

Price 20 cents

FEBRUARY, 1908

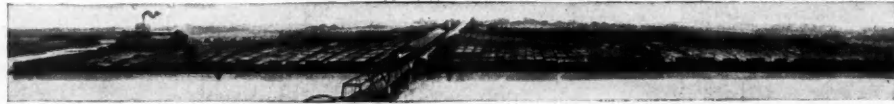
AMERICAN CARPENTER AND BUILDER



THE WORLD'S GREATEST BUILDING PAPER



The Madisonville Lumber Co., Cincinnati, Ohio



From **FACTORY**
DIRECT
to **YOU**



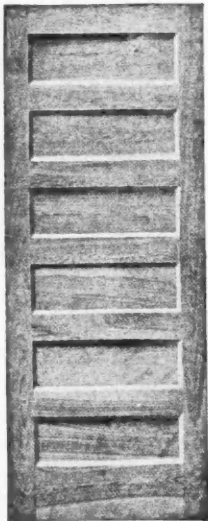
SCAMOZZI ITALIAN
8" Column, 6 1/2" Neck \$0.70
10" Column, 8 1/2" Neck \$0.95



No. 12 No. 28

Doors, Sash, Interior
Trim, Stair Work,
Mouldings. In

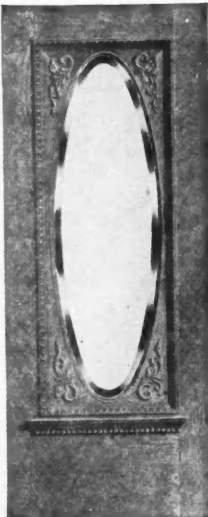
Birch
Oak
Southern
Mahogany
Yellow Pine
AND
White Pine



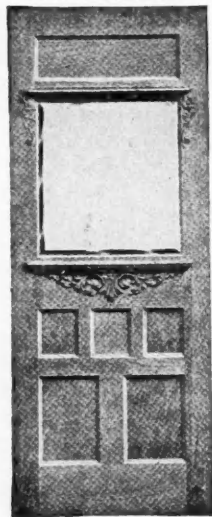
No. 377
All sizes in stock in Oak
and Birch.
Birch, 2x4.....\$2.75
Oak, 2x4..... 3.40
F. O. B. Cincinnati



No. 381
All sizes in stock in Oak,
Birch and Southern
Mahogany.
Birch, 2x4.....\$3.00
Oak, 2x4..... 3.80
F. O. B. Cincinnati



No. 1180
All sizes in stock in Oak
and Birch.



No. 385
All sizes in stock in Oak
and Birch.

All of our doors are guaranteed. Try 'Em

WRITE for
OUR
CATALOG

or send us
your list of
"WANTS"

QUALITY
FIRST
AND
PRICES
TO
SUIT

Columns
Composition
Caps
AND
Ornaments

Window Glass
Mirrors
Paints, Oils
Varnish
Putty, Etc.

Roofing Paper

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

Mr. Contractor:—

We believe that every carpenter contractor, large or small, should have a "Little Shaver" floor scraper.

We haven't the space here to tell why, but we know every contractor would believe us we do, if he would give the "Little Shaver" a trial and let it tell ^{you} why it is the best.

We want to tell you all about our sander attachment. Let your inquiries come along.

Contractors Supply & Equipment Co
Old Colony Bldg Chicago

*Yours
for the
Asking*

CONTAINS 208 PAGES OF USEFUL AND PRACTICAL INFORMATION—ARTICLES ON THE MAKING OF DISSTON SAWS, TOOLS AND FILES, GIVING THE PROGRESSIVE STEPS IN THEIR MANUFACTURE, A LARGE NUMBER OF ILLUSTRATIONS OF SECTIONS OF THE WORKS; TOGETHER WITH TREATISES ON THE CARE AND USE OF SAWS; ETC.

HENRY DISSTON & SONS, INC.,
Keystone Saw, Tool, Steel and File Works
PHILADELPHIA, PA.

DISSTON
HANDBOOK ON
SAWS

Highest Class Ratchet Brace Made

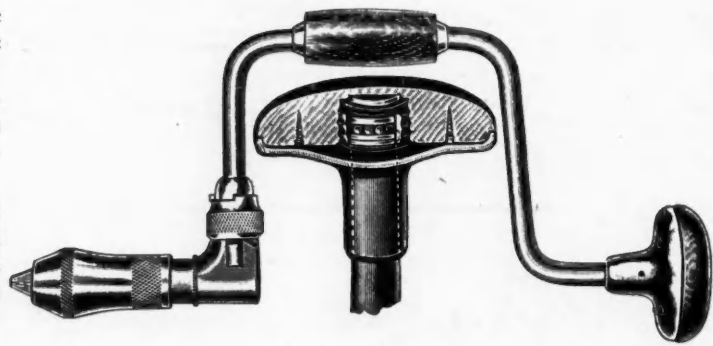
This tool is designed and made for the class of mechanics who desire to use the finest tools that can be made.

No expense has been spared in its production and the machinery used in its manufacture is of the latest and most expensive makes.

The tools are finely polished and full nickel plated, have a handsome metal clad head which is ball bearing, cocobolo head and handle and all the working parts are of steel.

The chucks are designed to firmly hold all of the sizes of square shank bits, and the smaller sizes of round shank drills.

Made in following sizes,— 6, 8, 10, 12 and 14 inch sweep.



No. 110—10 inch Sweep

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LANCASTER MACHINE & KNIFE WORKS
918 COURT STREET . . . LANCASTER, N. Y.

THE FOX

**Money
and
Labor
Savers**



WE LEAD ON FLOOR SCRAPERS

The New Fox Junior Floor Scraper

Perfect in Every Detail

The FOX No. 1

The old reliable Floor Scraper that has always taken the lead over competitors. Does more work than any machine on the market and does it perfectly.

Will give satisfaction and save you time and money.

**This Machine is Right
The Price is Right**

One man with this machine can do the work of two on hands and knees.

Body of machine slides on floor, which eliminates waves and jumping.

Built to do the work and does it.

The most perfect and easiest working Floor Scraper ever built.

**-ONLY-
\$15.00**

Price of Fox Junior
only \$15.00
F. O. B. Factory

REGISTERED

The Fox Cabinet Scraper
Only \$1.25 For Sale By Your Dealer



REGISTERED

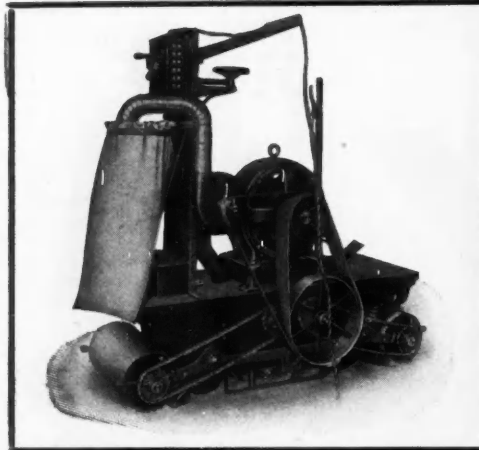
The Handiest and Most Perfect Wood Scrapping Tool on the Market
Cuts 3 1/2 in. wide. Never Leaves Waves
The body slides on the wood, insuring a cut of uniform depth. Blade is fastened with a handy clamp and can be adjusted or reversed in a second's time. Works equally well in horizontal or perpendicular position. **Never Leaves Waves.** Unequaled for floor, cabinet or bench work where the finest of finish is desired. Every carpenter needs this tool.

**Don't Fail to Write Us
Before Ordering
Floor Scrapers**

**WE CAN SAVE
YOU MONEY**

Ask Your Dealer for Our Tools, or Write Us Direct

FOX MFG. CO.
187 Second Street, Milwaukee, Wis.



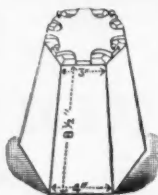
The American Floor Surfacing Machine

Has solved the perplexing problem that has confronted Architects, Builders and Owners for years, "AN EVENLY AND PROPERLY SURFACED FLOOR." In the past there has been but one method, the unsatisfactory, tedious and expensive one of hand labor. It is now no longer necessary to employ a small army of men to surface a floor.— THE AMERICAN FLOOR SURFACING MACHINE will do the work of from FIFTEEN to TWENTY men, depending upon the size and condition of the floor, and do it **QUICKER, CHEAPER, BETTER**, whether of a dwelling, school house, skating rink, dancing hall, office building, decks of steamers, hotels, bowling alleys or store buildings.

The American Floor Surfacing machine does the work with **ABSOLUTE EVENNESS** and at a small fraction of the cost of hand labor. It is at once efficient, reliable and consequently has met with unqualified success wherever it has been operated. The machine is built on correct mechanical principles, is **SELF-PROPELLING** and the epitome of simplicity. It is **MODERN METHODS SUPPLYING MODERN DEMANDS**, and a **MONEY SAVER**, and so simple in operation that any person of ordinary intelligence can quickly learn how to successfully handle it.

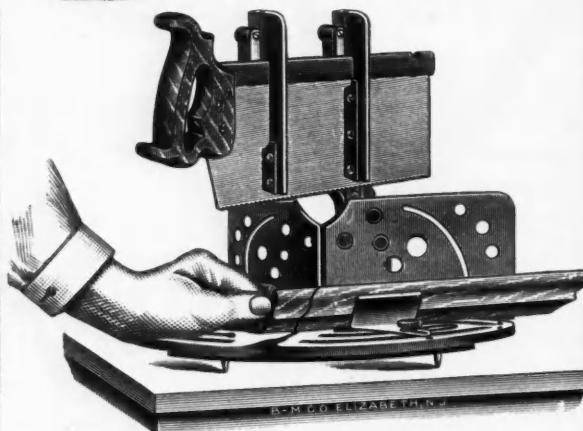
Illustrated Booklet and Details upon Request
AMERICAN FLOOR SURFACING MACHINE CO.
 TOLEDO, OHIO

Note the Lift of the Saw



Send for Booklet which shows how a Compound Mitre, any width, can be cut with a back saw 4 inches wide

Sent on Ten Days Trial

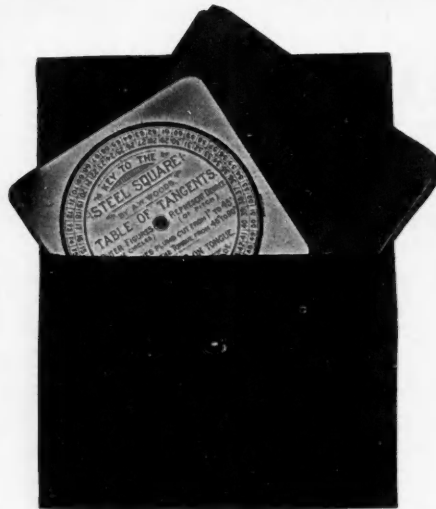


Dorns Revolving Mitre Box

Manufactured by

BRAUNSDORF-MUELLER COMPANY
 1091-1099 E. Grand Street - ELIZABETH, N. J.

ALFRED W. WOODS' KEY TO THE STEEL SQUARE.



This is it.

The Key, Book of Instruction and Morocco Case.

Full Size 4x5 inches.

It tells the whole story of how to use the common steel square for all kinds of framing.

Price \$1.50, Postpaid

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25c for sample by mail

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THE ACME FLOOR SCRAPING OUTFIT



THE MOST COMPLETE AND BEST
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A Guaranteed Time Saver



Piece-Workers say they save the price of their vise in a month's time

YOUR TIME IS MONEY—SAVE IT!



It takes 24 turns of the ordinary wood screw, 1/4-inch pitch, to open a vise 12 inches, and 24 turns more to close it. We advise any mechanic while he is resting, to time the other fellow while he is doing this, and also figure in the time it takes to adjust the bolt at the bottom of the vise to keep the jaws parallel. **THE TOLES RAPID-ACTING VISE** obtains adjustment *without* the use of RACKS, PAWLS, TRIGGERS, WEDGES, LEVERS, FRICTIONS, WORM GEARS, ETC., therefore they do not slip, clog up, wear out or break.

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Ask For Millers Falls Co's BIT BRACES

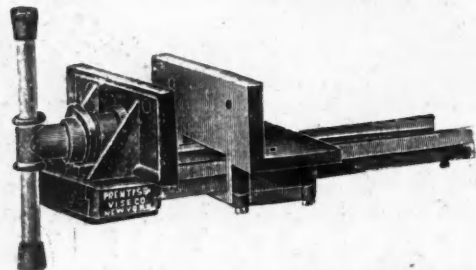
There are no other braces made which match them in merit and beauty of finish. Made in great variety of sizes and grades.



Our name appears on all genuine goods. Look for it before you buy. Send for Catalog D showing our full line.

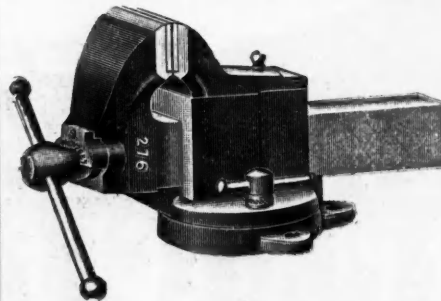
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For Cabinet Makers and Wood Workers. Simplest—Strongest—Cheapest—Best
Send for Catalogue of all kinds of Vises.
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Price \$2.80 to \$4.00

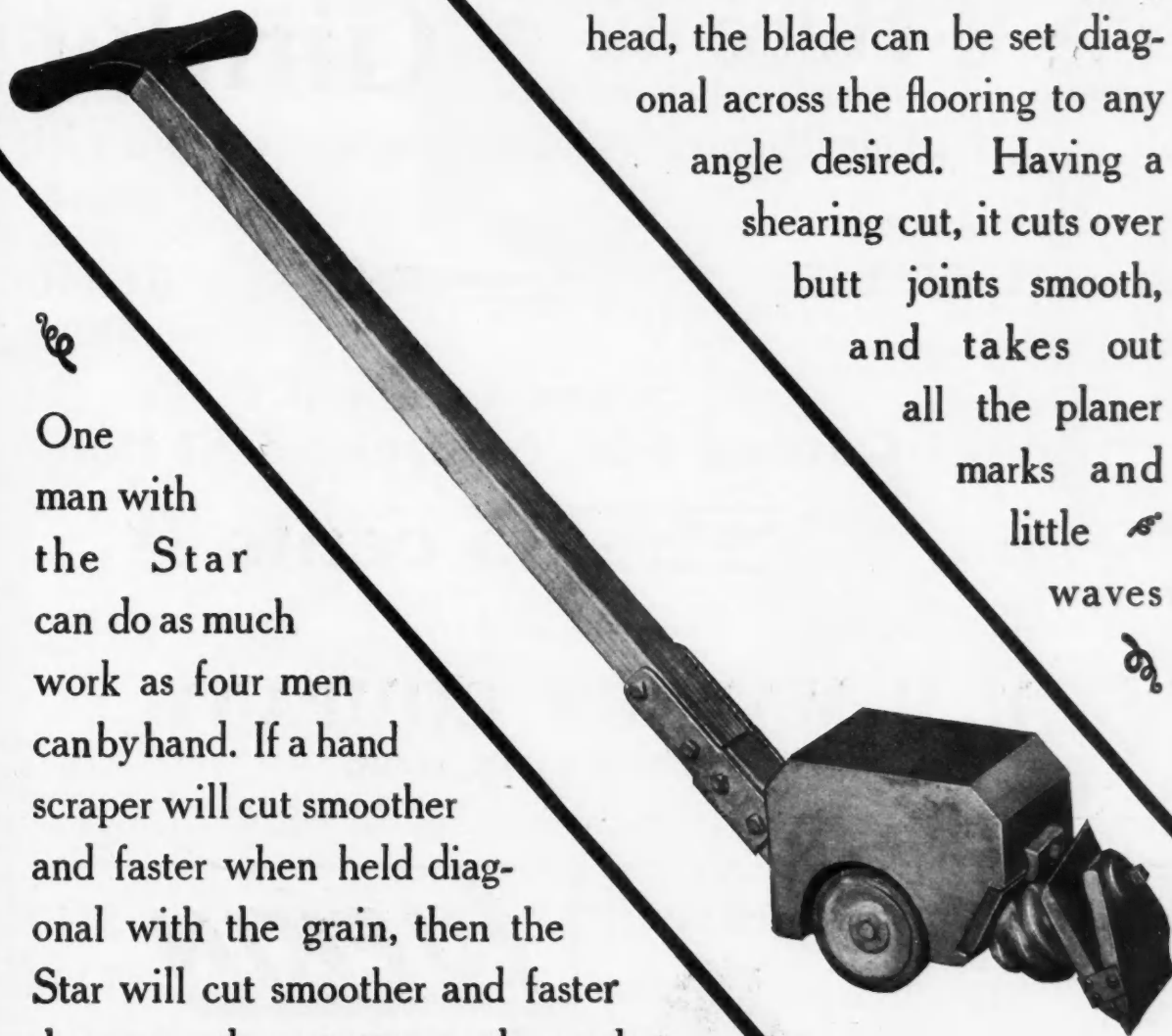
RAPID-ACTING WOODWORKER'S VISE No. 3

The STAR FLOOR SCRAPER

Is the Latest Improved Hardwood Floor Scraper on the Market. And is one that is right.

The Ball and Socket

By the Ball and Socket connection between the blade and carrying head, the blade can be set diagonal across the flooring to any angle desired. Having a shearing cut, it cuts over butt joints smooth, and takes out all the planer marks and little waves



One man with the Star can do as much work as four men can by hand. If a hand scraper will cut smoother and faster when held diagonal with the grain, then the Star will cut smoother and faster than any other scraper on the market

SATISFACTION GUARANTEED

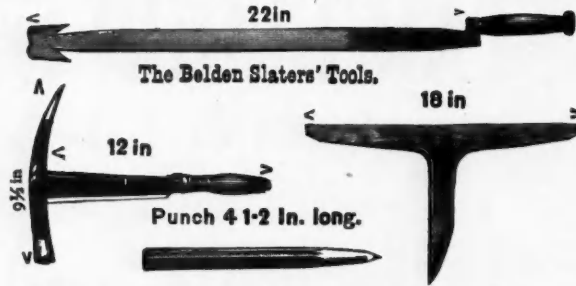
STAR FLOOR SCRAPER COMPANY

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TOOLS FOR SLATERS MANUFACTURED BY BELDEN ARE GUARANTEED

Their superiority over others is acknowledged by thousands of users. Made-to-order steel used in their manufacture adopted only after most careful experimenting gives them their value.

- ONE HAMMER
- ONE RIPPER
- ONE STAKE
- ONE PUNCH
- Constitute a Set



OUR HAMMERS are perfectly balanced and are provided with

Leather Handles to prevent hand from slipping

Our Tools Bear an International Reputation

If Your Dealer Cannot Supply You, Write Us Direct

THE BELDEN MCH. CO.,

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Here is a Gimlet

Equal in quality and usefulness to any Brace Bit



HANDLE OF SELECTED COCOBOLO WOOD

THREE SIZES ONLY

Cutting 4-32, 6-32, and 8-32 Holes

Price Postpaid **15 cents** each

H. H. MAYHEW COMPANY

SHELBURNE FALLS, MASS.

Miller's Hand Mortiser

WILL SEND ON APPROVAL

Its Work is to Make Openings in Doors for Mortise Locks.

The time is Three Minutes. The Material is Hard, Soft, Cross Grained and End Wood.



The job is clean, true and parallel with sides of door. The labor is performed with slight exertion. The care is practically none, as the tool does not get out of order. The adjustment is done in a moment's time for the different sizes. The cutters are five in number and cover locks from 1/2 inch to 1 1/2 inches thick. Thin doors are handled as easily as thick doors.

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and **RULES**

ARE INDISPENSABLE FOR ACCURATE WORK

MADE BY

The Lufkin Rule Co.

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For Sale Everywhere. Send for Catalogue.



ACKERMANN'S RAPID FLOOR SCRAPER

Patented by J. B. Ackermann, June, 1907

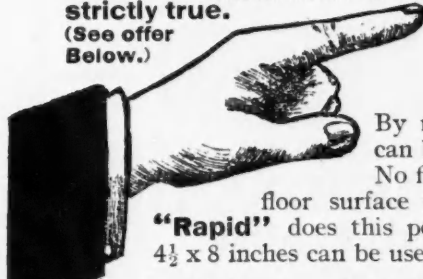
THIS MACHINE WILL DO

**MORE
BETTER
EASIER
WORK**

Than any other
Scraper on the
market.

Weight }
120 lbs. }

The Machine is
FREE if the above
statement is not
strictly true.
(See offer
Below.)



This Brush operates automatically. As the cutting
away the shavings, grit, dust and other obstructions,
keeping the floor free of anything that will cause the
machine to vibrate or dull the cutting blade.

This Brush is an Ex-
clusive, Patented feat-
ure. **NO OTHER MACHINE**
HAS OR CAN USE IT.

Patent Allowed Nov. 1907

Knife Advantages of the "Rapid"

By means of a simple eccentric device, the knife blades of the "Rapid" can be **instantly** moved or set at any angle, thus securing a "drawing cut." No floor scraper can be a success that does not bring the knife blade across the floor surface with a natural, **hand-like** movement. The "Rapid" does this perfectly. Any size blade up to 4½ x 8 inches can be used on this machine.

Exclusive Knife-Sharpening Feature

By simply reversing the position of the machine (turning it over) it forms its own knife-sharpening vise, the blade being brought into a perfect upright position, ready to sharpen, **without removing** it from the machine. This saves time, and time is money. The operator proceeds to sharpen the knife, then turns the machine over and goes ahead with his work.

My Special Guarantee Offer

I will ship a **Rapid Floor Scraper**, charges prepaid, subject to use **FREE** for three days, by any responsible person. If you are then satisfied the machine is all I claim for it you can purchase it, if not I will have the machine returned at my expense. Further, if after you purchase this machine, you find that, at any time under equal conditions it will not do "More," "Better" and "Easier" work in a given number of hours than any other floor scraper, I will return your money and you can keep the machine free of cost. This is a straight offer, without any strings to it, made to anyone desiring to secure the best floor scraper made without risking their money until **THEY KNOW** what they are buying. I refer to the **State Bank of Michigan**, Grand Rapids, Mich., as to my guarantee and responsibility.



Cut
Showing
Machine
in Reverse
Position Ready
to Sharpen the
Knife-Blade

J. B. ACKERMANN

Sole Manufacturer Board of Trade Bldg., 97-99 Pearl St., GRAND RAPIDS, MICH.

I contemplate purchasing a floor scraper and would like to see yours operate before agreeing to buy it. Please send me full details covering your manufacturer's guarantee and special terms.

Name _____
Town _____
State _____



“Yankee Tools”

Make Your Work Easy

Pressing on the handle drives the screw or drills the hole—quickly. That means more done with less effort in less time, and with less backache.

The satisfaction of working quickly and with ease removes the drudgery and makes life worth living. There are 18 kinds of “Yankee Tools” and more to come. Keep in touch.

Get Our New TOOL BOOK—it's FREE

North Bros. Mfg. Co.

PHILADELPHIA, PA.

“FORSTNER” BRACE AND MACHINE BITS

FOR FINE CARPENTER, CABINET AND PATTERN WORK



Specially Adapted for Hardwood Working

The Forstner Labor-Saving Auger Bit, unlike other bits, is guided by its **Circular Rim** instead of its centre; consequently it will bore any arc of a circle and can be guided in any direction regardless of grain or knots, leaving a true polished surface. It is preferable and more expeditious than chisel, gouge, scroll saw, or lathe tool combined, for core boxes, fine and delicate patterns, veneers, screen work, scalloping, fancy scroll twist columns, newels, ribbon moulding and mortising, etc.

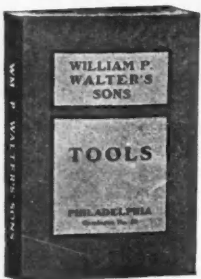
Manufactured by

THE PROGRESSIVE MFG. CO., Torrington, Conn.

Enquire of your Hardware Dealers or write us direct. Supplied in sets. Write for Catalogue.

To thoroughly introduce this high grade tool among carpenters, pattern makers and others, we will mail to any reader of the American Carpenter and Builder upon receipt of 50 cents any bit we make from one-quarter inch to one inch in size.

OUR LATEST CATALOGUE No. 20.



Handsome printed on heavy paper, containing 450 pages, 2000 illustrations, including a full line of **Woodworking and Metalworking Tools, Foot Power Machinery, Lathes**, etc. This is the largest and most complete catalogue we have ever issued, being a valuable hand book for any mechanic. Sent on receipt of 20 cents postage.

WM. P. WALTER'S SONS
Tool Headquarters
1233 Market Street, PHILADELPHIA

(Please mention the American Carpenter and Builder)

Smooth, tough “leads” are the result of skilful and careful grinding, working and firing. It is this care and skill that make Dixon's Carpenter Pencils standard. Send 16c for generous sample lot 183 J.

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

THE CHANCE OF A LIFETIME

Is now offered readers of the **American Carpenter and Builder**, to make an investment that is certain to bring a sure, steady income for years. This offer is made because you men who are practical Carpenters and Contractors, know and appreciate the **ACTUAL VALUE** of a machine that **will do and is doing** the work that the machines shown here will accomplish.



Machine with 12 in. Surfacing Roller
Equipped with either Direct or Alternating Current Motor.

"Sand Paper" is the ONLY PERFECT WAY to surface a Wood floor of any kind.

Description

These Machines are made in two sizes, one with a 12 inch, and the other with an 18 inch Surfacing Roller. They are so constructed that a sheet of sandpaper, which is quickly attached to the roller, is brought in contact with the floor surface while revolving at a speed of **600 revolutions a minute**. The second great feature of the machine is the method by which the roller is made to have a yielding movement while operating. Other features are absolute control of the machine by automatic action from the handle, great speed and the production of a finer and smoother surface at less cost than will any floor scraper, or any other machine or method. All this is absolutely guaranteed. This machine will remove all joints on warped edges and is adapted for work in the finest residence or office, as it picks up all dust through the blower as it operates. It completely solves the floor surfacing problem.

Special Terms To Contractor—Stockholders

Carpenters and Contractors, Roller Skating Rink and Amusement Park Proprietors who subscribe for any of the 35,000 shares of stock that are to be sold now will be granted **Special Terms** by the company under which they will be able to acquire these machines and control their operation in their own localities. When the Company is organized and in working order, the machines will be shipped to **Stockholding—Contractors** under conditions that will permit of free use for a specific length of time sufficient to satisfy anyone that no other machine or method will equal these for doing perfect work at such small cost per square foot.

H. COMBS, Fiscal Agent and Trustee Chicago

ROOM 517, 218 LA SALLE STREET
NATIONAL FLOOR SURFACING MACHINE CO. (Not Inc.)
(IN PROCESS OF ORGANIZATION)

HAVE BEEN THOROUGHLY TESTED

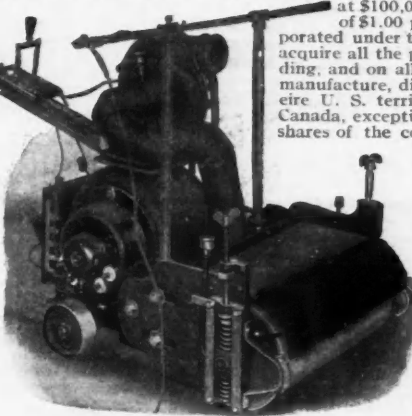
About twenty of these Machines are now at work under leases in various Cities in the United States. Positive evidence of the work done, the quality, the great economic and practical value of these Machines, together with full information about this offer cheerfully furnished.

Only \$35,000 of this Stock will be Sold Now.

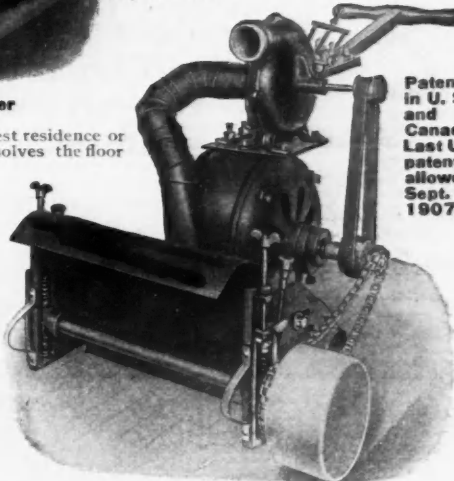
CAPITAL STOCK \$1.00 PER SHARE

The inventor has given years of time and invested a large amount of money in perfecting this Rapid Floor Surfacing Machine and in developing their sale, and the entire business to the point it has reached at the present time. The Machines are protected under the various U. S. and Canadian patents. Although his present income from the marketing of the machine is such as to make him independent in a few years, the inventor finds himself without sufficient working capital which a company would require to manufacture and market these machines on a scale large enough to properly cover the field at once, and permit of placing machines in the hands of contractors who want them at once. For this purpose a stock company capitalized at \$100,000, consisting of 100,000 shares of a par value of \$1.00 per share, is now being organized to be incorporated under the state laws of Illinois. This company will acquire all the patents on the machines, including those pending, and on all improvements if any are made, and will manufacture, dispose of and operate the machines in the entire U. S. territory east of the Rocky Mountains and in Canada, excepting British Columbia. Only \$35,000 of the shares of the company of a par value of \$1.00 each will be sold now and of the remaining shares no one person will hold the controlling interest.

The profit from the sale and operation of these machines is very large and can be greatly increased by a company properly financed to extend the business at once. The shares will sell at \$1.00 each and subscriptions will now be received for not less than 10 or more than 5000 shares from any one person. The right is reserved to reject any subscriptions received over and above 35,000 shares.



Machine with 18 in. Roller



Patented in U. S. and Canada. Last U. S. patent allowed Sept. 25, 1907.

Edge Roller Attachment
Interchangeable to either side of machine. Works close to baseboard

H. COMBS, Fiscal Agent and Trustee
Room 517, 218 La Salle Street, Chicago.

Please enter my subscription for . . . shares of the capital stock of proposed National Floor Surfacing Machine Co., at \$1.00 per share. Enclosed find remittance covering one-tenth of the price of said shares, balance to be paid at time shares are issued.

Name.....
Town.....
State.....



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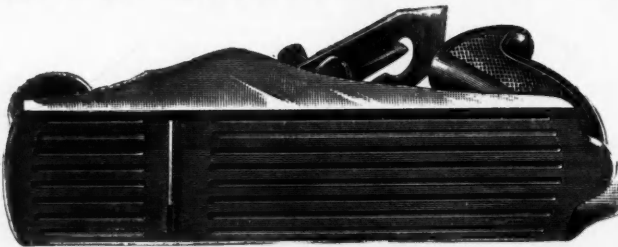
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FREE TO MY STUDENTS
Delivered at once

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

CHAPLIN'S IMPROVED PLANES

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

We invite the
Severest
Comparative
Tests




We want you to have a copy of our booklet

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

We want you to have a copy, for it is a booklet you really need in your business. We'll gladly send you this booklet with our compliments, promptly upon receipt of your request.

Tower & Lyon Company, 95 Chambers Street, New York

L. S. STARRETT SAYS:



"If you find any tools better than Starrett Tools, buy them."

Send for free Catalogue No. 186.

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

ONLY SELF-SETTING PLANE

THE BEST IS THE CHEAPEST:
None Cheap but the Best.
All Want the Best.
Sent on 30 Days' Trial as per Circular, if Dealers do not keep it.



SECTIONAL VIEW—showing ADJUSTABLE IRON THROAT.

TRIAL COSTS NOTHING

if plane is returned at our expense as per circular. Circulars and a Carpenters' pencil free if this Ad. is sent us within a month, another pencil for 10 carpenters' addresses, still another if you will hand our circulars to seven or more plane users. If you will sell our planes, where not sold, we will allow you Dealer's discount.

GAGE TOOL CO.

2-1-08 VINELAND, N. J.



Nicholls Common Sense Miter Box

We have endeavored to place on the market a Miter Box suitable for practical work, and having tested it thoroughly, we are satisfied we have succeeded in doing so, and are placing this Miter Box on the market warranted in every respect.

Nicholls Manufacturing Co. :: Ottumwa, Iowa

The S. & W. MITRE



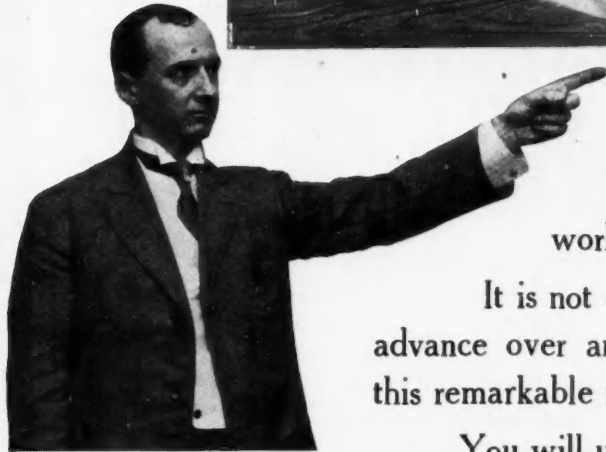
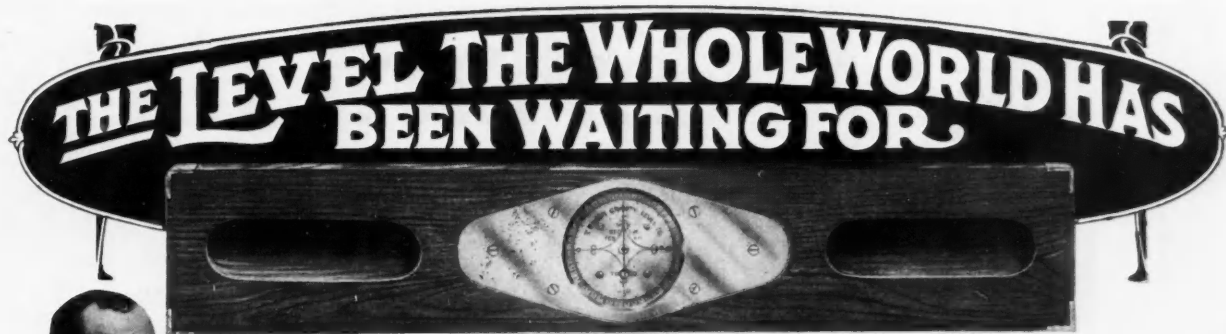
Hand or Foot Power

2, 3 and 4 inch Sizes

GUARANTEED ABSOLUTELY ACCURATE
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SEYMOUR & WHITLOCK

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THE T. F. Deck Gravity Level is exactly what we call it in the opening lines of this announcement—the level the whole world has been looking for.

It is not easy to convey to you in a few words the vast advance over any other level ever produced, represented by this remarkable invention.

You will understand it best, perhaps, when we tell you that the Deck Level, in competition with the most perfect spirit level made, proves the latter to be absolutely inaccurate and untrustworthy.

**If It Isn't Infinitely Superior To The Level
You're Using,
Send It Back and We'll Refund Your Money**

The Deck Level is built on the plumb-bob principle; it is so sensitive that it will detect variations from the level of as little as one-hundredth of an inch to the foot.

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Special 24 and 30 inch levels for Carpenters and 42 inch level for Masons now ready. Sold direct to the user at a price no greater than the ordinary Spirit Levels, with all the advantages described above. All Levels finely finished in Mahogany and Cherry. Send for descriptive literature and price-list.

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=EVERY DAY=

Any carpenter who has one of these fine Hand Drills will continually find new uses for it.

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STANLEY

CONCEALED RATCHET BRACE.



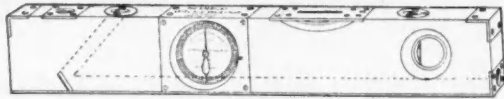
No projections to injure the hands.

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We make a complete line of Bit Braces

Sold by all Hardware Dealers.
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All Progressive and Up-to-date Mechanics 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 need to plum 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. For terms and agency, apply at once to

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SAVES TIME

for the draughtsman, and is a great aid to the learner. It holds a number of sheets or a pad, which requires no fastenings. The Protractor T Square gives accurate angles direct. You get measurements from the board. Has a drawer for instruments and can be carried around to make drawings on the spot. Circulars free.

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A Selection of Our Machines
Will Make Complete Up-to-Date
WOOD-WORKING SHOPS
Practical Time-Savers
FOR CARPENTERS
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THINK OF THE
TIME and MONEY
SAVED

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Own Mill-Work

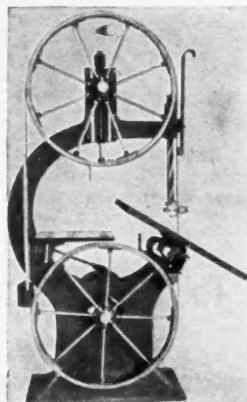
You will be surprised at
the small investment re-
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independent.



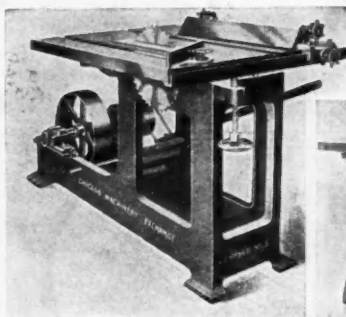
Chicago No. 7
Improved Swing Saw



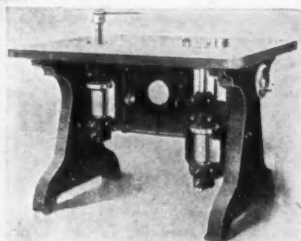
Chicago Nos. 16 and 17 Jointer
8", 12", 16"



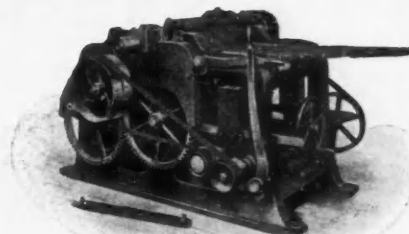
Chicago No. 1 Band Saw 36 inch.



Chicago No. 5
Combination Rip and Cut-Off Saw



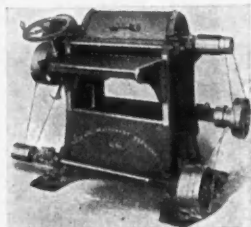
Chicago No. 19 Shaper



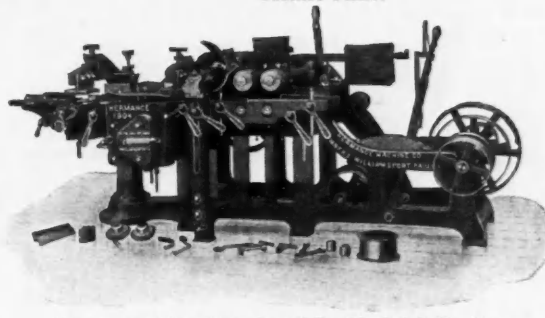
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Cabinet Planer



Chicago No. 10 Tilting Table
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Hermance 1906 "Wide Open" Double Quick Moulder
Built in Six Sizes 7, 8, 9, 10, 12, and 14 inches wide

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OVER
BY
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WOOD-WORKING MACHINERY MERCHANTS

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For Carpenters, Builders, Cabinet-Makers, and
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BUILT FOR HARD WORK, ACCURATE WORK AND LONG SERVICE



"Victor" Scroll Saw. "Diamond" Mortiser



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

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No. 6 "Union" Combination Saw.

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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.

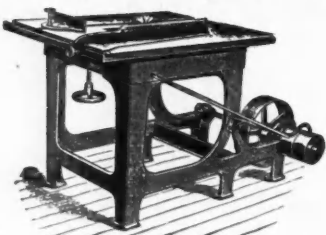
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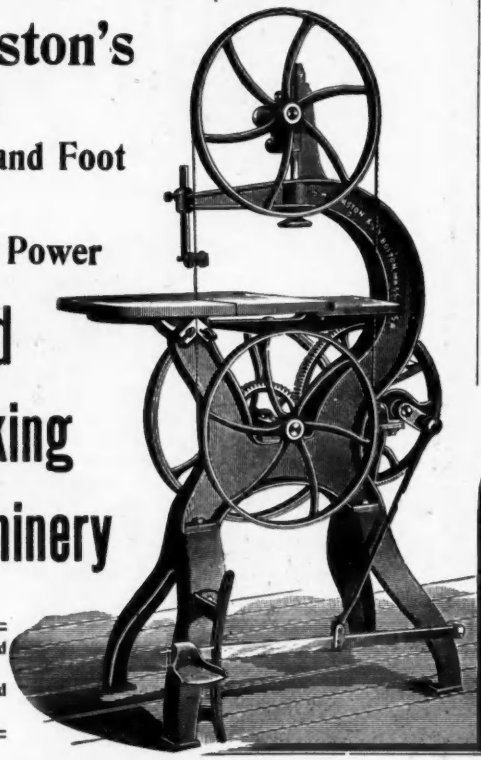


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Marston's
Patent
Hand and Foot
and
Steam Power
Wood Working Machinery



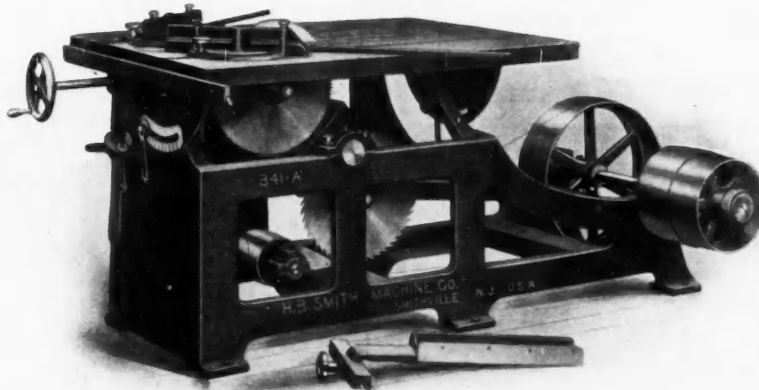
20-in. Hand and Foot Power Band Saw.

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SMITH of SMITHVILLE The Sign of QUALITY

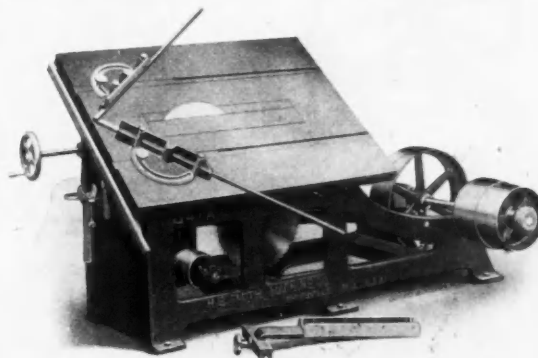
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We Make 150 Different Kinds of Machines

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No. 341 A Combination Double Arbor Saw

EVERY user of machinery knows that if he were obliged to reduce his equipment to one machine he would retain a **Universal Saw**. The **Circular Saw** is the indispensable tool—the beginning of all things in a shop—therefore why not make a wise selection? We build 21 different types of sawing machines and feel competent to consult intelligently with you on this subject. The Machine shown here-with is very useful for general work, and a great labor-saver when operated on specific wood working problems. **U** Please bear in mind that all machines designed by **Smith of Smithville** always contain approved features for the elimination of danger to the operator. We also guard against the annoyance and expense of breakage by building machines sturdy and well, regardless of the influence of low priced competition. The name **Smith** in connection with wood working machinery is a synonym of **Quality**. Write for special circulars and prices.



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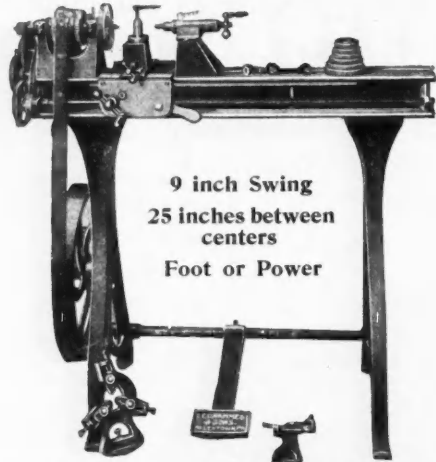
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Screw Cutting Lathe



9 inch Swing
25 inches between centers
Foot or Power

For woodworkers who make their own machine repairs. Cuts threads from 3 to 40 per inch, right or left. By compounding gears, threads may be cut up to 120 per inch. Gun Metal bearings, provision being made to take up wear. Cut gears. Guaranteed for one year.

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Single attachment (foot or power) no charge. Both attachments \$8.00 extra. Descriptive circular of this and larger lathes sent upon request.

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Ball Bearing WOOD-WORKING MACHINERY

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The rigid construction and modern design of the new 32-inch

Crescent Band Saw

insure a machine of the very highest efficiency as a rapid producer of accurate work.

Crescent machines cost less than others of equal merit. They are best because they are strong, durable and practical. They are low in price because they are in big demand and we have to build them in large quantities. Send at once for catalogue describing our complete line of Band Saws, Saw Tables and Jointers.]

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Wood Working Machinery for Contractors and Builders

JOINTERS
BAND SAWS
WOOD LATHES
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LEATHER BELTING
POWER HACK SAWS
COMBINATION SAWS
SWING CUT-OFF SAWS
SHAFTING AND HANGERS
EMERY STANDS FOR GRINDING

STANDARD MACHINE TOOL AND SUPPLY CO.
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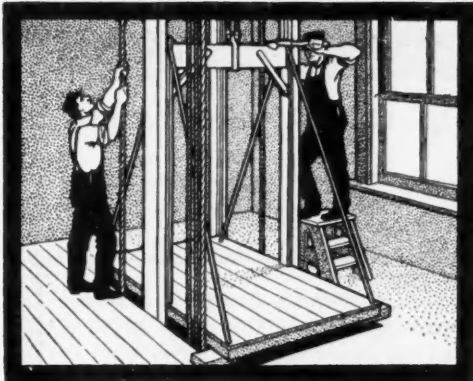
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Eaton & Prince hand-power elevators are easily and quickly erected by any mechanic of ordinary ability because of the simplicity of their construction, and because of the complete working specifications we furnish with each elevator.

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will elevate 1,000 lbs.]
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PRICE
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Without Power
Power furnished when desired.
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SEDGWICK MACHINE WORKS
POUGHKEEPSIE, N. Y.
AND
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The Pump That Pumps SPRAY PUMPS Double-acting, Lift, Tank and Spray

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

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



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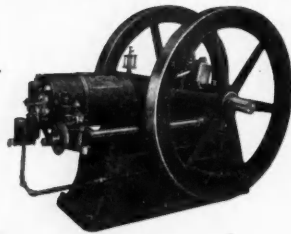
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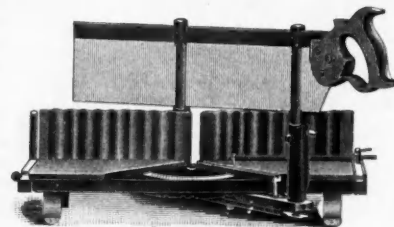
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First in Quality and Improvements

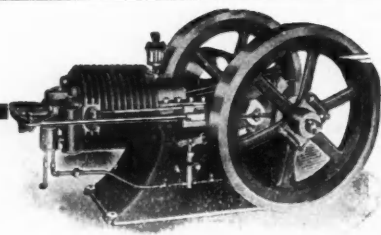
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Currugated backs. Graduated.

Gauge for duplicate cuts and many other features.

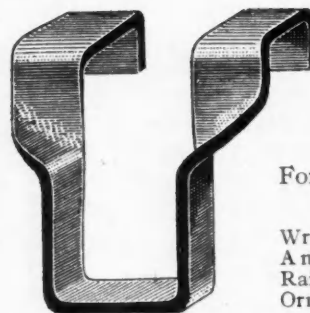
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For Concrete Blocks, Wood and Iron Beams.

Write for estimates on Beams, Angles, Anchors, Hangers, Railings, Iron Fence and all Ornamental Iron Work.

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Enclosed find my check for blinds. I am pleased with them and sorry I did not have them put throughout the whole house.

