked either by a gasoline engine, windmill or hand power, the water being delivered under pressure. It has all the advantages of an overhead tank, but it never freezes, never runs over and the pressure is usually sufficient to throw water over the house, thus giving ample fire protection.

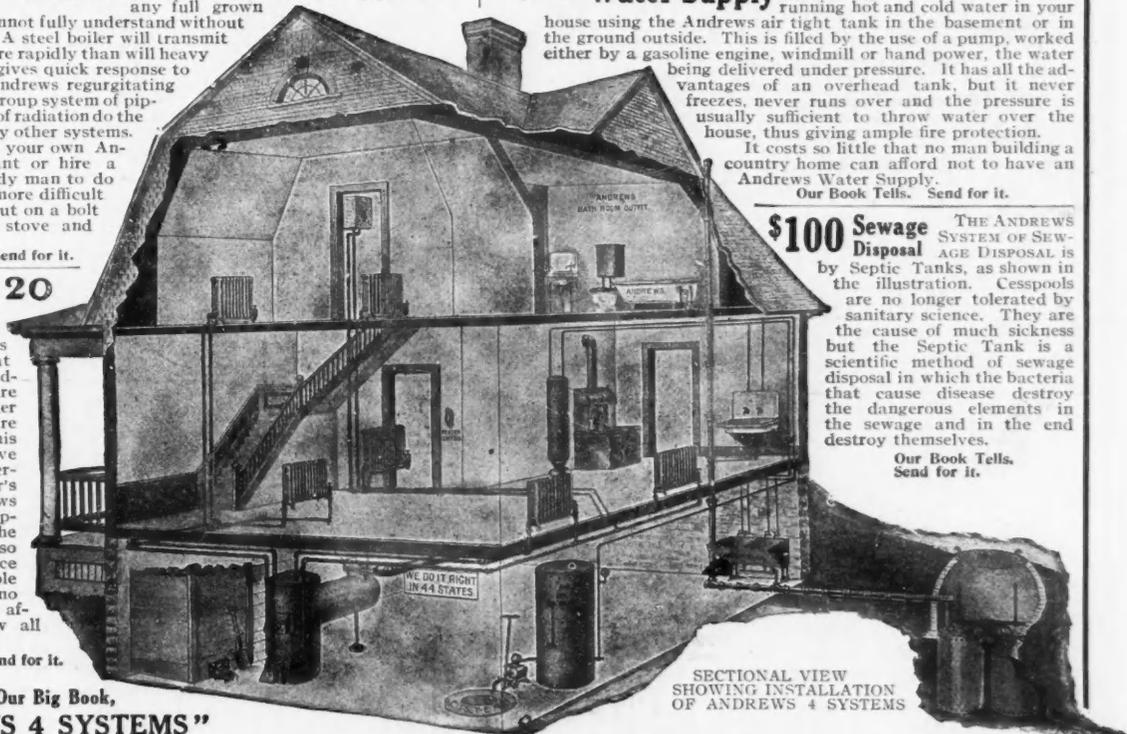
It costs so little that no man building a country home can afford not to have an Andrews Water Supply.

Our Book Tells. Send for it.

\$100 Sewage Disposal

THE ANDREWS SYSTEM OF SEWAGE DISPOSAL is by Septic Tanks, as shown in the illustration. Cesspools are no longer tolerated by sanitary science. They are the cause of much sickness but the Septic Tank is a scientific method of sewage disposal in which the bacteria that cause disease destroy the dangerous elements in the sewage and in the end destroy themselves.

Our Book Tells. Send for it.



SECTIONAL VIEW SHOWING INSTALLATION OF ANDREWS 4 SYSTEMS

ANDREWS HEATING CO., Manufacturers—Contractors—Engineers
1120 Heating Bldg., Minneapolis, Minn.

Trinidad Lake Asphalt

is the natural proven waterproofer. Its use in streets and roofs for over thirty years has shown it to be a mighty storm-defier and weather-resister.

Genasco Ready Roofing

is made of Trinidad Lake asphalt. It prevents cracks, breaks, and leaks. You can't afford to run risks. You want the roofing that proves it is proof.

The Kant-leak Kleet insures watertight seams without cement. Ask for it in Genasco rolls.

Ask your dealer for Genasco. Mineral or smooth surface. Don't go by the looks of roofing; insist on the hemisphere trademark. A written guarantee—if you want it. Write for samples and the Good Roof Guide Book.

THE BARBER ASPHALT PAVING COMPANY

Largest producers of Asphalt, and largest manufacturers of ready-roofing in the world.



PHILADELPHIA

New York San Francisco Chicago

Cross-section, Genasco Smooth-surface Ready Roofing

Trinidad Lake Asphalt
Asphalt-saturated Wool felt
Trinidad Lake Asphalt

GLIDDEN'S GREEN LABEL

SUPERIOR WHITE ENAMEL (GLOSS FINISH)

is the finest quality of white enamel that can be made. It dries quickly, with a beautiful glossy surface that retains its beauty through exposure and wear and does not turn yellow. Is easily kept clean and is not affected by repeated washing. It is intended for use on the finest interior wood-work, and can be used over old varnish or painted surfaces with most excellent results. Can be rubbed to a dull finish.



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

For sale by paint dealers everywhere. If not at yours, we will send by prepaid express upon receipt of price. Full descriptive price list upon application.

THE GLIDDEN VARNISH COMPANY
Makers of high-grade varnishes for all purposes
Glidden Building
CLEVELAND, O.

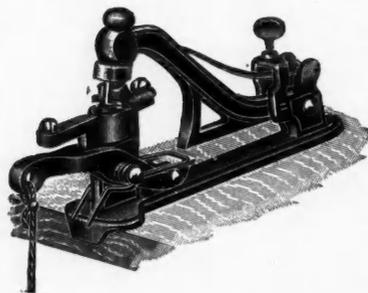
VARNISHES FOR ALL PURPOSES

The stockholders present expressed themselves as thoroughly satisfied with the management of the company by its officers.

Of the total number, 10,000 shares, there were represented 8,856 shares.

"Buckeye" Saw Set and Vise

The Buckeye Saw Vise Company, of Cleveland, Ohio, have placed on the market a foot-power saw set which, it is claimed, surpasses any other saw set on the market.



One of the good features of this set is that it strikes only the point of the tooth and does not bend the blade of the saw, as is so common with the pincher sets. By means of the different adjustments it

will set any saw from the finest point finishing saw to the two-man crosscut saw. They are so positive of the merits of this set, that they will ship you one with the understanding that, if you are not entirely satisfied that it is the best saw set you ever used, you can return it and get your money



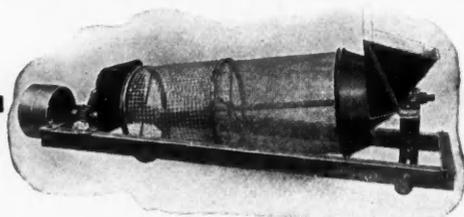
back. They also make the Buckeye folding saw vise that has been on the market the past seven years and the sale of which has been rapidly increasing each year, sales for 1909 being over 800 dozen.

The good features of this vise are that it folds up in a neat



compact form for the tool chest and can be attached or detached to bench without screwing or clamping by means of folding hooks which are driven into the bench.

Another important feature is that a saw can be jointed on it, which, so it is claimed, cannot be done on any of the



REVOLVING SAND SCREENS

If you have sand or gravel to screen or grade you should know more about the S. & S. Revolving Screens. Write us giving an idea of your requirements and we will gladly send literature, prices, etc.

THE CEMENT TILE MACHINERY COMPANY
2482 Rath Street, WATERLOO, IOWA.

Murphy Varnishes and Colors are Notable Exceptions to The House Builder's Rule.

The Rule is, in Selecting Materials, a Compromise between Value and Cost.

With Murphy Varnishes and Colors you don't sacrifice value to lessen cost.

They give you the Lesser Cost Because They are of Highest Value.

Let us tell you how to prove it for yourself, so you never can doubt it.

Address us at 222 McWhorter St., Newark, N. J.

MURPHY VARNISH COMPANY, FRANKLIN MURPHY, President

THE VARNISH THAT LASTS LONGEST

NEWARK

BOSTON

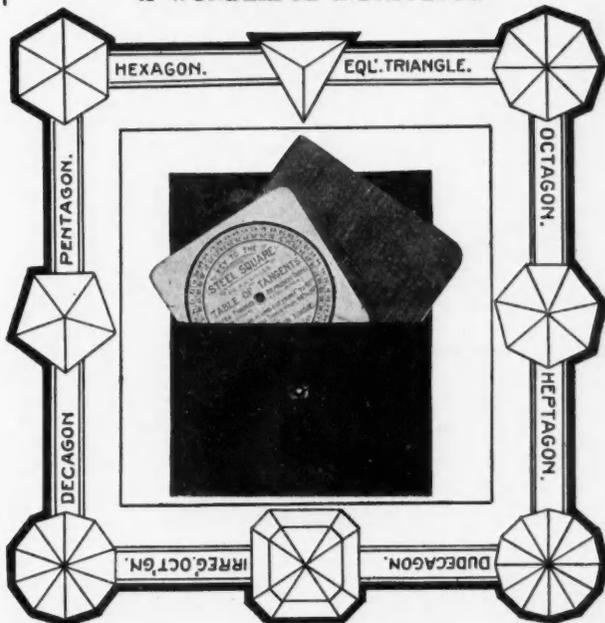
CLEVELAND

ST. LOUIS

CHICAGO

Associated with DOUGALL VARNISH COMPANY, Limited, MONTREAL, CANADA

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

Public Garage
Type Pitless Turntable with steel wheels and kind of Garage floor. May also be equipped with electric motor for rotating any fully equipped motor car conveniently in either or both directions.

