

# AMERICAN CARPENTER AND BUILDER



**THE WORLD'S GREATEST BUILDING PAPER**

## Special Features This Month

### Building Plans

Modest Frame Residences

Attractive Summer Bungalows

Modern Frame Livery Stable

### Practical Carpentry

Building a Public Stair

Village Store Front Construction

To Estimate and Put in a Dormer

### Modern Methods

Conservative Lumbering

Art of Hardwood Finishing

Concrete Construction

# The Perry Pneumatic Water System

(DESCRIBED IN THE AMERICAN CARPENTER & BUILDER, JUNE, 1907)

A Complete and Efficient System of Water Supply Without a Water Tank



The PERRY PNEUMATIC WATER SYSTEM furnishes water at any given pressure at the faucets by means of compressed air. Power and air compressor operate only occasionally to keep air reservoir charged. This stored air is used, and the Perry Pneumatic Pump operates only when water is drawn. Air may be piped to pumps in widely separated wells. Well and cistern water may be obtained with one air reservoir, as illustration shows.

Air is compressed by electric motor, gas, gasoline or steam engine, windmill or, for small domestic outfits, by hand. The Perry System is adapted to wells of small bore, cisterns, springs or any sources of water supply. Send for booklet and descriptive matter.

## UNITED PUMP & POWER COMPANY

OLD COLONY BUILDING

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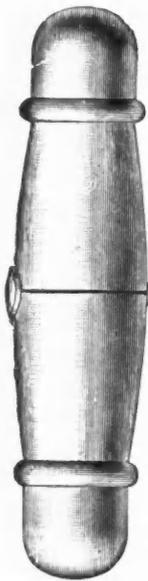
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CHICAGO



## 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

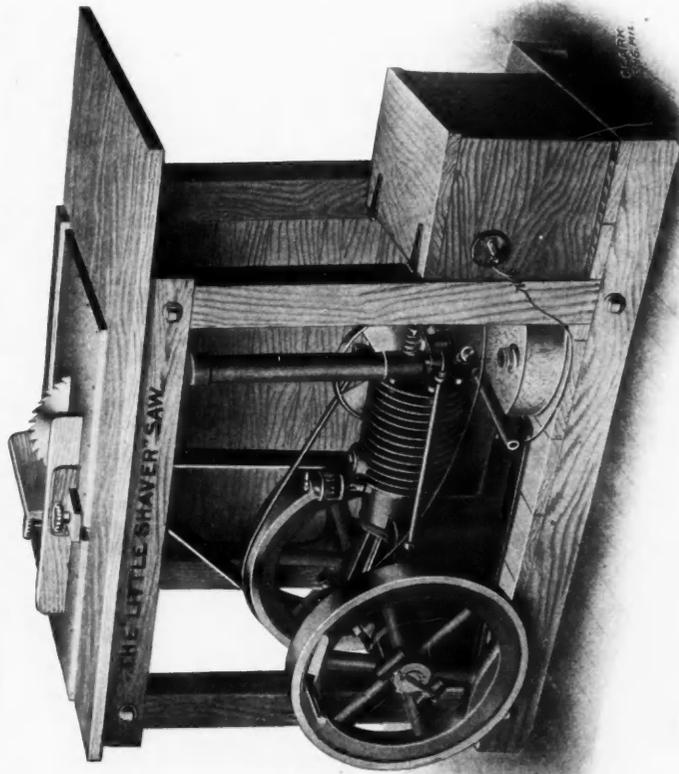
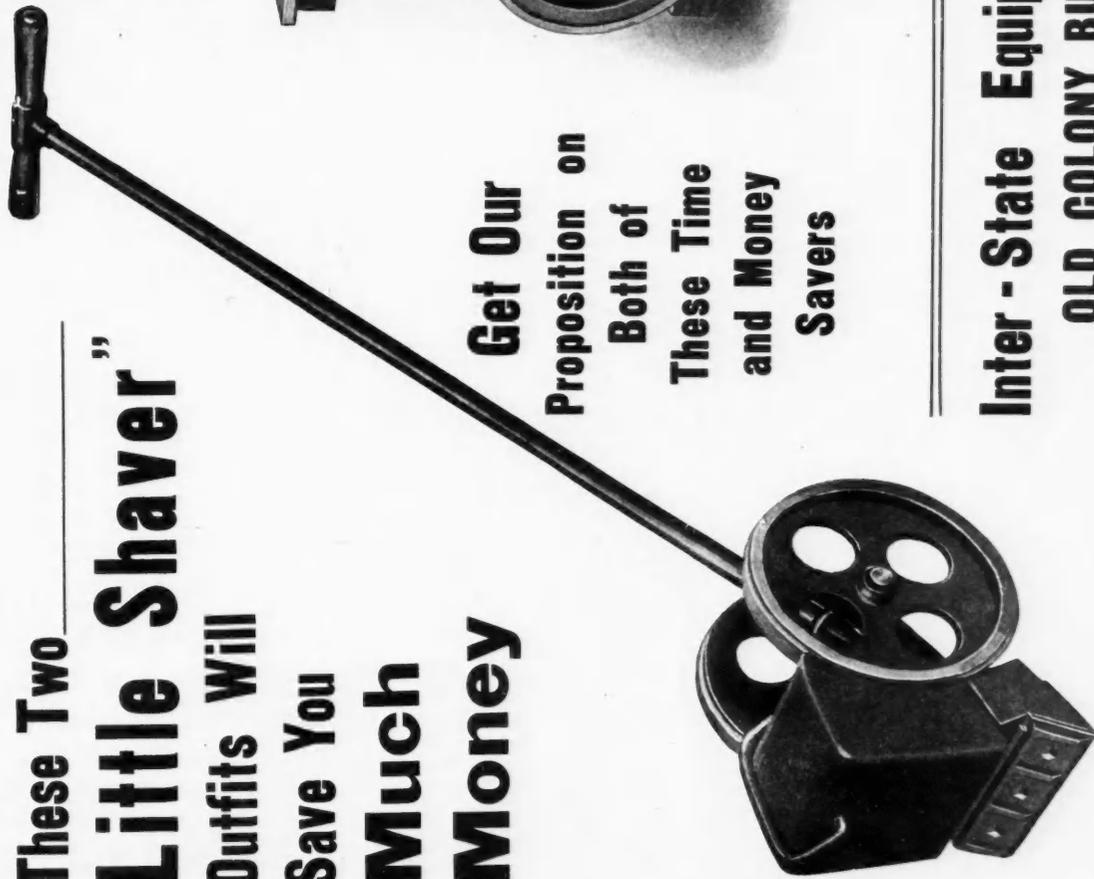
Price Postpaid **15 cents** each

## H. H. MAYHEW COMPANY

SHELburnE FALLS, MASS.

**WRITE US TODAY**

These Two  
**"Little Shaver"**  
Outfits Will  
Save You  
**Much  
Money**



**Get Our  
Proposition on  
Both of  
These Time  
and Money  
Savers**

**Inter - State Equipment & Engineering Company  
OLD COLONY BUILDING :: CHICAGO, U. S. A.**



## The American Floor Surfacing Machine

Does the Work of 20 Men

**BETTER**

**QUICKER**

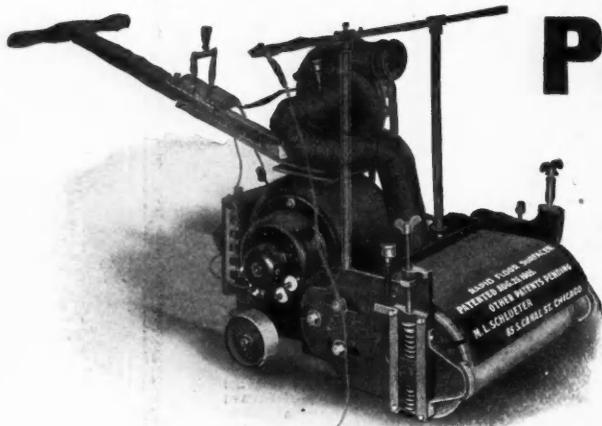
**CHEAPER**

The **only** machine whose work is specified by architects and meets the requirements of contractors and owners, giving a level, smooth, sand-papered finish, that harmonizes with the balance of the interior wood work.

It has surfaced and polished millions of square feet on every kind of floors, from common pine to the finest parquet, from bowling alleys to sky scrapers. It is self-propelling, no pushing or pulling, no blades to dull or sharpen. Used and indorsed by leading contractors everywhere. Big money in floor surfacing as a business, one machine earned over \$1850.00 in seven weeks. Guaranteed and sold on its merits.

Write for our New Booklet. "Surfacing Floors as a business"

**The American Floor Surfacing Machine Company  
TOLEDO, OHIO**



## Perfect Results

Are Easily Obtained by using

## SCHLUETER RAPID FLOOR SURFACER

The machine is built on the only correct principle. It is guaranteed to be **THE BEST** machine with which to produce an even, smooth surface on any kind of wood floor, old or new, hard or soft, and in all buildings; Residences, Stores, Factories, Bowling Alleys, Roller Skating Rinks, Reception and Dance Halls, Etc. **THE SCHLUETER** will remove all joints or warped edges, and leave the floor perfectly smooth. It will remove shellac, varnish, oil, wax, lime stains or the "muck" from skate wheels in a most satisfactory manner.

### Profits for Contractors

Type "B" Machine 18x8 In. Roller  
Type "D" Machine 16x7 In. Roller

The contractor using a **Schlueter Rapid Floor Surfacer** and advertising the fact that he is prepared to do perfect work will soon have all the work he can do. We can prove to any contractor that the Schlueter machine will easily earn a net profit from \$10 to \$25.00 a day when in operation.

### Sand Paper the Only Perfect Way

The **SCHLUETER RAPID FLOOR SURFACER** is so constructed that a roller, to which a sheet of sandpaper is quickly adjusted, is brought in contact with the floor surface while revolving at a speed of **600 revolutions a minute**. It is guaranteed to do the work cheaper and smoother than any other machine or method. This machine will surface from one to two thousand square feet in eight hours. Cost of sandpaper and electric power from \$1.00 to \$2.00 per day.

### What One Contractor Says

TO WHOM IN MAY CONCERN:

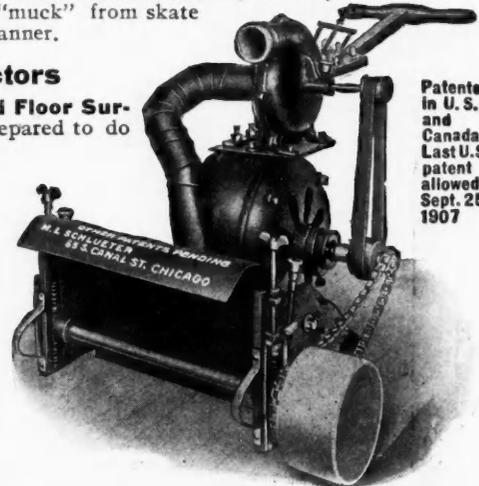
Dear Sir: We have used your rapid floor surfacing machine at the Harbach Apartment Houses, this city. We consider it to be a labor-saving device of high order. We believe there is no comparison between work done by the machine and hand work, the sander giving a smooth, uniform surface, much preferable to that usually obtained by hand work. Yours very truly,

DES MOINES, IA., Feb. 28, 1908.

CHARLES WEITZ' SONS,

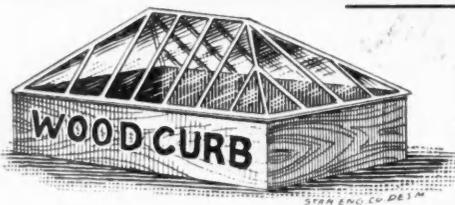
**FREE** Illustrated booklet containing full information sent free to contractors. **M. L. SCHLUETER** 28 S. Canal St. CHICAGO

Eastern Agents:—New York & New Jersey Floor Laying & Surfacing Co., Lawyers Bldg., 164 Market St., Newark, N. J.



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.



## SKY LIGHTS

All kinds of Roofings, Steel Ceilings, Cornices, and Sheet Metal Work

## ST. JOHN & BARQUIST CO.

420 8th Street

Write for quotations

DES MOINES, IOWA



Write for Catalogue G

We Manufacture **WOOD BORING** and **HOLLOW MORTISING TOOLS**  
FOREST CITY BIT AND TOOL COMPANY ROCKFORD, ILLINOIS

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER



# The ACME FLOOR SCRAPING OUTFIT

## The Most Complete Equipment on the Market Today

The ACME FLOOR SCRAPER works automatically, does not butt into the floor and can be operated without previous experience.

The ACME BLADE SHARPENER is the only device of its kind ever invented. It enables any person to place the proper cutting edge on a blade in a few minutes.

The ACME SANDER puts the finishing touches on the floor by making a perfectly smooth surface.

*Write for booklet which gives full detailed information.*

**JOS. MIOTKE**

**247 Lake St. Milwaukee, U. S. A.**

This outfit will be sent on trial to any responsible party.



# NO QUESTION ABOUT IT

## IT'S THE BEST ACKERMANN'S RAPID FLOOR SCRAPER

Is Guaranteed to do More, Better and Easier Work than any other on the market.

### Knife Advantages

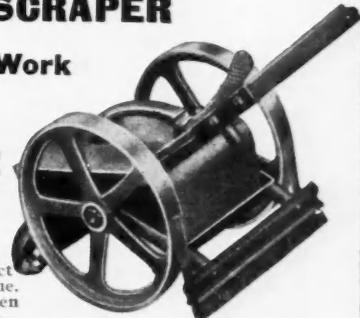
By means of a simple eccentric device, the knife blades of the "Rapid" can be instantly moved or set at any angle, thus securing a "drawing cut." No floor scraper can be a success that does not bring the knife blade across the floor surface with a natural, hand-like movement. The "Rapid" does this perfectly. Any size blade up to 4½x8 inches can be used on this machine.

### Exclusive Knife Sharpening Feature

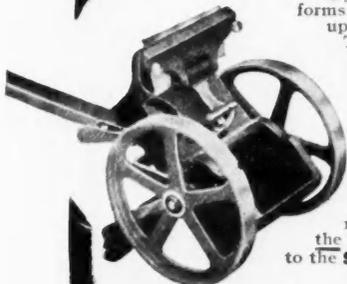
By simply reversing the position of the machine (turning it over) it forms its own knife sharpening vise, the blade being brought into a perfect upright position, ready to sharpen, without removing it from the machine. This saves time, and time is money. The operator proceeds to sharpen the knife, then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

### Our Special Guarantee Offer

We 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 we claim for it you can purchase it, if not we will have the machine returned at our 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, 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. We refer to the State Bank of Michigan, Grand Rapids, Mich., as to our guarantee and responsibility.



This Brush is an Exclusive Patented Feature. NO OTHER MACHINE HAS OR CAN USE IT. Patent Allgwd Nov. 1907



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

**J. B. ACKERMANN CO.**

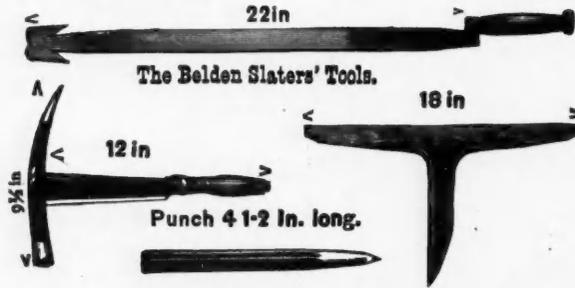
Sole Manufacturers

Board of Trade Building GRAND RAPIDS, MICH.

**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



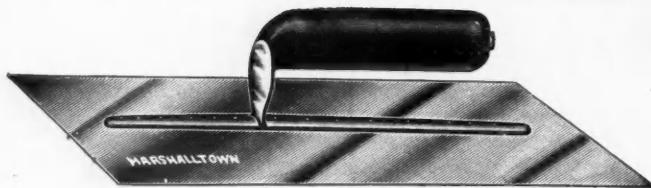
**OUR HAMMERS** are perfectly balanced and are provided with **Leather Handles** to prevent hand from slipping

Our Tools Bear an International Reputation

If Your Dealer Cannot Supply You, Write Us Direct

**THE BELDEN MCH. CO.,**

Whalley Ave. and Tryon St. NEW HAVEN, CONN., U. S. A.



The Marshalltown Plastering Trowel

**The Best 3 Made**

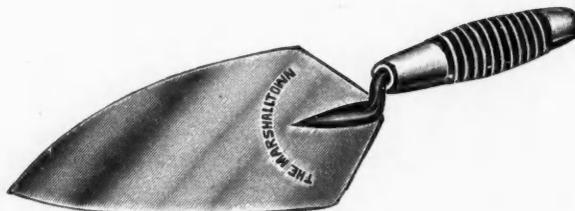
EVERY TROWEL GUARANTEED

No Mistake in Insisting on **MARSHALLTOWN**

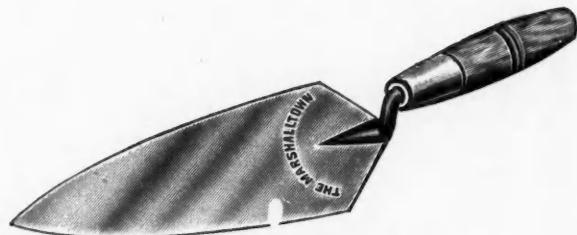
We manufacture a full line of **High Grade Plasterers' Tools**, and it would be well for every plasterer, bricklayer and contractor to have one of our catalogues.

**Marshalltown Trowel Co.**

Marshalltown, Iowa, U. S. A.



The Marshalltown Wide Heel Leather Handle Brick Trowel



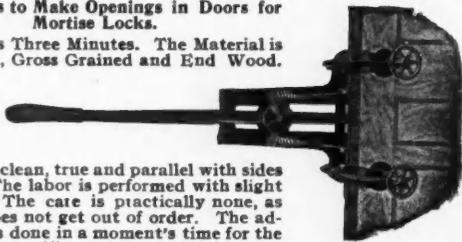
The Marshalltown Philadelphia Pattern Brick Trowel

**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, Gross Grained and End Wood.



The job is clean, true and parallel with sides of door. The labor is performed with slight exertion. The cate 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 1/4 inches thick. Thin doors are handled as easily as thick doors.

Riverside, Cal. A. W. MILLER MFG. CO. Cincinnati, O.

**LUFKIN STEEL TAPES**

and **RULES** ARE INDISPENSABLE FOR ACCURATE WORK

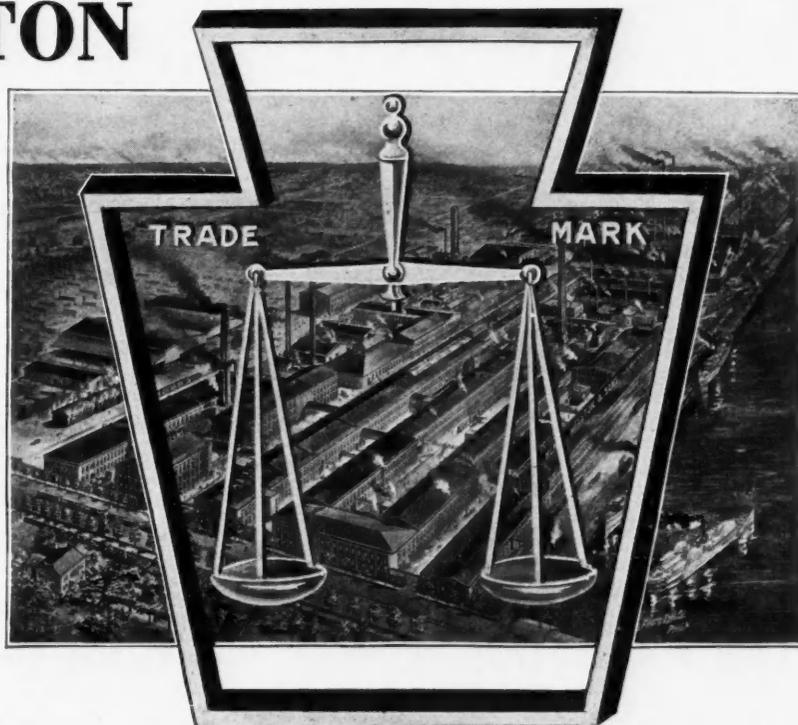
MADE BY **The Lufkin Rule Co.** Saginaw, Mich., U.S.A. New York London

For Sale Everywhere. Send for Catalogue.



**DISSTON**

**SAWS**

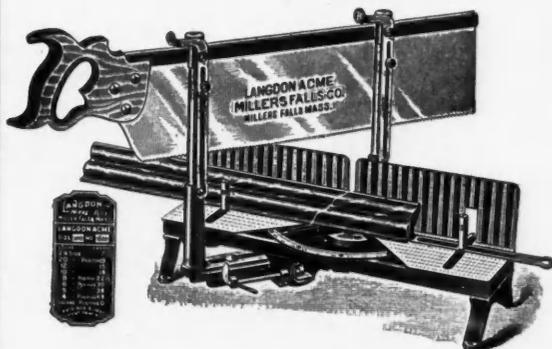


The Largest Saw Manufacturing Plant in the World and its Trade Mark—

**EMBLEMATIC**

of the Principle Upon Which the High Reputation for Quality, Workmanship and Utility has been built.

**HENRY DISSTON & SONS, Inc. PHILADELPHIA, PA.**



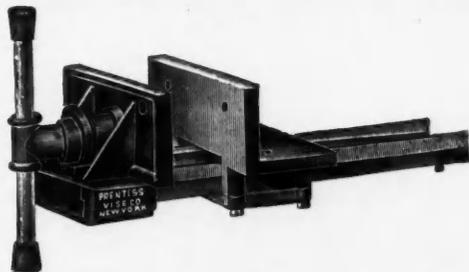
**Are You Interested in Mitre Boxes ?**

If you are it will pay you to investigate the Langdon Acme. It has all the advantages of any other box made and several that others do not comprise. Our pocket catalogue "D," representing our full line of tools, will be sent if asked for.

**MILLERS FALLS COMPANY**

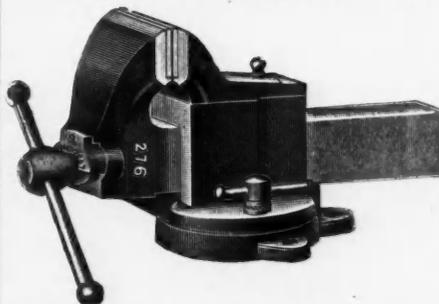
28 Warren Street, NEW YORK:

**BLAKE QUICK ACTING VISE**



For Cabinet Makers and Wood Workers. Simplest—Strongest—Cheapest—Best  
Send for Catalogue of all kinds of Vises.  
**PRENTISS VISE COMPANY, MAKERS**  
44 Barclay Street, New York, U. S. A.

**PARKER VISES**



MADE ESPECIALLY FOR WOOD WORKERS!

FOR SALE BY DEALERS

SEND FOR CATALOG

**CHAS. PARKER CO.**  
MERIDEN, CONN.

**When you think of Floor Scrapers—Think of the FOX FLOOR SCRAPER**

**It Will Save You Money**

**Money Pays Dividends**

We Send the Fox Floor Scraper on Three Days' Trial—Write for Proposition

**WRITE US BEFORE BUYING**



Don't make hard work of Floor Scraping

Buy a **FOX FLOOR SCRAPER**

**The Simplest and Best Device for Perfect Floor Scraping.**



REGISTERED

The handiest wood scraping device on the market. Body of tool slides on the floor, insuring a uniform cut, blade is held by a clamp and can be adjusted or reversed in a second's time. Unexcelled for any kind of wood scraping. Never jumps or leaves waves. Every carpenter needs this tool. Price of Fox Cabinet Scraper, \$1.25.

*Ask your dealer to order it for you, or we will ship on receipt of price.*

**FOX MFG. CO., 187 Second St., MILWAUKEE, WIS.**

**HIGHEST CLASS RATCHET BRACE MADE**

WRITE FOR CATALOGUE OF OUR ENTIRE LINE



No. 110—10 inch Sweep

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.

**LANCASTER MACHINE & KNIFE WORKS**

918 Court Street : Lancaster, N. Y.

**"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.

**"Last a Lifetime and give Satisfaction to the End"**



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

**The Celebrated Barton Tools,** send direct for Catalog. Be sure and specify "CARPENTER'S CATALOG"

**MACK & CO., 20 Brown's Race, Rochester, N. Y.**

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

# 90% Of The Floor Scrapers Sold throughout the United States and Canada are "LITTLE GIANTS"

**FREE TRIAL  
Special Terms**

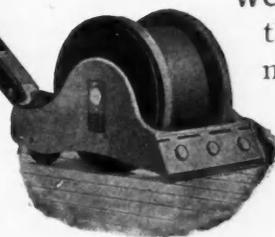
We are offering the "Little Giant" Floor Scraper on FREE trial and special terms.

We pay freight and if after using the "Little Giant" you are not thoroughly satisfied that it is the best floor scraper on the market you can return it to us at our expense.

We furnish 12 Imported Silver Steel Knives and complete equipment for keeping them sharp, with each Machine.

**We Do Not Ask You to Deposit Any Money**

**HURLEY MACHINE CO.**



Send for Free Catalog

**GENERAL OFFICE AND WORKS  
155 South Jefferson Street, CHICAGO**

BRANCHES:— New York, San Francisco and Toronto, Can.

## LET ME SEND YOU THIS SCRAPER ON TRIAL FREE



The Weber Double Acting Floor-Scraper has many advantages over other scrapers. Operating close to the base, it allows every square inch of floor space to be reached; can be sharpened without removing the blades from the machine; planes perfectly level and can be used in very confined spaces. Weight of machine 105 pounds.

I want you to allow me to send you one absolutely free to try for yourself. Write me today for my free trial offer and free catalogue. Address your letter to me personally. Reference by permission—First National Bank of West Allis, Wisconsin.

J. F. WEBER, *President*

**WEBER MANUFACTURING CO., 670 Seventy-first Avenue, WEST ALLIS, WIS.**



The Weber automatic sharpening device shown above is the most perfect floor-scraper sharpener on the market, and can be used without removing the blades from the machine. It can also be used on any other floor-scraper and cabinet scrapers with most satisfactory results.

## The T. F. DECK Gravity Level Company



**TOLEDO, OHIO**

## THE LEVEL THE WHOLE WORLD HAS BEEN LOOKING FOR

The T. F. Deck Gravity Level is exactly what we call it in the opening lines of this announcement, the level the mechanics and dealers have been anxiously waiting for.

It is impossible to convey to you in a few words the many advantages obtained in this remarkable invention over all other levels now on the market.

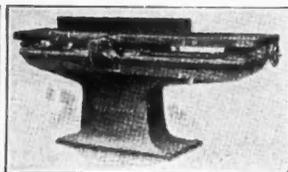
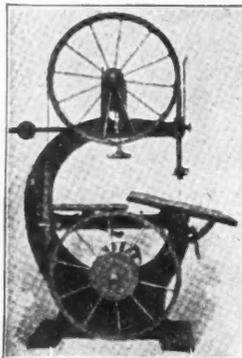
The Deck Gravity Level is constructed on the plumb-bob principle. It is so sensitive that it will detect the variation from the level or plumb, to so small a degree as one-hundredth of an inch.

A full line of levels for carpenters, general mechanics, 24 and 30 inches long, and masons' plumb and level 42 inches long, sold to the mechanic and dealer at a price within the reach of all.

All levels finely finished and thoroughly tested before leaving the factory.

Send for descriptive catalog and price list No. 10.

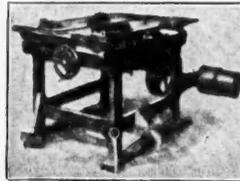
**The T. F. Deck Gravity Level Company, Dept. A, Ohio Bldg., TOLEDO, Ohio**



## COMPLETE WOOD-WORKING SHOPS

For CARPENTERS and CONTRACTORS

These Four Machines with a Gasoline Engine or Motor make a Model Shop



You can save time and money by being in a position to manufacture your own millwork.

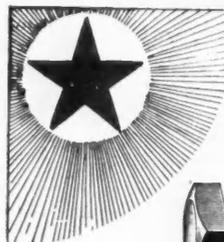
We also carry a LARGE STOCK OF UP-TO-DATE, BUT SLIGHTLY USED MACHINES. We can surprise you with the small investment it requires to be independent. Write us today for full information

Right Prices  
Prompt Shipments

### CHICAGO MACHINERY EXCHANGE (INC.)

Woodworking Machinery Merchants

9 to 10 North Canal St., CHICAGO



## EXPANSION BOLTS



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

STAR EXPANSION BOLT CO.

Cor. Cedar and Washington Sts. New York City

## PLATE GLASS Bath Room Fixtures

FOR RESIDENCES, HOTELS, OFFICE AND APARTMENT BUILDINGS

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

### PLATE GLASS TOWEL BAR



Price \$1.50

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

Round glass towel bars, \$2.00

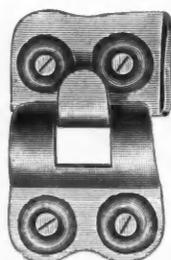
Adjustable glass towel shelves, \$3.50, \$4.00, \$6.00

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

CATALOGUE SENT FREE ON APPLICATION

## Geo. H. Anderson & Co.

Manufacturers and Jobbers of Plate Glass Specialties  
281-291 W. Superior Street - - CHICAGO



THIS

## GUIDE FLANGE

Makes it easy to hang or remove

full length screens

It's found only on

## GOSSETT DETACHABLE SUSPENSION HINGES

Use them and you'll save time—please your customers—increase your screen and storm-sash business.

Ask your hardware dealer or write for free sample.

F. D. KEES MFG. CO., Box 522, Beatrice, Nebraska

## CUSTOM MADE FLY SCREENS

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

For outside screens we use the identical finish of the outside of Pullman cars.

The best grades of Wire Cloth, enameled, galvanized, genuine bronze, etc. Fastened by tacks or by the "lock-strip" process.

Intending purchasers may have free by mail samples of woods, finishes, and wire cloth and copy of catalog and price list. Agencies in many cities. Special terms to contractors and builders.

**The A. J. PHILLIPS CO.**  
FENTON, MICH.

23 Years' Experience

3 1/2 Acres of Floors

## On the Square



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



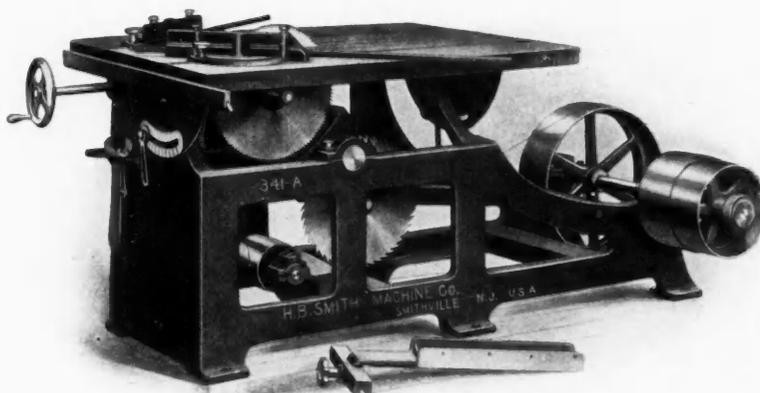
STEEL SQUARE POCKET BOOK.....\$ .50  
FOLDER (in case with pockets)..... .25  
DESIGNING (finely illustrated)..... .50  
CEMENT WORLD ..... 1.00

All for \$1.75. \$2.25  
DWIGHT L. STODDARD, Author of "Steel Square Pocket Book," 328 W. Raymond St., Indianapolis, Ind.  
Send for other Combination Offers.

# SMITH of SMITHVILLE The Sign of QUALITY

Modern Shop Equipments a Specialty  
We Make 150 Different Kinds of Machines

ASK FOR CATALOG

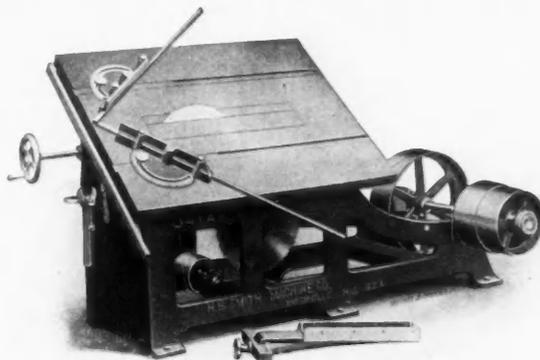


No. 341 A Combination Double Arbor Saw

**E**VERY 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.

☐ 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.



Showing Table Tilted

## H. B. SMITH MACHINE CO.

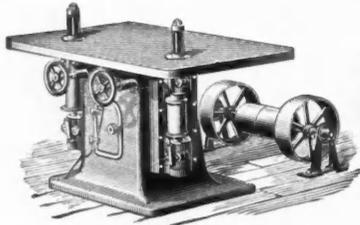
SMITHVILLE, N. J., U. S. A.

BRANCHES:

CHICAGO

NEW YORK

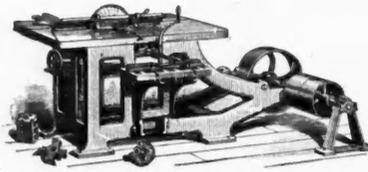
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Double-Spindle Friezer

**CORDESMAN,  
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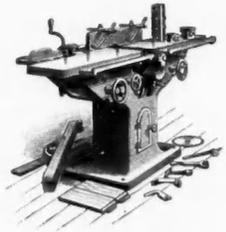
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Wood Bar Clamp Fixtures Per Set 50c

**OVER 12,000 OF OUR  
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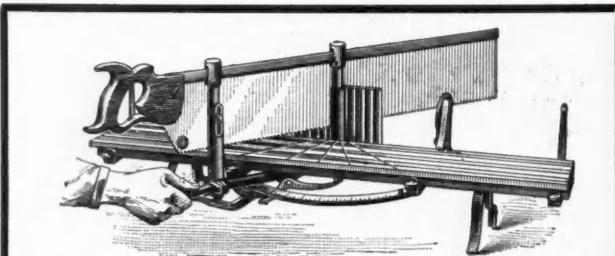
25 doz. Clamp Fixtures bought by one mill last year. We ship on approval to rated firms, and guarantee our goods unconditionally. Write for list of Steel Bar Clamps, Vises, Bench Stops, etc.

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Price \$2.80  
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**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**

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**Trial Costs Nothing if Plane is Returned**

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.

enough). The lucky Kansas man last month was W. D. Wilson, Sabetha.

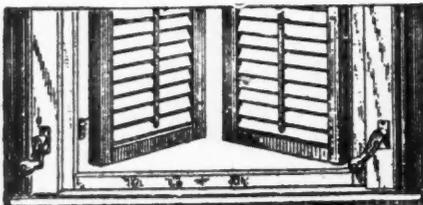
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The first man in Iowa and Maine who sends us this Ad. in June gets a \$3.25 plane free by paying the express.

The lucky man from Missouri in March was Mack Green, of Monroe City, who writes, "The boys pronounce it O. K. It is as good or better than you claimed." (That's good

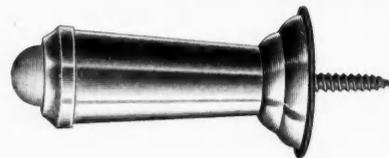
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**Standard  
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New and improved patterns and designs.

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



**STOP**

and examine our prices on Builders' Hardware for this season. It will Pay You to send for our New Catalogue and Net Price List. They are now ready for you.

**REHM HARDWARE CO.**

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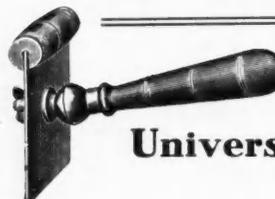


Hand or  
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2, 3  
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Sizes

GUARANTEED ABSOLUTELY ACCURATE  
Write us for particulars

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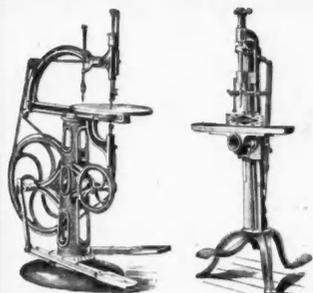
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**Universal Scraper**

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

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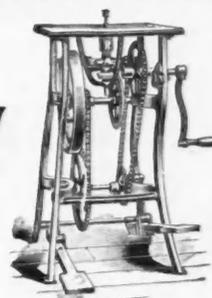
**The L. S. Starrett Co.** Athol, Mass. U.S.A.



"Victor" Scroll Saw "Diamond" Mortiser

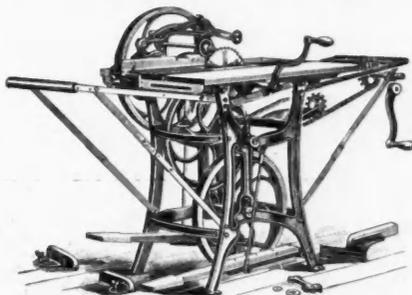
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**Wood-Working Machinery**

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



"Rex" Moulder

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



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

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No. 8 "Union" Power Saw

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

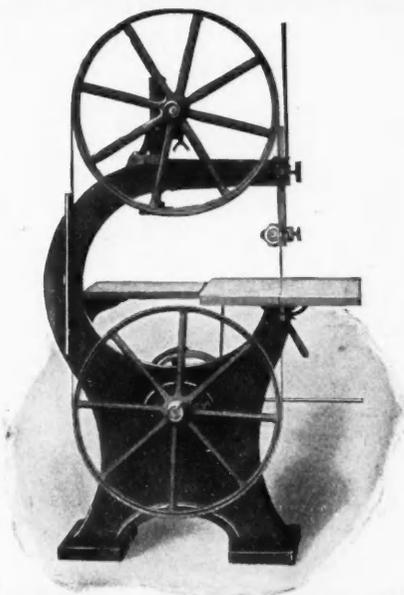
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218 Water Street, Seneca Falls, N. Y., U. S. A.



No. 6 "Union" Combination Saw



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.

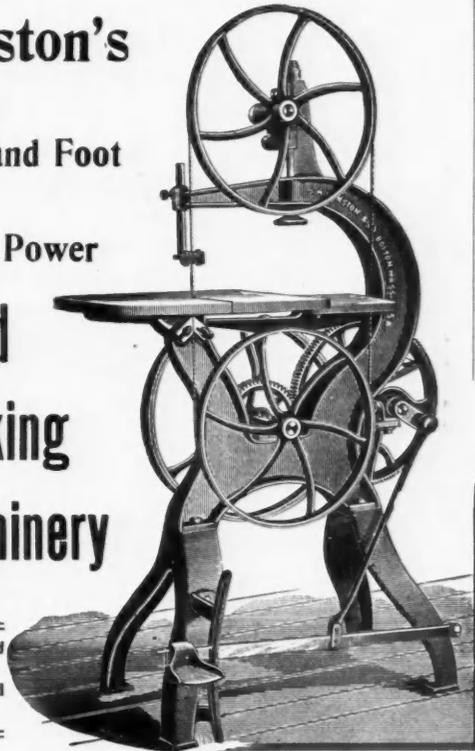
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Patent  
Hand and Foot  
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20-in. Hand  
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Sash Cord**



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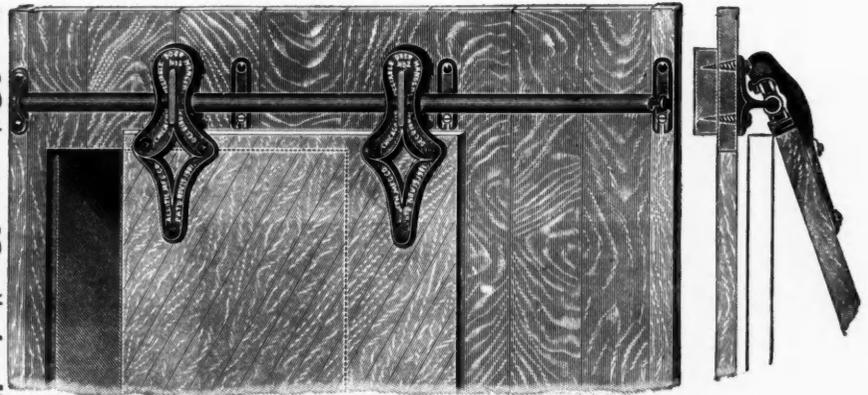
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**RELIABLE  
ROUND TRACK DOOR HANGERS**

Impossible to Derail  
Easy Running, Great Strength

FOR  
BARN, WAREHOUSE and FIRE DOORS  
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**LATEST IMPROVED ALL IRON  
SWING CUT-OFF SAW**

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Properly  
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**Adjustable  
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With Six Inch Adjustment

**CAN BE HUNG  
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With same ease of operation

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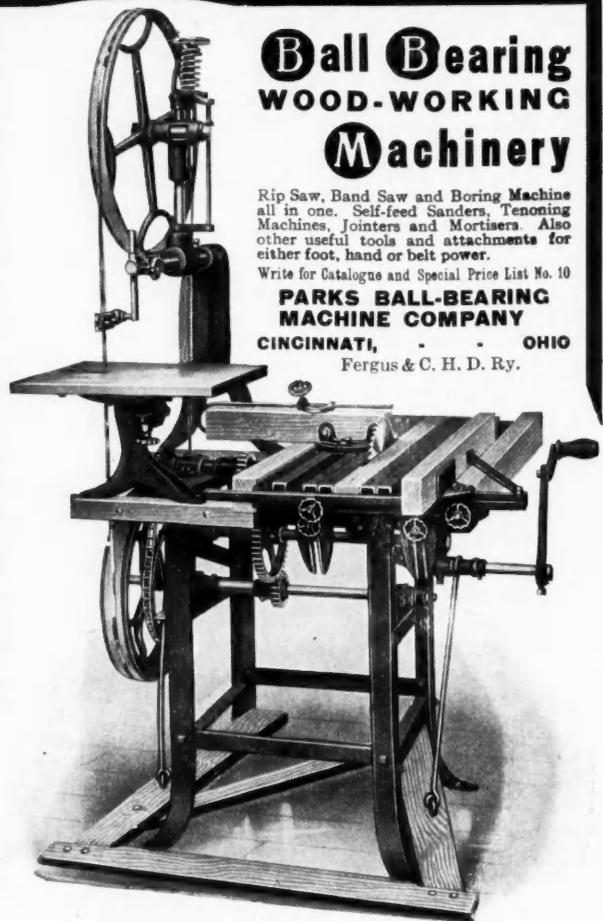
LOVELL MACHINE WORKS, Gardner, Mass.