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**Comfort !
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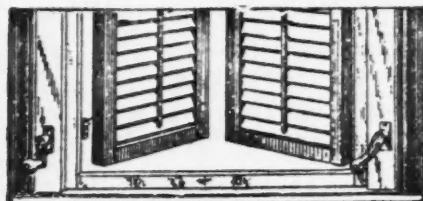
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BRIDGE & CANAL STS.

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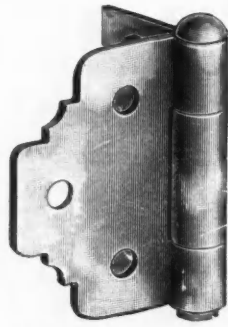
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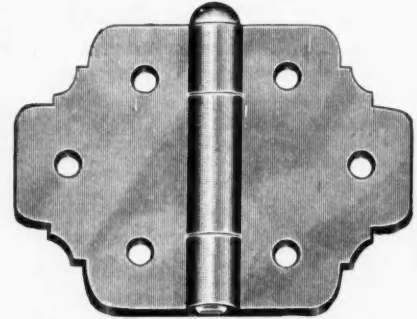


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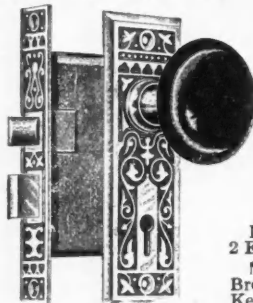
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Contractors, Builders and Material Men **WHO TRY US** will find that we deliver the goods.

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Wood or Iron Beams

Many Sizes in Stock

Special Shapes to Order

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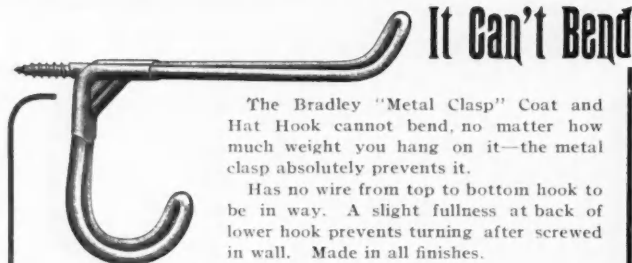
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The Bradley "Metal Clasp" Coat and Hat Hook cannot bend, no matter how much weight you hang on it—the metal clasp absolutely prevents it.

Has no wire from top to bottom hook to be in way. A slight fullness at back of lower hook prevents turning after screwed in wall. Made in all finishes.

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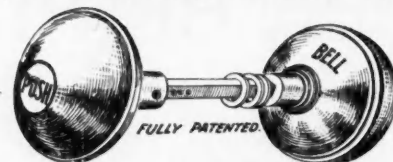
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"EUREKA DOOR KNOB BELL."

Made of Bronze Metal



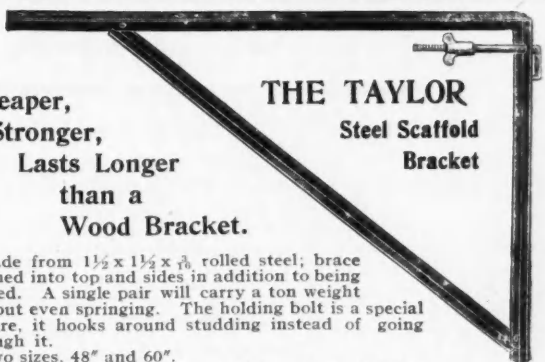
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PRICE \$1.50 POSTPAID

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Lasts Longer
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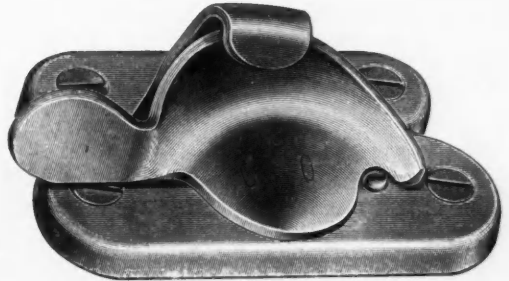
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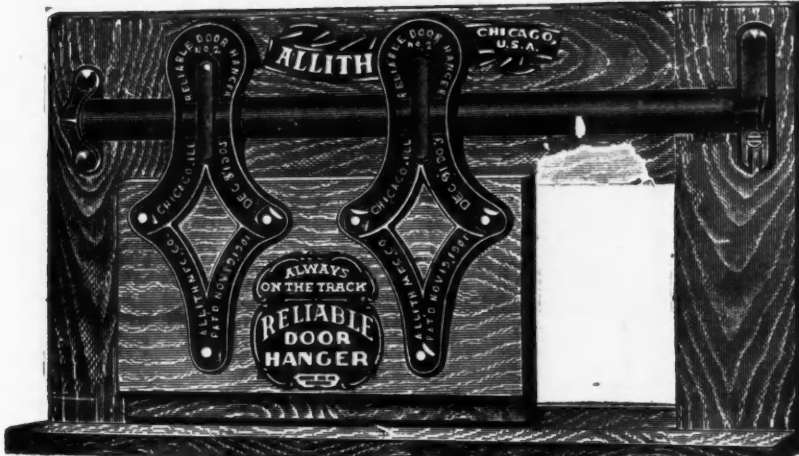


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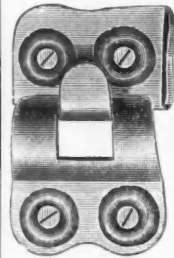
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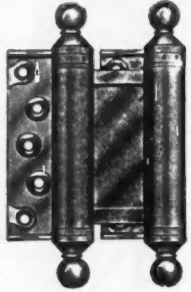

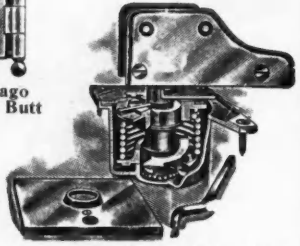
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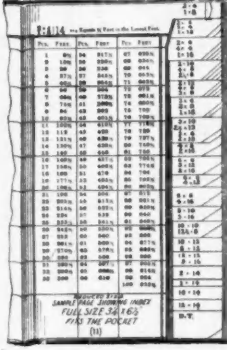
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American Carpenter and Builder

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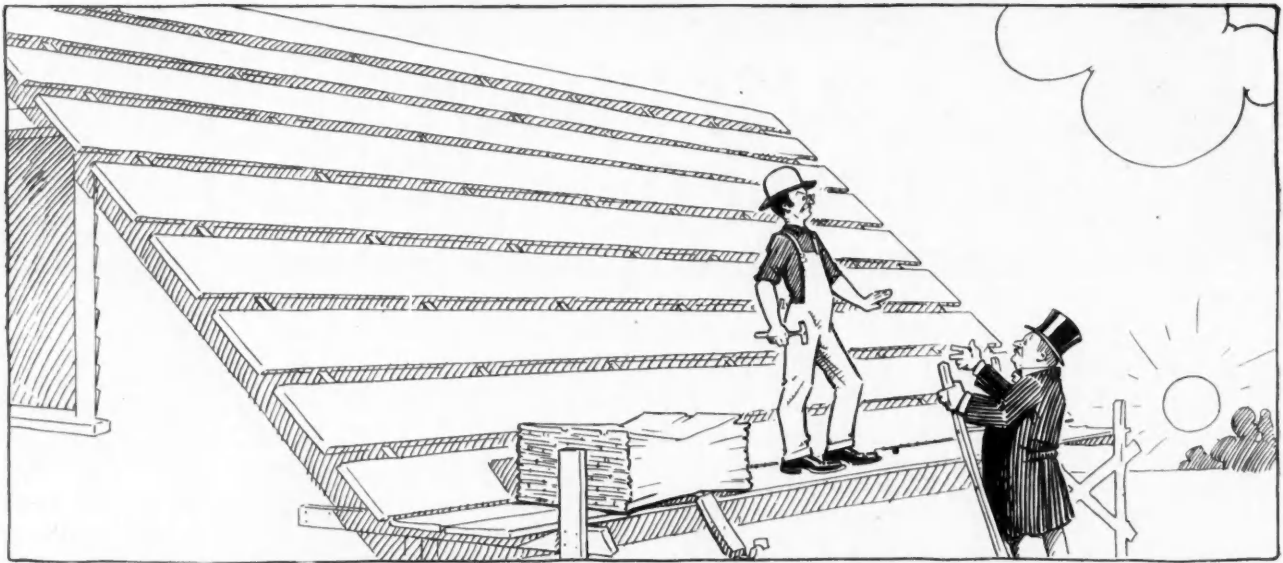
Parquet Floors

“**T**HE trouble with the parquetry floors which some people put into their houses,” said a local builder, “is that the lumber is not sufficiently dried. In parquetry work the woods have to be perfectly sea-

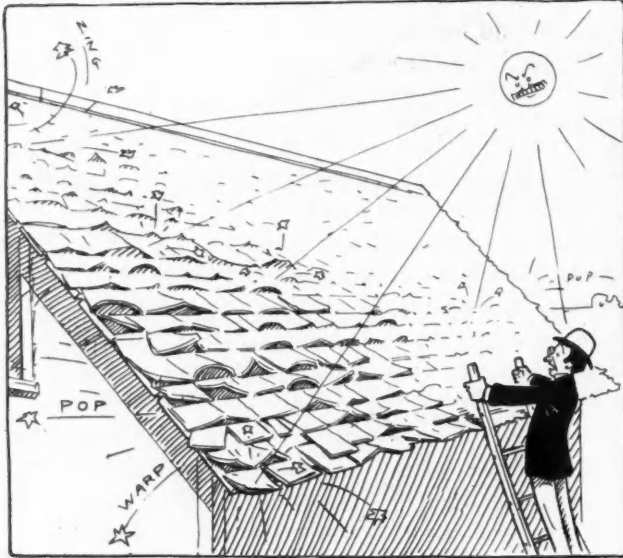
soned, because if they are not the joints will suffer. And a parquetry floor depends entirely for its beauty and attractiveness on the excellence of the joinings of the different colored woods of which it is made. The lumber should be thoroughly air seasoned before it is put to the drying process of the kilns, which is often too rapid for good results.”

Have a Purpose

EVERY young man, or old, that expects to amount to anything in the world, must have a purpose, some definite purpose firmly fixed before him to work to. It is not enough to have notions. We all have notions; but there is both a distinction and a difference between having notions and having a purpose. It is a real purpose and not a mere notion we must have if we expect to accomplish much. There is no need, however, to get the idea from this, that one must not have fleeting ideas, ideals or dreams, because a certain amount of what is termed dreaming must precede real purpose and form the search light, so to speak, with which one selects a purpose. Dreaming is a beautiful thing; the only trouble with it is that it makes us inclined at times to give too much of our life over to dreams and to anticipation in a dim way, and not enough to definite energy applied for specific purpose. So give your dreams a definite purpose as to what you want to be and what you want to attain in this world and then go after it and while going after it be clear and clean cut in your attitude. Don't be mealy mouthed, or vacillating, nor display in any manner such wavering or uncertainty in your attitude that people don't know just where to place you or what your intentions are. It is better to have definite and clear cut ideas and be in the wrong than not to have any ideas at all, for when you are in the wrong you can change and the man without definite ideas never gets anywhere except where he is carried by the current of events. He is a mere drifter and if he attains any good things it is due more to good fortune and accident than to his own efforts. To attain things we must strike out for ourselves, not necessarily with a splutter, but with a definite purpose in view and a strong determination to get there.



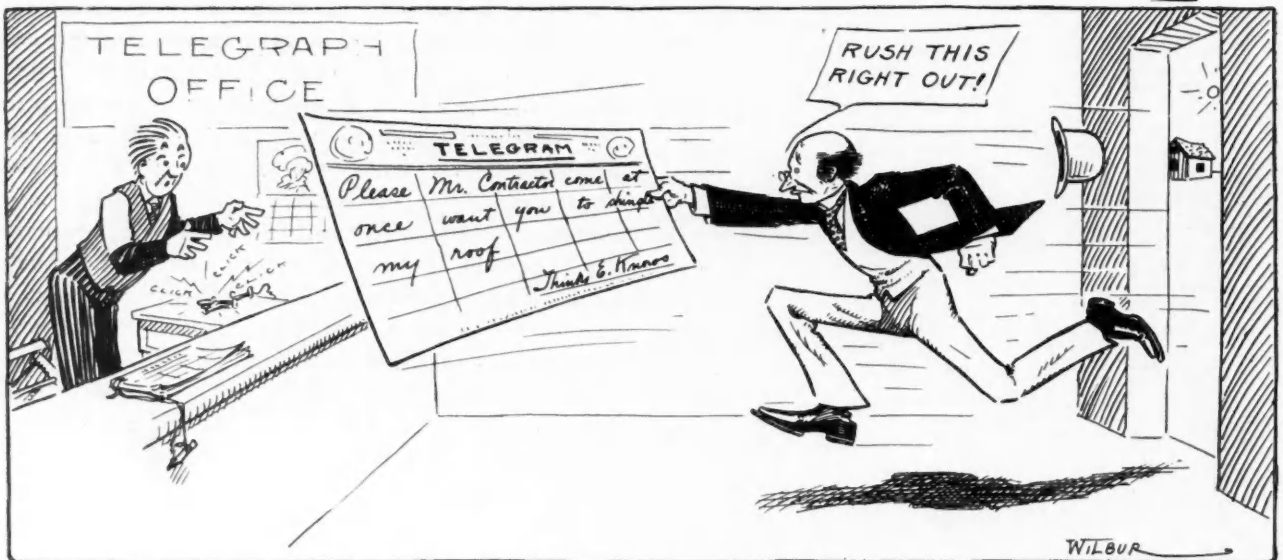
The Contractor having finished the studding and clap boarding, wanted to do the shingling, but Mr. Thinks E. Knows knew he could do it himself and save the expense. A short time after the job was finished it rained—



—the next day the sun came out and this is the way the roof looked—



—he then went up into the attic and was amazed to find it like this—



—he saw he had overestimated his ability as a "shingler" and immediately sent for Mr. Contractor to do it right.

City Home Building

DESCRIPTION OF SOME OF THE LARGE UNDERTAKINGS IN HOME BUILDING—ESSENTIAL THINGS NECESSARY TO MAKE IT SUCCESSFUL

By Ira S. Griffith

THE last fifteen years have seen remarkable changes in the world of business. This is pre-eminently a day of combination and specialization—a day of big things. With these vast combinations, have come economic and moral problems that have filled our magazines and our religious journals with the endless discussion, and our courts with endless suits.

Marked changes have taken place in the building



line in the larger cities. However, the craft has cause for congratulation that its changes have been for the public good, and that its methods are sound, ethically as well as legally.

Specialization is making headway in the smaller places, but it is in the city that conditions are most favorable for applying modern methods.

Time was, when no one had a house built but the one who expected to live in it, and no one was expected to "bid" on the work but a builder. Today, it is no uncommon thing for a man who could not tell a rip saw from a crosscut to put up several hundred houses in which he never expects to have more than a passing interest. He may be a carpenter, but primarily he is a promoter, an organizer, a business man. Some of the most successful promoters are graduates from the carpenter and builder ranks.

A company is formed and sufficient capital is subscribed to make a start, after which the rest is easy, providing success enough attends to inspire the confidence of those with money to loan.

Upon the good judgment and the business acumen of the home builder depends the success of the enterprise. The vacant property must be properly located.

Transportation is of vital importance; time and expense in making the morning and evening trips must be considered in connection with the cost of the land. The writer has in mind a subdivision laid out and built with high-class houses, most of which never were sold, but stood vacant for years because of poor transportation. Here, apparent cheapness of land proved very dear in the end. Where there are unlimited funds at his disposal a promoter can depend upon forcing growth to a certain extent, but he must know his limit. The building of an entire city is no unusual spectacle in these days.

In the life of a city various forces are constantly at work shaping its growth. Often these forces are merely geographical in their nature; often they are but the outgrowth of a popular fancy. One year one section of a city will have an unusual addition of new buildings; people will move from other parts of the city to this part because of these. Realty and rents soon begin to grow in this part, in other parts they remain fixed or drop. The difference in values soon becomes so great that building operations will begin in some other section of the city and the moving will take place again. It is for the promoter not only to get his vacant in the right part of the city, but to get it at the opportune time. Buying property to hold until it becomes "ripe" for building is hardly in the province of a builder.



A modern home builder usually begins building operations as soon as he can get the streets and alleys laid out. His aim is to turn his money as soon as possible. Vacant property must pay taxes and earns nothing on the money invested. While not quite so convenient, it is more profitable to start building operations and

street improvements at the same time. By the time a street has four or five houses in each block ready for the market, the water, sewer and gas will be in the street ready for connection. By the second season the streets are in proper condition for pavements. There are always a few purchasers willing to undergo the inconveniences of an unpaved street for a season if they find houses that please them. Home building, as practiced at present, is a business enterprise; a single season being but a small part of the time required to bring it to completion.

The second season sees the grading of lawns, the planting of trees and shrubbery. Every effort is made to keep the whole property as trim and neat as if the whole subdivision was completely built. In the

about one hundred and fifty workmen altogether. From fifty to seventy-five carpenters find work the year round. Foundations are put in in the fall before frost and protected; upon these work proceeds in winter as in summer.

The work of the carpenter is so specialized that the men become experts in their line. One gang does nothing but frame. As soon as the roof rafters are on a house, another gang takes possession and the side sheathing and rough floors are placed. The roof sheathers form a separate gang. In order, with separate gangs for each, come the cornice men, the shinglers, porch men and floor men.

It may be worth while to note that in all of these houses the final floor is laid before the finish is put



better managed enterprises one never sees any signs of building operations beyond the front porch line. Shavings, chips, etc., are never allowed to collect or scatter. Building materials are taken to the lots through the alleys and are neatly placed.

To illustrate how far specialization has been carried, and the extent of some of the operations, a few figures are given.

The operations of a Chicago home builder are typical. His present business is the result of his own efforts and shows what a carpenter and builder of integrity can do. One subdivision of sixty-nine houses was built in one year and three months; these houses sold readily. A new subdivision, not far from the first, is under way at present which contains sixteen six-hundred foot blocks—two miles. In one year and four months seventy-seven houses have been finished with four under construction at present. On February the first seventy-five carpenters were at work with

on, the argument being that the building paper of the floors can be brought up the sides of the wall behind the base and a closer and better finish be made. All final floors are laid so as to cross the joints of the rough floor to prevent their being affected by the shrinkage of the rough boards.

Two to four men are kept busy scraping these final floors and getting them ready for the painters. As these floors are filled, given one coat of varnish and covered with paper, they are not injured by the carpenters in putting on the finish.

A gang of trimmers next takes possession, after which come two or three men who do nothing but hang doors.

Not only is the work specialized, but the material being ordered in large quantities permits of further specialization. Medicine cases and sideboards come from cabinet workers' shops, porch posts from factories that produce nothing but porch posts, etc.

A glance at the pictures will show quite a variety of houses. Time was when builders thought nothing of putting up a block or so of houses exactly alike, inside and out. Today such a thing would hardly be tolerated. It is easier, of course, to put up sixty houses exactly alike than to put up the same number of houses each different from the others. The likes and dislikes of the average man or woman are not so very different however, and present builders have planned wisely. Their aim is to have no two houses exactly alike, yet to maintain as small a variety of standard floor plans and elevations as can consistently be done. One building firm offers thirty distinct elevations and eight separate floor plans. With sixteen blocks in which to place these, it will be seen that

of modern business methods to home building. For many years builders conducted their business on a strictly cash basis. If a man had the necessary cash to carry the building to completion he could have most any or all of the builders "after his job." In the smaller cities and in towns, this cash basis of doing business is not objectionable, for there is a fairly well defined notion in these communities that a family ought to save first and build afterwards, rather than the reverse. In the city, however, conditions are different. Not only are conditions different, but sentiment in regard to saving is different as well. In the city most men are salaried or working for wage. The temptation to spend to the limit of their resources is too great to permit of so prolonged a period of saving



quite a variety is possible. In fact, no two elevations need be exactly alike for, though the frames may be alike there can be an exchange of shingle siding, a difference in porch posts and the style of porches, etc.

That the individuality of the purchaser need not be entirely eliminated, is evidenced by the fact that houses will be built to order, if desired, with certain limitations.

The houses shown represent the work of a West Chicago builder, and are typical of the work being done in the better class of suburbs.

That there is no monopoly in building up these suburbs is shown by the fact that in one Chicago suburb of but fifteen thousand inhabitants can be found at least half a dozen builders operating on about as large a scale as the one whose figures are given.

Probably nothing has so fostered the home owning notion and encouraged the movement towards outlying districts and the suburbs than the application

as would be required to lay up enough to buy a home outright. The average city man with a bank account growing at such a rate would probably feel uncomfortably like a miser. In the country, men look upon debt as a misfortune; in the city it is looked upon as a matter of business. These conditions and sentiments have served to create a problem for the city builder somewhat different from that of the country builder.

The development of city home building is interesting. Formerly, the carpenter and builder found it necessary to run about bidding on this and that house in hopes of "landing it." Later some ambitious builder discovered a better way. He bought his ground, put up desirable buildings, improved the streets and lawns and allowed the purchaser to do the running about.

The experiment proved successful; others tried it, but the serious drawback was the lack of ready purchasers.

Finally, some one found that the payment plan

opened up a way to reach that great mass of flat dwellers who would gladly purchase if they could.

The plan is so simple and so in accord with sound business principles that the only reason for its delayed application seems to lie in the desire of the builder to turn his money at once. In the payment plan vast



sums are "tied up" for periods ranging from ten to fifteen years. A payment of ten per cent of the cost of the property is asked of the purchaser by most builders. As this would mean but five hundred dollars on a five thousand dollar house, most any salaried man holding a position sufficiently responsible to warrant his living in a five thousand dollar home, could soon save the amount and meet the necessary monthly payments.

These payments vary with the cost of the house, interest on the amount due being fairly computed.



Money lenders find these investments profitable, so that the builder needs tie up his working capital but a short time—not at all, after he has made a reputation as a successful promoter.

A description of an up-to-date subdivision, pictures

of which are shown, that has appealed strongly to the well-to-do salaried class, may prove suggestive to intending home builders: You follow your taste as to plaster, shingle or clapboard exterior finish—and whatever your choice your home will have at least five high-class art-windows—one in the hall, one in the stairway, one over (and as part of the design of) the built-in sideboard, another in the side wall of the dining room, and another in the library; the character of each being appropriate to its situation.

The houses contain from six to nine rooms, of dimensions that delight such are just emancipating themselves from flat-dwelling.

Not only are no flat or apartment buildings tolerated during direct control of the properties, but the warranty deeds by which the property is conveyed to purchasers prohibit the future erection of them, as also of any structure for any business purpose whatsoever.

Solid stone basements under all of the houses add to their appearance of substantial elegance, as well as adding many years to their life. The basement interiors are all over seven feet high (in the clear) with inside stairs, cement floors and two laundry trays.



Big home-like porches 10 by 24 feet (or more) on stone piers, make life worth living in summer. The back porches also are of wholesome size and rest on stone piers, which is unusual.

The interior finish throughout is of solid selected oak. Floors are of oak, except in the kitchen, where maple is better. There is a handsome console, of varying design, with large mirror built in with solid oak; also heavy pedestal columns with carved capitals between the parlors. There are sliding doors between the library and dining room. There is a neat and artistic grille between the hall and the parlor, and an ample hall seat of solid oak.

The dining rooms, all of which have either bays or triple windows, are delightfully commodious, are finished in dark weathered oak, done in the best modified Mission style, with heavy beamed ceilings, 11 foot sideboards of substantial and very distinguished design, and handsome plate racks built in; the walls below being done in art burlap. The door leading to the kitchen (always important) is of the new duplex-

swinging pattern. There is a fine butler's pantry, with a good china closet.

The bath rooms are done in white enamel, with tile floors and the cement wainscoting known as "cut tile." The plumbing here, as also in the kitchen, is all of nickel, not enclosed, and with enameled roll-rim sink, sink-back and drip-board. The wainscoting is all cement. There are linen drawers, large enough to be useful. The lavatory equipment is of the new and superior low-type. There is a built-in medicine cabinet, with mirror 14 by 24 inches. All of the houses are arranged to permit of an additional lavatory for servants in the basement. In two of the styles of houses there is installed yet another lavatory on the first floor.

The closets are designed to be a "real comfort." Some of the houses have seven closets; the six-room house have four closets upstairs alone; some of the closets are eleven feet long.

The division of the floor space is masterly. Con-



venience, comfort, ampleness (yet with "step-saving" arrangement), coziness, completeness.

Hot water the year round is a special advantage; in the summer from a combination laundry stove and heater, in winter from the modern coil provided in the furnace; also hot water heater and boiler, fully equipped; the furnace is a good furnace. The hot-water heating plants are of a capacity greatly in excess of the most extreme requirements, the radiation being 75 or 80 per cent over estimated needs.

Gas and electric combination fixtures, the new rich gilt satin finish, either octagonal or square, are in every house; also globe porch light; also lace and insertion window shades. Depending from the center of the dining room ceiling is a large art-glass dome of the latest approved formation.

There are electric switches in the principal rooms and the second floor hall lights are governed by a "3-way switch" in the lower hall.

The attics in all the houses are very delightful and most uncommon advantage. They are all ten feet in the clear in the middle. All have two, and most of them three fine dormers from six to eight feet wide, making it a simple matter to finish off three more good rooms. The gas and electric connections are in every case carried up to the attic.

There are screens for all rooms and the front door screen has a solid oak frame.

Good, sensible lots, not one of which is narrower than 40 feet and plenty at 50 feet; depth all the same, namely 135 feet; behind that a 15 foot alley. In the back fence is a covered galvanized iron garbage can.

Every yard is fenced and not alone the street walk but also the private walk to the rear door is of cement. Not only the front lawns but all side yards are sodded.

To undertake to build homes in this manner, on such a scale, presupposes comparatively cheap land, good transportation, a desirable community, and a demand such as is possible only in the vicinity of a large city. In smaller places where prejudice against buying into a private subdivision does not exist, it may be made a success, but the moneyed interests would probably be slow to invest the capital necessary to start and carry it through, as there is more or less risk connected with an investment of this kind.

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Common Prudence

A teacher in a down-town school has for her pupils the children of Russian parents. The other day she was explaining a sum in subtraction which the little ones found difficult to understand.

"Now," said she to exemplify the proposition, "suppose I had ten dollars and went into a store to spend it. Say I bought a hat for five dollars. Then I spent two dollars for gloves, and a dollar and fifty cents for some other things. How much did I have left?"

For a moment there was dead silence. Then a boy's hand went up.

"Well, Isaac, how much did I have left?"

"Vy didn't you count your change?" said Isaac in a disgusted tone.—*Woman's Home Companion*.

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Building Materials Wanted in Panama

Former Vice Consul-General Rockwood, of Bogota, writes to the bureau of manufactures from Panama calling attention to the market there for steel laths and wire netting for construction purposes, owing to the extending use of cement. He states that trade in those lines and in Portland cement could be developed to a much greater extent if quantities of the right materials were on hand, thus avoiding a delay of six to seven weeks in waiting for an order to be filled from the United States.



How to Use the Steel Square

EXEMPLIFYING A GENERAL RULE FOR FRAMING THE RAFTERS FOR ANY ANGLED BUILDING WITH ILLUSTRATIONS SHOWING THEIR RELATION TO THE STEEL SQUARE

THE ways of illustrating the applications of the steel square in obtaining angles for roof framing are many and varied, but we cannot take the time to give them all, or we might better say, have the time, for we know not where the end is. Neither do we believe the readers would care to have us make

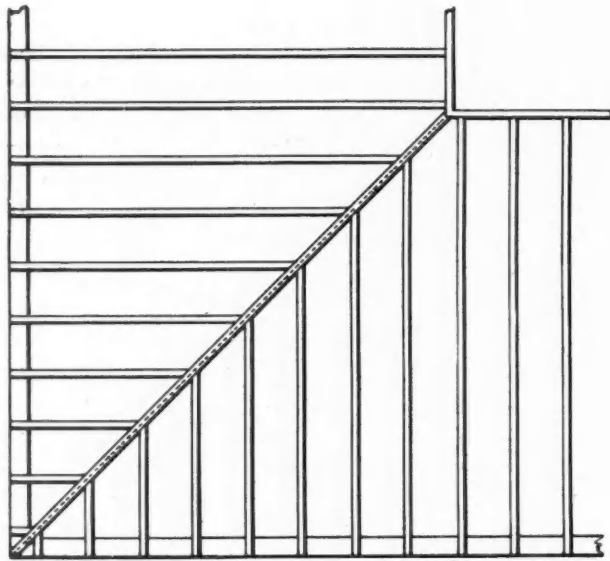


Fig. 171.

the attempt. Therefore, we will show but a few more and then pass on to other parts of our subject that promises to yield much under "square treatment."

Taking up the subject where we left off last month, of what determines the figures to use on the steel square for equal and unequal pitches and their relation to one another.

In Fig. 171 is shown the plan for a regular pitched hip roof for a square cornered building. In this, it will be seen, the deck plates rest parallel and at equal distance from the wall plate. In Fig. 172 are shown the angles on the squares to obtain the cuts. The pitch being the same on both sides (9 inch rise to the foot), the angles on the squares necessarily show the same for each side. NOTE.—The heels of all of the squares are resting at a central point on the line of the hip, which is at a point 12 inches on a line at right angles from the plate from either side, as shown by the squares Nos. 1 and 2. The tongue of the squares

Nos. 3 and 4 are resting along the line of the hip and the intersections with the plate lines are at 17 on both the tongue and blade. 12 and 9 (B C), as shown on the former two squares, gives the seat and plumb cuts of the common rafter, while 17 and 9 (A F), as shown on the latter two squares, gives the same for the hip. For the side cut of the jack it is 12 and 15 on the square. The side on which the latter is taken giving the cut. The former number is used because it is the length of the tangent. In other words, it is the length of the plate from the corner to the intersection of the tongue (as at A-B) 15 is used because that is the length of the rafter for a one foot run (as at B-C) for the 9 inch rise or $\frac{3}{8}$ pitch. For the cut of the hip to fit against the corner of the deck plate, which is the same as the angle for the side cut each way, and then sawing only to the center line from both sides; the figures to take on the square are 17 (D-E) and $19\frac{1}{4}$ (A-F). The side on which the

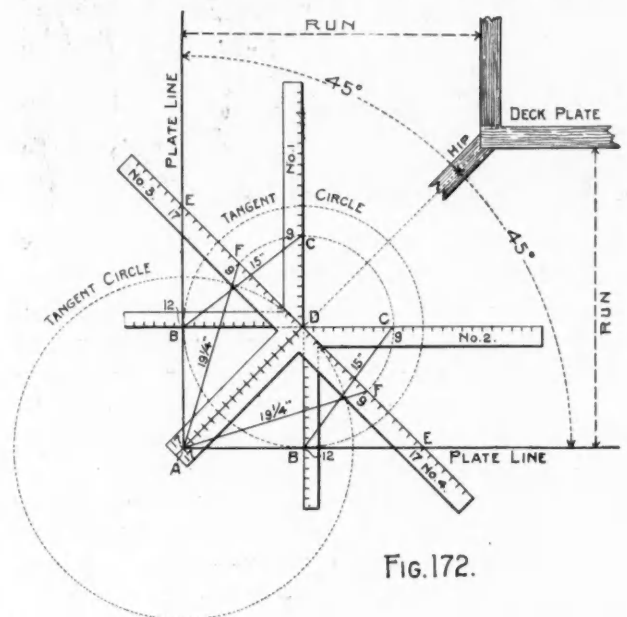


Fig. 172.

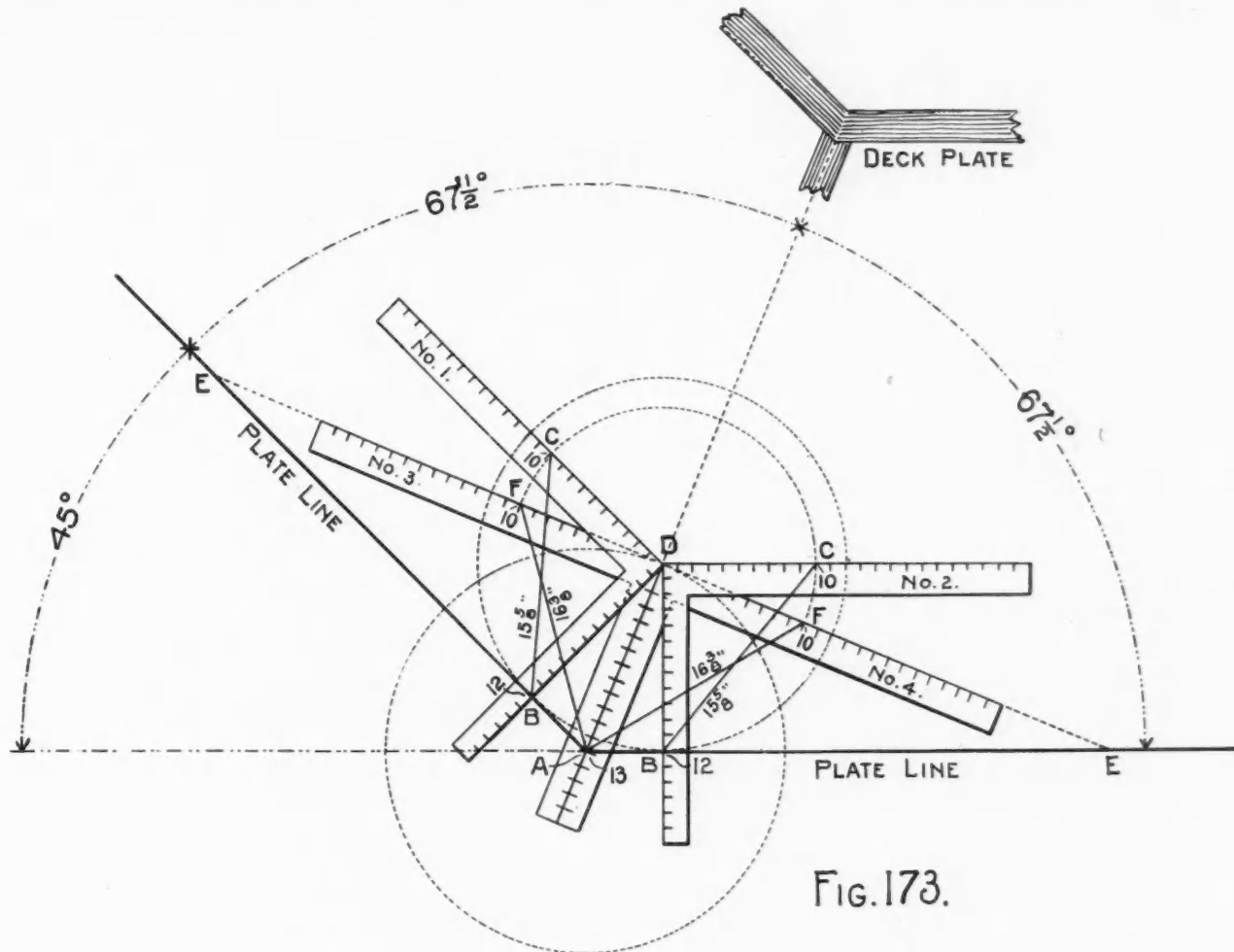
latter is taken will give the cut. By a little study of this illustration, we trust why these parts are taken will be made clear and need no further explanation. This is a general rule, that is, the principle applies to any angle such as the hexagon, octagon or in fact any irregular cornered building.

In Fig. 173 is shown the same treatment for the

octagon. Like letters are used to represent the same parts. Therefore, the explanation given in the former applies to the octagon but of course the figures to use on the square are changed.

NOTE.—The angle formed by the plates for the

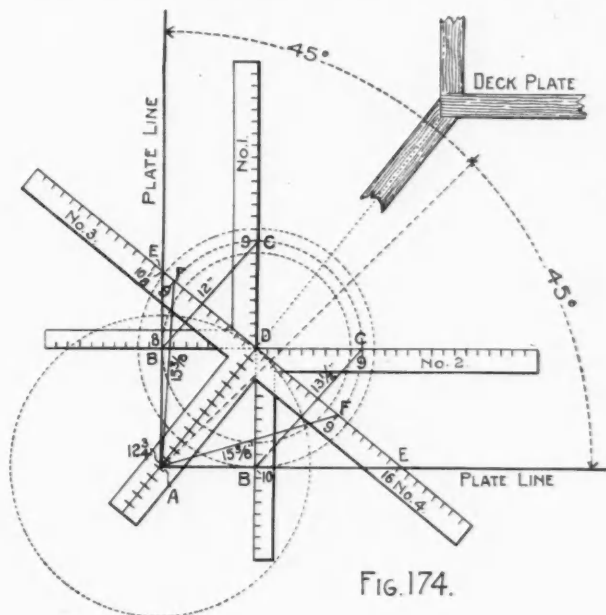
length A F of the respective sides will be the figures to use on the square to obtain the side cuts of the hip. The side on which the latter is taken, giving the cut. For the side cut of the jack for the 10 foot side take 8 (A-B) and 13½ (B-C) on the square. The



square cornered building is 90 degrees, and the half of this is 45 degrees, which represents the angle that the run of the hip rests from the plate at either side. In the case of the octagon corner, the angle is at 135 degrees and the half of this is 67½ degrees, which represents the angle from the run of the hip to the plate at either side.

We will now apply this same principle to the uneven pitched roof, that is, where one side of the roof is steeper than the other, as shown in Fig. 174. Here is a square cornered building with a run on one side of 8 feet and 10 feet on the other. Problems of this kind can better be illustrated by using the one inch scale on the squares. That is, by letting 8 inches on the tongue of No. 1 represent the run on the 8 foot side, and 10 inches on the tongue of No. 2, the 10 foot side, and place their heels on the hip line, as shown, with their blades parallel to the plate lines. Then place the squares Nos. 3 and 4 with their tongues along the hip line and with heels resting at same point as those of Nos. 1 and 2, the figures on the blades at the intersecting of the plate lines, as at E and the

side on which the latter is taken, will give the cut. Proceed in the same manner for the other side, but



note while we have used the same reference letters for like parts, the figures to use on the square are necessarily different because the run is shorter. It is understood that the run and rise, as shown on the respective squares, gives the seat and plumb cuts and needs no further explanation here.

One thing in favor of the inch scale is that the

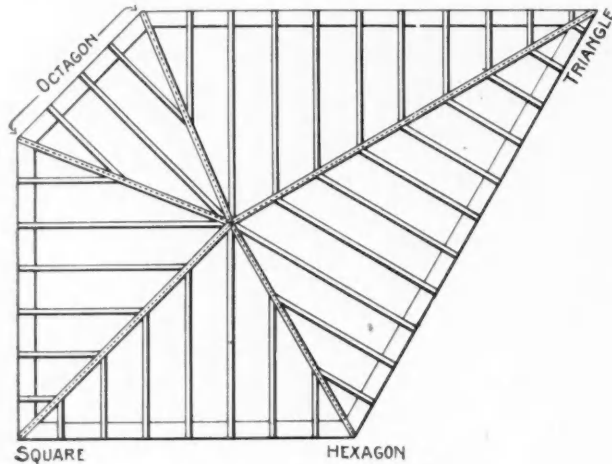


FIG. 175.

lengths of the rafters are found by simply measuring the diagonal lines shown across the squares that represent the rafters. But we hear some one say, "Why show all these squares and lines for what might be illustrated in a more simple form?" It is true, it might be, but the object in these illustrations is to show each angle on the square as required in its relative position, and thus step by step show why these parts are taken on the square to obtain the cuts for any angled building.

In Fig. 175 is shown a number of angles combined

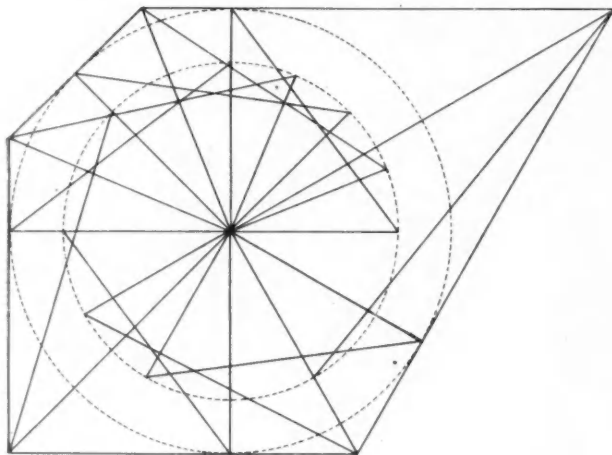


FIG. 176.

in one plan. It is not expected that a carpenter would be called on once in a lifetime to frame a roof of this kind, but odd corners are liable to come up in otherwise common work, and when the true principle is understood, there is no reason why any angle could not be as readily framed as for the common square cornered building, because the proportions to take on

the square may be arrived at in the very same manner.

One thing that should be remembered in all roofs is that the jacks and common rafters should rest at right angles from the plate, as shown in the plan, otherwise the backs of the rafters will not lie in plane with the roof. In the case of circle roofs, the rafters run to a common center, which is the same as at right angles to a tangent to the circle. Twice in our experience we have known carpenters in framing the rafters for a circular cornered porch try to form the roof by framing jacks to a central rafter, when they should all have been common rafters radiating to a central point. They knew better when their attention was called to it, but they did not stop to think.

Fig. 176 represents a simple layout of the hips and common rafter for the above plan. The large dotted circle shows that the central point is at equal distance from the different sides. The inner circle represents the rise circle because, if the rafters were lying down in their relative positions, this circle would catch all of the points at the upper end. In this, all of the common rafters, of which there is one for each side, are of like dimensions. Now, if we could catch hold of these rafters and raise them up, they would rest over the central point and consequently the rafters would all rest in their proper place.

We will close for this time, but we did not get to say all we wanted to, so will come back next month with a continuation and then—well, wait and see.



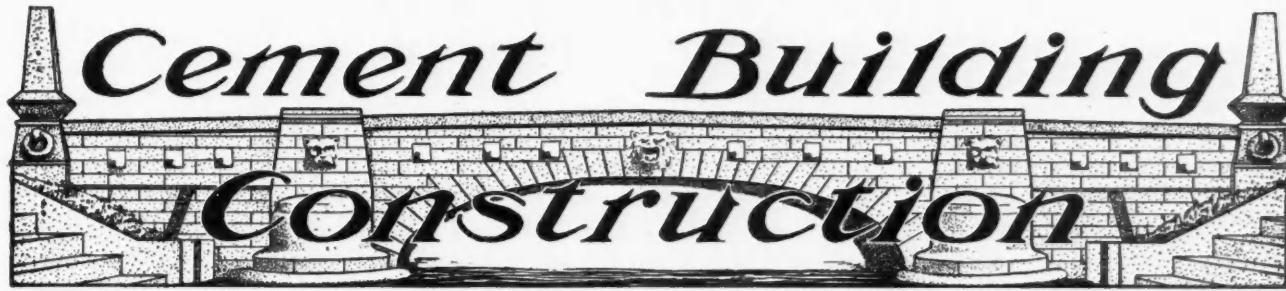
Fireplace Suggestions

"Mistakes are sometimes made by inexperienced persons in building the fireplaces which are coming into such favor again," said a builder. "The people find that the fireplace smokes and is susceptible to every vagrant breeze that happens to blow down it. The reason for this is a fault in construction, a disregard of a fundamental law and a principle well known to most builders. The fireplace has not been provided with a proper 'throat' and 'smoke shelf.' Some people have the idea that the bigger the chimney the better will be the draft, and they build the chimney large and of the same size throughout. The throat should be a few inches above the arch of the fireplace and should be comparatively narrow. The part of the chimney wall which juts in to form the throat is called the shelf and when a wind blows down it provides a shelf against the breeze so that the smoke does not blow out into the room."



New Colors in Wall Papers

In wall paper the tendency seems to be away from the strong and rich reds, and popular fancy rather inclines towards greens, brown and warm grays, or pearl tones, with the ever popular floral and cretonne papers on white or light backgrounds, the favorites for bedroom decoration.



Practical Building Code

BEING THE FOURTH PART OF A COMPLETE BUILDING CODE WHICH WILL BE PUBLISHED FROM MONTH TO MONTH—COVERS THE WORK IN ANY CITY

By Fred W. Hagloch

SECTION 1. Prior to erecting walls for buildings on compact soil, such as clay, hard pan, gumbo, etc., the basements or cellar shall be connected with the surface or street sewer through vitrified or concrete drain tiles and catch basins.

SECTION 2. All cellar and basement floors shall have sufficient slope to allow complete drainage.

SECTION 3. All soil against the outside of building walls must have drainage slope from the walls for three feet distance unless properly drained with gutters or tile.

SECTION 4. All soils not provided in above sections are to have drainage as may be required by the building inspector, except soils that do not hold water, such as sandy loam, which require no drainage.

Article VIII. Thickness of Walls

SECTION 1. The thickness of all walls shall be governed by the following features of the building: The height of wall; the dead (building material) load and the live load supported on said wall.

SECTION 2. In no instance shall the total load per square foot of wall area exceed the following:

Brick (common), laid in lime mortar	6 tons
Brick (common), laid in lime and cement mortar	9 tons
Brick (common), laid in Portland cement mortar	12 tons
Brick (selected hard), laid in lime mortar	8 tons
Brick (selected hard), laid in cement mortar	12 tons
Brick (pressed), laid in lime mortar	10 tons
Brick (pressed), laid in cement mortar	15 tons

In using vitrified or paving brick they shall be classed as pressed brick.

Hollow clay tile and terra cotta walls may be loaded to four tons per square foot when laid in lime mortar, and five tons when laid in cement mortar, unless hollow spaces are filled with brick work or concrete, when eight tons per square foot of wall area is accepted.

SECTION 3. In no instance shall the total load per square foot of wall area of stone work exceed the following:

Rubble, irregular and laid in lime mortar	4 tons
Rubble, irregular and laid in cement mortar	6 tons

Rubble, heavy and coursed, laid in lime mortar
 8 tons |

Rubble, heavy and coursed, laid in cement mortar
 10 tons |

Ashler and blocked stone laid on full beds with lime mortar
 10 tons |

Ashler and blocked stone laid on full beds with cement mortar
 16 tons |

SECTION 4. In no instance shall the total load per square foot of wall area exceed the following for solid concrete and for concrete walls that contain hollow (cored) spaces, only solid area being calculated:

Concrete, cement 1, sand 2, aggregates 4

 20 tons |

Concrete, cement 1, sand 3, aggregates 5

 15 tons |

Concrete, cement 1, sand 2, small aggregates 4 and large aggregates 5

 10 tons |

Concrete, cement 1, sand 4

 12 tons |

Concrete, cement 1, sand 5

 8 tons |

Hollow concrete block walls laid in cement mortar shall be governed by above loads, and if laid in lime mortar 20 per cent of above safe or maximum load shall be deducted.

Cement shall be Portland, sand be sharp with not exceeding 2 per cent clay or one-half per cent loam or inert qualities, and small aggregates be gravel, slag or hard stone that will pass a one inch ring and rest on a half inch ring; large aggregates to pass a three inch ring and rest on an inch ring.

SECTION 5. In no instance shall the total load per square foot of wall area exceed the following for solid granite:

Granite walls, 12 inches thick

 20 tons |

Granite walls, above 18 inches thick

 40 tons |

SECTION 6. In no instance shall the total load per square foot of wall area exceed the following for reinforced concrete:

Same as given in Section 4, plus the percentage of steel based at 12,000 pounds per square inch, area or section measurement.

Concrete Made of Ballast

For the benefit of those builders in whose locality there is no supply of natural gravel or stone, I have in a measure found a very good substitute, viz.: Recently I received a 100 pound bag of ballast made from swamp gumbo, which abounds in the Missouri

valley, and has been used by the Burlington railway for ballast instead of gravel and crushed stone, which is made by covering brush heaps, old ties and timbers with gumbo (swamp muck) about one foot deep and then burning the brush and timber, which produces a slow, smoldering fire and converts the black muck into a bright red cinder.