DRIVE A CAR OVER HIS CURB.
A Turntable for the Home and Garage.
Turntable No. 10. 17" diameter for 10" cars. 22" diameter for 12" cars. 28" diameter for 14" cars. 34" diameter for 16" cars. 40" diameter for 18" cars. 46" diameter for 20" cars. 52" diameter for 22" cars. 58" diameter for 24" cars. 64" diameter for 26" cars. 70" diameter for 28" cars. 76" diameter for 30" cars. 82" diameter for 32" cars. 88" diameter for 34" cars. 94" diameter for 36" cars. 100" diameter for 38" cars. 106" diameter for 40" cars. 112" diameter for 42" cars. 118" diameter for 44" cars. 124" diameter for 46" cars. 130" diameter for 48" cars. 136" diameter for 50" cars. 142" diameter for 52" cars. 148" diameter for 54" cars. 154" diameter for 56" cars. 160" diameter for 58" cars. 166" diameter for 60" cars. 172" diameter for 62" cars. 178" diameter for 64" cars. 184" diameter for 66" cars. 190" diameter for 68" cars. 196" diameter for 70" cars. 202" diameter for 72" cars. 208" diameter for 74" cars. 214" diameter for 76" cars. 220" diameter for 78" cars. 226" diameter for 80" cars. 232" diameter for 82" cars. 238" diameter for 84" cars. 244" diameter for 86" cars. 250" diameter for 88" cars. 256" diameter for 90" cars. 262" diameter for 92" cars. 268" diameter for 94" cars. 274" diameter for 96" cars. 280" diameter for 98" cars. 286" diameter for 100" cars. 292" diameter for 102" cars. 298" diameter for 104" cars. 304" diameter for 106" cars. 310" diameter for 108" cars. 316" diameter for 110" cars. 322" diameter for 112" cars. 328" diameter for 114" cars. 334" diameter for 116" cars. 340" diameter for 118" cars. 346" diameter for 120" cars. 352" diameter for 122" cars. 358" diameter for 124" cars. 364" diameter for 126" cars. 370" diameter for 128" cars. 376" diameter for 130" cars. 382" diameter for 132" cars. 388" diameter for 134" cars. 394" diameter for 136" cars. 400" diameter for 138" cars. 406" diameter for 140" cars. 412" diameter for 142" cars. 418" diameter for 144" cars. 424" diameter for 146" cars. 430" diameter for 148" cars. 436" diameter for 150" cars. 442" diameter for 152" cars. 448" diameter for 154" cars. 454" diameter for 156" cars. 460" diameter for 158" cars. 466" diameter for 160" cars. 472" diameter for 162" cars. 478" diameter for 164" cars. 484" diameter for 166" cars. 490" diameter for 168" cars. 496" diameter for 170" cars. 502" diameter for 172" cars. 508" diameter for 174" cars. 514" diameter for 176" cars. 520" diameter for 178" cars. 526" diameter for 180" cars. 532" diameter for 182" cars. 538" diameter for 184" cars. 544" diameter for 186" cars. 550" diameter for 188" cars. 556" diameter for 190" cars. 562" diameter for 192" cars. 568" diameter for 194" cars. 574" diameter for 196" cars. 580" diameter for 198" cars. 586" diameter for 200" cars. 592" diameter for 202" cars. 598" diameter for 204" cars. 604" diameter for 206" cars. 610" diameter for 208" cars. 616" diameter for 210" cars. 622" diameter for 212" cars. 628" diameter for 214" cars. 634" diameter for 216" cars. 640" diameter for 218" cars. 646" diameter for 220" cars. 652" diameter for 222" cars. 658" diameter for 224" cars. 664" diameter for 226" cars. 670" diameter for 228" cars. 676" diameter for 230" cars. 682" diameter for 232" cars. 688" diameter for 234" cars. 694" diameter for 236" cars. 700" diameter for 238" cars. 706" diameter for 240" cars. 712" diameter for 242" cars. 718" diameter for 244" cars. 724" diameter for 246" cars. 730" diameter for 248" cars. 736" diameter for 250" cars. 742" diameter for 252" cars. 748" diameter for 254" cars. 754" diameter for 256" cars. 760" diameter for 258" cars. 766" diameter for 260" cars. 772" diameter for 262" cars. 778" diameter for 264" cars. 784" diameter for 266" cars. 790" diameter for 268" cars. 796" diameter for 270" cars. 802" diameter for 272" cars. 808" diameter for 274" cars. 814" diameter for 276" cars. 820" diameter for 278" cars. 826" diameter for 280" cars. 832" diameter for 282" cars. 838" diameter for 284" cars. 844" diameter for 286" cars. 850" diameter for 288" cars. 856" diameter for 290" cars. 862" diameter for 292" cars. 868" diameter for 294" cars. 874" diameter for 296" cars. 880" diameter for 298" cars. 886" diameter for 300" cars. 892" diameter for 302" cars. 898" diameter for 304" cars. 904" diameter for 306" cars. 910" diameter for 308" cars. 916" diameter for 310" cars. 922" diameter for 312" cars. 928" diameter for 314" cars. 934" diameter for 316" cars. 940" diameter for 318" cars. 946" diameter for 320" cars. 952" diameter for 322" cars. 958" diameter for 324" cars. 964" diameter for 326" cars. 970" diameter for 328" cars. 976" diameter for 330" cars. 982" diameter for 332" cars. 988" diameter for 334" cars. 994" diameter for 336" cars. 1000" diameter for 338" cars.

If You Have Any Pride
In keeping up the appearance of your premises as well as your motor car you cannot possibly afford to overlook the sanitary, clean and practical annular Ball Bearing.

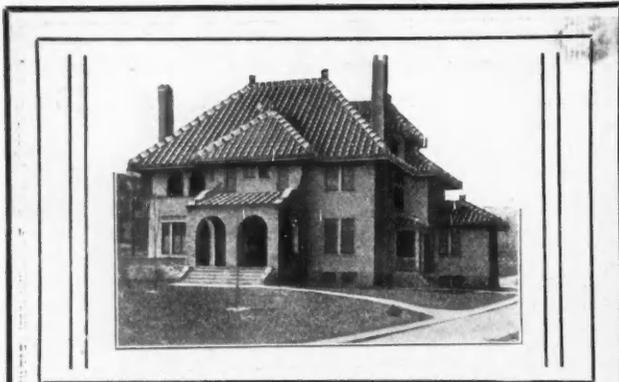
PITLESS TURNTABLE
Can be installed in thirty minutes by an ordinary workman without the slightest marring or as much as a nail scratch in any public or private garage. Out of doors or in basement, on wood or concrete floors. There can only be one first cost on a PITLESS TURNTABLE because they are guaranteed FOREVER, and besides, this first cost is decidedly less than the installation expense of the hazardous, filthy and danger traps of the old style turntables requiring a Pit or Building Alteration.

To concrete your yard in front of garage for purpose of washing and backing car around is not only to make an otherwise beautiful lawn into a very unsightly eyesore but the expense of such concrete work alone will buy several Pitless Turntables.

The cheapest accident insurance ever offered the Motorists is an investment in a PITLESS TURNTABLE—because it is not only wrong to back your car continually but extremely dangerous to life, limb and car, irrespective of how expert you may be in handling an automobile. The expense of one accident to car will pay for several turntables.

Write today for our ART CATALOG
Giving full particulars, weights, dimensions, etc.

PITLESS AUTO TURNTABLE CO.
FULLY PROTECTED BY PATENTS
KANSAS CITY MISSOURI
FULLY PROTECTED BY PATENTS



AN EDWARDS METAL SPANISH TILE ROOF

COSTS NO MORE THAN A GOOD TIN ROOF

Artistic and Ornamental in appearance and is positively guaranteed to be Fire, Lightning, Rain, Storm and Wind proof.

Its extreme lightness (about one-eighth that of slate), durability and moderate cost commend it to those wishing something out of the ordinary in roofing.

Manufactured from best quality Worcester Grade Terne Plate, furnished painted or galvanized (galvanized after being formed) size 10 x 14 inches.

Descriptive Booklet sent free on request

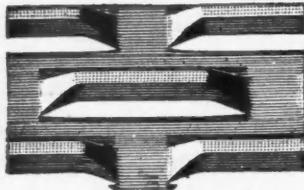
The Edwards Manufacturing Co.

"The Sheet Metal Folks"

401-417 Eggleston Ave.

Cincinnati, Ohio

SYKES METAL LATH



that can be plastered on either side — cannot be applied wrong because both sides

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

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.

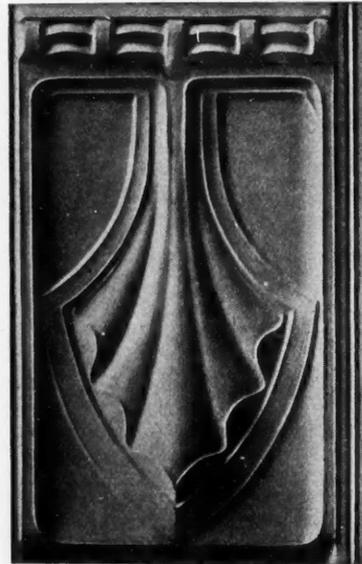
NILES, OHIO



overhanging folding vises. It is 14 inches long and weighs 3½ pounds.

Scott Sheet Metal Goods

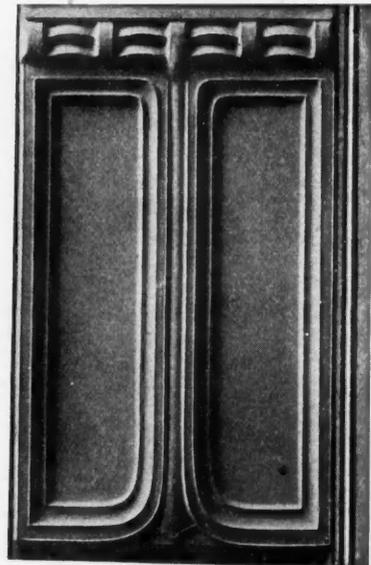
"Artile" shingles, styles "A" and "B," are illustrated herewith. These metal shingles are being put forward as something of a leader by the



Scott Roofing and Manufacturing Company, of Cincinnati, who for the past 37 years have been serving the building public by the high quality of their sheet metal goods and by their prompt attention and shipment of all orders. With large factories at both Parkersburg, W. Va., and Cincinnati, Ohio, each carrying a large and complete stock of sheet metal goods, the Scott company have been able always to make prompt shipments of first quality materials; this has been greatly appreciated by the builders and accounts for the high place that this concern occupies in the estimation of a large part of the building trades.

The Scott company's "Artile" is said to be the most complete up-to-date shingle on the market. Both "Style A" as well as "Style B" are models of the very highest class of architecture. Every line is well defined and their locking parts are mechanically perfect. A thoroughly solid, watertight joint is assured. The claim is made that these shingles cannot be equalled for artistic finish and beauty, combining this with stability and lasting qualities.

They are made in galvanized metal and painted tin and are packed one square per box.



We are informed that the Scott Roofing and Manufacturing Company desire local agents in every locality. The readers of the AMERICAN CARPENTER AND BUILDER will do well to investigate their proposition. Also write today for their complete catalog.