**Ball Bearing  
WOOD-WORKING  
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Rip Saw, Band Saw and Boring Machine  
all in one. Self-feed Sanders, Tenoning  
Machines, Jointers and Mortisers. Also  
other useful tools and attachments for  
either foot, hand or belt power.

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MACHINE COMPANY**  
CINCINNATI, OHIO  
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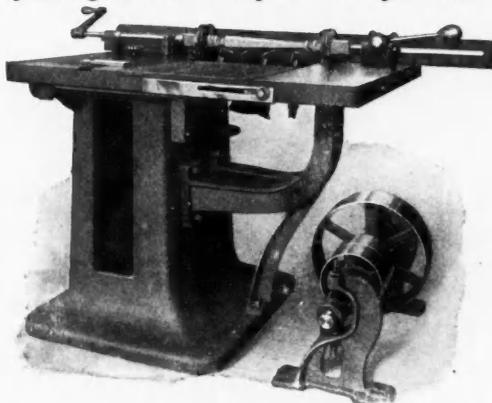
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It makes all kinds of Balusters, Spindles, Corner Beads, Base Angles, Kitchen Table Legs, Base and Head Blocks, Fence Pickets, Fan and Star Corner Blocks, Sunrise Panels, Twisted Moulding, Fancy Butt Shingles, Window and Door Frames and an almost endless variety of the fancy and ornamental work used on house trim. Besides this it is also adapted to Panel Raising, Moulding Circle Casings, Rounding Steps, Dadoing, Rabbeting, Jointing, Cabinet Sawing, etc.

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The picture of our new Combination Saw Table and Jointer hardly does justice to this machine which we have designed especially to meet the requirements of contractors and builders. Five machines are combined in one, and it is really surprising what a great variety of work it can do. We have made a very reasonable price on this machine and will be glad to quote you and send further details with a large picture of it which will show more clearly the details of construction.

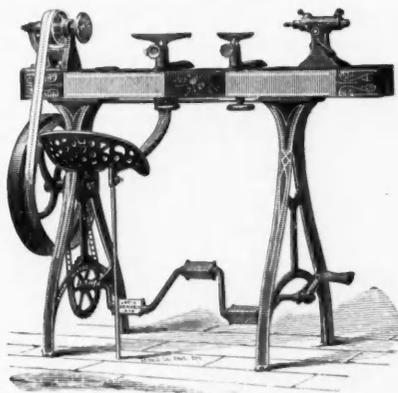


Front View of Combination Jointer

consisting of **Band Saws, Saw Tables, Jointers, Swing and Cut off Saws, Turning Lathes, Planers, Saw Arbors and Mandrels.** Also special heads, rip and cut-off gauges.

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

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**STANDARD MACHINE  
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# Hot Water Heating At Much Lower Cost

If you contemplate installing Hot Water it will be to your interest to investigate

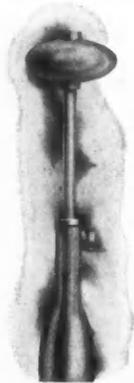
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It is not only the cheapest system to install, but by far the most sightly, efficient, responsive and economical system on the market. It contains one-third less water and heats one-third quicker with a resultant saving in fuel. The water circulates from the boiler to the radiators from **three to five times faster** than in the old style system, hence quick results from firing with a minimum loss of heat in transmission. No large, unsightly piping through the rooms with this simple system. Owing to the very rapid circulation of the water 1/2" pipes are amply large to supply any sized radiator on the upper floors.

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The Water Radiator Valve



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A substitute for Lath and Plaster  
Can be put on by any Carpenter.  
It is Warmer, more Durable,  
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Manufactured all 4 ft. wide, 8, 9, 10,  
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The Catch that Latches  
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Holds every time. Catches with a spring quick as lightning. Releases with a push and is then ready to catch the closing door again. Automatic—never fails. Spring has never been known to break, nor the catch to wear out or come apart. A wonder for



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Doors, Screens, Office Gates, Swinging Windows,  
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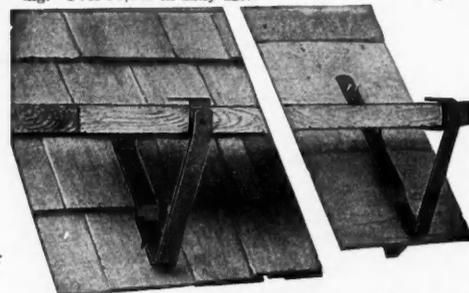
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Complete with screws, staple and templet—all in envelope. Price 15c each, \$1.50 per dozen. Sold by hardware dealers, jobbers and AMERICAN HARDWARE MFG. CO. : Dept. 79, Ottawa, Ill.

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**POINTS OF ADVANTAGE**  
The safety hook. Timber can't slip off. Is the only roof bracket which can be used both for shingling and sheathing. Over 50,000 in daily use.



Ask your dealer  
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### The Taylor Shingle Bracket

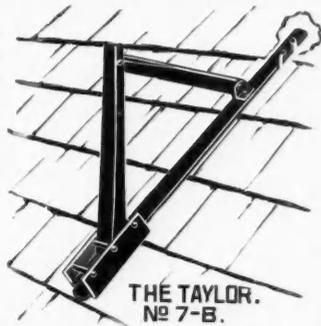
Adjustable to any pitch of roof; shingles laid over bracket, which is removed without leaving exposed nail holes.

Made entirely of steel, and folds up when not in use.

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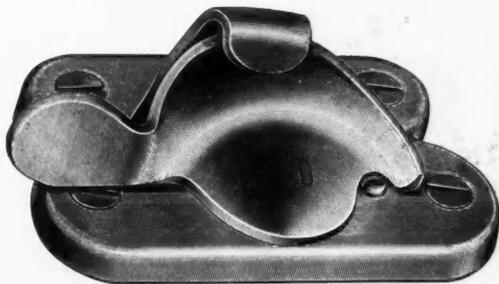


Don't Ask the Dealer for Sash Cord. Ask for "SILVER LAKE" and see that he gives it to you. It is impossible to



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

### MONITOR SASH LOCKS



(PATENTED)

#### NEVER BREAK

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

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

MADE IN TWO SIZES AND ALL FINISHES BY

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

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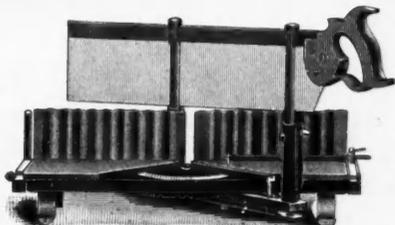
Direct from the makers to you. Inquiries welcome.



GRAND RAPIDS HARDWARE CO.  
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Made of STEEL - Cannot Break

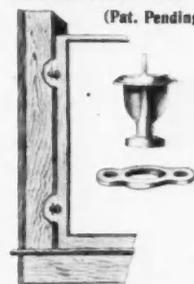


First in Quality and Improvements  
Automatic stops for holding up saw.  
Carrugated backs. Graduated.  
Gauge for duplicate cuts and many other features.  
Send for Circular "C"

GOODELL MFG. CO., Greenfield, Mass.

### BOARDMAN WINDOW-STOP FASTENERS ADJUSTERS

ARE Quickly Installed Prevent Rattling Window can be instantly removed without tools



(Pat. Pending) ARE Easily Adjusted When installed any woman or child can operate Write for further information

MANUFACTURED AND SOLD ONLY BY SENECA PATTERN & SUPPLY CO., SENECA FALLS, N. Y. Manufacturers of Patterns of All Kinds



# GOODELL-PRATT

## No. 111



This Screw Driver has the spiral cut at such a slant to give it the maximum of power.

It will drive large Screws with comparative ease.

It is the Screw Driver which should be in the kit of every up-to-date carpenter.

Many other tools equally useful and well made will be found in our catalog.

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2 Fine Screw Driver Bits, 5-16 and 1/4 inch.

Sharp Knurled Cup Point Nail Sets, 1-16 and 1/4 inch.

BMCO

Deep Cut Rose Countersink 1/4 inch

1 Sharp Knurled Prick Punch, 5-16 inch.

TRADE MARK

1 Concave Ground Square Reamer.

**EXPRESS 7 TOOLS FOR \$1.00 PAID**

Only one set to each purchaser, to get them known. If after trial you will part with them, we will pay you \$1.25 to get them back.

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On the edge of the Solid Metal Base (where they will always remain correct), degrees are accurately graduated.  
As the Swivel will automatically lock at any point, the operator can quickly set the Saw to cut the angle needed.  
For duplicating work, a stock guide can be screwed in a threaded Plate, inserted in base board, making a perfect length gauge.  
With these new features, the **Stanley Mitre Box** is more than ever a necessity to all wood-workers.

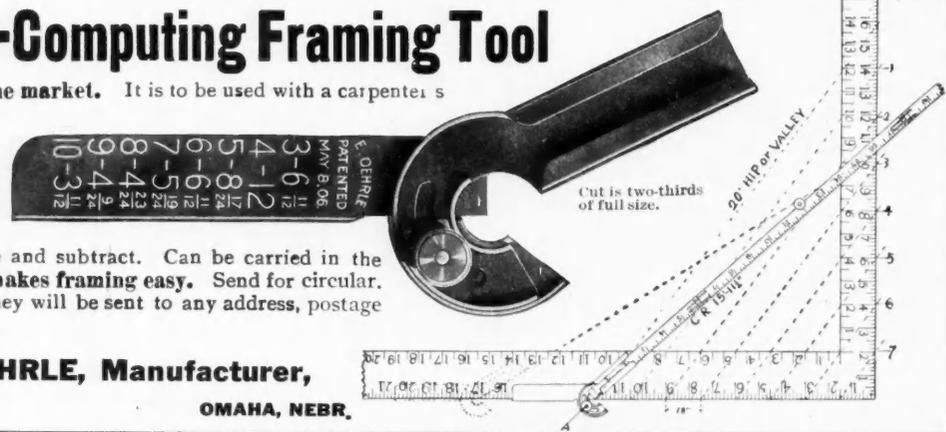
For full description, sizes, and prices, write for Catalogue No. 34.

*Sold by all Hardware Dealers.*

**Stanley Rule & Level Co.**  
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is the most practical tool on the market. It is to be used with a carpenter's square and rule. Use an Acme Framing Tool, and your troubles will cease in roof-framing. It will give lengths and cuts for any kind of rafters; lengths and cuts of rafters for any polygon roof; lay out stairs; will divide and subtract. Can be carried in the pocket. It is a time-saver and makes framing easy. Send for circular. Ask your hardware dealer, or they will be sent to any address, postage prepaid, on receipt of \$1.00.

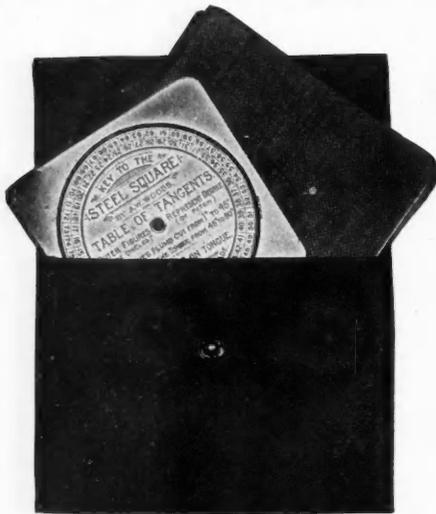


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**This is it.**

The Key,  
Book of  
Instruction  
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Morocco  
Case.  
Full Size  
4x5 inches.

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

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## OUR NEW STEEL SQUARE

Aside from excellence of material and workmanship, the greatest difference between the best Carpenter's Steel Square and the old iron square of the blacksmith, consists of the scales and markings on the improved tool. Our square, as recently improved, enables the carpenter to lay out all kinds of work and to calculate quantities with an ease and accuracy never before known.

Our Steel Square Book, describing the new tool, is a veritable PRACTICAL TREATISE ON THE STEEL SQUARE and we will send a copy, without charge, to anyone who in writing us will mention the American Carpenter and Builder.

**SARGENT & COMPANY**

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NEW YORK

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WILKES BARRE, PA.

The Phoenix Sliding Blind Co.

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

C. W. MILLER.

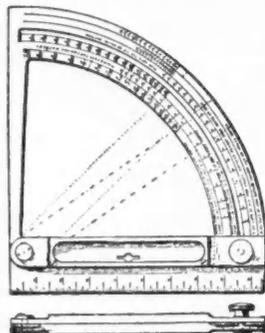
**Comfort!  
Economy!  
Convenience!**

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

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BRIDGE & CANAL STS. PHOENIX, N. Y.

## 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.

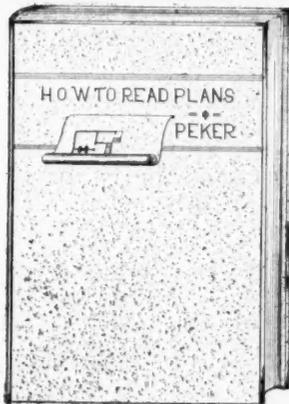
Cleveland, Ohio, Oct. 7, 1907

Mr. Calhoun: After examining your Rafter and Polygon Bevel would say that I consider it one of the most complete framing 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

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For a Stronger, Lighter, Cheaper and Better CLAMPING DEVICE than this



This adjustable 6 in., 8 in. and 10 in. Brace

\$4.00

By express prepaid for a LIMITED TIME ONLY



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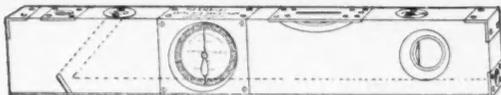
The E. S. BRACE CO.

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NEW YORK

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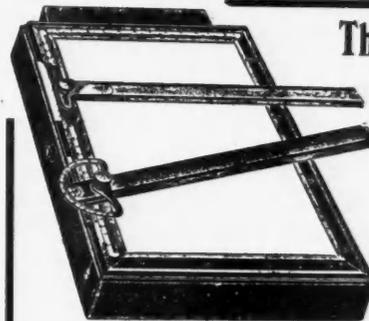
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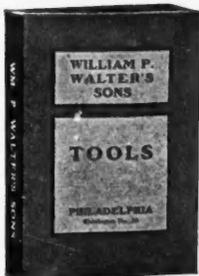
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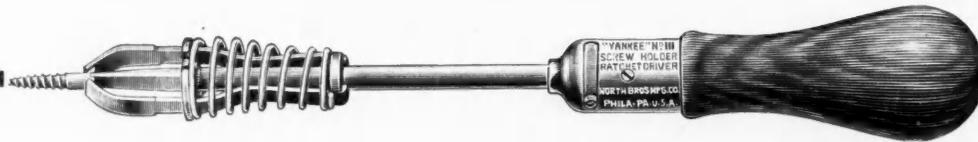
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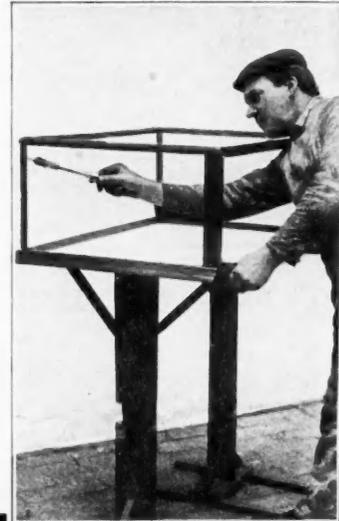
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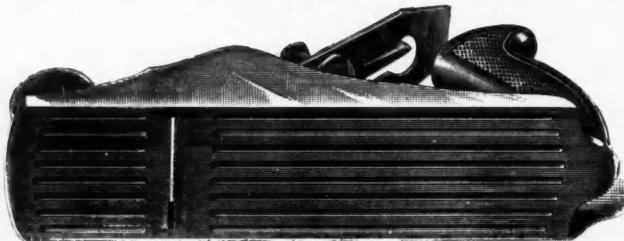
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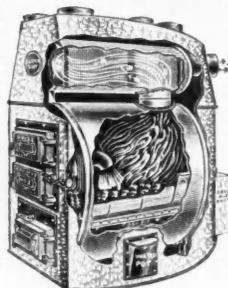


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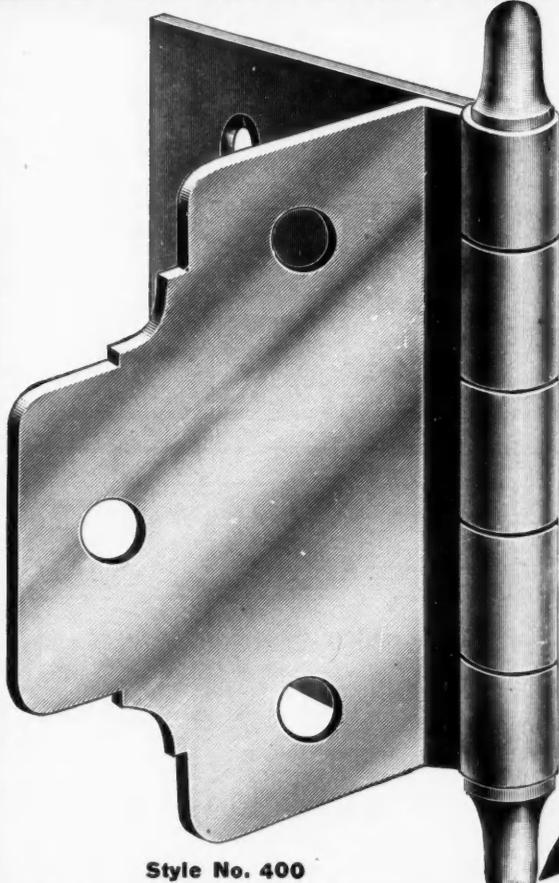
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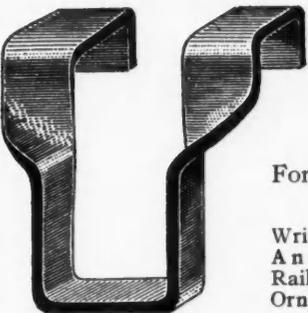
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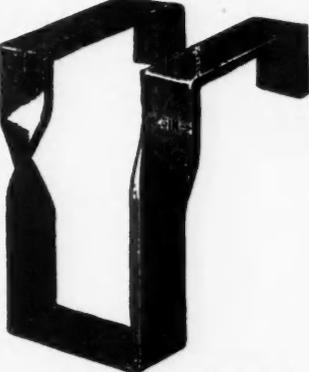


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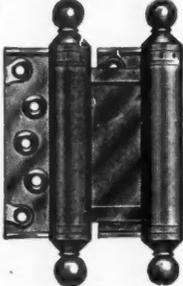
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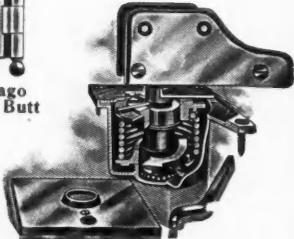
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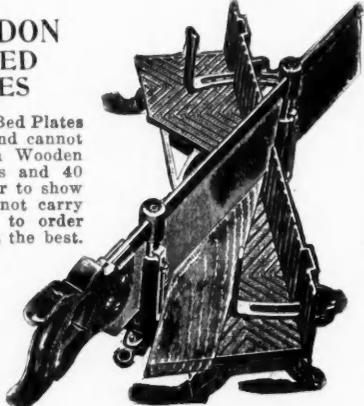


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## American Carpenter and Builder

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

Published monthly by  
**American Carpenter and Builder Company**  
185 JACKSON BOULEVARD, CHICAGO.

VOL. V                      JUNE, 1908                      No. 3

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

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**T**HE only way to get friends is to make them yourself.



**I**T IS the steady gait all day that counts for most—provided the gait is not too awfully slow.



**"D**A AIN'T er bit of use," observed sage old Ephriam, "for er man ter hab er heap ob book

larin' in der upper story ef he hain't got no common sense on de groun' flooh."



### Who Will Be the Winner

**W**ITH only one month left for work, redoubled interest is being shown in our Great Prize Contest. Hundreds, yes and thousands, fired with enthusiasm when our announcement of this Contest was first made—realizing the unheard-of generosity of it—enrolled themselves for it, and went to work. For a Home is something that appeals strongly to every man, and still more strongly to every woman.

Now it seems to be a common failing of humanity to keep putting things off. The first enthusiasm dies down; and, although the prize is still desired as much as ever, the thought comes,—“Oh, I'll get busy at the last; there is plenty of time yet!”

That is the way it has been with a great many of our readers; they have kept thinking right along that there would be plenty of time yet to line up all the men in their respective territories who are not, but *ought* to be, readers of the AMERICAN CARPENTER AND BUILDER.

But now, with only the month of June left for work, there are signs of re-awakening and of redoubled effort. The size of the two grand prizes, materials complete for a \$3,000 house and for a \$2,000 house, is so out of all proportion to the small amount of work required to secure one of them that many, doubtless, became discouraged at first, thinking that there was no chance and not much use trying. Many of these now see their mistake, have taken heart and have gone to work again.

The finish of this great Home Contest is going to be very pretty. We offer you all a fair field with no favors; and we wish you all—good luck. We have the goods all ready for prompt delivery to the winners at the end; and you will be surprised and pleased at the generous excellence of them.

The winners of the monthly cash prizes for April were: T. J. Holler, R. R. No. 2, Peabody, Kan., \$50; and J. M. Heinonen, Negaunee, Mich., \$25. We also allow a liberal commission for each new subscription.

### Stick To It

ALL of us have our troubles, more or less. Some of them are real, all right; some of them only seem real, painted big and black by fear and imagination. They loom up ahead on all sides. But it is amazing, sometimes, to see how they shrivel up and lose themselves as we get to them.

Moreover, it is the *hard* things to do that develop the muscle, both of body and of character. Therefore, the following; it is healthy and stimulating:

Do it! Keep on and leap on—get through it!  
 Don't stop in the road or hop like a toad  
 From this side to that, or fly like a bat  
 With your head upside down till your brain rattles 'round;  
 Of course—there are boulders!  
 But *you* have strong shoulders—  
 A tug and a stride, though, will move them aside—so!  
 Deep ruts? To be sure.  
 Toward the end, though they're fewer.  
 The path *over there* may appear far more fair,  
 But *you haven't the time* to find out if it's prime,  
 And the road to *the right* winds too far out of sight,  
 It *may* prove much slicker and smoother and quicker,  
 But you *know* your way's right, for the goal is *in sight*.  
 So what *if* it's rough—isn't sureness enough?  
 Jot this down where 'twill *stay*, for you need it all day.  
 What's got without effort is worth what it cost.  
 The easily gained things are easily lost.  
 When a road is worn flat you can bet your best hat  
 That it leads to a place where *too many* are at.  
 When a way is all roughness and gruffness and toughness,  
 And brambled and scrambled and wildly o'ergrown—  
 You can make up your mind  
 There are new things to find,  
 That you're getting at something that hasn't been known.  
 If you don't go on through it you'll live on to rue it.  
 Somebody who isn't a *quitter* will *do* it!  
 He'll laugh as he rambles his way through the brambles;  
 He'll know that the *big* things of life must be won.  
 He won't mind a stumble (it takes time to grumble);  
 He won't care a hang if he does bark his shin.  
 He won't be defeated because he's o'erheated.  
 He'll leap on and keep on *until he gets in*.

### Fire Losses

ANY effort made to reduce the annual fire losses of the country deserves hearty commendation and support. The drain upon the resources of the nation due to this cause is a tremendous one. It is an example of American wastefulness which stands out in marked contrast with the results of European prudence.

Berlin has a population of about 3,000,000. Its average annual loss by fire is about \$150,000. Chicago has about 2,000,000 people. Its fire loss yearly now runs close to \$5,000,000. The fire loss per capita for Germany, France, Switzerland, Austria, Denmark and Italy combined in a stated period was 33 cents, says the *Chicago Tribune*. In the United States for the same time the per capita loss was more than \$2.25.

It is no wonder that European insurance rates are found to be much lower than those in this country. The illustrations given in comparison are typical of

many that might be mentioned. Much is said in the United States about the enormous cost of standing armies. The total fire loss of this country each year averages now about \$200,000,000. That is \$20,000,000 more than the entire German army costs. Estimating American losses on the basis of European safeguards, it has been declared that \$175,000,000 of the amount is needless waste.

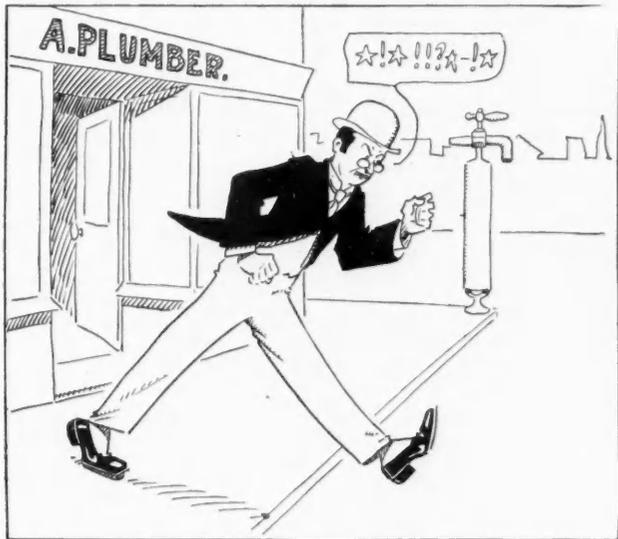
A good many people never stop to think of the bearing of a fire loss upon their own pocketbooks. They read of a destructive fire. They note the amount of the insurance and possibly the companies affected. They say "Too bad!" as they think of the unfortunate individual or firm. But they do not realize that the conditions making the fire possible are the factors in determining the rate they themselves have to pay upon their own homes. They seldom think that they are the real losers to a certain degree rather than the impersonal existence known as an insurance company.

### Craftsmanship

THERE is a clause commonly introduced at the commencement of specifications to the effect that "all work shall be executed in a thoroughly sound and workmanlike manner." In spite of the differences of interpretation of this by builders who are desirous of making undue profit, there is yet a fairly well recognized understanding of its meaning. The term, "workmanlike," implies that which is thoroughly good and honest of its class, the "workman" referred to being something very different indeed from the "working-man" whose endeavor is to obtain a maximum wage for a minimum of labor. Fortunately, there are still plenty of good workmen left, who really understand what is meant by honest labor, doing their best with skill and intelligence, producing joinery which is exactly true, brickwork which will bond, and masonry which is accurately bedded. Such a workman is appreciated, but no more than he deserves to be. He is generally an unassuming man, who honestly performs the task set before him, and boasts but little. We have come of late years to call such men "craftsmen," rather than workmen; but it is doubtful whether the old term is not the best.

Taking all considerations into account, it is obvious that the preservation of a tradition of sound craftsmanship is of the greatest importance. The principal thing necessary to accomplish this is to secure adequate supervision of the younger men by those who are thoroughly experienced, and who have no other idea than that of doing their best, and of obtaining the best also from all who are under their charge. Another feature, more important now than ever before, is the necessity of keeping posted on the latest developments of the building trades. This applies to all, but more especially to the younger workmen. This is an age requiring study and book-knowledge; mere manual skill is no longer enough.

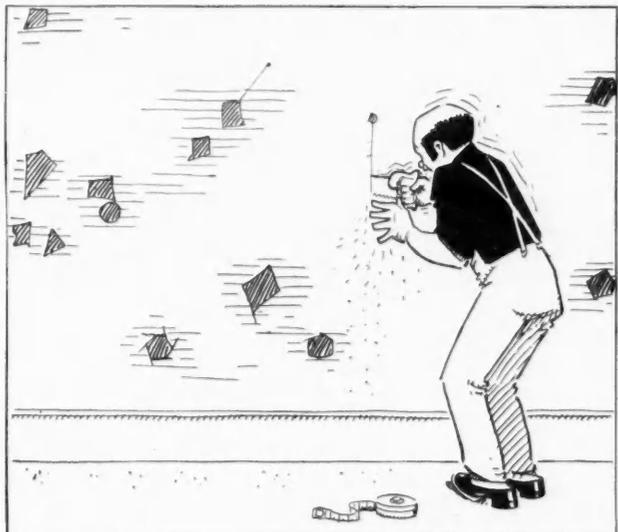
Biography of Mr. Thinks E. Knows. No. 5—He Installs the Plumbing



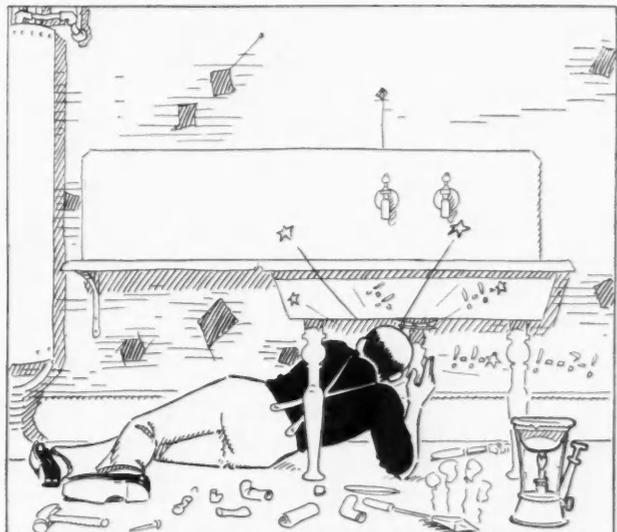
Mr. Thinks E. Knows Thought the Plumber's Prices Exorbitant—



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After a Vain Struggle to Fix it, He Phones for the Plumber.

W.L.BUR



## Conservative Lumbering in America

By Ira S. Griffith

**L**UMBERING is of two kinds: conservative and ordinary. The first seeks to so treat the forest that successive crops may be produced; the second takes no account of the future, but cuts only the better parts of the trees, often destroying young and promising trees in so doing.

Lumbering in the northern United States is usually carried on at quite a distance from habitation. A camp is therefore prepared at a spot convenient to the scene of the proposed logging operations. Here the men eat and sleep.

Since most northern logging is done in the winter these camps are made up mainly of transients, men whose home keeping requires but a place to sleep and eat, with storage room for the trunk, bag or box. The

buildings in these camps are made for use, architectural features being unnecessary.

The men, for the most part, are a hardy, healthy, good-natured set. Their winter life is a strenuous one, but is calculated to make for good feeling withal—provided the cook does his part. Early to bed, early to rise and active exercise in the open air of the crisp



Loading White Pine Logs on a Car, Northern Michigan



Rolling Logs into the River, Northern Michigan

winter days creates an appetite which stands not upon the rules of polite society for its satisfaction. The preparation of a meal in many of these camps, owing to the army of men to be served, is a task of no small moment.

The building of a camp is preceded in many places by the making of a road. With the completion of the road and the camp, lumbering begins in earnest. The trees which are to be cut are marked, usually by chipping them with a hatchet at their bases. This is done

by an official, after whom come the men whose duty it is to fell the trees. In conservative lumbering the trees are selected in such a way that their removal will not cause injury to the forest. Trees, like any other plant life, mature. It should be the aim of lumbermen to remove mature trees, first, because their wood is needed; second, because the younger trees need the room for growth.

It is said that the difference between the practical work of ordinary lumbering and of conservative lumbering lies chiefly in the selection of trees, in felling them and in the first part of their journey from the stump to the mill.

The best time of year for cutting trees is in the late fall and winter, for several reasons. First, trees cut

arily be more than its lumber will be worth. Felling may be done either with the ax or the saw, usually with both.

It is no uncommon sight to see clearings in which the

in the spring or summer contain a large amount of sap or undigested food. This sap causes the wood to decay much more readily than it otherwise would. Second, the damage to the young trees will be much less in winter than in summer when their bark is green and tender.

Felling the trees requires skill and experience. It must be made to fall as clear of the young growth as possible, yet in such a position that it can be readily cut up. A tree that is likely to be broken in its fall would better be let alone, for the expense of getting it down and to the mill will ordin-



Felling Crew, Sedro-Wooley, Washington



Noontime in the Lumber Woods, Adirondack Mountains, New York



**Skidding and Loading Cypress Logs on Train, Bowie, Louisiana**

trees have been cut off high above the ground. This high cutting is made, not as one writer states, because the lower cuttings were harder to make, but because experience had shown the lumbermen that the wood

near the base of the tree is not so desirable as that higher up. In California many of the Big Trees are cut as high as ten feet above the ground. A series of holes are bored into the tree and planks are inserted



**Hauling Logs to Main Skid Road with Engine and Cable, Cascade, Oregon**

into these upon which the chopper may stand. Conservative lumbering would cut the tree close to the ground. Were the trees cut close to the ground the wood so gained, while not so valuable, could be used for lath, etc. In fact, many of these tall stumps are



**Falling Tree, near Ocilla, Georgia**

being cut close to the ground to-day. The high price of lumber, due to its growing scarcity, makes this kind of lumbering worth while.

With the felling of the tree, the lower branches are chopped off and the crown is severed from the trunk, which is then sawed into convenient lengths for handling. The brush should be cleared away so that the young trees which are held down may be released as soon as possible. Crowns should be cut up sufficiently to allow of their sinking to the ground that they may the more quickly decay.

It is in the transportation of the logs that Yankee ingenuity asserts itself most. There are many ways, from the simple practice of attaching a chain to a log and pulling it with a horse, to the mechanical processes highly developed, of handling the great Redwood logs of California.

The first step in the log's transportation is known as skidding, and consists in collecting the logs in piles at some convenient place. These are called rollways, yards, or banking grounds. Horses and oxen may be used to drag the logs. Donkey engines with wire cables are quite common. Wire trolleys are not unusual. A donkey engine furnishes the power, the skidding and loading taking place at one operation.

Whatever method is used, care should be taken not to bark standing trees nor to break down the young saplings. Conservative lumbering demands, also, that

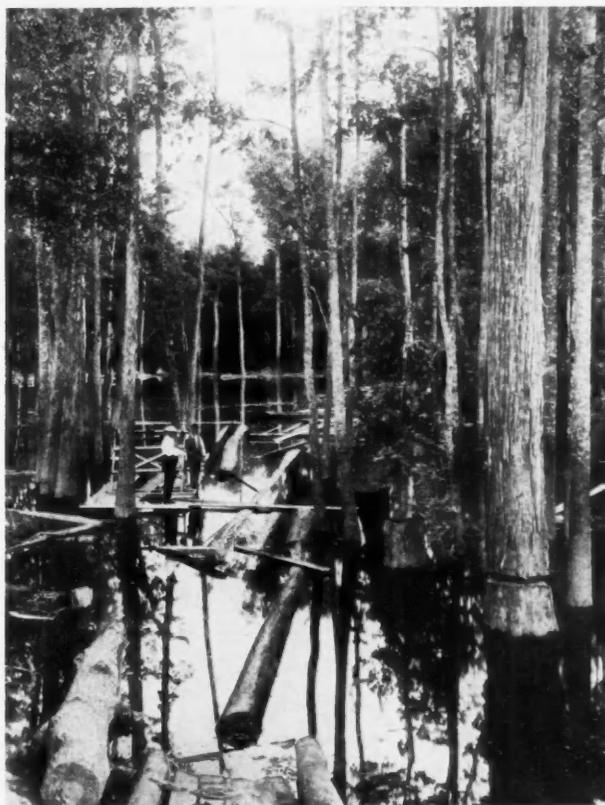
the young trees of unpromising growth be cut for skids, out of which to build the skidways. Though it requires more of patience and effort to place them, it is better than to sacrifice the promising young trees.

Logs are transported to the saw mill by sleds, by rail and by water. There are various ways of transporting by water. Among them are the alligators of the Canadian Lakes, the giant rafts of the Pacific, the splash dam, river rafts, and flumes.

Where sleds are used, ice roads are made, and the reader, no doubt, is familiar with the enormous size of the load that can be hauled, one of which was exhibited at the World's Fair at Chicago, pictures of which are scattered all over the country.

Splash dams are used when a stream is too shallow to float the logs under ordinary conditions. A dam is built across the stream, water is collected above and the logs below it. When the gates of the dam are opened the flood of water carries the logs down the stream.

On large streams the logs are bound together and floated as rafts, or they may be floated singly. When they are floated singly they are accompanied by men called river drivers, whose business it is to break up



**Lumbering Cypress, Telfair County, Georgia**

any jams which the logs may form. River drivers must walk upon the logs as they roll and float upon the water, and their work requires great skill and daring. To break a jam requires the presence of the men near the middle of the stream, usually, and when the key to the jam has been removed thousands of logs go out with a rush. It is the river driver's skill in leap-



End of Rogers County Lumber Slide, over 7 miles long, Adirondack Mountains, New York

ing from log to log that saves him. Not infrequently his life goes out as a sacrifice, in spite of his skill.

Flumes are long troughs built to carry a stream of water upon which the logs may float. They are most

commonly used for transporting railroad ties and lumber.

In speaking of conservative lumbering and in comparing American methods of lumbering with those of

Europe, Gifford Pinchot, Chief Forester of the United States Government, has the following to say: "The products of the forest are among the things which civilized men cannot do without. Wood is needed for building, for fuel, for paper pulp, and for unnumbered uses, and trees must be cut down to supply it. It would be both useless and mistaken to try to stop the cutting of timber, for it could not cease without great injury, not to the lumbermen only, but to all the people of the nation. The question is not of saving the trees, for every tree must inevitably die, but of saving the forest by conservative ways of cutting the trees. If the forest is to be preserved, the timber crop now ripe must be gathered in such a way as to make sure of other crops hereafter.

"In general, it is true that the present methods of lumbering are unnecessarily destructive and wasteful. This is not because lumbermen are more greedy for gain or less careful of public interest than other business men, for they are not. It happens partly because in this country, compared with France and Germany, and other densely populated regions, there is so much timber in proportion to the population that it does not pay the lumberman to take anything more than the better parts of the trees he fells. The lumberman can not do his work unless he does it at a profit, and he must do it, for lumber is indispensable. Consequently, although much of the waste in lumbering is not only unnecessary, but actually costly to the lumberman, for the present it is impossible to avoid waste altogether. It will be easier to do so when the methods and advantages of conservative lumbering, which is forestry, are better known to the American lumbermen, and are therefore in more general use. Although rough conservative methods have often been practiced in the past, the success of the lumbermen who made the trial

was generally but partial, because their knowledge of the forest was partial also. They were often deceived by underestimates of the capacity for tree growth of the lands they were handling, because accurate measurements were lacking, and they seldom made full use of the productive power of the forest.

More recent attempts, based on better knowledge, have been successful in almost every case.

"Lumbermen in America are second to none in skill and ingenuity, in the perfection of their tools, and in the effectiveness of the methods they have devised. The nations of Europe, although they have given far more attention to forestry than we, are very much behind the United States in these respects. So it is not surprising that Americans have been slow in changing their methods, especially when methods and lumbermen alike have often been attacked as wrongly and intemperately



V Shaped Timber Flume, Sheridan County, Wyoming

as the foreign methods have been praised and recommended. German methods would be as much out of place in America as American methods in Germany. What American foresters should do and are doing is to combine the general principles of forestry, which are true all the world over, with American methods of lumbering. The product will be a system of forestry especially adapted to the United States. The foundations of such a system are already laid."

+

#### U. S. Wood Testing Laboratory

The U. S. Forest Service at Washington has established a laboratory for investigating the structure of commercially important woods, so that architects, builders, dealers and users may be furnished means of determining just what a wood is and to what use it is best adapted. The necessity of something of this kind is being more and more appreciated by the trade because of new woods being introduced.

## Home Designing

HOW TO PLAN AN ATTRACTIVE AND SATISFACTORY RESIDENCE—ILLUSTRATIONS SHOW A VARIETY OF STYLES SUITED TO DIFFERING TASTES AND NEEDS

**A**RCHITECTURE, and especially home architecture in this country, bears the stamp of pretty nearly every race, clan and tribe under the sun. All nations have come to us, bringing with them their native building ideals—the Hollander with his compact little cottage, tile roofed and dormer windowed; the English squire with his broad, rambling manor house of stone and brick; the thick walled adobe of the

of livable homes in either of those periods. Home designing and building is the one fine art of the present day that certainly does not suffer in comparison with any work of the "grand old masters." A trip through any of our city suburbs or smaller towns is sufficient to demonstrate this. Of course, all the dwellings are not to be thus praised—and it would be unreasonable to expect it—but whether it is the Fifth avenue mansion, the country cottage or the nature lover's bungalow, whether it is the home that represents the expenditure of hundreds of thousands of dollars or the home that stands for applied economy, one finds expert provision made for convenient, sanitary living, also a general display of good taste that is a vast and still growing improvement over that of any preceding period.