This cinder, or ballast, as it is best known, makes an excellent aggregate for concrete, and when used in proportion to one part Portland cement, two parts bar (river) sand and three parts well burned (bright red) ballast that will pass a half inch mesh sieve and rest on a quarter inch mesh seive, will make hollow concrete blocks equal to those made of crushed limestone, while in color it makes a mottled red and gray that, at a distance of twenty feet, resembles Maine red granite, which the block maker in stone and gravel districts would envy but could not imitate.

Concrete made of one part cement, three parts bar sand and five parts of ballast that will pass a two and one-half inch inch ring has a crushing strength of 850 pounds per square inch, but I doubt its durability if used above ground, as the ballast will crumble in five or six years exposure to air, at least such has been true with railroad work; but small parts about the size of hazelnuts seem unaffected.

That ballast can be successfully used in foundations below ground, and for concrete block walls above ground, if made of the proportions above stated, my experiments give ample evidence.

The cost of ballast depends upon local conditions and the amount burned at a time; railroads produce it at 40 to 60 cents per ton, and a cubic yard weighs about 2,400 pounds.

It should be remembered that the well burned ballast only should be used.

Constructing Sewers and Culverts

ADVANTAGES OF CONCRETE IN THIS FORM OF CONSTRUCTION—METHOD OF MAKING FORMS AND MANNER OF REINFORCING—ESTIMATED COST OF THE SAME

THAT concrete is superior to all other materials for sewers and culverts, if properly used, has been clearly shown, but that the cost often exceeds that of clay sewer pipe has been an objection, which is due to the form or style of sewer and forms for constructing same.

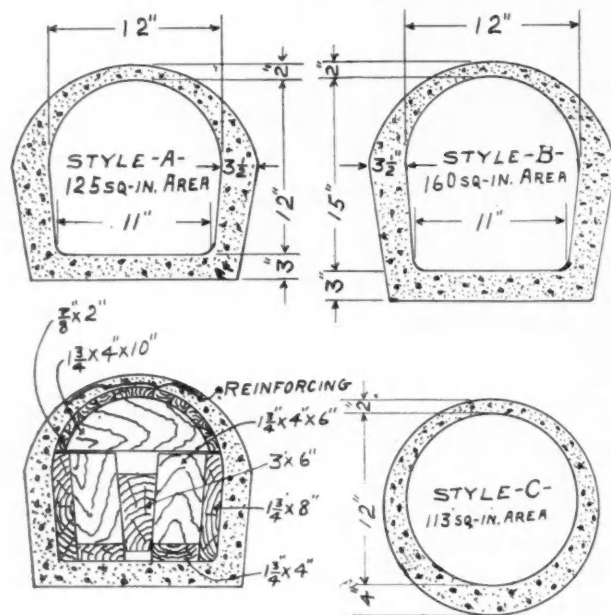
In the illustration we have three styles, of which C, the circular sewer, is the smallest, though considered the same as B, as both are 12 inch sewers; yet style B in 12 inches has as much capacity as style C in 14 inches. Many wish to have style B in 12 inch compete with style C or round clay pipe of

besides is much superior, as it is never out of line and free from joints, two defects which are always prominent in clay pipe sewers, and always diminish the capacity of the sewer or culvert. It is these two causes that make clay pipe inferior to the computed capacity, while the concrete sewers, being more perfect, are more equal to the computed capacity; in other words, it is the two above causes that work hardships on concrete in theory, but give concrete the decided advantage when put into practice.

The use of properly made forms, in as long lengths as possible, that may be placed and removed with as little labor as possible, and used over and over again, is the chief cost saving problem, and the form shown in drawing has been used by me in 12 inch, 15 inch and 18 inch sewers in lengths up to 26 feet; thus, for a culvert 50 feet long, there would be no joint in the entire length, as the concrete bottom is first placed, and four men can place two 26 foot lengths of forms on same in ten minutes, when the balance of the concrete is placed. In continuous sewers I use but one form, making a joint every 25 feet, and these joints I tie together with wire netting two feet wide (one foot into each section).

In removing this form, first raise the center wedge shaped timber which runs the entire length of the form; this is done by first raising the exposed end with a crowbar and later using a long gas pipe with one end flattened same as a bar; this pipe is driven the length of the form and both the wedge shaped timber and the bar will be free to remove. Next hammer the lower corner forms until freed from the concrete, and then the top arch. It will be noticed that the top arch is not as wide as the opening, which is essential.

In building these forms, I place all cross blocks 16 inch centers, and all timbers whose ends are shown are made the full length of the form, but none except



same diameter, which is unfair to concrete. In actual use, I find style B of size given, viz., 12 inches wide and 15 inches high, practically equal to the 15 inch circular sewer or culvert, and in localities some distance from clay pipe kilns the 12 inch concrete sewer can be built for less than the 15 inch clay pipe sewer,

the center wedge timber need be the full length of form, and even this I made of inch lumber 12 and 14 foot long for a 26 foot form.

These forms should be made by a practical carpenter and well oiled before using. I apply a coat of common engine oil every time I shift the forms, and never have trouble of adhering to the concrete.

Forms 26 feet long for 12 inch sewer are withdrawn from the concrete and set in place for the next section in less than half an hour by four laborers.

The reinforcing shown is intended for culverts near the surface, and consists of expanded metal shaped as shown, so as to strengthen the inside (lower) at the center of the arch and near the outside at the haunches, this giving the benefit of the tensile strength of the metal.

In most work I use no reinforcing, as the top is always two inches thick, and in sewers 12 or 15 inches wide this is sufficient in plain concrete to carry all the load that can be placed upon it.

In building sewers across made or soft dirt, I usually reinforce lengthwise with eight round rods spaced equal distance over the top and down the sides, which are tied together every four or five feet with several strands of No. 4 common wire; at the bottom I use no reinforcing, but add a half more to the thickness of the plain concrete.

The cost of a 12 inch sewer (style B) per length of 16 feet, is as follows:

Excavating 4 feet deep—9 hours labor.....	\$1.44
16 cubic feet concrete.....	2.60
Labor for hand mixing and placing concrete and forms (4 men, 2 hours).....	1.28

Total cost 16 feet.....\$5.32

There is nothing added to above for cost of forms and superintending, but enough is shown that net cost does not exceed forty cents per lineal foot, while a 15 inch clay pipe sewer would cost about 56 cents per foot, to say nothing of the superior qualities of the concrete.

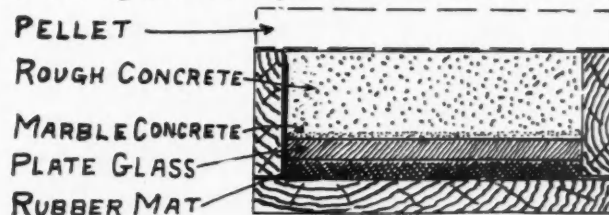
Marbleized Concrete

Much experimenting along the line of making finer finished concrete has led me to use one of the three methods which are here described, the product of all of which I term "marbleized concrete."

To produce a concrete face that will have the appearance of sanded finish marble, such as used for exterior building stone, is very successfully done on any face-down block machine by first covering the face to the depth of an eighth of an inch with a dry mixture of one part cement to three parts marble dust, and the regular dampened concrete is then placed upon it and tamped in the usual way, sufficient moisture penetrating the dry facing to produce a hard face. When this method is applied to rock-face molds I find it necessary to first paint the face of the mold with a coat of Japan dryer, which must be

hard before using the mold. Marble dust from the Vermont quarries produces the smoothest surface, but is more troublesome in adhering to the mold than Georgia marble dust, which is of a flint or crystalline nature. Facing made as above may be polished or glossed after the blocks are five or six weeks old by polishing much the same as natural marble.

Perhaps a cheaper method of producing polished or glossed marble surface is to construct a mold as shown in sketch, which is the same as any ordinary artificial stone mold except that on the bottom or face side is placed a polished plate glass, which rests on a rubber blanket or mat (I always use a rubber door mat), this mat saves breaking the glass when tamping. On the glass we pour, to the depth of an eighth of an inch, a composition made of one part Portland cement to three parts marble dust, mixed with sufficient water to admit pouring; this composition must be well agitated until poured, which is immediately



covered with rather a dry concrete block composition, which must be well and carefully tamped, and the mold left undisturbed for at least one day, when the block or slab is removed and seasoned.

When a highly polished glass and fine marble dust is used, the surface is perfect, and it sometimes is necessary to slightly warm the glass to free the block from it; such surface can be highly glossed by vigorous rubbing with felt, frequently dampened with a solution of one part oxalic acid to six parts clean water; all acids must be washed off the block with clean water soon as the desired gloss is obtained.

Another more rapid method, where finest finish is not so much of an object, is to coat or paint the surface of seasoned concrete with a composition consisting of one part Portland cement to two parts marble dust, mixing small quantities at a time with sufficient water to enable its application with a kalsomine brush. When this coat has become hard it may be sanded for exterior work by rubbing with sand and water, using a cast iron block for rubbing; this will remove all brush marks and with the exception of the appearance of small spots of the rough concrete, resembles natural marble finish.

Coloring matter may be added to any of the above methods, but all colors have a tendency to produce flat finish, therefore the highest polish is obtainable with the natural materials.

All colors used should be mineral products and entirely free from oil.

These methods differ from the usual processes of making artificial marble.

Interior Designs and Decorative Schemes

SUGGESTIONS GIVEN FOR INTERIOR DECORATIONS—CAN BE USED IN THE HOME AND PUBLIC BUILDINGS

By C. Bryant Schaefer

THIS is the season for improving the interiors of our houses. It is also the time for considering the new year's prospects.

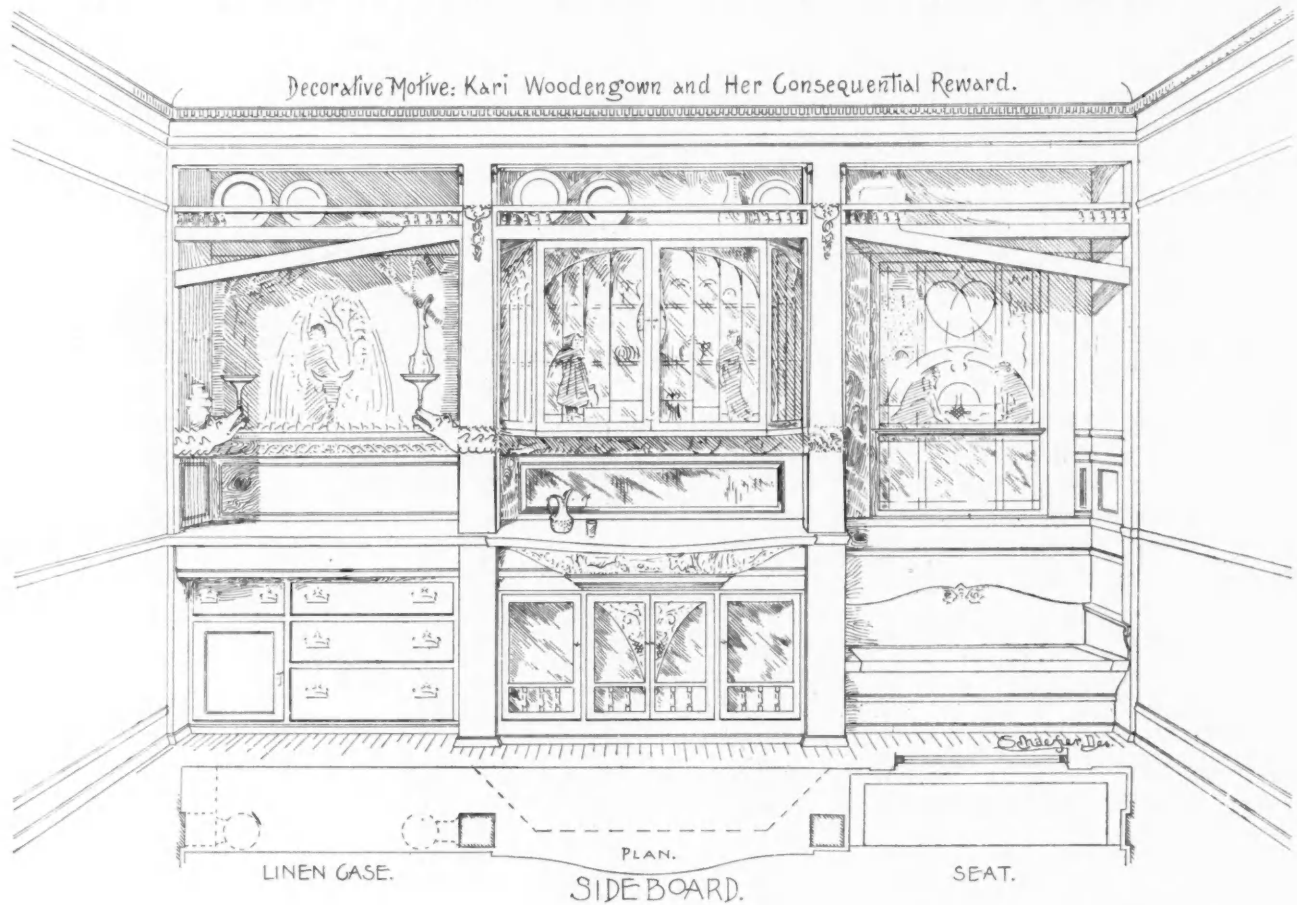
Every person should look his future squarely in the face. If you leave your prospects to the direction of others, can you wonder if people are led into undesirable pursuits or are taken advantage of by selfish interests?

Do not wait for something to turn up unless you have planted many efforts in the old year. Have a

off the mimic stage, we must similarly lay aside our works and instinctively consider our natural condition. This might well be called taking an annual nature bath. From this point of view one can best determine the kind of work that will be most wholesome and desirable.

Just on this account there is a great deal of neglected work. To take up that which has been left undone is to secure quick results.

The very best thing now will be to review some



purpose of your own, the best which you can make practical. Study on the work you have already accomplished and for the future plan to carry it on better than ever. Do not generalize. It is better to be confined by necessity to very small opportunities than that. Be definite, consider details and remember. Then, when you look about, you will discover there are others, and will find a welcome place among them. In this way one can secure a better situation as well as prepare himself for the inevitable time of life when nature throws all alike upon their own endeavors.

The holidays have made it possible to forget business cares. After all, work and toil is an artificial condition of life. As the theatrical actor must come

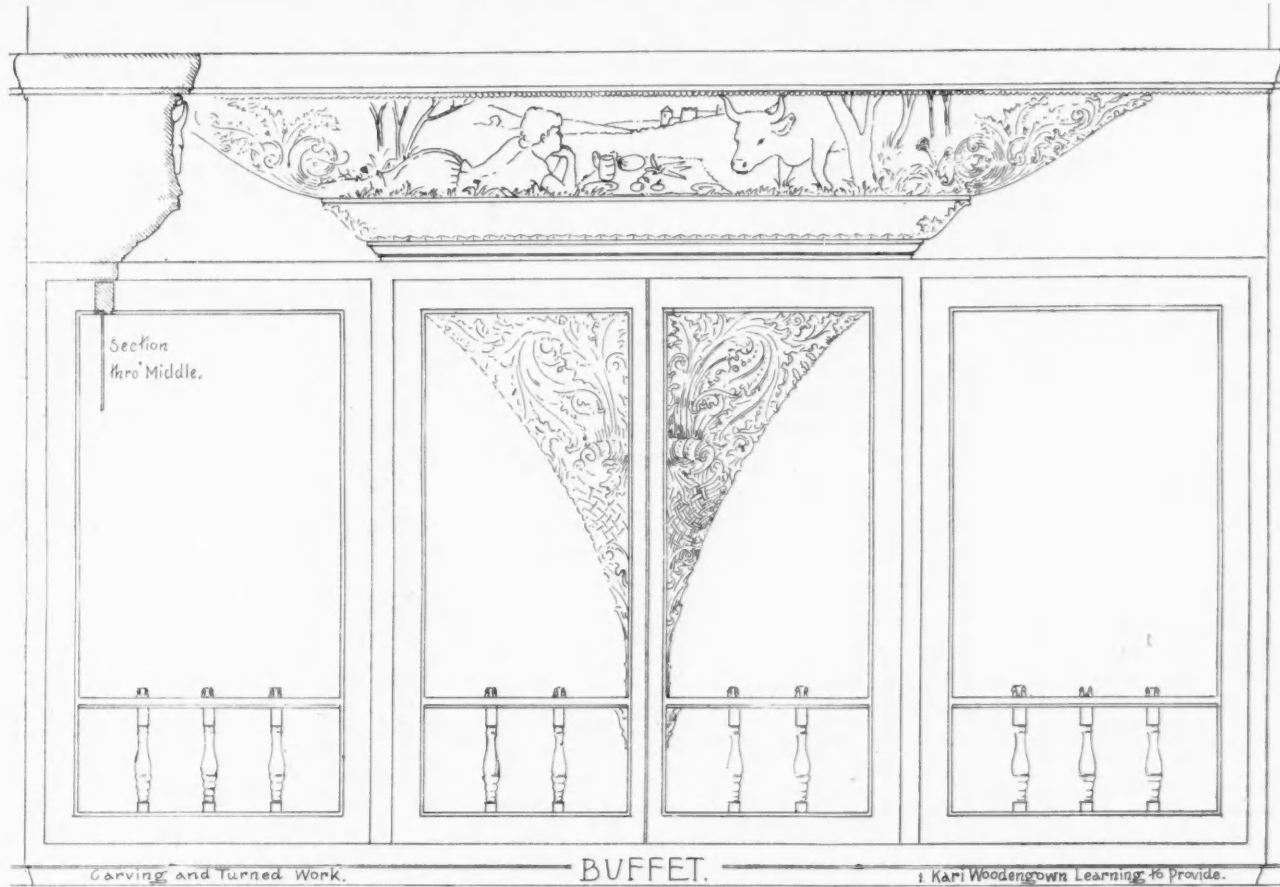
of the halting enterprises and seek to resume efforts with continuity.

Young and old have artistic accomplishments that require building facilities for association and enjoyment. Do not condemn fraternity clubs without providing something better.

There should be permanent reviewing stands for parades of all kinds. Processions used to be numerous. The slovenly boys of the present sadly need such discipline.

Street carnivals require booths and stimulate the improvement of building facades. They draw people out of doors. Proper regulation is more desirable than the opposition which is often raised.

Halls free from objectionable connections are



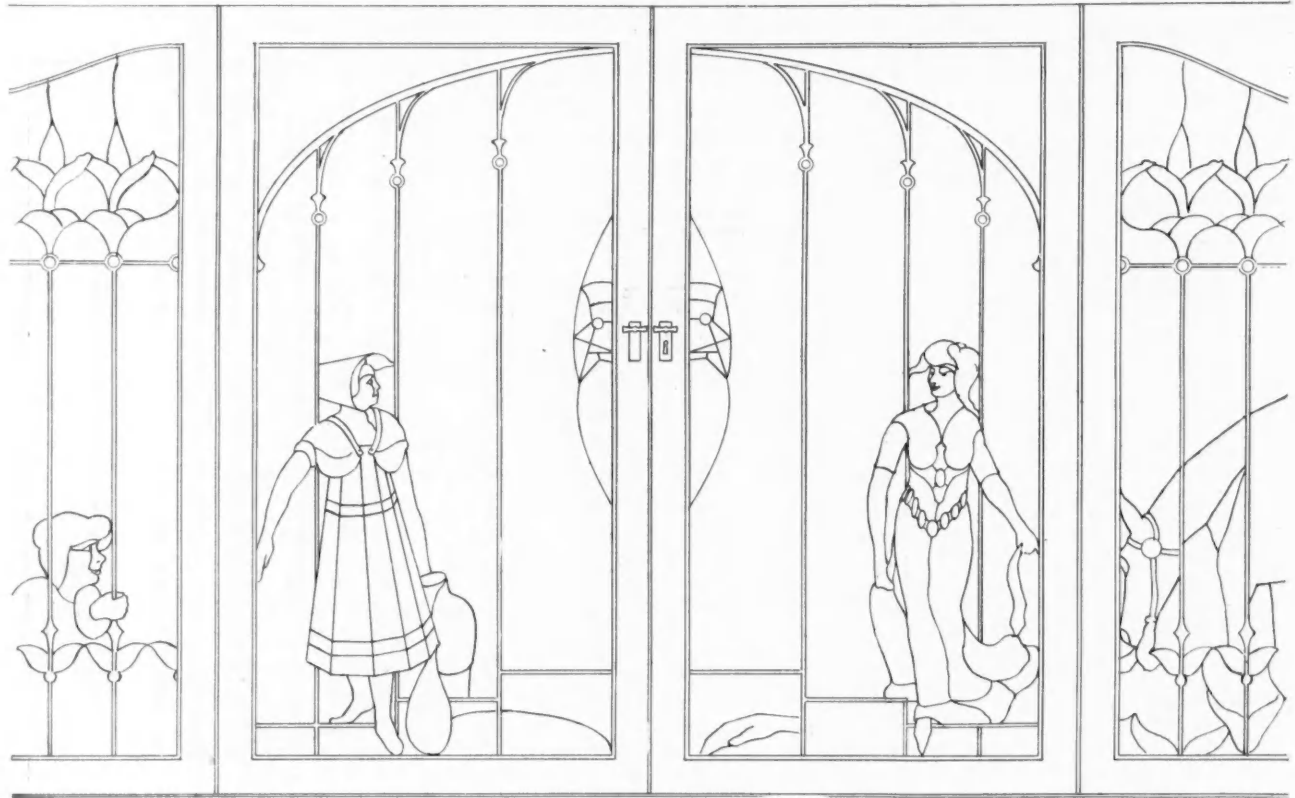
needed for dancing, one of the most moderate forms of exercise.

which people are unprovided, notably drinking fountains, lavatories and places for repose. It is better

There are a great many street improvements with

to develop these conveniences than to make a fuss





3 Kari making herself usefull.

Glass Doors GLOSET. Brass Rods

4 Kari Disclosing her accomplishments.

about the inappropriate places in which they may be found.

These are improvements which village people may introduce as well as cities. They do not call for expensive outlay. Well directed efforts would bring success and give work and business employment.

The accompanying designs contain many suggestions in considering residence improvements, not only for one's self, but also in estimating the possible needs of customers or employers. One should always do that.

This sideboard takes in the whole end of a dining or living room. It embraces a number of useful features. This occasions an attractive variety. Unity is obtained by the broad-sweeping lines of base, chair rail and cornice.

The design is not intended to be arbitrary. It may be easily adapted to many similar cases. The motives can also be carried out in quite a variety of materials. Manufacturers have become very accommodating in making their goods available in convenient form for handy use.

The side or end of the room is given an open timber effect. This and the case of drawers and cupboards are simple of detail. The door stiles and drawer fronts are meant to set into the frames a trifle, the latter sand papered on the edges. Soft wood strongly grained needs as large a panel as possible and looks admirable with drawer pulls in contrasting shapes. It is probable that cases of this sort might be ordered from the mill catalogues.

The central section contains a buffet counter extending underneath the little octagon cupboard above. The counter is ogee shaped with shelves and glass doors underneath.

On the left is a case of linen drawers with a counter in the recess.

At the right is a seat with a window in the back wall looking out of doors. Above the picture molding is a shelf for china that embraces the entire design.

An increased value is given the decorative work by the incorporation of an appropriate narrative. Stained glass, for instance, brings as high as \$25 a square foot when designed in this way, and there may not be any more work upon it than in the vacant scrolls, which may be purchased for \$5.

It is not only public buildings and religious edifices that have their themes for conventionalization. The home fireside has its heroes and heroines, stories of whom live from age to age, and not only instruct, but amuse as well. One of these delightful little narratives has been carried through the various features of the design. It is a pleasure for the possessor to note the interest such work awakens in the beholders.

In the ogee of the counter is the first scene of this narrative, entitled Kari Woodengown. It is in wood carving, and so drawn in profile as to be also suitable for fret sawed work. Kari, a maid of many accomplishments, was driven out of the house by a spiteful stepmother and half sister, during her father's absence. She tended the cattle. A blue bull taught her to extract a table cloth from his ear and to spread

a table of delicious viands for her repast. This, of course, means that by observing the cattle she learned to find the fruits and herbs of the field. She suffered a nature bath and began to thrive with redoubled vigor. This was not what her unnatural mother intended, who now became unendurable. The blue bull undertook to carry her off, which is the subject of the next decorative piece, over the linen case.

This wall in the left recess may be tinted on the plastering in flat colors. The outline might also be incised upon close-grained wood and then colored with some of the many wood stains procurable. When waxed it would have the appearance of inlaid work. Kari is carried through three forests of copper, silver and gold. This determines the tints of the leaves around the edges, the wreath and the shrubbery in the center respectively. Clothing should be bright tints.

Kari unfortunately knocks off a leaf in each forest. She is charged to keep it. The land trust, evidently, is greatly incensed and attacks them in the form of a dragon.

The monster is represented by the carving on either side. The drawing on the left shows how to block out the heads. This is very easily done, and is often quite sufficient for beam ends on exteriors. The dragon on the right extends around the back of the buffet in low relief carving.

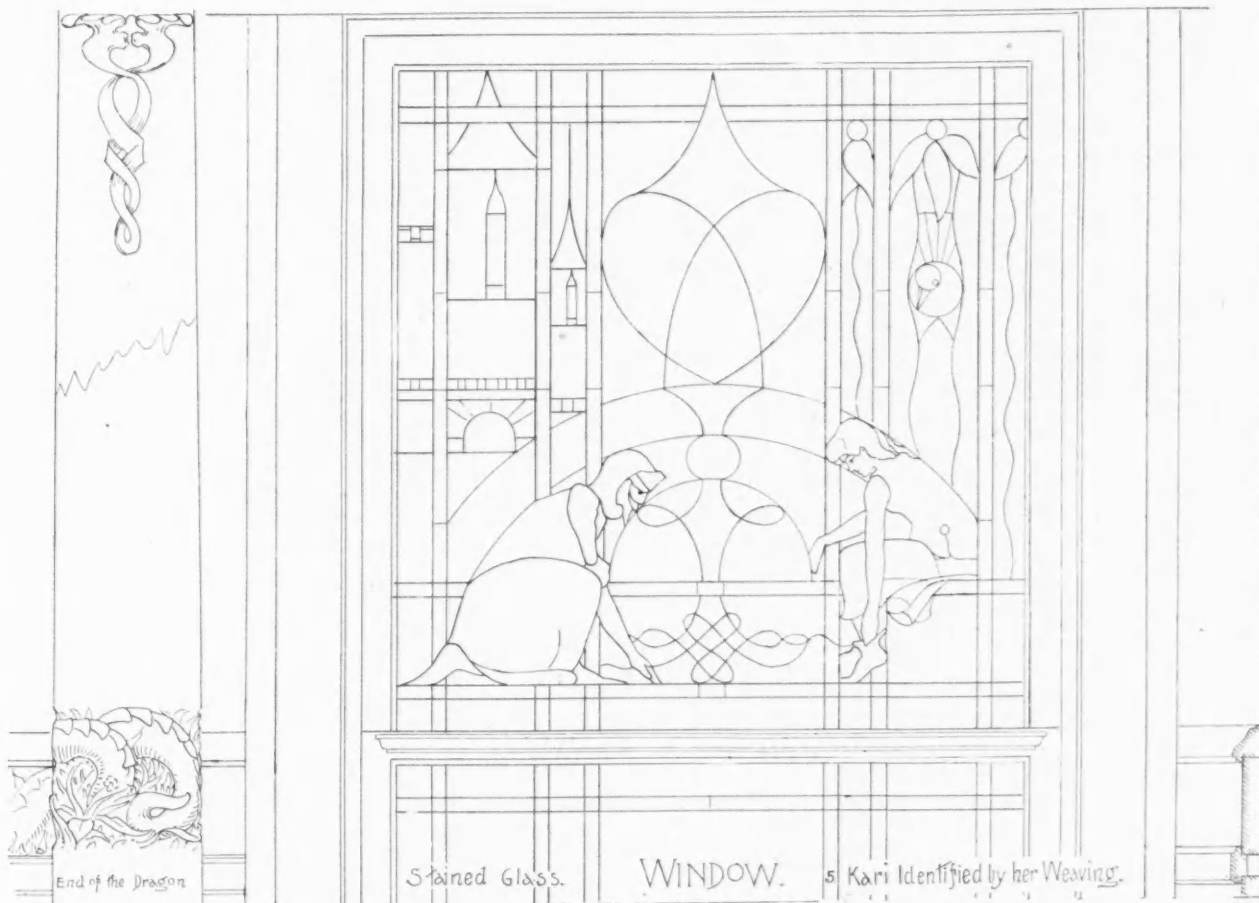
Kari was finally brought to a castle where she se-

cured menial employment. The bull, with a lady riding upon his back, represents emigration in all classic designs. The blue bull told Kari it was the best he could do for her and advised her to skin him. She did. Here she was made to wear a wooden skirt, like a barrel, so she would not get into the habit of sitting around, which is a boresome way for anyone to contract.

The glass door of the china cupboard, the left one, shows Kari striving to be useful. She carries water up to the master of the house, who peers out the door at her, as shown by the straight line conventionalization around the escutcheon. He is greatly shocked at such a looking creature and chases her off, while the other menials laugh, as seen in the lower left hand corner.

Kari then appeared with all her accomplishments and excited great admiration, which shows how quickly a well experienced person may rise from the lowest station. The master secures one of her gloves, with which to identify her if possible. He even discovers the maid's family, who claim everything on their own account, but a little bird tells him to look in his own kitchen.

In the stained glass window at the right will be found the bird, the castle, the bridge, the heart and also the weaving by which the girl was identified. It is true that families around the North Atlantic coasts were once known by a favorite kind of weaving which



they wore and with which they marked their utensils. It has given rise to a great many beautiful features in architectural decorations. This motive is also displayed in the wood carving on the doors beneath the buffet.

The figures in the stained glass window show the finding of Kari and the happy prospect in store for her, and which no one could deny her.

While the drawing of these features is simple, the outlines have to be such as can be easily cut in glass. The leaded work helps the picture lines. In the window the castle is seen outside, the figures inside the glass bars. Most of the work is for plain glass with the figures in colored pieces. These can be corrugated glass selected so that the lines represent the folds of

the dresses. The castle may be of chipped glass and the vines of green.

In drawing artistic figures the forms have to be outlined completely and then the garments drawn to fit. The mere drawing of squares and curves to represent a figure is no art at all. This should be remembered in selecting purchases as well as in doing work.

The settee may hinge at the back with a handy catch-all underneath. Some ideas of the decorative motive may be carried out in pyrography. One may also make suitable cushion embroideries.

Much of this kind of work is being put into halls, nurseries and school rooms, as well as dining rooms. If a household can incorporate some individual features quite of their own choice so much the better.

Seamless Composition Floors

[MATERIAL USED IN MAKING THIS FLOOR—ADVANTAGES OVER WOODEN FLOORS—WHERE USED TO BEST ADVANTAGE

By Charles James Fox

THE question of a durable, inorganic and non-absorbent flooring material is one which will always interest architects, contractors, home owners and others who give any attention to building materials. For generations wood has been so plentiful in this country that its use as a floor covering was quite natural, despite its inflammable, perishable and absorbent character. If the wooden floor wore out, as it did invariably in all buildings where it was subjected to rough usage, it was a relatively simple and inexpensive process to take it up and lay down another. But the conditions have changed with time. As the price of lumber is high, and as a carpenter gets something in the neighborhood of \$5.00 for an eight-hour day, the constant repairing and renewing of wooden floors is a serious item. In fact, even the ordinary care of a wooden floor, which requires frequent washing, oiling or painting, is an item of expense in housekeeping or building management which cannot be neglected.

Among the many drawbacks to the wooden floor is the fact that much dirt and organic matter passes into the cracks between the boards, from which it is impossible to remove it, even by the most laborious scrubbing. The elimination of the joints, cracks or seams has been recognized as desirable, especially from a sanitary standpoint; and this led to many more or less successful experiments in what might have been called seamless composition floors; or rather floor coverings.

The basis of all these floors is Sorel's cement, a preparation which was discovered by a Frenchman some years ago and first used to make billiard balls, for which its resilience made it particularly adapted. Sorel's cement is made by mixing magnesium chloride in solution with magnesia, which causes the mass to set like ordinary cement. It has two advantages which make it especially useful in composition floors; its resiliency, and the fact that it will adhere to ordi-

nary wood. Its resiliency or elasticity prevents it from cracking when spread in a thin layer upon a floor that is not rigid. Its property of uniting with wood makes it possible to add sawdust and other materials to the mixture, and also to make it adhere to a wooden floor.

These composition floors vary somewhat, but they are all more or less similar and made on the same principle. Sawdust, asbestos, sand and other materials, including coloring matter, are added to the cement, and the entire mixture then laid in a plastic state in about the same manner as ordinary cement. It hardens quickly and can be used a short time after laying. Its advantages are that it is light, elastic, easy to apply to old floors, and that it seals the cracks and joints of the boards. It is not inflammable like wood, and is far easier to clean. As it is usually only about half an inch thick, it can be applied to old floors without altering them, except perhaps to raise the sill of the doorway. The main disadvantage of these floors is their lack of durability or resistance to wear, and its consequent more or less unsanitary condition. Composed of several materials of necessarily different resistance to abrasion, they wear unevenly and the floor becomes pitted or "worm-eaten." The numerous little recesses thus formed become filled with dirt and foreign matter which it is very difficult to remove by the ordinary process of cleaning. No amount of care, no amount of mechanical perfection, can alter the fact that the different materials out of which these composition floors are made have wearing qualities which are bound to show under the hard treatment to which all flooring materials are subjected.

Besides the ordinary process of decay, the two greatest causes of the wearing of nearly all ordinary floor coverings are the steel nails of the shoe, and the dirt, sand and other gritty substances which are deposited upon the floor and are ground into it when

it is walked upon. The only floor covering which will not show evidences of wear are those which are harder than steel and sharp sand, and this is not the case with these composition materials. Sawdust, for instance, cannot be harder than the wood of which it is made; asbestos cannot be as durable as steel, and will be cut by sharp sand; and the numerous materials which are added as pigments to the composition weaken, in almost every case, its power of resistance to abrasion. The resilience or "giving quality" of such a floor prevents its being worn to a certain extent, just as pure rubber is not easily destroyed by coming in contact with much harder substances. This, however, is not the case with rubber that has been adulterated by the addition of several hundred per cent of coloring matter. These composition floors are excellent in their place, but to claim for them anything resembling the durability of Portland cement, and especially of the baked clay tile, is a mere trade argument made with utter disregard for facts.

Because of the magnesium chloride, Sorel's cement has a strong affinity for atmospheric moisture, and

this is one of the most destructive agents of these composition flooring materials. For instance, all the stations of a certain railroad in Bavaria, Germany, were supplied with these composition floors, and it was soon noticed that while some of them lasted fairly well, others were roughened up and worn out even more rapidly than soft wood. The cause for this difference was not discovered for a long time, until some observing person discovered that the floors that were so rapidly worn were all located in the valleys, and those that lasted fairly well were on high ground. It was then that the evil effects of dampness, which was more prevalent in the valleys, was discovered; and that the relatively durable character of Sorel's cement was conditioned upon a more or less dry atmosphere. In seaport towns and in low lying places, composition floors wear out much more rapidly than in higher and drier climates.

As far as wearing qualities are concerned, it may be said that these floors strike a fair average between the softer and easily worn wooden materials and the hard cement and baked clay materials.

Planer Practice

REASONS WHY POOR WORK IS BEING TURNED OUT BY MANY MILLS—HOW TO REMEDY THIS DEFECT
—SOME VALUABLE SUGGESTIONS GIVEN

By J. M. Kane

I READ with much interest the article in the November issue of your magazine on "Planer Practice." As I have had a great deal to do in the handling and taking care of such machinery for the last twenty years, I should like to go a little more into the detail as to the cause of so much bad work being turned out by such machines. My experience has all been in a small jobbing sash and blind mill in one of the northern cities of about 30,000 population. We therefore had to handle a great variety of work. As is usually the case in most mills, there is no one directly responsible for the care of the machinery, and the result is that every one sets up and uses a machine to suit himself, whether it is right or wrong. I wish to confine my remarks to the planer which is being used in the shop where I worked. It is one of the best, made by well-known builders, and is first-class in every respect if it is only used with intelligence.

It is a 24-inch single cut, four knives and head slotted. It had four cutters when received, and here is where the trouble started. There is a blower system in the shop, and the pipe to this machine is only seven inches in diameter and has two elbows before reaching the main pipe. The hood over the cutter head is too small and drawn in over the same to such an extent that the chips and shavings strike against it and are thrown back into the head and finished surface of the stock. Here they are ground and cut up by the knives, which soon clogs the machine, to the ruination and defacement of the finished surface of

the work. This is especially true when soft wood is being worked. The elbows are rough and catch the shavings, especially when wet and stringy stock is run, so that the hood has to be removed and the machine cleaned out. To overcome this trouble, one of the men conceived the bright idea to remove two of the knives and putting the machine on the slowest speed, thereby reducing the output 50 per cent and not improving the quality at all. This might have been avoided by simply putting a proper hood and exhaust pipe on the machine in the first place. I have heard him say that four knives would get dull as quickly as two, so that by removing one-half of them he had two sets of knives, one sharp while the other was in use, all of which may be very good logic if you could only get the same results from one-half as many knives. A loss of 50 per cent in production can never warrant the saving of one pair of knives, but that is about the system used in some shops.

The second point is in the way some men set, or try to set the knives on a surfacer. They will take a pocket rule and hold it against the chip breaker edge of the head, setting the cutters out $\frac{1}{8}$ or $\frac{1}{4}$, whatever they think is right. They never seem to think that the edges of the cutter bar may be worn out of true, or that the head may not be in line with the bed, as is often the case. This is especially so where the journal boxes are made adjustable. They never try the edges of the knives with a straight edge to see if they are true or not, and in the majority of cases

(Continued on page 596)

PRACTICAL CARPENTRY

How to Make and Read Drawings

BEING THE THIRD OF A SERIES OF ARTICLES ON MAKING AND READING DRAWINGS FOR A BUILDING
—FIRST FLOOR, ATTIC AND ROOF PLAN SHOWN

By Wm. C. A. Stevenson

IN THE last number we showed and explained the drawing of the basement and ground floor plans.

We will now proceed with the plans that follow: At Fig. 5 is shown the first floor plan; starting at the front we see the veranda roof as outlined by the broken and dotted lines, this shows there is to be a pediment or gable to the front, as seen by valley and ridge lines.

The dotted lines show line of veranda plate below roof, the bay window starts on veranda roof, the center window of this bay is a check rail, as seen by the two lines across, indicating two sash; the sides ones are one sash, or casement, and hung on hinges—only one line is shown here. These are points to be understood in order to read plans, as very often no other explanation is given. Note the dotted lines across this window opening, showing the wall of the building below. We will take up the construction of this window in detail later.

On this floor we have a study, bath room, three bed rooms and hall, also clothes closets. The front bed room and study are heated with registers, R, supplied from the hot air pipe, I. H. A., the dotted lines, show where it comes up from wall below, and passes between floor joist to wall between study and B. R. The two back rooms are heated from hot air pipe No. 4, as seen. This pipe also supplies a register to the dining room, as was seen in last number. The hall and bath room are heated from hot air pipe No. 3, H. A., with registers in the floor, the pipe running over from hall to bath room between joist, as seen by dotted lines. A register for the kitchen was also taken from this pipe.

In the bath room we have a medicine case, 5 feet above floor with a cupboard below running through the closet; there is a shelf on top of this cupboard in the closet behind the medicine case. This is shown clearly on the plan by the dotted lines, etc., and the man that thoroughly understands plans would need no other explanation.

The position of basin, bath, seat and soil pipe is shown and indicated on plan. The attic stairs are shown going up and turning with two winders over

the main stairs; this platform is directly over the platform of the main stair; the platform of the main stair

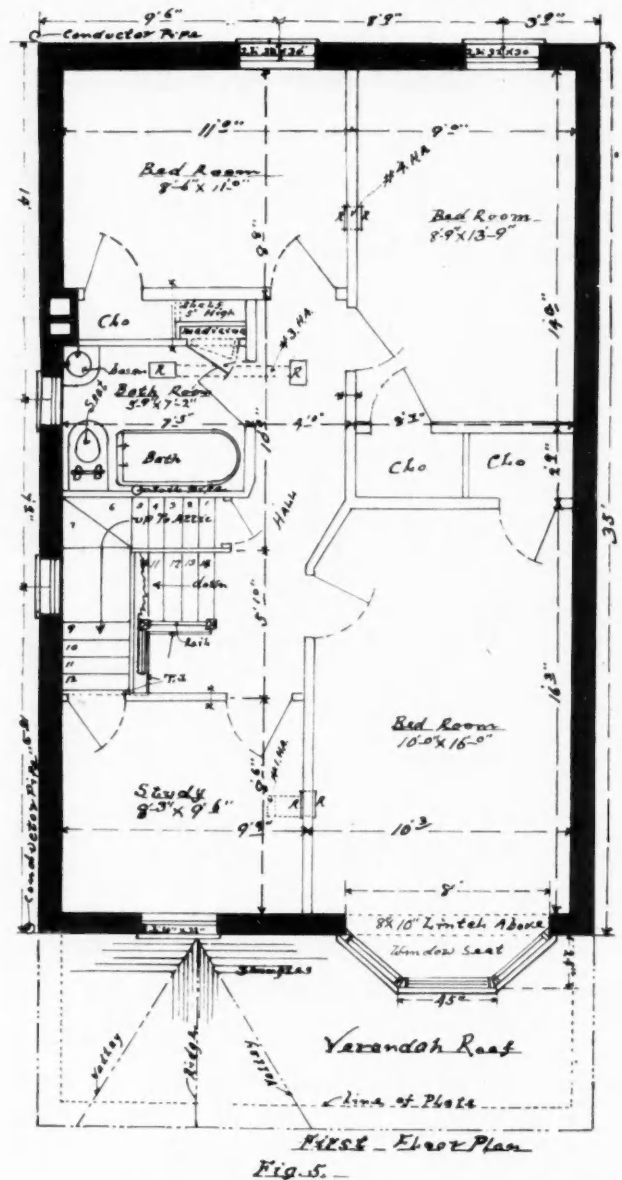
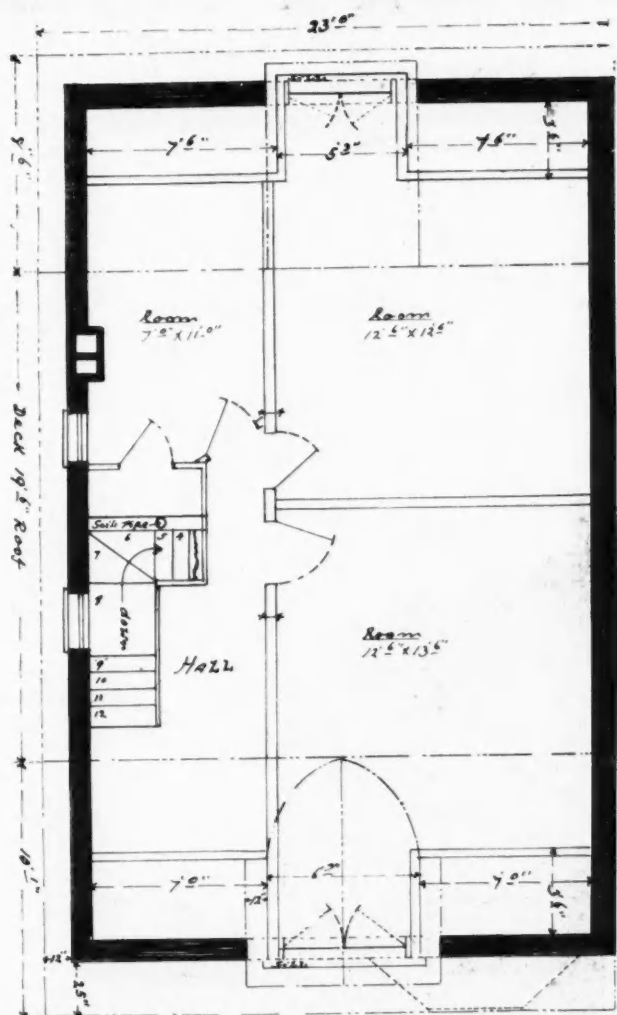


Fig. 5. -

is six risers below the first floor here shown, and the platform of the attic stair is eight risers above, so that we see it is fourteen risers above the platform of the main stair to the top of the platform of the attic

stairs. We stated that the rise of the main stair was $7\frac{3}{4}$ inches; six risers at $7\frac{3}{4}$ inches would be just $46\frac{1}{2}$ inches, with eight risers at say 8 inches, which is near enough to the attic stair rise for now, would be 64 inches plus $46\frac{1}{2}$ inches, equals $110\frac{1}{2}$ inches; allowing the $10\frac{1}{2}$ inches for the joist, flooring and ceiling of the attic stair platform, we still have 100 inches, or $8\frac{1}{4}$ inches in the clear between those two platforms. There would be a space under these attic

6; this is a combination of both together, and is often done to save drawing the roof plan separate, although if there is much to be shown on the attic plan and your roof is cut up by hips and valleys, it is far better to draw them separate. We have the hall, a small room and two large ones; the stairs are also shown. A flat roofed dormer window at the back, and a circle roofed dormer in the front. The construction of these will be shown later on, in detail. The windows are casement and swing in, as shown by the dotted lines. The main roof is of the mansard type, with a flat deck falling to the back, as was stated before. This house is designed to be built up to another building, so the roof only has a projection on front, back and one side. The broken and dotted lines show the layout of the roof. The construction will be shown in other views to come. Note the top of the bay window as it dies under the main cornice, as shown by the dotted lines; the dimensions of the roof are marked. Please note the lines at a, b and c; these were before explained, but I desire the reader to get familiar with them. The scale is also given, so that when the drawing has been reduced for print you will be able to get the scale. In the next number we will deal with the elevations.



Attic And Roof Plan

- a. --- Dimension Lines
- b. --- Roof Lines
- c. --- Indicated Lines

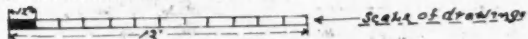


Fig. 6.

stairs that could be utilized for storage of small articles, by making a small door to get into it from the platform of the main stairs. A portion of the main stairs is shown going down under the attic stairs, steps 14, 13, 12, 11 and part of 10 are seen. The trimmer joist is indicated at T, J. All important distances are marked, as seen by the dimension lines and arrow points. In marking dimensions, always make the arrow point to the exact point the measurement is to be taken from.

We will now go to the attic and roof plan at Fig.

A Substitute for Concrete

A composition resembling concrete, now being considerably used in France, and known as lime beton, is described as being more generally used than concrete. It is a cheaper composition than cement beton, or concrete, easier to work, and if the initial load be not too great it is for nearly every purpose just as good. A good lime beton can be obtained by mixing mortar and stones, gravel, or cinders, mortar and good-sized stones making the best composition. Probably one-half of the houses in Marseilles have been built of this material, and thousands of the older buildings, many hundred years old, are held together by ordinary lime. Walls built of quick-lime beton must be laid up slowly, but with hydraulic lime beton they can be erected as fast as masons can work. The solidity of lime beton construction is shown by the sea walls and docks in Marseilles, where masonry of this kind may be seen both above and below sea water, the most difficult test to which building material can be subjected.

It Didn't Make His Hair Grow

He found his hair was leaving the top of his head and took his barber to task for it.

"You sold me two bottles of stuff to make this hair grow."

"It is very strange it won't grow again," interrupted the barber. "I can't understand it."

"Well, look here," said the man, "I don't mind drinking another bottle; but this must be the last."—

Wesleyan Christian Advocate.

RESIDENCES



Artistic House Designs

SHOWING SOME FEATURES WHICH ARE UNUSUAL—PERSPECTIVES, ELEVATIONS AND FLOOR PLANS AND DETAILS SHOWN—COLOR SCHEMES SUGGESTED

THE house shown on this page was recently built at Lincoln, Neb., after plans furnished by Woods & Corder, of that place, at a cost of about \$3,300, including hot-air heat and high-class modern plumbing, as shown.

in appearance and admirably serve the purpose for which they are intended. It will be noticed that the stair to cellar, as well as to an outside door at grade level, is placed under the main stair; and also that a stair from the kitchen leads to the main stair landing.