Keeping Step With Progress

Modern business men and mechanics must strike the modern pace. Opportunity changes her pass-word every day. Things are moving four times as fast as they used to. The man who doesn't keep in step with the times, must drop out of line. There's no room for him. The man behind him is waiting to take his place—he cannot enter the race on a borrowed ticket—he cannot pass on a borrowed name. The

ASBESTOS "CENTURY" SHINGLES

"The Roof that Outlives the Building"

It's a very nice question and one that the architect must decide for himself, whether he can afford to recommend any roofing that is less permanent than Asbestos "Century" Shingles.

It is he and no one else who must stand the resentment of the client who finds his roof going back on him.

Asbestos "Century" Shingles give permanent roofing protection. You can stand behind them. Made of reinforced concrete—hydraulic cement reinforced with asbestos



Asbestos "Century" Shingle Roof—Union Passenger Station, Salt Lake City, Utah.

fibres—compacted by tremendous pressure. They are absolutely indestructible.

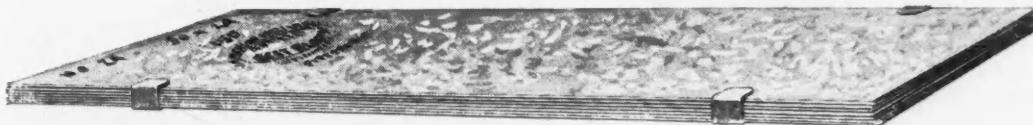
Fire-proof, weather-proof, time-proof. No painting or repairing. *Your client is freed for all time from maintenance expense.*

Cannot rot, rust, split, crack or blister.

Come in numerous shapes and sizes. In three attractive colors—Newport Gray (silver gray), Slate (blue black), and Indian Red. Ask your Roofer for new quotations. Write for Booklet "Timeproof 1910."

The KEASBEY & MATTISON COMPANY, Factors, Ambler, Pennsylvania

APOLLO BEST BLOOM Galvanized Sheets



Highest quality and best known Galvanized Sheets manufactured—possessing exceptional forming qualities and adapted to all forms of sheet metal work. Apollo quality is the result of years of careful manufacture and these sheets cannot be excelled. Gauges 10 to 30 inclusive. Send for weight card.

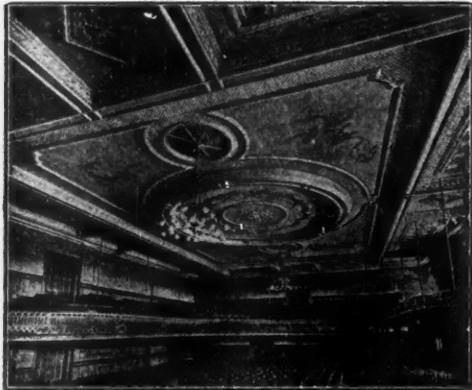


American Sheet and Tin Plate Company

General Offices: Frick Building, Pittsburgh, Pa.

DISTRICT SALES OFFICES:

Chicago Cincinnati Denver Detroit New Orleans New York Philadelphia Pittsburg Portland San Francisco St. Louis



There's Money for You in Steel Ceiling Work

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

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

Berger's "CLASSIK"

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

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

THE BERGER MFG. CO., Canton, O.

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



Many ready roofings are made of flimsy, light-weight paper, scantily coated, which last only a year or two.

Granite Roofing does not belong in that class.

Good materials and plenty of them are used in making it. There is nothing flimsy or fragile about *Granite Roofing*. It has a heavy sea-grit surface, which takes the place of the usual coat of paint, and wears indefinitely.

Other roofings require coating with some special compound every year or two, but *Granite Roofing* never requires any coating. After the roof is laid, it will take care of itself.

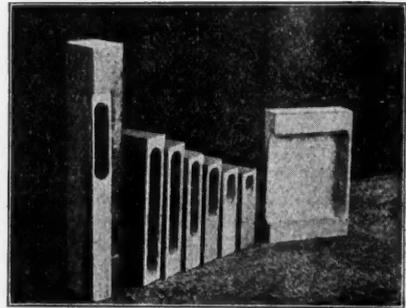
A Free Sample will be sent "for the asking." You will be astonished to see how heavy, firm and durable a ready roofing can be made.

EASTERN GRANITE ROOFING CO.

19 Battery Place, NEW YORK.
CHICAGO ST. LOUIS

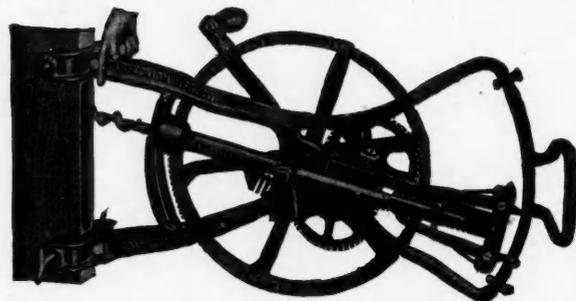
way his father did things is a part of history. We are making precedent now—not following it.

We are whirled across the continent in a night—we ride on the wind—we sail on or under the ocean—we build towering palaces of steel every month, that have thousands of doors that must be mortised for the locks and it is claimed this cannot be done quickly and accurately, leaving the door strong, and holding the lock rigid without the Perfection mortiser.



The examples of the past, the methods of our fathers, are becoming as useless as their cannon. The man of today must have a longer reach; he must be ready to do things quicker and better than our fathers did them.

It is our purpose to keep our readers well informed upon matters of business interest to them; in this connection we desire to direct attention to a machine, which, since its introduction on the market, has proved both popular and of great value. This is the Perfection mortiser, a product of the Perfection Manufacturing Company of Columbus, Ohio. It is also sold by a number of leading dealers in the trade. This machine is said to be well named, for the claim is made for it that it is the most perfect that could be devised for its purpose. It does its work so quickly and so well that those who have fully tested its merits pronounce this machine one of the most valuable that has ever been introduced.



When you wish to change this machine to the different size mortises, simply use a common screw driver. Turning the large adjusting screw in the eccentric to the right increases the length of the mortise; turning it to the left shortens the mortise. With this adjusting screw the machine can be set instantly to make any size opening from a round hole to a 6¼-inch mortise, adjustable to 1/16 inch, and the mortise will be true and perfect without the use of brace and bit or chisel.

The process of operating it is exceedingly simple. Owing to its simplicity of construction there are but few parts, and these are made of the best quality of malleable iron. Its entire make and finish is of the highest order of workmanship, therefore the machine, which weighs about 14 pounds, is strong, reliable and durable. The machine is a time, labor and money saver, and does work that is absolutely accurate, yet the price asked is very reasonable.

One of the cuts shows some of the work the Perfection mortiser will do; the mortise to the left shows how a mortise can be made near the end of a piece of timber. This is done by using a splice that will fit over the end of the piece to be mortised; then the machine is clamped to the splice above and to both splice and piece below.

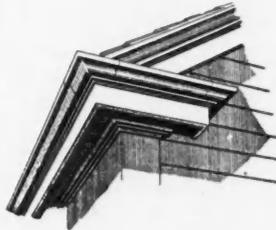
The other mortises show some of the sizes that can be made with this machine, though it can be adjusted to a

ACME WOVEN WOOD LATH

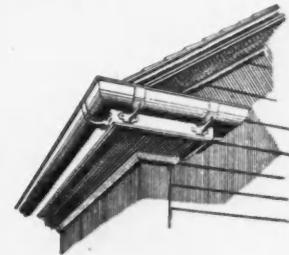
Won't rust, corrode, stain or buckle.
Endorsed by the United States Government.
Learn all about it from our booklet.

Acme Woven Wood Lath Co.
Suite 1015, New Bank of Commerce Building
ST. LOUIS, MO.

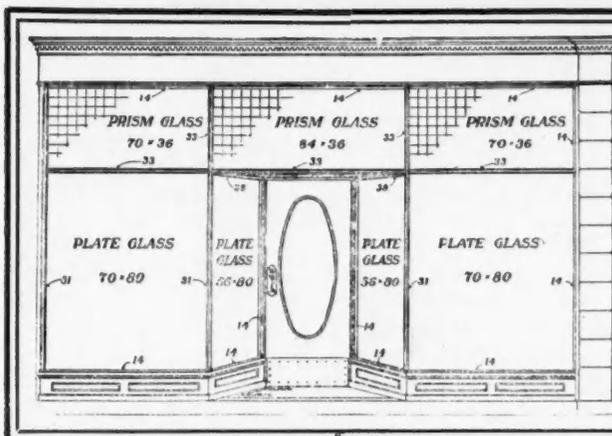
Cast Iron Gutters Last



Easily put up. Once up, always up. Do not bend or break by pressure of ladder against them. Will stand greater weight of snow or accumulation of ice than any other gutter. Not affected by acid fumes that in some vicinities play hob with all other metal gutters. They are adaptable to any kind of building or type of construction. Cast with moulded face to form part of cornice, or rounded to serve as a hanging gutter. Used almost exclusively in England and all over Europe. Supplied in 6 feet lengths. Joints fitted ready to erect. No soldering required. Send at once for circular and prices.



HITCHINGS & COMPANY, Elizabeth, N. J.

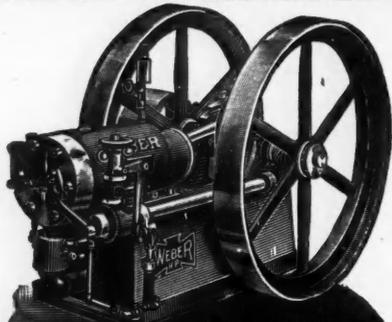


You'll Like This Bar

The Petz Bar will appeal to you because of its strength and rigidity, which afford perfect protection to the plate glass; also because of its fine appearance and the fact that it takes so little space. Its strength is endorsed by the insurance experts and its beauty makes it a favorite with the architects. For both reasons you should specify Petz Bars.

"Modern Store Front Construction" a booklet illustrating the various forms of Petz construction will interest you. Write for it today

DETROIT SHOW CASE CO., Sole Makers
491 West Fort St. DETROIT, MICH.