This being so, it ought to be much easier to produce satisfying results now than ever before. The only thing necessary is to determine how large and how expensive a house is desired, when immediately a

number of examples are at hand ready to demonstrate the practical value of each desired feature.

The first essential, always, is that the house, both in size and in plan, should be suited to the needs of the family that is to live in it. For the country house-



Residence of the Square Type—Broad, Roomy and Comfortable

Spaniard; and the wonderful creations in framing and carved wood of the North Germans. All of these styles, together with everything in the way of cabin construction known to the wild tribes of the earth, have been planted side by side in this new country. The resulting crop that has grown up is a decided mixture, perfect in home conveniences and comfort, and possessed of beauty—in spite of occasional startling features; but it is a style hard to name.

Some have expressed a doubt that there is such a thing as an American type of architecture. If there is, it is like the American character—a composite, a pot-porri, gathered from all corners of the earth.

We hear very much of the purity of design and of the perfect proportions of the classic Greek temple; also very much about the massive grandeur of the Gothic cathedrals of the Middle Ages; but no mention of much in the way



A Freak Style—Spanish Stucco House as Built in the Southwest

wife to do away with the big, light, airy kitchen, that joy of the old farm house, in favor of a modern "kitchenette"—all because Cousin Mary has one like that in her "folding flat" in the city—would be quite as sensible as for a father of five growing daughters to strike out the parlor from his building plan—just because Mrs. Smith, when she built her new house down the street, left out most of the partitions and labeled it "living room." Since there is slight chance of pleasing the neighbors, anyway, make it the chief aim to satisfy the needs of the owner.

We have reached the advanced



**Square, Story and a Half Cottage—A Popular and Satisfactory Design**



**A Simple Little Cottage—Very Home-like and Attractive**

stage where we realize that a house is made to live in, not to look at. So the plan comes first. A very pronounced tendency in modern residence work is to increase the size of the rooms, making fewer of them. This is very good as it effects quite a saving in cost; it also makes the house more desirable, for—while there is no more occasion now than formerly to do it—still it is a great satisfaction to have an apartment where there is room to swing the proverbial "cat."

Very seldom is space wasted now for narrow halls, passage ways and cubby holes. If there is a hall, it is broad and well

lighted, to be used as a reception room, or in smaller houses as part of the living room. There is quite a reaction from the excessive "closet idea" of a few years ago. The best practice now provides a few very large clothes closets, each with a generous sized window for light and ventilation. In addition to this there are numerous built-in cabinets, cupboards, linen cases, etc.

Throughout the whole house, as planned today, labor-saving devices and arrangements are provided. In fact, the real distinguishing feature of modern American home designing is the attention paid to housekeeping



**Modern and Well Built—The Porch Treatment Is Especially Good**

needs. Nooks, cracks and inaccessible corners are avoided, moldings and inside trim are simple in design; kitchen and bath room floors are made of waterproof cement mosaic, and the wainscoting of both these rooms is of enameled tile or other easily cleaned material.

To provide the generous amount of fresh air and sunshine now desired the windows are arranged for from the inside—according to the purpose and needs of each room—the outside appearance takes care of itself.

The striking feature of the exteriors, in contrast to the old-time building tenets, is the variety and combinations of building materials now used.

The illustrations show six different types of houses. They embody some



**An English House—Fine Example of Brick and Half-timber Construction**

very attractive features of exterior finish, porch and balcony treatment, etc. Good structural ideas can be gained from them all.

## A Small Attractive Library

PERSPECTIVE AND FLOOR PLANS OF A MODERN LIBRARY BUILDING DESIGNED FOR A SMALL TOWN—  
DETAILS OF ARRANGEMENT AND FINISH

**T**HE library building shown herewith is from a recent design by G. W. Ashby, architect; the purpose being to provide a neat, attractive little

building, suitable for a small town—one that would be substantial yet inexpensive to build. The result is a very pleasing structure.



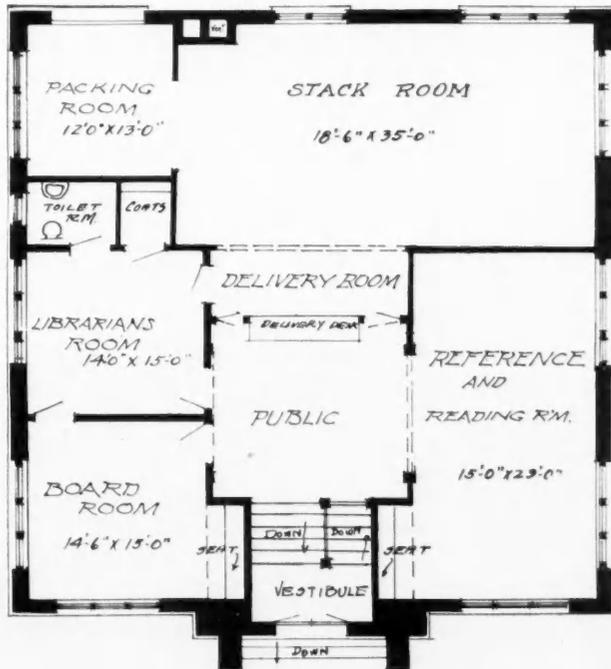
The walls are faced up on the outside with a good grade of vitrified brick, the body of the walls being composed of the common cheap building brick. About

ing plant. The entire interior is finished in oak, the walls being tinted and frescoed.



PLAN OF BASEMENT

the windows and doorway there is a veneer of Bedford limestone. The galvanized iron cornice and coping are painted and sanded to match this in color. The foundation wall and the steps are concrete.



PLAN OF MAIN FLOOR

On the main floor, provision is made for ample book storage, reading and reference room, librarian's room, and a room for the library board. The basement is finished throughout and contains ladies' reading room, smoking room, toilet rooms and steam heat-

### Income from Expensive City Lots

In all large cities there are valuable lots that should support expensive buildings, but capital is not readily available for such work. Often owners pay taxes year after year on such property without receiving any income. The lots grow up to weeds, receive all sorts of rubbish and are a nuisance generally. The illustration shows such a lot in the city of Chicago. The



Temporary Building—Rent Pays the Taxes

owner could not afford to put up the kind of structure to properly fit the lot so he built these low stores with cement blocks. The buildings are practically fire proof and they are about as cheap as buildings can be constructed out of any kind of material. The floors are of cement, built like a sidewalk on a cushion of cinders and the roof is covered with cement, troweled into expanded metal lath. Such stores will rent for enough to pay the taxes and a little besides. It is much better than paying for the privilege of owning a nonproductive eye-sore.

### Home-Made Lighting Plant

In his leisure hours Fred Brendel, engineer of the Commercial building, at St. Louis, Mo., has been constructing and just brought to completion an electric lighting plant, which he has installed in the yard back of his residence on Union boulevard.

With his home-made electric lighting plant he is able to illuminate his home and that of a tenant and furnish enough power to run a sewing machine and other small household machines, do the family ironing, run electric fans and proposes in the near future to be able to cook.

In the house is a four-horse power engine and generator. The engine is run by gasoline and is managed by Mrs. Brendel, who has been appointed chief engineer, while Mrs. Louis Daniels, who occupies the upper part of his residence, is assistant engineer.

The plant cost about \$400 to construct and the cost of lighting the house is about ten cents a night.

# STEEL SQUARE

ALFRED W. WOODS

## How To Use the Steel Square

SHOWING HOW MITRES ARE RECKONED FROM CIRCULAR MEASUREMENT—THEIR RELATION TO STANDARD MEASUREMENT AS OBTAINED BY THE AID OF THE STEEL SQUARE

FOR our subject this month, we will take miters again. We say again, because the Charter Members will remember that we pretty well covered the subject of miters in the early numbers of this paper, but as the AMERICAN CARPENTER AND

builders encircling the earth's orbit from pole to pole, which are called degrees, and are 360 in number. Therefore, as the circumference of the earth is divided into 360 equal parts, the same holds true of all circular measurements or divisions. The miters, as we have said before, partake of these parts and may be obtained with the aid of the steel square; see Fig. 193.

A short time ago, while passing through the campus of one of our state universities, we chanced to pass a beautiful sun dial—a memorial erected by one of the graduating classes. On its marble face were engraved the hour and minute divisions, so that when the sun cast its rays across the stile, its shadows followed the markings and thereby indicated the time of day. But just at that particular time a cloud obscured the sun from view. There stood the sun dial, a mute witness ready to tell the time of day, but it

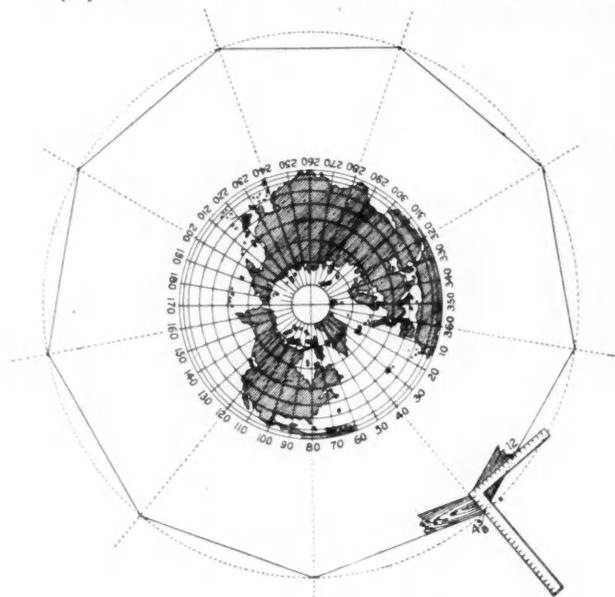


FIG. 193.

BUILDER family is ever on the increase, and as thousands that are its readers now were not readers then, we feel justified in taking up the subject again, but in doing so, will endeavor to present it in a new light. Moreover, indirectly, our whole work from the beginning has been on miters. Roof framing might be regarded as miter work. It may be regular or irregular, part of the miters being on a level and part on an inclined plane, but they are miters just the same.

In looking up the subject, we find that the wise ones give it only as applying to a cut on an angle of 45 degrees. However, we believe it is universally understood to apply to the joining of two members at any angle and will treat it as such.

Now, let us go back to the beginning—to Mother Earth, as it were. Did it ever occur to you, that the reckoning point from which the angles for the miters are found are the same as that for the divisions of the earth's circumference, by which the sailors at sea keep tab as to their location and pilot their way accordingly? The parts taken are the imaginary divi-

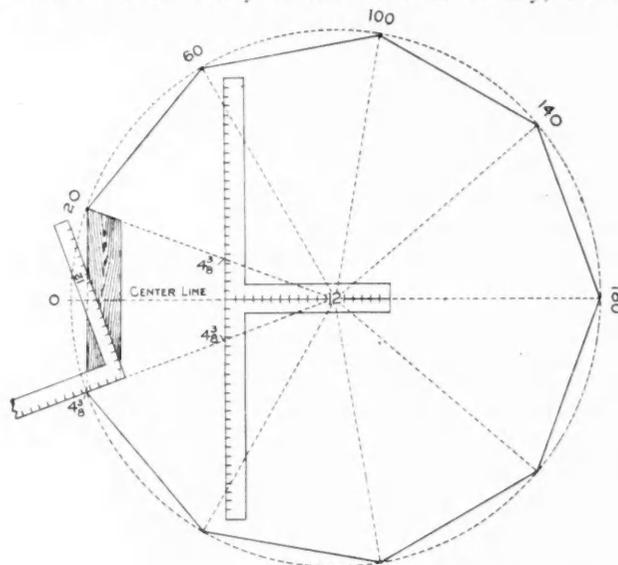


FIG. 194.

lacked the necessary light to give the information it contained. It is just so with the steel square, which is to the degrees, as the stile is to the sun dial. It is ready to give the readings of the most intricate problem; the information is there; but we must have the intellectual light, and then all will be clear.

In the illustration above referred to, is shown the divisions as applied to the earth, and in connection with this is shown a circle divided into nine equal parts (called a nonagon). These parts are obtained by

dividing 360 by 9; the quotient is found to be 40, which represents the required divisions in degrees of the circle, or the angle that the miter cut bears to the one at the opposite end of the timber that forms the side; but to obtain the angle with the steel square,

comprises  $\frac{1}{8}$  of the circle, which is all that is needed in obtaining any angle with the aid of the steel square, because when the blade is giving a desired angle, the tongue will give the complement degree. That is, when the blade is set for 1 degree, the tongue will

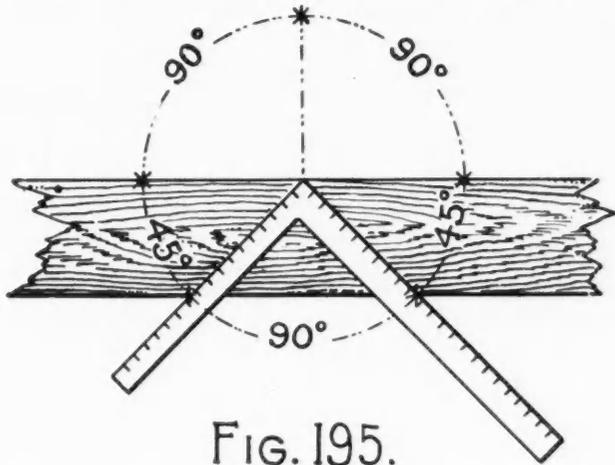


FIG. 195.

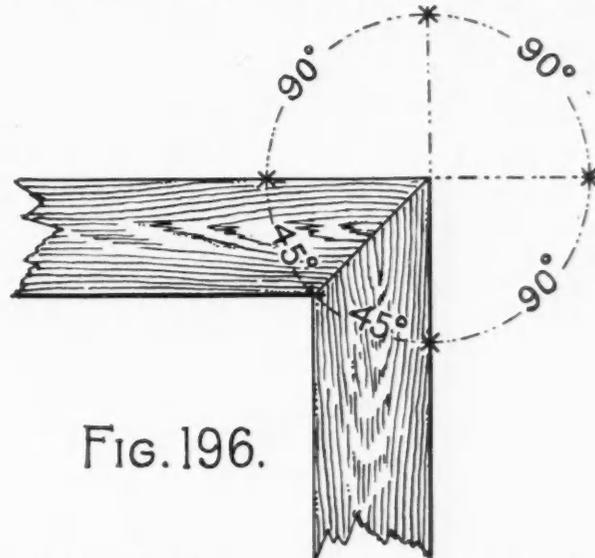


FIG. 196.

the reckoning point is at the middle of the above angle. Consequently it is only necessary to take one-half of 40, or 20 degrees, on that instrument. This is illustrated in Fig. 194. The 20 degree line is found to pass at 4.37 ( $4\frac{3}{8}$ ) on the blade; then 12 and  $4\frac{3}{8}$  will give the miter as shown. It is better to work from 12 on one arm of the square for all angles, because it represents unity or the beginning from which to base other calculations, such as the length of the sides of polygons, which may be found as follows:

Say we wish to frame a nonagon, with an 8 foot inscribed diameter. Multiply  $8 \times 4.37 = 34.96$  inches,

give 89 degrees. When one member is giving 30, the other will give 60 degrees. In the case of the nonagon, 12 and  $4\frac{3}{8}$  give the angle for 20 degrees. The same figures will also give the angle for 70 degrees, because it is the complement.

The blade gives the angles for all cuts under 45 degrees and the tongue for all over that number. Therefore, the degree lines above 45 are simply a repetition of those below, as for instance, 36 degrees (12 and  $8\frac{17}{24}$ ) will give the miter for the pentagon. The blade giving the cut. Fifty-four degrees (12 and  $16\frac{1}{2}$ ), which is the complement, will give the same

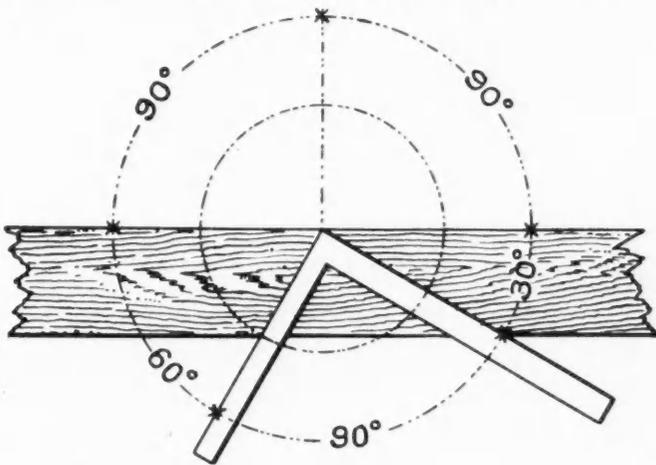


FIG. 197.

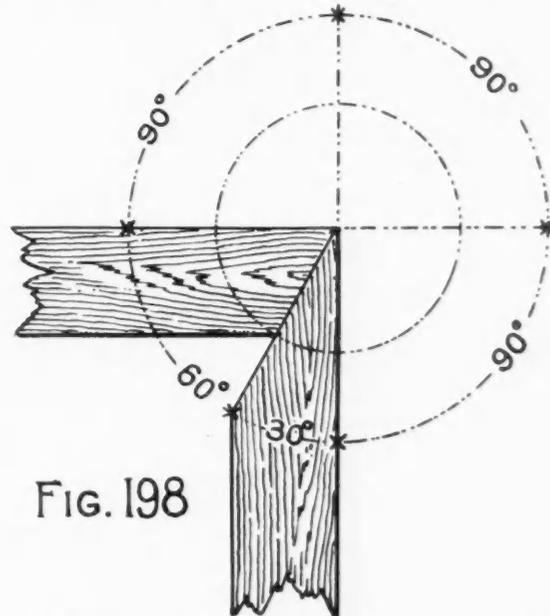


FIG. 198

or practically 2 feet 11 inches, which will be the length of the required sides. By using 12 on the tongue for the starting point, it answers for any cut up to a little over 63 degrees, when they pass off the blade. The blade in each case gives the cut. However, any angle in degrees can be had without going above 12 on the blade, because a line from 12 to 12 forms an angle of 45 degrees from either blade or tongue. This angle

thing; but the tongue in this case will give the cut. It is better to use the first set of figures, because as we explained in the case of the nonagon,  $8\frac{17}{24}$  is the proportion to use in finding the length of the sides.

Perhaps we can make this point clearer by applying the above rule to the most common of all miters, that

for a square corner. Suppose we wish to find the miter for a square frame (tetragon). Divide 360 by 4 and the quotient will be 90, which represents the degrees of the angle and is also the same as that formed by the blade and tongue of the square to each other. This, when applied to the straight edge of a timber, would simply give the square cut, which is all right for the lap joint, but for the miter we must take one-half of 90 degrees, or 45 and 45, on the steel square. Either side in this case will give the miter because like figures are on both blade and tongue.

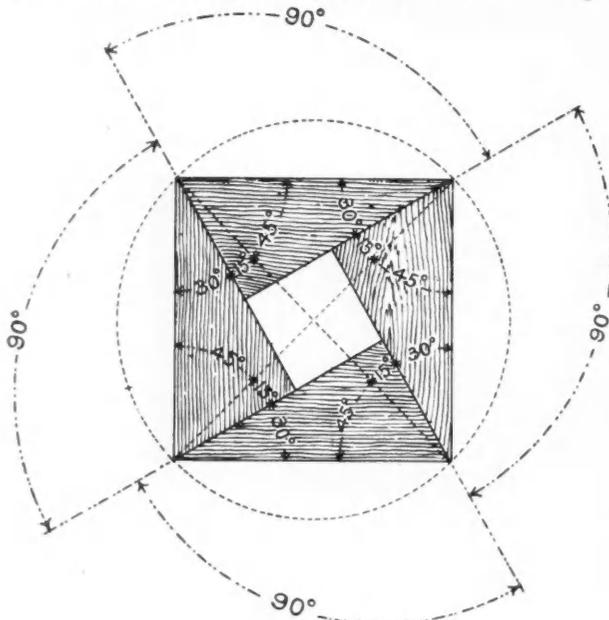


Fig. 199

Aside from giving the miter, 12 on the tongue represents the diameter and 12 on the blade represents the corresponding length of the side. Simple enough. Every saw and hatchet man knows that, and if asked to cut the frame so that the diameter would be six feet, he would of course cut the pieces six feet long. But how many ever stop to enter into the real cause why this is so? If it is 12 inches for one foot, for six feet, it must be  $6 \times 12$  inches or six feet. That being true for an equal sided square frame, it necessarily follows that the same rule applies to other equal sided frames. If we place the steel square with the heel resting at the center of a circle, the space between the outer edges of the blade and tongue will cover  $\frac{1}{4}$  the area of the circle. The straight edged board is 180 degrees and by placing the steel square with the heel resting just at the edge, with like figures on the blade and tongue at the other edge, and by removing that part covered, as shown in Fig. 195, the two severed parts when placed together will form the regular miter, as shown in Fig. 196. We took 90 degrees from the straight board (180 degrees) and have 90 degrees left, as shown in the latter figure.

In Fig. 197-8 are shown similar illustrations, but the steel square is in a different position. It is placed for the 30 and 60 degree angle.

Now, by removing that part covered by the steel

square, as before mentioned, the severed parts will miter, as shown, making a 90 degree angle, as before, but the inner edges will not intersect. This shows that it does not matter at what angle the steel square is placed on the timber, after the space covered is removed, the two remaining pieces will always form a right angle.

In Fig. 199 are shown four blocks such as would be obtained as mentioned above in Fig. 197. These blocks are placed so as to form a perfect square. The figures used to obtain these blocks are those that give the triangle and hexagon miter. (The tongue giving it in the former and the blade in the latter.) Note how the miter lines diverge from the common center as indicated by the dotted lines, and as would be in the case of the 45 degree angle. These blocks will also, when properly placed, form the polygon which their degrees represent.



### Architectural Exposition

The first annual National Architectural Exposition will be held during the week of September 14 to 19, at Madison Square Garden, New York City, which building is the ideal and appropriate place for this project—the most famous amusement structure in America and of rare architectural beauty.

It will be the first exhibition of its kind held in this country and by its attractiveness and importance should arouse the attention of the nation and bring visitors, especially the professions, the manufacturers, the trades, students, lovers of art and science from every section of the United States, and will be of special interest to people of wealth and culture—the purchasing public.

Manufacturers of the newest and best in building construction and materials, in articles of equipment and decoration can here conveniently and interestingly present their products to the professions, the trade and the public by exhibition, demonstration and application. Raw material and manufactured goods entering into the construction of buildings, engineering effects, decoration, landscape and garden features will be shown.

No space will be allotted to exhibits of ordinary character, which possess no special features of novelty, utility, originality or beauty. Here will be shown up-to-date effects in engineering, construction and equipment, interior and exterior decoration and furnishings.

Application blanks and floor space diagrams can be had from Alfred Chasseaud, general manager, No. 1 Madison avenue, New York City.



### Right

"It costs more to live than it did years ago," said the man who complains.

"Yes," answered the man who enjoys modern conveniences, "but it's worth more."

# PRACTICAL CARPENTRY

## Building a Public Stair

DIFFICULTIES OFTEN ENCOUNTERED AND HOW THEY CAN BE OVERCOME—MATTERS TO BE CONSIDERED IN LAYING OUT A SET OF STAIRS

By Charles Anderson

THE stair shown herewith is one that was to be built into a public hall; and, as so often happens, the Architect that made the plans had not allowed enough room to put in as easy a stair as there

friend had laid out. He had figured it out to use twenty-four risers and of course twenty-three steps. The total rise was 15 feet 2 inches, which equals 182 inches. This divided by 24 (risers) gave each riser 7 7/12 inches. You see he had 9 feet 6 inches, equal to 114 inches, from the door to the first platform; he allowed ten steps there of 11 inches each, which equals

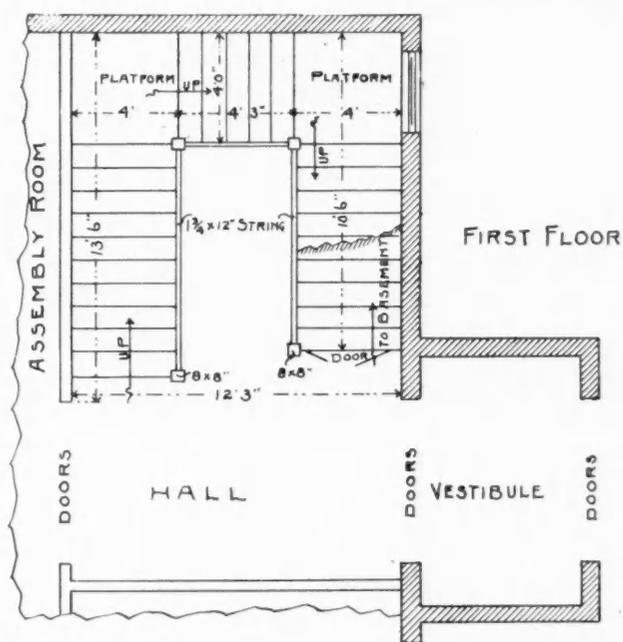


FIG. 31.

should be in a building of this kind. The public stair is subject to so much use that especial care should be taken to have it as easy of travel as possible. Public stairs should never be over 6 1/2 inch rise at the most. A friend of mine had the contract for the carpenter work and in some way made a skip in figuring out the stair when he built the platforms. The building was all plastered; and, when he came to put up the stairs, the superintendent would not let him build them as he had figured them out.

My friend asked me to come and try to help him out, so I gladly went, as I am always looking for this very experience. Now Fig. 31 is the plan of stairs on starting floor, Fig. 32 the plan on landing floor. This shows we had only so much room to work in. The stair was to be four feet from the wall to the center of strings. Fig. 33 shows the plan my

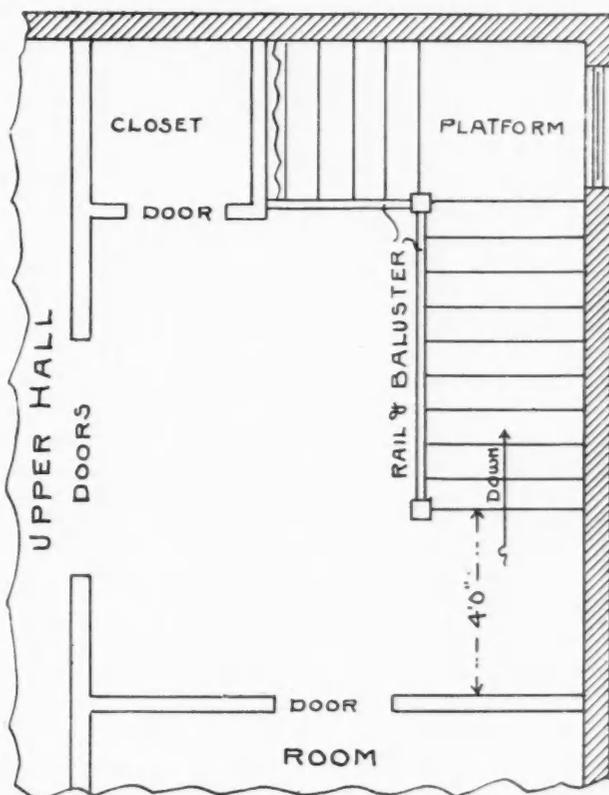


FIG. 32.

## SECOND FLOOR.

110 inches, bringing his first riser 4 inches from door. From the second platform to landing trimmer he had 6 feet 8 inches, which equals 80 inches. Here you see are seven steps of 11 inches each, which equals 77 inches, leaving some packing out to do at landing trimmer.

Now, follow me to the distance between the plat-

forms, 4 feet 3 inches, which equals 51 inches. This he proposed to divide into four steps of  $12\frac{3}{4}$  inches each. You see four steps at 11 inches each is only 44 inches and if five were used each would be a fraction over 10 inches. Now, do you see where the superintendent raised his objection? In the first place, the 77-12 inch rise by 11 inch step is a bad proportion. By using the rule that the product of the rise multiplied by run should equal as nearly as possible 66, we have 77-12 times 11 equals 83.25—a very bad proportion. Then the four steps between the two platforms were going to be  $1\frac{3}{4}$  inches wider than the others, a condition that should never be allowed. Also a public stair never should have over 7 inch risers, and less if at all possible.

Fig. 34 shows an elevation of the steps the way my friend had them laid out, with the platform built and the building all plastered. We see his first platform was  $83\frac{1}{2}$  inches high, contemplating eleven risers of 77-12 inches each; the second one was  $121\frac{1}{4}$  inches, contemplating sixteen risers at 77-12 inches each. Now, my friend was afraid that, to change from the way he had it laid out would cause him to pull out these platforms and rebuild them, destroying the plastering, etc. We could not get any more room at landing as will be seen by Fig. 32; there was only four feet there, which was really not enough as it was.

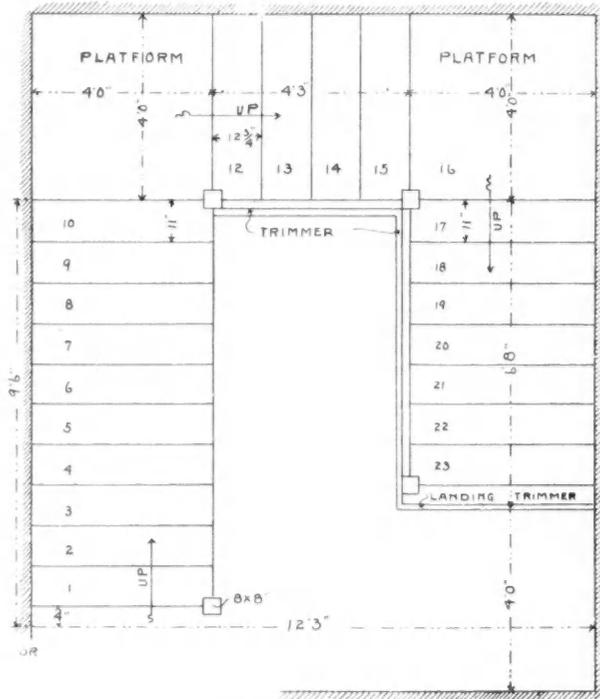


FIG. 33.

I have now shown you the condition in which I found things, so now please follow me and see how the problem was solved. Fig. 35 shows the plan laid out and Fig. 36 the elevation of steps to my plan, showing that the platforms did not have to be pulled out, but simply built up.

The main trouble was the space between the two platforms. You note we had 51 inches there; which would allow us five steps of 10 inches and a fraction.

I then figured my other spaces for a 10 inch step, to see how it would work out, and found I could put in eleven steps of 10 inches where my friend had ten steps of 11 inches each, and still not come any closer

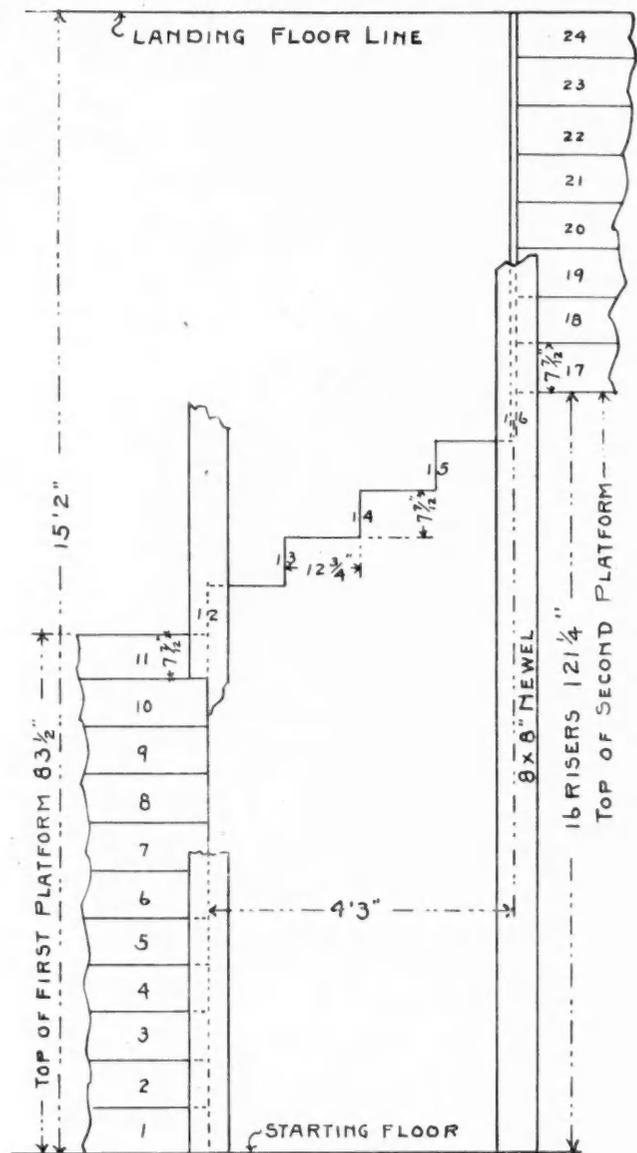


FIG. 34.

to the door. Then I found I could get in eight steps of 10 inches each from the second platform to the landing. This would give eleven steps, plus the first platform, plus five steps between platforms, plus second platform, plus eight steps, which equals twenty-six steps; there would be, of course, twenty-seven risers; 182 inches, the total rise, divided by 27, gave very nearly  $6\frac{3}{4}$  inches for each riser. This, with the tread, makes a good proportion,  $6\frac{3}{4}$  times 10 equals  $67\frac{1}{2}$ , very near to the rule. The superintendent wanted more room at the landing if possible. We then put in only seven steps from second landing and made twenty-six risers instead of twenty-seven, which gave us exactly a 7 inch riser. This gave us 10 inches more landing room, as seen by Fig. 35; and this also helped us out of trouble with the position of platforms. Had we used the  $6\frac{3}{4}$  inch rise we would have had to lower

the first platform  $2\frac{1}{2}$  inches; and the second one would have been just  $\frac{1}{4}$  inch too low. By using the seven inch riser the second platform had to be built up  $4\frac{3}{4}$  inches, the first one just  $\frac{1}{2}$  inch. This was done by

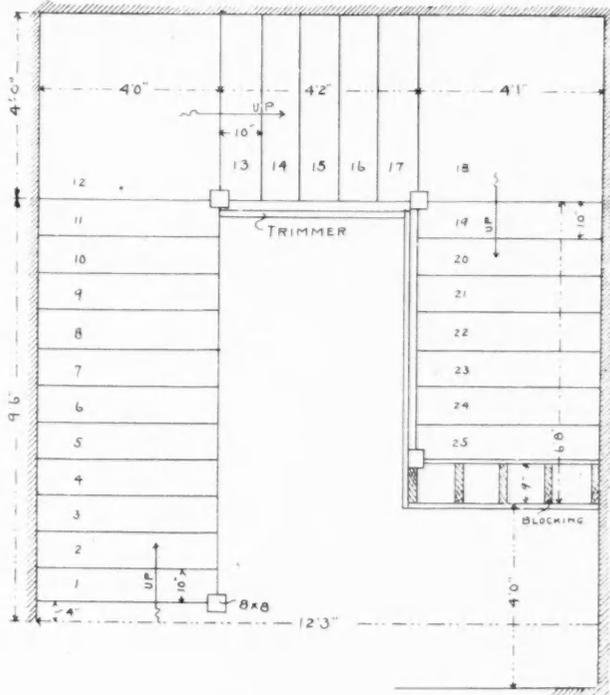


FIG. 35.

removing the floor, nailing the one-half inch strips onto joist and relaying the floor. The second one was raised the  $4\frac{3}{4}$  inches by laying 2 by  $3\frac{7}{8}$  inch pieces on the floor and a  $\frac{7}{8}$  inch floor brought it to proper height. We also made the five steps between platforms even 10 inches by extending the face of second platform 1 inch. We then had uniform steps all around with even 7 by 10 rise and run.

The stairs to the basement go down under the main

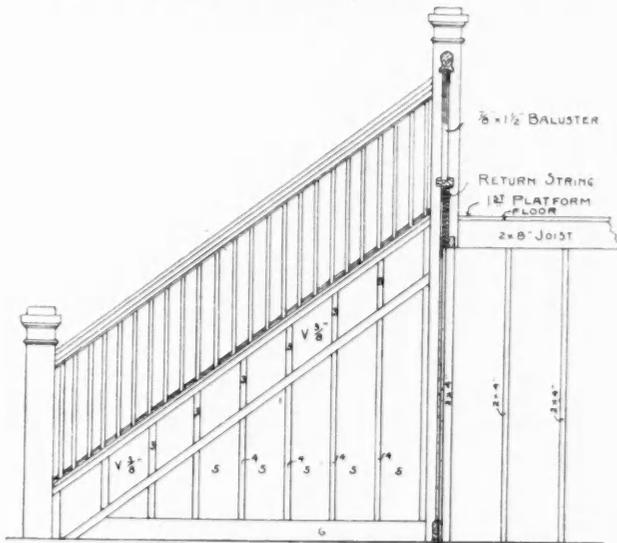


FIG. 37.

stairs, as seen by Fig. 31. Fig. 32 shows the hand rail around the wall at the top with same style of rail that is used up the stairs. There is a closet on the second floor over the first platform, the well hole starting

plumb over the thirteenth step. We see on Fig. 36 that there are 84 inches in clear of ceiling for headroom over the first platform. This is about right, but never should be less for public buildings; 6 inches or 8 inches less would do in a residence. These are all matters to be taken into consideration in building or planning stairs, and, the principle being understood, can be figured out in a few moments when you have the measurements of the place the stairs are to go.

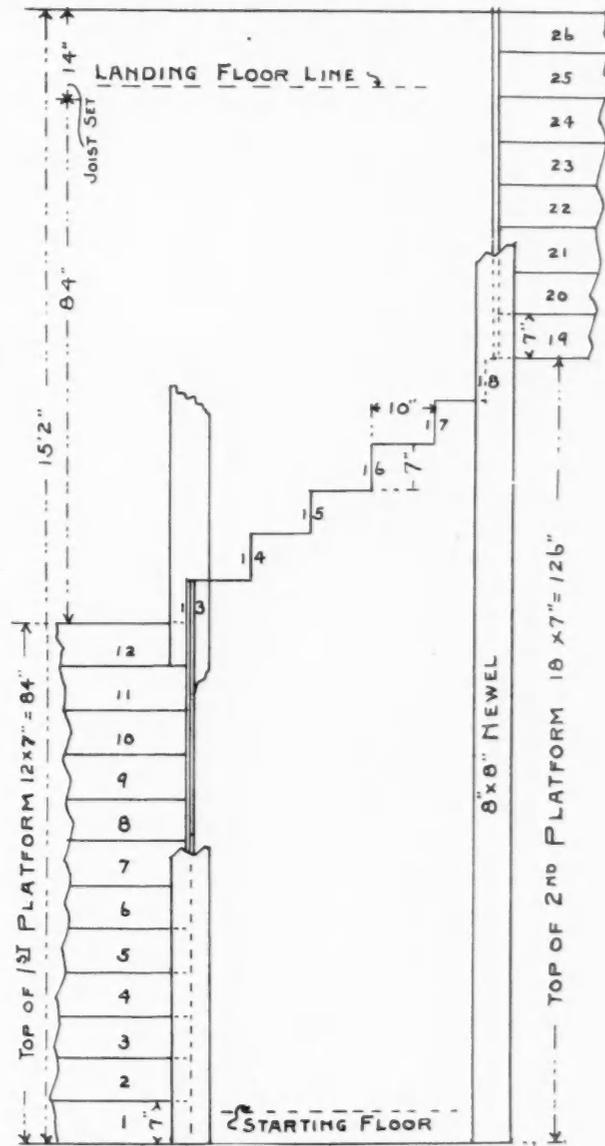


FIG. 36.

Fig. 37 shows the elevation of this stair up to the first platform only, showing the style of newel, etc. The position of the return flight to the second platform is laid out on the second newel.