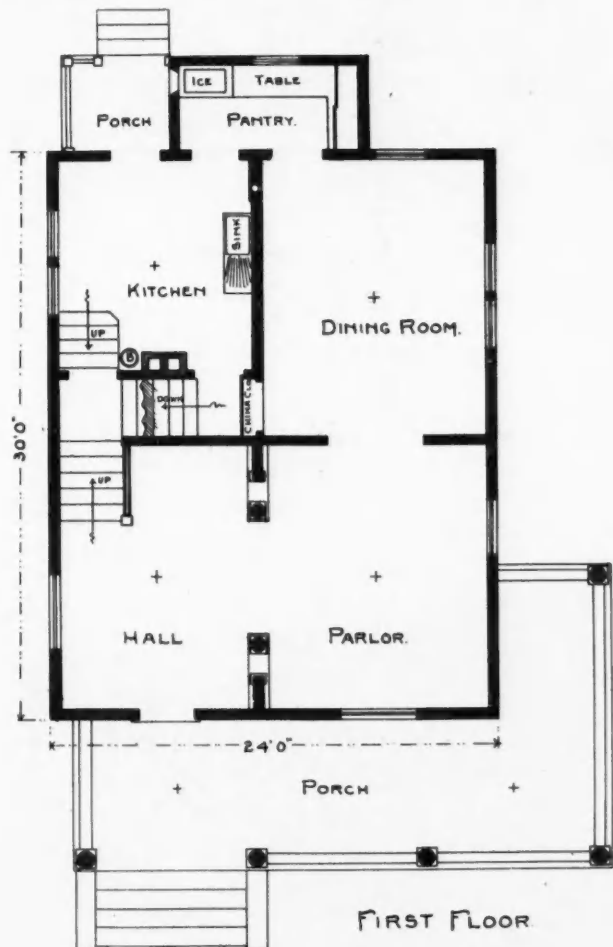
A noticeable feature of this house is its compactness. While it does not occupy a large space, it has nine commodious rooms besides bath and pantry, with an abundance of closet room.

The way the stairs are placed is very economical of space, and while they do not present a grand and spacious appearance, they are of easy incline, neat

The manner in which the reception hall and parlor are separated, renders them readily used as one room when so desired, thus making quite a large room. The large opening between dining room and parlor will often prove convenient. The space in pantry is thoroughly utilized with serving table, tilting bins, drawers, cupboard and an outside icing refrigerator.

The space on second floor is utilized with the same scrupulous economy, while the hall, which is well lighted, reaches all the rooms, and in the attic there is not an inch wasted. Even the clothes chute occupies a little nook which could not be used for anything else.

The attic also has two large rooms. The front one being especially well lighted and ventilated.



The interior finish is plain and neat, with moulded caps and in keeping with the exterior. The three main rooms are in quartered red oak and the balance in yellow pine.

The basement extends under the whole building and contains cellar, store room, furnace room and laundry. The walls are laid up to grade with hard burned brick and hollow blocks, laid in Portland cement mortar, while the under-pinning is hollow cement blocks.

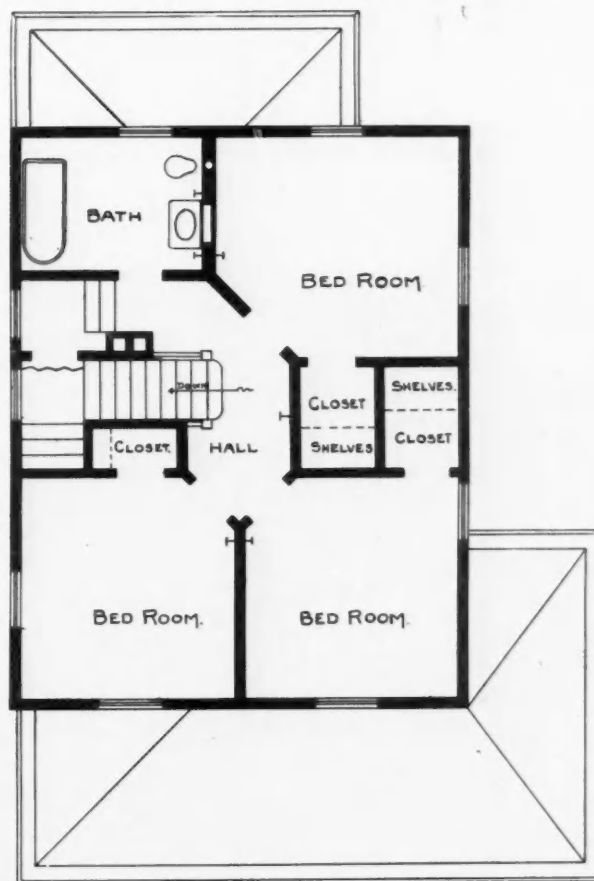
The exterior shows for itself; the wide bracketed cornices, the neatly capped porch columns, and the gracefully curved base of the roof, gives the whole a very neat and dignified appearance.



Asbestos Shingles

Ever since the beginning of time the question of roofing, from the most primitive form, as seen in the straw-thatched hut, has been looked into by every

one contemplating a roof for any sort of a building. Of later years slate came into use, and still later ready roofings and the cheaper slag and felt forms. Some of these materials are good and many indifferent. When one considers the small cost of a roof in comparison to the large cost of erecting the building, and the interior furnishings, fixtures, etc., it behooves any one who is anxious to protect and save the money they have already spent in the walls, fixings, etc., to put on a roof that is permanent. After all is said and done, the best roofing is by far the cheapest in the end, and the best construction of a roof is also the cheapest. For this reason a roof that is rough sheathed and covered with asbestos shingles makes by far the best and cheapest roof, although asbestos shingles may be applied direct to the lath or strips, spaced the proper center to take care of the size shingles decided upon. The various roofs that have been



SECOND FLOOR.

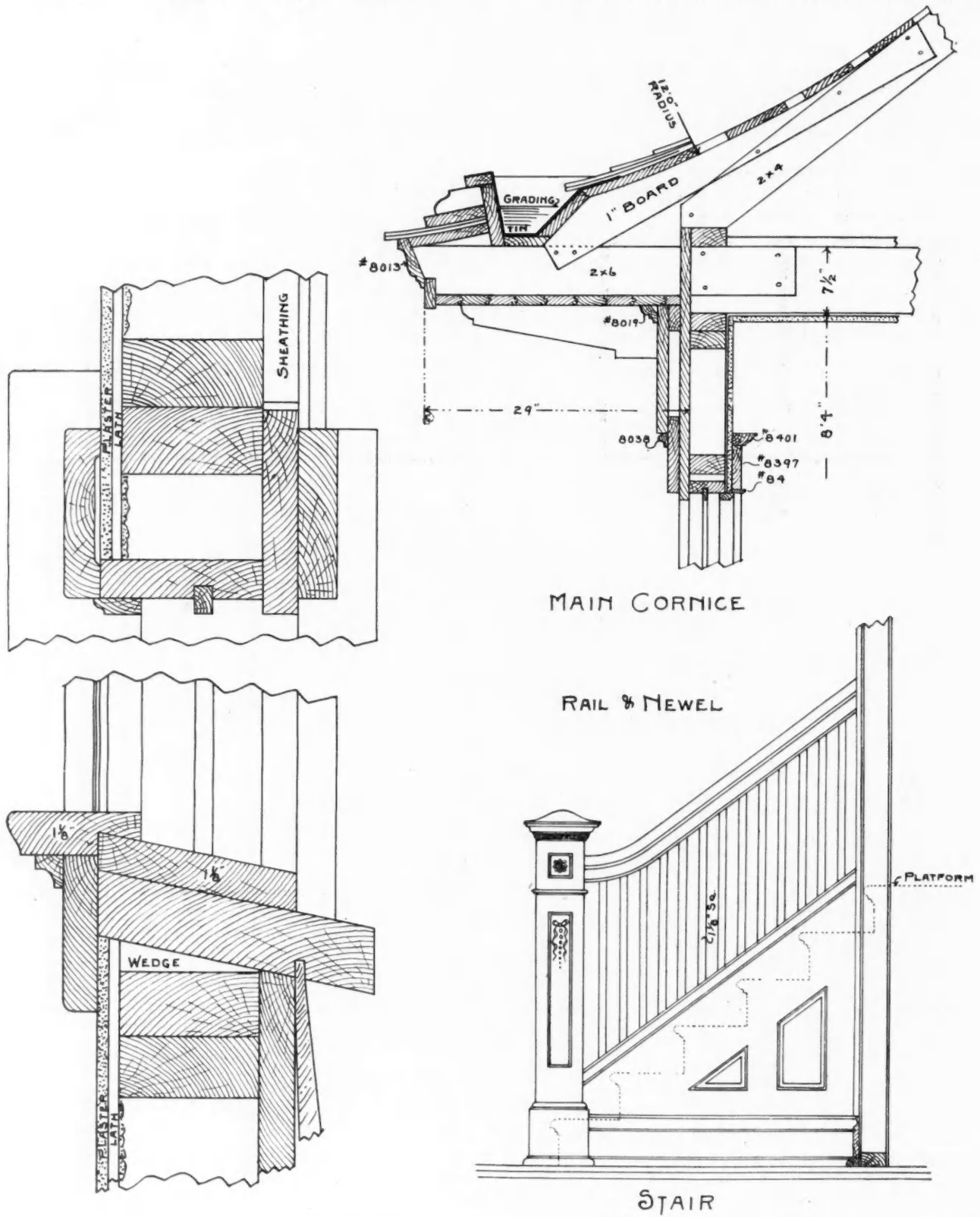
in use for some time have demonstrated that, like the most of other materials, there is painting or maintenance to be taken into consideration in caring for the roof, and it remained for the inventor mentioned below to produce the greatest invention in roofing materials of the age. In asbestos shingles one has a roof, when properly applied, that will outlast the lifetime of the building. The simple exposure to the elements causes the cement that has been deposited upon the asbestos fiber in the process of manufacture to crystallize, and it then becomes better and better—

in fact, more serviceable as time rolls on. Cement has been known to crystallize as long as twenty-eight years from the time it was first mixed.

The great invention covered by L. Hatschek's Re-

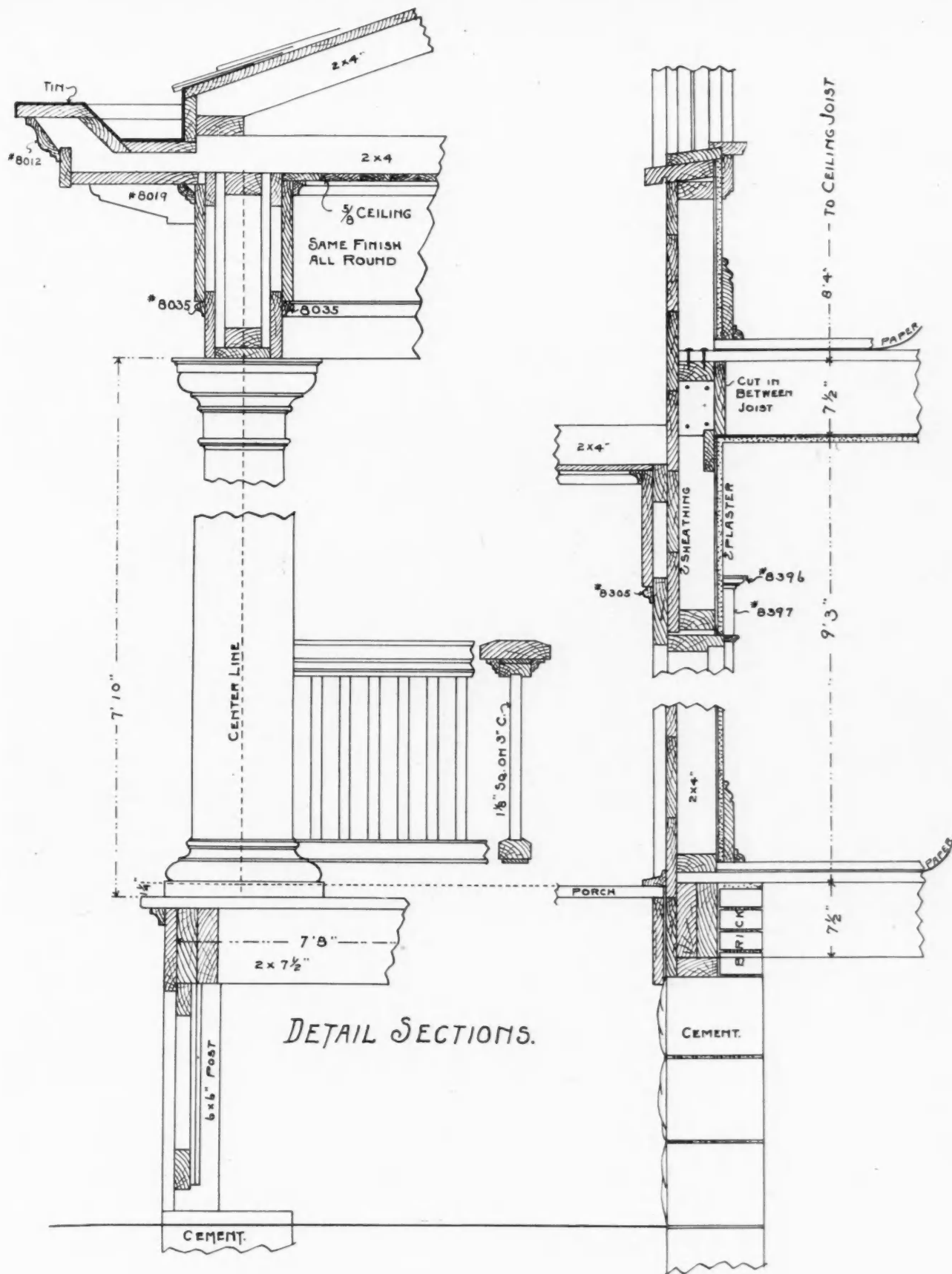
a new birth in the matter of fire protection, so far as fireproof construction is concerned.

Being fireproof and not affected by continuous moisture, frost or subject to deterioration by the elements



issued Patent No. 12,594, under date of January 15, 1907, for a fireproof building material composed entirely of asbestos fiber and hydraulic or Portland cement, marks an epoch in the building industry, and

in any way, it is obvious that asbestos shingles and asbestos building lumber may be employed freely and confidently in a vast variety of places where ordinary lumber has failed.



DETAIL SECTIONS.

Primarily designed to replace the ordinary roof covering only, its merits have been found to be such that its employment by our best architects and engineers has extended to all classes of work wherein its

many desirable qualities have supplanted other materials heretofore commonly in use.

It is perhaps superfluous to an educated person to say that asbestos shingles, slates or sheathing made

wholly of mineral fiber, asbestos and hydraulic cement, are both fireproof and indestructible. Both asbestos or mineral flax, as it is often called, from its peculiarity of crystalizing in fibers instead of ordinary crystals, as is the usual case with mineral materials, and hydraulic cement have been known from the earliest times, as among the most refractory of substances. The old Greek and Roman remnants of antiquity, composed largely of hydraulic cement, remain mute witnesses of this everlasting quality in this material. Asbestos fiber has remained exposed to the elements for unnumbered centuries, without

due to vibration, expansion and contraction of surrounding parts, wind pressure, etc., without cracking or breaking in any manner. The resistance of these shingles to blow, flexion, tension, etc., is enormous and surprising. These shingles may be punched, filed or worked generally with the greatest ease, with ordinary tools such as are used for working natural slate or wooden shingles. They become very hard, particularly if exposed to the weather, or after the lapse of years. One great and desirable feature of them is that they can be successfully joined, fitted, etc., by the work of ordinary mechanics, no unusual



Home of W. W. Francis, Houghten, N. Y.

deterioration, while its well-known fireproof quality renders it the most suitable fiber upon which to crystalize the cement deposited thereon in the course of manufacture. It is therefore evident, from the well-known qualities of these two materials, that nothing could have been selected that would have been more fireproof, indestructible and everlasting than asbestos fiber and hydraulic cement as raw materials from which to prepare a permanent building material such as we have derived through asbestos shingles and asbestos building lumber. Nails may be driven through asbestos shingles and asbestos building lumber by a quick, sharp blow of the hammer, quite close to the edge without danger of fracture, thus differing materially from all other sheathing materials in this important attribute of toughness and homogeneity.

It is sufficiently elastic to allow of marked tension

or special knowledge being required in handling it.

Owing to the enormous pressure under which the shingles are manufactured, they absorb, when fresh, only about four or five per cent of their weight of water, thus forming, as will be seen, a roofing tile of excellent quality.



Chinese Building Methods

The methods employed in the erection of buildings in China are very different in some respects from those generally followed in this country. As a rule, the Chinese get along with comparatively little. Their dwellings are generally primitive; their native architects can put up solid structures, but they are wholly at a loss to grasp and put into effect practical, modern ideas in constructing buildings. The Chinese architects do not understand the use of arches. The most they attempt in this respect is a simple arch in

bridges or doors, but even here it is necessary for them to first erect a mud-brick support for the arch, the former being torn away when the latter is completed. The great mistake made in walls is the poor binding between the outside layers, there often being

the soundness of every brick by hitting it with his knife-shaped trowel, and, like every Oriental tradesman, works slowly. Where stones are used, they are always fitted into proper place on the outside and are brought to rest in the proper place by having little stones put underneath them. As in the case of a mud wall, the hollow part between the two outside layers is filled with stone chips. Only the outside edges are filled with mortar, and the danger of collapsing in time is always present. Solid houses of burnt brick are usually not found in the country, but in the cities and larger market villages, because only the wealthy can afford them. The great masses are content in stable-looking dwellings, whose floor is the earth, whose walls are mud, and whose roofs are straw. The usual house is divided into three equal parts by two beams crossing it horizontally on top of the masonry walls. In the case of houses with straw roofs, a light framework is placed on these beams.



Residence of Mr. Buckner, Marshfield, Mo. F. O. Kirby, Archt.

hollow spaces in the middle which are only filled with loose dirt or crushed rock, if they are filled at all. When it rains this interior filling gets wet, it settles, and the wall is wedged apart at the bottom. It thus often happens that the outer walls of a house collapse, while the inner ones, which have not been wet, remain standing. The usual preventative for collapsing houses is to rest the beams and roof timbers on wooden posts, which are built into the walls and completely surrounded by the masonry. Thus when the walls give way these pillars hold up the roof and keep the whole house from coming down on the occu-



Interior, showing hall and stairs. Home of Mr. Buckner.

To protect the roof from wind, it is often weighted down with large stones.



Western Building Materials

In the great plains the farmhouses are made entirely of mud with flat roofs. The crossbeams rest on two main dividing beams. On top of this is placed a layer of sorghum straw, and that is then covered over with loess. Such roofs need yearly renewing. They are built so that they can be used to defend the farms, the walls being some 3 feet higher than the roof, so in times of need the men can go onto them armed, and thus fight from a sort of parapet. Because the rains are very disastrous to these walls, they are often strengthened with a layer of tiles on the outside. The difficulty with this construction is that the inner mud part gives way and collapses when it gets wet, leaving only the thin outer tile part standing. This usually results in throwing the entire weight of the heavy roof on the light tile construction, and the whole house collapses.



North Elevation. House of Mr. Buckner.

pants. In the case of two-story buildings these wooden frameworks are always built before the masonry work is started. The use of mortar is also very faulty. The commonly used mortar consists of finely slaked lime, with no addition whatever of quartz sand, but for cases of economy the lime is often adulterated with very fine river sand. The mason tests

PLUMBING

W^M R. MARSHALL

Modern Methods of Flushing Closet Bowls

DIFFERENT METHODS OF INSTALLATION AND THE PRINCIPLES UPON WHICH THEY WORK—ADVANTAGES OF THE VARIOUS TYPES

THE water closet is the most important fixture in the field of sanitary appliances, and has probably received more attention from sanitary experts than any other fixture. The various types of water closet bowls were fully explained in a previ-

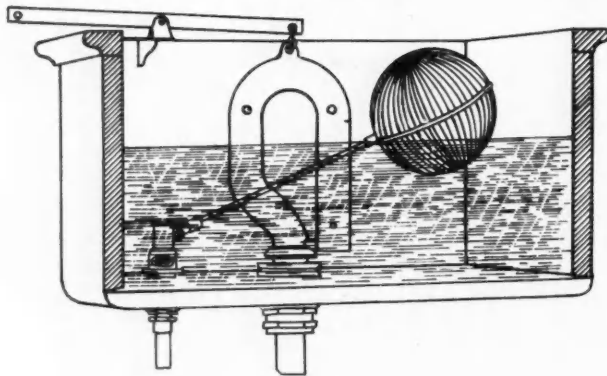


FIG. 1.

ous number and it is the purpose of this article to, in a measure, explain some of the different modern methods of flushing water closet bowls. The hopper, pan, plunger and all non-flushing rim types of closets have been condemned by sanitary engineers and tabooed by all municipalities having a sanitary law,

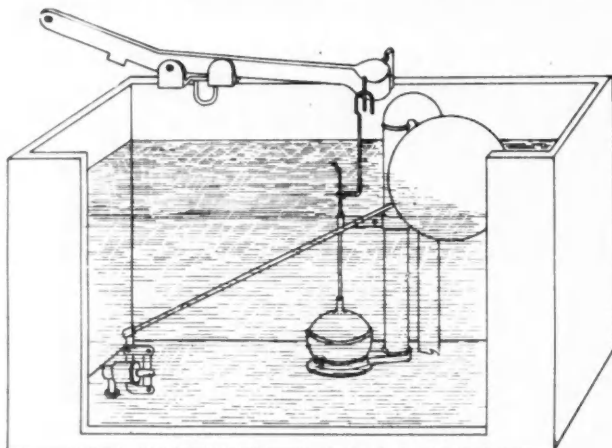


FIG 2

making it compulsory to use a flushing rim closet bowl. The most common method of flushing water closet bowls of the flushing rim type, is by an overhead open tank or cistern, placed six feet above the

inlet of the flush opening in the closet bowl, and connected to same by flush pipe having at least one and one-quarter inches diameter, which has been found to be the correct distance and size to give the water proper fall and force to thoroughly flush and scour the bowl. This type is known as an open-tank pull-operating closet combination. These tanks are of different sizes, according to the size and type of the closet bowl, and are of different mechanical construction and shape, but in operation are practically the same. These tanks are generally lined with either copper or sheet lead, the copper lined being the more popular and used in the majority of cases; however, in certain localities the water is of such chemical composition that the action of same on the copper

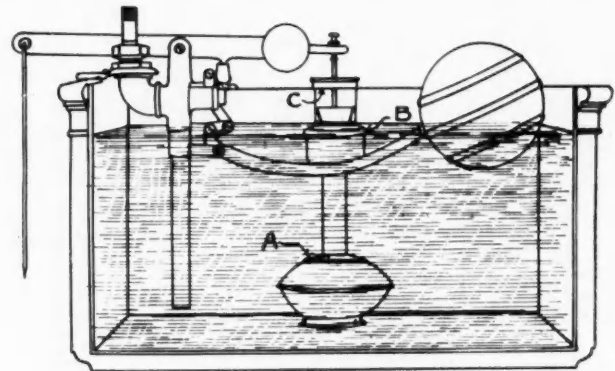


FIG. 3.

readily destroys it, and in such cases the lead lined tank is preferable.

Open-tank pull-operating tanks have but two absolutely essential valves to each tank, viz., a valve to control the supply of water to the tank and one to regulate the discharge of water from the tank to the closet bowl. The valve controlling the water supply to the tank is operated by a lever and float ball. When the tank is empty, the weight of the ball on the end of the lever causes the valve to open, and as the tank is filling with water, the ball is floated, gradually closing the valve. The lever and float must be so regulated as to close the supply valve before the water reaches a height in tank equal to, or on a level with, the crown of the flush valve, as in that case the valve would siphon. When not equipped with a regulating device, the

amount of water desired is obtained by bending the lever up or down. These valves are of two types, top and bottom supply. In the top supply type, the valve is in the top portion of the tanks and the water supply pipe is brought up to the tank, inside of the

empties by siphonage. This valve should be so regulated as to discharge not less than four gallons of water into the closet bowl, at each discharge, in such time and with such force as shall thoroughly cleanse the closet bowl at each flush. The most common type of valve used for this purpose is the goose neck siphon valve, as shown in Fig. 1. Another type which is very popular is the rubber ball valve, as shown in Fig. 2. In both of these types, the pull on the lever lifts the valve, starting the flow of water and causing a siphonic action which empties the tank.

An ingenious regulating float valve is shown in Fig. 3, and is known as the "Madden Patent," the operation of which is as follows: When the valve is raised by the pull on the lever, water is admitted to the flush pipe through the valve base. The quantity of water to be discharged is measured by the duration of the float in suspension, which is regulated by means of a set screw, "A." This flush valve regulating device makes it possible to obtain as many discharges of a given amount of water as the capacity of the tank will permit. The refill of the water necessary to replace that which is discharged from the bowl when being flushed, is obtained from the flush pipe by means of the auxiliary float "B" and cap "C," which, as the water in the tank recedes, seats itself on the overflow pipe, hermetically sealing the same and retarding the

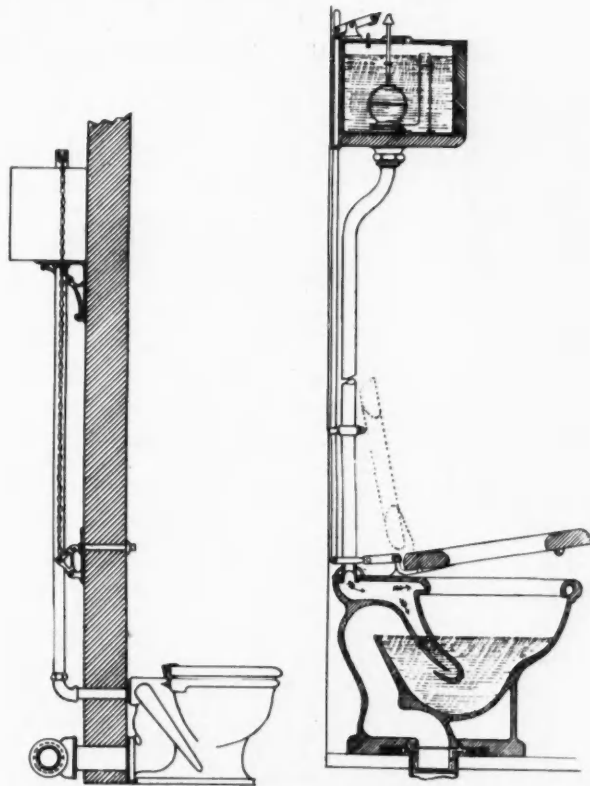


FIG. 4.

FIG. 6.

wall, and in the bottom supply type, the valve is in the bottom portion of the tank and the water supply pipe is exposed and is run from the floor, or taken from the wall at a point just below the tank. The valve to regulate the discharge of water from the tank to the closet bowl is a siphoning flush valve which, when raised from its seat by the pull of a chain or rod attached to a lever connected to it,

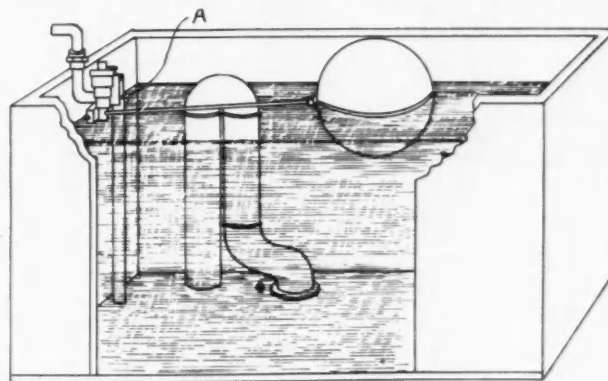


FIG. 7.

outflow of water left in the flush pipe after the main valve closes.

Closet tanks are placed on the face of the wall directly over the closet bowl, except in cases where it is desirable to conceal the tank, flush pipe and operating mechanism, to prevent meddling persons from tampering with them, such as stealing the pulls, chains, etc. Fig. 4 shows the manner of installing closets to accomplish this purpose. The flush valve is lifted from its seat by the push button arrangement, the tank and all working parts are concealed by a wall, slate or marble partition. In modern construction, when an installation of this kind is desired, a utility corridor or shaft back of the line of closets is provided, in which the supply and waste pipes are run, making it possible for the attendant to have access to all of the operating mechanism without entering the

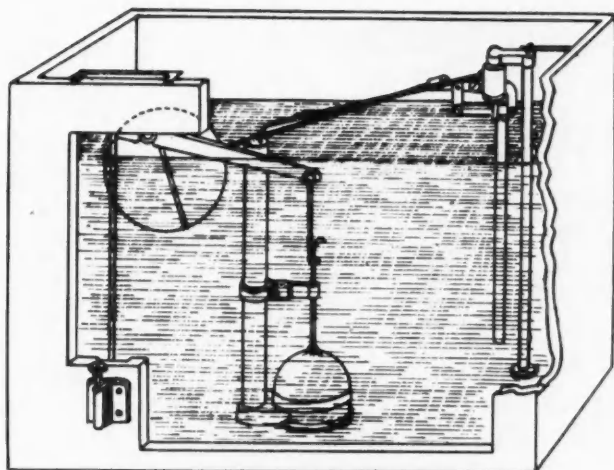
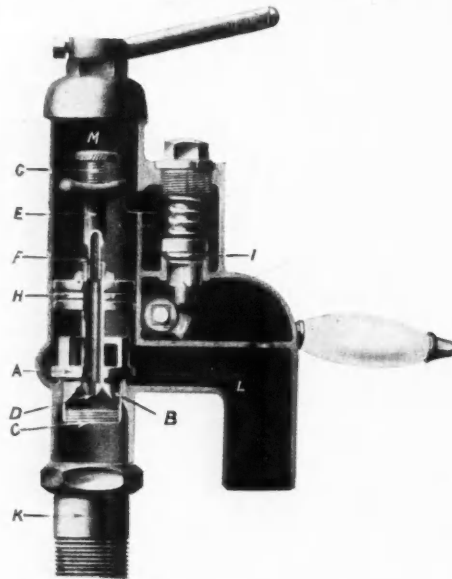


FIG. 5.

toilet room. In a large battery of closets, such as are installed in public buildings, schools, etc., this arrangement reduces to a minimum the exposed brass parts, effecting a saving of some item in labor of cleaning and polishing. An excellent ventilating arrangement for the toilet room can be secured by connecting this corridor to a vent flue and placing a register in the partition back of the closet.

Low Down Tank Combinations

The low down tank combination was designed with the object in view to furnish a closet which could be placed under windows, stairways, and other places where conditions made it impossible to set the high tank at the proper height. To obtain the same capac-



EXPLANATORY NOTES

- A—Flushing Valve
- B—Extension below Valve to produce refill of Bowl
- C—Filtering Device
- D—By-pass leading to Upper Chamber M
- E—Stem to regulate closing of Valve
- F—Water Inlet to Chamber M
- G—Stem to Regulate travel of Piston
- H—Piston with Double Cup Leathers
- I—Releasing Valve
- J—Eccentric on End of Lever
- K—Water Supply Inlet
- L—Water Outlet to Bowl

Fig. 8

ity as the high tank and provide a tank that would not necessitate setting the closet out into the room any farther, the low down tank is made with less breadth but more width and height than the high tank, and the flush pipe connection between the tank and the closet and the inlet of the closet bowl is 2 inches instead of 1¼ inches, commonly used on high tank combinations. The proximity of the tank to the closet bowl and the shortness and enlargement of the flush connection when used with a good type of siphon jet bowl, enables the manufacturers to produce a closet combination as near noiseless in operation as it is possible to get in a tank closet outfit. After years of experiment, the rubber float valve has been generally adopted by manufacturers of low down tank combinations, such as shown in Fig. 5. In operation this tank works as follows: The push button, engag-

ing a trip lever, lifts the rubber ball from the valve seat; the ball floats until the receding flow of water draws it to its seat again, by suction. When the rubber ball is seated, all the water to the bowl through the flush pipe is shut off, and on account of the shortness of the flush connecting pipe, there is not enough water left in the flush pipe to refill the closet bowl and maintain its seal. It is therefore necessary to



Fig. 9



Fig. 11



Fig. 10

provide a refill or flow of water sufficient to maintain the seal in the closet bowl by other means, which is done by a refill pipe, attached to the supply valve, and empties into the overflow tube as shown in Fig. 5. This works as follows: The bypass in the supply valve, to which this refill pipe is connected, is constructed as follows: When the supply valve is open to permit the tank to refill, the bypass is open, and permits the water to flow through the refill pipe into the overflow, and thence into the closet bowl, and as the supply valve is gradually shut by the floating of

the ball, the water supply is shut off so that when the tank is filled, the bypass is completely closed; some supply valves have a set screw which permits regulating of the refill flow by enlarging or diminishing the water way of the bypass. The low down tank is made in a great variety of shapes and material. While the wooden tank, copper lined, has been commonly used, some manufacturers are now placing on the market tanks made of iron, enameled in and out with porcelain enamel. Other manufacturers are furnishing a tank made of solid porcelain ware. Neither of these tanks requires any lining. While the rubber float valve is used in the majority of cases, there are a number of patterns of different flush valves, such as the regulating float valve, as described and shown previously in this article, in a high tank, and the siphon valve that reseats immediately after the push button is released, and relying upon siphonic action entirely, to empty the tank.

Open Tank Seat Operating Automatic Closets

In Fig. 6 is shown a sectional cut of a closet bowl equipped with a seat operating automatic open flush tank. When the seat is depressed, the operating rod is raised, tipping the lever so that it engages a button on the top of the float valve stem. When the seat is released, the falling of the operating rod trips the lever, lifting the float valve from its seat and permitting same to siphon. This closet is recommended where it is desired to use an automatic closet, and especially where the water supply pressure is weak.

Automatic Siphoning Tanks

When it is desirable to use an automatic siphon flushing tank, the most common fixture that can be used is shown in Fig. 7. The lever of the supply valve is so regulated as to permit the water to flow into the tank until it runs over the crown of the siphon valve, which causes the water in the tank to siphon until it is discharged to a point where the lower end of the goose neck can get air, thereby breaking the siphon; the float then being down, opens the supply valve to its complete capacity, and permits the water to refill the tank. A tank of this description can be so regulated as to flush as often as required, by turning the small regulating screw marked A, which enlarges or diminishes the water way of the valve, so if it is desired to have the tank emptied every fifteen minutes, this set screw should be so regulated as to take fifteen minutes to fill the tank to a point of siphonage. There are a great many different types of automatic siphoning tanks on the market, but the goose neck valve, on account of its simplicity, being without intricate parts, is generally used and answers the purpose very well, such as flushing urinal bowls and troughs.

Flushometer or Direct Pressure Flushed Closets

In Fig. 8 we show a sectional drawing of one type of the flushometer valve, and Fig. 9 shows a method

of connecting the valve to the closet. This particular valve is known as the "Vimometer." There are a great many types of these valves on the market, but the operation of all "Omers" is very similar. The valve is opened by lifting a lever, permitting the valve to flush, and being released after flushing, the valve is automatically closed, by the force of a water jet conducted from the pressure side of the valve through a bypass to the valve chamber beyond the piston head, which it slowly forces to its seat. The purpose of the "Ometer" is to provide by direct pressure or suitable storage tank or tanks, means for properly flushing the closet bowl without the use of individual tanks, and is thoroughly adapted for large office buildings, hotels, hospitals, schools, public and penal institutions. These closets are sometimes used for residence work, but are more adapted for large apartment buildings (where a large number of closets are necessary), where the economy of installation and maintenance is of great importance. In operation, the valve works as follows: When the lever is raised the eccentric J opens the release valve I, permitting the water in the chamber M to flow out into the outlet L to the bowl, the water pressure then at once throws the valve upward to a point where the regulating stem G comes in contact with the top cap. When the lever is let go the release valve is at once closed and the chamber M begins to fill, the water passing through the filtering device C and up through the bypass D, entering at the opening F, and pressing the valve downward, and shut, in the period of time required to fill chamber M. If the flow is too long, the size of opening F is too small, and can be enlarged by unscrewing the regulating stem E; if the flow is not long enough, the opening is too large, and can be decreased by screwing the regulating stem E down a little. These valves are so made that they will operate on any pressure. The regulating stem G can be so operated as to regulate the lifting of the valve. All water entering the valve, passing through the bypass, is first filtered at C to prevent the clogging up of the water way. When the valve is in operation the entire volume of water in the bowl flows over the surface of the filtering device C, keeping it constantly and perfectly clean. When the valve is open, for flushing, the water has an unobstructed flow through the outlet L into the bowl, until the extension B reaches the point on a line with the valve seat, which then obstructs the flow, allowing only enough water to pass through to perfectly refill the bowl and maintain the trap seal in the closet bowl until the valve is closed. This valve cannot produce volume, and can deliver only the amount of water furnished by the supply pipe in a given length of time. Therefore, it is necessary in the installations of this fixture, to have an ample water supply through the water main to a point connected to the fixture, large enough to supply each closet with a volume of water sufficient to thoroughly flush the bowl, and the pipe should be at least as large as the flushing pipe used on the high

tank combinations, viz., 1¼ inches. When more than one closet is installed under this system, the volume must be enlarged in proportion and the water pressure must be also considered in determining the size of the pipes, as it is necessary to have a pressure of not less than ten pounds to the square inch to obtain satisfactory results, so that if the water supply is taken from a storage tank, instead of direct connection from the water main, this tank cannot be located at less than twenty feet above the level of the highest fixture, and must be large enough to contain at least four flushes.

Automatic Valve Closets

In Fig. 10, we show a type of closet of the automatic seat acting principle, used in connection with a closed tank. This closet was designed with the object in view to furnish a closet which could be flushed automatically with the greatest economy of water, and is especially adapted for use where a large number of closets are necessary, such as factories, public comfort stations, schools and institutions. Briefly described, this valve controls the supply to and the discharge from the tank, the water being through one valve and one pipe. The seat, when occupied, is depressed, and a trigger on the seat engages the piston of the supply valve, thus opening the supply side of the valve to the tank and closing the discharge or closet side, allowing the water from the main to pass through the pipe into the air tight valve, compressing the air. When the seat is vacated, the supply side of the valve closes, closing with the pressure and not against it, which cuts off the water supply from the main, while the discharge or closet side opens, allowing the water now in the tank to rush, forced by compressed air, down into the bowl, thoroughly scouring and flushing same. This valve is very durable, on account of the absence of complex and entailing auxiliaries. The valve stems are made of bronze metal. There is nothing about these valves that can get out of order, and the only wearing part is the rubber seat, which can be replaced at a very nominal cost. (Fig. 11 shows the method of connecting a valve of this description to the closet bowl.) By unscrewing plug "A," the plunger can be removed and repaired without detaching the valve from the closet. In very careful and comparative tests throughout the country, it has been proven that this type of closet uses less water than any closet on the market. Where the question of cost of water consumption is taken into consideration, it will be found that a closet of this type is the most economical. The water pressure required to operate a closet of this type varies from 12 to 20 pounds, according to the type of closet used.

Another advantage in a closet of this type is the cost of maintenance, which is very nominal, as the only wearing part is the plunger valve washers, which when worn can be replaced. This type does away with the trouble that is occasioned by the breaking of pull

chains, decaying of tank linings and deterioration of a wooden tank, and the possibility of freezing, as the tank is completely emptied after every flush. There is no water above the supply opening to the valve.

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Planer Practice

(Continued from page 583)

they are not. My way is to use two pieces of hard maple of exactly the same thickness, 1¼ or 2 inches thick, and place one of these at each end of the bed. Then put on the knives and fasten the end bolts snugly. I now turn the head around backward to see which of the ends wants shifting so that they will just brush the pieces. I next move one of the pieces to the center of the bed and tighten down the center bolt. Now turn the head around, and if the knife is too far up, I tap it smartly with the hammer until it touches. Do this all along and then tighten all the bolts securely. If the bed is true your stock will come out perfect in gauge. I have often seen stock come through 1-16 of an inch thinner on one of the edges than the other. Do any of the brothers ever try to miter base stock or any other stock that was run in such a way? If they have, they probably wondered why they could not make it intersect properly. It was owing to this uneven planing.

Another reason for so much poor work is due to the uneven wearing of the bed and pressure bars on the planer. This is caused principally by feeding the stock through the center of the machine and thereby wearing down the centers faster than the ends. The machine in question has had the bed taken out and redressed because of there being 1-16 of an inch hollow in the center due to this cause. The split chip breaker also had to be repaired. Why should not the builders of such machinery use either hardened steel or else chilled cast iron for these parts of the planers. Perhaps they think they would last too long. Could not the parts be chilled after being fitted, or at least have the bed case hardened? Another improvement could be made in the surfacers by substituting for the flat faced pressure bar on the finished side of the machine, one with a roller, thereby removing one of the chief causes of stock sticking in the machine. A much firmer pressure could be put on and it would not stick. Of course it would have to be used in connection with a flat faced bar for the reason that in cutting short stock, it could not be placed so close to the cutter head but it could be used in combination with it as a supplementary pressure, and would thereby stop all chattering of stock. This is about the average condition to be found everywhere in jobbing shops where it is everyone's business and therefore no one's business to see that machinery is kept up in the proper working condition. It is one of the most serious sources of loss to the owners and one which they do not seem to take in account when they figure up their business at the end of the year.

Combination House and Garage

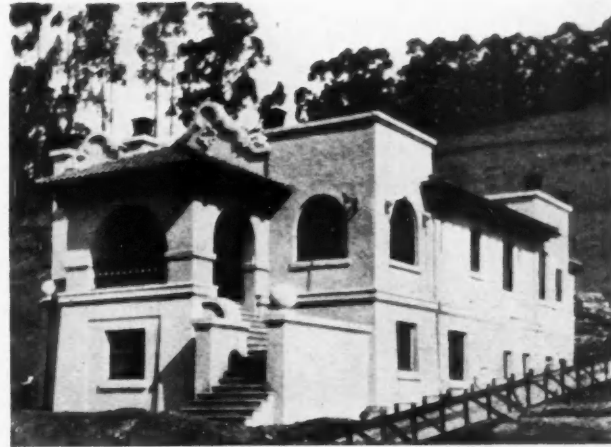
PERSPECTIVE AND PLANS OF A CONCRETE BUILDING GIVING THE MIXTURE USED—PLANS SHOW INTERIOR ARRANGEMENT OF BOTH FLOORS

WE ARE showing herewith a combination house and garage built by H. Ray Wright, Oakland, Cal., and described by him, as follows:

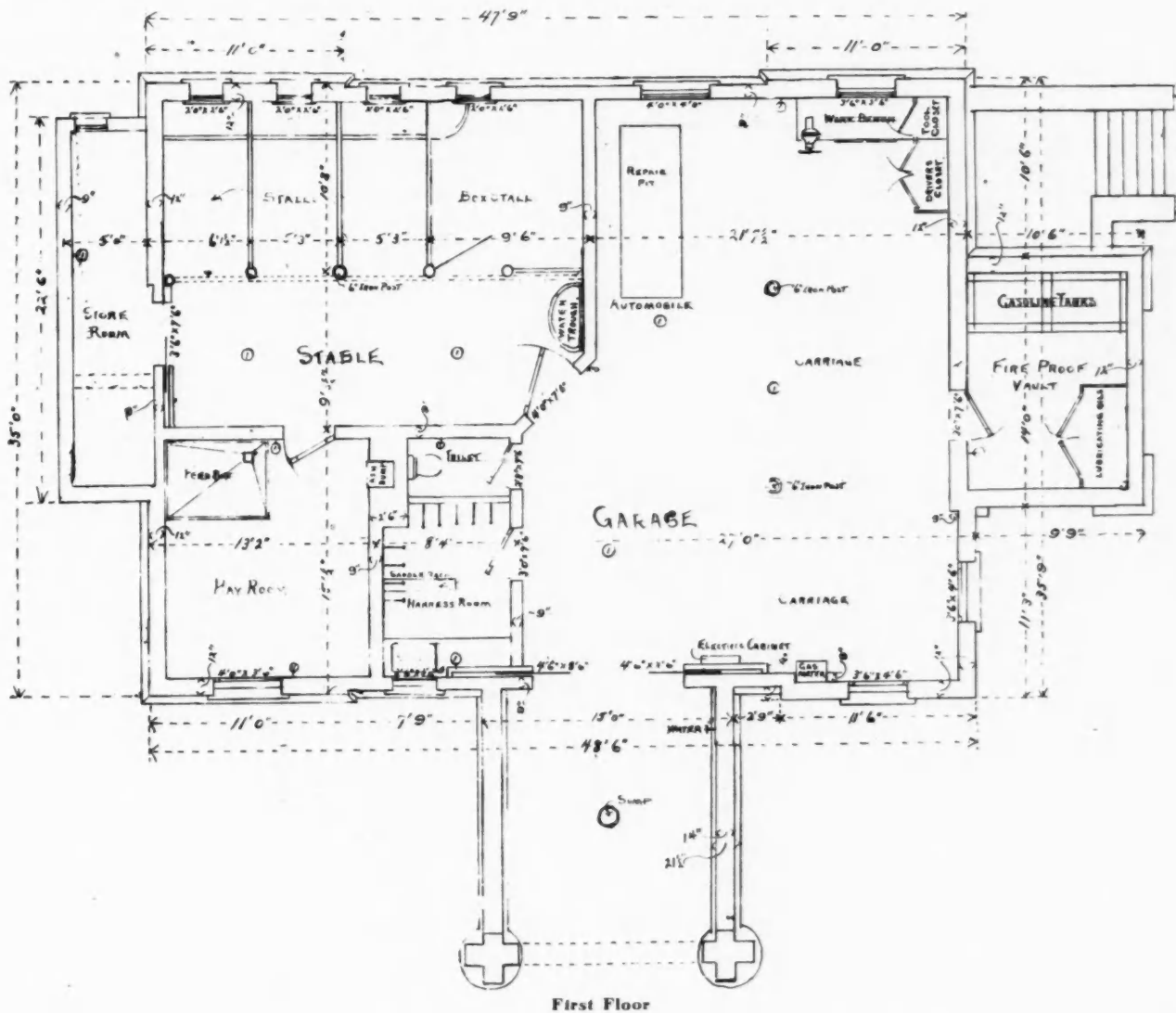
"The concrete for walls and foundations I made of four parts of crushed rock, two parts coarse sand and one part cement, and if I do say it myself, I believe I have one of the most substantial pieces of concrete work ever built. I reinforced with one-half inch and one inch twisted steel. The floors I made in two layers. The first about two inches thickness. This I coated heavily with coal tar and asphaltum. Then I put on three inches more of grouting composed of four parts finely crushed rock, two parts coarse sand, two parts cement. The finish was two of sand and one of cement.