The Engine of Reliable Records

Getting the most engine for your money, Mr. Carpenter, does not mean buying the cheapest. It is securing an engine that will give reliable results year in, year out—speed must be steady and uniform—absolute interchangeability of parts assured—actual power must equal rating. Every requirement of the man who wants a simple, reliable, powerful engine is met by the

Weber Gas or Gasoline Engine

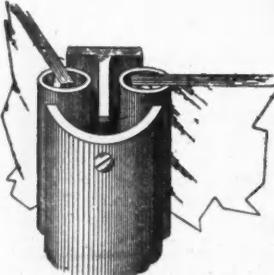
Some of its special features are—underground gasoline reservoir for main gasoline supply—gasoline pump, pumping supply to engine; surplus returning to reservoir—electric igniter—heavy and rigid construction (see cut)—a perfect control governor by which the operator can change speed instantly—all parts easy of access and guaranteed interchangeable.

Sold Under Our Absolute Guarantee

It will pay you to find out just how much a Weber Engine will increase the capacity of your shop and at an actual saving of cost in operation. Write us today for our new illustrated catalog and allow us to send a list of the inexpensive time saving, labor saving shop machinery you can operate with a Weber.

Sheffield Gas Power Co.
127 Winchester Place Kansas City, Mo.

Let it Furnish Power for You



The Universal Sash Bar

Makes any angle, allows for settling of building, keeps windows from frosting.

Standard Store Front Construction of the World

Glass set from the outside

Write for latest catalogue

Voltz Manufacturing Co.
1101-1103 S. 8th St. St. Joseph, Mo.

1/16-inch. The mortise to the right shows the actual shape of each and every size made with the Perfection, straight in at the top and bottom, and with a straight back wall.

All the mortises in this cut were made with a 11/16-inch bit and were never touched with any tool before or afterward.

Those interested in learning further details should address the manufacturers, and they will furnish you with their eight-page descriptive and illustrated catalogue. This machine has been on the market for two years and they report not one returned machine on hand, and not one machine out that has not been paid for.

Cross-Cut Saw Handle

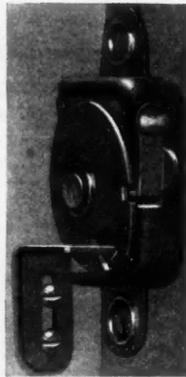
A new handle known as No. 6, being marketed by the Simonds Manufacturing Company of Fitchburg, Mass., is



rightly described as, neat and strong. The illustration herewith shows the mechanical construction. Made with a malleable iron loop casting, the loop screwing up into a threaded ferrule at the bottom of the handle. Ferrule made exceptionally strong, bringing liability of breakage down to a minimum. This handle was designed by an experienced woodsman and is so practical that it has met with immediate success, as is demonstrated by a large demand from hardware and supply stores.

Automatic Screen Door Catch

The E. L. Watrous Manufacturing Company, of Des Moines, Iowa, has lately put upon the market, a new automatic screen door catch, known as the No. 21.



The catch has a lot of good points, which they claim make it superior to any other on the market. Those which they most desire to emphasize are:

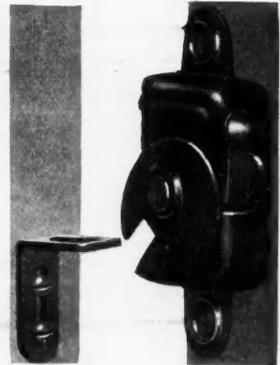
1st. The ease with which it can be set, as it comes flush on the door and needs no templet or diagram, which appeals to carpenters, as they do not like to "fuss" with a small piece of hardware, and have to make several trials before they get it on straight.

2nd. The positive lock is an extremely desirable feature, making a secondary fastener unnecessary. Though they offer the catch both with and without the

lock, the overwhelming majority of their sales has been made on the catch with the positive lock.

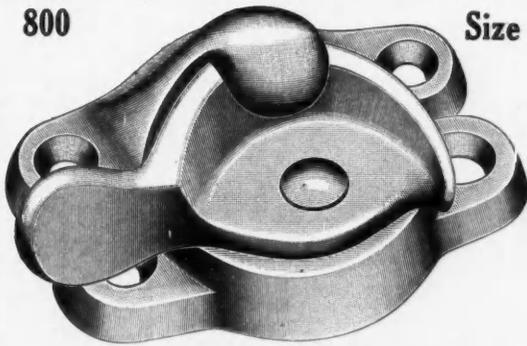
3rd. They have retained on this catch, the adjustable strike, which they have found to be such a winner on their No. 5 catch, and have made the metal nearly twice as heavy, so that this catch is really a lock that will stand a great deal of abuse before it can be broken. No mere accident will put it out of commission, but anyone trying to break in, would find it easier to break the door than to break this lock.

4th. It has good workmanship throughout, and it "looks like the money." You will find no rough or split corners. They have introduced a special new embossing so that the cam cannot drag over to one side and bind, and altogether, it is a good piece of shelf hardware.



800

Size



88-Page Catalogue Hardware
Specialties Mailed Free

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.

Architects & Engineers' Supply Co.

DRAWING & SURVEYORS INSTRUMENTS

BOUGHT, SOLD AND REPAIRED

ARTISTS' MATERIALS

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::

Kansas City, Mo.

Honeywell Hot Water Heating is the Best

THE HONEYWELL SYSTEM

It is not only the cheapest system to install, but by far the most sightly, 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 $\frac{3}{4}$ " 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.

34,000 SYSTEMS IN USE

Endorsed and Sold by the Leading Manufacturers of Heating Materials.

Free engineering advice given the trade on all installations. Failure 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 is revolutionizing hot water heating.



Honeywell Heating Specialty Company

Plant and General Offices

WABASH

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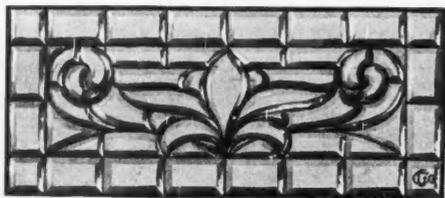
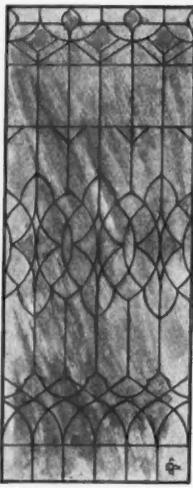
INDIANA



THE HONEYWELL
"THE CLOCK"
THERMOSTAT

THE HONEYWELL "TYPE"
HOT WATER RADIATOR VALVE

ART GLASS

We manufacture

Clear, Bevel Plate, Mitred Bevel Plate & Colored Glass

—Set in—
Lead, Zinc, Copper or Brass

—For—
Residences, Public Buildings and Churches

Special designs quickly and satisfactorily executed.

Write today for our beautifully illustrated catalog.

Clinton Glass Co. 1001 W. 21st St., Chicago, Ill.

Art Glass Service

The work of the Clinton Glass Company, of Chicago is doubtless already well known to many of the readers of the AMERICAN CARPENTER AND BUILDER. For more than ten years

they have been proving to builders and dealers the advantages gained by the use and sale of Clinton Art glass products.

It is stated that this company does a quality business; they believe in quality, talk quality and deliver quality in every panel of ornamental glass shipped.

Although their assortment of stock designs is always complete, they make to order special designs in art glass of every description—fine church windows and beautiful landscape panels without any painted work whatsoever.

Their record for careful packing and safe shipment is nearly as perfect as possible—losses less than one out of 1,000 shipments—think of it, less than one-tenth of one per cent.

It is stated that you'll find their prices lower for the same class of goods than those quoted by others—and you don't need to be an art glass critic to see the superior finish and artistic design of the goods.

Classification of freight rate on leaded glass changed May 1, 1910, from 1½ times first class to 2nd class. This applies to plain commercial patterns.

Consult their catalog—or write about any special design you want. They state that they can make any design shown in any art glass catalog published and save you money, time and trouble on the job.

If you haven't a copy of their new enlarged catalogue be sure to ask for one. The Clinton Glass Company, Chicago, will mail it free and it will be a big help to you in getting business.

Douglas Fir

Although Douglas fir is widely distributed throughout the Pacific coast and Rocky Mountain states, the greatest forests of this species are in Washington and Oregon, and but relatively little is manufactured into lumber elsewhere. The total output in 1908 was less by 1,073,758,000 feet, or 22.6 per cent, than in 1907.

Oak

Many different species of oak are cut for lumber. Among the kinds most used are white, red, chestnut, chinquapin, bur and Spanish oaks. The production of oak lumber has fallen off heavily in the last 10 years. In 1908 it was less by 947,249,000 feet, or 25.5 per cent, than the cut of 1907. The oaks are very widely distributed, and no one state leads decisively in the production of oak lumber. Kentucky and West Virginia reported practically the same quantity in 1908. Tennessee ranked third and Arkansas fourth, with Pennsylvania and Ohio following in the order named.

UNION METAL COLUMNS

Most Durable Columns for Porches and Pergolas

MADE in all required sizes from the smallest up to 40 inches in diameter and as high as 35 feet, following Classic designs.

They support far more weight than the best wood columns of same diameter, last much longer, cost no more.

Splitting, Warping and Rotting Impossible

Made with fluted and tapered steel shafts and best gray cast iron bases and capitals. Broadly protected by patents allowed and pending.

In use on homes of every type and size from mansion to cottage, with absolute satisfaction to every owner.

Every Carpenter in the Country—
should send for catalog and prices.

The Union Metal Mfg. Co.
530 Clifton St., Canton, O.



ROOF WITH SLATE

and forever *end* all roofing trouble and expense. A slate roof adds to the appearance and value of any property while

SEA GREEN OR PURPLE ROOFING SLATE

does away with repairs for all time; decreases insurance premiums; insures pure cistern water and costs, initially, but a trifle more. Carpenters and Builders are urged to get the book "ROOFS." We send it free. Write now for it.

American Sea Green Slate Company
125 Clark Street - - - GRANVILLE, N. Y.



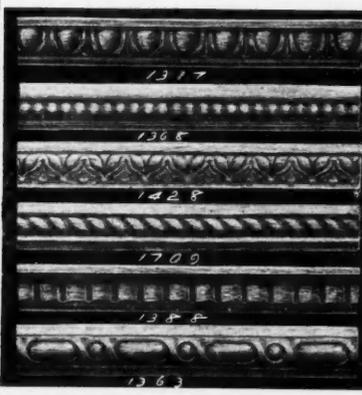
Johnson's Patent Scaffold Bracket Hooks

are safe, strong, and easily put on the brackets. No unsteady or wiggling scaffolds where these hooks are used. Made of best malleable iron. Will save lots of time and money.