The balusters are plain  $\frac{7}{8}$  by  $1\frac{1}{2}$  inch oak, set about  $1\frac{1}{2}$  inches apart. The object is to keep the stair plain and neat, allowing no place for dirt to collect. Fig. 38 shows section of the face string and spandrel, showing the manner in which it is built. The string is  $1\frac{1}{2}$  inch pine, veneered with  $\frac{3}{8}$  inch oak before it was worked out or put up. The 2 by 4 inch piece, S, on

the inside of string is first put up flush with the bottom edge of string. The panels as at 5, Fig. 37, are then spaced out. In this case they come about 12 inch centers; 2 by 4 inch uprights are then placed so that one

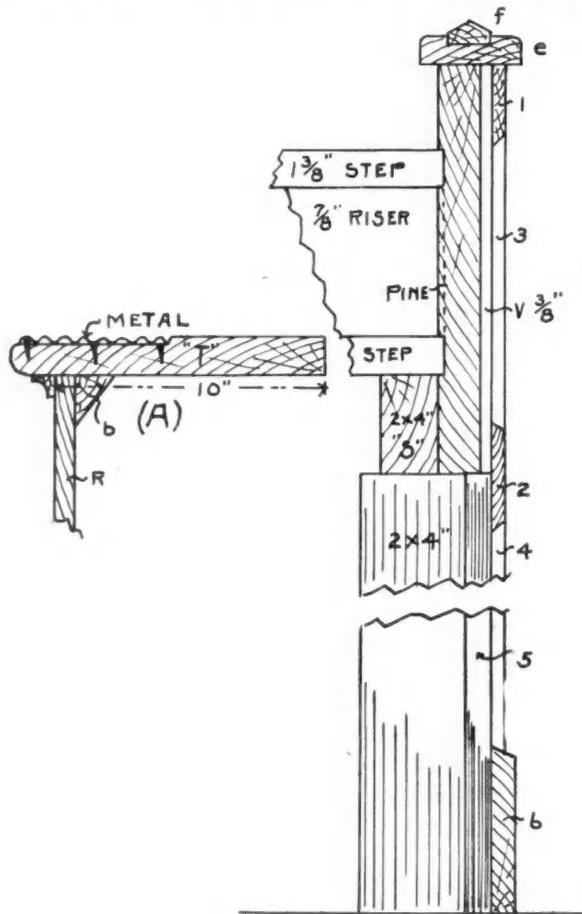


FIG 38

comes directly behind each piece, 4. These uprights are kept  $\frac{3}{4}$  inch back of the face of the veneered string so that when the  $\frac{3}{4}$  inch pieces, 5, are put up they come flush with the string. A  $\frac{7}{8}$  inch piece, 6, is then run along the floor for a base, beveled on the top as at Fig. 38;  $\frac{3}{8}$  inch pieces, 1 and 2, are then run up string piece, 1, flush with top edge of string and bevelled on bottom as Fig. 38, shows; 2 is bevelled on both edges and placed to cover up the joint between pieces 5, and the veneered string. We now cut in pieces 3 and 4, making good joints. These pieces are also bevelled on both edges except at the newels. This completes the job and saves the use of any mouldings, and if well done looks excellent; e shows the shoe placed on top of string to receive the baluster; f shows the fillet to cut in between the balusters. Fig. 38 shows section of step with metal step protector to save the step from wearing.

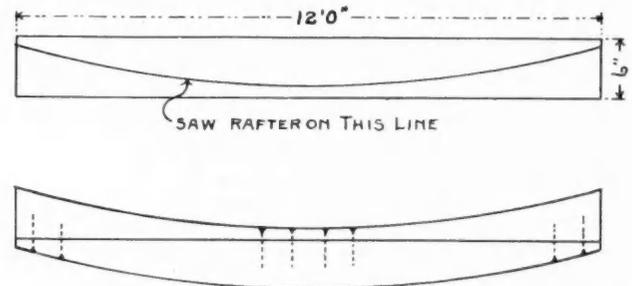
+

#### Roof for Summer House or Band Stand

A very neat and pretty roof may be made by using rafters with an even curve. The rafters may be cut out very quickly and cheaply by doing the sawing

with a band saw in the shop.

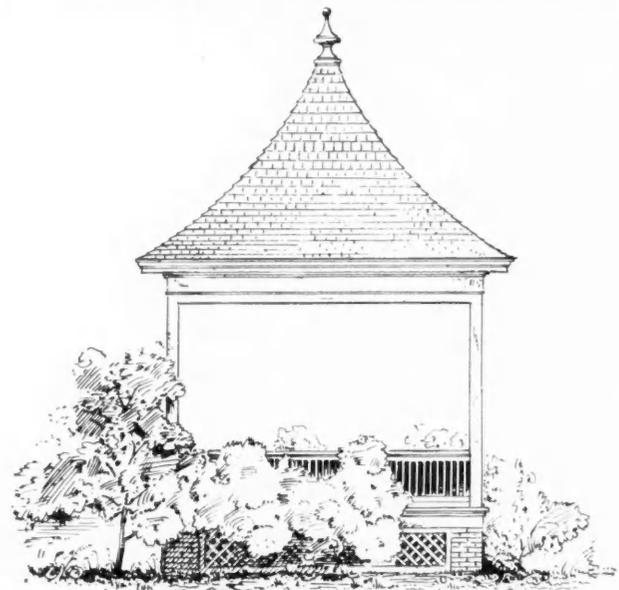
First make the pattern the curve and length needed by describing a section of the circle having the proper radius to cut within an inch or half inch of the top and bottom edges of the rafter as shown in the detail drawing. To make the radius use tram points, if you can get a bar long enough, but a light wire prob-



ably will be better because the length in some cases will be twenty or thirty feet. There is too much stretch to a chalk line.

There is no waste of material in cutting rafters in this way except the saw cut, and there is no more work than is necessary on a straight roof, except in cutting the roof boards and shingles at the hips.

The roof looks better when the shingles are laid with increasing weather exposure for each course, commencing at the eaves with three or four inches, according to the length of roof, and increasing the



weather surface each time until it is six or seven inches at the peak. The gradually increasing spacing apparently adds to the curve of the roof; and this gives the roof an interesting appearance.

Where a curve of this kind is used on two sides of a building with gable ends the increased cost is very slight because the curve is not sufficient to interfere with laying the shingles easily and the roof boards go on just the same as on a straight roof. Where the pitch is sufficient and you do not care for the graduating effect the shingles are laid in the usual way.

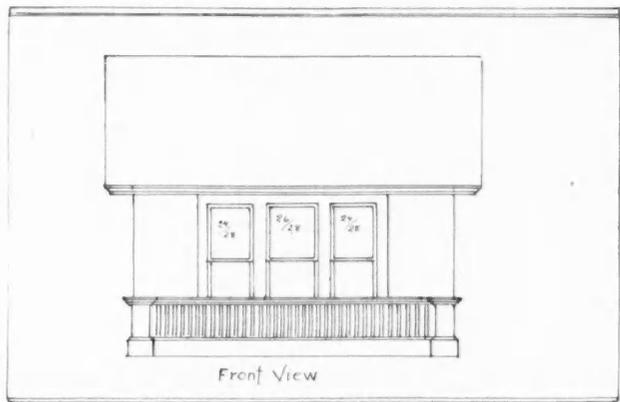
# Construction and Cost of Dormer Windows

AN ATTRACTIVE DESIGN FOR A SHED-ROOF DORMER WINDOW—COST OF MATERIAL AND LABOR ESTIMATED IN DETAIL

By I. P. Hicks

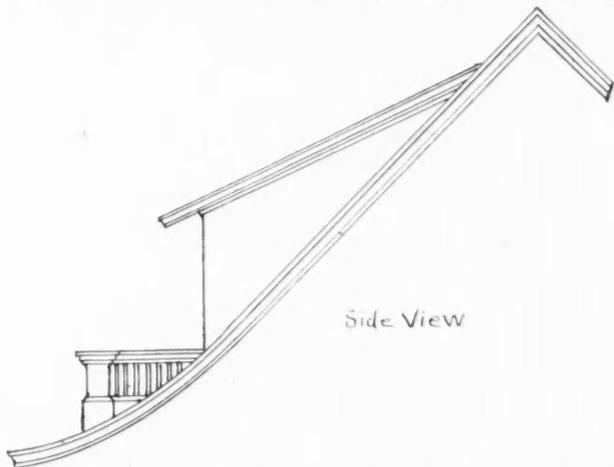
**I**N BUILDING dormers it is like building a house, everybody wants to get the best for the least money; an ugly looking dormer will spoil the appearance of a fine house, while a neat and well designed dormer will improve the looks of most any house.

In this number we show the construction and cost



of the "shed roof" type of dormer window. It has some beauty of design, and some other advantages which we desire to call attention to.

The shed roof feature makes it easy of construction, particularly the framing, sheathing and shingling,



and materially reduces the cost in this part of the work. Then again it is a very convenient form to put into an old house where it is desired to build a room up in some attic. By putting in two or three windows as shown and making the frame broad, a good square room can be obtained in almost any attic. The frame work of the window should be whatever the width of the room is it is desired to make, and the height of the dormer should be the proper height to get a square ceiling to the room. Good rooms can be obtained in this way either in old or new buildings, and at a reasonable expense. For appearances as well as usefulness, we have extended a balcony in front of this window, which is quite an interesting feature.

The estimated cost, in detail, of this dormer is as follows.

10 2 by 4 by 18	} 408 feet at \$25.....\$	10.20
16 2 by 2 by 14		
6 2 by 4 by 12		
400 feet No. 2 Y. P. sheathing, \$25.....		10.00
2000 shingles, \$3.50 .....		7.00
250 feet 1/2 by 4 inch siding, \$30.....		7.50
50 feet 4 inch crown mold, 2c .....		1.00
48 feet 2 inch bed mold, 1c.....		.48
2 balcony newels, \$1.50 .....		3.00
20 feet balcony rail, 6c .....		1.20
80 balusters, 1 1/8 by 1 1/8 by 18 inches, 3c....		2.40
20 feet base, 5c .....		1.00
200 feet 5/8 by 4 inch by 16 feet for ceiling, 3c		6.00
60 lineal feet 1 by 4 inch fir finish.....		.75
1 triple window frame .....		6.00
2 windows, 24 by 28, 2 lt., \$1.60.....		3.20
1 window, 26 by 28, 2 lt., .....		1.65
10 feet window stool, 2c .....		.20
10 feet window apron, 2c .....		.20
24 feet window casing, 2c .....		.48
10 feet head casing, 2c .....		.20
10 feet cap mold, 2c .....		.20
10 feet fillet, 1c .....		.10
42 feet window stops, 1c.....		.42
84 flashing tins, 1 1/2c.....		1.26
90 square feet tin, balcony floor.....		9.00
Sash cord weights and sashlocks.....		2.50
Carpenter work, 40 hours at 40c.....		16.00
Plastering sides and ceiling.....		9.00
Cost of painting .....		7.00

Total estimated cost.....\$107.94

Thus we see that the estimated cost of this dormer runs up to \$107.94; and there is no margin added for incidentals. Nothing is figured for a floor in the room, because the floor is supposed to be there in the average building, but if a floor had to be put in it would be necessary to figure it. No nails were figured either, which goes to show very plainly that a dormer window of this kind and size is worth anywhere from \$108 to \$125, according to the general conditions likely to be met with in this kind of work. The figures given in this article include finishing up the dormer, but not the entire room that might be built back of the dormer and for which it is to furnish light.

+

### Problem in Division

Foreman—How many ov yez are down thot hole?

Laborers—Three.

Foreman—The half av yez come up.—Judge.



## Modest House Designs

PERSPECTIVES AND WORKING DRAWINGS OF SEVERAL MODERN INEXPENSIVE HOMES—GOOD FEATURES OF CONSTRUCTION AND ARRANGEMENT POINTED OUT

THE neat appearing, nicely arranged house of small size is always in good demand. As an investment, for renting purposes, it is very desirable—seldom standing vacant, and paying a good rate of interest. In many of our cities it is almost impossible to rent a desirable small house, the demand is so much greater than the supply. Also the

We present this month a number of such plans which have proved very practical and successful in the building, as the photographs of the finished houses show.

The story and a half cottage, floor plans and details of construction of which are given was designed and built by a Charter Member of the AMERICAN CARPENTER AND BUILDER, Mr. Avery C. Smith, of Spokane,



Seven Room Story and a Half Cottage of Colonial Design. Cost \$3,200, at Spokane, Wash.

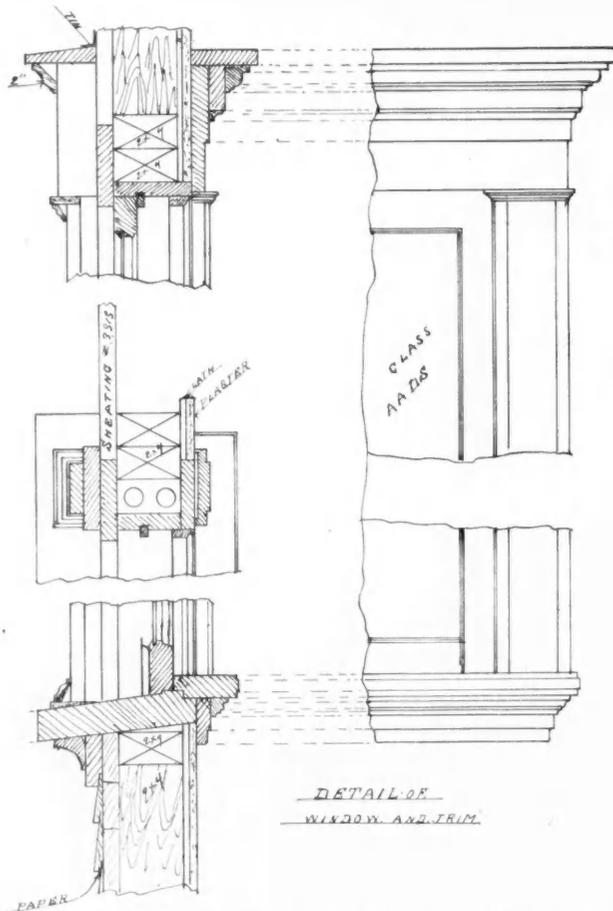
attractive little house, costing complete from \$2,000 to \$3,000 is what a majority of men of moderate means have in mind when they think of building a home for themselves.

For these reasons the house architect and the building contractor are called on very often to plan and figure on this class of work.

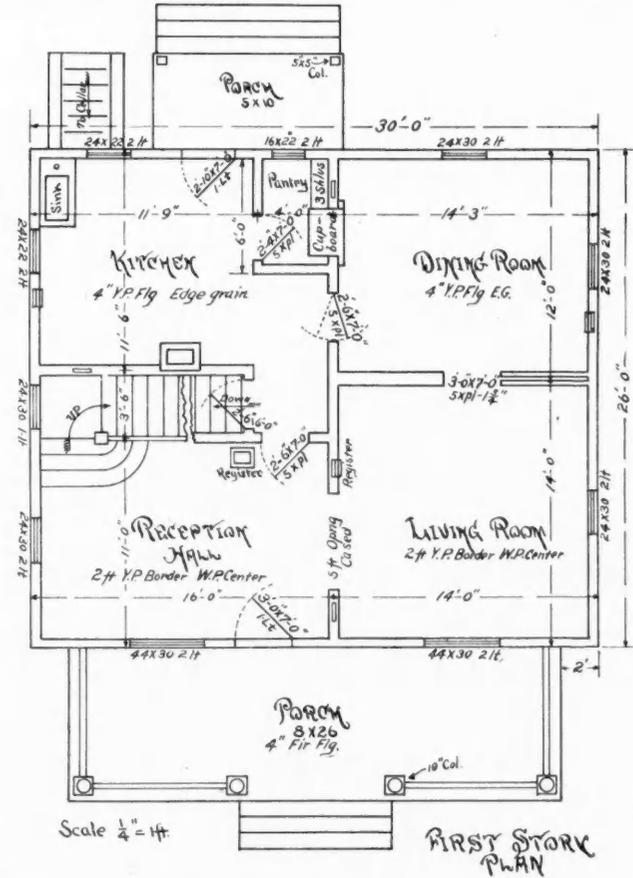
Wash. It embodies a number of good features. The details of the porch, entrance and upper balcony are Colonial; these give the exterior a very attractive appearance.

To the right of the hall on the first floor is the living room, back of it a bedroom; to the left is the dining room, 14 feet square, with the kitchen back of





vide as much room as possible for \$2,000, and yet have a neat and substantial building. Inspection of the photo and floor plans herewith given will show how well that end was reached. Eight rooms of good size have been secured.



it. The bath room, located just back of the hall, between the bedroom and kitchen, is conveniently reached from all three. All these rooms are very well lighted.

On the second floor space has been found for three bedrooms; two of them being of good size. There is a generous supply of closet room. The balcony over the front porch is a very attractive and serviceable part of the second floor arrangement. It could be used very easily for outdoor sleeping.

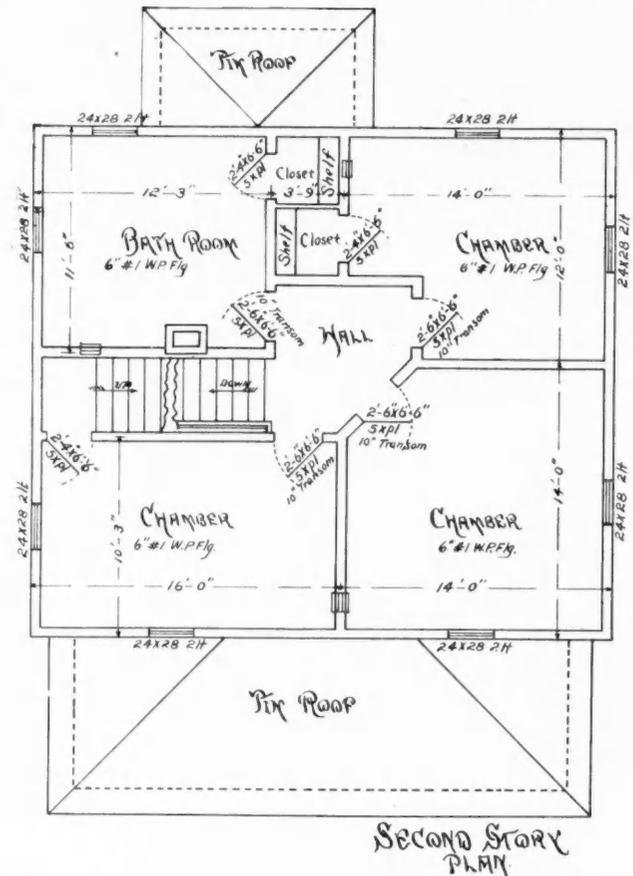
This very attractive little home was built and finished complete with modern plumbing and electric wiring for \$3,200.

**Largest House for \$2000**

This house was designed and built by Mr. Samuel Morris, of Middletown, Ill., the purpose being to pro-



**Eight Room House, Built by Samuel Morris, Middletown, Ill. Cost \$2,000**



As might have been expected, the square ground plan was chosen, that being the most economical. Each floor was then divided into quarters, giving four rooms to each floor. The reception hall, with open stairway, is practically a part of the living room, a broad doorway connecting the two. The kitchen is well arranged to save steps. The built-in cupboard between the pantry and dining room has a wide shelf at convenient height, with an opening above—a very serviceable arrangement for passing articles to and from the dining room.

On the second floor are three bed rooms and a very

first and three sleeping rooms, bath and an alcove on the second floor. The rooms are all of good size and conveniently arranged. The living room and reception hall are practically one room, as they are only separated by a columned archway. The hall contains a built-in or stationary seat and a closet of good dimensions, which is very convenient for hanging wraps, etc. The sitting room contains a corner gas mantle. The dining room is large and well lighted.

The upstairs rooms are well arranged. Very little space is given up to hall space, yet all of the sleeping rooms and bath are reached from same.



**An Attractive Six Room House Finished Complete for \$2,800, Chas. D. Woods, Lincoln, Neb., Builder**

large bath room. The size of this last will prove a great convenience and source of comfort; the small, dark, damp, box affairs that are so often provided are always hard to keep sanitary, and are never satisfactory. The space given up in this case is very well used.

There is a stairway leading to the third floor attic, which is partially finished off for storage purposes.

The exterior of the house is square and plain, yet in good taste. The only ornament used is the roof and porch cornice, the construction of which the photo shows very well.

#### **A Six Room House**

The perspective and floor plans shown herewith are those of a house recently erected at Lincoln, Neb., by Charles D. Woods, contractor.

It contains three large rooms and reception hall on

The accompanying photograph is taken direct from the house as built, and speaks for itself. The wide porch running across the whole front and roofed in with the main roof is somewhat out of the ordinary, yet giving the house a comfortable and inviting appearance.

We are told that this house was completed with yellow pine finish, including the heating and plumbing, for about \$2,800.

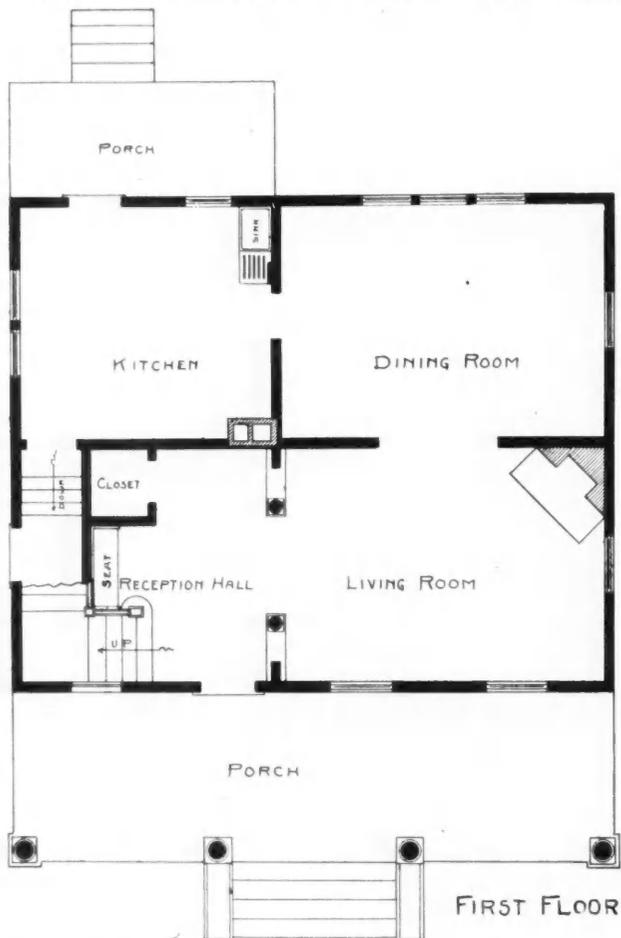


#### **Smoky Chimneys**

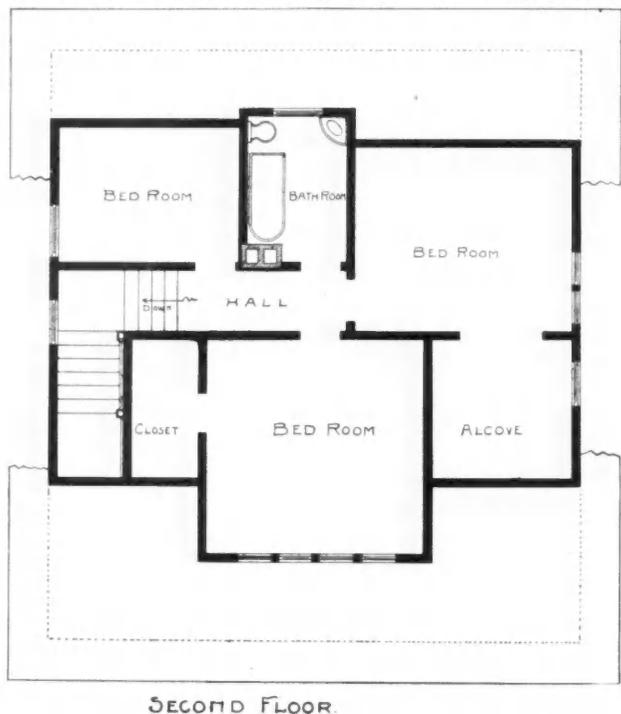
To the architect, the builder, and the householder alike, the smoky chimney has been a bugbear, it is not too much to say, for hundreds of years.

There are two principal causes why a chimney should smoke. A long flue full of cold air, and itself built of cold material, is one. The air is heavy owing

to its low temperature; the lighter, heated gases have to force their way up, and it is necessary, as it is called, to create a draught. Every householder knows



this elementary fact, owing to the difficulty of getting a flue to draw properly when the fire is first lighted in autumn, after a summer's rest. In large chimneys, used for manufacturing purposes, the difficulty is over-



come by a forced draught, but in the ordinary, everyday house such an expedient is impossible of adoption. To prevent the flue from cooling too much or too suddenly is the only sure preventive. This, as all architects know, is done most surely by grouping the flues together in the middle of the house, so that all are kept more or less warm from their proximity to that from the kitchen range, which is in use all the year round. If, as happens in many houses, there are distinctly two sections—one devoted to the kitchens, and the other to the household—two such groups of chimneys have to be formed, and the household group has often to run the risk of being idle for a great part of the year, unless, indeed, it is possible to carry up within it a flue from the basement heating apparatus which is used for hothouses.

From what has been said, it will be recognized that to put a fireplace on an outside wall is to invite disaster. Many careless designers think little of doing this, considering nothing else than the position of the fireplace in the room, or the artistic effect of an external chimney. The discomfort caused by smoke, however, has to be reckoned with as well as the extra initial cost involved. It is clear that a flue which abuts upon the external air will cool quite rapidly, and the smoke difficulty may occur when lighting the fire in the morning after a hard night's frost, just as in the early autumn after a summer's rest. All the same, occasional external chimneys cannot be avoided. Where they are used, wisdom suggests that they should have a thick outer lining, instead of the usual  $4\frac{1}{2}$  inch of brickwork, though comparatively few people, in these days of reducing prices to a minimum, think of doing this, except in high-class work. Tall chimneys, too, where they rise for some distance above the roof, ought to be at least 9 inches thick externally, if rapid and undue cooling of the contained air is to be avoided. Yet it is rarely indeed that they are made so substantial as this, unless they are of stone instead of brick.



### A Real Milker

A Stroud farmer on route 1 has taken out a patent on an electric motor fastened on a cow's back, the electricity being generated by a dynamo attached to the cow's tail, says the Stroud inventor. It strains the milk and hangs up the pail and strainer; a small phonograph accompanies the outfit, which yells "So!" when the cow moves; if she kicks, a hinged arm catches the milk stool and lams her over the head with it.—*Lincoln County (Okla.) Journal*.



### Perhaps So

"Mama, is that bay rum in the bottle on your table?"  
 "Mercy, no dear!" she replied. "That is mucilage."  
 "Oh!" said little Johnny, "perhaps that's why I can't get my hat off."

# Two Summer Houses of Bungalow Design

By A. Raymond Ellis

**S**UMMER houses and resort cottages of the bungalow type have proved very popular the past few years. Very cosy and satisfactory little places have been built at small expense, for this style adapts itself easily to local materials and conditions, and does not require expensive finishing. A bungalow is supposed to be one and a half stories high, with piazzas

on at least three sides, covered by the main roof. These, as built in foreign countries, had no foundations, and were usually built of a bamboo framework and thatched grass roof; the first story being above the ground six or seven feet, reached by steep ladder-like steps, to make it inaccessible for reptiles.

Two bungalows or country houses are shown here,

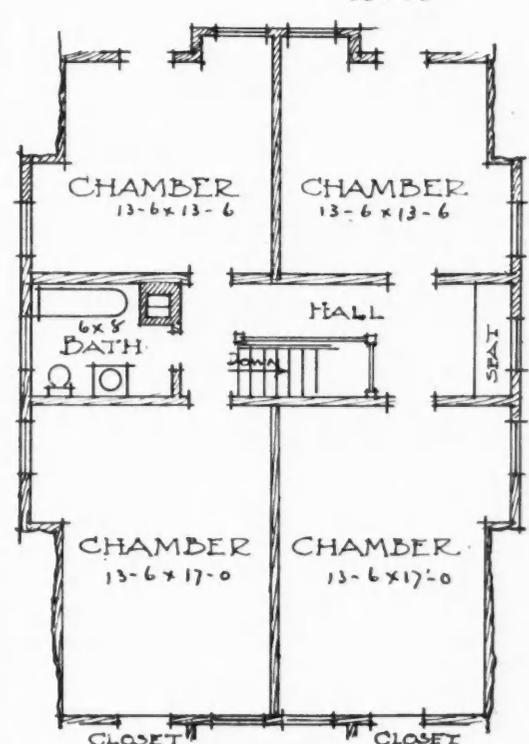
## COUNTRY HOUSE



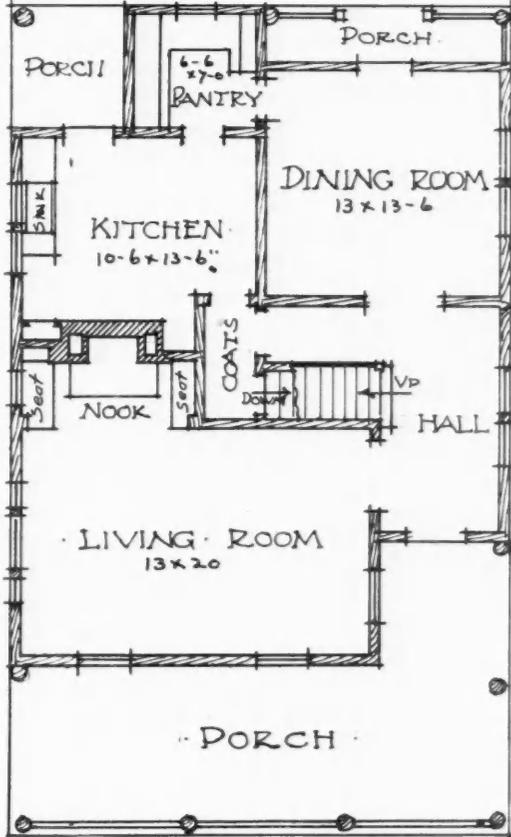
Shingled walls and roof.  
Stucco gables.  
Cost with small cellar and stone piers for foundation.  
Furnace heat, cypress finish and rift N.C. pine floors in first floor. Chambers sheathed  
\$1,800. to \$2,500.  
if built on cedar piers and no cellar, it should cost \$1000.00

B

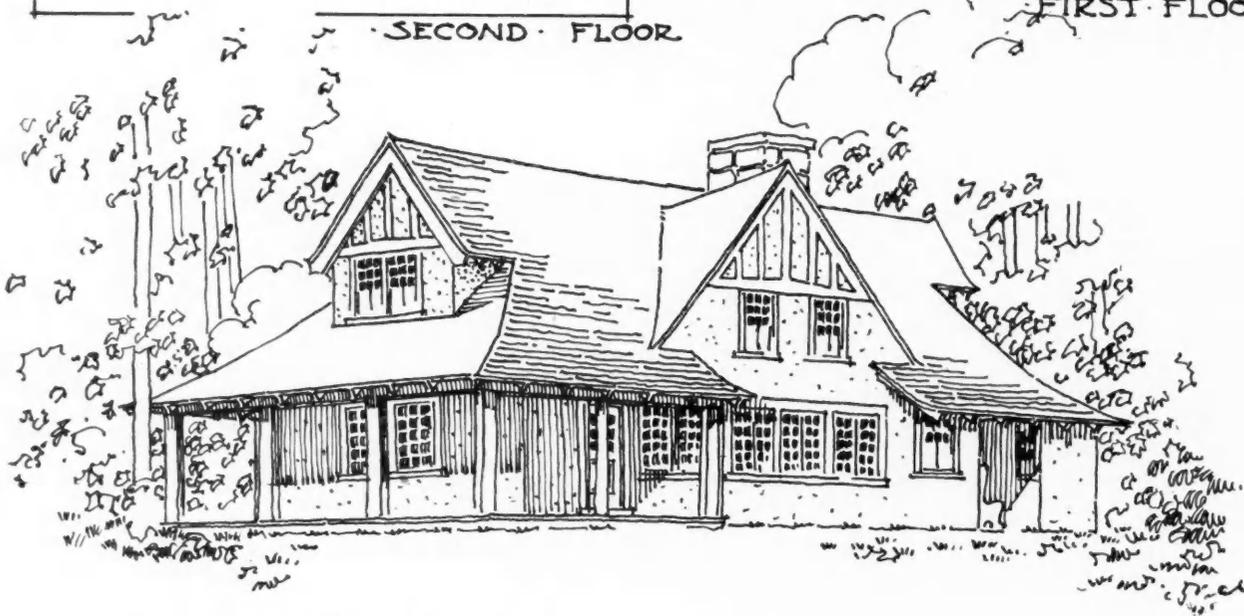
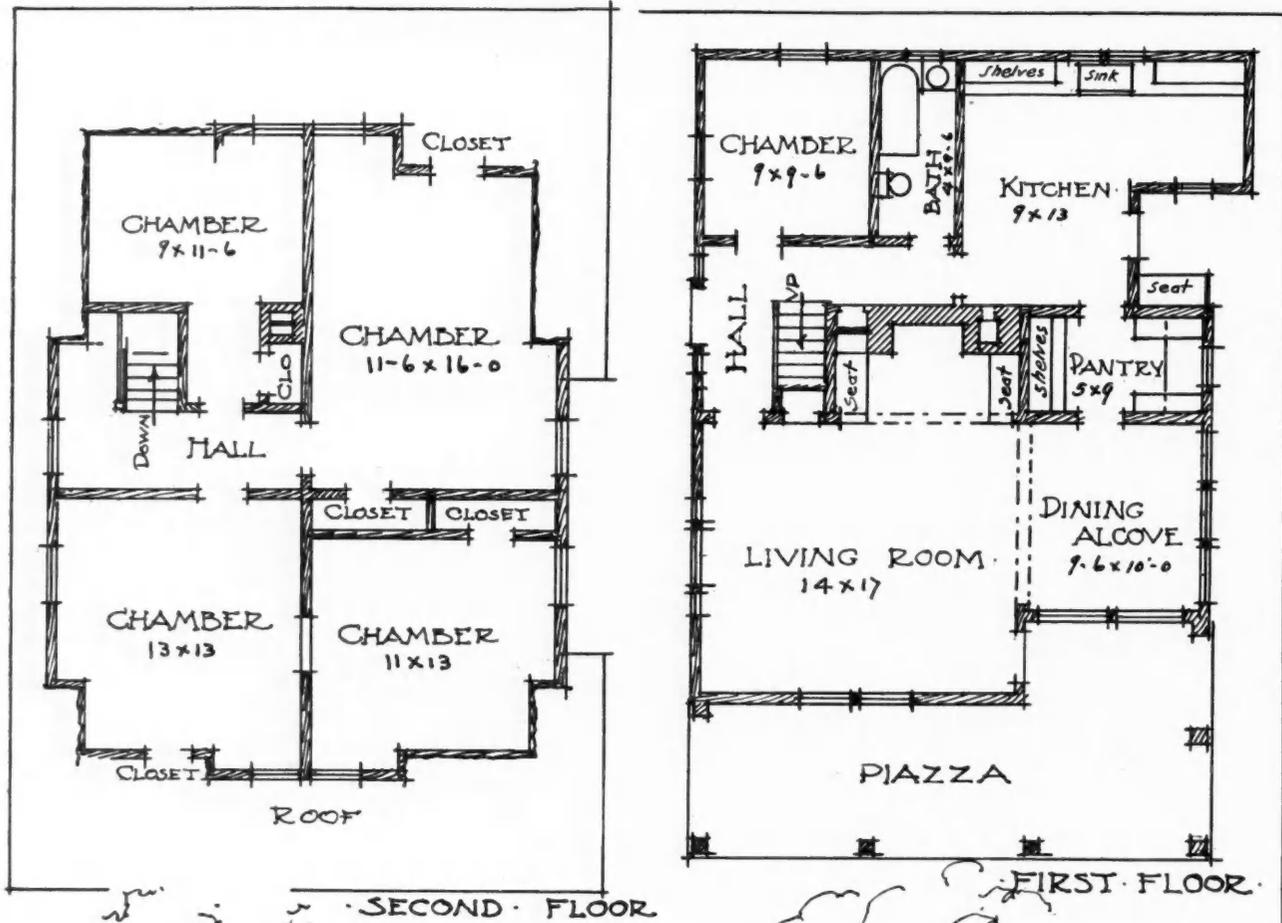
ROOF



SECOND FLOOR



FIRST FLOOR



## COUNTRY HOUSE

Stucco exterior or shingled. Foundation stone piers  
Cost \$1,800.

©

planned to meet a limited cost and yet to be picturesque and practical from the housekeeper's standpoint. The foundations can be either of cedar posts or stone or concrete piers, with a small cellar under the kitchen, reached by a trap door in the kitchen floor. The principal feature of the plan is the large living room, with ingle nook. The rest of the plan is self-explanatory.

No two people desire exactly the same house; what may appear very practical to one would not suit another. Either plan offers, with a few changes, many possible solutions which would give satisfactory results with either exterior.

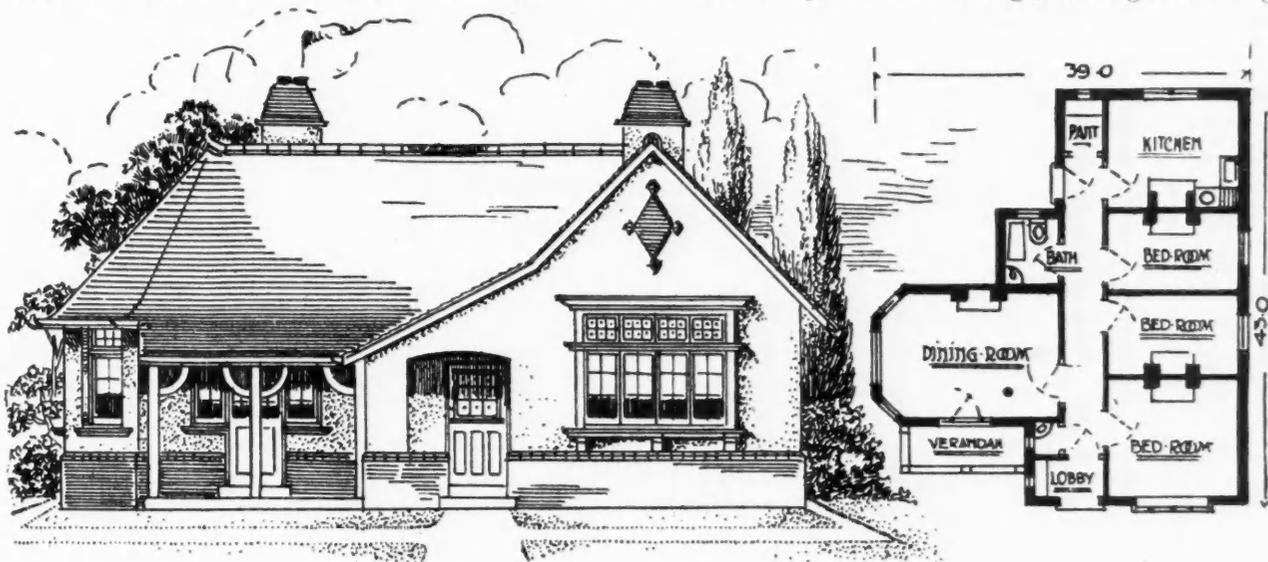
The houses are built of hemlock and spruce frame, covered with hemlock boarding, on which the shingles

are placed, left natural and allowed to weather a silver gray. The outside casings and finish are of cypress, painted two coats of a soft green or brown. The living room and dining room, if not plastered, should be sheathed horizontally with cypress siding, stained a soft green. This thoroughly wiped off with a cloth before drying shows the beautiful grain of the wood. The second floor joists, mill planed, are left exposed to form a beamed ceiling. The finished floors

are placed, left natural and allowed to weather a silver gray. It is typical of many such erected in the country and seaside resorts of England, and is said to have fulfilled all the requirements at small expense.

The exterior is of pleasing appearance, very trim and neat. The foundation courses are red brick or clapboards; above, the walls are cement plaster on wood lath. The roof is either green slate or red tile.

The floor plan shows a large, well-lighted dining



Front & Side Elevation & Ground Plan

are of North Carolina pine, covered with Indian druggets or inexpensive jute rugs to add color.

Anyone desiring a bungalow for a summer residence need not be deterred from attempting either one of these, as the cost would in either case not be very great. No attempt has been made to give detailed figures; they would be misleading, because each section has its own scale of prices; and after an owner has once decided on the kind of a dwelling or building he wishes, the local conditions must govern the cost.



**An English Bungalow**

The accompanying design is one that has been entered by Mr. Herbert Bignold, an English archi-

room, three bed rooms, kitchen and bath, also vestibule and hall. Each room is heated by an open fireplace.

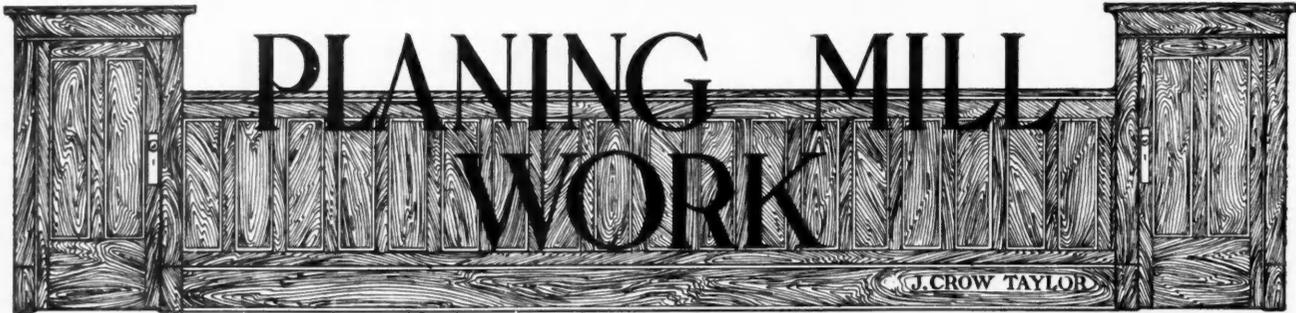
Constructed as outlined above the cost of this cottage is from \$1,000 to \$1,200. It ought to be a great deal cheaper, however, in this country, where material is not so expensive and where wood would enter much more freely into the construction.



**Almost as Good**

"Have you a college diploma?"