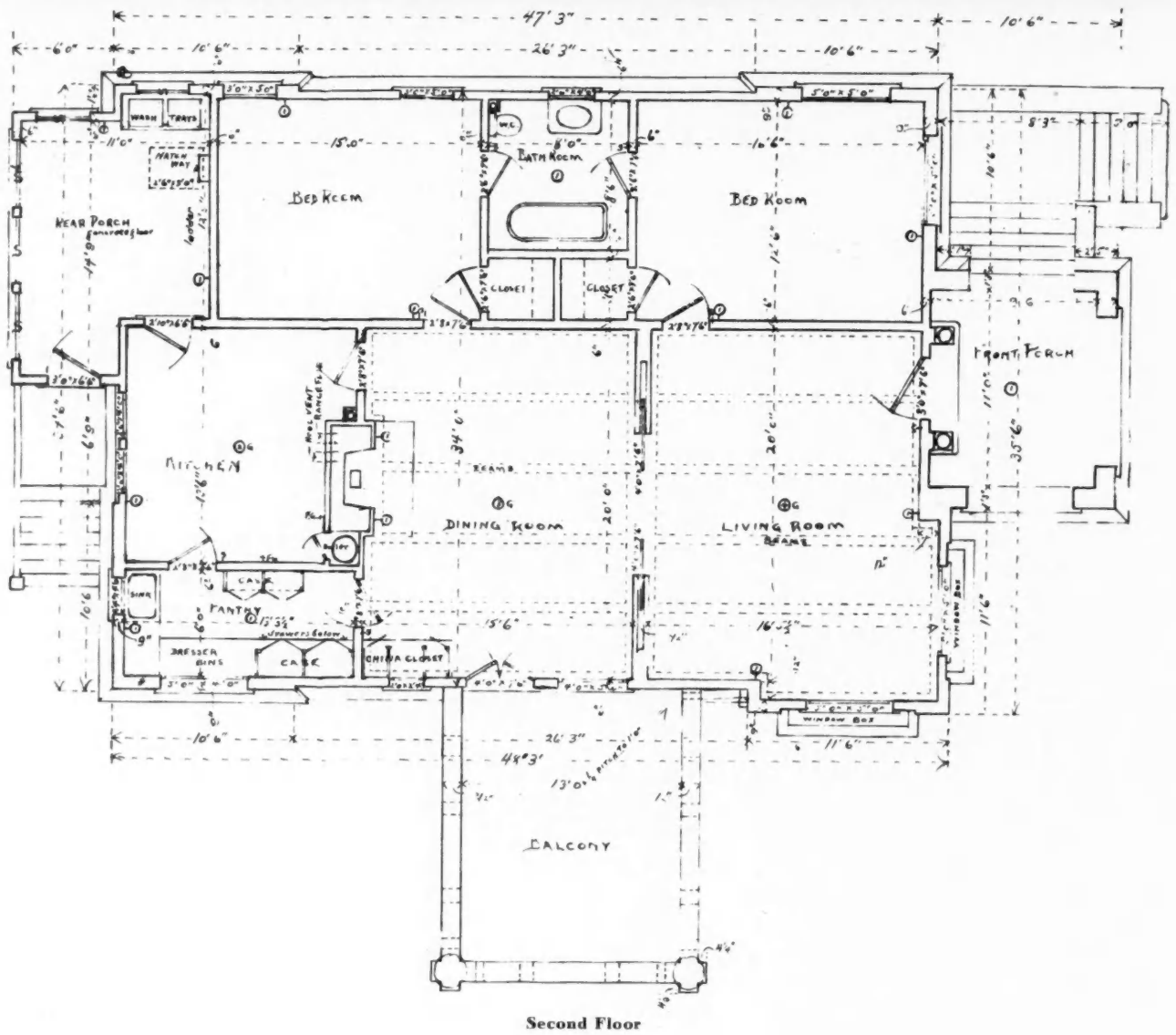
"The second story was framed in the usual way for frame buildings. This I sheathed diagonally with one by six Oregon pine and covered the whole with four ply building paper; then stripped with one-half by one

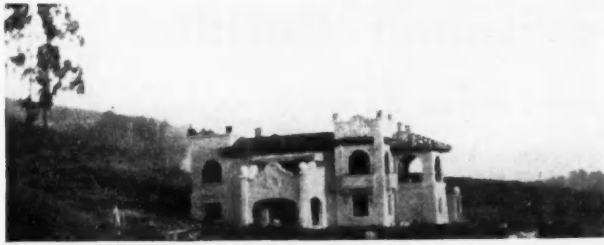
strips, 16 inches, to which I fastened galvanized crimped cloth, No. 20 gauge. This I coated with poor



lime mortar with a little cement added as used. As this was setting I applied a second coat, consisting of







one part cement to four of lime mortar and finished pebble dash. On the interior I used wood lath and

'Hardwall' plaster. The projections and parts of roof sloping outward are covered with six inch Spanish tile.

"The interior finish is sugar pine, living and dining room paneled five feet and stained in weathered oak. All other rooms on second floor finished in China gloss. The garage floor rooms were all finished in oil. The entire exterior of the building received a coat of tint mixed with a waterproofing instead of water in the usual way."

The Strength of Timber

BEING A PROTEST WITH REGARD TO THE PRESENT COMMERCIAL SIZE OF TIMBER — BEST KIND OF LUMBER TO USE FOR FLOOR JOISTS

By I. P. Hicks

WE HAVE a question regarding the strength of timber which we wish to show up to contractors and builders which, without doubt, has never been brought to their notice.

The commercial size of timber is no longer what it used to be. A 2 by 8 several years ago used to be a 2 by 8 full size, and sometimes would measure more than full. What is it now? 1 5/8 by 7 1/2 inches. When the reduction in size first began, on account of surfacing one side and edge or sizing the timber, they were 1 3/4 by 7 3/4. Now, if they sized them once on a 1/4 inch margin, why can't it be done all the time? There is positively no excuse for a 2 by 8 being cut down to 1 5/8 by 7 1/2, and the people should not stand for it, and steps should be taken to compel the lumber mills to turn out full measure just the same as people in other lines of business are compelled to give full weight and measure or stand the consequences. This scant measure is something that should not be tolerated in the buying and selling of lumber.

Has anybody ever stopped to figure up the strength that is lost in a 2 by 8 by cutting it down to 1 5/8 by 7 1/2? It is something surprising when figured out according to well established rules for determining the strength of timber.

With a factor of safety of 5 it has been found that the safe fiber strain for southern yellow pine is 1,440 pounds per square inch, and to find the safe load a beam will carry under the above conditions we multiply the safe fiber strain by the breadth of the beam in inches; the product multiplied by the square of the depth of the beam in inches and divided by 9 times the span in feet will give the safe load which the beam will carry uniformly distributed. Now let's see what the difference is between full size and the present reduced dimensions.

$$\frac{1,440 \times 2 \times 8 \times 8}{9 \times 20} \text{ equals } 1,024 \text{ pounds.}$$

$$\frac{1,440 \times 1\frac{5}{8} \times 7\frac{1}{2} \times 7\frac{1}{2}}{9 \times 20} \text{ equals } 731 \text{ pounds}$$

$$\text{Difference } \dots \dots \dots 293 \text{ pounds}$$

Thus we see that the joist which has been unscrupu-

lously reduced in size loses almost 300 pounds of its load carrying capacity, 27 pounds more than a fourth of what the old, honest, full-size joist would carry. What does this mean on a floor 20 by 20 feet square, which would require 16 joists 20 feet long? It means that a floor constructed of the 1 5/8 by 7 1/2 by 20 feet would not safely carry as much of a load by 4,688 pounds as the one built of 2 by 8 by 20 feet would. This is quite an item in floor construction and one that should not be overlooked. It is a very common thing nowadays to see the floors in houses sagging even before they are finished, where the joists are of the so-called 2 by 8 lumber. It is getting so there is not sufficient strength in a 2 by 8 for floor joists in the ordinary residence, for they are often loaded down with the ungainly, bungling hot water radiators, which frequently weigh half a ton.

If a floor is to bear the weight of hot water radiators, the present day 2 by 8 joists are totally unfit to use, and the so-called 2 by 10 joists, which are only 1 5/8 by 9 1/2, should be used, and even these in lengths of 20 feet will only safely carry 158 pounds more than the full size 2 by 8 of the same length would carry. In house building we seldom have a greater span than 18 feet, and not often do the spans of joists exceed 16 feet. In our opinion the present day 2 by 8 joists should not be used in a longer span than 14 feet; 2 by 10 for 16 to 18 feet span and 2 by 12 for 20 to 22 feet; 2 by 14 for 24 feet and 3 by 14 for 26 feet spans.

Fir lumber should not be used for joists to carry heavy loads; it has not the strength of southern yellow pine by one-fifth; while it is good in its place, it is not good for floor joists to carry heavy loads. While there is no particular danger of its breaking under a fairly heavy load, it has not the stiffness of the southern yellow pine and it has a great tendency to sag, and rather easily. A 2 by 14 by 26 feet of fir, supported at the ends, will sag one-half inch of its own weight. We once framed 2 by 14 by 26 feet fir joists for a span of 25 feet for a store building, and framed them 3/4 inch crowning, and by the time the floor was laid they had a half-inch sag. No more fir lumber for us where it is required to sustain weight, for it will not do the work worth a cent.

Heating a Modern Apartment Building

BEING THE SECOND OF A SERIES OF ARTICLES ON HEATING VARIOUS CLASSES OF BUILDINGS—CIRCUIT STEAM SYSTEM FOR APARTMENT BUILDING SHOWN

By Perry Weber Rathbun

THIS subject is one that every person proposing to erect an apartment building as a paying investment should consider with vital importance. It is an established fact, by practice and theory, that a one pipe steam system with circuit mains and gravity return is more generally adapted to heat the class of buildings named. First on account of the low first cost, and second, the high efficiency given when properly installed and managed. It is the intention of the author to put before the readers of this magazine, in the short space allotted him, a brief detail of a complete heating system, including plans, of correct installation, together with estimate of cost. The radiation set forth in the following specification is figured with the rule, 2, 15, 150, as set forth in a former article, as a rule of good practice, which will, in Chicago, Ill., and vicinity, be sufficient for a range of temperature of 70 degrees interior in weather 12 below zero. When estimating the radiation, the use of each room should be taken into consideration, also the number of times the air changes, and vary the above factors used so the required temperature can be obtained from the amount of radiation figured. When selecting a steam boiler, the following very important points should be considered: A cast iron sectional boiler is more preferable and economical than a steel boiler, as can be readily understood, in casting these sections, the most important parts can be molded and obtain the proper shapes, such as a large steam space and a well designed flue travel, with the proper proportion of heating surfaces, which is impossible with a steel boiler. The heating surfaces in a heating boiler are those surfaces which have water on one side, and hot gases on the other, and transmitting as much of the heat generated by the fuel to the water as possible, thereby generating steam more easily. By having a boiler with a large steam storage space, a continuous and steady pressure can be maintained all night under banked fires.

A steel boiler will rust out in ten years at the most, and may also blow up, which explosion would destroy the entire boiler, while the average life of the cast iron boiler is from 25 to 35 years, and in case of an explosion, there could be no more than one or two sections broken. These could be replaced at a small expense, and by so doing the boiler would be practically new. In figuring the capacity of the steam boiler, 15 per cent of the actual radiation should be added for the heat transmitted through mains, and an additional 15 per cent for the factor of safety. When receiving bids or proposals on a heating system, the most advisable and satisfactory way to receive them would be in the form of a complete specification or

contract, similar to the following one the author has filled out for the accompanying plans:

General specification and contract for a low pressure steam heating apparatus:

General.—All the material and labor shall be subject to the approval of the architect and owner. The contractor to commence his work as soon as the building is ready, and finish as soon as practical thereafter. This apparatus to be installed according to best practice of a one pipe gravity steam work. All mains are to be graded to a true alignment so that steam and condensation will flow in the same direction. All branch pipes, risers and radiator connections are to be installed with proper pitch, so that the entire system will drain through the blow-off cock at the bottom of the return connection at boiler. A due allowance to be made for the expanding of all pipes.

Boiler.—Furnish and set in basement at (address) one 30 inch 8 section steam boiler, with rated capacity of 2,325 square feet, or with additional capacity, as may be selected at time of letting. Same to be arranged to operate at a pressure of from 1 to 5 pounds per square inch.

Tools.—Furnish and deliver one complete set of firing and cleaning tools.

Foundation.—Suitable concrete foundation with ash pit 6 inches deep to be constructed by owner.

Fluc.—Should be 12 inches by 16 inches, and for use of the aforementioned boiler only.

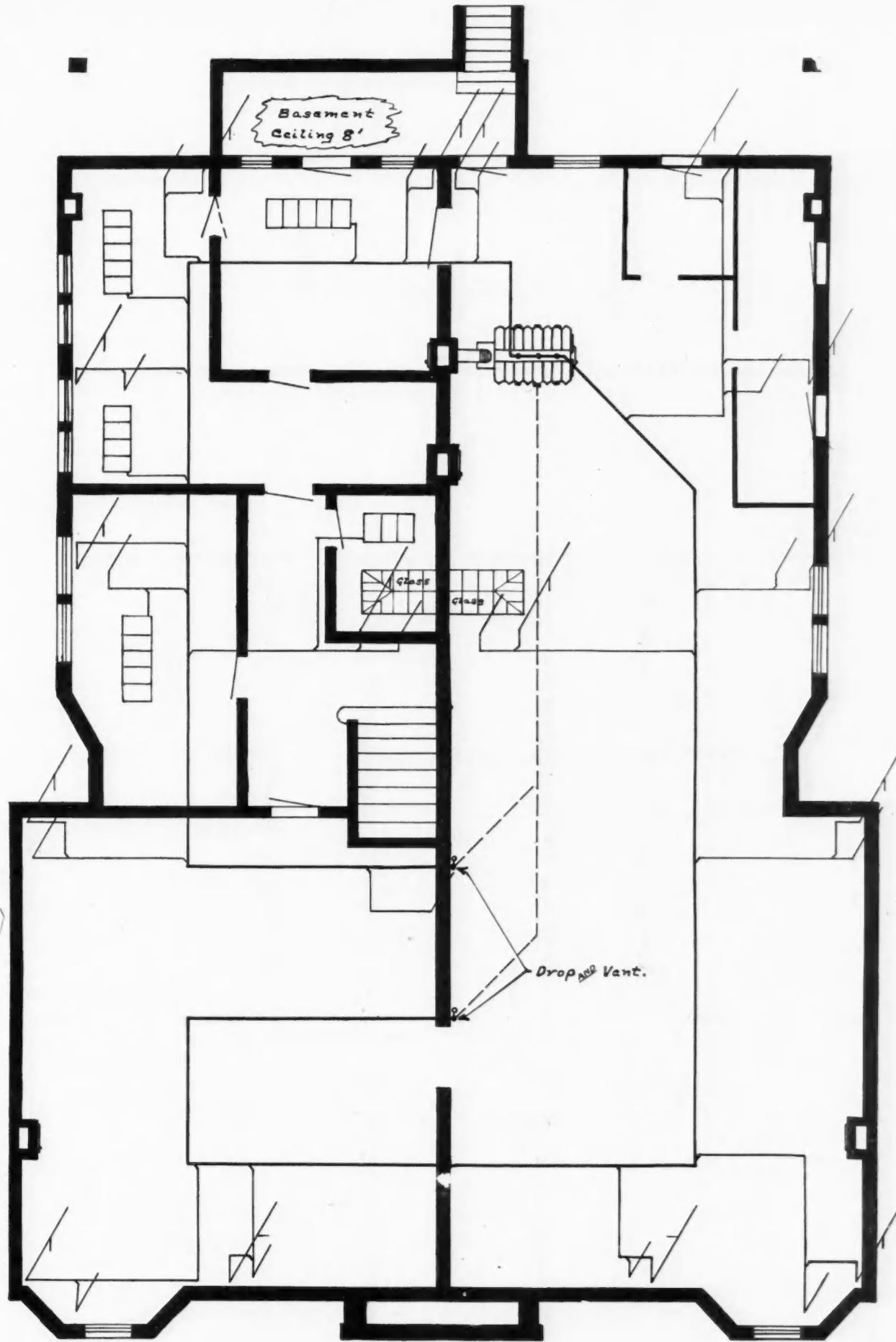
Smoke Pipe.—Boiler to be connected with flue by No. 22 gauge black or galvanized iron 13 inch smoke pipe, complete with a close fitting damper.

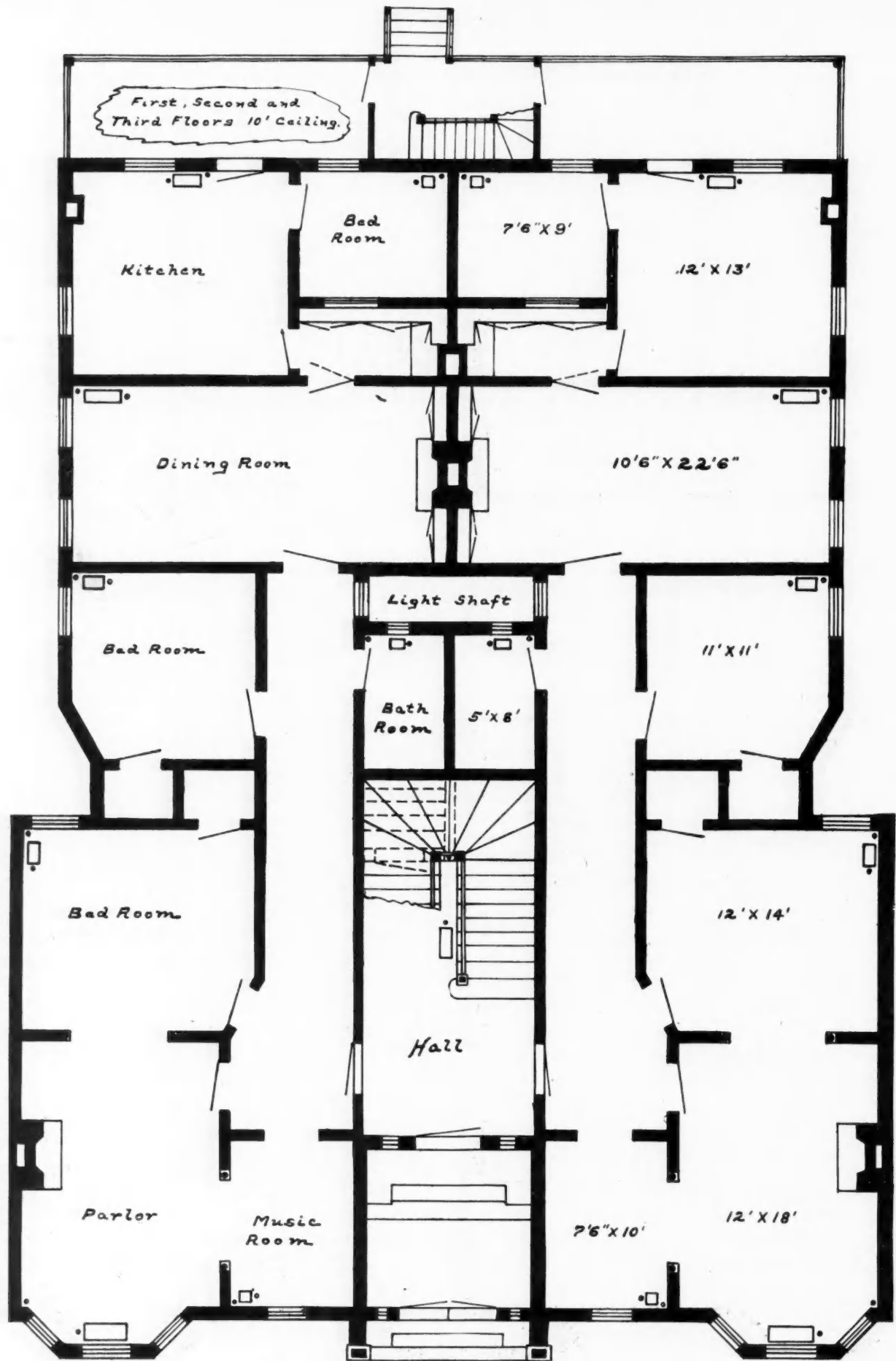
Asbestos Covering.—The sides and top of the boiler to be covered to a thickness of 1½ inch with asbestos cement or non-conducting covering, brought flush with the front and back sections, and all mains except those running through living apartments in basement to be covered with ¾ inch asbestos sectional mould covering.

System of Piping.—The system of piping throughout will be constructed on the one pipe gravity return plan, and all pipes erected to be ample size to insure the rapid delivery of dry steam to all radiators, and easy flowing of condensation back to the boiler.

Mains and Returns.—Run steam mains on circuit plan, around basement suspended from ceiling joist above, with expansion pipe hangers of improved pattern. Place not more than 10 feet apart. Place automatic air valve on returns at points where same drops vertically, to a level below the water line in boiler. No relief or return pipes to be less than ¾ inch, and no steam pipes to be less than 1 inch.

Air Valves.—Each radiator is to be supplied with





an improved automatic air valve set at the proper place.

Radiator Valves and Union.—All radiators to be properly connected to risers with nickel plated union radiator valves, with finished wood wheels.

Radiation.—Contractor to furnish and place in position in various rooms throughout the building, cast iron radiation, manufactured by (name of firm). All radiators to be the height and contain the number of square feet of radiating surface set forth in the following schedule:

SCHEDULE OF RADIATION

Room	Height	Top	Sq. Ft. Surface
Music room	38 inches	1 inch	15 feet
Parlor	20 inches	1 1/4 inch	60 feet
Bed room, 12 by 14 ft.	38 inches	1 1/4 inch	30 feet
Bath room	32 inches	1 inch	12 feet
Bed room, 11 by 11 ft.	38 inches	1 inch	25 feet
Dining room	38 inches	1 1/4 inch	50 feet
Kitchen	38 inches	1 1/4 inch	45 feet
Bed room, 7 ft. 6 in. by 9 ft.	38 inches	1 inch	15 feet
			252 feet
First floor flat No. 2			252 feet
Main hall			48 feet
Second floor flats each have 15 feet more radiation on account of music room extending over vestibule			534 feet
Third floor flats each have 48 feet more radiation on account of music room extending over vestibule and there being only a small air space between ceiling and roof above over all the rooms			600 feet
			1686 feet

BASEMENT LIVING ROOMS

Room	Height	Top	Sq. Ft. Surface
			1686 feet
Bath room	ceiling	1 inch	15 feet
Bed room	radiators	1 inch	25 feet
Living room	radiators	1 1/4 inch	45 feet
Kitchen	radiators	1 1/4 inch	25 feet

Square feet of direct radiation.....1796 feet

Flange Unions.—All main and return pipes to have flanged unions placed on line near boiler so that same can be readily disconnected from the balance of the system.

Floor and Ceiling Plates.—Where pipes pass through walls, floors or ceilings same shall be furnished with nickel plated flanges of improved pattern.

Quality of Materials.—All materials to be the best of their respective kinds. All fittings to be heavy beaded and made of the best grade of gray iron with clean cut threads, and all pipe to be of standard weight and quality.

Workmanship.—All work to be completed in a neat and substantial manner, and the apparatus left in good working order.

Water Supply.—Heating contractor to make proper connections from water supply to boiler.

Blow Off.—Drain to be connected to the lowest part of the system by heating contractor.

Final.—Contractor is to guarantee the apparatus when completed, in accordance with this specification, that same will have a free and rapid circulation, and heat all radiators without filling with water, or pounding in pipes or radiators. When the system is completed, filled to the water line, fired up, and tested, all valves properly set, all leaks and weak portions of pipe lines, together with defective fittings, are to be made good, and complete in every respect. Boiler to be blown off under pressure to remove all grease and dirt therefrom, and the system left in a first-class condition.

Accepted..... Owner.

Date.....1908.

Heating Contractor.

Terms.....

The estimate of cost of this system, as shown in plans and set forth in the above specification, to the consumer in the city of Chicago, would be as follows:

Radiation	.....
Boiler	.....
Smoke pipe	.....
Water connection	.....
Pipe fittings, hangers, etc.	.....
Valves and air valves	.....
Floor and ceiling plates	.....
Pipe and boiler covering	.....
Bronzing, including radiators and exposed risers	.....
Sundries	.....
Cartage	.....
Labor, man	.....
Labor, helper	.....
Estimate cost and contract price, including contractor's profit	.....\$1,476.65

This magazine invites any of its readers who may be having perplexing troubles with their heating systems to send in sketches of such connections or portion of pipe lines, together with all details of the trouble, and in the following issue, we will be glad to recommend the remedies.



Just a Model

"You have a model husband," said the lady who was congratulating the bride.

The next day the bride bethought her to look up the word "model" in the dictionary, and this is what she found: "Model: A small imitation of the real thing."

Manual Training

Ira S. Griffith

Something the Boys Can Make

COMPLETE INSTRUCTIONS ABOUT MAKING A LINEN CHEST—KINDS OF WOOD TO USE—DIMENSIONS OF THE VARIOUS PARTS AND BEST FINISH

A CHEST of plain, but rather pleasing design, is offered this month. It is intended primarily as a dower chest, but will be found useful for a variety of purposes.

In olden times a bride-to-be was given a well-filled chest upon leaving the home roof. This pretty custom is coming in favor again and perhaps some father may find the accompanying design useful.

Quartered white oak is well suited. It should be thoroughly seasoned and should be clear of checks, sap, etc. Red oak, plain sawed, will make a very satisfactory appearance if white oak cannot be got.

Time will be saved and a good piece of work be more easily accomplished if the different pieces are ordered mill-planed on four surfaces as far as practicable. Of course, if no mill is at hand, the pieces can be squared to dimensions in the usual manner. Stock mill-planed on two surfaces to thickness can be obtained at most any lumber yard.

The following stock bill gives the exact dimensions. In ordering, allowance must be made for waste in squaring up. For the top one piece seven-eighths by nineteen and one-half by thirty-nine inches. For the cleats under the top, two pieces three-quarters, by three, by fifteen inches; also, one piece of the same thickness and length with a width of four and one-half inches. The bottom of the chest will require a piece three-quarters by seventeen and five-eighths, by thirty-five and five-eighths inches. For the rails, four pieces three-quarters by two and one-quarter, by thirty-three and three-eighths inches; four pieces of the thickness and width with a length of fifteen and three-eighths inches. For the stiles, eight pieces three-quarters by two and one-quarter, by thirteen and one-quarter inches; also four pieces of the same thickness and length with a width of three inches. The panels will require four pieces one-quarter by seven and five-

eighths, by thirteen and one-quarter inches; two pieces of the same thickness and length with a width of eight inches; also, two pieces with a width of eleven and three-quarters inches. For posts, get four pieces one and seven-eighths inches square with a length of twenty inches.

Begin work by making the paneling. First, see that rails and stiles of the required number are squared to the dimensions given above. Set the smooth plane very shallow and remove all the mill marks. The



eight stiles, which are three-quarters by two and one-quarter, by thirteen and one-quarter inches, are to be plowed with a one-quarter inch groove to a depth of one-quarter of an inch. The groove is to be placed in the middle and on one edge only of each.

These grooves might be cut by means of a chisel but a panel plow does the work so much easier and better that it should be used. Most every shop has one, and a little investigation will soon show the manner of setting fence so that the cutter shall make the groove in the middle of the edge. A one-quarter inch cutter should be inserted and the fence set so that it shall be one-quarter of an inch away from the nearer edge of the cutter. Make a trial cut and lay the rule across to see that the groove is in the middle. Set the depth gauge to one-quarter of an inch.

The rails, of which there are eight, should be plowed in a similar manner—on one edge only. The edges plowed should be the joint edges. They are most likely to be square and straight, therefore, most likely to fit up properly when joined.

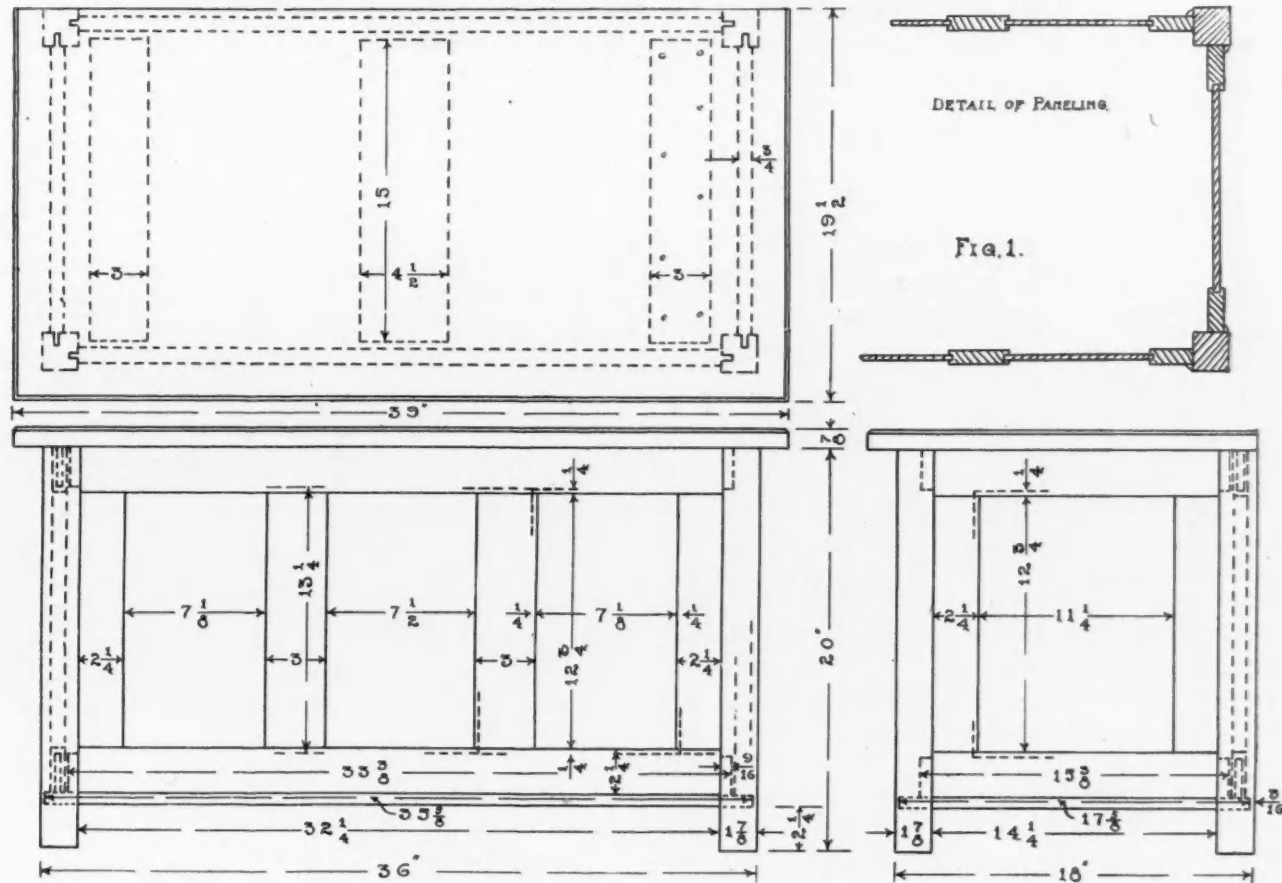
The four middle stiles should be grooved on both edges of each.

If these grooves must be cut with a chisel, gauge from the face sides with the gauge set to one-quarter of an inch, then to one-half an inch. Chisel between these lines.

Next, lay out and cut the tenons on the stiles. Lay the eight pieces of equal width on the bench and even the ends with the try-square. Mark off the distance between the shoulders—twelve and three-quarters

surfaces. Gauge for a tenon one-quarter inch thick at each end. Rip and crosscut to these lines. These tenons, like those of the stiles, will be the full width of the piece except as the grooves make them narrower.

The panels may now be glued up. Clean all the parts, using scraper and fine sandpaper. Glue size, that is, put a preliminary coating of glue on the ends of the tenon and allow it to set. This is to fill the pores of the wood. Put a second coating of glue on the tenons of the stiles, place the panels, adjust the parts and clamp at each stile. Do not put any glue in the grooves into which the panels fit. It is the better part of wisdom to put the parts together dry first to see that all fit perfectly.



inches—so that there shall be tenons one-quarter inch long at each end. Square knife lines across the edges of all while they are together with their ends evened. In like manner lay off the other stiles, keeping the same distance between the shoulders and the same length of tenons. Square knife lines around the four sides of each piece at the points marked for shoulders.

Gauge across the end of each piece, setting the gauge so that it shall make a tenon of one-quarter inch width to correspond with the grooves of the edge. Rip and crosscut carefully to gauge and knife lines.

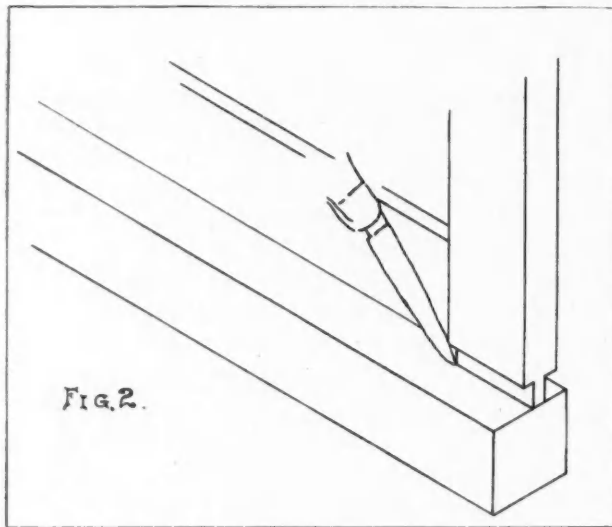
Place the four short rails on the bench, even the ends, mark the distance between shoulders at fourteen and one-quarter inches. This should leave a tenon nine-sixteenths inch long at each end. Separate the pieces and square the shoulder lines around the four

If the wood is not thoroughly seasoned, the panels may be made just the size called for in the stock bill. They will shrink and loosen but not swell. If the lumber is seasoned so that it is dry, it will be well to plane the panels just a little narrower than the sizes called for to allow for swelling. In this case care must be taken to space the stiles properly before the glue has had time to set.

See that the faces of the pieces all lie on the same side of the frame, and that the surfaces are kept level in clamping. Use blocks of waste wood between the clamps and the rails to keep from marring the edges of the rails.

The posts should be surfaced just enough to clear off the mill marks—providing they were mill-planed to the correct width and thickness. Square the ends

so that each shall have a length of twenty inches. Stand the four posts up in their relative position in the chest and mark with the pencil the approximate



locations of the mortises. The faces are to be turned "in"; the mortises will, therefore, come on the face surfaces.

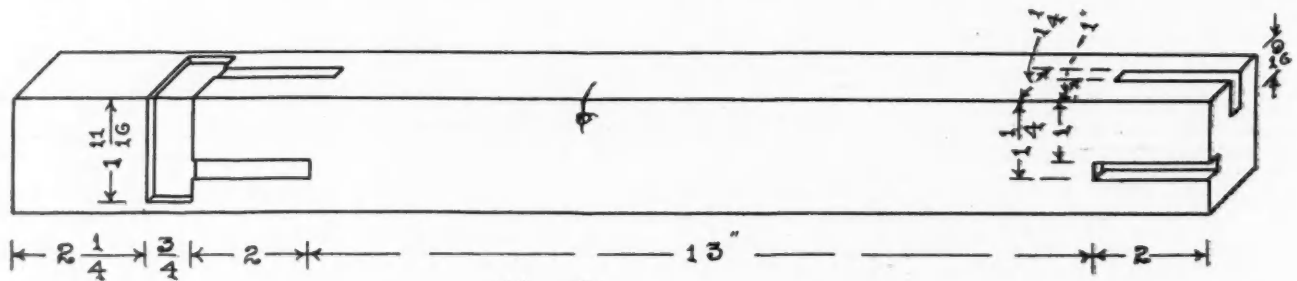


FIG. 3.

The mortises would better be located by superposition rather than by measuring with the rule. Determine what tenons are to fit into the posts and mark tenon and post with the same number or letter. Hold the panels on the posts so that the top of the panel shall be even with the top of the posts. With a knife, mark from the tenons the ends of the mortises. Fig. 2. A try-square should be used to get lines square across the posts at these points.

Set the gauge first to one inch, Fig. 3, and gauge for the first side of the mortise. Hold the head of the gauge against one or other of the faces—the inside surfaces. Again, set the gauge to one and one-quarter; hold the gauge head against the same surfaces as before and mark the second side of the mortises. It is a good plan to mark the ends of all the mortises first, then gauge the first side of all mortises, then the second side.

These mortises can be cut easiest by using a chisel of the same width as the mortises—one-quarter inch. Chisel them to a depth of nine-sixteenths of an inch.

The lower shelf should be set into the posts so that when it shrinks it will show no cracks. The upper edge of the gains will be on the same level as the

lower end of the lower mortise, the lower edge of the gain will be three-quarters of an inch from this point, measured towards the lower end of the post. Use the try-square and knife to mark these lines and place them across both faces. Set the gauge to one and eleven-sixteenths inches, or so that the spur reaches to within three-sixteenths of an inch of the outside edge when the head is held against the face or inside edge; gauge between the two cross lines just drawn. Gauge to indicate the depth of gain—one-quarter of an inch will be sufficient. Chisel carefully to these lines.

The front and back of the chest may have the tenons of the rails glued and inserted into the mortises of the respective posts. Adjust the clamps so that the faces of the posts into which the tenons enter shall be at right angles to the face of the panel.

While the glue of these parts is setting, square the bottom of the chest and cut the corners. Smooth the surface carefully before putting it in place, using plane, scraper and sandpaper. Since the gains in the posts were laid off for three-quarters of an inch, but very little wood can be removed in smoothing this piece. A better plan would be to smooth the bottom

before cutting the gains, laying off the gains to suit the thickness of the bottom.

To lay out the corners of the bottom, Fig. 4, meas-

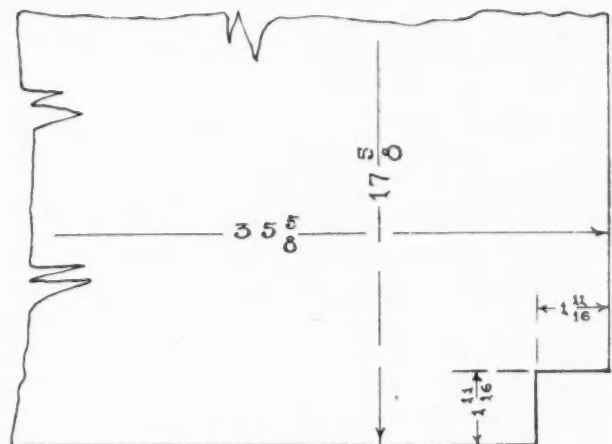


FIG. 4.

ure from each corner each way, along edge and end one and eleven-sixteenths inches. Square and gauge lines at these points. Rip and crosscut to these lines.

Glue the tenons of the end panels and clamp the

chest together, carefully adjusting the bottom to the gains.

"Break" a small egg and dart molding in the eight corners where panel and post adjoin. Seventeen inches is the exact length of each piece. Nail through the molding into the post only. If the stile of the panel should shrink it will then not draw the molding away from the post. This molding should be not more than three-sixteenths of an inch in depth.

The top is to have three cleats fastened to the under side of it. They may have the edges and ends of one side of each beveled, if desired. Fasten them to the top, using screws. Holes will have to be bored through the cleats and countersunk to receive the heads. About eight screws to the cleat will be sufficient. Fig. 1 shows the manner of placing them. The position of the cleats should be measured off and marked accurately so that the top may be adjusted to the sides properly when hinging. The slight bevel shown on the top in Fig. 1 would better be omitted if ornamental corner pieces such as are shown in the perspective are to be used.

The hinges used may be common butts of a size to fit the three-quarter inch rail to which one side is to be fastened. The easiest way to set these hinges is to cut sufficient depth out of the rail to allow the whole hinge to be sunk level with the top of the rail. The top of the chest may then be placed and the position of the hinge upon it indicated. The part of the hinge fastened to the top will not need to be "set in" by this method, but will be simply screwed fast. A neater piece of work would result if the hinge were to be let in to the top and rail equally.

As for a finish, it all depends upon one's likes and dislikes. Many satisfactory stains are on the market. Mission oaks, weathered oaks, etc., would look well. If one prefers a smooth surface with dull waxed effect, it may be obtained by applying stain, filler and wax. The directions for each will be found printed in full upon the cans.

The ornamental corner pieces should harmonize with the finish. Corner pieces suitable for this chest can be got at the hardware store in brass and possibly in old copper or wrought iron.

The angle irons under the chest are intended for ornament as well as to reinforce the corners.



Life of Shingles

Curled and warped shingles on roofs of suburban and country houses are a common but not pleasing sight in all parts of the country where buildings are covered with wood. Shingles warp and curl because after a wetting—and they get many—the upper side dries first. In a few years the roof leaks, decays and must come off. Many years ago farmers made what they called their "everlasting" roofs of white pine, cedar and black walnut shingles, free from sap, rived with a frow and shaved with a drawing knife. Such

shingles cannot now be had, for the fine, straight-grained timber necessary for their manufacture is scarce and very expensive.

The forest service has studied the shingle problem along with that of the preservation of farm timber. It is found that shingles treated with creosote by a special process which the service has invented warp but little and decay slowly, because water is kept out of the tissues of the wood. One such roof will outlast two or three left in the natural state to curl, spring leaks, and fall to pieces. The creosote used is nothing more than dead oil of coal tar, but it keeps water from entering the pores of the wood and renders it immune to decay for a long time. A roof of that kind costs a little more at first, but it is cheaper in the long run. Woods which are usually classed as inferior, such as loblolly pine, beech, sycamore and others which are quick decaying, readily take the preservative treatment and are given a largely increased value.

Not Hard to Operate

The preserving apparatus is neither expensive nor hard to operate. One such outfit will serve several farmers. The main items are an iron tank (an old engine boiler will do) with preservative fluid in it and a fire under it, and another tank of cold preservative. The shingles or other woods to be treated are immersed for a sufficient time in the hot creosote and then in the cold.

Shingles are one of the most important lumber products in this country. Last year nearly twelve billion were made. Even this enormous number was a heavy falling off from the total of the year before. It is a significant fact that the chief source of shingle supply is now the forests of the far northwest, from which shingles are brought even to New York. The eastern sources of supply are not able to meet the eastern demand. It is therefore fortunate that shingles are so easily given a preservative treatment by which their life is lengthened.

Many handsome residences in all parts of the country have their sides and gables covered with shingles. This architectural use often calls for staining or painting in harmonious colors. Such coloring is less frequently seen on roofs, where it does not last long, because rain washes it off.

The forest service has been experimenting in this field also, and has found that stains may be carried into the shingles along with the preservatives by the new process. The coloring matter is mixed with the creosote, reaches every fibre which the creosote touches, and lasts as long as the creosote lasts—and that is a long time. Such a stain does not easily weather out, whether on walls, gables or roof. It is expected to prove much superior to the old way of staining or painting the surface only.



"Give me the lunch basket, wifey. Don't you see we are sure to lose each other in this crowd?"—*Ex.*

A \$3000 HOME FREE

EVERY man has an ambition to own a home. But it is once in a life-time that an opportunity like this is offered. Here an attractive, beautiful home is held out to you—it is within your grasp.

Own Your Own Home

Thousands and thousands of men and women work and toil for years to save enough money to build a home. It is a most laudable ambition, and one which holds out the greatest possible happiness. For what can a man desire more, particularly if he has a wife and possibly a family, than a comfortable home-like home all his own? It is worth the toil and sacrifice of years, and the reward makes all the effort seem but light.

Realizing this great and praiseworthy ambition, the **American Carpenter and Builder** decided to place two beautiful homes within the reach of two men who, by their efforts, show that they are most entitled to them.

It will be the work of only a few months to secure one of these homes—it will not take years to save the money. What a short cut for an ambitious and home-loving man!

This is YOUR Opportunity

Don't make the mistake of thinking that this is a good opportunity for some other fellow. It is your opportunity. It may be the other fellow's, too, but it is just as much yours. Aren't you just as capable as he? Aren't you just as ambitious to own a home? Aren't the opportunities in your vicinity just as great as they are in any other? You are mistaken if you think they are not.

Russell H. Conwell, in his famous lecture on "Acres of Diamonds, or, How to Get Rich," says: "Where can

I get rich? Right where you are. At home. Not somewhere else. Not a man has secured great wealth by going away who might not have secured as much if he had stayed at home."

Don't make the mistake of thinking that if you were located somewhere else you would win, but not where you are. Your opportunity is just as good, perhaps even better, than any other man's. Get to work where you are. And get to work right now.

Your Wife's Happiness Assured

Think of the happiness of the wife—that is, or is to be—when you can tell her that hereafter we can live in "Our Own Home." You can give her no greater pleasure in life than the possession of a home all your own. And you can have it, too. And have it this very summer. You don't have to wait and save and figure, and figure and save.

You may have been looking forward to the dim future—to prospect of saving so much a year, and have thought that about year after next, perhaps in 1910, "we will have money enough to build, providing we can take out a mortgage," and then "if we can pay off so much a year in ten years we will have it all paid for."

How different it will be if you grasp this opportunity! Before another snow flies you and your wife and family will gather at

your own fireside, in a home that is all your own. No rent to pay; no interest to pay; no mortgage to lift.

Read our liberal offer very carefully. Then don't lose one minute. Write us before you sleep.

Remember, it is the man who sees and grasps the opportunity that is before him, and is within his reach, who wins.

Two Grand Prizes

FIRST PRIZE—Home valued at \$3,000.00

Including Lumber, Millwork, Hardware, Plumbing, Furnace, Mantels and Paint

SECOND PRIZE—Home valued at \$2,000.00

Including Lumber and Millwork

In case of a tie (which is extremely improbable) the cash value of the prize will be equally divided.

Monthly Prizes

FIRST PRIZE—Cash, \$50.00

SECOND PRIZE—Cash, 25.00

The first home will be given to the person securing the largest number of subscribers to the **AMERICAN CARPENTER AND BUILDER** before July 1, 1908.

The second home will be given to the person securing the second largest number of subscribers before July 1, 1908.

The first and second monthly cash prizes will be given to the persons securing the first and second largest numbers of subscribers in any one month.

These monthly cash prizes will be duplicated each month.

In addition to all of the above prizes, 25% (50 cents) may be retained by the contestant on each and every subscription secured.

Great Prize Contest

THIS is the greatest offer ever made or ever even thought of. Two handsome homes are to be given away absolutely free to the two men who secure the largest number of subscribers to the **American Carpenter and Builder** before July 1, 1908. We pay you liberally for all the work you do in good solid cash, and in addition to this make you a present of a home.

This is not all. There are also cash prizes amounting to \$450. Think of it! Four Hundred and Fifty Dollars in Cash!

This \$450 and these two beautiful homes are all in addition to a liberal cash payment for every subscription you secure.

Please take note of this important point—we make no stipulation as to how many subscribers you must have to secure a home. We are taking all the risk. It

may take only a very few. We want you to fully realize just what the wonderful offer means:

First.—Twenty-five per cent (50 cents) on each subscription.

Second.—\$50.00 a month if you secure the most subscriptions in that month.

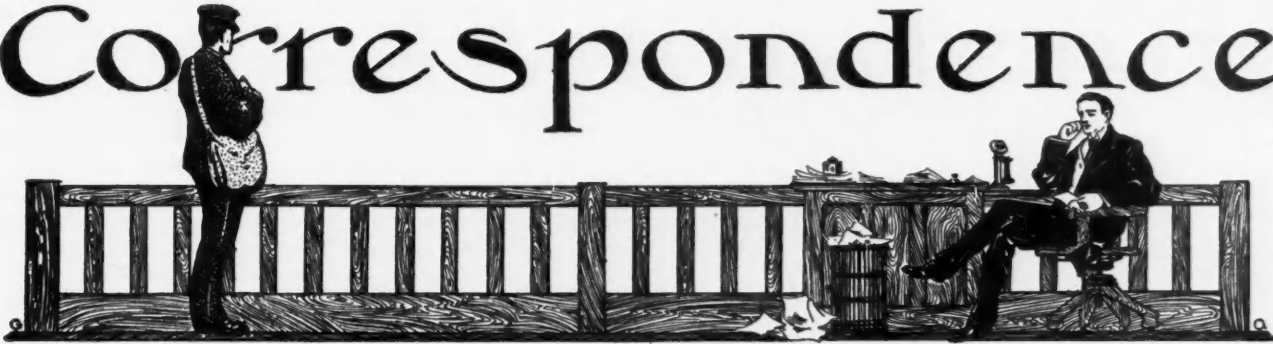
Third.—A beautiful and expensive home if you secure the most subscriptions during the contest.

Even if by some possibility you should miss the first home, there is still another; and if you miss the \$50.00 a month you will receive \$25.00 if you get the second largest number of subscribers. You certainly can get the second if you miss the first. But you are not going to miss the first. Don't think that way for one minute. Just go in with a determination to win and you will win. And we will do all we can to help you win.