Send \$1.00 for Four Sample Bracket Hooks

and make your own brackets; or we will make our complete brackets with hooks, at a low price. Special prices for hooks or complete brackets in large numbers. Ask your dealer, or order direct. Circulars.

Bracket Hook Company,
123 N. Winnebago St. Rockford, Ill.

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



This Book FREE To You

It tells the story of how a carpenter can make big profits. You want to land all work in your locality, the big jobs and the little ones—particularly the large contracts, the big money. Now give us a chance to let our book tell you how

IDEAL

Concrete Machinery

will help you to accomplish this success.

Our book tells how you can earn big money in the concrete hollow block industry. Our book explains how the wonderful Ideal machine with its face down operation and absolute accuracy of mechanical parts makes hollow blocks that sell because of beauty and dependability. It explains how the many varieties of Ideal machinery enable you to do any kind of work.

It shows how we help you to secure business and do first-class work through our Promotion Service Department. It is written for you—to help you increase your business and profits. *Send for it today.*

Ideal Concrete Machinery Company
416 Emerick St., SOUTH BEND, IND. LONDON, ONT.

Practical Art Metal Ceilings

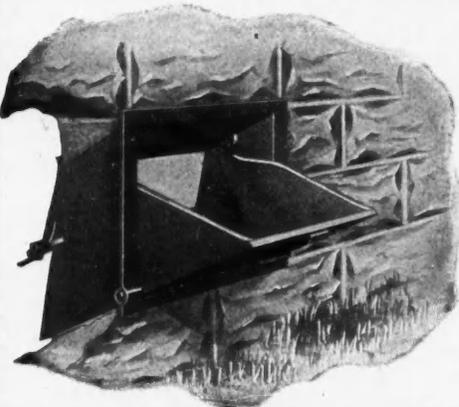


Quickly and easily applied. We are the only manufacturers who cut the heads in the dies after casting. Result—Square and accurate plates—which will save you time and labor in cost of erection.

Send for Catalogue No. 2 which shows 200 new and original designs.

Manufactured by
Wm. Foster & Son Co., Inc.
Springfield Illinois

Also manufacturers of Radiator Shields, Fire Proof Window Frames and Sash, Gal. Iron Fronts, Hip Shingles, Cornice, Skylights



Roenius Wood and Coal Chutes

A NECESSITY TO EVERY MODERN HOME
NO MORE DAMAGED CASINGS OR SASH

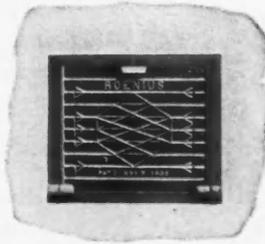
Roenius Chutes are equally desirable for houses of low or high cost.

Nearly 20,000 In Use

Safe from outside tampering or entrance and weather-proof. Are easily opened and locked.

Write for Catalog

Grand Rapids Foundry Co.
High Street - Grand Rapids, Wis.



ERECTION COST

Cut One-Half
—BY USING—

“Canton” Ceiling

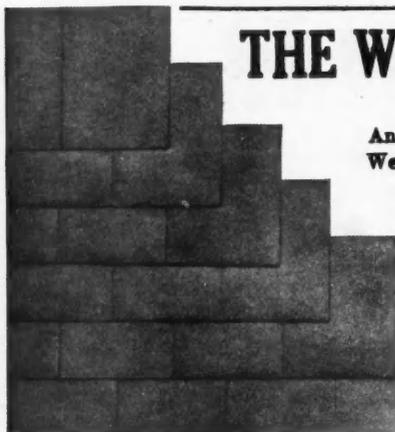
Manufactured by

THE CANTON ART METAL CO.

CANTON, OHIO

Eastern Branch
525 W. 23rd Street, New York City

Western Branch:
1206 S. Third Street, Minneapolis, Minn.



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.

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Do You Know That We Make

Pin Anchors	Tie Rods	Bolts
Joist Anchors	Washers	
Single and Double	Builders' Derricks	
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Your Orders Will Have Our Prompt Attention

UNION ELEVATOR & MACHINE CO.
215-217 W. Ontario St., Chicago

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.



20,000 BARGAINS FOR CARPENTERS!

From Sheriffs', Receivers' and Manufacturers' Stocks

All goods sold on a binding guarantee. Your money back if you're not satisfied.

Every article in this advertisement is guaranteed brand new and first class.

CHICAGO HOUSE WRECKING CO.

Our plant covers 40 acres of ground and is one of the most wonderful mercantile institutions in the land. Our capital is one million dollars. Our responsibility is unquestioned.

Our stock includes practically everything under the sun. Millions of dollars' worth of brand new, high grade merchandise bought by us at various sales, is offered to the public at prices usually less than the original cost of production. We offer an exceptional opportunity to those who buy now, so send us a trial order. This will convince you. Read every word of our greatest sale. Never before have prices been cut deeper than those quoted in this advertisement. Every item means a big saving for you. Make your selection at once.

SEND US YOUR LUMBER BILL FOR SPECIAL DELIVERED PRICES

New Lumber at Wrecked Prices

Shingles—Lath	
-A- Red Cedar Shingles 6-inch Clear Butt	Per M \$2.45
Extra *-A-* Red Cedar Shingles	3.15
No. 2-4 ft. Michigan Soft Pine Lath	3.25
No. 1-.32 inch Hemlock Lath	1.50
Flooring	
No. 2-7-8 x 3 inch 1-4 sawed Georgia Pine Flooring	M Ft. \$15.75
Clear 7-8 x 4 inch Hard Pine Flooring D & M	26.00
Clear 7-8 x 2 Face Michigan Hard Maple Flooring—T&G&EM	39.50
Clear 7-8 x 3 inch 1-4 sawed Georgia Pine Flooring	31.00
Siding	
D Select 1-2 x 4 White Pine Beveled Siding	\$13.00
B & Better 1-2 x 6 Red Cedar Beveled Siding	21.00
No. 1-1 x 4 Canadian Spruce Drop Siding	23.50
C & Better 1 x 6 Arkansas Soft Pine	20.00
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No. 1-2 by 4-8—Yellow Pine Sized	\$17.00
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No. 2-8 & 10 inch Yellow Pine Boards Dressed	18.50
12 inch Barn Boards Dressed	20.00

INTERIOR TRIM

The best quality of kiln dried stock, thoroughly sanded.



8 inch Y. P. Base, price per 100 lin. ft. \$2.45
 4-1-4 in. Y. P. Casing, price per 100 lin. ft. 1.60
 3-3-4 in. Y. P. Window Stool price per 100 lin. ft. 2.25
 7-8 in. Y. P. 1-4 Round price per 100 lin. ft. 0.28

\$8.10 Buys Beautiful Front Door.



LOT 10 A. 13. Soft Pine double A quality glass size 3x7 ft. 1 3/4 in. thick \$8.10

Over 2,000 other sizes and styles of doors shown in our mammoth Catalog.

MIXED WIRE NAILS AT \$1.25 per 100 lb. keg

Write for free circular.

Mill Work Bargains

WINDOW FRAMES

Lot 10 A-100. Everything complete, outside casing 1 1/8 x 4 1/2 inch, main sill 1 3/4 x 3 1/4 inch, sub sill, 7-8x5 3-8, Jamba including stile and blind stops 5 5-8 inch wide, parting strip, etc. Made from sound selected clear face Yellow Poplar, Cypress and White Pine. Price complete in K. D. with pulleys \$1.65



DOOR FRAMES

Lot 10 A-99. Outside door frame, everything complete, outside casing 1 1/8 x 4 1/2 oak sill, 1 3/4 x 7 3/4 rabbetted jamba, 1 3/8 x 5 1/2. Made from the same woods as above. Price complete in the K. D. \$1.85

Mixed Bolts, 2 1/4 c. per lb.



10 tons brand new mixed Machine and Carriage bolts, first class condition, various sizes mixed together, from 3-8 to 1 inch diameter and from 2 to 10 inches long.
 Price F. O. B. Chicago.
 In lots of 25 to 100 lbs. 3c. lb.
 In lots of 100 to 500 lbs. 2 1/2 c. lb.
 In lots of 500 lbs. and up 2 1/4 c. lb.

GREAT HARDWARE OFFER

Lot No. 4-A-1608 Evanston Door Sets; 3000 sets as illustrated. Wrought steel. Antique Copper Finish Plated Front mortise lock 3/4 x 3/4, one plated key, one pair knobs, two escutcheons. Packed complete with screws Per Set \$0.48

Per dozen sets . . . 5.20

Lot No. 4-A-1604—Evanston Wrought Steel Copper Finish Front Door Sets, complete Price per set \$1.40

Lot No. 4-A-699 Upright Rim Knob Locks, Japanned, complete as illustrated and shown. Each \$0.10

Per Dozen . . . 1.10

Lot No. 4-A-706—Mortise Door Locks, Japanned, complete as shown. Each . . . \$0.25

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Lot No. 4-A-719 Wrought steel, ball tipped loose pin Butts, copper finish complete with screws, 3x3 10c. 3 1/2x3 1/2 17c. 4x4 21c. per pair.

Lot No. 4-A-753 Sash Locks, copper finish Each . . . \$0.05

Per dozen . . . 0.48

\$36 Buys 2 H. P. New Gasoline Engine



A Brand new 2 H. P. electrical ignited Gasoline Engine, complete in every detail. Ready to run when you receive it, for \$36.00

This is the greatest offer ever made on Gasoline Engines. This engine is strictly brand new, first class and covered by a binding guarantee. It is the well known "Superior" make.

4 H. P. Gasoline Engine for \$64.00

Larger sizes at equally low prices.

Our five-year guarantee on these engines protects you. Shipped with the understanding that if not entirely satisfactory, may be returned at our expense. No fairer offer could be expected. Every blacksmith or iron worker should have power in his shop, and here is your opportunity.

Write for our great Gasoline Engine Catalog. Tells you how to buy these high grade engines at lowest prices.

Ball Bearing Grindstones \$2.95



Lot No. 4-A-1266. Strongest and easiest running Grindstone on the market. Angle steel frame. Ball bearing journals. 60 lbs. 2 1/2 in. stone, weight 25 lbs. \$2.95

Price... \$2.95

Any of these items sent C. O. D. upon 25% deposit with order

Rawhide Rubber Roofing



The greatest bargain in the world. Fire, hail and weatherproof. Not affected by heat or cold. Used in any climate. Made from pure asphalt. A strictly high grade, lasting covering. Recommended by fire underwriters. 108 sq. ft. to a roll, with large headed nails and cement for laps. Requires no coating. Samples free.