"No; but I have several mining stock certificates that I might frame and hang up as evidence that I have been through the school of experience."

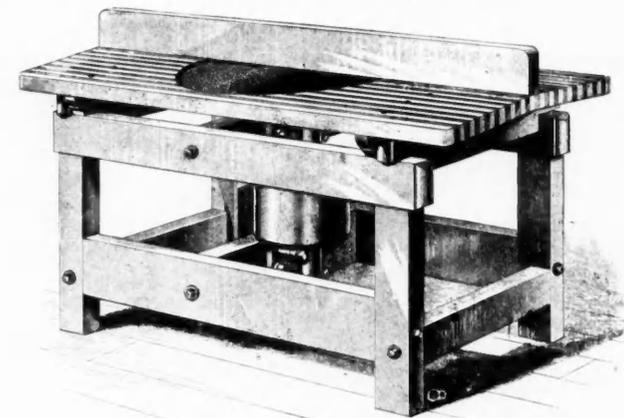


## Machine Sanding for Small Shops

TYPES OF SMALL SANDING MACHINES—HOW THEY MAY BE EQUIPPED TO MEET THE SPECIAL NEEDS OF A SHOP

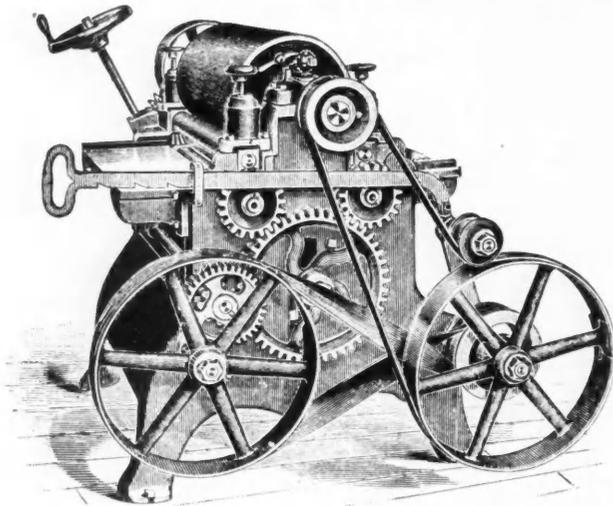
THE owner of the small machine wood working shop or planing mill frequently envies his big neighbor because the magnitude of his work justifies the installing of certain expensive machines that the smaller planing mill cannot make good use of. Among these, and it is one of the live subjects of today in machine wood working, is sanding or sand papering machines. There are some wonderful inventions in modern sand papering machines of various kinds and they are doing much among the up-to-date wood working institutions to decrease the time and cost of sanding wood work and to improve the quality

of this sanding when done by machinery. Since so much of the modern wood working is being done in natural finish there is need to do much better work in cleaning off the surface than in the olden times when the majority of carpenter and mill work was painted. This cleaning off or sanding, so that the wood will present a good appearance if finished natural, makes up a very tedious and expensive part of the work, especially where the shop is not equipped with up-to-date machinery for doing it.



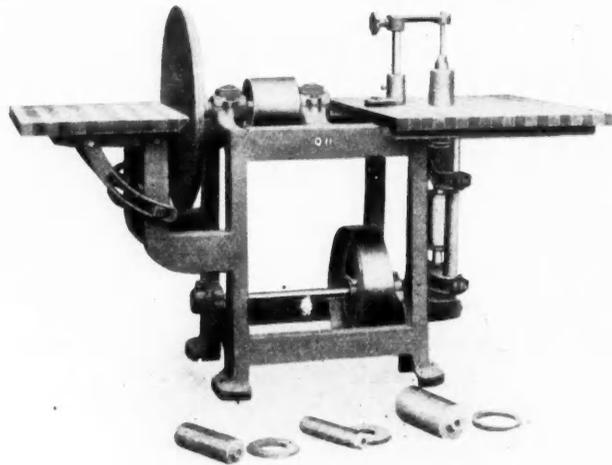
The Horizontal Disk Sander

had to be done by hand. Probably nothing will furnish better returns for the time spent and money invested than will machinery for sanding. What is meant by this is not simply knocking the rough off a little with coarse sand paper; but sanding by machinery so as to finish wood work down as neatly as it can be done by hand with fine sand paper. Sanding by hand, when properly done, is one of the most tedious jobs going, and for that reason it is frequently slighted. When



The Pony Sander

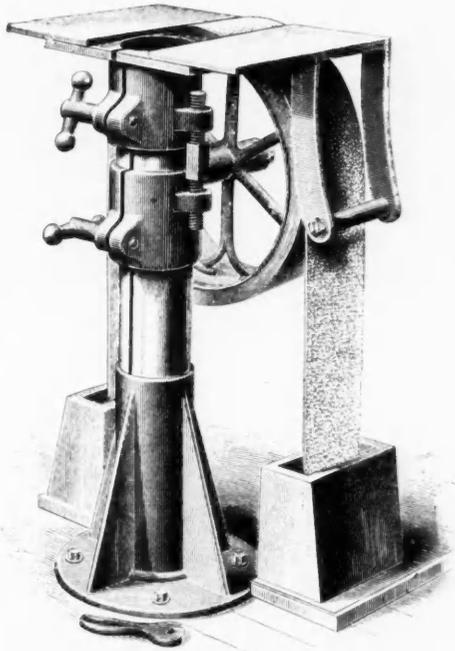
Now, while it is neither practical nor possible for the operator of a small wood working plant to install all the expensive machines and appliances that are used in the bigger institutions, there is room in practically every plant to do something, to make some de-



Combination Disk and Spindle Sander

done by machinery, in much less time and with comparatively little manual labor, it encourages more and better sanding and thus adds materially to the quality of the wood work.

For the small wood working institution there are



A Belt Drum Sander

quite a variety of the smaller and less expensive sanding machines of different types. There are, for example, the single drum power feed sanding machine for flat surfaces, that bears practically the same relation to the big triple drum sander that the pony or panel planer bears to the big double surfacer, or four side molder. This little sander has a bed frame considerably like the pony planer and has a single sanding drum. And the one in mind at this writing has the sand drum on top instead of underneath, as the cutter would be in the pony planer.

The drum, disk and the old joint-arm sander seem too well known to require any elaboration. Yet they are at times put to a variety of uses by ingenious operators with a knack for devising shop kinks. The disk sander is furnished by machinery people in both hori-

zontal and vertical types, and also in combination with a spindle sander in which the sanding head is attached to an upright spindle. If one has an old shaper it is possible to convert it into a spindle sander by constructing and applying different shapes of different forms just as one would make cutters of different shapes for doing a variety of work on a shaper. In fact, one can take almost any kind of spindle or arbor, a saw arbor, for example, and construct thereon disks and heads of various shapes for sanding purposes; and, if the work is carried out with a view to quality and nice adjustment, one can by this means frequently construct power driven appliances that will not only relieve the burdensome part of lots of sanding, but will do it very neatly and make the sanding a pleasure instead of the worry it frequently is.

A form of short drum sander can be made by using a sand belt running over pulleys, which, when properly manipulated, can be converted into a very useful appliance for sanding flat surfaces. In fact, one of the great modern sanding devices for doors and a lot of other flat work uses a belt to carry the sanding material and has special appliance for manipulating the belt so as to sand over various surfaces in whatever manner desired. Make a study of the sand belt and see just how many different uses it is possible to put it to, by combining it with tables and various other supports that will hold it in the position desired while doing the work of sanding.

Probably a good way to start into a study of the subject of machine sanding is to get machinery catalogues and make a study of the different types offered and what they will do. Out of the great list of offerings almost any man with any kind of a wood working institution can find something that will help him. From a study of the great variety of designs he should be able to get ideas that will assist him materially in developing special sanding appliances of his own to meet the peculiar needs of his work. Proper machine sanding is now being recognized as a part of machine wood working, just as much, almost, as panel planing. It is up to the operators of the small planing mills and wood working shops to get in line and fit themselves up for this class of work.

## Bond in Brickwork

BEING THE FIRST OF A SERIES OF ARTICLES ON BRICK MASONRY—BEST PRACTICE IN BONDING—STRONGEST BOND AND BOND OF BEST APPEARANCE

By T. B. Kidner

**N**OTWITHSTANDING the growing use of artificial stone and the steady demand for the older natural stones for building purposes, brickwork is more than holding its own as a material adapted alike for useful and ornamental construction. The technical details of brickwork are, therefore, well worth the study of all engaged in building operations, and of these technical details none is more important than the proper bonding of the bricks so as to obtain

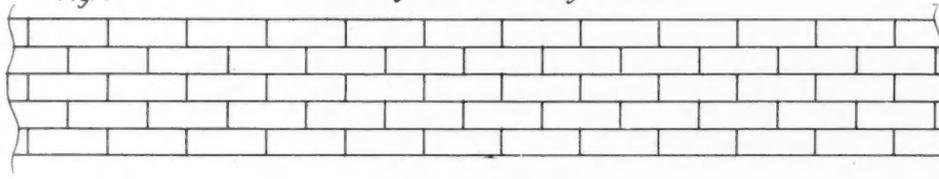
the strongest wall possible under all conditions.

The matter of bond is also of importance from the point of appearance; the use of expensive facing bricks in many first-class buildings to-day making it necessary that architects and builders should be acquainted with the best looking bonds to be obtained with this material.

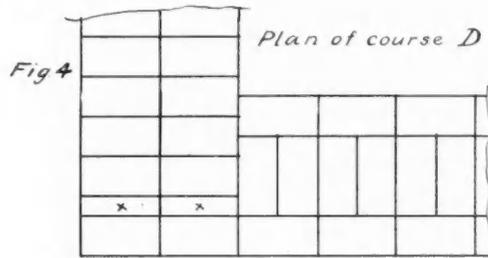
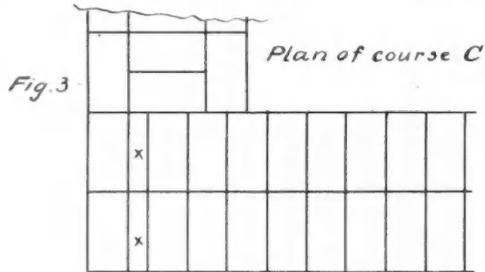
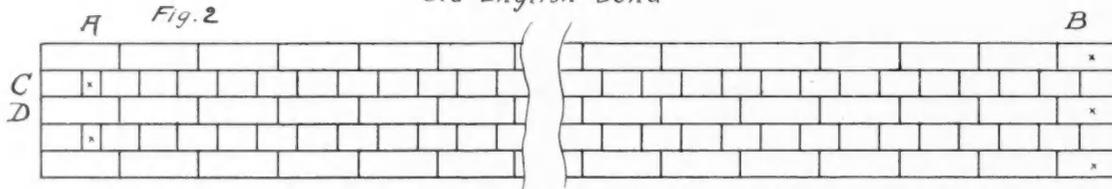
In the first place it should be said that if some of the old bricklayers of forty or fifty years ago came to

BOND IN BRICKWORK

Fig 1 *Stretching or Chimney Bond*



*Old English Bond*



*Substitute for Old English*

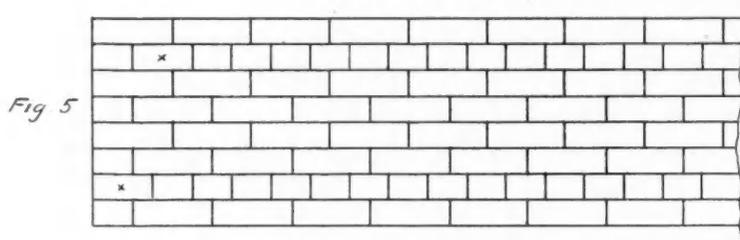
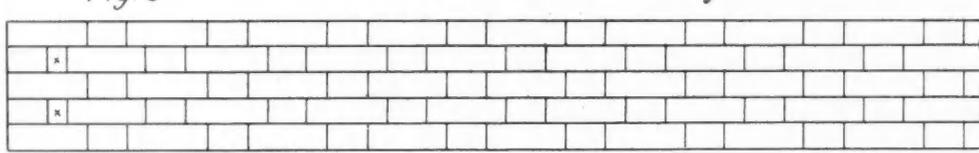
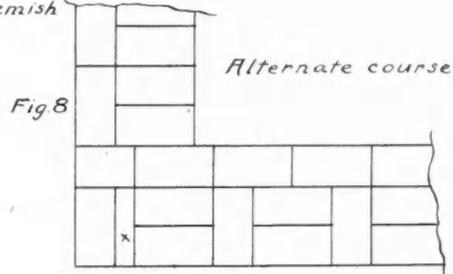
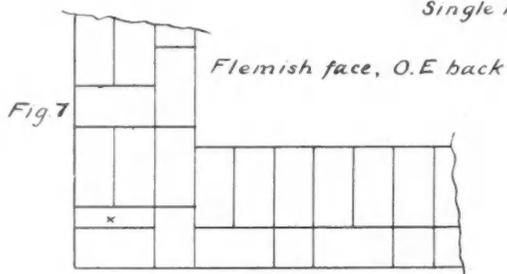


Fig 6 *Flemish Bond*



*Single Flemish*



life again and saw some of our modern brick structures they would be horrified at one very noticeable feature; namely, that judging from their appearance, the walls of many of our largest buildings are only

half a brick in thickness. Of course, this is not really the case, but the walls appear so from the fact that nothing but "stretchers" are visible in the face of the wall. This would have been considered almost a crime

in former days, and would not be tolerated even to-day in many parts of the world. The old rule was (quoting from a standard building guide published some years ago). "Stretching or Chimney Bond.—In this bond bricks are laid as stretchers upon the face, and it should be used *only for walls half brick thick*, as for partition walls."

The objection to the use of this bond in walls of more than one-half brick in thickness is, of course, based upon the fact that it is impossible properly to tie or bond, to the body of the wall, a face composed entirely of stretchers. To this it may be replied that the face is bonded to the body by cutting off the back corner of the stretchers in face and laying a header, with its corner cut off to fit, into the back of the facing course. Or, it may be urged that the face can be tied in by pieces of hoop iron embedded in the joints; a practice sometimes adopted for the purpose, but more often used to strengthen the bonding at angles of brick walls. The first of these methods is the one generally practiced to-day by bricklayers on this continent, but would be condemned in many other countries.

A good many years ago the writer was given a rule by a clever old building inspector from whom he imbibed many another useful hint, which rule was: "Never cut a brick if by any possibility you can lay it whole;" an axiom of as much value and importance to-day as then. All the better bonds in brickwork have been worked out with this rule in mind, for it was quite an article of faith with the builders of former days who worked out and passed on to us moderns the several standard methods of bricklaying, both for strength and beauty.

First, then, will be considered the matter of strength, and it may safely be stated that there is no question whatever among architects, engineers and practical builders as to what is the strongest bond. It is that known almost universally as Old English bond, and consists of headers only, in one course, and stretchers only in the next, throughout, as shown in Fig. 2. Two methods are adopted for obtaining the requisite overlapping or bonding in alternative courses, and are shown at A and B in Fig. 2, each view being of a quoin or angle of the wall. At A is shown the older method whereby a brick was cut in half lengthwise and inserted in the header course to form a "closer," as shown. At B, instead of a closer in the header course, a three-quarter bat is laid at the end of the stretcher course, and the same object attained with less labor, it being easier to snap a brick crosswise with a blow from a trowel than to cut it in half lengthwise. It should be said, however, that some architects and builders prefer the closer in the header course and the writer has seen specially made half bricks used for the purpose, thus saving the labor of cutting the bricks on the job.

Figs. 3 and 4 are plans of alternate courses in a two-brick wall in Old English bond, from which two useful rules can be deduced. First, that all bricks in the

interior are headers, and, second, that the bricks do not break joint from front to back of wall in one course. These particulars, together with the other simple ones given above, apply to walls of any thickness in Old English bond; a bond which, as stated above, is universally agreed to produce the strongest of all brick walls.

A fairly good bond is shown in Fig. 5, in which every fifth course consists of headers. It is not as strong as Old English on account of the numerous stretchers in face; neither is it as regular looking. It is, however, cheaper to lay and, therefore, is often used where appearance is a secondary consideration.

In situations where appearance is an important factor, there is no doubt that the bond used in the finest examples of brickwork that are known, namely, the old "Queen Anne" and "Colonial" mansions, must be given first place. It is known as "Flemish" bond, and consists of alternate headers and stretchers in the same course, as shown in Fig. 6. It is not considered as strong as Old English bond and is used wholly on account of its superior appearance, although by some authorities it is also claimed to be more economical because of the opportunities it offers to use up half bricks which are broken in transit to the job and are often a source of worry and expense to builders.

This bond is sometimes carried out on both faces of the wall and is then known as double Flemish. More often, however, the back of the wall is done in Old English bond if the thickness permits; the thinnest wall that can be built with Flemish face and Old English back being one and one-half bricks. Plans of two successive courses of such a wall are shown in Figs. 7 and 8, the bond being known as single Flemish. Single Flemish bonded walls are strong and effective, as well as ornamental on the face. They also allow of the use of less expensive bricks on the back, where high-priced bricks are specified on the front, without in any way weakening the bond.

A favorite bond in some districts is that known as Scotch bond, although in Scotland itself it is more often than not referred to somewhat slightly as "garden-wall" bond. As will be seen by the illustration, each course consists of three stretchers and one header constantly repeated. It is used mainly for walls of one brick in thickness which show on both faces, such as boundary walls, etc., and is useful, inasmuch as two fair faces can more easily be obtained by using stretchers than headers, which often vary in length.

A bond which is useful in rounding curves is composed entirely of headers and is known as heading bond. It is weak lengthwise and should only be employed on sharp curves, such as a tower or rounded corner, where stretchers would give a bad appearance. Of course, in first class work, specially molded bricks are sometimes used for rounded corners so as to carry out the bond as in adjoining straight walls, but in the majority of cases heading bond is used.



# PAINTING

Edward Hurst Brown

## Hardwood Finishing

COMMON CAUSES OF UNSATISFACTORY WORK—HOW THE DIFFERENT VARNISH AND STAIN FINISHES ARE BEST PRODUCED

**T**O ALMOST every one who builds a house for the first time, especially the woman, there comes a feeling of bitter disappointment, which is none the less keen because of the fact that, in the eyes of the mechanic who knows the possibilities of building, this disappointment is unreasonable. Nearly every woman sets her ideals as to the quality of the hardwood finish she is to get entirely too high. Perhaps she has been living in an ordinary rented house, where the work has been none too carefully done, but she has always made up her mind that when she built her own house, the woodwork should be as well finished as the furniture. She has no definite idea, from the specifications, what she is to get, but she has seen in the architect's office, or has perhaps received from the varnish manufacturer, a small sample of hardwood, finished with all the smoothness and luster of a mirror, which is sent to her as an example of what can be obtained by using that particular make of varnish, and she naturally expects that her house will show the same brilliancy and perfection of surface and the same depth and richness of effect, showing out the hardwood in all the beauty of its grain.

### Causes of Disappointment

This disappointment, which is often a serious one for the builder to overcome, is due largely to the fact that the varnish manufacturers, in preparing these samples, use methods which are impossible to duplicate in finishing any house, no matter how expensive, and moreover, by their advertising they, perhaps unintentionally, lead the inexperienced to believe that the painter, working under ordinary conditions, can readily obtain the same results. So much of the effect of the interior woodwork of a house depends upon the work of the painter in finishing it, that the builder is often blamed for supplying inferior material, when the only trouble is that this finish does not come up to the preconceived notions of the mistress of the house. Hence, it would be a wise thing for the builder or the painter to explain to her, before the work is begun, just what

she may expect to obtain by carrying out the specifications exactly, and just why she cannot possibly hope to have the same kind of finish that the manufacturer's samples show. And to do this it is of course needful to tell her just how these samples are prepared, and to explain to her that similar results could be obtained only by duplicating the conditions. And that, as a matter of fact, these conditions could not be duplicated in the construction of a house. The manufacturer naturally desires to make the best possible showing for his goods, hence his samples are prepared with the utmost possible care. Selected lumber is used, which is sandpapered to the greatest smoothness, and as the pieces are small, in some cases, they receive a final scraping with a freshly cut edge of glass. This gives a very perfect surface to work upon. The varnish is applied in a dust free room, at an even temperature of about 70 degrees, so that the varnish will dry uniformly and with no chance of being chilled in drying. And what is even more important, the piece to be varnished is laid flat and the material is flowed on, so that it is possible to get a great deal more varnish on in a single coat than when it is applied to the vertical surface of the standing trim in a house. This, of course, gives a greater depth to the luster. A better result can be produced on one of these small pieces of wood with two coats of varnish applied under the conditions used in making the manufacturer's sample than can be obtained by the painter who finishes the hardwood trim with four coats.

### Dust and Cold

One of the greatest difficulties that the painter meets with in finishing a house is the dust, which is constantly rising from the work of other mechanics. It rarely happens that the carpenters are entirely through before the painters must begin their work, and the air is full of flying sawdust; the plumbers are perhaps busy, and it may be that the tile setters, too, are at work, so that the floors are dirty, and this dirt is stirred into dust by the mechanics as they pass

through the rooms. Then, too, if it is the fall, or the spring, the temperature of the room is apt to drop almost to the freezing point at night, while during the day it does not rise as high as it should be kept to produce a proper varnished finish. Even the best varnishes are sensitive to these changes of temperature, in fact, often even more so than the cheaper and less durable grades; while under the ideal conditions that obtain in making the manufacturer's samples even an inferior varnish would make a remarkably good showing. It has been suggested by one of the best known painters of the country that it is advisable for the painters to prepare samples of what can be done with one, two, three and four coats of varnish, on filled and on unfilled wood, and also the effect that can be produced by staining. These samples are to be made on ordinary pieces of finishing lumber or pieces of trim molding, and to be finished under ordinary conditions in a vertical position. Each board is to be divided into several sections, one of which is given only the first coat; another section shows the effect of two coats, and so on. The architects should be furnished with a set of these samples to act as standards, and the painter should also retain a similar set. Before any work is begun, the owner should be shown a sample of work of the character called for by the specifications, and to avoid all misunderstandings, a sample of work so finished may be given to the owner, in order that the finish actually furnished on the house may be compared with it. Such a practice will avoid much fault finding and disappointment.

The best results can be obtained in finishing the woodwork of a house if the painters do not begin work until after all the other mechanics have finished their work and the house has been completely swept out and all the floors wiped free from dust with a damp cloth. Unless the weather is warm and dry, a fire should be built in the furnace and a steady temperature of at least 70 degrees should be maintained. Slightly warmer than this will do no harm, but a drop of 15 or 20 degrees at night will be apt to cause "silking," or a fibrous appearance of the surface, which will be more or less intense in proportion to the drop in the temperature. Cold draughts of air striking the surface of varnish before it is entirely dry will cause similar trouble, and dampness will also be a source of danger to the finish. In August, when the weather is close and damp, varnish will often remain tacky, or will not dry hard, if applied in a moisture-laden room that is kept closed and unventilated. Both ventilation and light are necessary for the perfect drying of varnish, which is caused by the oxidation of the linseed oil that is used as the solvent for the varnish gums.

#### **Suggestions in Regard to Staining**

Modern fashions in wood finishing call for the use of stain even on the hardwoods, such as oak or maple, and many of these stains are intended simply to pro-

duce color effect without any idea of imitating some other wood than the one stained. Oak, for example, when finished in the natural color, is too light to harmonize with a good deal of the modern decoration, and it must either be darkened or its color must be changed entirely. It is by no means unusual to stain oak either a green or a red color, although no natural oak of this color is obtainable. When it comes to white pine or poplar, these two woods are entirely too lifeless in color to suit the modern taste in decoration, and a stain becomes necessary. These stains are either pigment stains, which are merely very thin paints, made of a semi-transparent pigment, ground in linseed oil and reduced with linseed oil and turpentine to the consistency of a wash; aniline and some vegetable stains or dyes, dissolved in water or alcohol; or chemical (acid or alkali) stains that darken or change the color of the wood by acting upon the tannin which the wood contains to form a new chemical compound of a different color. These are the three principal kinds of stains used by the practical painter and hardwood finisher, although occasionally variations of them are employed, such as pigment stains reduced with petroleum, or aniline stains soluble in oil or turpentine.

#### **Varnish Stains**

Besides the above named classes of stains, there are two classes which are made for the amateur rather than for the practical painter. One of these is the so-called varnish stain, which is made by mixing pigment and varnish together, so that the same application both stains and varnishes. While these are comparatively easy for the novice to handle, the results obtained are far from satisfactory, because the pigment is apt to settle to the bottom of the can, and unless it is kept thoroughly stirred up, the result will show streaky and uneven. A later development of these varnish stains is a varnish colored by means of a transparent aniline dye, so that a clearer and more satisfactory finish is obtained than by the older varnish stains. These later stains are sold under various fancy proprietary names, although there is little difference between those made by different reputable varnish makers. Extensive advertising has created a large demand for this class of goods. While very satisfactory for amateur use, they are not so well suited for the practical painter because in order to adapt them for household use they are usually made of a quick drying varnish. The tendency of such a varnish is to show laps on a large surface, and the painter naturally prefers a varnish that is slower drying.

One of the greatest difficulties experienced with stains, especially on such woods as white pine, is the tendency to sink more deeply into the softer parts of the wood, thus making them much darker than the harder portions, and producing an unevenness of color tone. To a certain extent, this assists in bringing out the grain of the wood, but it is not always desirable,

and various means are resorted to for correcting it. One method, suggested by a painter of long experience, is to first give the wood a thin coat of shellac. Upon this surface a pigment stain will produce a very even color. A well-known Chicago painter, before using aniline stains, rubs the wood over with a combination of five parts of benzine and one part of raw linseed oil. This prevents the absorption of the greater part of the stain by the softer portions of the wood and gives a more even color tone.

An objection that is often raised to water or alcohol stains is that they raise the grain of the wood, necessitating a subsequent sandpapering. As this will take off the little raised nibs and leave small spots of unstained wood under them, it will usually be better to apply a second coat of stain after sandpapering.

Pigment oil stains, of course, are easiest to apply, since they do not raise the grain, but they naturally hide the wood to a certain extent and cause a slight muddiness of tone that cannot be overcome with this class of stain. Nevertheless, stains of this character may be made to produce very beautiful effects, at a less cost than with either water, alcohol, acid or alkali stains.

A variation of the oil stain that will give novel and beautiful results on white pine or other wood of coarse, open grain, such as cypress or chestnut, is the wiped stain. This is a stouter bodied stain than the ordinary oil stain—more like a thin paint—which is applied to the wood, allowed to partially dry, and then wiped off with a rag. The stain, by this time, will have sunk into and colored the softer portions of the grain, while the harder parts will be only very slightly colored.

#### Dull Luster Finishes

Most architects prefer a dull luster finish to a bright gloss on woodwork. There are three ways of accomplishing this; by the use of a rubbing varnish, whose surface is cut down with pumice until it loses its luster or becomes of an egg-shell gloss; by a specially made varnish that dries with a dull luster or by the use of wax instead of varnish. The first method is, of course, the most expensive, but produces the best results. However, many people building houses will be just as well satisfied with the result obtained by the use of a dull drying varnish for a finishing coat. Although the surface is not so smooth as that of a rubbed job, the luster is even in its character and the general effect is almost as good. Of course, it is not honest to employ a material of this character where rubbing has been specified, but where the owner understands clearly that the work is not rubbed but that a dull luster varnish is used as a substitute for rubbing in order to produce the same result at a much less cost, it is perfectly legitimate.

Another method of finishing woodwork that will give very beautiful and soft effects is to shellac it and

then finish it with one of the polishing waxes that is made for the purpose. This material is put on in a very thin coat and is then rubbed to the desired degree of polish with a wool polishing mitt or a brush similar in shape to a shoe brush. This finish is softer and more easily marred than a varnish surface, but it can readily be repolished at any time. A wax finish has been very highly recommended for outside front doors, and is said to outlast a varnish finish, provided it is rubbed up with a little additional wax two or three times a year. Even the best exterior varnish will scarcely last for two years without requiring refinishing.

Referring again to staining woodwork, it must not be forgotten that the same stain will produce very different results on different woods. It is practically impossible, for example, to finish a piece of hard pine to match a given sample of oak in color, although this is something that the painter is often asked to do by the owner, who has, perhaps, bought an oak mantel to go in a room whose standing finish is of hard pine.

Perhaps the most satisfactory method for darkening oak in such a way as to give the actual effect of old wood is to apply several coats of ammonia. It is better to apply several coats of dilute ammonia than to attempt to produce a deep tone with a single wash of the stronger solution, because there is danger of getting the wood too dark by the latter method, and it will be impossible to make it any lighter. The same method can also be used for darkening mahogany, producing the rich, deep red tones of old mahogany. The wood should be allowed to stand for several days after applying the ammonia, in order to allow it to completely evaporate, so that it will not affect the subsequent finish injuriously. Rubber gloves should be used to avoid injury to the hands.



#### Dead Black Stain for Wood

Apply a coat of hot logwood solution, allow it to dry, then apply a second coat; when this is dry, apply a solution of acetate of iron, made by dissolving iron filings in hot vinegar or acetic acid, which will turn the logwood stain dead black. Let this dry, then rub with raw linseed oil to a dead polish.



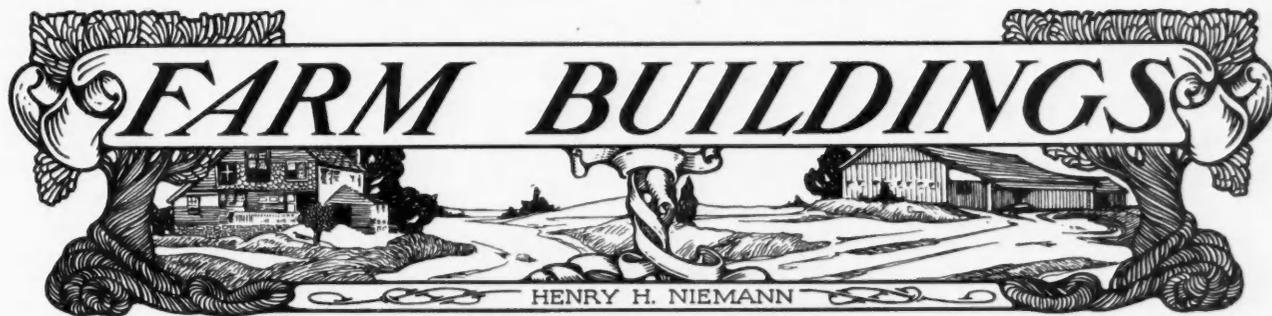
#### Retort Courteous

Mollie—I wish you were more like Mr. Simpson.

Coddle—My dear, if I were more like Mr. Simpson I should have married a woman more like Mrs. Simpson.



Every business man has time to talk business. When you are the talker, say something and then stop. But when you are the listener, stop the talker when he has finished.



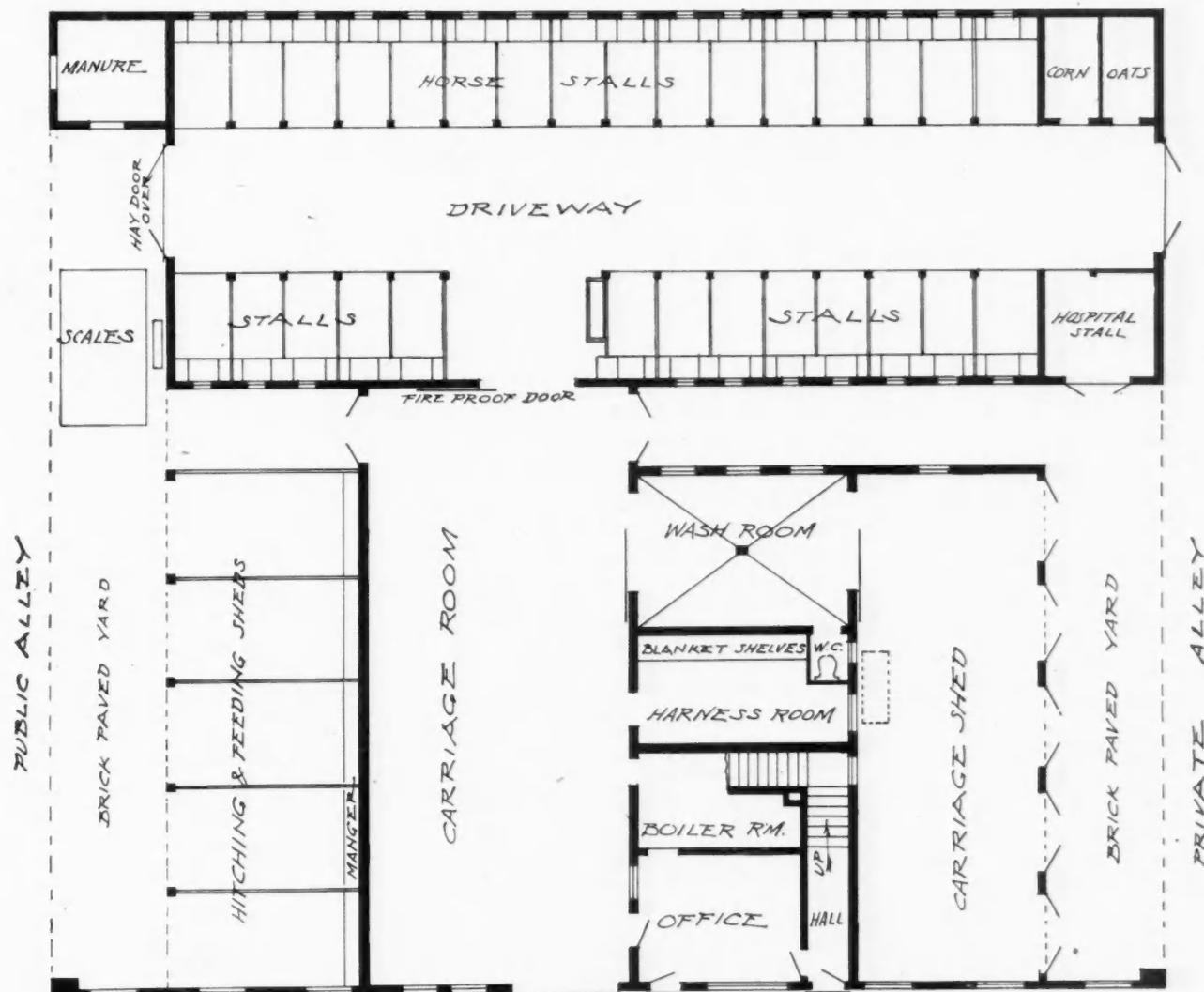
## Well Planned Livery Stable

ELEVATION AND FLOOR PLAN OF AN UP-TO-DATE FRAME LIVERY STABLE—HOW IT IS MADE PRACTICALLY FIREPROOF

THIS stable is of frame construction, built on concrete foundation and has concrete floor throughout the entire ground floor area. The front building, containing the office, carriage room, wash room, harness room, etc., is separated from the building containing the horses by a cement fire-proof

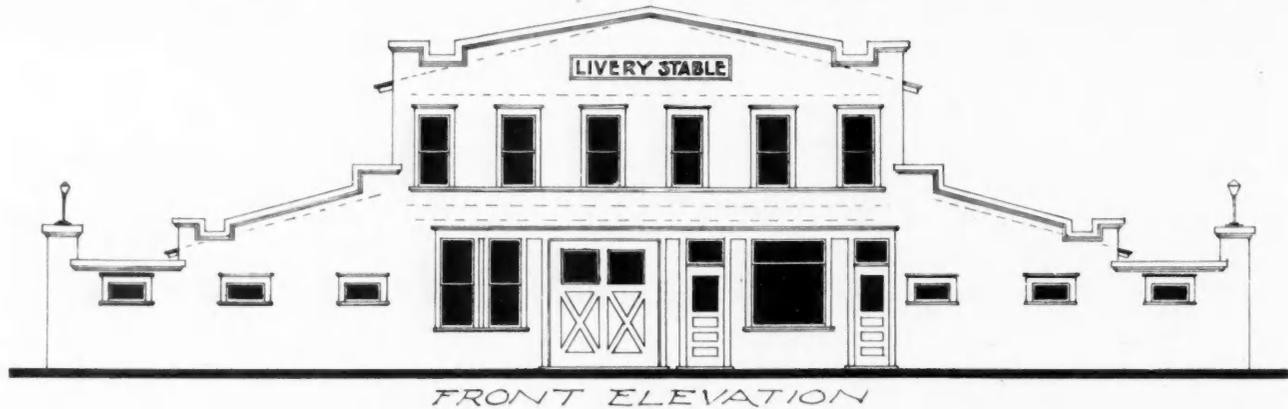
ing. With these precautions against fire, electric light being used for illumination, the building is reasonably safe, although built with wood walls.

The stable contains thirty stalls, one of which is a box stall for sick horses, with double doors from the yard and single door from driveway. All stalls have



wall and fire-proof door. The entire exterior wall surface of building is covered with galvanized iron siding and a corrugated galvanized iron roof, making the exterior practically proof against fire. The boiler room has brick walls, fire-proof doors and cement floor and ceil-

removable plank floors laid on the cement floors, with slight pitch toward the rear of stalls. The stall partitions are of matched plank, four feet high and have an iron guard on top, making top of guard seven feet above floor. Each stall is provided with a hay man-



ger and feed box. There is a hay chute of galvanized iron between each two stalls, this hay chute running from second story floor to top of hay manger; is built larger at the bottom than at the top to prevent hay from clogging. The bottom of mangers and feed boxes are filled with at least four inches of cement to prevent the horses from biting into the planks, and the front edge of the manger is covered with strap iron fastened with counter-sunk screws.

The carriage room has a clear 22 foot span and is 50

feet long. At the rear it contains a vehicle hoist or elevator to additional storage room and paint shop, located at the rear end of second floor over carriage room. The front end of second floor, facing the street, contains a comfortable flat, consisting of a parlor, living room, dining room, pantry, kitchen, bathroom and three bed rooms of good size, all rooms having outside windows and good ventilation. The second story over horse stable contains a large hay room, bedding room, storage room and grain bins.

## Store Front Construction

AN ATTRACTIVE DESIGN FOR A VILLAGE STORE—PROPER METHOD OF FRAMING SO THAT WORK WILL BE STRONG AND DURABLE

By C. Bryant Schaefer

**T**HE type of store front construction usually seen in villages is a square front placed before a gable house. Sometimes the front is made of brick, but the cheap masonry allowed in that kind of work does not secure much improvement in appearance.

The frame front, however, does not need to be so much like a bill board as those often seen. A design is shown herewith that is open at the ends and has a column supporting the cornice at each corner. It is neat and attractive in appearance and is easily constructed.

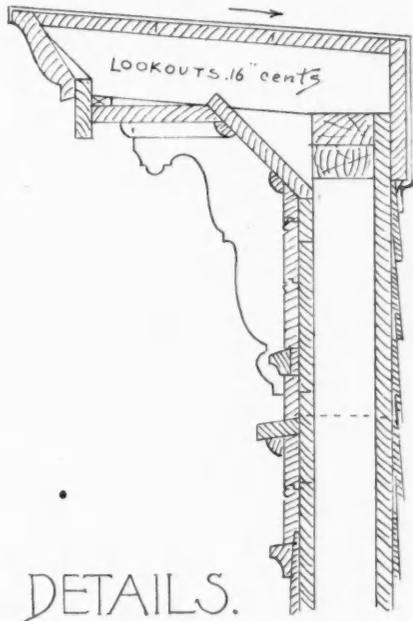
Much of country store work slopes or buckles in time. The framing elevation shows how to lap the

timber joints and to frame them so this will not occur.

In many cases the cornices come loose until they look like a bundle of sticks. This is because moldings are nailed into the butt ends of the lookout pieces, from which the nails soon pull out. These projecting cornices also frequently sag down at the ends because the look-outs are only spiked to the studding.

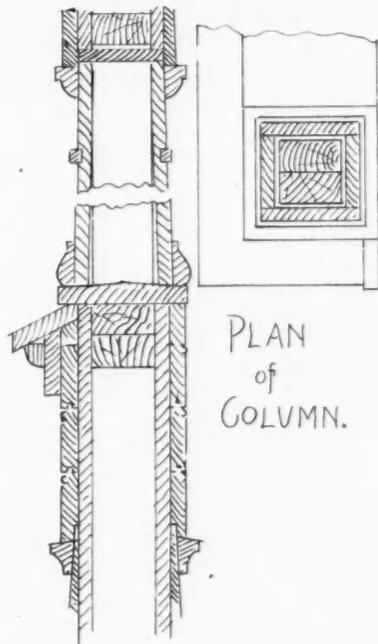
The details show how the cornice should be framed to secure firmness. There is a ground nailed onto the bottom of the lookout pieces that affords nailing for the crown moldings. There is a continuous brace beneath to keep it up and the back is boxed in.



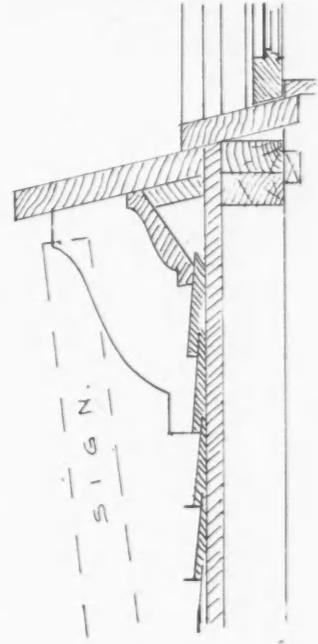


DETAILS.