American Carpenter and Builder

185 Jackson Boulevard, Chicago

Correspondence



The Run and Rise of the Tread

To the Editor:

Stafford, Kan.

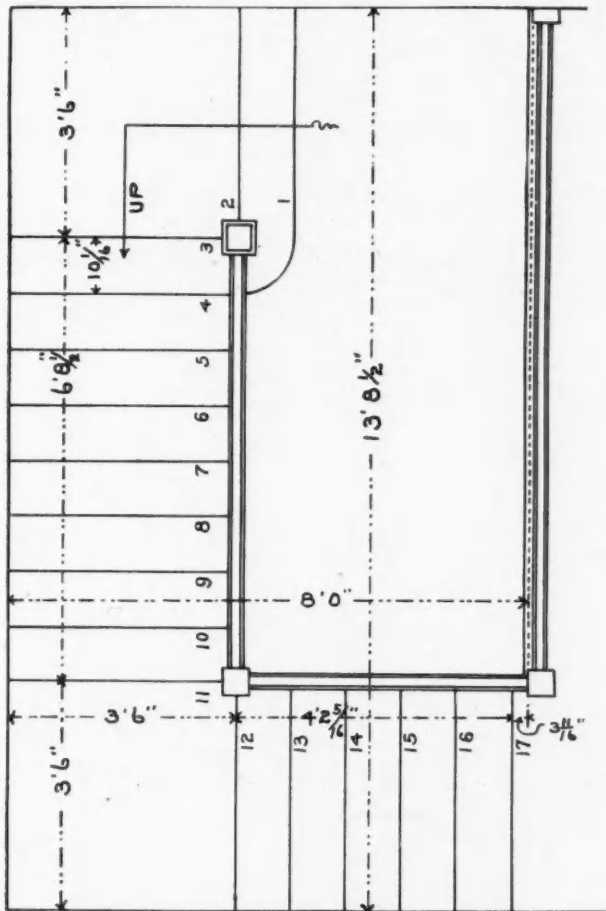
Would you please tell me how to figure the run and rise of a flight of stairs; that is, how to get the height of the riser and the run of the tread and what they cut on? From a rough drawing enclosed, you will see the opening in the second floor is 13 feet 8½ inches by 8 feet wide. The rise from floor to floor is 10 feet 2½ inches. The stairs to be 3 feet 6

space shown between the two long rails can be used on the second floor, if desired.

In framing the house too much care cannot be taken to see that ample space is provided for in the stairways in having the proper floor space and openings so as to give ample head room, etc. In fact, they should be thoroughly studied out; in other words, plan the stairs right and then bring the other work to it. Anything but an ill-shaped, irregular, crowded, dinky stairway.

Taking this example, first lay off the platform 3 feet 6 inches square. The width of the two equals 7 feet, and this from 13 feet 8½ inches leaves 6 feet 8½ inches, and this divided into eight spaces for the treads leaves 10 1-16 inches for each tread, and establishes the width for the others. There being five treads from the second platform to the landing would equal 4 feet 2 5-16 inches, plus 3 feet 6 inches, equals 7 feet 8 5-16 inches, from 8 feet, which leaves 3 11-16 inches, which will allow the carriers a firm bearing against the trimmer. Now, as the space from floor to floor is 10 feet 2½ inches, or 122½ inches, and this divided by the number of the desired risers (17) will give the height of the individual riser, which is practically 7 7-32 inches. However, it is better to take a 10 foot 2½ inch straight edge pole, and with spacers, divide it into 17 equal parts, then one of these parts will be the required rise for each tread. From this it will be seen that it requires one tread to the first landing, which is at the second riser. The second landing comes at the eleventh riser, and with these points marked on the pole above referred to, the necessary frame work can be accurately located from same. This also saves time in making calculations, and is less liable in making mistakes.

A. W. WOODS.



inches to center of rail and to have square landings. What I want is to get the run and rise of treads the same.

W. E. BROWN.

Answer: From Mr. Brown's sketch we submit the following diagram with the required measurements for the different runs, which works out very nicely though the large opening, or well hole, as it is generally called, would be considered by many a waste of space that might be utilized to advantage on the second floor. If such is desired, this can easily be done by making a box stairway from the second landing up. The joist can rest in the boxing wall and all of the open

Roof Pitches and Degrees

To the Editor:

Locust, Pa.

Will you kindly republish the illustration and the article describing roof pitches and degrees, which appeared in the 1906 issue of the AMERICAN CARPENTER AND BUILDER?

HENRY ARMSTRONG.

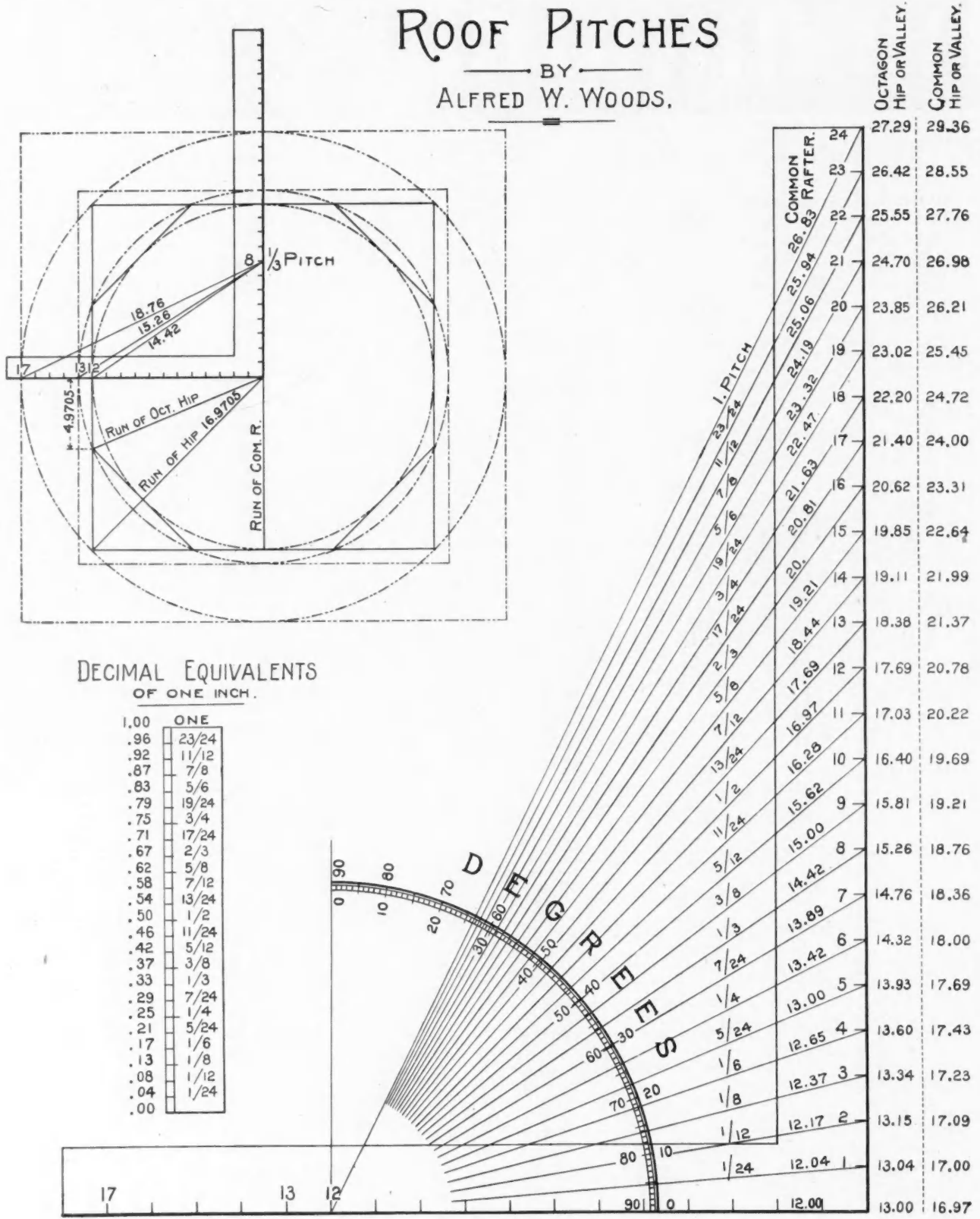
Answer: This illustration contains a whole volume on roof framing. The fractional pitch lines for the common rafter are shown for each inch in rise up to the full pitch, and their lengths are expressed in decimal figures to the one-hundredth part of an inch, while to the right of the blade the same is expressed for the corresponding octagon and for the common hip or valley for a square-cornered building, which are reckoned from 13 and 17 on the tongue respectively. However, neither is absolutely correct, though near enough as far as the cuts are concerned. The greater deviation being in the hip for the square-cornered building. It lacks .0295 of being .17 inches and represents the run of the hip to a 12 inch run of the common rafter. Its true length being 16.9705 inches, this is the length from which we have reckoned for the lengths of the hips instead of 17, as is the usual custom. This may seem a trifling difference, and so it is in a

short run and low pitches; but suppose it is for iron construction. To begin with, the shortage of each foot in run with the common rafter is .0295 of an inch; added to this the gain it would have in the pitch, which would be .015 of an inch by the time it got up to the full pitch for the common rafter; and this added to the .0295 to start with, would

be a difference of .0445 of an inch to the foot in run with the common rafter. Now suppose the run to be 18 feet; 18 times .0445 equals .8 plus, or 19-24 of an inch difference; or, if no account was made of the gain in pitch, the .0295 of an inch in the run would amount to over half an inch in the length of the hip alone. This is a common error, and while

ROOF PITCHES

BY
ALFRED W. WOODS.



DECIMAL EQUIVALENTS OF ONE INCH.

ONE	DECIMAL
23/24	.96
11/12	.92
7/8	.87
5/6	.83
19/24	.79
3/4	.75
17/24	.71
2/3	.67
5/8	.62
7/12	.58
13/24	.54
1/2	.50
11/24	.46
5/12	.42
3/8	.37
1/3	.33
7/24	.29
1/4	.25
5/24	.21
1/6	.17
1/8	.13
1/12	.08
1/24	.04
	.00

FIG. 55.

it is not much, and probably would never be noticed in wood construction, it is well to know this discrepancy and guard against it when the occasion demands, and for that reason we give the correct amounts. The shortage in the octagon is not so pronounced. Instead of it being in the run, it is the tangent that is lacking the same amount, it being 4.9705 instead of 5 inches. This, coming as it does, cannot affect the length of the rafter nearly so much as in the above.

We explain this shortage better by referring to that part of the illustration in Fig. 55 showing the plan of a combination square and octagon frame with the heel of the steel square resting at the center. From this it will be seen that the two outer circles catch the corners of the frame and seemingly intersecting the tongue at 13 and 17 and represent the figures to use on that member for the seat cuts, but the true length of the run of the hip is 16.9705, and that for the tangent of the octagon is 4.9705.

In connection with this illustration we also give a table of decimal equivalents to the one-twenty-fourth part of an inch for convenience in finding their value in common fractions.

A. N. Woods.

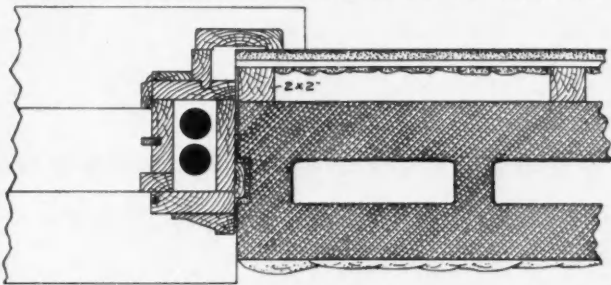
Window Frame for a Cement Block Wall

To the Editor: Edinburg, N. D.

Will you please show the proper way to make window frames for an eight inch thick concrete block wall? The same to be furred with 2 by 2 inch strips and lathed and plastered.

JOHN B. STEPHANSON.

Answer: We presume what is wanted is a frame to work



with the ordinary concrete building block. About all that can be done in a case of this kind is to make the window boxing come within the clear of the opening between the jambs, as shown in the accompanying sectional drawing. A special wide mold is used on the face of the frame to relieve the plain surface that otherwise would show. This mold should carry across the top so as to show the same width as at the sides, and when properly made to work with the blocks will look all right. Care should be taken to have tight jambs, and as most blocks are made with a slot at the ends, this can be successfully done by nailing a strip on the back of the frame so as to come within the slot and then filling in the remaining space with mortar. This not only breaks the continuous crack but also makes an excellent tie in the wall.

A. W. Woods.

Finding the Length of the Rafter

To the Editor: West Philadelphia, Pa.

I would like to have you answer this question. Does the steel square lose any in measuring diagonally, in finding the length of the rafter?

JOHN DUFFEE.

Answer: No. But it requires very accurate placing of the square, as it is a very easy matter to get off a little each time, which will affect the total length of the rafter. The longer the rafter, the more pronounced will be the error. Mr. Duffee enclosed a sketch which we herewith reproduce, with the addition of the seat cut, showing the rafter in position. From this it will be seen that the starting point is directly over the plate. If there was no projecting cornice,

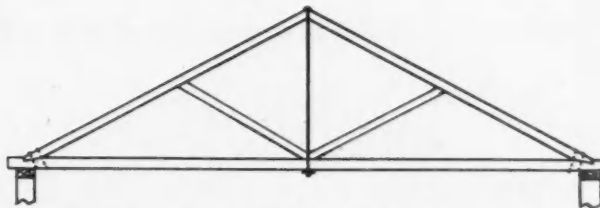
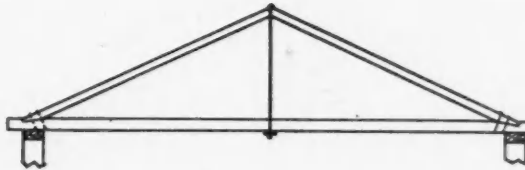
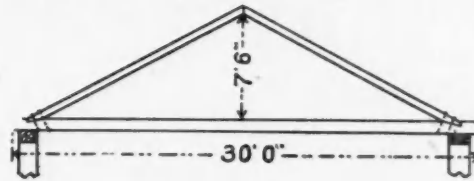
then the starting point would intersect the outer edge of the plate, but the reckoning length of the rafter remains the same in either case, as from A to B. It is simply set higher by squaring out from the starting point to allow for the projection, as shown. For further information in regard to the seat cut under various conditions, see our article in the July, 1906, AMERICAN CARPENTER AND BUILDER. Mr. Duffee also asks how to find the shape of the stones for an elliptical arch. This question was answered with illustration by Mr. Kidner, in the same number as referred to above.

A. W. Woods.

Roof Trusses

To the Editor: Ewing, Mo.

Please give me the dimensions of the different parts of a roof truss of 50 foot span with 4 inch rise per foot run. The roof will have 2 by 8 rafters on 2 feet centers sheeted



with 7/8 boards and covered with three-ply felt roofing, probably flint-coated.

JOHN R. SHEARER.

Answer: Dimensions for small timber roof trusses, Figs. A, B and C, with span equal to four times the size of white pine with combined weight of trusses, roof and load, including snow and allowance for wind, 40 pounds per square foot of roof surface, trusses 12 feet apart center to center, may be as per following table for Fig. C.

Span ft.	Rise ft.	Rafters	Chord if Timber	Chord if Iron	King or Queen Rods
(a)	30	7'6"	5 x 10"	5 x 10" 1" diam.	None
(b)	30	7'6"	6 1/2 x 9"	6 1/2 x 9" 1" diam.	1"
			8 1/2 x 11"	8 1/2 x 11" 1" diam.	1 5/8"
(c)	40	10'0"	6 x 8"	6 x 8" 1 1/2" diam.	1"
			8 x 10"	8 x 15" 2" diam.	2"
			9 x 11"	9 x 11" 2" diam.	2"
(c)	50	12'6"	10 x 12"	10 x 12" 2 1/4" diam.	2 1/4"

Struts 4 1/2 by 4 1/2 would suffice, but for practical reasons the struts are generally made as wide as the rafters for Figs. B and C. Two sets of dimensions are given, the first for chord unloaded, and the second for chord loaded with 100 pounds per square foot, and the dimensions of timber may be in proportion to the load. As a rise of 4 inches per foot run is pretty flat it is best to add 10 per cent to the dimensions given if the proper rise cannot be obtained.

T. P. ELLIS.

Practical Trade Appliances

A Fine New Plant

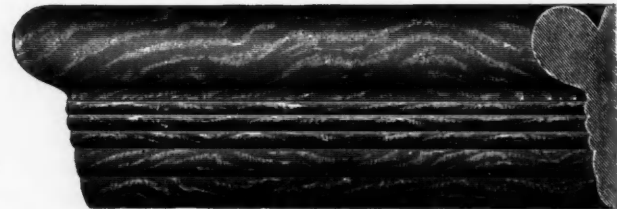
A new plant has just been completed by the Kanneberg Roofing & Ceiling Company, of Canton, Ohio. It consists of a two-story brick building 400x50 feet, fireproof throughout. They are also just starting an additional building 150x50 feet which is of the same general character. The new building is equipped throughout with up-to-date machinery for the manufacture of their art metal work. They recently erected a two-story office building 40x60 feet, using their artistic metal ceilings and side walls for the interior finish. For the exterior, they used their rock-faced brick, covering the roof with metal shingles. Finishing the office in this manner gives them an opportunity to show their ceilings erected and complete, as well as their rock-faced brick and shingles.

They have been hindered the past two years in getting out orders as promptly as they desired from the fact that they had out-grown their old plant, but since they are located in their large new factory with new and up-to-date machinery, they will be able to ship orders promptly and in

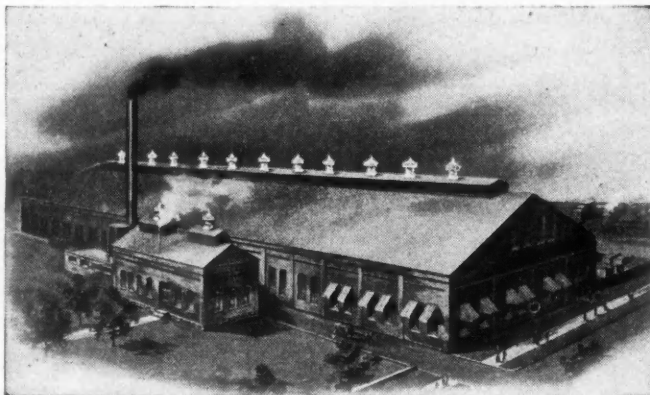
a satisfactory manner. They are well equipped for handling their trade, as they have a railroad switch 500 feet long, with platforms running the entire length of their building.

Buy Room Moldings Direct

The A. F. Kern Company, 401-403 West Madison street, Chicago, one of the oldest manufacturers of moldings in the



west, is making a special offer to sell finished and unfinished room moldings direct to carpenters and contractors in small and large quantities and thus save them money. Being manufacturers, they will sell at factory prices. The demand for



Another Way of Saving Money

Find out what Burt Ventilators will do for you and then build accordingly.

The following letter was received and in answer to the eighth order for 48-in. Glass Top Burt Ventilators:

"In regard to the Ventilators which we have purchased from you will state that we have installed same at the plants of the Terre Haute, Indianapolis and Eastern Traction Company, and they seem to be well pleased with them, in fact we are tearing out an old Monitor Roof at present, and installing your Ventilator in place of it."

Burt Ventilators

are doing the work of the old style Monitor Roofs so much better at smaller expense in construction and installation. Burt Ventilators have the greatest ventilating power and capacity of any. They are storm and dust proof, open or closed, provided with Patent Sliding Sleeve Damper which does not shut out the light from Glass Top, and which can be adjusted to any degree of opening. Made with Metal or Glass Tops as desired. Can be furnished with fusible link connection to close damper automatically in case of fire.

Send for our new eighty-page Catalogue, giving fine illustrations of Mills, Factories, Shops, Foundries and Residences where Burt Ventilators are in successful use.

The Burt Manufacturing Co. 500 Main Street, Akron, O.

The Largest Manufacturers of Oil Filters and Exhaust Heads in the World.



Notice Sliding Sleeve Damper. Patented.

Barrett Specification Roofs

GIVE REAL FIRE PROTECTION



The New Keuffel & Esser Building, Hoboken, Covered with Barrett Specification Roof

AFTER having their entire plant destroyed by fire in 1906, the Keuffel & Esser Co., one of the largest manufacturers of engineering instruments, etc., in the country, built their new plant as nearly fireproof as possible.

The new building, illustrated herewith, is of high class concrete construction, and covered, as was the old building, with a Barrett Specification Roof.

The following letter explains their reason for again selecting this roof covering:

The Commonwealth Roofing Co., Jersey City, N. J.

Replying to your favor of the 19th, we beg to say that we found that our buildings which were destroyed by fire a year ago, all of which were roofed by your Company, had the roof-boards burned almost entirely through before the roofing gave way. This, in our opinion, proves that your roofing* is an excellent fire-retardant, and we do not hesitate to recommend it as such.

KEUFFEL & ESSER CO.,
(Signed) W. L. E. Keuffel, Supt.

*Laid according to The Barrett Specification.

Barrett Specification Roofs, owing to the fact that they are made of non-conducting materials and that the top surface is composed of slag or gravel, are more fire retardant than tin or metal of any kind. They are absolutely immune from fire caused by sparks, burning debris and embers falling on the roof from a fire in the immediate neighborhood. Of course, when the roof is attacked from within the building and its support is burned away, any form of roofing will collapse from its own weight, but even under such conditions a Barrett Specification Roof will, as proved by the above letter, remain intact longer than any other kind.

We have just issued a most interesting booklet entitled "Real Fire Protection," which we should be glad to send anyone interested free on request.

BARRETT MANUFACTURING COMPANY

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

HARDWOOD

HARDWOOD FLOORING—but not the ordinary kind. Not the kind that is poorly machined, that shrinks and warps out of shape and which must be re-surfaced after it is laid in order to make it look even fairly smooth.

We're going to tell you about

"Steel-Polished Perfection"

—A DIFFERENT KIND OF HARDWOOD FLOORING

It is tongued and grooved, end-matched, hollow-backed and bored for blind nailing. *In general shape, it looks like ordinary brands.* But there is no other flooring like it for these three very important reasons:

It has a richly polished surface.

It always matches easily and accurately.

It never shrinks.

These three points are brought out pretty clearly in the testimonial letters on the opposite page, so we will tell you here *how* we make "Steel-Polished Perfection" superior to all other brands.

In the first place we own our own forests, saw-mills and boats. We have the finest flooring factory in the world—and special machines and the best operators.

With such an equipment it is an easy matter to make the best looking and most perfect fitting flooring.

Then, to avoid shrinkage, we have perfected a process of seasoning that is all our own.

After air-drying the flooring lumber for months in our hardwood yards, we steam it, *under pressure*, to open up the pores of the wood—so that later, in the kilns, the hot, dry air has a chance to *penetrate* the stock

and dry it evenly, *thoroughly*—through and through.

This is the exclusive Schroeder double-drying process and it costs a great deal more than the ordinary way—but *the results are worth it.*

Ordinary hardwood flooring is kiln-dried by ordinary methods—the outside is *baked* and the moisture is driven into the center of the wood to work out after the flooring is laid and cause shrinkage—and ugly cracks.

"Steel-Polished Perfection" hardwood flooring never shrinks when it is properly cared for after leaving our dry-air storage warehouse.

DON'T you think it will pay you to get acquainted with a brand of hardwood flooring that will please your customers and save you time and money?



HANDSOMELY illustrated booklet, fully describing the different processes in the manufacture of "Steel Polished Perfection" hardwood flooring, sent on request.

JOHN SCHROEDER

CAPE AND COMMERCE STS.,

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

FLOORING

WE HAVE always believed that "Steel-Polished Perfection" Hardwood Flooring was head and shoulders above all other brands—that it was in a class by itself. But we thought we would get the opinion of the builder—the man who drives the nails, the best judge of flooring quality,

SO WE SENT THIS LETTER TO A FEW OF OUR CUSTOMERS:

Gentlemen:—You have used "Steel-Polished Perfection" Hardwood flooring. Will you kindly tell us just what you think of it? If you believe it is superior to all other brands please tell us wherein it excels.

(Signed) JOHN SCHROEDER LUMBER CO.

AND HERE ARE THE ANSWERS:

We reproduce every one. Not a single unfavorable reply was received. Every letter is here, and it will pay you to read every word of every letter—carefully.

"A Plan Would Spoil It Sure"

The "Steel-Polished Perfection" Oak flooring I ordered of you for Mr. A. J. King arrived in due time and in good order. I have laid and have helped to lay, thousands of feet of hardwood flooring in my twenty years or more of experience as a carpenter and always dreaded the time when it came to smoothing and "dressing up" as it meant many weary hours of hard work and lots of wear on the very best of planes, scrapers, etc. I thought may be yours would be some improvement over the others, but was afraid you had claimed too much, when you said the floor was practically finished "when the last nail was driven." I am very happy to say you fooled me badly as I actually had to make a pencil mark on the last board in a "through" in order that I could tell where I had scraped. Don't need a plane as that would spoil it sure. I can say that it is the **best matched, best graded and best looking flooring** I ever saw or used.

Respectfully,
JAS. G. ALEXANDER, Nevada, Mo.

"Beats Them All."

"In reply to yours of the 6th in regard as to how I liked "Steel-Polished Perfection" flooring I would say that I have used many kinds of hardwood flooring, but "Steel-Polished Perfection" beats them all for the following reasons: It drives up easy, matches as perfectly as it is possible to make flooring and can be finished with a minimum amount of scraping. Any contractor who uses this flooring will save lots of profanity and put dollars in his pocket.

R. S. MCINTYRE, Atlanta, Ill.

"Unequaled for Precision in Matching."

"It might interest you to know that since coming to the Great Southwest, from Iowa, where, during several years I used a great deal of your "Steel-Polished Perfection" hardwood flooring with entire satisfaction to both workman and patron, I have

And Every Progressive Architect and Contractor in Milwaukee Will Tell You The Same Story of Quality.

Write for samples today. A postal card will do. See for yourself this richly-polished, labor-saving, shrink-proof brand of hardwood flooring.

WE make "Steel Polished Perfection" Hardwood flooring in Beech, Birch, Maple and Oak, in $\frac{3}{4}$ and $\frac{1}{2}$ inch thicknesses. Samples of any kind on request.



WRITE to us today. Tell us what you are in the market for and we will quote prices promptly.

found no flooring to equal it for precision in matching or surface finish. These two I consider its strong points of superiority over other flooring, for they reduce the amount of labor necessary in scraping to the least possible degree.

RICHARD CONWAY, Muskogee, Okla.

"No Use for Patent Floor Scraper."

"In answer to your letter of Jan. 6th will say I have used "Steel-Polished Perfection" hardwood flooring and also almost all other brands from Chicago to Cincinnati and I have never found a flooring that would equal yours in being dry or in matching. I find the main point in flooring is being dry so it will not shrink. That has been my greatest trouble with other brands of hardwood flooring. In addition "Steel-Polished Perfection" matches much better than any other kind I have ever used and saves me one half in cost after it is laid. We never need to use patent floor scrapers with your flooring as there is not much work to do on it after it is nailed down on the floor."

J. WM. CURTIS,
806 W. Springfield Ave., Champaign, Ill.

"Finest in Muskegon."

"About one year ago I purchased some of your "Steel-Polished Perfection" hardwood flooring and laid three floors of quarter-sawed oak. It is admitted by all who have seen this floor that it is the finest in the city of Muskegon. It shows absolute, no shrinkage and except for the grain it looks as if one board covered the entire floor, so perfectly the flooring goes together. When I want more flooring I certainly will use "Steel-Polished Perfection"

R. T. FERGUSON, Muskegon, Mich.

"Much Less Work."

"You ask what I think of "Steel-Polished Perfection" hardwood flooring. I like it better than any I have ever used. It is as near what the name implies as possible. It requires much less work, after

it is laid, to get ready for the polish than any other I have ever used."

MELVILLE ESKRIDGE,
605 Bolivar St., Owensboro, Ky.

"Quality Always Right."

"Yours of the 4th at hand. I have three reasons for using and recommending "Steel-Polished Perfection" flooring.

First:—The matching is very close and even, holding the floor firm so when smoothed and scraped it stays smooth.

Second:—I have always found the flooring good and dry and have no trouble with it after it is laid.

Third:—The quality has always been right."

THOS. HAY,
1314 Thurston Ave., Racine, Wis.

"Never Known to Shrink."

"Yours of Jan. 6th at hand and contents noted. I have used "Steel-Polished Perfection" hardwood flooring and several other brands and there is no lumber made that can be compared to it. It is finished better than any man can do it by hand. It is the only flooring that makes a perfect fit when laid and I have found none of it that shrank and opened at the joints. In fact, it is the Perfection of flooring—the only flooring on the market today."

Yours truly, GEO. B. FREEMAN,
324 W. 9th St., Mason City, Iowa.

"In Constant Use—Perfect Satisfaction."

"Replying to your favor of 6th inst. We have had two floors laid with your "Steel-Polished Perfection" Maple flooring, one being in the A. O. H. Hall 40 ft. by 60 ft. used as a dancing floor, the other in the Princess Rink 44 ft. by 132 ft. used as a roller skating rink. In both instances the floors are giving perfect satisfaction and both have been in constant use since laid.

T. S. MURRAY & SON, Architects,
Ironton, Ohio.

LUMBER COMPANY

MILWAUKEE, WISCONSIN

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

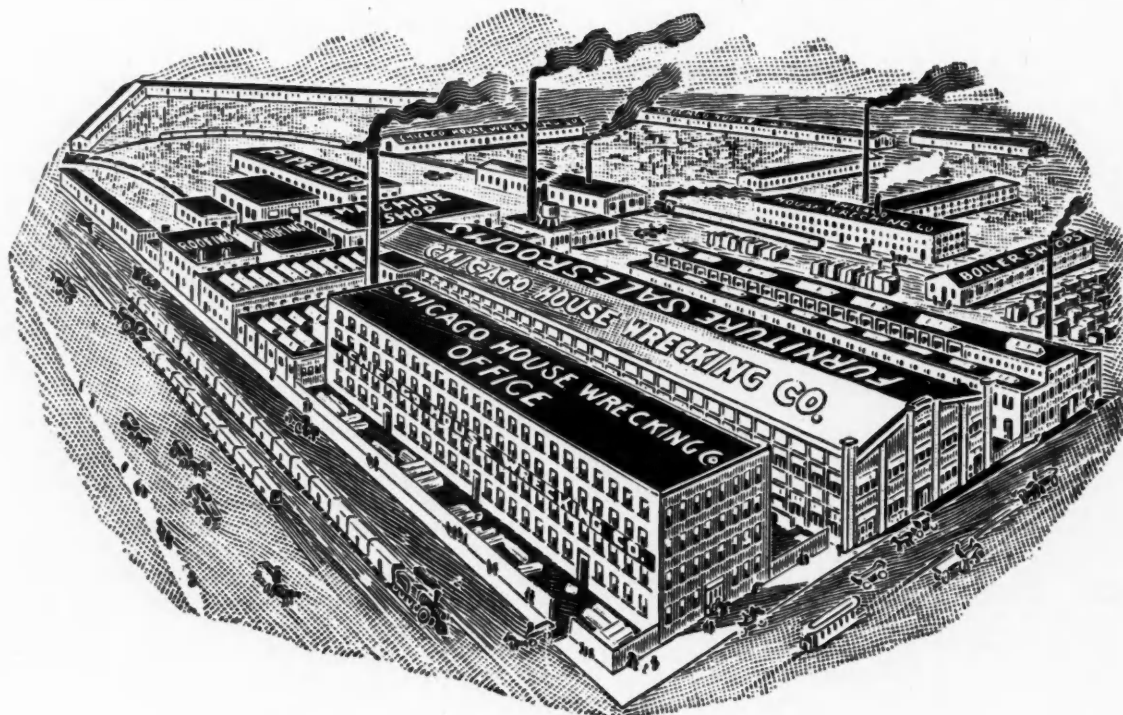
room moldings is increasing very fast, and the A. F. Kern Company makes one of the largest and most varied lines on the market. They also manufacture plate and chair rails, wall heads, cove moldings and end brackets. Be sure to read their advertisement, which appears in this issue for the first time, and write for Catalogue R. M. 39.

A Story of Western Enterprise

The history of the Chicago House Wrecking Company reads like a romance. However, there is not another concern in the world that is able to offer such genuine bargains in merchandise and supplies of every description. They issue mammoth catalogues three or four times a year, which contain bargains in everything that is needed by the carpenter or contractor. Their method of securing goods is unique. They buy millions of dollars' worth of the world's best products at forced sales. Their buyers are everywhere—not a sale of any

Asphalt" roofing, and "Rubberized Galvo" roofing, roofing cement and building paper are manufactured and shipped daily; boiler works and machine shops, where boilers, engines and machinery of every kind are overhauled, rebuilt, and put into perfect condition for further service, being practically good as new when leaving their shops; building supplies and lumber yard, containing millions of feet of lumber bought at forced sales from manufacturers. Also thousands of bargains in doors, windows, sash, building supplies, etc., all seasoned and ready for shipment. If you intend to put up a building of any kind, it will pay you to let them figure with you. This firm is the only concern in the world where you can buy lumber and all necessary supplies to build your house, a furnace, hot water plant or stoves to heat it, and furnishings for every room, including furniture, carpets, rugs, etc. Time, money and worry can be saved by placing your complete order with them.

Their reliability is unquestioned. With a capital of \$1,000,-



consequence takes place without the presence of their representatives.

You can read in your daily paper stories of commercial disaster, of business failures, sheriffs' and receivers' sales, underwriter sales, marine wrecks, etc. The Chicago House Wrecking Company is the clearing house for all merchandise from these sources. Everything purchased in this way is shipped to their mammoth warehouses in Chicago, where it is sorted and catalogued, ready for distribution among thousands of customers. Wise buyers save from 30 to 50 per cent by watching for these bargain sales.

The Chicago House Wrecking Company is the largest institution of its kind in the world and Chicago's greatest commercial wonder. Their mammoth warehouses, sales-room and yards cover an area of over thirty-five acres.

This picture will give you some idea of the magnitude of their plant. Here you will find everything under the sun, from a package of pins to traction engines, stationary engines from one to a thousand horse power—a veritable exposition in itself. The buildings include administration or office building, where over 200 stenographers are kept busy answering inquiries from every state in the union; roofing factory, where thousands of squares of steel and iron roofing, "Vulcanite

000 they stand back of their iron-clad guarantee, to give absolute satisfaction.

The Chicago House Wrecking Company was organized in 1892 for the purpose of purchasing and dismantling the Columbian Exposition at Chicago, the first great World's Fair. It was dismantled in a few months. The Pan-American Exposition was also purchased and dismantled by this company.

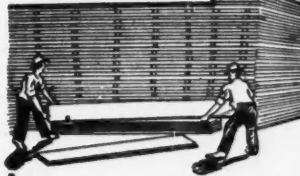
With this record of successful operations, it was natural that at the close of the Louisiana Purchase Exposition, the directors of this great undertaking should negotiate and successfully close a contract with the Chicago House Wrecking Company for the purchase of this famous world's fair. Every vestige of this grand exposition of arts, of mechanical wonders, exhibits from every country on the globe, was removed in less than a year and the material assorted, catalogued and sold.

Wrecking prices have come to be known as genuine bargains and associated only with the Chicago House Wrecking Company's name. This company stands between the consumer and high prices. Their business success is due to their economy in buying and their reduction of waste to a minimum. Every man who buys from them and is pleased with his transactions, sends them new customers, whether he realizes it

OUR GRAND 1908 OFFER

NEW LUMBER

FIFTY MILLION FEET AT REDUCED PRICES



BIG SPECIAL SALE

Bought at Forced Sales from Manufacturers. It makes us Headquarters for Thousands of Genuine Bargains in Lumber and Building Supplies. We save you money.

Save 30 to 60 Per Cent. Buy Direct. Building Supplies of Every Kind.

- Balustrades.
- Barn Sash.
- Bath Room Outfits.
- Beams.
- Boards, all Sizes.
- Building Paper.
- Casing.
- Ceiling.
- Cement Flooring.
- Gable Ornaments.
- Glass.
- Green House Material.
- Hardware.
- Heating Apparatus.
- Hot Bed Sash.
- Imitation Brick Siding.
- Joists.
- Lathing.
- Mantels and Fire Places.
- Moulding.
- Paint.
- Pipe.
- Plumbing Material.
- Porch Work.
- Roofing.
- Scantling.
- Sheathing.
- Shingles.
- Siding.
- Stair Work.
- Storm Windows.
- Studding.
- Timber.
- Water Supply Outfits.
- Nails.
- Window Frames.
- Sash.
- Wire.

The Chicago House Wrecking Co. Purchased at forced sales, 50,000,000 feet of new lumber. We are making special concessions to those who

buy at once. Our prices today are far lower than prices have been for years. Order now for immediate or future use. Quick action will save you big profits. Remember prices elsewhere which are even now high, are bound to rise. We can quote you 30 to 60 per cent better prices for the same lumber than your local dealer. We guarantee every carload to be exactly as represented. Closest inspection of our lumber stock invited.

Call at our warehouse and yards at Chicago and see the lumber we are offering and you will recognize that it is all we say of it. Make your own selection and see it loaded. It is not necessary to come to Chicago, however, unless you wish to. We can fill your order by mail with just what you want and guarantee you absolute satisfaction. Ours is the largest direct to the consumer lumber headquarters in the world. We sell millions of feet annually. Orders filled from

every part of the United States. No matter where you live you can save money by supplying your building wants here.

We do not figure fancy prices, but quote figures that command your patronage. Whether your order is large or small we can save you money on it. Our tremendous business of millions of dollars annually is your best guarantee of complete satisfaction of every purchase made from us. In our enormous stock of new lumber of every kind we have just what you need for every purpose. Don't buy a stick of material until you get our prices. We offer you everything in the lumber and building supply line needed for residences, farm homes, stores, churches, barns, outbuildings of every kind, sidewalks and fencing. In short any kind of a structure requiring lumber, at from 30 to 60 per cent less than your local dealers or lumber yards ask for it.

IMPORTANT! Send Us Your Lumber Bill For Our Estimate.

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Felt Roofing, per 100 sq. ft. 60c
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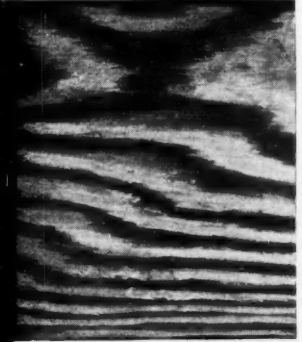
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| No. 126, Light Oak; | No. 130, Weathered Oak; |
| No. 110, Bog Oak; | No. 128, Light Mahogany; |
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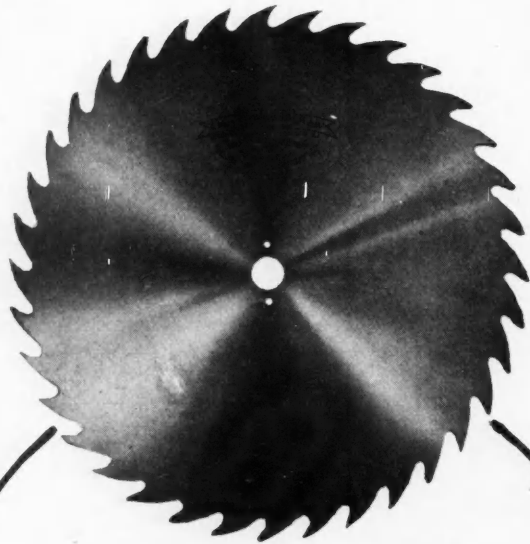
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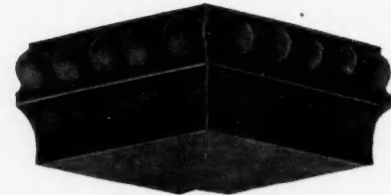
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These famous brick are made solely by the Bradford Pressed Brick Company, of Bradford, Pa., and have been their specialty since the organization of

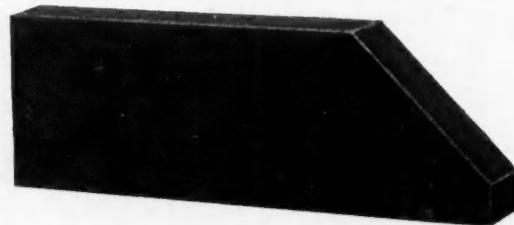


Standard Size
Ornamental



A "Return"

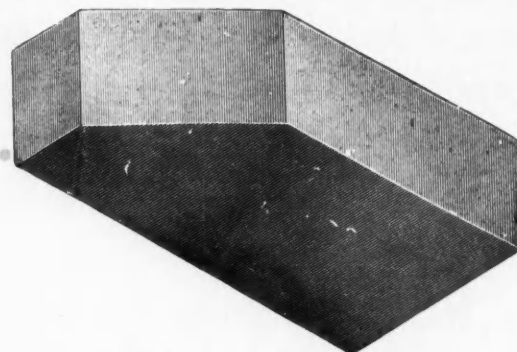
the company in 1893. No other firm makes real "Bradford's." No other firm can sell their product as "Bradford Pressed Brick" without infringing on both United States government



No. 5. Roman Size Moulded

and state trade marks granted the Bradford Pressed Brick Company.

"Bradford Pressed Brick" are produced from the celebrated



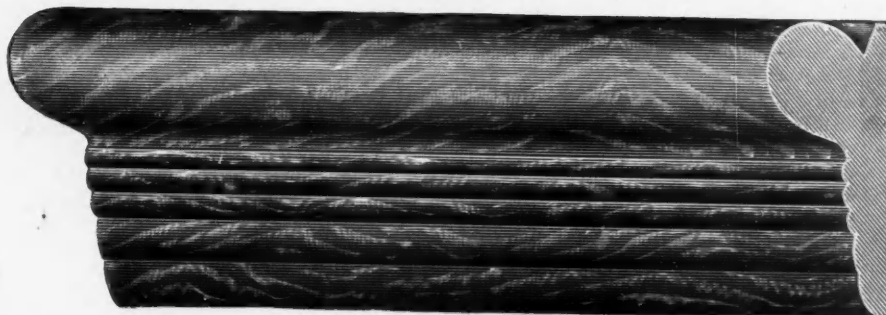
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Bradford shale, their color being that of the natural shale, and is absolutely unfading. It is not the mucky or brownish red usually seen in brick, but is a clean, bright, fresh red,

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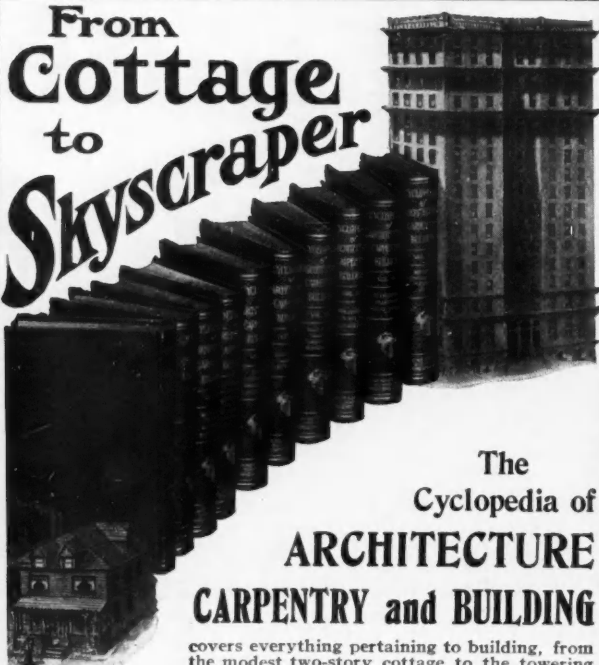
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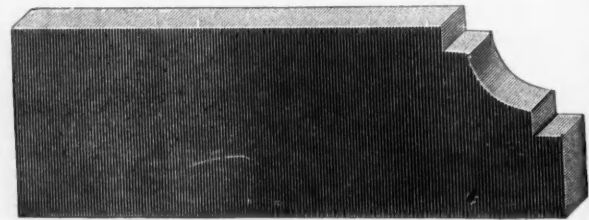
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a real red red. We cannot imagine a more beautiful red than the distinctive "Bradford Red."

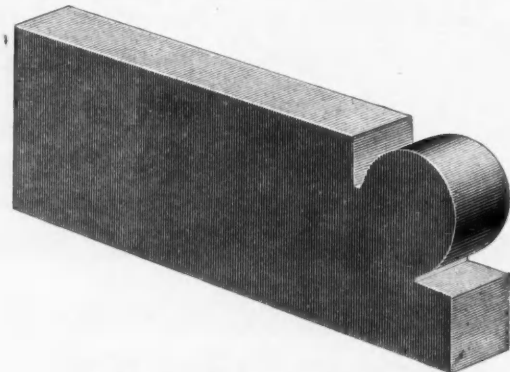
For fine building fronts and for beautiful fireplaces there is nothing more desirable than "Bradford Pressed Brick." The large and varied assortment of ornamental brick pictured in the company's catalogue suggests many handsome designs for substantial mantels.



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"Bradford Pressed Brick" are made the year around at



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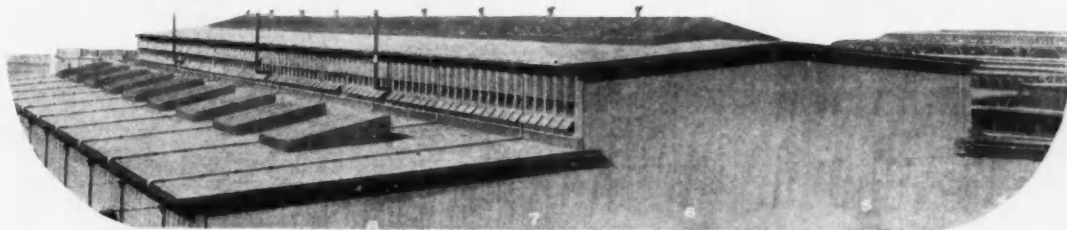
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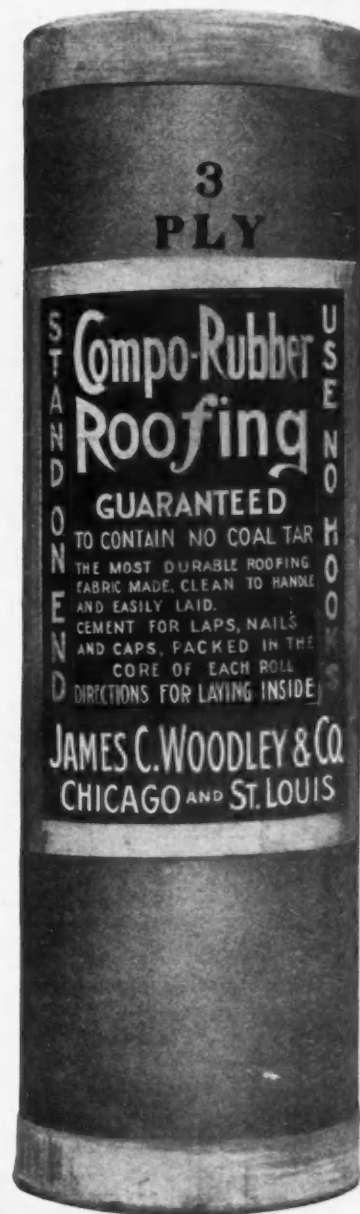
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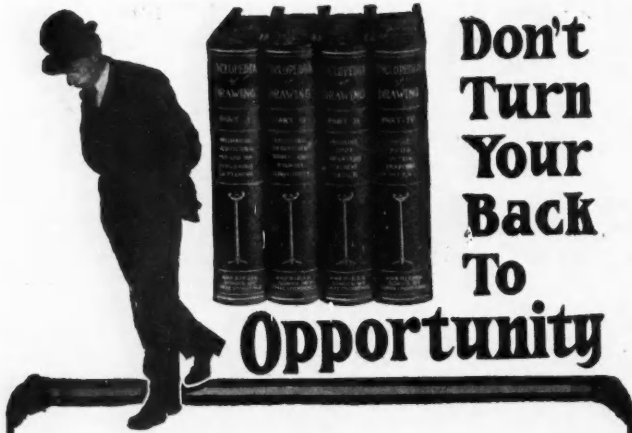
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Please send set Cyclopeda of Drawing for 5 days' free examination. I will send \$2 within 5 days and \$2 a month until \$9.80 is paid; otherwise I will notify you to send for books.