Send for Roofing Booklet—

1 ply Guarantee 6 years \$1.22 per roll
 2 ply " 9 " 1.49 per roll
 3 ply " 12 " 1.71 per roll

At above prices freight prepaid to Ill., Ind., Ia., Ohio, Wis. and Mich.
 Write for prices prepaid to other States.

Steel Roofing, per 100 ft. \$1.60



100,000 Squares of new Steel Roofing, which we are selling at the following prices, freight prepaid.

Flat \$1.60
 Corrugated, V-Crimped or Standing seam, . \$1.85

Structural steel 1 1/2 c. per lb.



Over 10,000 tons of Angles, Channels, Tees, "I" Beams, round, square and flat Bars, all first class stock, standard sizes and lengths, at 1 1/2 c. per lb. and up.

You must send us a list of your wants in merchant or structural steel for prices that will mean a big saving to you.

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Chicago House Wrecking Co., CHICAGO:

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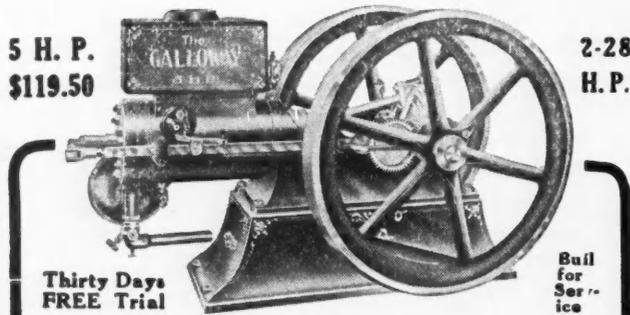
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Chicago House Wrecking Co

35th and Iron Sts., Chicago



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\$119.50

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H. P.

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FREE Trial

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for
Service

The Galloway Gasoline Engine

Owned and made exclusively by the
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will run your shop at several times its present capacity and enable you to take lots of jobs that you have to turn down now because you have not the capacity.

Only four things to do:

Turn on the switch, turn on the oil, turn on the gasoline give the fly wheel a start, and the Galloway will go right along all day without further attention. It is ideal power for a small shop, and it's got the capacity to take care of your growing needs.

The Galloway has been classed as a standard, high-grade engine for fifteen years. Over 4,000 in use in Iowa alone. Thousands in every other State and Territory.

If you try the Galloway engine, you will find that it is not oversped. Remember, the bore and stroke count, and you don't have to drive your engine faster than you ought to drive it to get the rated horse power. Rated by actual brake tests.

On the larger sizes, if it is not entirely convenient for you to pay all cash, we will take your note for the balance at the regular rate of interest for six months.

The price given is for the five-horse power only, but we make these engines in seven sizes.

Ask for free information on stationary and portable gasoline engines from two to twenty-eight horse power. We make the best, and we price them at a reasonable figure. Write today.

The William Galloway Co.

1145 Galloway Station

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ORNAMENTAL GLASS FOR EVERY PURPOSE

You, Mr. Contractor, will find it will pay you to order your Ornamental Glass direct from the Manufacturer.

We make and sell more Decorative Glass for Residences, Churches, Schools, Public Buildings, Offices and buildings of all kinds, than any other manufacturer. We have the largest and most completely equipped factory in the United States for making glass for Front Doors, Transoms, Windows, Chimney Closets, Sideboards, Bookcases, Bathrooms, Office and Bank Fixtures.

In door lights and transoms, we have thousands of patterns and can promptly duplicate any design wanted in

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- Chipped
- Embossed
- Enameled
- Etched
- Mirrors
- Mitered
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- Art Glass
- Sand Blast
- Glass Signs

The cuts shown here are some of our popular standard patterns. Send us a trial order for one or more of these lights. 10 per cent discount on an order amounting to \$10.00.

See page 539, January number American Carpenter and Builder for additional patterns.

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Washington and Union Sts.,
CHICAGO



Saves TIME

STRIPING SO EASY

When You Use
Painters' and Decorators' Striping and Stencil Wheel

Saves MONEY

Price of complete outfit consisting of machine and 10 plain and ALL the here illustrated designs one to twelve Ornamental Roller Designs } **\$5.00**
And 25c postage

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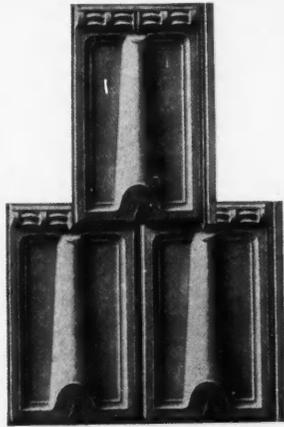
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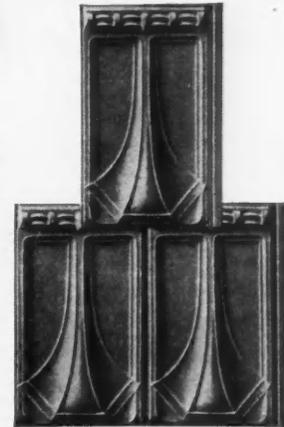


Reeves Embossed METAL TILE

An Ornamental and Protective Roof Covering

Beauty, Permanency, Durability and Serviceability are represented to a higher degree in this weather-proof and wear-proof roof covering than in any metal tile or shingle on the market.

The Embossing Its Most Valuable Feature



To the embossing is due the beauty, strength and rigidity of this tile. It prevents rattling and buckling, and in addition to adding to the durability of the tile by keeping it dry and cool, preserves the roof by permitting a free circulation of air on the under side.



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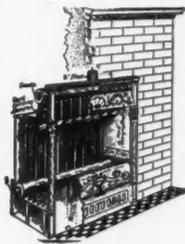
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Mantels of Wood, Brick or Tile



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Everything in Plumbing and Steam Goods at Cut Rates to Everybody

SAVE YOU 30 TO 45 PER CENT



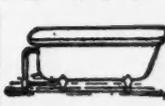
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This Magnificent Enamel one piece Sink. Latest design.



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Artistic Lavatories. Various designs.



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



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



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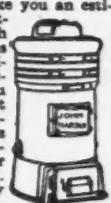
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An advertisement in the "Classified Department" of the AMERICAN CARPENTER AND BUILDER will be the least expensive and the most thorough way of letting your desires be known. Rates 5 cents a word each insertion.

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 Roofing Slate for Houses, Barns, Sheds and Railroad Stations. Clean and ornamental, rain, wind and fireproof.
 Blackboards for Schools, Colleges, etc., are being used all over the World, need no better commendation, "it is just the thing."
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SEE US IN Syr. Corner Block Factory
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 Gentlemen—We are pleased to state that the 25 dozen Clamp Fixtures which we bought of you a little over a year ago are giving excellent service. We are well satisfied with them and shall be pleased to remember you whenever we want anything additional in this line.
 Yours truly,
 SIoux City, Iowa. **CURTIS SASH & DOOR CO.**

RAPID-ACTING WOODWORKER'S VISE No. 3

GRILLES



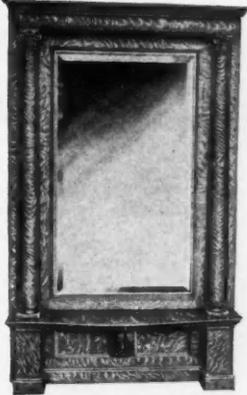
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It contains many fine designs of modern Grilles Columns and Consols.



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Full Length Screens Keep Out All the Flies—Always

The best way to attach full screens is to hang them from the top with

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Screens can be taken off or swung out in a jiffy to wash windows. No ladder or tools needed even on upper stories. Storm sash can be hung with the same fittings.

Samples Free to Carpenters for trial

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MULLINS METAL TILE ROOFING

is simple in construction — secure — durable—absolutely storm and water tight. As expansion and contraction are provided for, it is guaranteed, when put on according to directions, to remain perfect for years.

This handsome metal tile roofing is used on many of the finest buildings in the United States. It is beyond question the most attractive and satisfactory roofing made.

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are made with the idea of turning fire. They are entirely of metal, lock-seamed throughout with no soldered joints in frame, sill or sash. Heat does not affect them in any way, and a Mullins was never known to warp, buckle, contract or expand. Mullins Windows are famous for durability, and will outwear any other feature of the building.

Mullins Fireproof Windows are manufactured under supervision of *Underwriters' Laboratories, Inc.*, according to the latest specifications of the *National Board of Fire Underwriters*, and *every window is inspected, approved and labeled* with their official label.

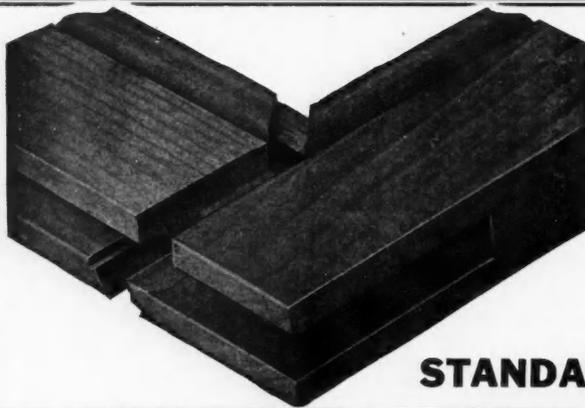
We have catalogues showing our various lines of product. Please specify the particular class of sheet metal work you are interested in and we will send you the proper catalog for same.



W. H. Mullins Company

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'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.

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IRON LINTELS

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Roofing Slate
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Large Facilities, Prompt Deliveries

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**You—Or Your Boy—Can
Make Big Money Building
the “Hi-go”**

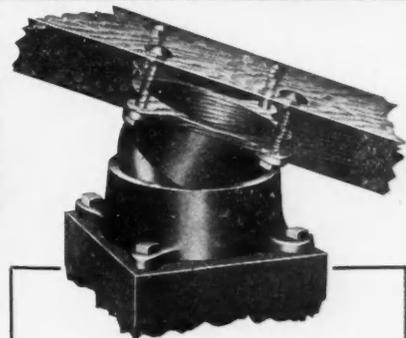
“HI GO” is a See-saw, Merry-go-round and Ocean-Wave all in one—positively the greatest boy-power fun-factory ever built. Makes an instant hit with parents and children wherever shown.

You can get the Hi-go joint for \$2.50 (special prices on dozen lots). The plank and post costs you less than a dollar—and it's a snap to get from \$5.00 to \$6.00 for a complete outfit.