CORNICE.



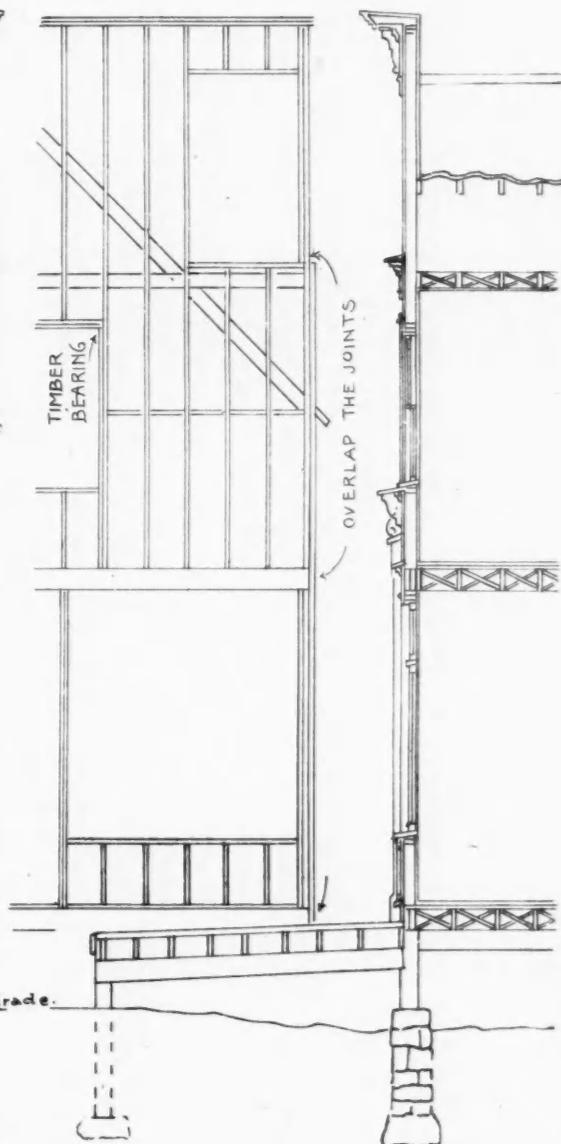
COLUMN.



WINDOW SILL.



FRONT ELEVATION.



FRAMING.

SECTION.



# MANUAL TRAINING

IRA S. GRIFFITH

## Something the Boys Can Make

DETAILED INSTRUCTIONS FOR MAKING THE PANELED BACK FOR THE BOOK CASE OF CRAFTSMAN DESIGN ILLUSTRATED LAST MONTH—HOW TO MAKE AND HANG THE DOOR

THE India stools, photographs of which are shown on this page, were made by two grammar school boys after the description and drawings given in this department in January, 1906. The seats are of heavy leather thoroughly laced underneath.

Effort will be made to complete the description of the bookcase begun last month. One method of putting on a back has been given. Another method, one more in keeping with the spirit of craftsman design and workmanship, is offered.

There will be needed for a paneled back two pieces which will finish to a thickness of three-quarters of an inch with a width of two and one-half inches and a length of forty-six and one-eighth inches. These are for the muntings. For the stiles, plane two pieces to the proper thickness, three-quarters of an inch, jointing one edge only. Cut to a width of about three and a quarter inches, with a length of fifty-three inches, or a little more. For the rails, plane two pieces to a thickness of three-quarter inches, jointing one edge only. The width of one piece should be about two and three-quarter and of the other four and three-eighths inches. The length of each should be twenty-six and three-quarter inches. There will be needed three panels accurately planed to a thickness of one-quarter inch, with a width of seven and a length of forty-five and three-eighths inches—Fig. 1.

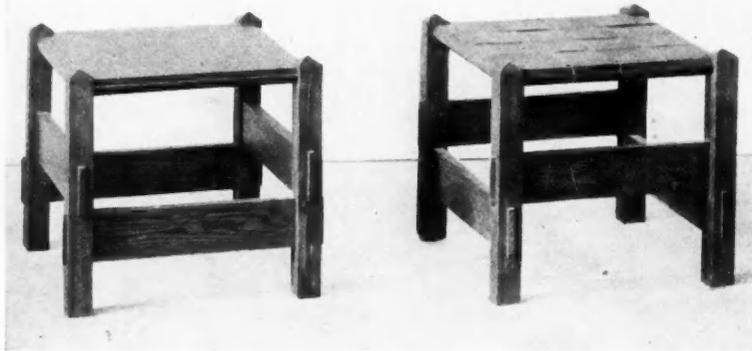
If desired, the paneling of the back might easily be broken up into differently arranged spaces. For example, the panels might be made to take the shape of the spaces planned for the door. If this is done, stock must be got out accordingly, of course. The arrangement given is simple and will prove very satisfactory, both as to appearance and the ease with which it can be built.

By consulting Fig. 1 it will be seen that the frame of the panel is to set into a recess cut out of the sides

of the case, while its top and bottom rails overlap the edges of the top and bottom shelves respectively. This allows the frame to be fastened to the case with screws in such a manner that none of the joints shall show from the front. Such a bookcase can be taken apart readily by simply removing the screws from the back and the wooden keys from the ends of the shelves.

The reason for planing but one joint edge on the stiles and rails and for cutting the stock one-quarter of an inch wider than is called for by the drawings, is to allow the frame to be fitted after it is put together, just as a door is fitted to its frame by cutting off the "lugs" and planing it to size.

The top rail, Fig. 2, may be made first. If the ends have been sawed fairly square and the length is correct, they need not be planed, since they enter the mortise and are not fitted against any other part. Begin at



the middle of the piece and measure to each side three and one-half inches, then one and three-fourths inches, then six and five-eighths inches, then three-eighths of an inch. These measurements are to be made on the jointed edge. Square knife lines across for the ends of the mortise between the lines one and three-quarters inches apart, and entirely around for the shoulders of the tenon. Gauge for the width of the mortise and the thickness of the tenon at the same time, since they are alike as to width and thickness. The settings will be first, one-quarter, then one-half an inch. For the width of the tenon set the gauge to three-eighths, then to one and seven-eighths of an inch.

In sawing these tenons it will be noticed that three-eighths of an inch is left on one edge at the shoulder. This is to fill up the groove made by plowing the stiles their full length.

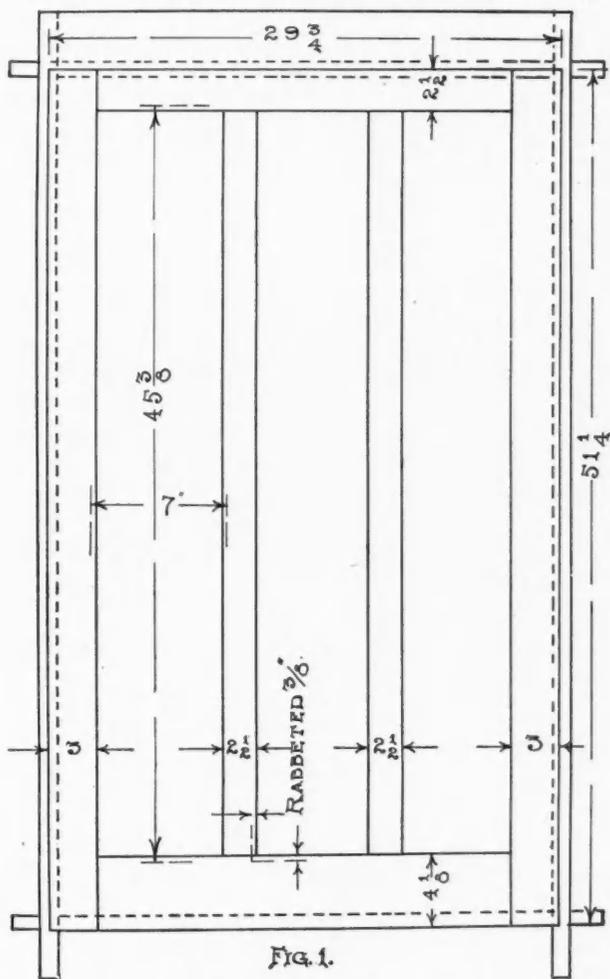
Time will be saved by laying off the lower rail at the same time the upper one is, placing them side by side when marking off the positions of the mortises and tenons. It differs from the top rails only in its

width and also in the width of its tenons.

The joint edges are to be plowed the full length of the piece. Better cut the tenons and mortises, but wait and do all of the plowing at one time.

Fig. 3 gives the dimensions of the two muntings. The width is two and one-half inches and the thickness three-quarters of an inch. They should be sawed fairly accurate to a length of forty-six and one-eighth inches. From the middle measure each way one-half to forty-four and five-eighths inches to locate the shoulders of the tenons. The settings of the gauge for marking the tenons are one-quarter, then one-half of an inch. Both edges of these pieces are to be plowed. These grooves are one-quarter of an inch wide and three-eighths of an inch deep, in the middle of the edge. This plowing reduces the width of tenon as indicated in Fig. 3.

The stiles, Fig. 4, are to be cut somewhat longer



than the drawing calls for. In laying these out, therefore, allow a little for waste at one of the ends then measure consecutively and mark three-quarters, three, forty-five and three-eighths, one and one-half, and five-eighths of an inch. Setting the gauge to one-quarter, then to one-half an inch, mark off the sides of the mortises. Cut them to a depth of one and one-half inches. The joint-edges are to be plowed.

Scrape and sandpaper the parts, then put them together. Use cabinet maker's clamps to hold the parts together. Use hot glue and be careful not to get any

of it in the grooves nor on the edges of the panels.

When dry, clean off the surplus glue, bore and countersink holes for the screws; but do not fasten the back on until it has been stained, filled and waxed or varnished.

For the door, the assembled drawing of which appeared last month, there will be needed for the rails,

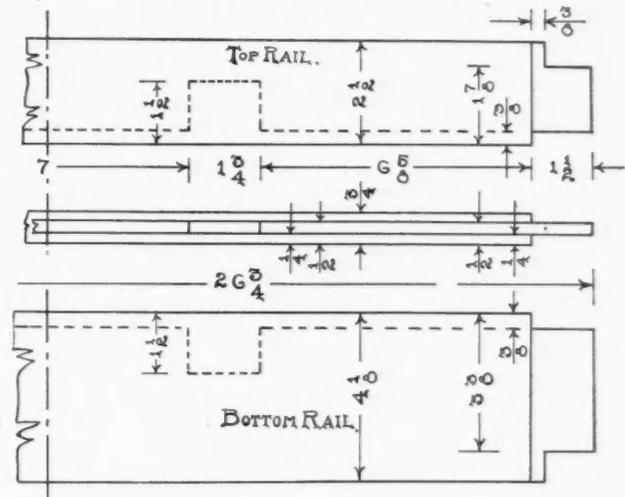


FIG. 2.

Fig. 5, one piece two inches wide, jointed on one edge, by twenty-seven and three-quarters inches long. All of the pieces for the door are to be planed on two surfaces to a thickness of seven-eighths of an inch. Also, one piece, jointed on one edge, with a width of three and one-quarter inches and a length the same as the piece just named. The first is for the top rail, the second for the bottom.

For the cross rails, square up the four sides of three pieces so that each shall have a width of one and one-half inches. The length shall be the same as above.

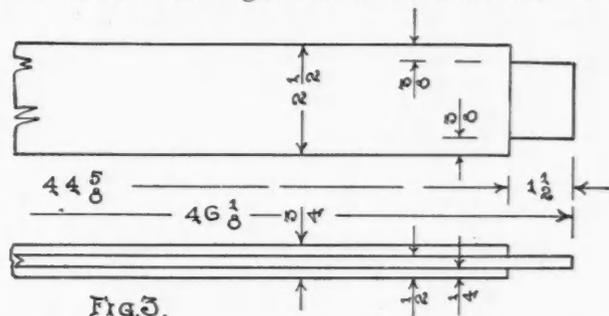


FIG. 3.

The stiles require two pieces somewhat over fifty inches long, with a width of two and one-quarter inches, each jointed on one edge.

There will also be needed two pieces squared to a width of one and one-half inches with a length of forty-seven and one-half inches.

Lay off the top and bottom rails. Place them together in the vise with their joint edges up; find the middle of their length and measure to either side four inches, three-quarters, seven and five-eighths, three-eighths, and from the same point that this last measurement was made from, one and one-half inches—Fig. 5. Knife lines squared across the edges through these points will locate the ends of the mortises and the shoulders of the tenons. Setting the gauge to one-

quarter, then to one-half, mark the sides of the mortises and tenons. Gauge from what is to be the outer faces of the pieces.

Fig. 5 shows that the tenons are to have one shoulder three-eighths of an inch longer than the others. This is to permit the filling of the space caused by rabbeting. The tenons on the top rails are one inch wide, on the bottom rail two and one-quarters inches wide, measured or gauged from the jointed edges, of course.

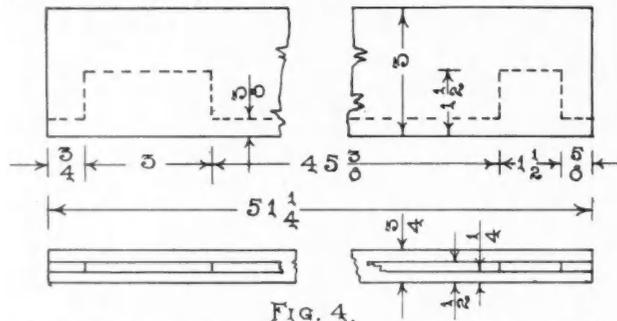


FIG. 4.

The mortises are to be cut one inch deep. The easiest way to cut all of these small mortises is to use a chisel just the width the mortise is to be and cut with it alone, not boring.

Rabbet the joint-edge on what is to become the inner surface to three-eighths by three-eighths of an

of an inch for thickness, measured from the outer face. On the cross-rails the tenons are to be one and one-half inches long, as will be indicated when they are held against the top rail. The length of tenon on the muntings is but one inch.

The cross-lap joint occurs at the intersection of these pieces and is made by cutting part out of one piece and part out the other. This makes a stronger door than would be obtained by mortising one piece into another. Care must be taken to properly locate these joints. If the pieces are straight the best way is to place one upon the other in their proper relative position, as indicated by putting the frame together and squaring it.

After scraping and sandpapering the parts they should be glued and thoroughly clamped, squaring the frame with a steel square, or by measuring the diagonals to see that one equals the other.

The door should be fitted before the back of the case is screwed in place. The door may then be held in place by one person while another marks its size and shape with a sharp pencil or a knife, upon its back. The ends and edges may be planed to these lines with an assurance that it will fit. In running a pencil along, in marking, be careful always to keep the lead against

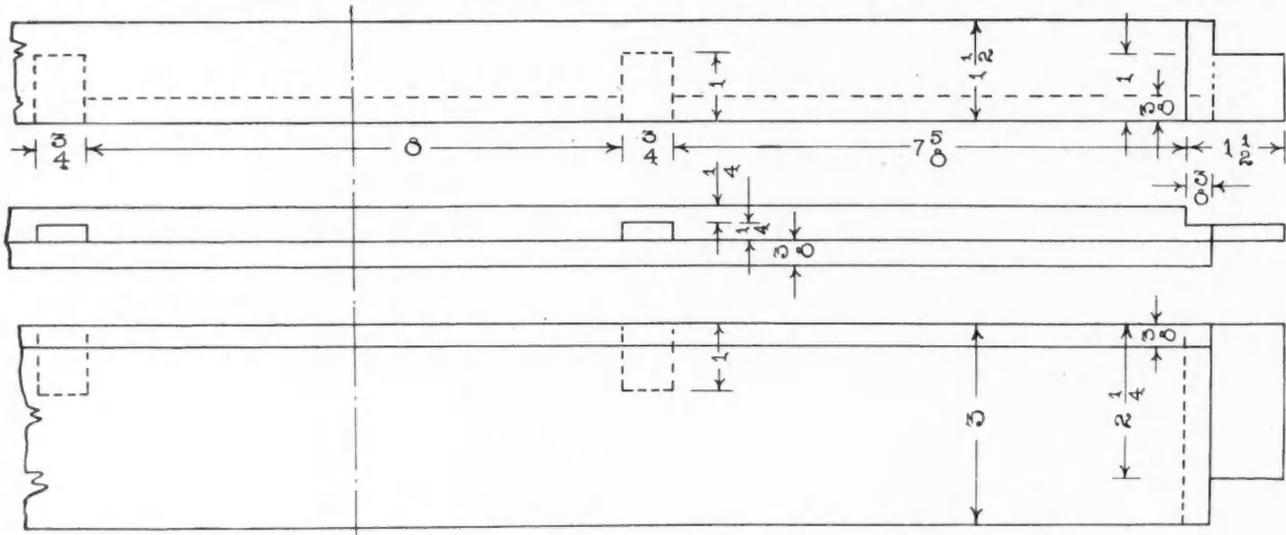


FIG. 5.

inch. It is taken for granted that a rabbeting plane and plow are available, or possibly a circular saw. To cut all of these rabbets by gouging and chiseling would be very tedious, and unsatisfactory, too.

The length of the cross-rails can be got by placing them along side the top or bottom rails. The location of the cross-lap joints can be similarly obtained.

The muntings can be marked by placing them alongside a stile. All of the cross-rails and muntings are to be rabbeted on each of their two edges.

The tenons on these pieces are to be one-quarter of an inch thick and three-quarters of an inch wide. The manner of gauging them will be suggested from the experience obtained in laying out previous tenons. The gauge settings are three-eighths and one and one-eighth inches for width and one-quarter and one-half

the side of the case, otherwise a correct mark would not result and the door would be too small.

Since the door is hung flush, butterfly surface hinges and a surface lock may be used. These are so easily applied that no directions are necessary. Their positions are shown in the photograph in last month's magazine.

Art-crafts finishes are so easily obtained nowadays, accompanied by full directions, that such descriptions are unnecessary here.

The glass may be either single or double strength. The sizes are indicated in the drawing of last month. These panes should be firmly embedded in putty. A thin layer should be put in the recess, the glass should then be placed, another layer of putty applied, after which a triangular wood fillet is tacked in place.



# CONCRETE CONSTRUCTION



## Retaining Walls

CONSTRUCTION AND RELATIVE COST OF STONE MASONRY, PLAIN CONCRETE AND REINFORCED CONCRETE RETAINING WALLS—HOW RODS SHOULD BE PLACED

By Fred W. Hagloch

ALMOST every builder has had occasion to erect a retaining wall. As thirty foot height covers the large percentage of such work it is used as a suitable height for illustrating the various methods and comparing costs.

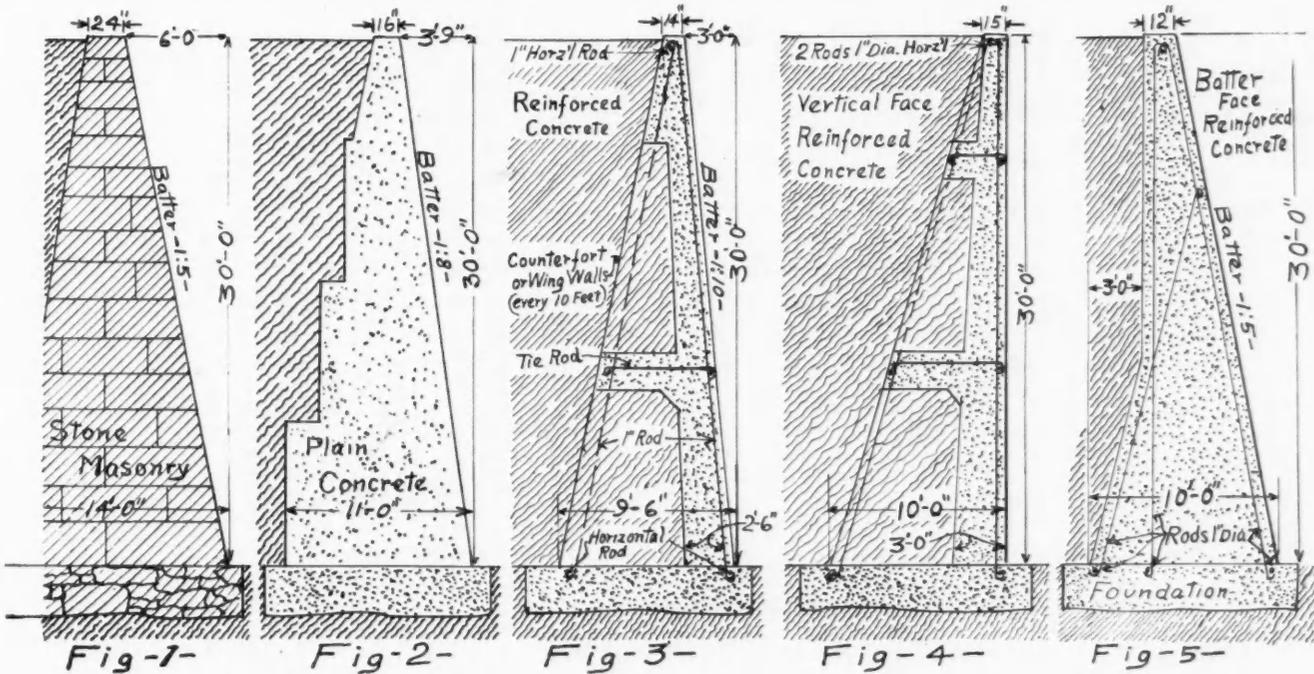
The sections of walls shown in Figs. 1 to 5 are all about the same strength; generally the cheapest of these should be used.

Wall foundations should always have about twenty per cent more width than the bottom of the wall; the placing of the wall on this wider footing is governed largely by conditions. For example, for harbor and bridge wing walls the wall is set back flush with the earth side of the foundation or footing;

Fig. 2 shows the plain concrete (not reinforced) wall now largely used owing to the saving of cost in forms. It is cheaper than the reinforced types in localities where cement, sand and aggregates can be obtained at a low figure.

Fig. 3 illustrates a much used reinforced type which has wing walls two feet thick and spaced ten feet centers, with a horizontal slab binding the wing walls together. These wing walls are always at right angles to the main wall, and the reinforcing rods are contained in them, there being five rods in each, making one rod to every two feet of lineal wall.

Embedded about one foot in the foundation are two horizontal rods, one near the face and one near the



the wall is placed on the center of the foundation; and for vertical face walls, well tied into the foundation with rods, a very wide foundation is used, the wall face being kept flush with the foundation edge. Opinions and practice differ on these points.

Fig. 1 shows a stone wall as largely used before concrete came into use; it contains 240 square feet of sectional area. It is needless to say that this is the most expensive type in almost any locality.

rear of the wall, the wall rods hooking under them as shown. These rods are repeated in the horizontal slab and at the top.

In Fig. 4 is shown a vertical faced wall. This is used for streets and viaduct work as it saves space. It is built like Fig. 3, but a study of the section will reveal the fact that it requires more material.

Fig. 5 is a type which requires but little more material than Fig. 3; for, while heavier, it requires no wing

walls. For that reason, too, it is a great saver of cost in building the forms. This type is very much used. It contains 138 square feet of sectional area, as compared with the 240 foot area of the stone wall of same strength; the difference of cost is very much in favor of the concrete wall.

All concrete walls should be built in sections not longer than one and one-fourth times the height; thus

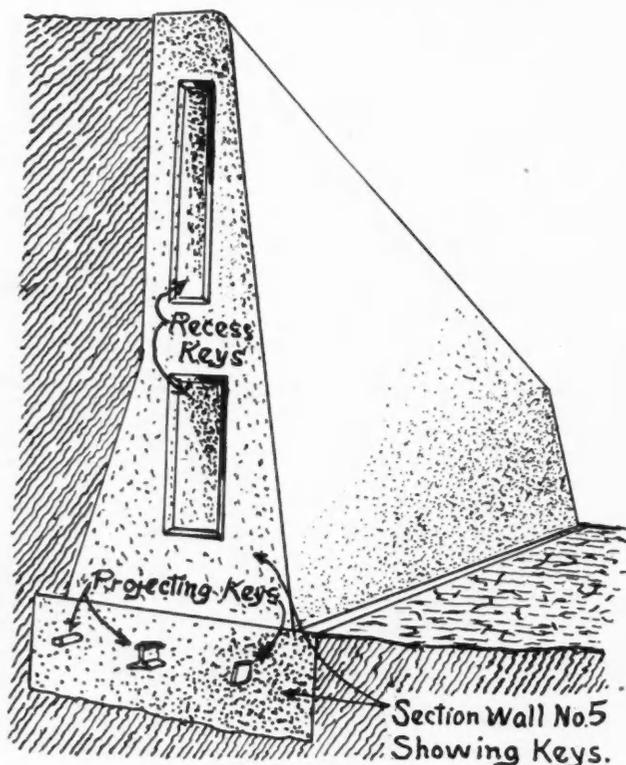


FIG. 6.

a wall thirty feet high should not have a section over forty feet in length.

Two methods of keying sections together are shown in Fig. 6. In the foundation heavy scrap irons about two feet long are embedded half their length in each section, while in the wall the recessed type is used. This requires no metal, as a form in the first filled section produces a firm key about six inches deep into the wall, and the next section projects into it. This key should also be used on horizontal joints for keying one day's work with another when sections are so large that several days are required to fill them.

The reinforcing rods also should pass from one section to another, assisting in keying them together. The vertical joints will allow for expansion and contraction on continuous walls of any length.

#### Level Basement Floors

Concrete is now universally used for basement and cellar floors and, strange to say, all are sloped from walls to bell trap or drain, making an uneven floor, which is a constant inconvenience.

Recently, in placing an engine and heavy machinery in a basement, an entire day was consumed in leveling the machines, whose operations were but temporary;

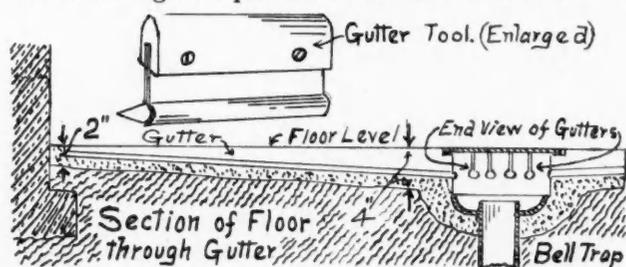
the floors sloping about one inch per foot necessitated the use of blocks and jacks.

The next concrete floor I placed as shown in sketch, using two inches of concrete at the wall and four inches at the trap or drain, floating the top to a dead level.

Before the cement had set I used the gutter tool shown (which is about ten inches long) and made drains about four feet apart at the walls, all leading straight to the drain. These gutters were half an inch below the surface at the wall and two and one-half inches at the drain, thus giving a slope of two inches.

The crevices over the gutters, being left open, make an excellent drain although the floor is perfectly level.

The gutter tool is made of a three-eighths inch rod one foot long and pointed at one end as shown. It



is enclosed in a sheet of tin, ten inches square, solder being used to hold it in place. The two laps of tin are fitted into a sawed slot in the wood handle. It is used in the same manner as a sidewalk jointer, except that it is gradually pressed deeper as it nears the drain in the center of the cellar.

It is surprising to see with what ease it plows through gravel concrete, always leaving the round gutter and slot open.

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#### To Paper a Kalsomined Room

To paper a whitewashed or kalsomined room, the usual method is to size the walls with a sticky preparation of molasses, vinegar, milk, or glue, to "kill" the lime, so that the paper will stick. A much better way, which is perfectly satisfactory, is to wet the usual paste with vinegar, instead of water, and add five cents' worth of glue for each ordinarily sized room to be papered. Brush the walls well with a dry broom, to remove any dust or loose particles, and put on the paper in the usual way, and it will stay where it is put.

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#### No Room

"Simpkins refuses to have his flat papered," reported the agent of the building.

"What's the matter now?" inquired the owner.

"He claims they haven't room enough as it is."—*Judge.*

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THE foreman that stays closest to the job gets the best work done.



**Yes Indeed**

To the Editor: Phoenix, Ariz.  
 I wish to surprise my husband, and therefore ask if you could spare a tiny corner of your worthy magazine for the inclosed snap-shot. The scene is of Mr. Strait (on the left) and his friend, Frank A. Bamber, of Cincinnati, on the lawn



at our suburban home in Phoenix. Mr. Strait has not an inkling of my intentions; so he will not be disappointed if the scheme fails—but I shall.

Best wishes from us all to the AMERICAN CARPENTER AND BUILDER.  
 MRS. A. L. STRAIT.

**Design and Ventilation of Vegetable Cellar**

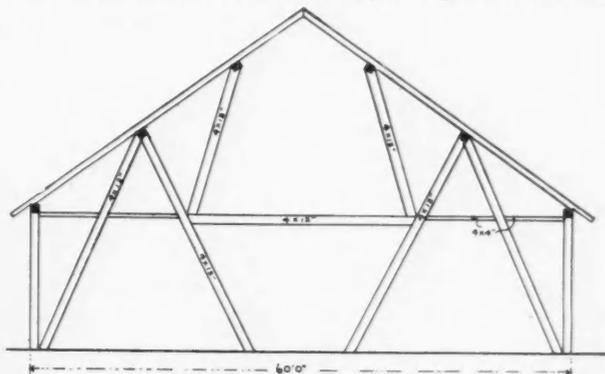
To the Editor: Logansport, Ind.  
 I desire information through the columns of the AMERICAN CARPENTER AND BUILDER as to the best way to build and ventilate a vegetable cellar for the storage of potatoes, to keep them from spoiling and at the same time protect from frost. We are going to build of stone and brick, and think of putting it about four feet below grade line. Would it be better to keep it up high and dry, although we have a sewer handy to drain to? The dimensions will be about 24 by 60 feet and 14 feet to plate. We expect to ventilate next to brick walls. The floors will be cemented and on this we will lay 2 by 2 inch, and on this a slat floor. The partitions of bins also will be made of slats for ventilation purposes. Do you think frost will penetrate a 13 inch brick wall enough to freeze potatoes in this climate? Will be thankful for any information given.  
 W. D. JOHNSON.

Answer: We do not see anything to add to the above suggestions, except that the outer walls should have a hollow space so as to create a dead air chamber. Would recommend building the outer walls 13 inches thick and then would build an inner wall 8 inches thick, leaving a space between of at least 2 inches, which makes the best non-conductor. Would

also make a double ceiling with a dead air space same as on the sides. This can be formed with wood and made tight by using several plies of rosin sized building paper. It would be all right to let the room extend partly under grade, provided you have ground drainage from the building.  
 A. W. WOODS.

**Barn Framing**

To the Editor: Carrolltown, Pa.  
 I am sending you a simple sketch of how to frame a barn without a tie, such as we used to use, to keep the frame from

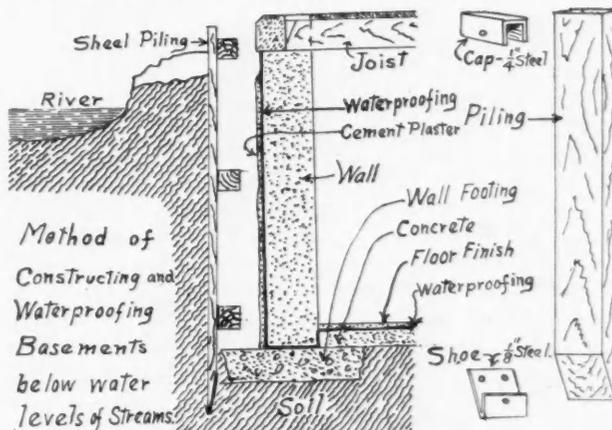


spreading. It is strong and convenient for using hay fork.  
 HENRY KIRSCH.

**Waterproof Cellar Near River**

To the Editor: Bobcaygeon, Ont.  
 I am about to build a cement cellar close to a river where water is liable to boil in from the bed or bottom of the cellar, when the water rises at the spring freshet. What would be the best construction to safeguard against this evil. Any information will be thankfully received.  
 C. G. EDGAR.

Answer: Waterproofing for basements below the water



line must be strong and well made, as it must resist pressure. I always apply the waterproofing on the outside of the wall, covering same with cement plaster as shown; while on the bottom I apply it on the concrete body and cover with the

half inch cement finish (wearing coat). Care must be taken to cover the entire surface to make it absolutely watertight. There are a number of waterproofing preparations on the market that are good. On old walls and floors the waterproofing must be applied on the interior.

The use of sheet piling made of wood with sheet steel shoe for each plank and a driving cap of sheet steel as shown saves labor, time and cost on even the smallest job requiring cribbing; but on large work sheet steel piling should be used.

When it is necessary to operate a continuous pump, the footing concrete should be mixed and placed dry, thus it may be placed when the trench is filled with water.

I have put in a number of basements under water line and find that care must be used, for the omission of waterproofing on a tiny speck will cause no end of trouble to locate and remedy.

FRED W. HAGLOCH.

### Framing a Circular Porch

To the Editor:

Prague, Neb.

I am a young workman but understand your magazine enough to be able to say that it is a great help to me. I would be glad to see something in it about how a circular porch should be framed.

JOSEPH F. KIRCERA, JR.

Answer: Fig. 1 shows the floor framing for the circular corner of a porch where it rounds the corner of a house.

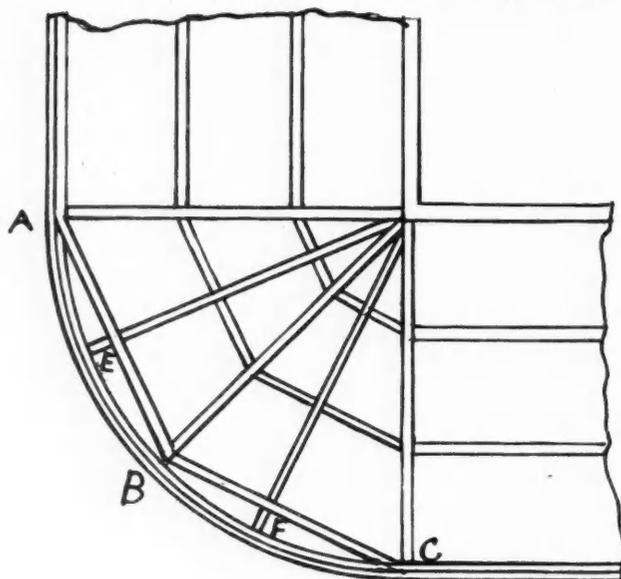


Fig. 1.

There should be a pier at A, B and C, under the outside sill line. Put in the diagonal timber from corner of house to B, then spike on the two outside pieces, A B and B C; then cut in the other two timbers from corner of house half way between A and B and B and C. Then the floor timbers can be cut in between as shown. Short pieces can be cut in at E and F. From A bend a good 1 inch common board around to form the proper circle. If a good board is selected it can easily be bent around to this circle. If likely to crack wet it, and perhaps kerf it with a saw, being careful to do the kerfing uniformly so that the board will bend evenly. The outside finish board may be put on in the same way.

There is some strength to the sheathing board and the finish board; but we do not depend on these to support the floor. The frame work, resting on the piers, will support the floor and its load. The other pieces are to facilitate forming the circular part of the porch.

For the support of the roof a pier at A and C is in most cases enough. The frame work for the frieze and cornice has to be built up of pieces worked out to the proper circle and spiked together. The best way is to work this out on

the ground or the porch floor, nail it all together, then raise it up and set it on top of the posts over A and C. Put a temporary post at B, just the right height. Then the inside and outside frieze boards can be bent around to this circle; but not always without kerfing and wetting. Select good

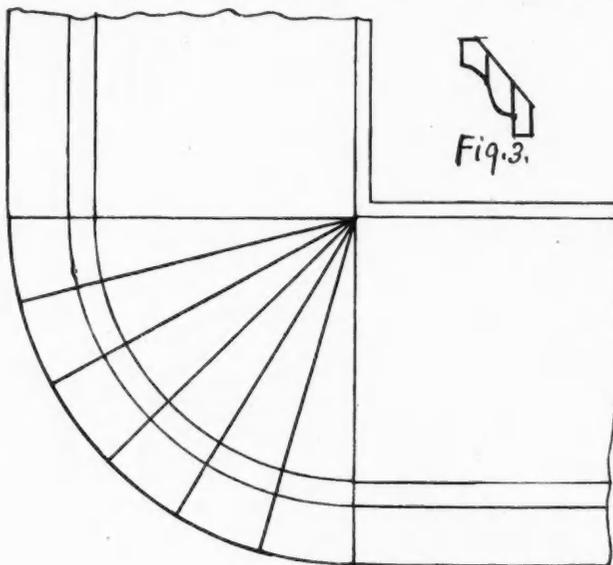


Fig. 2

straight grain finish for the boards you have to bend. The plancher will have to be worked out to the proper circle and put on in pieces. The fascia can usually be bent into place. The crown mold also can be bent into place quite easily by first ripping it into three pieces lengthwise, as shown in Fig. 3.

Fig. 2 shows how to space the rafters so that all of them will run to the center or corner of the house. The sheathing will need to be put on in short pieces running from one rafter to another, and if this makes any perceptible rise at the joints the corners should be rounded down a little with a jackplane. If there are plenty of rafters put in, this method will give a good circle to the roof—one that can be shingled over, tinned or roofed with any kind of roofing without any trouble.

For the flooring and ceiling, it will be necessary to taper the boards; the grooved edge can be ripped off and the board tapered down to nothing at the point next the house; with a plow plane put in a new groove.

I. P. HICKS.

### To Frame an Uneven Pitch Roof

To the Editor:

Highland, Mich.

In order to explain my method for getting lengths and bevels for valley rafters, I will use for an example the dimensions of a house I built last summer. The upright was to be 16 feet wide, the "wing" 18 feet wide, both to be equal height at the plate and ridge. The roof on the upright was to be half pitch, 8 foot rise and 8 foot run. The roof on the wing would then be 8 foot rise and 9 foot run. (I laid out the common rafters for the wing by laying the square on at 16 and 18, six times instead of 8 and 9 twelve times, as per method explained in January number.) Then by measuring across the square from 8 on one side to 9 on the other, I found the run for the valley rafter to be 12 feet and 1 inch. That I laid out by laying the square on at 8 inch rise and 12 feet 1 inch run, twelve times. The various lengths of the short rafters were gotten as explained before. The bevels are gotten for each part by using the length of the common rafter on one part and the run of common rafter on other part. Therefore the bevel for the jack rafters on the upright was the acute angle formed by laying the square on at 11, 3/4 and 9 and the bevel for those on the wing happened in this instance to be the same figures as the rise and run of the

valley rafter, viz., 12-1 and 8 acute angle. These figures reversed, or 9 and 11-3/2 for the upright and 8 and 12-1 for the wing (obtuse angle) gave the cuts for the roof boards and cornice. When these things are thoroughly understood a carpenter can go to work and frame his whole roof without any drawings and everything will fit, too. I have seen men carry the roof boards up on the roof and fit each one to its place when roofing a valley. Anyone that has had experience knows that it is not a convenient place to saw boards on an angle. These cuts are always made on the ground on my jobs and it saves lots of hard work. ALBERT GONNE.



**Length of Hip or Valley Rafters**

To the Editor: Milwaukee, Wis.  
I have seen many ways of laying out rafters in your paper; but what I think is the easiest way is to take the run and rise of the rafter on the steel square and go along twelve times, the same as laying out a stair stringer.  
For the hip or valley, take length of common rafter and rise on the square and run along twelve times and you will have the length and cuts. But here is a puzzle to me. What

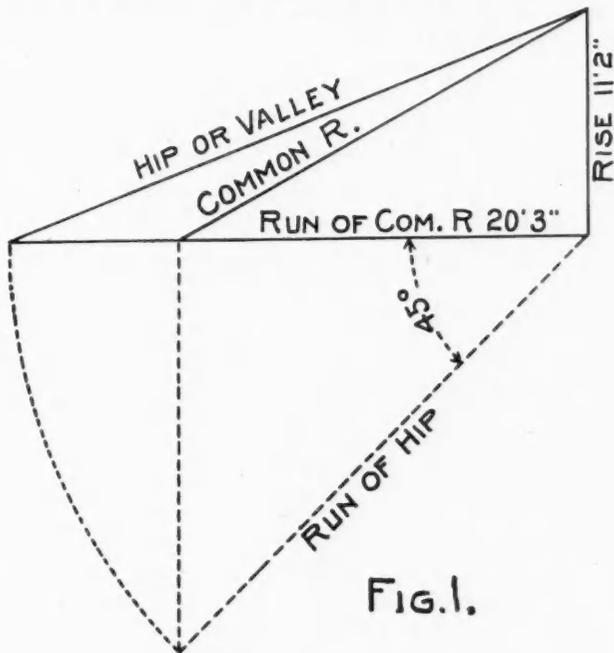


FIG. 1.

I would like to have explained in your paper is this: For example, we will take a building 40 feet 6 inches wide with an 11 foot 2 inch rise of roof. Now, by taking 20 feet 3 inches and 11 feet 2 inches on the square, it will give the length for the common rafter, but the length of the common rafter and the rise will not give the length of the hip. What I want to find out is why it does not give it on the square, same as any other pitch. Will you please help me out in the AMERICAN CARPENTER AND BUILDER? J. KOENEN.