NAME

ADDRESS

EMPLOYER

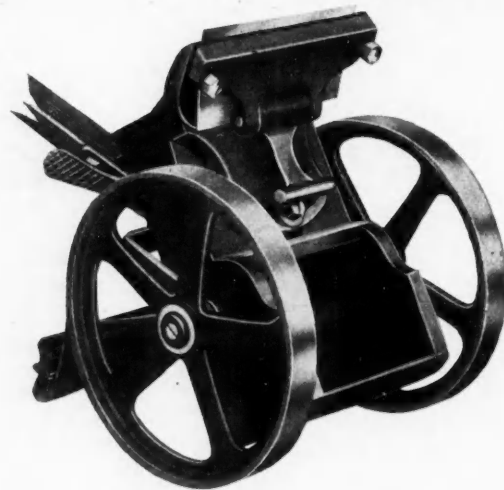
re-surfacing old floors, which it makes bright and clean and as good as new, saving the cost of relaying. It would pay every contractor to either buy one outright, or purchase the exclusive rights for his city or county, as territory is being rapidly taken up.

Ackermann's Rapid Floor Scraper

The latest floor scraper to be placed upon the market is the invention of John B. Ackermann, of Grand Rapids, Mich. It is known as Ackermann's Rapid Floor Scraper. One of its main advantages over others is an exclusive automatic brush attachment, which is patented and cannot be used by



other machines. The action of this brush sweeps away all shavings, grit, dust and other obstructions, keeping the floor clean as each cutting stroke is made, and prevents vibration and dulling of the knife blade. Another strong feature is a simple eccentric device by which the knife blade can be instantly moved or set at any angle, thus securing a "drawing cut," and bringing the blade across the floor surface with an even, hand-like movement. It is said no floor scraper can



be a success without this movement. By simply reversing the position of this machine (turning it over) it forms its own vise and the knife is ready to sharpen without removing it from the machine. More details and the facts as to Mr. Ackermann's guarantee and remarkable offer on this machine will be found in his page advertisement in another part of this issue.

Ornamental Iron Work

The Caldwell & Drake Iron Works, of Columbus, Ind., carry a full line of ornamental iron work, stairways, etc. They have also a structural department which is fully equipped to handle all heavy work for large buildings, etc. Their work, however, is not confined to ornamental and

Target and Arrow Old Style Tin

has protected this building for 20 years



Everybody in Birmingham, Alabama, knows the Hood Building, located at the corner of Third Avenue and 20th Street and owned by Mr. William Hood.

At the time it was built, twenty years ago, "Target-and-Arrow Old Style" tin

was selected for the roof. Although subjected to the roughest kind of treatment by telephone men, it is still giving good service. When, four years ago, a skylight was cut through the roof, the tin removed was found to be as good as new.

"Target-and-Arrow Old Style" tin offers the same durable qualities today that it did when the Hood Building was built. Its record proves that it is the most durable roofing material to be had.

Two booklets should be in the hands of prospective builders and property owners—"A Guide to Good Roofs" and the "Tin Roofers' Hand Book." We send them free to interested parties. Architects will find our catalogue on pages 308-309 of "Sweet's Index."

N. & G. TAYLOR COMPANY (Established 1810) **PHILADELPHIA**



Reg. U.S. Patent Office. There are over 250 imitations of this brand. Look for the "Target-and-Arrow" trade-mark on the genuine "Old Style."

heavy work only, as they solicit and fill orders for material for use in smaller work, such as beams, lintels, girders, cast iron columns, sidewalk lights, grates, etc., and with their well equipped shop and large stock of structural shapes, they are in position to fill such orders promptly. Drop them a line, mentioning the AMERICAN CARPENTER AND BUILDER, and receive full information and prices.

Cement Versus Clay

Cement brick manufacturers claim many points of superiority over clay brick, both in point of wear and cost of manufacture. A cement brick, they claim, hardens with age, its resistance to compression is greater, it absorbs moisture to a less degree, it is a non-conductor of heat, it cannot disintegrate, and it improves with age.

The Cement Brick and Block Machinery Company, 823 Majestic building, Detroit, Mich., are manufacturing a cement brick and block machine that is making money very fast for its users. It has a capacity of 20,000 brick per day, and with the machine comes every part and parcel of a complete power plant—machine, mixer, power, pallets, sifter, steel rack-cars, steel cars, elevator, etc.

A man, even with small capital, can begin a business at once with cement at a high figure and clay brick at the lowest and can clean up from twenty-five to seventy-five dollars per day.

In the construction of this machine, the tamping, or heavy drop principle, is used, this having proved itself conclusively to be the best principle. It makes a perfect, compact piece of concrete. Should one so desire it, his machine is so built that you can make the body of the brick of one material and the face with another. It is impossible, in this space, to

enumerate all the salient points of such a machine, but a card dropped to the Cement Brick & Block Machinery Company, 823 Majestic building, Detroit, Mich., mentioning the AMERICAN CARPENTER AND BUILDER, will bring you full information regarding it.

Sample and Catalogue Free



419

The Ornamental Products Company, of Detroit, Mich., manufacturers of lignine carvings, unbreakable, want to send sample of their wonderful product, and catalogue showing capitals, pilasters, rosettes, newel ornaments, drops, scrolls, heads and shields, to every user of wood carvings. If you use carvings, you want their catalogue. Write today.

Large New Factory Completed

After having been in the course of construction for a year and a half, the new factory of the Glidden Varnish Company, at Cleveland, O., is entirely completed and is in full operation, and the old factory, which has been the home of this company since it was organized in 1874 as Glidden, Brackett & Co.,

Do You Realize

That in your home all your money, deeds, mortgages, receipts, notes, jewelry, silverware, gifts, accounts—all your personal and most precious belongings that could never be replaced—are at the mercy of fire, sneak thieves and robbers, unless you have a Safe? That you can get this Bessemer steel safe on easy terms, and free trial.

Statistics show that millions of dollars in money, and more millions of precious belongings, including gifts and heirlooms, have been destroyed by fire and stolen by thieves because there was no safe in the house. This safe costs you only a small monthly payment—that's all (or pay cash if you like.) Our "credit to all" plan will put a safe in your home, and you will never miss the small amounts paid. Here is the grandest opportunity you will ever have to secure an absolute necessity in your house—a good genuine, Bessemer steel, fire-proof safe. Do not fail to write for our extraordinary plan. It will cost you but a penny to know all about it—write now.

We want to assure you that your writing to us places you under no obligation. If you do not have a safe in your home, do us the favor to write and say that you are interested in our Bessemer Steel Safe proposition, and see what we have to say to you. Perhaps you do not know that a good Bessemer steel safe could be sold at a price so very low as to place it within reach of every home. When it only costs you a postal card, hear what we have to say to you. You will thank your lucky stars that you saw, read and answered this advertisement. It is the squarest and best proposition that was ever made. Send us your name today sure, and don't lose by accident, or delay.

GET THIS SAFE ON EASY PAYMENTS

29 INCHES HIGH



SIZE This safe is especially adapted for the home and stands 29 inches high, or about the height of a dining room table. It is eighteen inches wide and twenty inches deep. Just the size for the home or small business. It has metal cash tray 8x5x5 inches with duplicate flat keys, drawer and two pigeon holes and book space 15x5x10 inches. Inside cabinet work is of hard wood, finished beautifully and carpet on the floor. The steel in the safe is genuine Bessemer steel, combination lock, and nickel trimmings. It is a beauty. Strictly high grade and fire-proof. Your name will be put on the safe in gold lettering. It is a bargain.

Delay Means Loss

Don't waste another minute—more delay may cost you the loss of your most precious belongings. The wise man protects himself and property. When you can have a good Bessemer steel, fire-proof safe in your house with very little outlay—DO IT! Don't leave your most valuable earthly possessions open to fire, thieves and robbers. A small cash box is worthless—get our Bessemer steel safe for almost the same money, and pay for it as you like. This safe you will learn is made by the oldest, most reliable and best known manufacturers of steel fire-proof safes and locks in the world. It is the best—and the cheapest.

Send Your Name on a Postal

We are in a position to furnish you one of these fine Bessemer steel, fire-proof safes at a price so ridiculously low, and on credit terms so wonderfully easy that you cannot afford to be without it in your home. All we ask of you is to send us your name and address today—a postal will do—so that we can send you the most wonderful proposition that you ever heard of. Sending us your name puts you under no obligation to buy. We just want to send you our plan, that's all. You may have the use of the safe in your home for thirty days free, if you like. Save hundreds, perhaps thousands of dollars. Write now. We give the best references in the world.

Write today and address

STANDARD SAFE AND LOCK CO., 1120 Medinah Building, CHICAGO, ILL.

LORENZEN MANTELS

\$2.50

to

\$250

YOUR HOME—Everybody's home should have a mantel. A mantel is useful as well as artistic and decorative. It saves you furnace heat on chill Spring and Autumn days, and diffuses cheer and comfort more than does any other piece of furniture in the house.

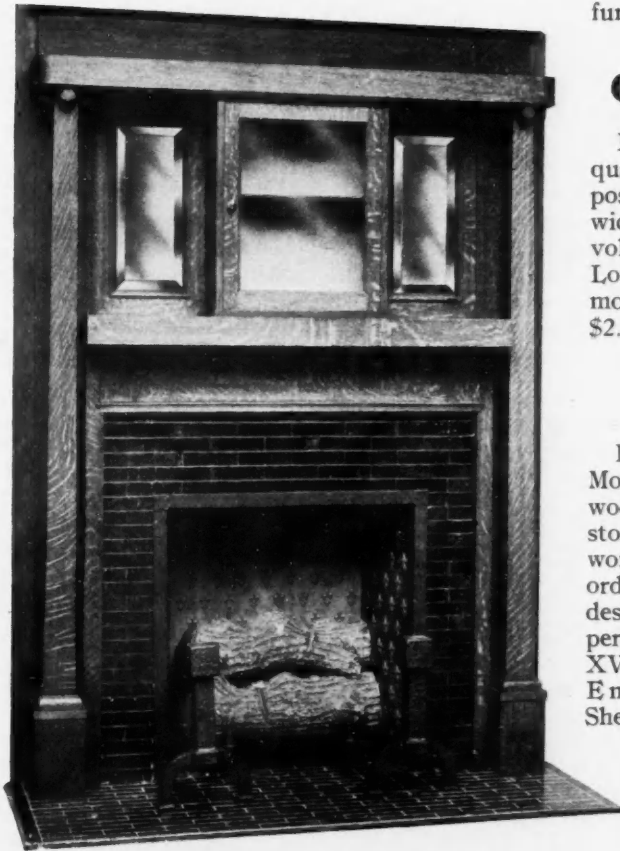
CHARACTER and QUALITY

Lorenzen Mantels have a distinct character and quality both in design and workmanship, not possessed by others. This has made for them world-wide reputation and enormous sales. The great volume of our output is what enables us to sell Lorenzen Mantels at such low prices. We have more than 100 designs and styles selling at from \$2.50 to \$250.00.

STYLES

Lorenzen Mantels embrace Colonial, Craftsman, Modern Mission and numerous other styles, and all woods and finishes. Our modern factory, large stock of air-seasoned lumber, and expert, skilled workmen all mean beautiful mantels, far above the ordinary. We are at all times prepared to furnish designs of mantels and fireplaces in the historic periods of architecture, such as Louis XIV, Louis XV, Louis XVI, Renaissance, Gothic, Rococo, Empire, Early English, Colonial, Chippendale, Sheraton, Adam, etc.

FREE CATALOGUE—The largest and finest catalogue of wood mantels ever issued, with photographic reproductions. Each copy costs us nearly a dollar to issue, but we send it **free** to all Carpenters and Builders. If you write for it now you won't forget.

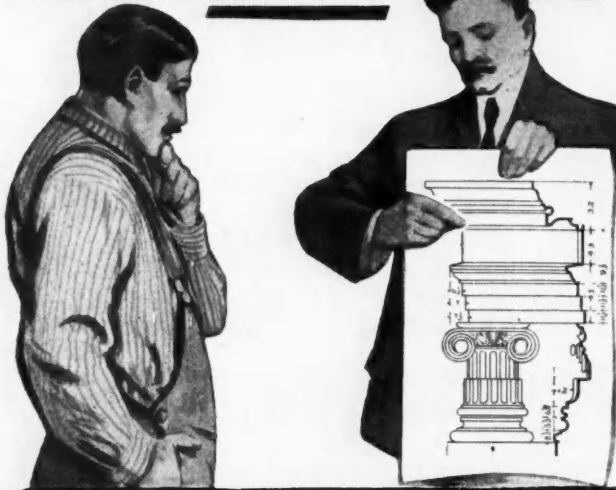


A unique mantel of great merit that looks well in any finish 5 feet wide 9 feet 10 inches high. French beveled plate mirrors 8 x 18 inches. Clear beveled glass 14 x 18 inches in cup board.

CHAS. F. LORENZEN & CO., Inc.
299 N. ASHLAND AVE., CHICAGO

LORENZEN
PAYS THE
FREIGHT

CAN YOU ACT



Must the architect continually stand over you and explain every important move—as he does with the other carpenters, builders, and draftsmen? Or can you act for yourself? Can you lay out a column or cornice in the Doric, Corinthian or Ionic styles?

Advance—learn something which the other fellows do not know. You can learn to design mantels, interior and exterior finish, porch columns, cornices in graceful proportions. Capitals, entablatures, friezes, entices, pedestals, pediments, colonnades and arcades no longer need be unfamiliar terms. You can learn to understand Tuscan, Doric, Ionic, and Corinthian styles of architecture. All this knowledge can be obtained without losing any time from your regular work.

FIVE ORDERS OF ARCHITECTURE

A simple treatise describing in a concise, interesting form the Greek and Roman orders. Illustrated with over 300 sections drawn to scale.

Two volumes, comprising one 522 page text book—page size 7x10 inches, and a handsome portfolio containing fifty-eight 11x15 inch detail plates of columns, cornices, mouldings, capitals, etc., drawn to scale, with measurements. In addition, there is a large number of full page photographs of the best examples of Greek and Roman Architecture, and a comprehensive list of definitions and pronunciations of architectural terms and a list of good books on the subject.

SPECIAL PRICE, \$9.80—REGULAR PRICE, \$16.00

Sent free for five days' examination, if you mention American Carpenter and Builder, Feb. 08. Pay \$2 within 5 days and \$2 a month until you have paid \$9.80, or notify us to send for it at our expense. Compiled from representative instruction papers of American School of Correspondence. We employ no agents, but depend upon the books to sell themselves, thereby saving you annoyance and agent's commission.

BRIEF SYNOPSIS OF CONTENTS

Greek and Roman Styles of Architecture—Tuscan Style—Doric Style—Ionic Style—Corinthian Style—Composite Style—Details of Corinthian and Ionic Capital—Proportions of Gables, Arcades, Colonnades, Columns, Capitals, etc.

Greek and Roman Ornamented Mouldings, Capitals, Bases, Cornices, Columns, etc., Section of Mouldings.

AMERICAN SCHOOL OF CORRESPONDENCE
CHICAGO

"DEFIANCE"

Wood Working Machinery

Band Saws and Swing Saws, Turning Lathes, Saw Tables, Jointers

Write for our 1907 catalogue
See our ad. page 502
in the Jan. issue

**The Sidney
Tool Co.**

SIDNEY, OHIO, U.S.A.



is idle for the first time in its history. This magnificent new plant, which has cost over a half million dollars, occupies seventeen acres and is built entirely of brick, concrete and steel, is the largest and most perfectly appointed exclusive varnish factory in the world, both in capacity for making and for storing varnish. It also has a very large and complete grinding department, where the celebrated Jap-a-lac is made. The company is naturally very proud of its new home, and extends a cordial invitation to visitors to Cleveland, who are interested, to call and inspect its works.

New Types of Block Machines

Ever since the hollow concrete building block established its claim to consideration at the hands of architects by reason of its stability and economy, there has been a studious search for improved methods by which the product might be turned out at a low cost and at the same time keep the quality up to the high standard to satisfy those enthusiasts in concrete who longed to see their favorite material take the lead in building construction.

Under their (copyrighted) trade name, "White Diamond Concrete," the damp-proof concrete block made by the "Berlin System," the Francis Concrete Machine Company, of 109 Market street, St. Louis, are standardizing the quality of the products of their machine, as they allow the use of their trade name only to the users of their machines, and in this way guarantee and keep up the high standard of quality and stability of the hollow concrete building blocks, bricks, window sills, caps and fence posts made on their machines.

All the old concrete block plants have their pallet troubles. The new style, 1908 model Francis machines are equipped to eliminate all such troubles. These new model concrete building block machines are now built so as to be adjusted to make any sized block up to thirty-two inches in length, and for any width of wall from six to eighteen inches in width.

The window sill and lintel plates will work with any Francis block machine end plate. These sill and lintel plates



are made in all lengths and are rolled from a single piece of tough tool steel with a smooth even surface and sharp corners, without a rivet or bolt on the face of the plate to mar the appearance of the finished product, which has the appearance of rubbed stone. The machine is adjustable to any width and shorter lengths.

With the new adjustment every Francis block machine is either a side or a down face machine at the will of the operator.



The Francis fence post machine is also made of tough tool steel, and molds a post with chamfered (cut off) corners. This eliminates a large amount of the unnecessary labor required on the old style machine, on which a square post is molded and the corners worked off with a trowel. The posts can be molded solid or hollow, as desired. Plates are also furnished for making a square post when desired.

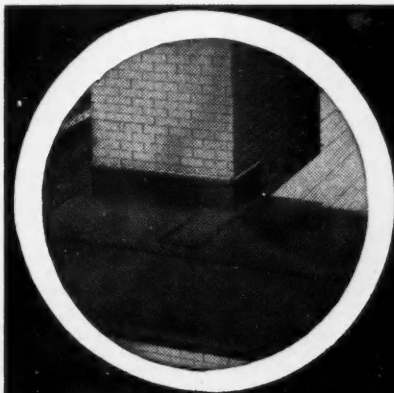
The entire plant of the Francis Concrete Machinery Company is now located under one roof at 109 Market street,

ROOFER'S BOOK AND INSTRUCTION SHEET **FREE**

Here is an important offer to American Carpenter and Builder readers. A big free offer that costs you **one cent** to accept. You will get free—postage paid—a fine roofing book published by The Heppes Co. and valuable **diagrammed instruction sheet**.

The Heppes Instruction Sheet covers every point of **laying Heppes No-Tar-Roofing**, now in such general use for roofing houses, barns, factories and all other structures where a leak proof, weather proof, fire resisting roofing is wanted. One that will last for years.

This sheet shows how to cut Heppes No-Tar-Roofing to avoid waste in going around steeples, chimneys, smoke stacks, etc. How to make a perfect flashing. How to cement laps to avoid leaks. How so lay a skin tight—perfectly smooth roof. How to make gutters and valleys—how to finish eaves. How far apart to place special nails to have best wearing roof. How to cover old shingles. How to roof on sheathing, etc. Write for this. Learn the right way to lay a roofing. It's the coming business. See address below.



Flashing—Roof Book, page 15, tells how to make.



Over Old Shingles—Roof Book, page 5, explains.



Valley Along Side Wall—Roof Book, page 14, makes it easy.

The Heppes Free Book is a catalog of Heppes Roofing and a book of valuable information on ready to lay roofing.

Do you know the difference between **roofing** and soaked building paper? Do you know what ply to put on a factory and what ply to put on a poultry house? Do you know relative cost of Heppes famous No-Tar-Roofing and shingles? Do you know which will wear longest? Do you know why a Heppes No-Tar roof can be buried under snow and ice all winter and remain leak proof, seams sound and not a crack in it? Do you know why the high heat point at which Heppes No-Tar Roofing is saturated with asphalt makes it proof against the sun and why sun never blisters it?

You ought to know !!!

You can learn the roofing subject so you can talk it to your customers !!

You can make money for yourself and stir up good, big jobs by going to farmers, property owners, factory owners

and stockmen, convincing them that the real roofing for their buildings is Heppes No-Tar.

How many buildings right now that you know in your town need new roofs? And think how many you could roof if you had the proof to show the owners!!

Remember Heppes No-Tar roofing is equally good on flat roofs, steep buildings, steeples, farm structures, factories and churches. Why, churches alone afford a big opportunity—and churches offer a good sized job.

We want to hear from every reader of this magazine.

We want to send our **special contractors' samples** to you free. We want you to get our extra literature from time to time.

We want you to get this profitable roofing patronage that is now going to waste—that no one is getting. Will you send a postal for the Free book, illustration sheet and contractors' samples, **now?**

HEPPES NO-TAR ROOFING

THE HEPPES COMPANY 624 South 45th Ave., CHICAGO, ILL.

St. Louis, Mo., and having greater facilities, are now able to handle all orders even more promptly than heretofore. They are issuing a new catalogue which should be in the hands of all cement users.

Ford's Galvanized Rubber Roofing

There are so many brands of prepared roofings on the market today that the owner desiring to use a first-class roofing article, as well as the contractor who values his reputation and is careful about what he recommends, should both be very careful to thoroughly investigate the quality of any roofing they consider purchasing. The Ford Manufacturing Company, of Chicago, have been making prepared, ready-to-lay roofing since 1865 and are one of only three manufacturers in the United States who make their own entire product. It stands to reason that a concern conducting the same business and growing each year for over forty years, must have gained unlimited experience and be able to produce the very best quality.

"Ford's Galvanized Rubber Roofing" is a trade-mark brand that has been made and sold for years and has been time-tested under all conditions and in all climates, for so many years that the Ford Manufacturing Co. give dealers, contractors and owners buying and using it three positive guarantees. They guarantee three-ply galvanized rubber roofing for fifteen years, two-ply galvanized rubber roofing for ten years, and one-ply galvanized rubber roofing for one year. The public is warned against buying the inferior imi-



tations of this celebrated roofing that are being sold by mail-order and catalogue houses under names that sound very similar. Remember the genuine is labeled, "Galvanized Rubber Roofing," manufactured by the Ford Manufacturing Company, Chicago. If you want to know more about what this roofing is and why it is called "Galvanized," write to the Ford Manufacturing Company, 115 West Washington street, Chicago.

Interesting Prize Contest

A very careful canvass of the field by the Miracles and their representatives during the past year, has shown to them a very highly satisfactory improvement in the quality of concrete products generally being turned out, and has satisfied them that there is a strong tendency towards more studious methods and eager anxiety for improvement in appearance, texture, and the general quality of cement products.


Following their enormous campaign of general publicity advertising, and realizing this forward tendency, and desiring further to stimulate it to the greatest possible degree, the Miracle Pressed Stone Company has decided to offer to manufacturers of concrete products, using their various machines, molds and equipment, a total of \$600 in cash prizes, for the best specimens of products submitted at the next Chicago Cement Show, which will occur the latter part of 1908.

This we predict will result in a very lively competition for a great many reasons, the principal one of which is the educational value of such a contest to the trade in general, in that it will stimulate them throughout the year to exert every effort to obtain a higher class product than they have heretofore made.

If you are manufacturing concrete products, it will certainly be worth your while to take home one or more of these blue ribbons.

The prizes will be divided as follows:

Two hundred dollars for the best specimens of concrete



"NICE" LIQUID WOOD FILLER

THE RECOGNIZED STANDARD SURFACER

It dries flat, works freely, does not show laps and requires little, if any, sandpapering. Light shade is perfectly transparent and will not mar the color of the lightest woods. It enables the finisher every time to make a high-class job with two coats, one of "Nice" Filler and one of Varnish or Hard Oil. It makes the very best flat stain by simply adding color in oil to suit. It has remarkable covering capacity (800 square feet to gallon) and is the most durable coating known for natural woods.

Will you let us send you our booklet "Natural Wood Finishing," just off the press? It's worth having and will only cost you a postal.

EUGENE E. NICE, Manufacturer of everything in Paints, Fillers and Varnishes for interior and exterior painting and finishing **272-274 S. 2d St., Philadelphia**

STATE _____

TOWN _____

NAME _____



TRAVELING SALESMEN

EARN \$2,000 TO \$10,000 A YEAR.

We teach you to be one by mail in eight weeks, and secure you a position with reliable firm. Experience unnecessary. Write for free Catalogue, "A Knight of the Grip." Address letters to National Salesman's Training Association, Dept. 127 Monadnock Bldg., Chicago, Ill., Lumber Exchange, Minneapolis, Minn., or Scarritt Bldg., Kansas City, Mo. Write nearest office and mention this paper.

FORD'S GALVANIZED RUBBER ROOFING

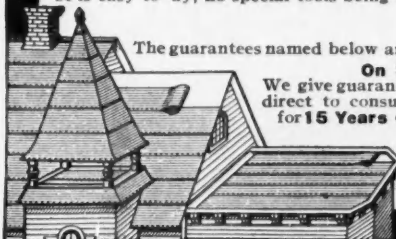
Forty Years of Reputation In it and Behind it

Ford's Galvanized Rubber Roofing is "as good as the best and better than the rest." We make it in our own mills. It is easy to lay, no special tools being required.

The word "Galvanized" means something. It covers our special manufacturing process, which is the development of forty years' experience. If your dealer does not carry this roofing write us for sample.

THE GUARANTEES WE GIVE

The guarantees named below are positive and are **BASED ON ACTUAL TIME TESTS** in all climates and under all conditions.



On 3-Ply
We give guarantee through dealers direct to consumer or contractor for **15 Years** on Three-ply.

On 2-Ply
We give guarantee through dealers direct to consumer or contractor for **10 Years** on Two-ply.

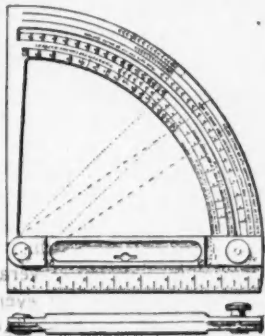
On 1-Ply
We give guarantee through dealers direct to consumer or contractor for **5 Years** on One-ply.

WARNING: This roofing cannot be bought of "mail order" or "catalog houses" and the public are warned against cheap imitations sold under names closely resembling our brand.

FORD MANF'G CO. 31 S. Desplaines St.
ESTABLISHED 1865 CHICAGO

A NEW TOOL FOR CARPENTERS

PRICE \$3.50. A. O. Calhoun, Patentee, Victor, Mo.



The **Rafter and Polygon Bevel** is a handsome, practical, durable tool particularly adapted to cutting rafters, etc., and it should be in the hands of every carpenter and joiner in the country. The calculations in cuts, pitches, lengths, etc., given on this tool are more nearly correct than can be found on any square on the market, the calculations having been carried out to the hundredth part of an inch. It is the embodiment of the draft-board, square, try-square, bevel-square, plumb, level and bevel-protractor in one small compact and convenient tool.

WHAT SOME MECHANICS SAY ABOUT IT:

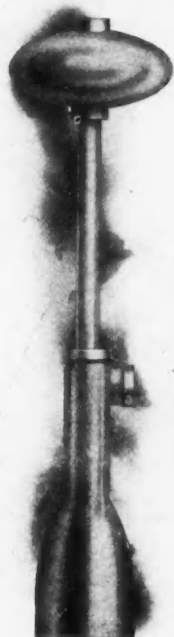
Indianapolis, July 15, 1907.
Mr. Calhoun has demonstrated the workings of the tool before the various local unions and District Council of this city, and we believe it is the best mechanical device of its kind ever put on the market. Chas E. Bacon President. Z. F. Carrigan, Secretary.

Cleveland, Ohio, Oct. 7, 1907.
Mr. Calhoun: After examining your Rafter and Polygon Bevel would say that I consider it one of the most complete froming tools I have seen. O. C. Kagelmacher, Mechanical Laboratory, Case School Applied Science.

Any reader of this Magazine can secure one of these tools by remitting \$3.50 direct to

J. R. CALHOON, : : : : : Paris, Mo.

HOT WATER HEATING



Installed at **Lower Cost** and made **50% More Efficient** by using the **HONEYWELL SYSTEM**

- ☐ Over 6,000 systems installed in 1907.
- ☐ If you don't know about this simple, efficient and sightly system, write us for full information before contracting.

The Honeywell Heating Specialty Co.
WABASH, IND.

When You Build Beautify Your Home

By Using

Polygon Pipe
It Excels

all conductors in

Beauty, Strength and Durability.

Address Dept. C.

THE AMERICAN ROLLING MILL CO.
MIDDLETOWN, OHIO.

"DE-LIGHT-ED"

is a favorite expression of our strenuous President. And, whether they say it or not, it is the correct word to express the feelings of those who own a

DUPLEX

PHONOGRAPH The biggest, best-finished clearest toned talking machine ever sold for twice what we ask for it, delivered anywhere in the United States.

**FREIGHT PREPAID
ONLY \$29.85**

Two vibrating mica diaphragms in a closed sound box. Two 30-inch silk covered horns with 17-inch bells to amplify the sound waves. All the latest record-saving improvements, belonging exclusively to the Duplex. Plays all makes and sizes of disc records (at a recent test the Duplex played one of our rival's records 538 times before it broke down; our rival's own machine broke down the same kind of record in less than 200 playings).

SEVEN DAYS' FREE TRIAL

in your own home. Mighty sight better tests than hearing a cute dealer play a few records in his store. You can decide without being wheedled or coaxed. And if you are not satisfied that the Duplex has a clearer, more mellow and natural tone; is bigger and better finished and is in every way better than other makes costing twice or three times as much—just send it back by freight at our expense and get

YOUR MONEY BACK

Pleased users of the Duplex at 3,500 postoffices sound its praises. Ask for list and our beautiful

**CATALOGUE
FREE**



Cabinet 18 in. long, 14 in. wide, 10 in. high. Each horn 30 in. long, and 17 in. bell.

WRITE A POSTAL CARD TO-DAY

DUPLEX PHONOGRAPH CO.,
16 PATTERSON STREET, KALAMAZOO, MICH.

FREE BOOK ON ESTIMATING

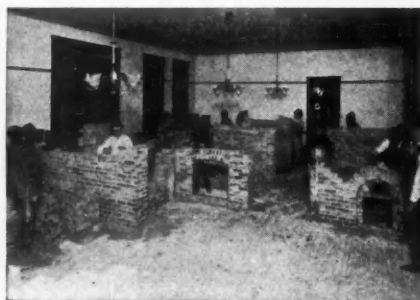
To demonstrate the high standard of our instruction, we will mail a copy of our "First Book on Estimating" to any reader of The American Carpenter and Builder who sends us the names, addresses and occupations of three persons interested in our home study courses, together with ten cents in stamps to cover cost of mailing.

This book is written by Edward Nichols, Architect, Boston, 64 pages 7x9 inches in size. Handsomely bound in cloth. Would easily cost \$1.00 in any store. Covers Prices, Profits, Percentage, Methods of Estimating, Approximate Estimates, Estimating by the Square, Estimating by Quantities, Rules, Tables, Scale of Wages, Estimating Excavation, Foundations, Stone Work, Brick Work, Carpentry, Framing, Flooring, Inside and Outside Finish, Stairs, Amount of work to be done in a day in the different trades, Cost of Labor per square, Work by the piece, Hardware, Nails, Roofing, Plastering, Painting, Heating, furnace, steam, hot water, Plumbing, Drainage, Gas Fitting, Electric Wiring for light and bells, etc.

Our illustrated 200-page handbook FREE on request. Describes over 60 Home study courses, including Structural, Electrical, Mechanical and Civil Engineering, Architecture, Contractors and Builders Course, etc. Mention American Carpenter and Builder Feb., 08.

AMERICAN SCHOOL OF CORRESPONDENCE
CHICAGO

Bricklaying Taught by Practical Bricklayer



**In Two to Three
Months**

Begin now. Bricklayers are in big demand. As we teach bricklaying exclusively we turn out the most expert mechanics.

Individual Instructions. You start right in with the tools and learn how to lay brick.

Write for Circular

CHICAGO SCHOOL OF PRACTICAL BRICKLAYING
Henry T. Kies, Prop. 2115-17 W. Adams St., Chicago

block, which will be subdivided as follows: First, \$100; second, \$40; third, \$30; fourth, \$20; fifth, \$10.

On tile, sewer pipe and brick \$200, to be divided as follows: First, \$100; second, \$40; third, \$30; fourth, \$20; fifth, \$10.

On ornamental stone, \$200, to be divided as follows: First, \$100; second, \$40; third, \$30; fourth, \$20; fifth, \$10.

Those desiring to enter this contest should notify the Miracle Pressed Stone Company, Minneapolis, at once, and they will receive in return a complete circular of information concerning the conditions of the awards. This information will give the points of merit upon which the prizes will be awarded, manner of selecting judges, and in fact complete instructions concerning the whole proposition.

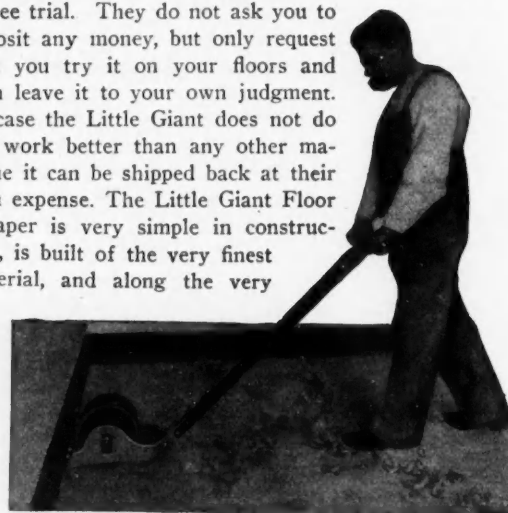
Pays to Use Hardwood

No one is more familiar with the advantages of oak floors and interior finish over pine than the carpenter and contractor. Undoubtedly the general public has an exaggerated idea as to the extra cost of oak floors and trim, and as a consequence pine is specified in a great many contracts where a few plain figures showing the small additional cost of oak would mean a change to the latter. The page advertisement of Gordon, Van Tine Co., of Davenport, Iowa, in this issue, not only shows the trifling extra cost of oak, but contains some very valuable suggestions to the carpenter or contractor who seeks to make every house he builds an advertisement for himself.

The Gordon, Van Tine Company is the largest independent concern in the world selling millwork and building material direct from factory to user. The prices they quote on oak, as you will see from their advertisement, are extraordinarily low. By dealing with this company you can save an average of 50 per cent of the retail dealer's price. They sell everything except rough lumber, and issue a very complete catalogue. Write them for a copy. It will save you many a dollar.

An Exceptional Offer

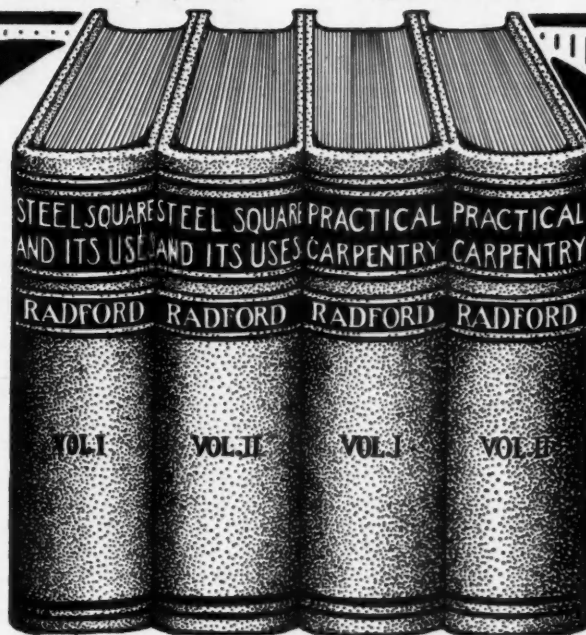
The Hurley Machine Co., 155 So. Jefferson street, Chicago, are making an exceptionally fine offer to anyone interested in a floor scraper. They guarantee the Little Giant Floor Scraper, the only successful scraper on the market, and in backing up this statement they offer to send it to anyone interested, at their own expense, for a free trial. They do not ask you to deposit any money, but only request that you try it on your floors and then leave it to your own judgment. In case the Little Giant does not do the work better than any other machine it can be shipped back at their own expense. The Little Giant Floor Scraper is very simple in construction, is built of the very finest material, and along the very



It Works Close Up

simplest lines. They claim that one man with a Little Giant can scrape 800 square feet of floor space in eight hours, and it will pay for itself in a very few days. They have at the present time 10,000 Little Giants in use in every

OPPORTUNITY TO INCREASE YOUR INCOME



FOUR NEW BOOKS

Edited Under the Personal Supervision of
WILLIAM A. RADFORD

Editor in Chief of the AMERICAN CARPENTER AND BUILDER

Assisted by ALFRED W. WOODS and WILLIAM REUTHER

THE STEEL SQUARE AND ITS USES

TWO VOLUMES

A Complete Encyclopedia on the Practical Uses of the Steel Square

JUST PUBLISHED. This very valuable and practical work is published for the first time. It is up to the minute, being issued January 1, 1907. This splendid edition is a brand new book from cover to cover, written in simple, plain, every-day language so that it can be easily understood and followed. Information of value that has appeared in former works appears in this work, together with a vast amount of new, practical, every-day information, such as is necessary for every progressive and successful artisan to know.

REMEMBER, this work is absolutely up to date (being issued January 1, 1907). Each volume measures 6x9 inches, and contains over 300 pages, being the largest books on the steel square ever published. They are bound in cloth with attractive cover designs, handsomely stamped. Printed on the best quality of paper. Each volume contains 50 modern house plans.

PRACTICAL CARPENTRY

TWO VOLUMES

A Complete Up-to-Date Explanation of Modern Carpentry

NEW SPECIAL EDITION. This work, "Practical Carpentry," is absolutely new, being completed only January 1, 1907. It is written in simple, plain, every-day language so that it can be easily understood. It will not bewilder the working man with long mathematical formulas or abstract theories.

SPECIAL CHAPTERS are devoted to building construction, which takes the carpenter from foundation to roof, with complete illustrations of each detail, such as foundation, windows, cornices, doors, roofs, porch work, etc. There are also special chapters devoted to good and faulty construction and all kinds of framing.

Price Per Volume

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Advertisements under this heading will be inserted at the following rates.
 One month.....\$0.45 per line
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 Count 10 words to the line. Situations wanted one-half above rates.
 Replies may be addressed in our care and will be promptly forwarded.

Help Wanted.

FREE PENCILS TO CARPENTERS. see ad. on page 550 Gage Tool Co.

AGENTS WANTED for the O-K. Weatherstrip. Made of Aluminum Coated metal, it possesses the rigidity of steel and is guaranteed absolutely rust proof. Best door and window bottom strip on the market. Price is right. Satisfaction and money in handling it. Carpenters and contractors supplied. For full particulars, write The Introstile & Novelty Co., Marietta, Ohio.

For Sale.



PATENT RIGHTS FOR SALE

The patent rights are offered for sale of an Adjustable Sliding Parlor Door Hanger. Note in the photograph the easy adjustment. It can be lined up in case of any settlement, which occurs in every new house more or less. With the use of a screwdriver can be instantly and easily made to fit every condition. The adjustment can be used on any adjustable track. Patent will be valuable to any manufacturer looking for an article which would be in instant demand by contractors as soon as its merits are known. Patent rights will be sold on reasonable terms. Address, J. A. KUSTER, PLYMOUTH, WIS.

Business Opportunity

GOOD OPPORTUNITY in growing city of 10,000 population for experienced founder and machinist, or several parties; right man or men with capital can secure some assistance financially by local business men. Address, for further information, A. F. Buechler, Sec'y Commercial Club, Grand Island, Neb.

House Plans.

IF INTENDING TO BUILD send 25c for catalog of inexpensive houses. Plans and Photos, with cost—\$900 to \$5,500. LATEST AND BEST IDEAS. Plans, \$1.00 up. The C. A. Eastman Co., Architects, Des Moines, Iowa.

PLANS—Are you thinking of building a small cottage? I have something new in construction, cheap and practical, fire-proof, just the thing where lumber is scarce and expensive. Plans for three-room cottage complete, floor plans, front and rear elevations, and section showing the construction in detail, a regular working plan complete, a saving of 40 to 50% in the cost of material and labor, mailed for 50c.

W. W. DANIELS,
 No. 3525N. Newstead Avenue, St. Louis, Mo.

Patents.

G. L. PARKER, Solicitor of Patents, 20 Diets Bldg. Washington, D. C. Handbook for inventors sent free upon request.

SLATE WE HAVE WHAT YOU WANT

*In Roofing Slate, Slate Blackboards
 Structural and Plumbers' Slate*

SATISFACTION GUARANTEED IN QUALITY AND PRICE

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WHO WANTS SLATE?

Roofing Slate for Houses, Barns, etc. Always clean, beautiful and fireproof. Blackboards for Schools, Colleges, etc. Needs no commendation; universally used all over this and other countries.

Structural Slate. Electrical Stock, Sinks, Troughs, Washtubs, etc. Superior to all stone for such purposes.

Slaters' Supplies. Handmade Slating Tools, Felt, Cement, Nails, Snowguards, Punching Machines, etc.

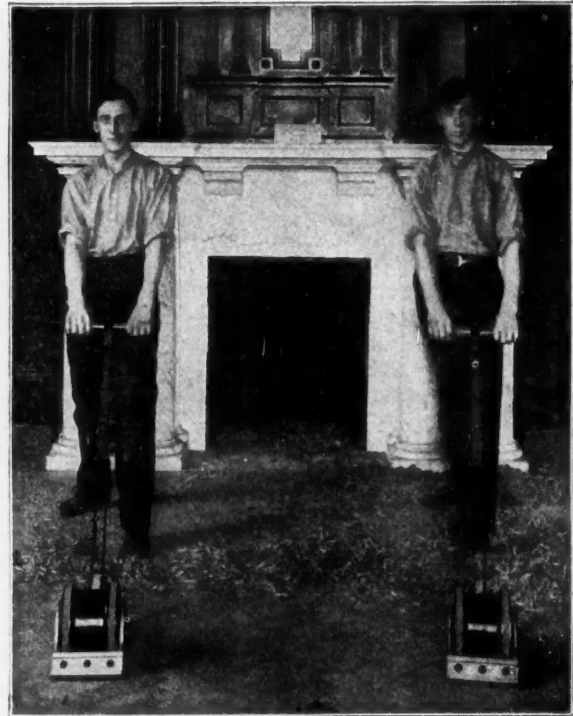
Write for prices and I will tell you all about Slate.
 DAVID MCKENNA, Slatington, Pa., U. S. A.

ATTENTION, CONTRACTORS

You cannot afford to be without Grinnell's Estimator and Builder's Pocket Companion. A handbook for Carpenters, Masons and Painters. Anyone of many of its pages is well worth the price of the whole. Send \$1 and be convinced, remembering that if not satisfactory your money will be refunded on receipt of book. Address Grinnell Pub. Co., Medina, N.Y.

part of the world, which shows the favor with which it is being met on every hand. They furnish twelve imported steel knives with each machine and a complete equipment for keeping them sharp.

The best method of deciding which is the best floor scraper,



is to give it a trial. The Hurley Machine Co. will pay the freight both ways if not satisfactory, without any expense on your part, and it shows the confidence they have in their machine.

Great Record on a Pettyjohn Machine

The Pettyjohn Company, of Terre Haute, Ind., is in receipt of a very gratifying letter from Mr. S. W. Sharp, who is one of the users of the Pettyjohn portable upright model block machines in Claremont, Va. Mr. Sharp writes:

"We have just finished a large barn, 40 by 60 feet, two stories high. Twelve-inch blocks were used in the walls and my men made for this job on one machine, which was the one purchased from you about two years ago, 600 blocks, size 7½ by 20 by 12 inches, in ten hours, with five men mixing the material by hand and doing all the work. Can you beat that? If you can, we will make another record."

Mr. Sharp further wrote that his blocks had attracted much favorable attention, and that he had had many inquiries as to what machine they were made on and what machine was the best. His invariable reply was that the Pettyjohn portable machine is the best and fastest on the market.

In this connection, the Pettyjohn Company advise that they have now passed the 6,000 mark for sales on this particular type of machine, and that every one of the machines was sold under a binding guarantee to give satisfaction or money refunded. A number of recent shipments have been made to various departments of the United States government, several of which were duplicate orders to the same department. Quite an extensive work is being done at the Brooklyn Navy Yard with machines of a special size, built to order for the heavy work usually called for in government specifications. The Standard Oil Company and its branches now has in active service 43 of the Pettyjohn portable upright model machines. These are principally used along the various

ROLLED GOLD SPECTACLES GIVEN AWAY



DON'T SEND ONE PENNY. Just write me your name and address and I will mail you **at once** my Perfect Home Eye Tester and Rolled Gold Spectacle Offer absolutely **free** of charge.

You see, I want to prove to every spectacle-wearer on earth that the Dr. Haux famous **Perfect Vision**

Spectacles are really and truly ever so much better than any you have ever worn before—and I am going to give away at least one hundred-thousand pairs of the Dr. Haux famous **Perfect Vision** Rolled Gold Spectacles in the next few weeks, in order to introduce my wonderful glasses to the **largest** number of spectacle-wearers in the **shortest** possible time.

Write **today** for my free Home Eye Tester and Rolled Gold Spectacle Offer. Address:—

DR. HAUX SPECTACLE CO.

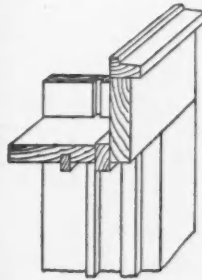
Block 227, ST. LOUIS, MO.

I ALSO WANT A FEW AGENTS, and any person not earning at least \$50 weekly should ask for my Special Agents Terms at once.

NOTE—The above is the Largest Mail Order Spectacle House in the World and perfectly reliable.

Special Prices

For This Month Only



Window Frame
Dimensions

Pulley Stile,	$\frac{1}{2} \times 4 \frac{1}{2}$	} Poplar, Yellow Pine or Cypress
Outside Stop,	$\frac{1}{2} \times 1 \frac{1}{2}$	
Sill,	$\frac{1}{2} \times 5 \frac{1}{2}$	
Subsill,	$1 \frac{1}{2} \times 3 \frac{1}{2}$	
Outside Casing, $1 \frac{1}{2} \times 4 \frac{1}{2}$		
Water Table,	$\frac{1}{2} \times 1 \frac{1}{2}$	

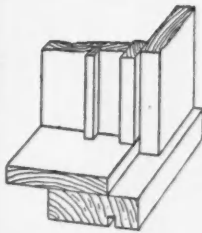
Prices F. O. B. Your City

Opening 2 feet 5 inch wide,
by 5 feet 6 inch high or
smaller, each, \$1.45

Opening 2 feet 11 inch wide,
by 6 feet 2 inch high or
smaller, each, \$1.65

Crown Mould Caps 15 cents each
additional.

With $\frac{1}{4}$ inch Outside Casing 10
cents each less.



Section.

All Frames Complete with Pulleys

The Malta Manufacturing Co.
MALTA, OHIO

THE FAVORABLE IMPRESSION



Petz Corner Post

Does away with old-fashioned pillars and posts. Note steel bar which insures rigidity.

produced by an attractive store front is an asset of great value to any merchant. Its advantages are many—the cost slight in comparison. Carpenters, Builders and Architects who want the best

Specify **PETZ** PATENT STORE FRONT CONSTRUCTION *Made in Detroit*

the simplest, lightest, strongest, most durable construction made. Lets in every ray of light—gives every inch of space, and is endorsed by Plate Glass Insurance Companies. Lowest insurance rates.

NOTE: Glass can be set from the outside. For more information write for "LISTEN TO PETZ"—free on request.



Petz Transom Bar

Made in any finish. Samples on request.