You can build a Hi-go in 20 or 30 minutes, easily. And you can sell them just as fast as you build them, once you get started.

It's a nice, clean, big-profit business. Do you want the exclusive agency for yourself—or your boy? Then write today enclosing \$2.50 for sample on our guarantee of satisfaction or money back quick.

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20th and Morgan Streets CHICAGO, ILLINOIS



THE “HI-GO” ball-and-socket joint is very simple and wonderfully strong, with nothing to get out of order. Will last for years.

The ball moves freely in the socket but the parts cannot be separated, consequently it is impossible for plank to fall off from post.

The “HI-GO” joint is so ingeniously made that the board will rock up and down or spin on a pivot, without any friction.

And there are no adjustments to be made. No mechanical changes are necessary, no matter what the “HI-GO” is to be used for. The board rocks up and down or spins round-and-round with or without wave motion entirely at the will of its users.

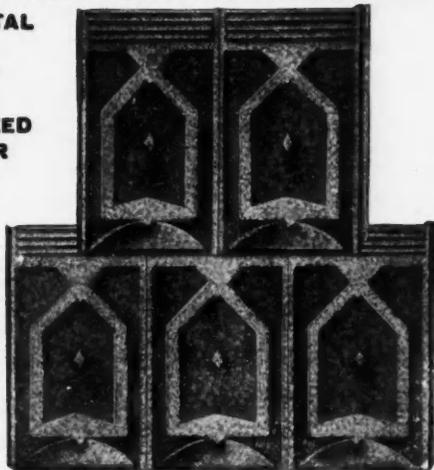
Ideal for the city back yard, the suburban lawn, summer cottage or camp; practical anywhere.

STANDARD—Lock Joint—METAL SHINGLES

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EASILY
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GUARANTEED
WEATHER
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We can save you money on
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This is the
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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

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WALTER'S
Shingles That Last. Never Leak. Never Need Repairs. Made in Painted Tin. Galvanized Tin and Copper.

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Won't Crack Like Slate**

1883 1910

It is a superlative article that increases in demand after 27 years in use.



The only absolutely protected or covered Lock.
No chance here for the lock to flood and leak.

We want an Agent in every city and town. A profitable business and satisfied customers is the experience of the man who handles WALTER'S Shingles and Tiles. Write for Catalogue, Samples and Price.

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"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.

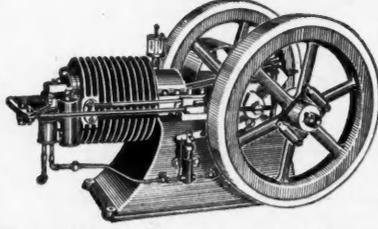
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You should and do know quality. Can you afford to stake your reputation on a poor or cheap Roofing? The best are none too good, and nothing short of the best should pass your inspection.

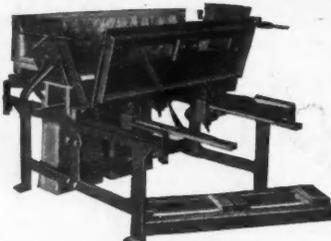


Mastic Roofing

is a safe anchor for your reputation. It costs a little more than the cheap stuff but you don't have to keep after it with a paint brush.

Ask us today for a sample and our proposition. It will make you money.

National Roofing Materials Co.
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Quarry Operators
BLACK, GREEN, PURPLE, RED

Booklet, Samples and Prices on Application

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

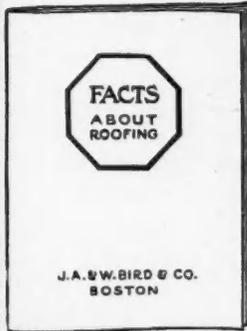
It Pays Best To Use The Best

A job well done will advertise itself and bring you new business. This is especially true of the Roof, which has to stand the wear of the Weather and protect the Building.

REX FLINTKOTE ROOFING

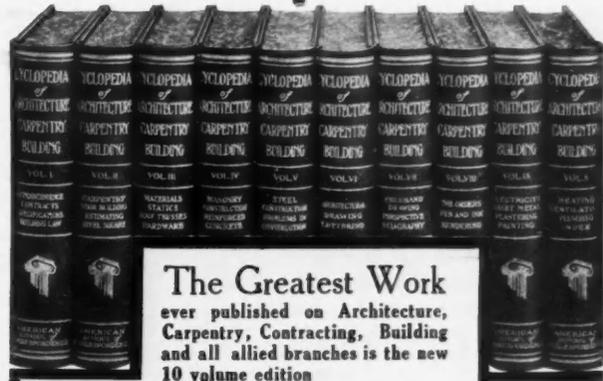
has a world-wide reputation for Quality. It will never fail you. There is no roofing like it. A building roofed with Rex Flintkote is a perpetual source of satisfaction to Owner and Builder. It pays best to use it. It is a permanent roof and low in cost.

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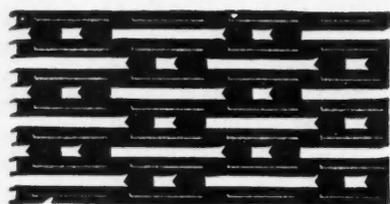
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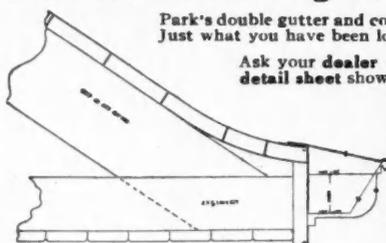
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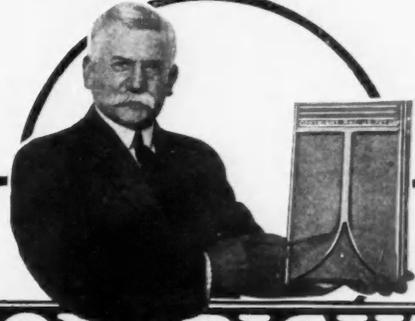
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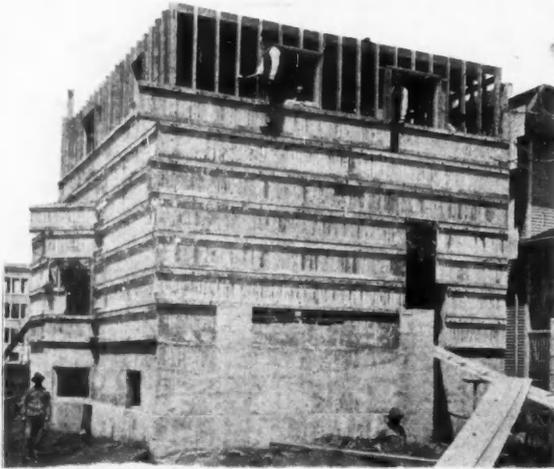
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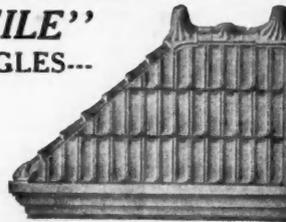
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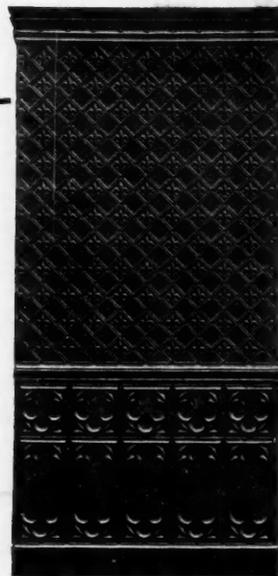
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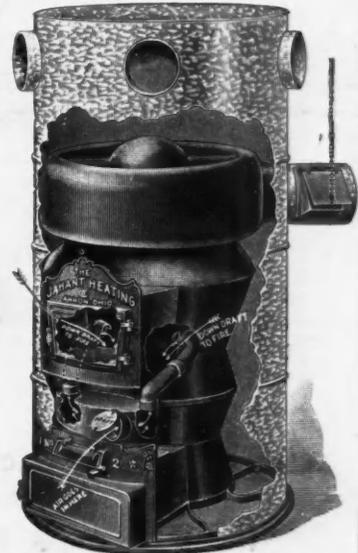
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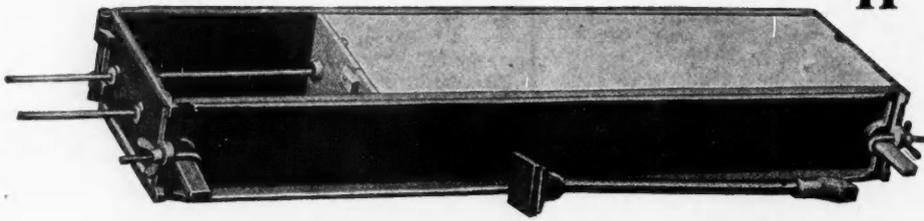
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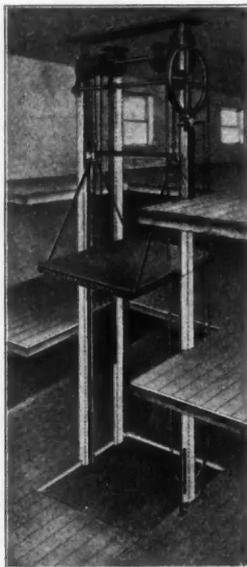
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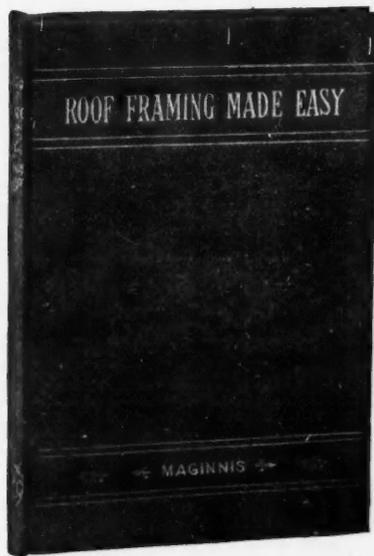
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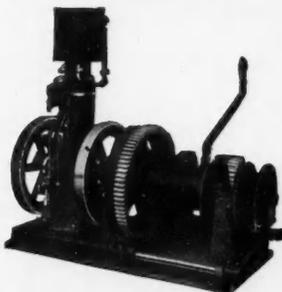
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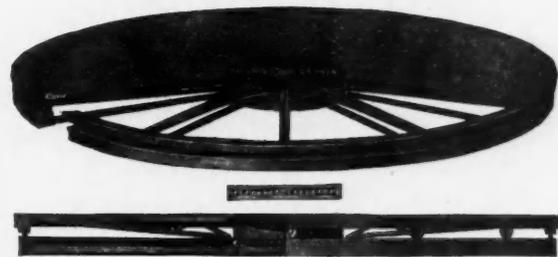