Answer: The method given above for finding the length of the hip or valley does not work on anything except for the one-half pitch; and that only because the length of the common rafter equals the run of the hip and the rise equals the run of the common rafter. Therefore, it is not a general rule, but simply one of those things that occurs at the half pitch or 45 degrees. It being at the equalizing point between the horizontal and perpendicular, many things will work there that will not work on any other pitch. As, for instance, the same figures on the square will give either the miter joint, the butt joint or the face cut to form the hopper with 45 degree flare to the sides; but as we leave this angle the cuts become different and require a different set of figures on the square to obtain them. The further the angle departs

from the 45 degree, the more pronounced the difference will be in the cuts.

Take the example of a building 40 feet 6 inches wide with a rise of 11 feet 2 inches, the length of the hip may be found by taking the diagonal of one-half of the width (20 feet 3

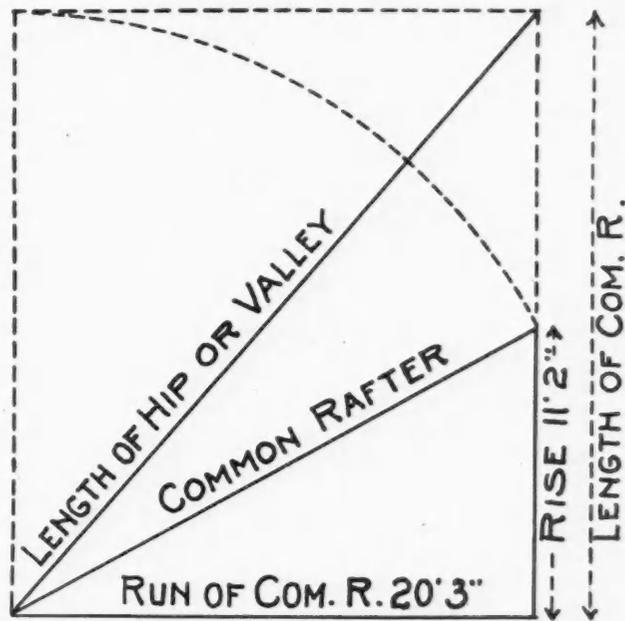


FIG. 2.

inches), which is 28 feet 9 inches. Then the proportion of 28 feet 9 inches and 11 feet 2 inches will give the length, seat and plumb cuts for the hip or valley rafter, as shown in Fig. 1. The length may also be found by setting the length of the common rafter at right angles to its run and measuring diagonally across as shown in Fig. 2, but it must be remembered that this angle gives the length of the hip or valley only and not that for the cuts. A. W. WOODS.



**Concrete Porch Floor**

To the Editor: Conyngham, Pa.  
I would like to build a porch floor out of cement. Can this be done so that the floor will not crack or show cracks in it? The size of the porch will be 6 1/2 by 24 feet in one block. GEO. R. KELLNER.

Answer: Fill with gravel, crushed stone or sound clay, well tamped, up to 4 inches below floor line. Then place a 4 inch high frame around to be filled with concrete consisting of one part Portland cement, two parts sand and three parts crushed stone or gravel, pea size. Fill form to a depth of 2 inches; then place five iron rods 22 feet long, 18 inches apart, lengthwise and four rods 6 feet long, 4 feet apart, crosswise, and cover with concrete. Finish with 1/2 inch coat of one part cement and two parts sand, and trowel smooth.

The rods will prevent cracks. If porch is too high to fill, build temporary floor for holding concrete for four weeks. FRED W. HAGLOCH.



**Fee for Rejected Building Plans**

To the Editor: New Holstein, Wis.  
A man gave me an order to make plans for a house. I made it and he brought it back and said it did not suit him. He had his house built by another carpenter because he worked cheaper. Now, how much can I charge for the plan?

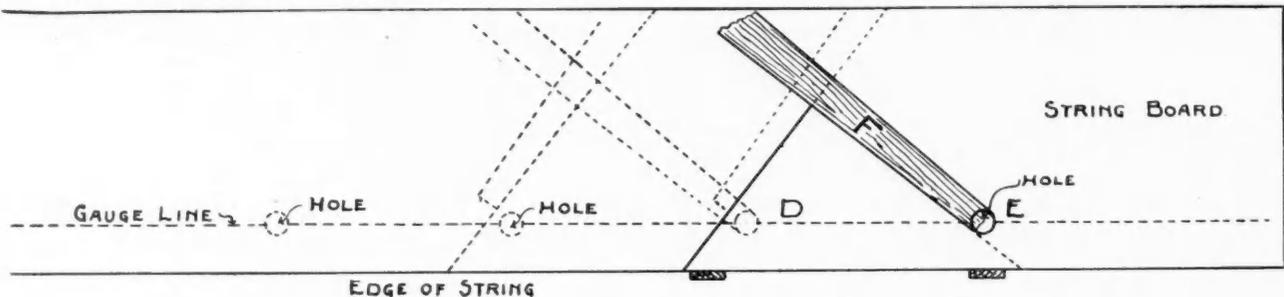
I made a foundation, first floor, second floor and roof plan. I have been told that I could collect 3 per cent on the cost of the building. As this might interest some other readers, would like to see it answered in the AMERICAN CARPENTER AND BUILDER.  
HERMAN J. BARTELS.

Answer: This is a question on which many opinions have been rendered pro and con, but we believe in the absence of a special contractor and since the plans were only partial, not complete, it would be hard to recover for services rendered. The fact that the plans were not used is proof enough that they were not satisfactory. Then again it does not pay to rush into court with such accounts, because if you win you will still, more than likely, be loser, because justice sometimes comes awful high. Therefore, it is better to take occasional defeat philosophically and not go courting.

A. W. WOODS.

**To Lay Out Stair String**

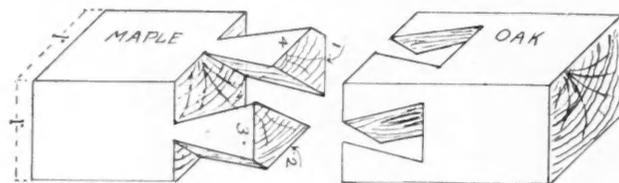
To the Editor: Salem, Ind.  
I have read and appreciated many articles in your magazine written by subscribers, and perhaps this may in return



be of interest to some of them. I give here a method of laying out housing for stair strings that I use. Here it is. Joint top edge of string board straight; draw a gauge line down the required distance for the center of nosings. Then, having found the rise and run of riser and step, set dividers from rise on blade of square and step off on gauge line the required number of treads. Next take a center bit the size of nosings and start holes at these points. Next mark a pitch board, as shown in sketch at D, and a wedge shaped stick F, the thickness of tread, plus the shape of wedge to be used in gluing up the stairs. Now place pitch board on string, as shown at D, slide it along edge of string board until edge touches hole E. Mark tread and riser and before moving pitch board, place the wedge stick as shown at F. and at dotted lines and mark outside. Proceed to next tread in same manner and so on. The projection of nosing may be regulated by making pitch board longer or shorter on the line B-C; but do not change the pitch.  
O. MCKNIGHT.

**To Bore Square Hole with Round Bit**

To the Editor: Sanford, Me.  
I am sending you a solution to J. B. Hofman's dove tail block puzzle, in the March number of your valuable maga-



zine, and have a puzzle of my own to submit to the readers of this paper. Although it seems almost impossible, it can easily be done. The puzzle is to bore a square hole with an

ordinary bit; and I would like to hear some of the readers answer. I am a charter member of the AMERICAN CARPENTER AND BUILDER and am proud to be such  
CLAUDE ZICKELL.

**To Make Liquid Glue**

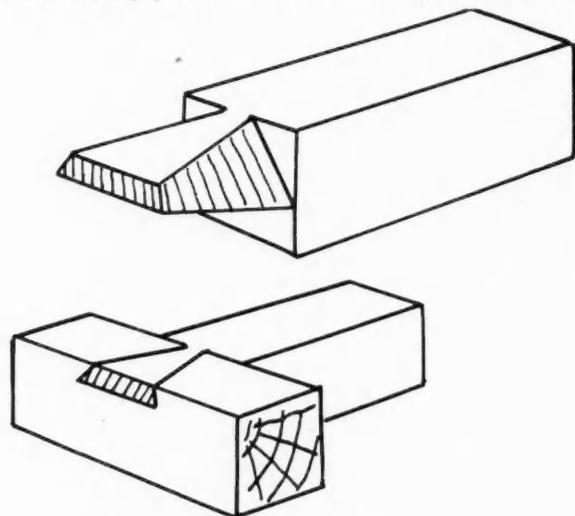
To the Editor: Farmington, Mo.  
Will you kindly answer the following and oblige a charter member: How may I prepare glue that it will remain liquid and be satisfactory—"Liquid Glue"?  
W. D. McBRIDE.  
Answer: Glue may be kept in liquid form by dissolving it in the usual manner. Then place it in a glass jar, or earthen dish, and while still warm add one ounce of strong nitric acid for every pound of glue. Stir the acid in slowly, using a glass stirring rod, and stop when effervescence has ceased. Allow this to cool and keep in a tightly closed bottle. It should smell as sour as ordinary vinegar.

Another method of preparing liquid glue is to dissolve two ounces of borax in one gill of boiling water, and while still boiling, add one ounce of calcined potash. This is then stirred into a boiling solution of one pound of animal glue in one quart of water.  
EDWARD HURST BROWN.



**Dove Tail Puzzle Answer**

To the Editor: Bangor, Me.  
I am sending you a blue print which gives the solution



of Pinus Strobus' puzzle, No. 5. I made and drafted it some twenty years ago.  
SELDEN S. MARDEN.

**Top Cuts for Bridge Truss**

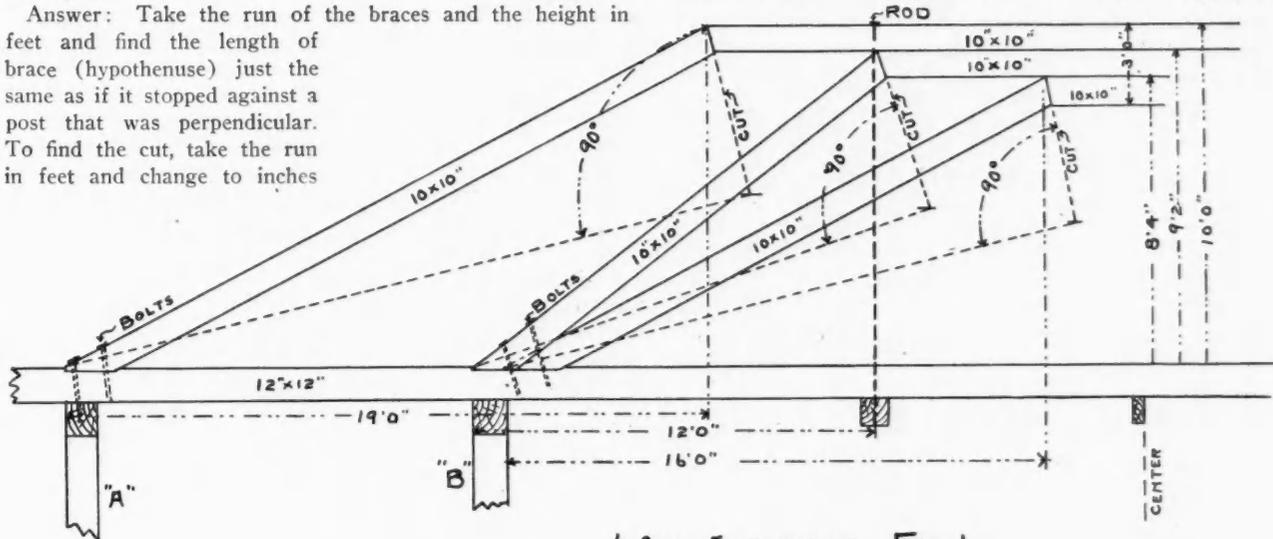
To the Editor:

Avoca, Texas.

As I have been a subscriber to your great paper since its first issue, I herewith send in my first question, with sketch of a bridge truss. I want you to explain through your paper how to get the top cuts for this truss by aid of the square.

A. D. WOODSON.

Answer: Take the run of the braces and the height in feet and find the length of brace (hypotenuse) just the same as if it stopped against a post that was perpendicular. To find the cut, take the run in feet and change to inches



1/2 SIDE ELEVATION. FIG. 1.

on the blade of the square and one-half the rise (or perpendicular height) in feet and change to inches on the tongue. By referring to the sketch, it will be seen that this rule applies closely to any angle (see dotted lines). In practice it is best to strike a chalk line 1 inch from edge of timber and take the cut from that, as a slight bow in the timber will spoil the cut. It should also be borne in mind that any variation in the cut will be doubled when timbers are assembled.

Example: Run of first brace 19 feet; rise 10 feet. Take 19 inches on the blade and 5 inches on tongue and cut through. For the bottom cut, take the full rise and run. It is the common practice, and the correct way, to take 12 on the

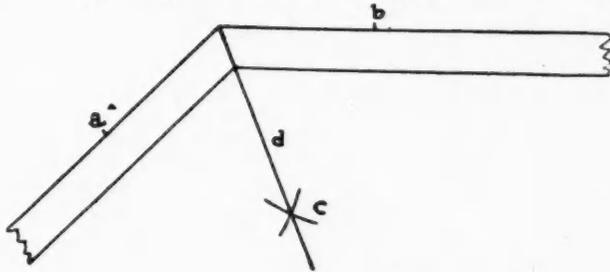


FIG. 2.

tongue and whatever comes on the blade; but as this rule is easy to remember and very simple, we give it.

As our correspondent shows a bearing at "A" and one at "B," we fail to see why the truss does not terminate at "B."

To bisect the angle, lay off two points of equal distance from the angle (one on the chord and one on the brace) see "a" and "b," Fig. 2, and with the dividers, or tape line, take a distance of one-third more and describe two arcs "c," draw the line "d."

T. P. ELLIS.

**Brick Debris in Foundation Work**

To the Editor:

Middletown, Ill.

Do you think that the debris from a brick store building that has burned would make a good aggregate for a foundation for a new brick building? The debris is plaster, broken brick, lime mortar, and glass. Brick walls to be 12 inches. If you think it safe, will you please give us the proper pro-

portions to use, and the thickness of the foundation. The building to be two stories high, 14 foot ceilings.

SAMUEL MORRIS.

Answer: Debris of plaster and lime mortar is worthless for foundation material; this was tried after the fire of 1904 at Rochester, N. Y. Brick and glass are all right. One part Portland cement, three parts sand to five parts aggregates

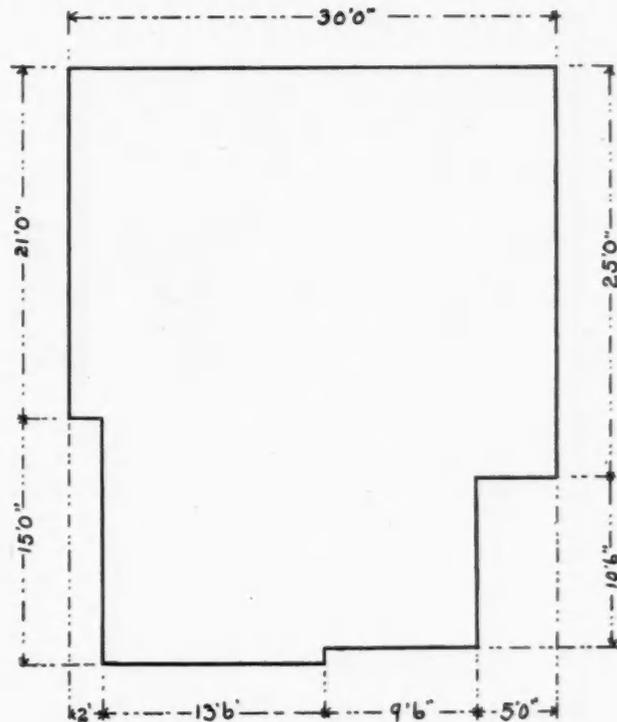
(bricks, stone, etc.), make good foundation or footings. Width of footing depends upon nature of soil on which wall is built; 20 inches wide is sufficient on sound clay, but wet clay or sandy soil requires 24 to 28 inch width. Footings should not be less than 6 inches high. FRED. W. HAGLOCH.

**Roof Plan Requested**

To the Editor:

London, Ont.

I am sending you a sketch of a plan which I received to figure on. It was drawn by a man supposed to be an



architect and signs his plans as such. I would like some of my brother chips who are experts at roof framing to give a correct drawing for this roof. F. R. WRIGHT.

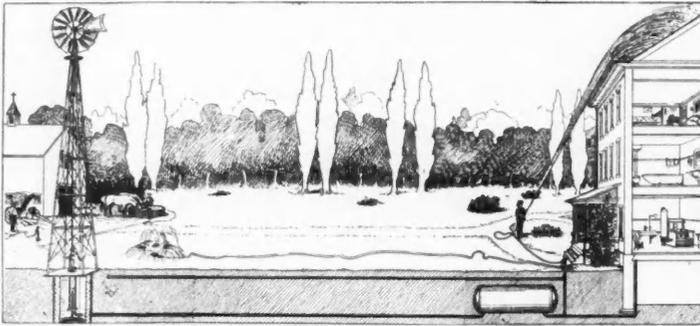
# PRACTICAL TRADE APPLIANCES

## A Modern Water System

The Burton Domestic Water Supply Plant consists of a large, heavy, air-tight, steel storage tank, and a powerful force pump. These pumps may be operated by hand, wind-mill or gasoline engine.

Air is pumped into the tank with the water, which furnishes a powerful pressure, forcing water through all the pipes to any part of the house or farm.

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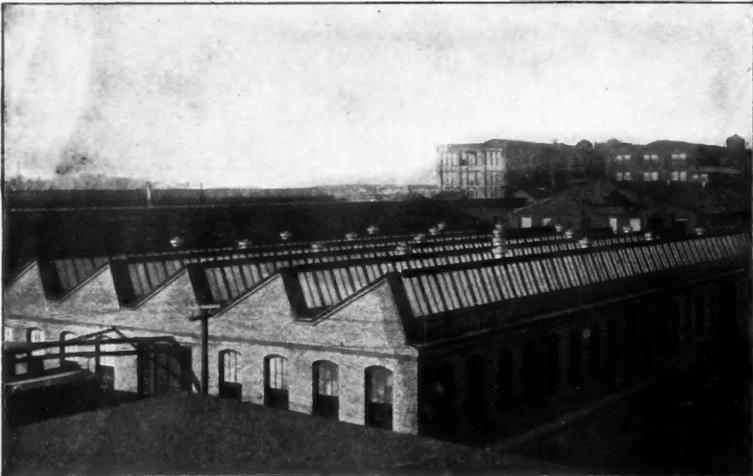
hydrant for fire protection. If desired, connection can be made to the barn and watering trough. In fact, the water

can be carried anywhere and almost any distance. By pumping a few minutes each day a constant pressure of forty pounds can be maintained, which is about the normal pressure of city waterworks. Ten pounds pressure will deliver water on the second floor, and practically all the water in the tank can be discharged from a yard hydrant.

The cost of the system depends on the size of the tank and on the kind of a pump you need. The depth of your well or cistern will govern the kind of pump you will require. In order to have fine facilities for the bathroom, you should install one of these splendid systems. Then you can have all the pleasures and the comforts of any home, and it makes your housework modern and up-to-date. Everybody nowadays wants all the best things going, and with your house fitted up with such a system, you can say it is the latest in all its appointments.

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(Signed) H. J. Lamborn, Superintendent."

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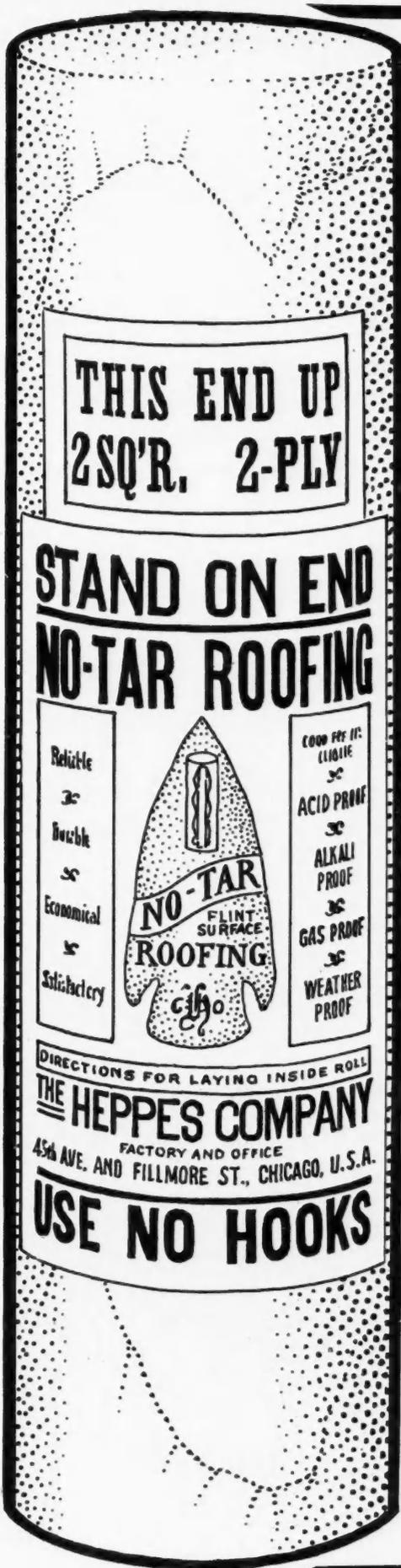
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Our book tells you how to cut the roofing to fit corners, angles and odd spaces.

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Tells how to measure roofs.

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The Hess Warming and Ventilating Company, Chicago, is about to issue a supplementary booklet illustrating and listing all manner of hot air pipes, stacks, elbows, boxes, etc., for use in furnace heating, and also description and prices of a full line of registers.

The Hess Company makes a specialty of supplying furnaces, pipes and equipments direct from factory to user, and the prices which it offers cannot be duplicated by small dealers. The company has worked up a business extending through every state in the Union of supplying furnaces and complete heating equipments, together with plans and full directions for setting up and operating. These are sold direct to builders and consumers, but not through middlemen nor hardware dealers.

Many of the readers of this paper have patronized the company, saving money and securing better work than could be had from local dealers. All builders are invited to send in their requirements for furnaces, partition pipes, or any other fittings required, and their patronage, whether large or small, is solicited.

A feature of the company's work, which will be appreciated by every builder, is to supply complete working plans showing the arrangement of every detail necessary for proper heating. These plans are furnished free upon request, a rough sketch

only, showing the size and arrangement of the rooms to be heated, being necessary to enable the company to prepare such drawings.

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It is a pleasure to figure long lumber bills with this book, for they can be figured in one-half the time required by the old method. Lumber dealers, with this book, can truthfully say, "Estimates *cheerfully* furnished."

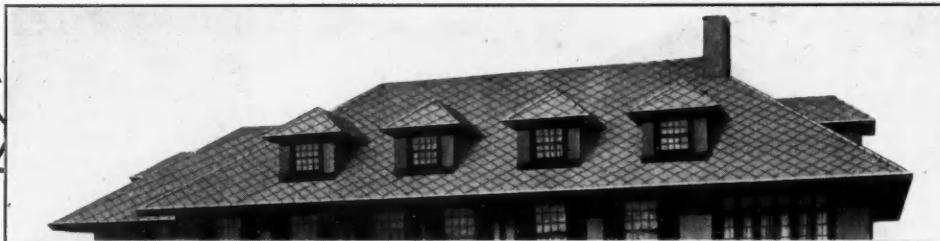
Contractors and carpenters can avoid those costly mistakes which are made so frequently in the rush of business. With this book, the office boy can check the bills as well as his employer.

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**Useful Iron Columns**

The use of iron columns in modern building construction is increasing very rapidly. This is true not only in exteriors, such as stores and mercantile structures, but also in interior

*Continued on Page 372*



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**Asbestos "Century" Shingles**

**"The Roof that Outlives the Building"**

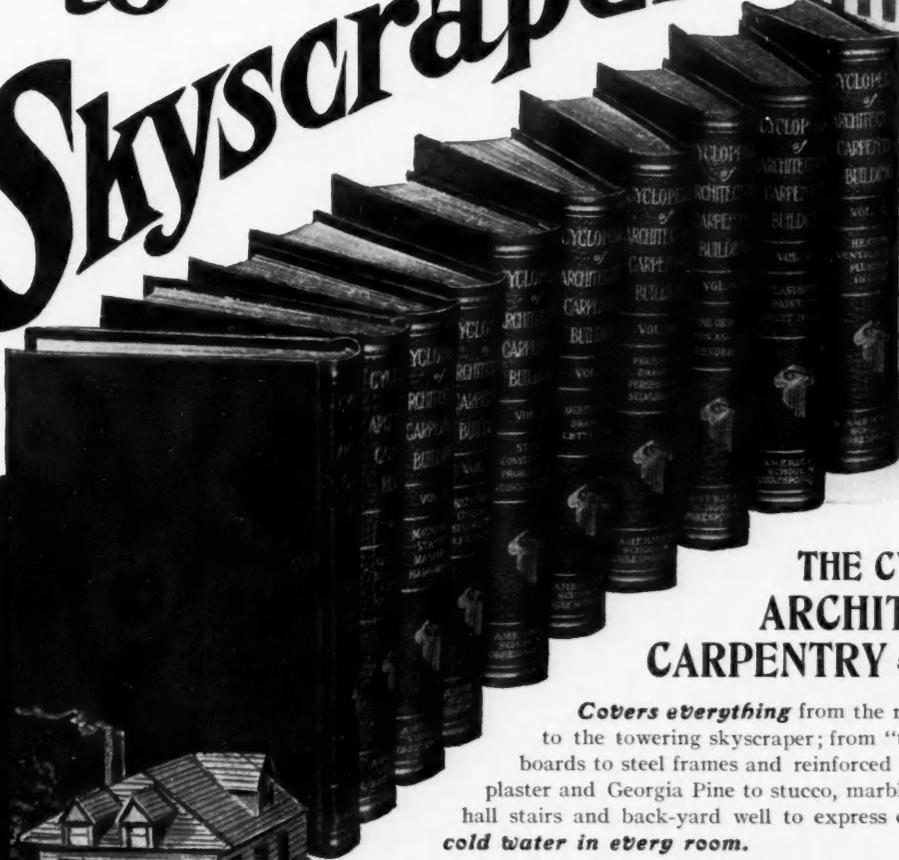
Asbestos "Century" Shingles, the most perfectly indestructible roofing, are made of asbestos fibre and hydraulic cement, compressed into uniform sheets under hydraulic pressure. The cement hydrates and crystallizes around the asbestos fibre, growing more and more hard and elastic with age. Asbestos "Century" Shingles are fire-proof and climate-proof. They do not flake off or split at the nail holes. Applied like any shingle or slate. An Asbestos "Century" Shingle roof will outlive the building, without painting or repairs.

Immeasurably superior to the best natural slates ever quarried. Asbestos "Century" Shingles have been frozen and thawed 200 times successively, becoming progressively better under this extreme treatment. A great variety of shapes, in several sizes, and three colors—Newport Gray (light), Slate (blue black), and Indian Red. Five cents per square foot (and upward) at Ambler, Pennsylvania.

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Being Manufacturers of Fine Flooring, we have for years been interested in perfecting a Floor Scraper that would do high grade, fast work on all kinds of hardwood floors. We now have such a machine ready for your use and inspection. A trial will conclusively prove to you that the JOHNSON Adjustable Floor Scraper is today the only Scraper that does **rapid** work and **good** work at one and the same time.

That is because it is built on the **right** Mechanical Principle.

Not only can an ordinary man using the JOHNSON do the work of five men, but when the job is finished it is done just as well as it could be done by hand with a Smoothing Plane.

The JOHNSON Floor Scraper leaves no **waves**, because the **blade**, being instantly **adjustable** by the lever on the handle, (see illustration) goes **with** the grain all the time.

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When you consider the fact that with the JOHNSON a man can cover 125 sq. ft. of floor per hour and do it **right**, you must realize that it is a great money-making device. The thousands of practical workmen who are using it say it is the **one** Scraper built on the correct Mechanical Principle.

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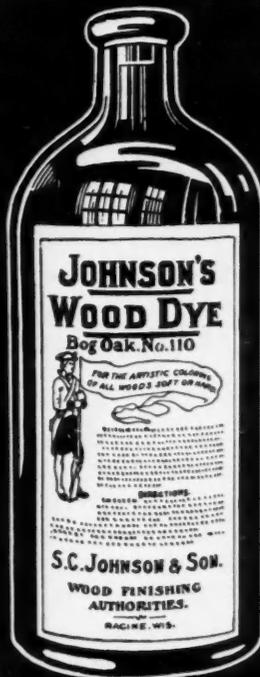
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Continued from Page 368.



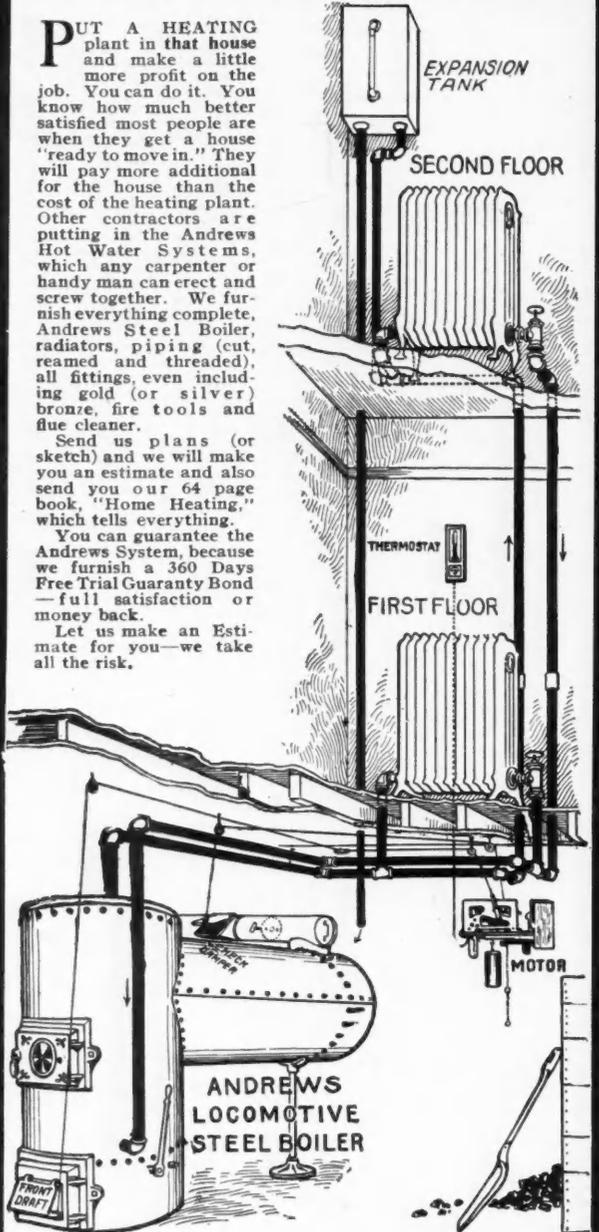
## PROFIT FOR THE CONTRACTOR

**P**UT A HEATING plant in that house and make a little more profit on the job. You can do it. You know how much better satisfied most people are when they get a house "ready to move in." They will pay more additional for the house than the cost of the heating plant. Other contractors are putting in the Andrews Hot Water Systems, which any carpenter or handy man can erect and screw together. We furnish everything complete, Andrews Steel Boiler, radiators, piping (cut, reamed and threaded), all fittings, even including gold (or silver) bronze, fire tools and flue cleaner.

Send us plans (or sketch) and we will make you an estimate and also send you our 64 page book, "Home Heating," which tells everything.

You can guarantee the Andrews System, because we furnish a 360 Days Free Trial Guaranty Bond — full satisfaction or money back.

Let us make an Estimate for you—we take all the risk.



### ANDREWS HEATING CO.

952 Heating Bldg.  
MINNEAPOLIS

981 Marine Bldg.  
CHICAGO

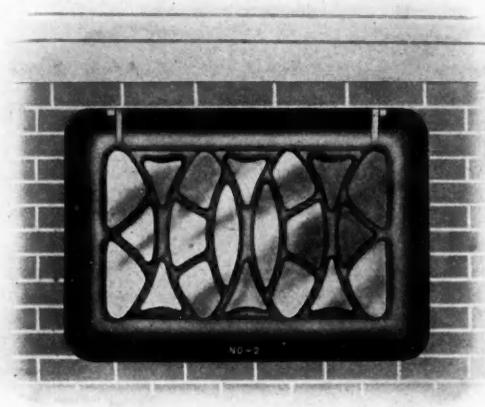
Andrews Systems are now at work in over 700 cities and towns

MANUFACTURERS CONTRACTORS CONSULTING ENGINEERS

and basement construction. The Canton Foundry & Machine Company, Canton, Ohio, is making a specialty of selling all kinds of iron columns direct to contractors. The number and quality of their designs and sizes surpass that of any other manufacturer. The contractor buying of them secures the best prices because they make everything they sell in their own plant. Thousands of carpenters and builders have found that it pays to buy these goods direct, and write for bids on special work, submitting drawings, sketches or blue prints. Write them at the address given. They quote special prices to carpenters and builders.

### "Ideal" Window Chute

The Ideal coal or wood window fills a demand for a fuel chute which not only furnishes ample protection to the building but which acts as a window in winter and a screen or ventilator in summer. The body of the chute is made of heavy steel plate and thoroughly painted. The bottom of the hopper is also made of the same material. The door, frame and ends of the hopper are made of the best quality of grey iron. The glass used is made of transparent celluloid, which will not crack from a most severe jar. The wire screen furnished is galvanized, and will not rust. Either glass or



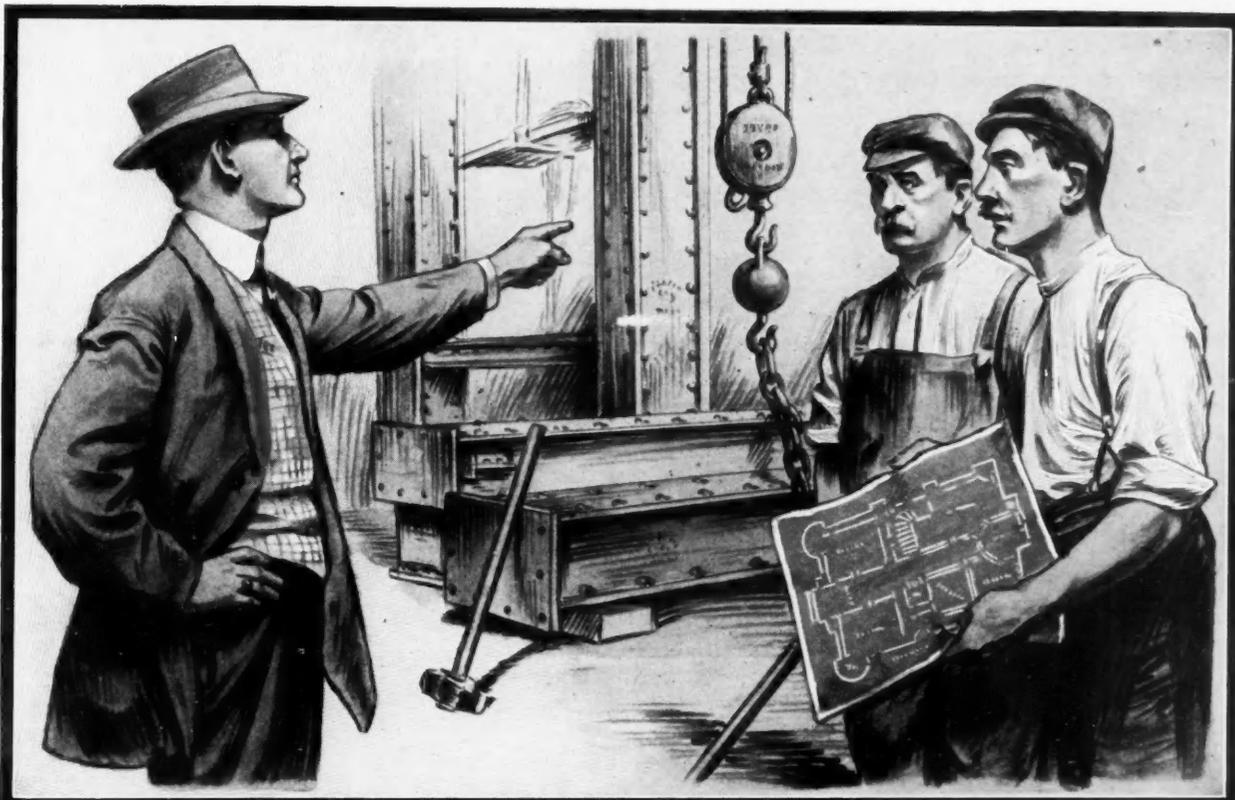
screen can be easily removed at any time. The steel shield works automatically and when the door is closed lies in the bottom of the chute, allowing the light to shine into the cellar. The hopper works automatically and is removable.

When coal or wood is being passed in the window is automatically locked open, furnishing protection to the siding above the opening, where the most damage occurs. The heavy steel shield also prevents the coal or wood from striking against the glass or screen.

It will pay all contractors and home builders to write the Majestic Furnace and Foundry Company, Huntington, Ind., for full information and prices of this latest improved window chute.

### The Water-Tankless Water System

We take pleasure in calling the attention of our readers to the advantages of the Perry Pneumatic Water System, handled by the United Pump and Power Company, Chicago: It delivers a strong, continuous pressure of fresh water to the faucets direct from the well, spring or any source or sources of supply by the use of but one motive power. Cistern water may be supplied to the house with the same motive power. It costs less than any other system to maintain. It is cheaper than any other system to install. The Perry system may be installed in a very small space in the stable, basement or any other convenient location, and at any distance from the source of water supply. Any power may be used:



# The Man Who Gets the Fat Pay Envelope

The fellow who gets the fat pay envelope is the one who does the directing—not the man that does the work that others direct. He is a man who understands his work because he is **trained**.

The **trained** man is in demand everywhere. Time is too short now-a-days for employers to train men—a man must bring training into his work or else take a poorly paid position which holds no promise of advancement.

## It's I. C. S. Training That Counts

To learn how you can acquire this training, how you can advance, how you can direct, how you can earn more money, how you can forever leave behind you the army of underpaid men, how you can become an expert in your chosen line of work—all without leaving home or losing a day's pay, and without having to buy a single book, mark the attached coupon and mail it to the International Correspondence Schools. Do it now while your ambition prompts you.

Send no money—to find out costs you nothing—the marking of the coupon does not bind you. The only requirement is the ability to read and write. Initiative wins—send the coupon **NOW!**

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Arch'l Draftsman	Bridge Engineer	Sh.-Met. Pat. Drfts.
Contr. & Builder	Civil Engineer	Mining Engineer
Building Inspector	Surveyor	Textile Expert
Struct'l Engineer	Mechanical Eng.	Bookkeeper
Struct'l Draftsman	Mechanical Drafts.	Stenographer
Plum. & Heat. Con.	Stationary Eng.	Ad Writer
Supt. of Plumbing	Electrical Engineer	Window Trimmer
Form. Steam Fitter	Electrician	Illustrator
Plumbing Inspect'r	Elec.-Light. Supt.	Civ. Ser. Exams.
Heat. & Vent. Eng.	Elec.-Ry. Supt.	Chemist

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Street and No. \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_



Look for this trade mark etched on every saw.

A saw without a trade mark is about as valuable as a check without a signature.

In neither case can you locate the man who is responsible.

Saws, like clothing, often look all right, but wear miserably.

The trade mark then is your best protection; a reliable manufacturer cannot afford to trade mark poor goods, for his trade mark is his best asset.

When you buy a

# SIMONDS SAW

with the above trade mark you may always be confident that you have as good a saw as can be made.

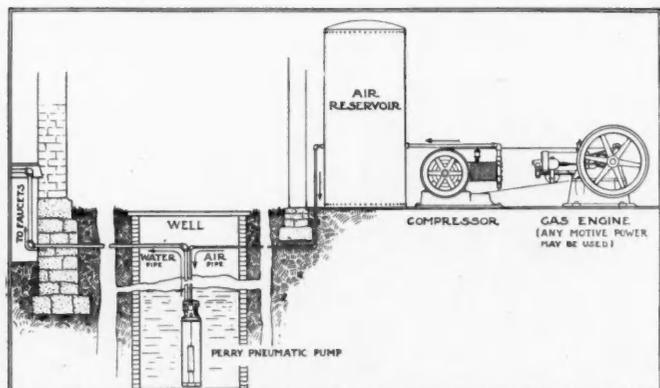
Only Simonds steel is used, and as tempered by our secret process the Simonds Saw will hold its edge beyond comparison. It is entirely "up to you." If you are wanting genuine values and dependability, look for the Simonds trade mark and don't take a saw unless it bears it.

If you can't get a Simonds Saw from your dealer, write us direct, sending us his name—we will see that you are supplied. Our book "Simonds Carpenter's Guide" is mailed free upon request.

**SIMONDS MANUFACTURING CO.**  
FITCHBURG, MASS. Branches in Leading Cities

Electricity, gas or gasoline engine, windmill, and with an electric motor or T. O. P. windmill it is absolutely *automatic*. For fire protection it is invaluable, as the amount of water at your disposal is not limited by the size of the tank.