DETROIT SHOW CASE CO., 491 West Fort St. DETROIT, MICH.

WE CAN SAVE YOU MONEY

Jail Cells and Window-Guards

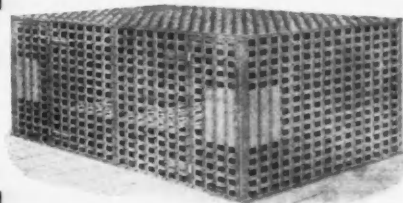
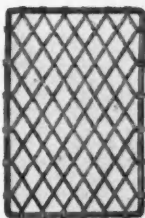
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Catalogue on Request

OHIO STRUCTURAL IRON COMPANY

Warren Street

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LIGNINE CARVINGS, UNBREAKABLE

Will they break or check? No Sir! Will they crack or shrink? No Sir!

LIGNINE CARVINGS are stronger than wood.

Are attached by nailing and gluing.

Are finished with filler or stain.

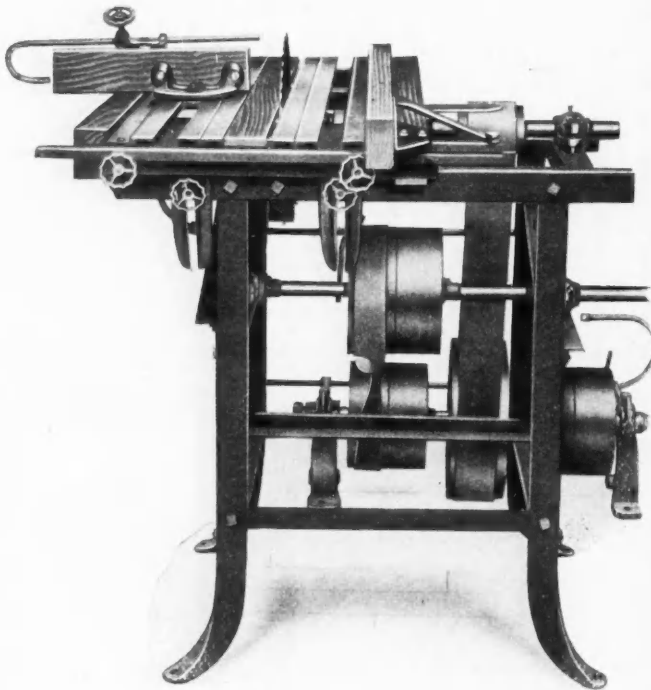
Write for sample and catalogue showing Capitals, Pilasters, Newel Ornaments, Drops, Rosettes, Scrolls, Shields, etc.

ORNAMENTAL PRODUCTS CO., 552 W. Fort St., DETROIT, MICH.

pipe lines for the purpose of building pumping stations, warehouses and office buildings. More recently the experiment has been tried in using the blocks for the erection of tall smoke stacks, which are necessary adjuncts to the pumping stations. This experiment has evidently proven successful, as the oil company is now getting estimates for the erection of a number of additional smoke stacks of similar type.

A Rip and Cross Cut Saw

The machine illustrated herewith will be of special interest to our readers. The stand is made of angle iron, as it can be made this way much cheaper; the corners are so lapped together that it makes a thoroughly practical and strong frame and can be easily made to order any size desired. It is so arranged that a number of attachments can be added to the machine without interfering with the circular saw. The shaft and pulleys below the saw are intended for driving, boring and band saw attachments. The rip guide has convenient adjustment for sawing different widths and the cross cut guide has angle adjustment; also adjustable stop for saw-



ing different lengths. Besides this they manufacture a self-feed sand drum and a six-inch jointer and tenoning machine, all of which may be added to the above equipment by simply increasing the length of the stand.

This company makes a full line of hand, foot and belt power woodworking machinery with the wonderful improvement of ball bearings, which makes the lightest running machinery it is possible to produce. All readers of the AMERICAN CARPENTER AND BUILDER will do well to write them for their catalogue and special February price list, No. 10, before purchasing any woodworking machinery. Address Parks Ball Bearing Machine Company, Cincinnati, Ohio. Fergus and C. H. & D. Ry.

New Cover on the Advocate

The Cortright Metal Roofing Company, of Philadelphia, can always be depended upon to stir up something new around the first of the year. The January issue of their *Cortright Metal Shingle Advocate* is out in a new cover, one of the prettiest they have had. The illustration is timely and suggestive, and the editorial work is fully on a par with the good work of the past. One would imagine that with all they

have said about the Cortright shingle that the subject would be about exhausted, yet the leading article, "Get Your Money's Worth," is full of new suggestions, and well worth the time spent reading it. The *Advocate* is sent free to anyone desiring it, the object being to create interest in the Cortright shingle. The articles are well worth reading. They give lots of practical suggestions that create new thoughts about roofing which are apt to be overlooked by those who are not giving their whole time to building.

Second Edition of an Attractive Catalogue

The Crescent Machine Company, of Leetonia, O., found that their 1907 catalogue was in such demand that they were obliged to issue a second edition. They expected to have their 1908 catalogue ready for January 1, but have been so busy filling orders that they found it impossible to get it out on time. They are planning to make their 1908 book much larger and are now working on drawings and patterns for several new machines that will be included. This second edition of the 1907 book, however, is very complete, and gives all the necessary information regarding their popular woodworking machinery. They will be glad to send it to any one interested.

PREVENTS DRAFTS, DUST AND WINDOW RATTLING.

IVES' PATENT
Window Stop Adjuster.





PATENTED.

The only Stop Adjuster made from one piece of metal with solid ribs and heavy bed that will not cup, turn or bend in tightening the screw. Manufactured only by **The H. B. IVES CO., New Haven, Conn., U. S. A.** (Fifty-page Catalogue Mailed Free.)



FREE ANDREWS HEATING CO.

Send us two or more names of persons who are interested in or want to buy Hot Water Heating Plants and we will send this scale. Back inches are divided into 8, 10, 12, 16, 20 and 40 parts. Also free catalog on request. See our two-page ad in American Carpenter and Builder for January, 1907.

ANDREWS HEATING CO. 949 Heating Bldg. Minneapolis. 978 La Salle Bldg. Chicago.

Ten Days' Free Trial



allowed on every bicycle we sell. We **Ship on Approval** and trial to anyone in U. S. and *prepay the freight.* If you are not satisfied with bicycle after using it ten days *don't pay a cent.*

Factory Prices Do not buy a bicycle or a pair of tires from anyone at any price until you receive our latest **Art Catalogs** of high grade bicycles and sundries and learn our *unheard of prices and marvelous new offers.*

It Only Costs a cent to write a postal and everything will be sent you **FREE** by return mail. You will get much valuable information. **Do Not Wait; write Now!**

Tires, Coaster Brakes, single wheels, parts, repairs and sundries at half usual prices.

MEAD CYCLE CO., Dept. B-122, Chicago

"Creole"

"Etowah"

"Cherokee"

"Kennesaw"

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Georgia Marble

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SCHOOL HOUSES**

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.

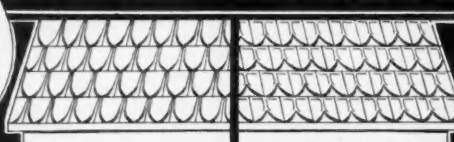
We develop your own ideas into a practical set of plans and specifications with which they can be executed to the smallest details into a building that can be built within your means and to your entire satisfaction.

Ashby's Portfolio of School Houses will be sent to parties interested in the erection of a school building for which plans have not yet been procured.

**G. W. ASHBY—ARCHITECT
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EASY TO PUT ON

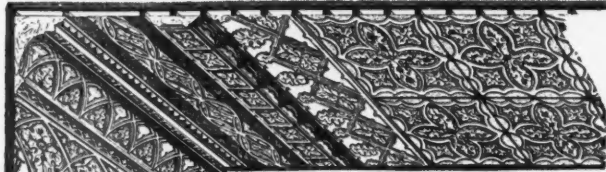
CORTRIGHT METAL SHINGLES



SAVES COST OF INSURANCE

EASY TO PUT ON—just a case of hammer and nails, that's why so many carpenters are making money laying them. No trouble to get orders because Cortright Shingles are far superior to all other forms of roofing on every point. They're fire-proof, storm-proof, never need repairs. 56 page book—"Rightly Roofed Buildings" tells all about them—it's free.

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of a metal ceiling that makes it cheap. The cost of a ceiling is not complete until the work is accepted by the architect or owner. If the plates do not fit, your expense may be enormous. Better be

on the safe side and get "Canton" Metal Ceilings. We have a reputation for good work.

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Formerly THE CANTON STEEL ROOFING CO.
CANTON, OHIO

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"EASTLAKE" Metal Shingles

For roofing all buildings with one-quarter pitch or more.

NEVER LEAK

They reduce the fire risk, and cost of insurance. Superior and cheaper than wood shingles. Any good carpenter or mechanic can lay our shingles.

**Tools Required—
Hammer and Shears**

Write for Catalogue and Prices

THE W. J. BURTON CO.

Manufacturers of all kind of Roof Trimmings

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FIRE PROOF WINDOWS

Pivoted or Double Hung Automatic Closing. Skylights, Ventilation and General Sheet Metal Work for Buildings. Write Dept. "F."

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2412 E. 18th St. KANSAS CITY, MO.

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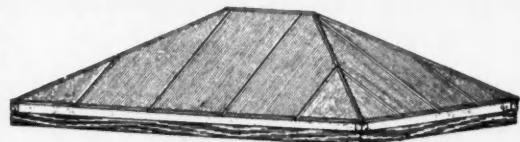
Can be shipped anywhere safely at a low freight rate. Can be set up by any handy man, no soldering, no putty and no leaks.

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GALESBURG CORNICE WORKS,

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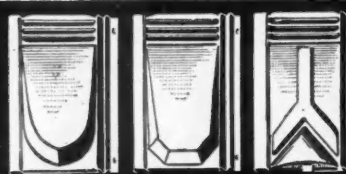
GALESBURG, ILL.



DOW
Wire & Iron Works
(Incorporated)
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IRON LINTELS

Beams, Angles, Anchors, Hangers, Ornamental Cast Iron Fronts and Stairways.



SHINGLES THAT LAST

The National Sheet Metal Roofing Co.

Rain proof Durable SHINGLES
WALTER'S
JERSEY CITY N.J. WALTER'S
Rust proof Ornamental TILES
Write for Catalogue, Samples and Prices

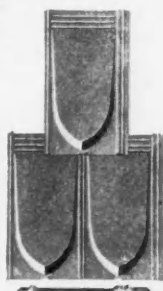


Before installing Steel Ceilings of any description get details of BERGER'S "CLASSIK"

Write TODAY for catalog **D-55**. Show your clients our handsome steel ceilings. Most complete line of artistic steel ceilings in existence. Clearly stamped, easy to erect. Appropriate designs for all kinds of rooms. Send sketch and dimensions of rooms for free suggestions and exhibition drawings.

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New York, Philadelphia, St. Louis, Boston.
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Steel Ceilings, Roofing, Cornices, Skylights, Etc.



*Edwards
Embossed*

Metal Shingles
AND
Metal Slate

The Edwards Metal Shingles and Metal Slate are made of the best quality Worcester Grade Terne Plate, furnished either painted or galvanized (galvanized after being formed). They can be applied without soldering, the use of special tools and by an ordinary mechanic. A surpassingly beautiful roof covering of extreme lightness and durability.

Descriptive "Shingle Booklet," samples and prices on request.

THE EDWARDS MANUFACTURING CO.

"THE SHEET METAL FOLKS"

401-417 Eggleston Ave.

CINCINNATI

U. S. A.



**Health Ceilings
Health Side Walls**



They might well be termed as above, for they do **not** gather moisture, are **not** filled with poisonous coloring matter and **cannot** fall, crack or become unsightly. Eller's Steel Ceilings and Side Walls have for many years been the standard of quality—look for the trade-mark—it means perfection in every feature.

Eller Manufacturing Company
Canton, Ohio



ART METAL CEILINGS

LET US FIGURE WITH YOU
We make PROMPT SHIPMENTS

The Kanneberg Roofing & Ceiling Co.

CANTON, OHIO.

Manufacturers of Everything in Sheet Metal



A Good Name

is the best business asset, and it has ever been our aim to make the name "Mullins" stand for quality and excellence.

Mullins Art Architectural Sheet Metal Work

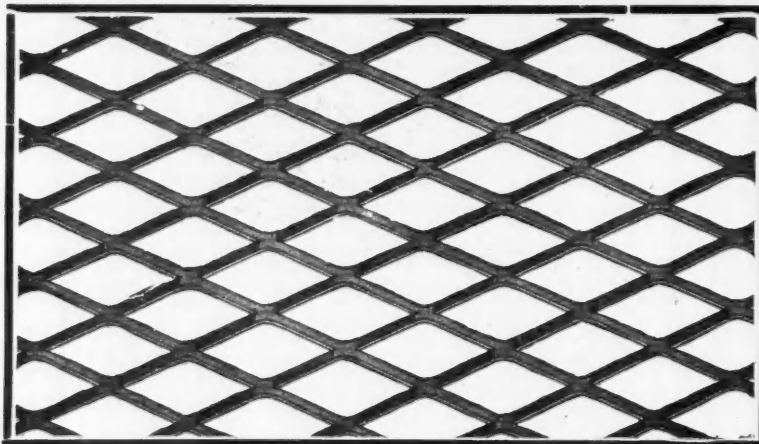
has a good name because it has artistic quality and genuine merit. It is original and particularly distinctive—a decided departure from old ways—a great advance in architectural design.

120 Page Catalogue

of Art Tile Metal Roofing, Statuary, Cornice, Ceilings, etc., sent on request. Estimates and Special Designs submitted.

The W. H. Mullins Co.
214 Franklin St., Salem, O.

Makers of everything in Sheet Metal.



Northwestern Expanded Metal Company

D. D.

Expanded Steel Plastering Lath

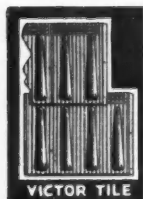
	Weight per Bundle	Yards per Bundle	Sheets per Bundle	Weight per Yard	Yards in 100 lbs.
No. 27 Gauge	27½ lbs.	12	9	2½ lbs.	43
No. 26 "	30 lbs.	12	9	2½ lbs.	40
No. 24 "	40½ lbs.	12	9	3.4 lbs.	29½

Telephone Harrison 799
945 Old Colony Building

:: CHICAGO

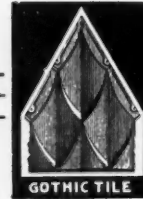
SYKES TWO BEST LATHS IN THE WORLD

METAL LATH & ROOFING CO. NILES, OHIO.
 U. S. A.



MONTROSS METAL SHINGLES

are quickly and easily laid; that's where the extra profit comes in for the builder. They are beautiful, inexpensive, and last a lifetime without repairs; that's why the house owner is always pleased. Send for our booklet.



MONTROSS METAL SHINGLE CO. CAMDEN, N. J.

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**WANTED
CARPENTERS
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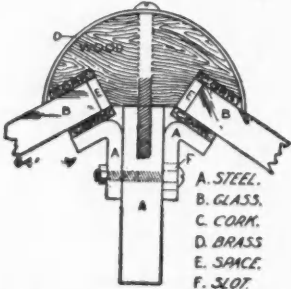
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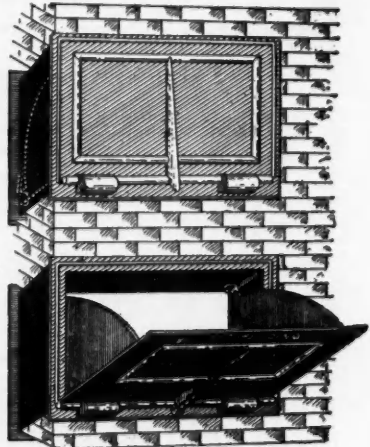
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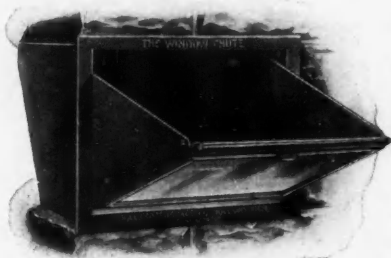


Coal or Wood Chute

C. H. SHULTZ, Patentee and Manufacturer St. Joseph, Mo.
For Cut and Prices on Corner Posts and Coal Chutes.

"THE WINDOW CHUTE"

A WINDOW AND A COAL CHUTE

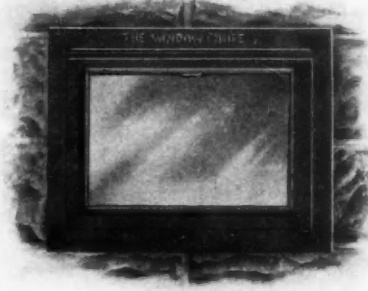


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Standard Sizes	Size "A"	Hopper Opening.	Outside Rim.	Prices	Just Write
	Size "G"	22 wide—16 high	25x19		
		32 " 24 "	35x27		

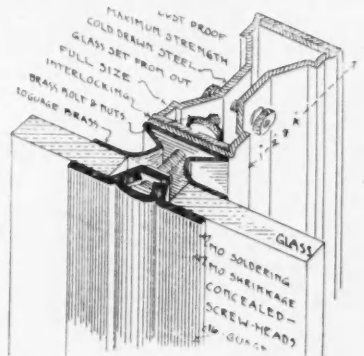
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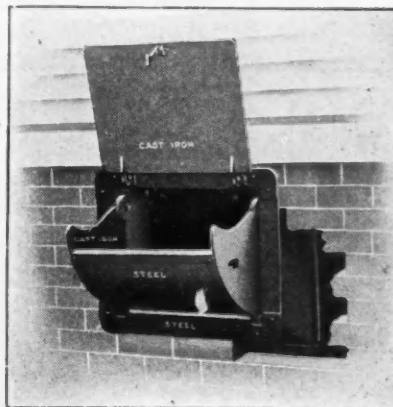
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 16 High

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Made of heavy wrought steel and cast iron, and has an adjustable hopper, which swings into the chute, allowing the door to close flush with the wall. Also has a self-locking device for holding door open and for locking when closed. Can be placed in old walls as well as new.

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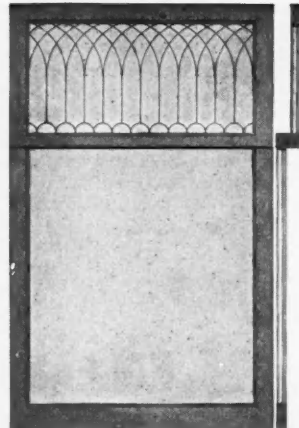


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 Glazed D. S.
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 This Door has
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C 1525
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C 1535
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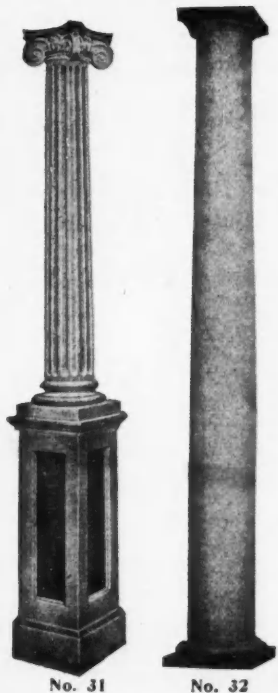
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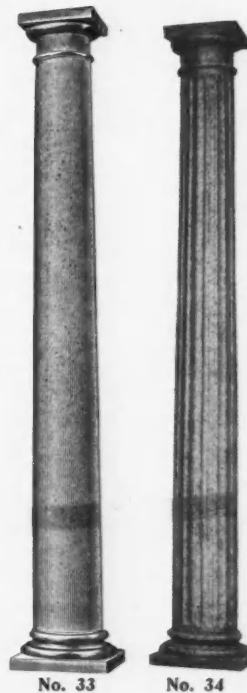
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Manufactured from white cedar, white pine and blue ash, the best and most lasting woods. Guaranteed to give perfect satisfaction.

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No. 33

No. 34

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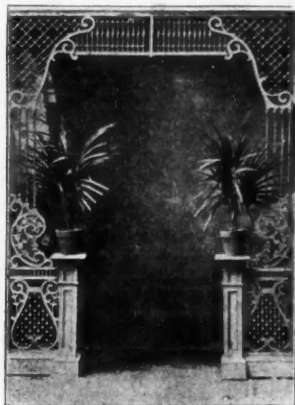
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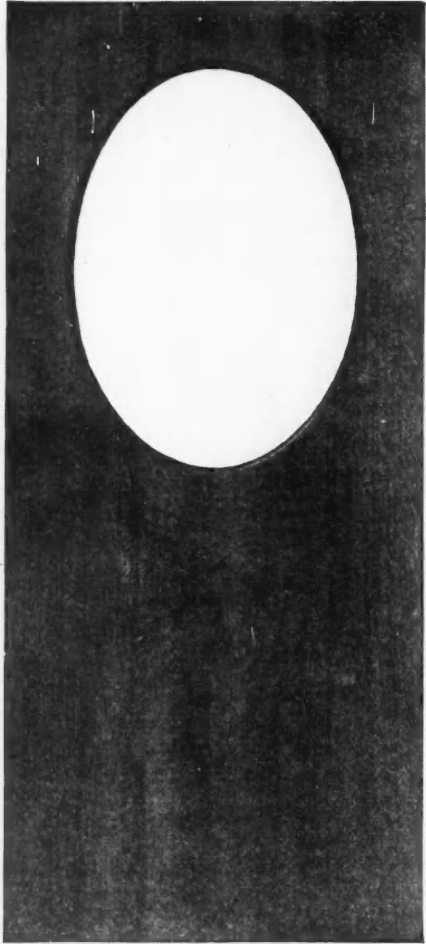
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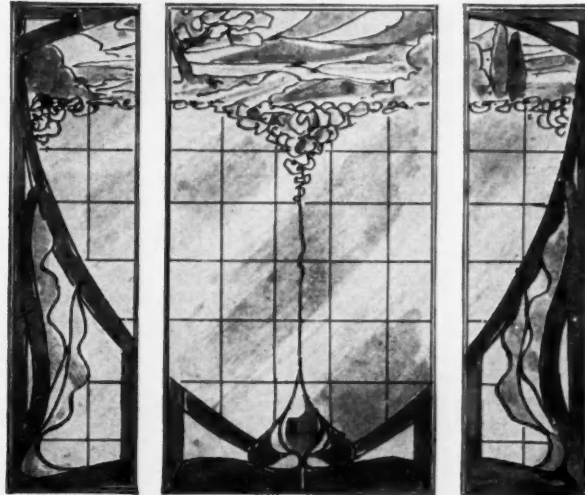
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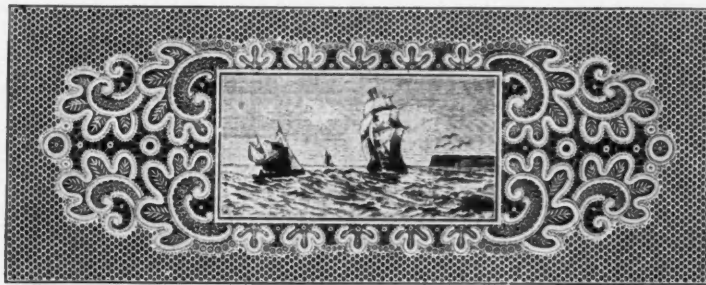


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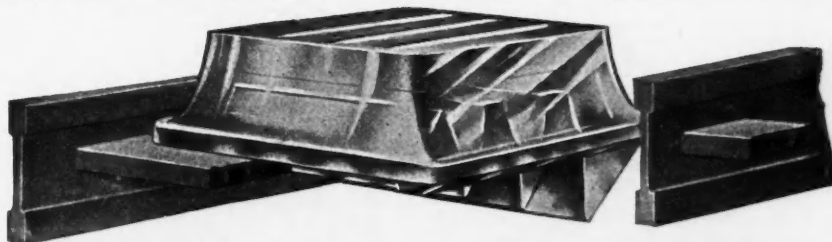
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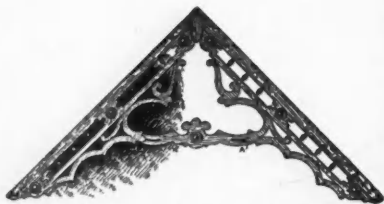
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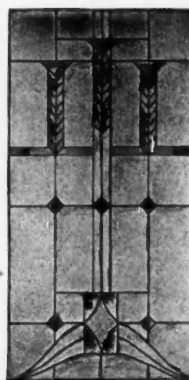


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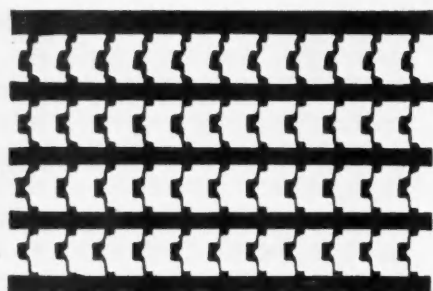
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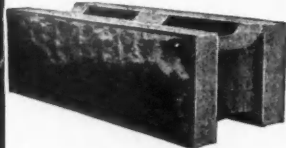
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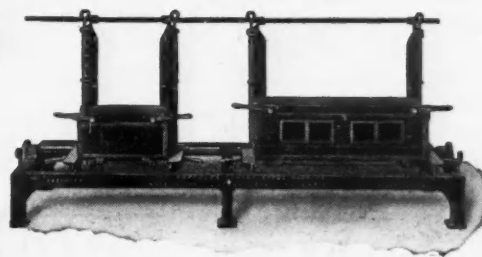
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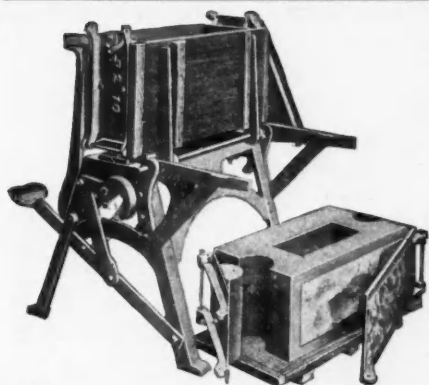


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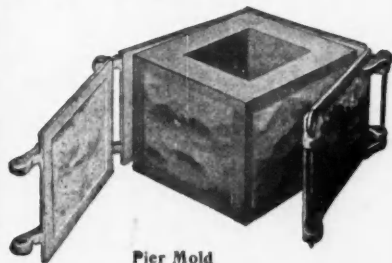
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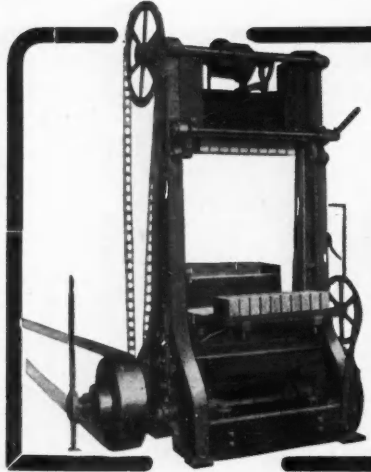
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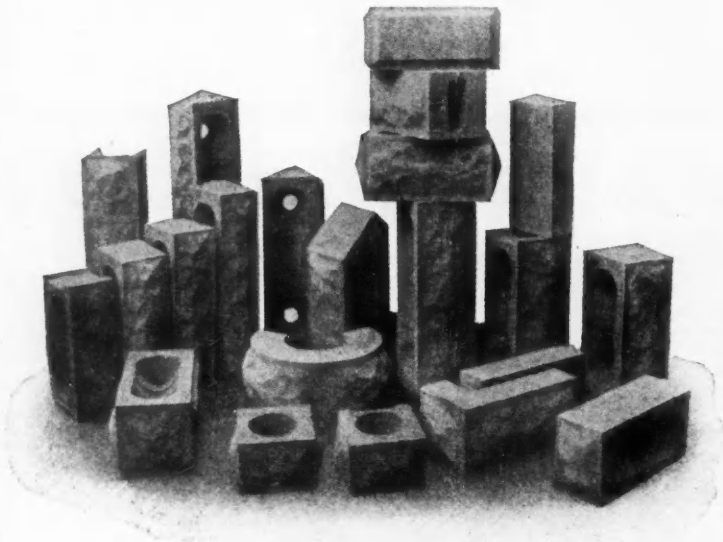
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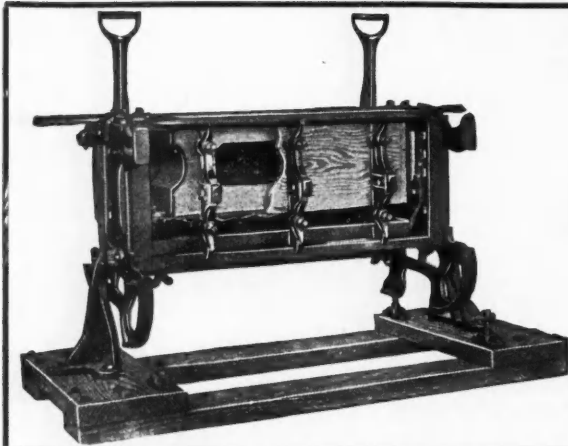
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Hollow Building Block Machines.
Window Sill Machines.
Fence Post Machines.
Cement Brick Machines.

Get Our Present Low Prices.
 All prices advanced Jan. 15th, 1908.

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Best, Fastest, Simplest and Cheapest. Move the Machine—Not the Block.

When you want a block that is guaranteed to be absolutely damp-proof,
 That will not sweat,
 That will make a dry wall,
 That is hard and durable,
 That looks like stone,
 That can be made at a lower cost than by any other method.

Use the "Berlin System."

There is an elegance of appearance about stone made by this system that puts it in a class by itself.

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CLAIMS

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2. To divide the different ingredients more reliably into any desired proportion.
3. To measure the ingredients more accurately than any known mixer.

The U. S. Standard Cement Block Machine Claims Superiority

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2. For adaptability to an almost endless variety of blocks.
3. For strength and beauty of blocks.
4. For speed.
5. For moderation in price.



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 Ashland, Ohio

Catalogue A sent free upon application.

See our exhibit at National Cement Users Convention, Buffalo, January 20-25.



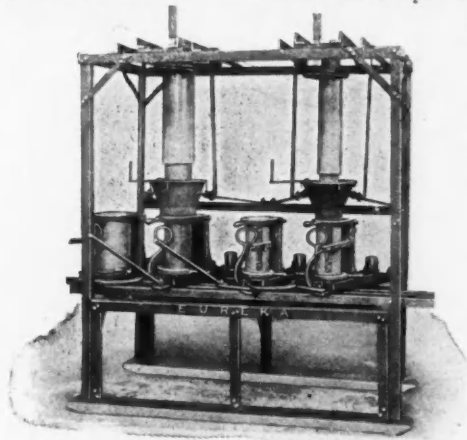
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Concrete Reinforcement

Thoroughly Galvanized, High Carbon, Steel Wire, Great Tensile Strength, is Elastic and conforms to any surface readily. Saves 15% to 20% in labor.

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 Cor. Antoine and Atwater Sts. DETROIT, MICH.



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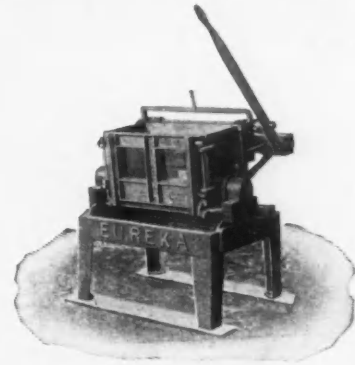
We Will Prove to You at the Buffalo Convention

that the only perfect and cheap way of making Cement Blocks is by the use of the Eureka No. 2 Face-Down Machine, because it is the only machine that uses wet material for the body of the block, the only machine that makes a waterproof block that hardens in less time, with less cement than any other.

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Eureka Face Down Machine

Wet Process Concrete Blocks

By the Pettyjohn System

The manufacturing of Concrete Blocks is rapidly nearing perfection, but the up-to-date manufacturer must use modern machinery and employ improved methods. Three features are important in perfect block making:

WET PROCESS FACE DOWN DAMP CURING

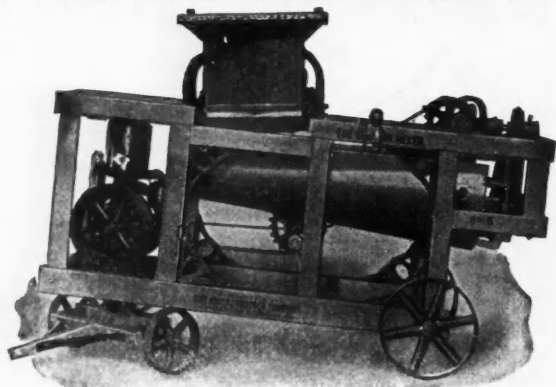
These splendid features are combined in the new Pettyjohn Invincible Machine, and no other. Made in three lengths, 16-inch, 24-inch and 40-inch. Tandem Invincible makes two blocks at once. Price \$65 and up. Single Invincibles, \$35 and up. Sold on trial always, guaranteed to give satisfaction or money refunded.

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Send for our latest edition of "Stone Making" (just published), a book of valuable data for the block maker—FREE.

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**"Will Do More Work with Less Power
Than Any Other Machine on the Market"**



GREELY, COL. July 28 1907.

CEMENT MACH. SUPPLY CO.
Denver, Col.

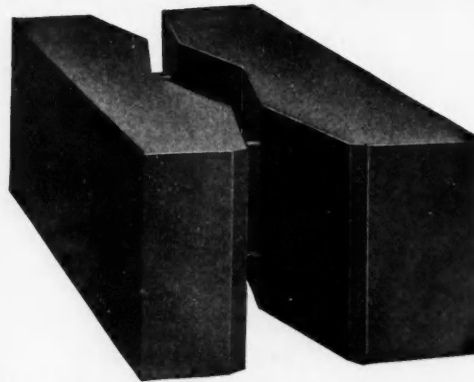
Gentlemen:—During the past year we have purchased from you two Improved Coltrin Concrete Mixers and have had them in almost constant use ever since; we find they will do more work with less power than any other machine on the market. We believe the Coltrin is the most practical mixer made; we are well satisfied with the mixers in every way and knowing they will do any work required of them we are glad to recommend the Coltrin to any one who is in need of a first class mixer.

Respectfully yours, MINER & FAIRCHILDS.

Manufactured Exclusively by
THE KNICKERBOCKER COMPANY
JACKSON, MICH.

ANCHOR CONCRETE STONE MACHINES

Make This Continuous Air-Space Block



Why buy a machine that makes blocks with holes in them and which are sure to conduct frost and moisture, when you can buy the Anchor Machine which makes every block with a continuous air space and which we guarantee to be frost and moisture proof?

The Anchor Machine is the best built machine on the market and makes every block as true and perfect as pressed brick. We guarantee to furnish all parts that break free of charge for two years.

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ROCK RAPIDS IOWA

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112 W. Broad St., Columbus, Ohio
Manufacturers of High Grade

Concrete Block Machines, Mixers,
Stone Crushers, Etc.

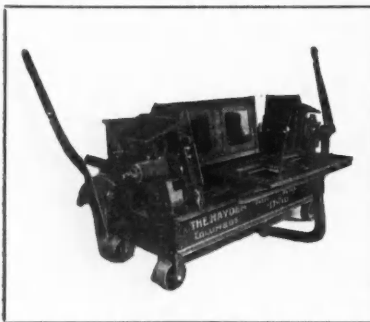
The Most Simple and Effective Mechanical
Principles Embodied in this Mixer

**POINTS OF SUPERIORITY IN THE
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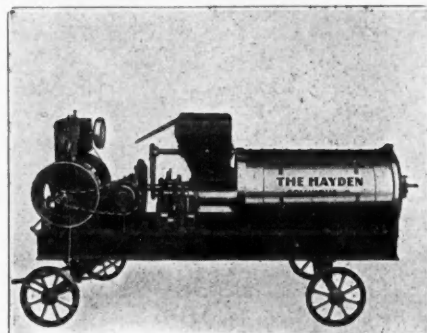
The only Block Machine on the market strong enough to withstand the heavy strain of pneumatic tamping.

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The Hayden Improved Mixer.

**THE ONLY MACHINE
WITH A SELF-LOCKING MOLD IS**

**THE Brandell
CONCRETE
BLOCK MACHINE**

**It makes MORE and BETTER blocks
with LESS LABOR and fewer motions**

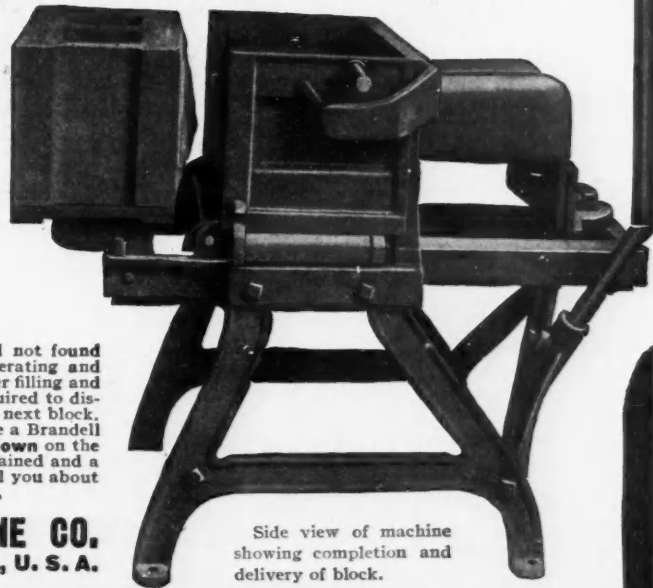
THE REASON WHY

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ACTUAL CAPACITY 250 BLOCKS PER DAY



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Standard Concrete Machinery

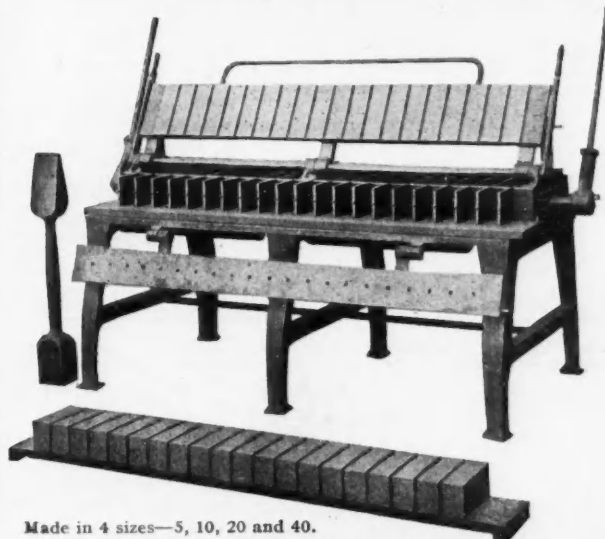
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Is the fastest Hand Brick Machine on the Market; will make plain, veneered and ornamental face and shape; all perfect, smooth brick, true to size and design.


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Noxall Competitors and Theories

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“CHICAGO AA”==The Best

THE LEADING SIDEWALK CEMENT

Uniform Color Uniform Tensile Strength
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COMBINED WITH LARGE SAND CARRYING CAPACITY, MAKES

“CHICAGO AA”

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ALSO FOR ALL OTHER CONCRETE WORK REQUIRING
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Trade-Mark—Sept. 12, 1905—July 15, 1907



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Standards, Romans, Moulded and Ornamentals
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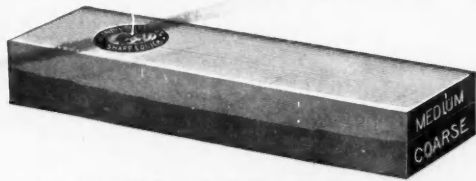
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NOTICE TO ADVERTISERS

New copy, changes and corrections for advertisements must reach office of American Carpenter and Builder, 185 Jackson Boulevard, Chicago, not later than February 20 in order to insure insertion in the March number.

Combination INDIA OILSTONE

Size
7
x
2
x
1



2
G
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S

CARPENTERS

This Is the Best All Round
Oilstone
On the Market
WHY?

Because,—The India Oilstone is made by a special process which makes it sharp and quick cutting.
Because,—They are the Most Durable.
Because,—Each Stone is Guaranteed.

Secure one from your dealer. Take no substitute. If your dealer does not keep the India Line, we will gladly tell you where you can get it. Send for Booklet on Oilstones showing other shapes.

Sole Selling Agents, Dept. 6

PIKE MFG. CO., Pike, N. H.
NORTON CO., Worcester, Mass., Manufacturers

Sanitary Metal Tile

ARTISTIC, DURABLE
ECONOMICAL, NONCORROSIVE
For

**Walls and Ceilings
of Bath Rooms,
Kitchens,
Lavatories,
Stores,
Hospitals, etc.**

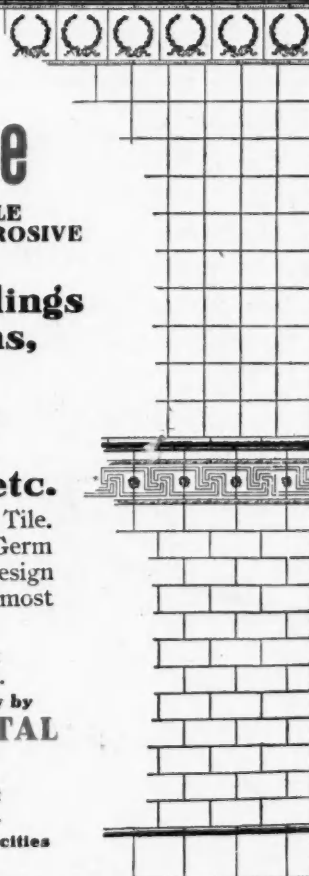
More durable than Clay Tile.
No blow can break it. Germ
Proof, Water Proof. Design
and colors equal to the most
artistic ceramics.

Set in Special Cement
No Nails Being Used.

Manufactured Exclusively by
**SANITARY METAL
TILE CO.**

**33 Prospect Street
BROOKLYN, N. Y.**

Agencies in all principal cities
Write for catalogue



EVERYTHING IN CEMENT MACHINERY

TO BE in the concrete making business in the Miracle way is to be in it in the most profitable way—the most satisfactory all round. For example, in tile and sewerpipe making—With

MIRACLE SEWERPIPE AND TILE MOLDS

you can start upon a small and inexpensive scale—say \$57.50 for a complete outfit for making 24-inch pipe.

You can make 110 feet of this pipe per day, and when you consider that the first 68 feet you sell pays for the entire equipment you can judge how quickly you will be making clear profit on your outfit.



And you will make Tile that will sell at the same price as burnt clay at about 150 per cent profit.

OUR NEW CATALOG

We have just received our new catalog, which is more complete and attractive than ever before, has over 500 illustrations, pages 9 x 12. We want to place this catalog in the hands of all our cement working friends and while the regular price is 25 cents, if you will tell us what line you are interested in and ask for Catalog K we will be glad to mail it free.

ADDRESS

Miracle Pressed Stone Co.

Largest Manufacturers of
Cement Machinery in the World

Minneapolis, - - U. S. A.

Miracle Concrete is our new little trade magazine, published "when the spirit moves us." Send in your name and we will place it on our complimentary list.



POINTERS for Carpenters and Contractors

Our low prices on Oak Doors, Interior Finish, Stair Work, etc., open up a big opportunity for the wide-awake carpenter and contractor.

You can develop business and add to your reputation as a close buyer by showing your customers how little extra it will cost to finish their homes in Oak.

Everybody prefers Oak—but the high prices charged by dealers are in many cases prohibitive.

If Oak is not specified, just take your Gordon Van Tine Catalog and figure out the cost of hardwood.

Show your customer, room by room, the small extra cost of Oak. When he finds that the Oak flooring for a 12x15 room, for instance, costs only \$11.52, he will change the specifications to Oak and thank you for your close figuring.

Suggest a nice Oak Plate Rail around the Dining Room. Costs only 7 cents a foot and always pleases the women folks.

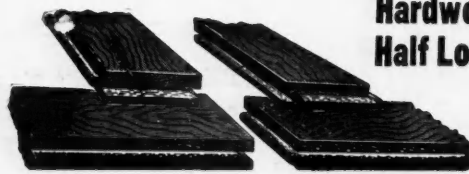
Our veneered Oak Doors in stock sizes, cost very little more than Pine. Your customers will be surprised when shown how cheap they are. When it comes to Stair Work you can astonish your customers by offering to substitute Oak for Yellow Pine for only about 5 percent extra by ordering our stock sizes. We enable you to build a complete flight of Oak stairs from our stock.

A little work along these lines will increase your prestige and profits, bringing you orders for "extras" and attracting the favorable attention of people who are planning to build.

It pays to play up the advantages of Oak when you can buy it direct from our mill at 50 per cent below dealer's prices. Note the **Bargains in Oak** on this page.

Your Customers Will Pay You Well for Buying for Them From This Page

We Make and Carry in Stock Everything Used to Finish a Room or a House in Oak. Prices Almost as Low as Pine



Hardwood Flooring at Half Local Dealer's Prices

Plain Red Oak Flooring, polished, bored for blind nailing, end matched, tongued, grooved and bundled, 2 to 16 foot lengths, $\frac{1}{2}$ x 2 $\frac{1}{4}$ inches—per 1000 square feet **\$57.00**. Plain Red Oak Flooring, $\frac{3}{4}$ -inch thick by 1 $\frac{1}{2}$ -in. width, finished per 100 lineal feet, random lengths, and wrapped in paper to insure its reaching you in good condition. **Per 100 lineal feet, 80c.**

We carry an enormous stock and ship promptly.

Oak Interior Finish

Send for our Free Building Material Catalog showing the low cost of hardwood trim. Our stock of Oak Mouldings, Casings, Door Jambs, Base and Corner Blocks, Stool and Apron, Window and Door Stops, Carpet Strip, Plate Rail, Cove Moulding, etc., is the largest in the country.

A Flight of Oak Stairs Complete - for **\$28.59**

(Except Rough Horses)

Our Stair Department enables a Carpenter or Contractor to build a complete flight of oak stairs from our stock at astonishingly low cost. We guarantee all our



material to be up to the highest standard. Here is all the material costs for a flight of stairs, 16 steps and risers:

16 oak steps No. 4 347 @ 55c.....	\$8.80
16 oak risers No. R 348 @ 26c.....	4.16
1 oak starting newel No. 4 336.....	3.10
2 oak angle newels No. R 341 @ \$1.75....	3.50
36 oak Balusters No. R 345 @ 9 $\frac{1}{2}$ c.....	3.42
18 foot oak Rail No. R 344 @ 8 $\frac{1}{2}$ c.....	1.53
34 lineal foot oak Face and Wall Stringers No. R 349 @ 12c.....	4.08
	Total \$28.59

All our Stair material is in the very latest design. Newels hand smoothed. Steps have one edge half round, dressed two sides and machine smoothed one side. Risers surfaced two sides, smoothed one side and jointed two edges. Face and wall stringers surfaced two sides, smoothed one side and jointed two edges. Joints fit perfectly. Satisfaction guaranteed.

Write for Complete Catalog of 5000 Millwork Bargains

Everything in Building Material except rough lumber, at 50% below Dealers' Price

GORDON, VAN TINE & CO., 405 FEDERAL ST., DAVENPORT, IOWA

Veneered Oak Doors

Do not let these low prices lead you to think the doors are inferior. We guarantee the quality.



No. R 213

Six Cross Panel Veneered Plain Red Oak

SIZE		Thick- ness	PRICE
Width Ft. In.	Height Ft. In.		
2-0	x 6-6	1	\$3.20
2-6	x 6-6	1	3.25
2-8	x 6-8	1	3.36
2-8	x 7-0	1	4.07
3-0	x 7-0	1	4.28
2-8	x 6-8	1	3.85
2-8	x 7-0	1	4.55
3-0	x 7-0	1	4.75

WE HAVE SPECIAL BARGAINS ON THIS PAGE EVERY MONTH. SEE JANUARY FOR INTERIOR FINISH, DECEMBER FOR DOORS AND WINDOWS