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16 ft.	171 in.	4200 lbs.
18 ft.	197 in.	5000 lbs.
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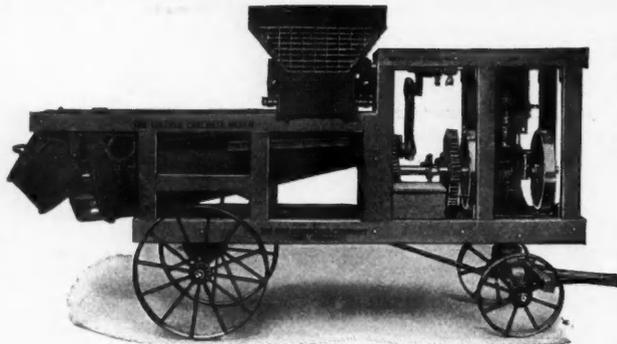
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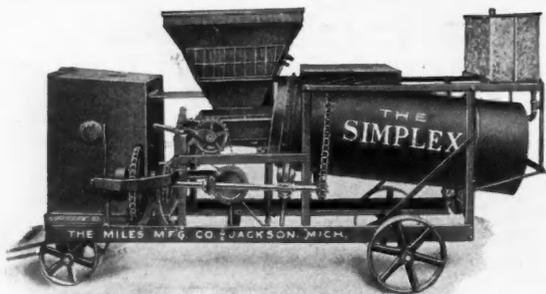
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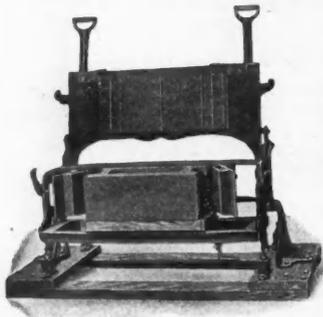
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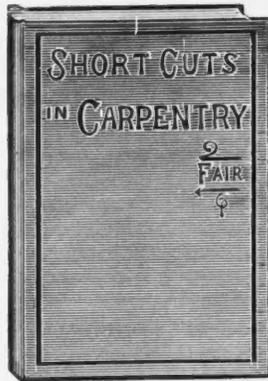
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TO LAY OUT and erect carpenters' work accurately and quickly is an accomplishment desired by all progressive carpenters. In this book, not only the simple rules for the short cut are given, but also the "reason why," so that the carpenter can apply his knowledge to many problems besides those given in this book.

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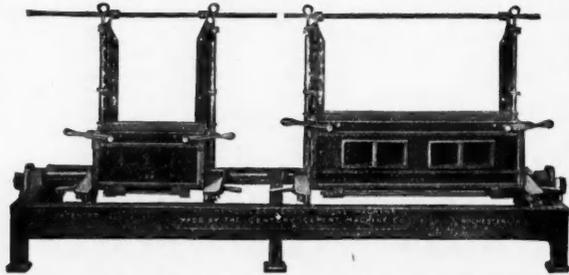
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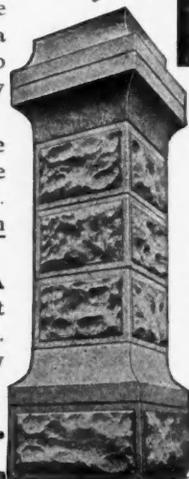
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You ought to see these molds and see how they work. We ship on a fifteen days free trial.

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NOTICE TO ADVERTISERS

New copy, changes and corrections for advertisements must reach office of American Carpenter and Builder, 185 Jackson Boulevard, Chicago, not later than July 20, in order to insure insertion in August number.

BISHOPRIC WALL BOARD

Cheaper and Better Than Lath and Plaster

YOU DON'T HAVE TO WAIT for good building weather when you use Bishopric Wall Board. This substitute for lath and plaster is made of kiln-dried, dressed lath, imbedded in hot Asphalt Mastic under pressure of 500 pounds to the square inch, surfaced with sized cardboard and cut at the factory into 4x4 ft. sheets, of uniform thickness ($\frac{3}{8}$ inch), which are easily and quickly nailed to studding, ready for immediate application of wall paper, paint, burlap or other decoration.



Applied
Dry,
Winter or
Summer

It is applied dry; is guaranteed not to swell, shrink, warp, crack, flake or blister; is clean, sanitary and odorless; is proof against moisture, cold, heat, and vermin; saves fuel in winter and keeps out summer heat; also deadens sound. Is suitable for dwellings, factories, new partitions in old buildings, finishing attics, porches, laundries, cellar ceilings, garages, etc.



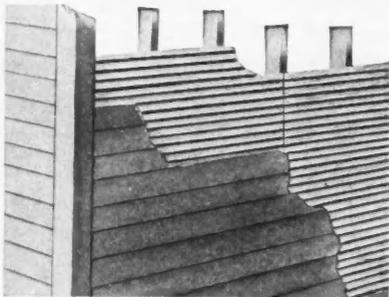
Importance of Lath The lath forms a perfect binder—a guarantee against warping or twisting out of shape. Furthermore, insures perfect adhesion when nailed to studding. Beware of cheap imitations. Bishopric Wall Board is protected by U. S. patents. Prosecution will follow infringement.

PRICE AND SHIPMENT FROM NEAREST POINT: Crate of 16 sheets, covering 256 sq. ft. of surface, \$6.40 or \$2.50 per 100 sq. ft., f. o. b. New Orleans, La., Cincinnati, O., or Alma, Mich.

Saves labor. Does away with building paper. Cheaper than lumber.

BISHOPRIC SHEATHING

Proof against heat, cold, moisture and vermin. Patented.



Made of the same materials used in Bishopric Wall Board and same way, though finish is not necessarily so smooth, therefore costs less. It is nailed to studding on outside of the building, with lath and Asphalt Mastic exposed. Over this you nail weather-boarding. This gives solid sheathing with dead air space between Sheathing lath and siding. Ideal material for cement exterior or stucco work. Cement firmly adheres to lath and Asphalt Mastic, making a solid, smooth exterior. For factory or residence, this form of cement construction is the cheapest and best known.

Bishopric Sheathing is cheaper than lumber; is free from holes and rough spots; is nailed to studding in half the time required for lumber; does away with expense of buying and applying building paper; is proof against heat, cold, dampness, frost, wind and vermin. Being a non conductor, it keeps the building cooler in summer and saves fuel in winter. It is used with excellent results as a lining for dairy barns, poultry houses, driving stables or other outdoor buildings.

Ideal For Cement Exteriors

Illustration to right is from an actual photograph of a New Orleans factory with Bishopric Sheathing and cement exterior. Bishopric Sheathing has been nailed to outside of studding and the exposed lath and Asphalt Mastic have been coated with cement. The artist has indicated with an arrow the exposed lath. This form of cement construction is most durable as well as economical; is fire-proof, moisture-proof, wind proof as well as proof against heat and cold. The cement firmly adheres to the laths, making a solid, smooth exterior. Spaces between parts of laths not fully imbedded in Asphalt Mastic form an excellent key for firmly holding the cement. For factory or residence this form of cement or stucco construction is the cheapest and best known.

PRICE AND SHIPMENT: Crate of 16 sheets, covering 256 sq. ft. of surface, \$5.12, or \$2 per square of 100 sq. ft., f. o. b. New Orleans, La., Cincinnati, Ohio, or Alma, Mich. We ship from nearest point.



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E. C. S. KEEN KUTTER

Carpenters' Special Slim Taper Files;

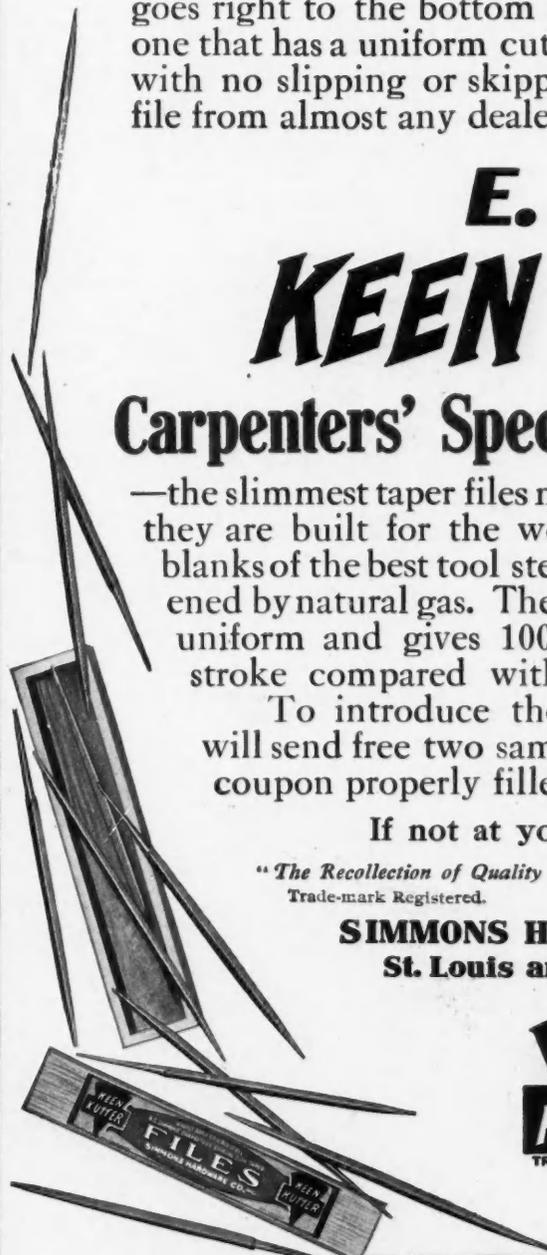
—the slimmest taper files made. Like other Keen Kutter Tools they are built for the work. The teeth are accurately cut on blanks of the best tool steel and then finely tempered and toughened by natural gas. The resulting cutting surface is absolutely uniform and gives 100 per cent cutting efficiency at every stroke compared with the 65 per cent of ordinary files.

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"The Recollection of Quality Remains Long After the Price is Forgotten."
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FREE, Charges Prepaid, two
E. C. Simmons Special Slim
Taper Files, as per your offer,
with the understanding that I am
under no obligation to buy.

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