The element of "elasticity" in the Perry Pneumatic Water System is perhaps its strongest feature in point of practicability. If a Perry system has been installed to supply well



water, and at any time it is desired to have soft water in the house, it is merely necessary to add the required air and water piping and a Pneumatic Pump for the cistern; or, more wells may be added to the water supply, making the system as extensive as there is need for, using the one original power station.

The Perry system applied to a simple problem is shown in the above diagram. The equipment consists of any motive power capable of one-half horsepower or more, a small air compressor, a storage tank for air, a Perry pneumatic pump and the required piping and faucets.

The power, compressor and tank may be located at any convenient place. The pneumatic pump is submerged in the well. Having connected these properly and started the compressor, the air is stored in the tank to any pressure desired, and then the compressor is stopped. This compressed air is now stored power, which operates the pump and is used only when water is drawn from the faucets. The compressor need not again be started until the tank requires recharging. A pressure reducer on the air line maintains an even pressure of water at the faucets, regardless of the amount of air pressure in the tank.

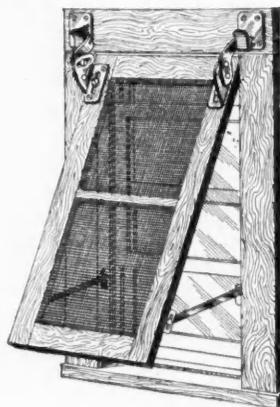
Architects, builders, plumbers and owners of country homes, write for details of this water-tankless, fresh water system; it will appeal to you.

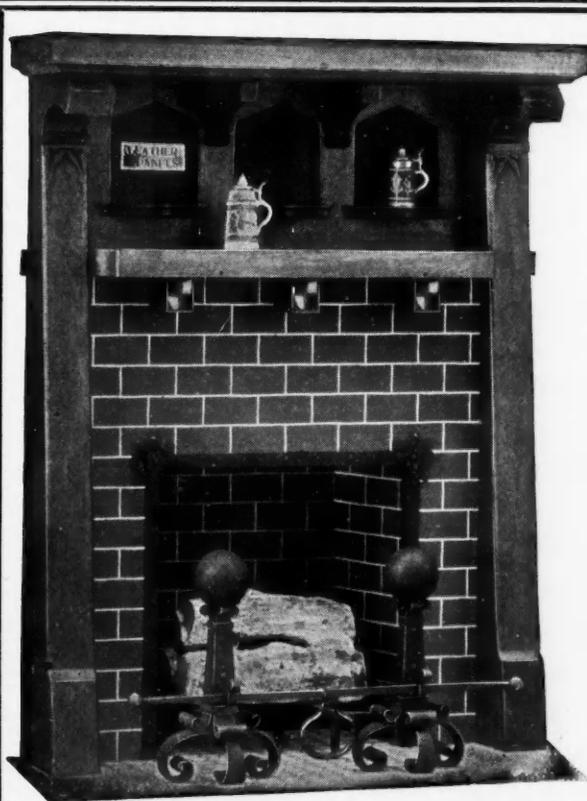
## The Universal Hanger

The Universal adjustable hanger is the only combined hanger and hinge on the market that can be used to attach either half or full-length screens. It is adjustable to any size or shape of screen or sash.

This adjustable hinge, hanger and lock can be used on either half or full screens, because the hangers can be attached either on the top or at any point along the sides of the frame, and work equally well in either position.

The double-adjustment allows the half screen to be fitted so that the top cross bar of its frame fits snugly against the bottom rail of the upper sash,





## Pick Just the Mantel You Want

Here is one of many Lorenzen Mantels. You can take your choice of hundreds of others—Colonial, Craftsman, Early English and period styles in all woods and finishes. You know how much a mantel adds to a room—particularly

### LORENZEN MANTELS

They have a distinction of design and workmanship not possessed by any others. Our well-equipped factory, skilled workmen, large stock of air-seasoned lumber of every description, and years of experience making mantels, are a strong guarantee to you of quality and reliability. As for our prices—our immense output enables us to sell close and distance all competition.

**Free Catalog**—Let us send you the largest and finest catalog of wood mantels ever issued. Each copy costs us nearly \$1. But we send it free to any carpenter or builder. If you don't find what you want in it give us specifications and we will make to your order. Write for the catalog today.

**Tiles and Mosaics**—We furnish and set all kinds of Tile and Ceramic Mosaic work and will be pleased to submit designs and estimates on application.

No. 468.—Modern Mission Style 5 feet 11 inches high and 5 feet wide; heavy plan, shelves recessed leather panels; the brackets supporting main shelf are carved with Spanish Insignia. Forian-Vitrea tile hearth and facing. Hand-wrought Andirons of Romanesque design.

**Chas. F. Lorenzen & Co.**

305 No. ASHLAND AVE., CHICAGO.

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**MAKES AND GUARANTEES  
THESE PRODUCTS**



The Materials named below are the development of ONE **BASIC VEHICLE**, but each is different in character and has a specific use of its own. Singly and collectively they form the

**GREATEST DISCOVERY OF THIS ADVANCED AGE OF BUILDING, FOR WATERPROOFING, COATING, COLORING OR PLASTERING CONCRETE, CEMENT BLOCKS, AND BRICK** wherever employed below or above the ground.

## WE SUPPLY FREE SAMPLES

analysis of a piece of the brick, stone, block or substance to be waterproofed interior. In requesting samples, give details on the above points

of any of these materials to any contractor, builder, owner or dealer To do this we must know exactly what purpose the material is for and difficulties to be overcome. This often requires us to make a chemical whether it is below or above ground, and if for application to exterior or

### COATINE

is a cement that is made of silicates and oxides with the addition of **Our Vehicle**. It produces a cement that is waterproof and can be used for all concrete work, also on top of or below regular concrete. In either case it will make the concrete impervious to water. A mixture of our COATINE in the bottom of a pit before the foundations are put in makes them absolutely watertight at the bottom. Our COATINE can be used on brick walls, plaster walls, old cement walls and in fact, any place where you want to put a coating that will adhere to any and all kinds of surfaces, making them positively watertight. The adhesive and wearing qualities of our COATINE are beyond question. It will stand all scientific and service tests. It is made in non-fading colors

### MORGANITE

is a liquid form (not a paint). It is one of the greatest productions that has been put on the market of late, as it answers the present demand for something that will waterproof, thus preserving and protecting cement and brick buildings. One application of our MORGANITE on a brick or cement building will make it absolutely waterproof. It is made in non-fading colors and can absolutely be depended upon to both waterproof and color cement brick and cement blocks. Our MORGANITE prevents the cement, brick and mortar from crumbling and a building coated with it will never peel, as there is no possible chance to do so, as the MORGANITE goes into the material, becoming a portion of it, locks up, and is unaffected by alkalis, gases etc. These results are produced by chemical action caused by the MORGANITE coming in contact with brick, cement or mortar.

### MORGANWALL PLASTER

forms the waterproofing, two putty plaster coats, the hard finish coat, the sising and if desired, the tinting needed for the walls or ceiling of any building. It combines all in one coat and completes the job at one operation. It makes a waterproof stainless wall. It saves 70% in labor and material over the usual method of plastering. It does away with the crude proposition of only partially waterproofing as is the case with all other forms of damp-proofing materials. Morganwall Plaster contains lime, silicates and oxides together with **Our Vehicle** for thoroughly mixing. It prevents staining or discoloring and has greater adhesive qualities than cement or plaster.

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## "IDEAL" FUEL WINDOW



is supplied with transparent sheet glass, which will not break. It can be used in summer as a burglar proof screen or ventilator. The galvanized wire screen is furnished with the window. The steel apron or shield, door and hopper all work automatically—



Size of opening in wall 27 in. wide, 16 in. high. Regular size for 12 inch wall.

WRITE FOR CIRCULAR

**Majestic Furnace & Foundry Co.**  
HUNTINGTON . . . . . IND.

making a fly-proof joint, doing away entirely with the troubles caused by the sliding half screens.

Any man or boy can put on the hangers; the locks should be carefully adjusted so as to force the screen or sash down snugly against the stop.

When the screens and windows have been fitted up, it becomes a very trifling matter for anyone to hang either screens or windows. All that is to be done is to raise the window or screen and hook it on. Then slip the supporting arms through the locks, adjust them, and the job is done, and done to stay.

The screen may be quickly and easily opened and locked in position with one hand—from the inside. Released, closed and locked as easily and as quickly. It locks automatically in either position. It cannot be loosened or blown open by any wind unless the house goes with it.

Address the Adjustable Hanger Company, 415 Huron street, Toledo, Ohio, for full information.

### Value of Ornament

It is a fact well known to architects and experienced builders that a very little of tastefully designed ornament, properly applied to verandah columns and balustrade, often saves the front view of a house, making it neat and attractive when otherwise it would have been quite commonplace. The same is true also of much of the interior; well executed ornament in connection with mantels and stair rail adds immensely to the general appearance and value of a house.

The Ornamental Products Company, of Detroit, Mich., manufacturers of Lignine carvings, unbreakable, wish to place their catalogue and a sample of their wonderful product in the hands of every user of wood carvings in the country. While their



carvings are equal to high priced hand carvings they are much cheaper. It will pay you to investigate. Write today.

### A Flexible Roofing

After a man has done some work with ready roofings he begins to long for flexibility in his material more than anything else. So many roofings are stiff as boards and hard to handle. Bending them properly over the eaves, cutting them to fit the roof or folding the thick sheets in the corners is often difficult to do correctly. A roofing like Congo is rather more satisfactory to the man who does the work. Congo is extremely pliable under all climatic conditions. It can easily

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Copper Slating Nails, both Cut and Wire	
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### COLD ROLLED and SOFT SHEET COPPER

Also a full Line of Galvanized Iron Leader Gutters,  
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# The 'Quality' Crow OF THE Roofing Rooster

## FORD'S GALVANIZED RUBBER ROOFING



### Forty Years of Reputation Behind It

Our specific "Crow on Quality" is based on the fact that for forty years we have made "Quality" the key note of every square of roofing we manufactured, and today **Ford's Galvanized Rubber Roofing** is the very best that raw material, experience and care can produce. There's none better at any price.

#### That Word "Galvanized" Means Something

It is descriptive of a special process of our own development, which involves extreme heat and great pressure. This process results in a roofing which absolutely resists the elements, wind, rain, hail, heat and cold. The quality of the elastic mineral coating is such that extremes of temperature do not affect it.

#### All Our Own Product

We manufacture every square of this roofing in our own mills. We know every ounce of material that goes in it. We keep it uniform in quality and right in price, because from the raw material to the finished roll it is our own product. Very few self-styled manufacturers of ready-to-lay roofings make the products they sell entirely. We do.

It is odorless, and for this reason the lighter plies may be used for sheathing, keeping the building warm in winter, cool in summer.

#### The Positive Guarantee We Give

The guarantees named below are positive and are **Based on Actual Time Tests** in all climates and under all conditions.

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

##### ON TWO PLY

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

##### ON ONE PLY

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

### FORD MANUFACTURING CO.

Established 1865

131 W. Wash. St.

CHICAGO



Chautauqua Pavilion, York, Neb., Roofed with Ford's Galvanized Rubber Roofing.

## Genasco Ready Roofing

Nearly all ready roofings look like Genasco. But "appearances are deceitful." Don't be fooled.

Trinidad Lake Asphalt makes the big difference in Genasco that insures lasting protection for your roof.

Ask your dealer, and don't accept a "just as good" substitute.

Write for Book 76 and samples

### THE BARBER ASPHALT PAVING COMPANY

Largest producers of asphalt, and largest manufacturers of ready roofing in the world

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San Francisco

Chicago

## ROOFING SLATE

**Genuine Bangor and Albion Bangor  
Structural Slate, Vaults,  
Blackboards, Etc.**

We are the largest manufacturers of

**"CLEAR BLACK"**

For Electrical Work.

Write for Price List.

**BANGOR SLATE MINING CO.**  
Trust Building, BANGOR, PA.

## SUCCESS!

**I**S YOURS, Mr. Contractor, if you can estimate accurately. The up-to-date builders are adopting The Lightning Estimator as the standard for estimating residence work. Why? Because it teaches easy, rapid and accurate methods, all based upon actual cost of labor and material. Largest endorsement and sale of any book of its kind now on the market.

Lessens the risk of errors and omissions which often cause loss. Based on actual experience, not theories. Treats residence work from start to finish exclusive of plumbing and heating. While it is a book particularly for the carpenter, it includes masonry and concrete work, as required on residence work. It is brief and to the point, each subject being easily found and understood. Put your business on a better basis by sending a one dollar money order today for a copy of the new fifth edition.

**Bradt Publishing Co.**

1260 MICHIGAN AVENUE,

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be folded double and will lie snug and close so that making a tight waterproof roof is a simple matter. The manufacturers will supply samples and booklets on request.

Address United Roofing & Manufacturing Co., Philadelphia, Chicago, San Francisco.

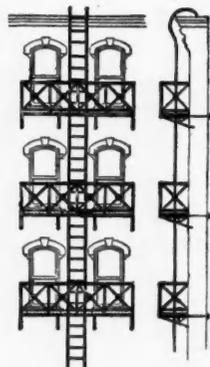
### Plant Destroyed by Fire

The plant of the Sues Ornamental Glass Company, 740 Throop street, Chicago, was completely destroyed by fire on May 21st. The president of the company, Mr. Walter J. Sues was injured by jumping from a window and a number of the employes were injured or are missing.

Arrangements are being made to resume operations at once at another location, and it is hoped that the company's business will not be interrupted for any great length of time.

### The Ohio Structural Iron Company

Our readers will do well to get in touch with the Ohio Structural Iron Company, manufacturers of ornamental and light structural iron, steel and wire work.



They make a specialty of jail cells for the smaller towns, having the latest improved machinery and skilled mechanics constantly employed, and are enabled to furnish superior work at a moderate cost. These cells are so cheap that no intelligent "board" in this age can afford to use brick, stone or wood, from which a prisoner with an accomplice can escape very easily. You will find illustrations of these cells in the advertisement on opposite page. The company will be

glad to send their catalogue and full information. Some of their other specialties are: Fire escapes, iron stairs, balconies, window guards, wire work, grilles, stable fixtures and iron and steel doors.

The Ohio Structural Iron Company, of Sandusky, Ohio, is exclusively engaged in supplying the demands of contractors in the smaller towns throughout the United States. Write for their catalogue, it will save you money.

### Concrete Blocks in Public Buildings

That concrete blocks are playing an important part in the construction of many state and public buildings is evidenced by the fact that Hercules concrete block machines, manufactured by the Onondaga County Penitentiary at Jamesville, N. Y.; the prison camp and hospital of the Massachusetts State Prison at West Rutland, Mass., and the New York City Reformatory on Harts Island, N. Y. The last named institution has already completed several buildings, and one three-story building, to be used as a tailor, tin and carpenter shop, is now under course of construction. The first building completed was a small building requiring 560 blocks. This was completed in six working days of six hours each by eight inexperienced boys. The building, while small, is very artistic, being made of panel faced blocks with plain corners. Blocks are being turned out at the rate of 200 every six hours, and as they are giving the highest satisfaction they will undoubtedly be used generously in the construction of many of the principal buildings.

Hercules machines make unusually attractive stone and are doing much toward advancing the industry.

### Metal Ceiling Direct to You

The S. Keighley Metal Ceiling and Manufacturing Company, of Pittsburg, Pa., have designed and brought to perfection a line of metal ceilings, which, in excellence of design,

# SKY-LIGHTS

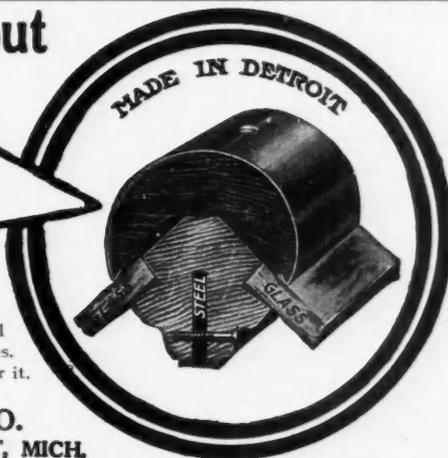
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**THE CANTON ART METAL COMPANY**  
CANTON, OHIO



## Straight Talk About Store Fronts

The demand for modern store fronts is increasing rapidly. Contractors can best satisfy this demand by installing the Petz system—the strongest and most artistic store front construction on the market. It is finished in a variety of artistic styles, and it allows the glass to be set from the outside. Endorsed by all the leading plate glass insurance companies. Our booklet, "Listen to Petz," sent free. Write for it.



**DETROIT SHOW CASE CO.**  
491 West Fort Street - - DETROIT, MICH.



### WE CAN SAVE YOU MONEY

#### Jail Cells and Window-Guards

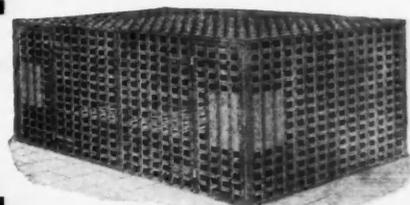
FIRE ESCAPES, IRON STAIRS, FENCING AND ARCHITECTURAL AND ORNAMENTAL IRON WORK

Catalogue on Request

#### OHIO STRUCTURAL IRON COMPANY

Warren Street

SANDUSKY, OHIO



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UNBREAKABLE

Will they break or check? No Sir! LIGNINE CARVINGS are attached by nailing and gluing  
Will they crack or shrink? No Sir! are stronger than wood. Are finished with filler or stain.

Write for samples. Our New Catalogue showing Capitals, Pilasters, Newel Ornaments, Drops, Rosettes, Scrolls, Shields, etc., should be in the hands of every one interested in Carvings.

ORNAMENTAL PRODUCTS CO., 552 W. Fort St., Detroit, Michigan



## "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**

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Oldest Mail Order House in America. Established 1816

## CONGO



THERE is one kind of ready roofing which is absolutely waterproof and meets all the requirements of a ready roofing; that is Congo.

It is aptly known as the "never-leak" roofing.

But Congo is not only waterproof; it is also proof against heat, cold and acid fumes.

It is made to last and experience shows that it does last.

The strong point about Congo is the wonderful pliability. It bends like rubber, looks like it, and keeps the water out the same as real rubber would.

### FREE SAMPLE

Don't buy your roofing this Spring until you examine a sample of Congo; and remember, Congo samples are not special pieces prepared for the purpose, but are cut from our regular stock.

We mention this because Congo is so attractive looking, so tough and pliable that people sometimes think the samples must be specially prepared.

UNITED ROOFING AND M'F'G. CO.

Successors to Buchanan Foster Co.

555 West End Trust Bldg., PHILADELPHIA, PA.  
CHICAGO SAN FRANCISCO

and in accuracy of workmanship, marks the high point in metal ceiling work. They have also established a system of furnishing these goods from factory to builder direct, thus doing away with the large expense for traveling salesmen's expenses and middlemen's profits. This makes it possible for them to quote a very low price on any job.

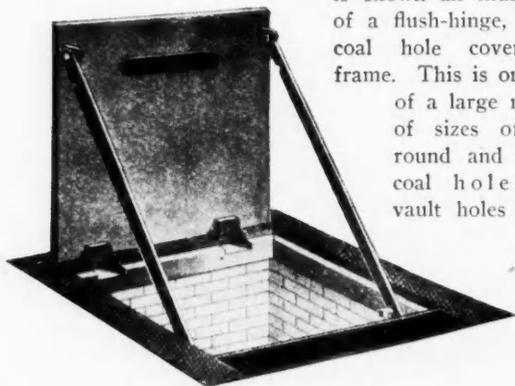
A force of skilled draughtsmen are employed at the works who will interpret your plans correctly, and will make such comprehensive working plans that anyone can put up the material.

Two forms of ceiling construction are used, the lap and the lock joint. The lap joint ceilings are as good as any on the market, the beads true and the seams as tight as a lap joint seam can be. The lock joint ceilings cost a little more, but builders who have used both say that they save the difference in the economy of erection.

Write for full illustrated information in regard to these artistic, durable and fireproof lock joint steel ceilings.

### Iron Coal Holes

For time saving, economy, cleanliness and durability nothing excels a perfectly made, cast-iron coal hole. Herewith is shown an illustration of a flush-hinge, square coal hole cover and frame. This is only one of a large number of sizes of both round and square coal holes and vault holes manu-



factured by the Canton Foundry and Machine Company, Canton, Ohio. This firm's specialty is selling direct to carpenters, contractors and builders at factory prices. They guarantee everything to be satisfactory or money back. You will save money by buying these goods, also iron columns, etc., from them. They quote special terms and prices direct to contractors. Write them at the address given.

### Queer

The Man of Ease—When I compare the one or two creditors I have with the millions and millions of people to whom I owe nothing, I wonder why in the world those fellows make such a confounded fuss about it.

### Diagnosed

"Don't you know what that feeling is? It's spring fever—that's what the name of it is, and when you've got it you want—oh, you don't quite know what you do want, but it just fairly makes your heart ache, you want it so."—Mark Twain.

### Timber Men Organize to Fight Fire

One of the most important economic movements of the day about which the general public has yet learned little is the concerted action of owners of timber in

## WANTED CARPENTERS AND BUILDERS

To take up slate roofing in unoccupied territory everywhere. It's a money-maker. Only a few simple, inexpensive tools and small capital necessary. Slatting is easy to learn. Very much like laying shingles. Can be carried on in connection with your present line with no

extra trouble or expense and will give good returns. A profitable, growing slate roofing business can be established anywhere. Besides the new work that comes up every year there are simply hundreds of worn-out shingle, metal, tin and composition roofs in every locality that must soon be replaced.

### Sea Green or Purple Slate Roofs OUTLAST ANY BUILDING

They can't wear out, rust, warp or decay. Are fire and spark proof. Reduce insurance rates. Afford clean cistern water. Don't require constant repairs and attention. Your neighbors are tired of paying good money for short lived roofing—high-priced shingles that soon decay—tin and metal roofs that cause frequent and costly paint bills—composition and the "oids" roofing that disintegrate. Furnish them with handsome, sanitary, fire-proof Never-Wear-Out Sea Green or Purple Slate Roofs that last forever.

**Carpenters and Builders:** Take up slate roofing immediately. You will make good money and please your customers. Write to us at once for delivered prices on slate, tools and supplies and Free book of instructions. Don't Delay. Write Today.

### AMERICAN SEA GREEN SLATE COMPANY

Box 36, Granville, N. Y.

This proposition does not apply to territory now covered by a slate roofer.

## The Right Enamel

For Indoor or Outdoor Work

Linduro is the result of years of scientific research and practical experiments carried on in this country and abroad.



## Linduro is an Enamel

of the highest grade, giving most beautiful and most durable finish, flows like fine varnish—no runs, laps or wrinkled edges, does not crack, check or peel, and is water proof and soap proof, for it may be scrubbed clean without injury.

Linduro is equally durable outdoors or indoors—on wood, cement, enamel, metal, brick, plaster, tile, etc.—wherever the architect needs the most attractive and most durable finish. Besides, it is remarkably economical.

Linduro carries the "Little Blue Flag"—Your Protection—the emblem of quality—Lowe Brothers quality.

Samples and sample panels on request. Consult Sweet's Index, pp. 1378 and 1379.

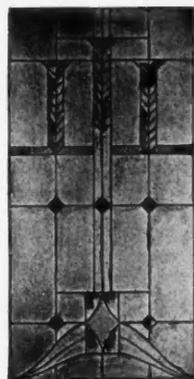
### THE LOWE BROTHERS COMPANY

Paintmakers Varnishmakers  
450-456 E. Third Street, Dayton, Ohio  
New York Chicago Kansas City



The "Little Blue Flag"

—Your Protection



## Art Leaded Glass

Makers of Memorial Figures and plain Decorative Windows, also residence work in L'Art Nouveau styles and beveled plate in metal copper finish. Designs submitted on application. Grand Prize Louisiana Exposition. Correspondence solicited. Established in 1883.

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(Near Franklin)  
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TO USE THE PERRY LUMBER RECKONER

Will save its cost every month if you figure much lumber. Special cut index shows at a glance number of feet of any size, in any number of pieces. No errors—no figuring. Compiled by a practical lumberman. Thousands of best carpenters and lumbermen use it. Fifth edition. The Wilson Lumber Co. of Akron Ohio writes: "Have had one in use for years, and never found an error. It is accurate and a great time saver."

Bound in leather, pocket size 106 pages, 3 1/2 x 6 1/2 inches. Not a single carpenter has asked for his money back, although all are offered that privilege. Price reduced to One Dollar per copy, postpaid. Send dollar bill or postal note TO-DAY.

BENJAMIN L. JENKS  
Union Nat'l Bank Bldg. Cleveland, O.



## THE MAN WHO PLANS

Your success in life depends upon the careful thought with which you have planned your career. Will you be holding a better position five years hence, earning more money, because you are planning step by step to reach such a position, or are you merely hoping and wishing that something will "turn up" to help you?

The American School of Correspondence, Chicago, is constantly preparing ambitious carpenters, builders, contractors, etc., for advancement by giving them **Practical information** which ordinarily could be acquired only after many years of experience. Write today and advise us which of the following subjects interests you the most and we will tell you, without charge, how we can help you to qualify for a good position. Mention American Carpenter and Builder, June 1908.

Carpentry — Architecture — Architectural Drafting — Contracting and Building — Heating and Ventilation — Sheet Metal Pattern Drafting — Mechanical Engineering — Civil Engineering — Electrical Engineering — Telephone Engineering — Hydraulic Engineering — Steam Engineering — College Preparatory Course.

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CHICAGO

# Books on Estimating

## Estimating Frame and Brick Houses

This book tells how to estimate, step by step, the cost of labor and materials necessary in building a frame or brick house from the excavation for foundation through the various processes up to painting. Simple and practical 224 pages. \$1.00.

## Estimators Price Book and Pocket Companion

This book gives the contractor and builder a handy reference book for the prices of all kinds of building material. It lists in systematic form all items which make up a complete builder's estimate. Approximate prices are given with a blank column in which to mark your correct local prices. This book will be quite a time-saver. By I. P. Hicks. 172 pages, pocket size. \$1.00.

## Builders' Guide

An easy practical system of estimating materials and labor for contractors, carpenters and builders. Gives the average day's work that can be performed by various building mechanics, and the average rates on which to figure in almost all details of building construction. By I. P. Hicks. 160 pages. \$1.00.

## Estimating

A practical system of estimating, taking up each successive step in detail and covering all the important points in building construction. As a practical example a complete plan of a house is given, and an estimate worked out from this. By Edward Nichols. 140 pages. \$1.00.

## Contracts and Specifications

A practical working guide of forms for the contractor, architect and owner. The duties and responsibilities of each are fully explained. Forms of public and private specifications, contracts, etc., are given. By James C. Plant. 130 pages. \$1.00.

## The Building Estimator

This book covers practically the entire field of building construction from small buildings up to large hospitals, office buildings, machine shops, etc. Photographs of the various buildings are given to show the style of building on which the facts are based. Treats of concrete work, steel construction, etc. One of the best books on the subject. By William Arthur. 184 pages. \$1.50.

## How to Measure Up Woodwork for Buildings

Giving reliable directions to enable builders to measure up the quantities of woodwork for brick or frame houses. By Owen B. Maginnis. 79 pages. 50 cents.

The above books are well known as trustworthy guides. We recommend them. Any book sent post-paid on receipt of price. Money refunded if not satisfactory. : : : : : : : : :

## Industrial Publication Co.

14 Thomas Street,

NEW YORK

different parts of the country in organizing associations to protect their holdings from fire. In the Pacific Northwest the Washington Forest Fire Association has just elected officers at Seattle and begun work for the year with 3,000,000 acres under its care. The plans include a system of patrol by rangers, resembling the work done by the United States Forest Service in guarding against and extinguishing fires.

Organizations of similar kind and for a like purpose are at work in Oregon and Idaho. In the latter state a portion of the expense is borne by taxation and paid from the state treasury. A western railroad company which holds large tracts of timber has taken steps to guard its property from fire, and during the short time that its plans have been in operation it has met with most encouraging success.

Similar work is being done on the other side of the continent. Forest owners in Maine have gone to work in the same systematic way to control the forests' great enemy, fire. Like organizations are found in other parts of the country, showing how fully it is now realized that protection against fire is of the greatest importance.

It is safe to say that fires in this country have destroyed more timber than lumbermen have cut. When timber was abundant the waste passed almost unnoticed, but now that a scarcity is at hand and an actual wood famine threatens in the near future, the owners of forest lands are waking up and taking action to save what is left.



## Something About Real Asphalt Roofing

There is no other kind of roofing that combines every quality of asphalt prepared roofing. There is, however, a vast difference in the quality and make-up of prepared roofing on the market to-day. A large majority consists mainly or partly of coal tar or the so-called rubber compounds. The carpenter, builder or contractor who is handling genuine asphalt roofing will be ready to meet the ever-increasing demand for this class of roofing and stands in line for the large profits. Monarch roofing represents the highest development in the manufacture of ready roofing. It is made from a clean, long fibre, all-wool felt saturated and coated with natural Trinidad Lake asphalt. It is then mineral surfaced on both sides, making it fire-resisting and weather-proof. The under side being mineral surfaced, resists gases, vapors, etc., and prevents the roofing adhering to the roof boards.

Asphalt is a product of the earth containing valuable oils which make it naturally pliable. This is why Monarch roofing retains its flexibility, not drying out or cracking under exposure to the weather. Asphalt in the form of pavements has stood the test of weather and heavy traffic for twenty-five years. This fact conclusively proves its durability and wear-resisting quality. Not only does the extreme durability of Monarch—no painting or recoating necessary—appeal to the property owner but its light weight and the fact that it can be easily and quickly laid by anyone—no roofing experience needed—carries great weight with the intending purchaser. All there is needed to lay Monarch is a hammer and knife. The nails and cement for the laps are furnished free and packed inside the roll. Another point



## Let Us Send You A FREE SAMPLE

The sample will show you why **MONARCH** outwears any other ready roofing on the market. Made from all Wool Felt and Trinidad Lake Asphalt—mineral surfaced on both sides. Light, extremely pliable, handsome, fire-resisting, weather-proof, easy to lay, Monarch meets every requirement of a good roof.

Don't confuse Monarch with roofing containing Coal Tar or "Rubber" compounds which quickly dry out and become brittle under exposure to the weather.

Send today for the special sample M-2.

Carpenters and Builders—You can easily and quickly build up a paying business by handling Monarch Roofing. No outfit or special expense and but very small capital needed. The demand for ready roofing is increasing every day—get in line for your share of the profits. Write now for Special Proposition A.

**Stowell Mfg. Co., Jersey City, N. J.**

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THE HELM MODEL "S"

### ONE MAN PRESS

[5,000 PRESSED BRICK DAILY]

One Man does it, supplied with materials. Perfect pressed brick—none broken or half formed, face up, easily faced, uses wet mix and extra coarse aggregate, making the strongest and cheapest brick, denser, heavier and more uniform than tamped brick.

It saves labor and cement and the product is salable.

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Read Bulletin "15"



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, our two-page ad in American Carpenter and Builder for January, 1907.

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978 La Salle Bldg. Chicago.

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### DO YOU WANT SLATE?

Roofing Slate for Houses, Barns, Sheds and Railroad Stations. Clean and ornamental, rain, wind and fireproof.  
Blackboards for Schools, Colleges, etc., are being used all over the World, need no better commendation, "it is just the thing."  
Structural and Electrical Stock, Steps, Sink Tops, Wash Tubs, Window Sills, etc., superior to all other stone for such purposes.  
Slaters' Supplies, Hand-made Slaters' Tools, Snow Guards, Slaters' Cement, Nails, Felt, Slate Punching and Cutting Machines, etc.  
Write for prices and I will tell you all about Slate. D. McKenna, Slatington, Pa. U. S. A.

## SLATE For Carpenter and Builder

Roofing Slate, Blackboards, Structural Slate, Grave Vaults. Write or wire us your wants—we will do the rest.

Our Guarantee Back of Every Shipment.

**PITTSBURG SLATE COMPANY**

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"Creole"  
"Etowah"  
"Cherokee"  
"Kennesaw"

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A YEAR IN THE  
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of the oldest and largest co-operative real estate and brokerage company in America. Representatives are making \$3,000 to \$10,000 a year without any investment of capital. Excellent opportunities open to YOU. By our system you can make money in a few weeks without interfering with your present occupation. Our co-operative department will give you more choice, salable property to handle than any other institution in the world.

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### WE SHIP ON APPROVAL

without a cent deposit, prepay the freight and allow 10 DAYS FREE TRIAL.

IT ONLY COSTS one cent to learn our unheard of prices and marvelous offers on highest grade 1908 model bicycles.

#### FACTORY PRICES

Do not buy a bicycle or a pair of tires from anyone at any price until you write for our large Art Catalog and learn our wonderful proposition on first sample bicycle going to your town.

#### RIDER AGENTS

everywhere are making big money exhibiting and selling our bicycles. We sell cheaper than any other factory.

Tires, Coaster-Brakes, single wheels, parts, repairs and sundries at half usual prices.

Do Not Wait; write today for our special offer.

**MEAD CYCLE CO., Dept. F. 122 CHICAGO**

about Monarch which is greatly appreciated by the purchaser of roofing is its unusually handsome appearance. Monarch looks as well after ten years as it does after one. The ground slate and mica is absolutely uniform both in quality and density. It is placed on the felt body when the last coating of asphalt is hot. Heavy rollers compress until it is so firmly combined with the asphalt that no amount of exposure to the elements can loosen it.

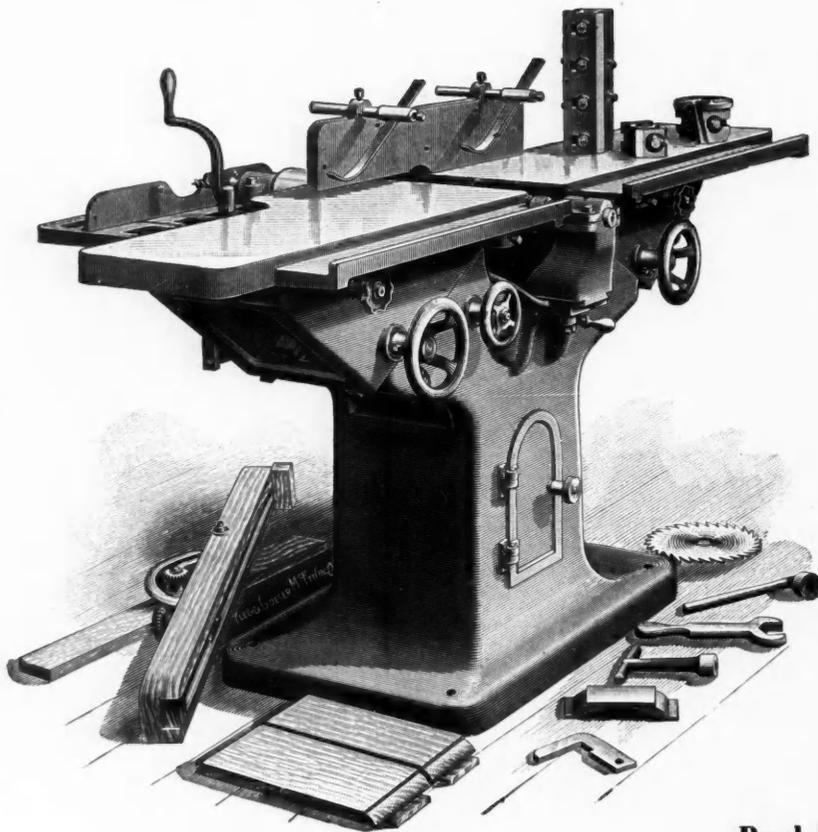
From the standpoint of the carpenter, builder or contractor Monarch roofing is especially attractive. No outfit or special experience and but small capital is needed to handle Monarch. It can be handled as a side line or as an independent business. Furthermore, the service and general satisfaction that Monarch gives the customer not only enhances the dealer's reputation, but brings him a large volume of new business.

To every carpenter, builder or contractor who takes up the agency of Monarch roofing the manufacturers will give the benefit of their new advertising service which is making sales for dealers everywhere. Write to-day to the manufacturers, The Stowell Manufacturing Company, Jersey City, N. J., for their special proposition A, and dealers' sample box with prices. Territory is fast filling up—act quickly. See their ad in this issue.

### Improved Universal Woodworker

This machine, as its name implies, is capable of a very great variety of work, including hand-planing, jointing, molding, rabbeting, tenoning, mitering, beveling, paneling, grooving, rip sawing, cross-cut sawing, boring, routing, etc.

Three heads are furnished with the machine as shown in



cut—one twelve-inch four-sided slotted steel head, one rabbeting head, and one small jointing head; also one twelve-inch saw. Other heads furnished, when desired, at a reasonable price.

The main frame of the machine is a heavy cored casting with large base. The tables are raised and lowered in V

slides on the inclined tops of the frame, by the large hand-wheels shown on the front of machine; all wear can be taken up by set-screws. The tops of tables rest in slides and can be adjusted to and from mandrel by the small hand-wheels shown on the front of machine; they are locked in place by other hand-wheels under tables, not visible on cut. The length of tables from out to out is over six feet; the tables have a groove in the side four inches wide for gaining frame to slide in, etc.

The improved adjustable fence can be set at any angle and has lugs on the top for spring posts; these springs can also be used in the sides of tables when working the edge of a board, or when ripping.

When desired, a complete boring attachment can be placed on the opposite side of machine; it can be raised and lowered and has a sliding table with adjustable fence. A complete countershaft is furnished with machine; the loose and tight pulleys are 10x5½ inches and should make about 800 revolutions per minute.

For prices and further particulars of this and other wood-working machinery, address Cordesman, Meyer & Company, Cincinnati, Ohio.

### Brass Goods from New Territory

The increased demand for lighting fixtures and other articles of brass, has made it necessary for manufacturers of these goods to increase their facilities a great deal the past few years.

One company in particular, the St. Louis Brass Manufacturing Company, on 12th and Market, who commenced business about four years ago, have been forced to increase their output, and even with present sales of over \$200,000 per annum and a force of about 125 people, they are unable to handle the business that they have been able to secure.

They have purchased the Pickwick Theater property, on Jefferson and Washington, being 80 feet on Washington, which will be improved for their occupancy with a five-story building and a floor space of 50,000



square feet. This, with a complete installation of all new, modern machinery, will double their capacity and give them a home as large as any lighting fixture manufacturer in the United States.

We are glad to advise our readers that this company, located on 12th and Market, are already advertising to dispose of all holiday goods at reduced prices. See their ad on page 394.

### Real Test for Asbestos Curtain

The recent fire at Drury Lane Theater, probably the most famous playhouse in the world, while of a serious and alarming nature, was confined entirely to the stage and adjacent workrooms, thus apparently justifying the dependence that has been placed in the asbestos

# LUMBER AND BUILDING MATERIAL

## Special Offer To Contractors And Builders

Buy From Us At **WRECKING PRICES** **CHICAGO HOUSE WRECKING CO.** An Opportunity To Save **25 TO 50 PER CENT**

### IMPORTANT! Send Us Your Lumber and Building List for Our Estimate

#### Brand New Lumber for Sale

The Chicago House Wrecking Company is the largest concern on earth devoted to the sale of Building Material and General Supplies direct to the Carpenter and the Contractor. By dealing with us you are purchasing at first hands. This company was organized in 1893 for the purpose of dismantling the Columbian Exposition at Chicago. Since that time we have successfully purchased and dismantled every Exposition of any note. We have from this one source alone sold over One Hundred and Sixty-five Million feet of lumber. It was from this natural cause that we engaged in the lumber business. We found that it was impossible for us to successfully take care of the thousands of our customers and supply them with lumber from this one source. As a consequence we purchased outright various saw mills and also bought at forced sales millions of feet of high grade, brand new lumber. In addition we have for sale a complete stock of mill work, plumbing material, heating apparatus, structural iron, hardware and everything that enters into the construction of a building of any kind or for any purpose. Our fame is National. No other firm can make the sweeping statement that we do: That you can come into our establishment and buy everything needed both to build the building and completely equip it. We invite inspection of our stock.

#### Fifty Million Feet In Stock

At the present time, we have for quick sale over fifty million feet of brand new, first class, high grade lumber of every kind. We can furnish you lumber for building houses, churches, barns, stores and factories. And it is the best grade of lumber. Just as good lumber as is to be found anywhere on earth. We are making special prices to those who buy at once. Never in years has lumber been offered at such prices as we offer it. The best proof of this is to allow us to make a bid on your estimates. Just make a complete list of everything you need for any particular job you may have on hand and it will surprise you what we can do in the way of prices. Nothing like it was ever heard of. The best and most convincing proof of our prices is the fact that during the past sixty days while others have been bewailing poor business, we have steadily increased and have sold vast quantities of lumber and building material. Much more in fact than we have ever sold in any corresponding period in the history of this business. You will save in dealing with us. Our broad and binding guarantee protects you absolutely. You will get from us just the material that you purchase. It stands to reason that our goods must be right. How else could our business have attained its wonderful commercial proportions? All we ask is an opportunity to convince you. Or, better yet, come on to Chicago, visit our yards, see our goods. We will show you it is all that we represent. Then and there we will make you a price so low that it is bound to secure your business. You can't overlook such a chance as we offer. It is the opportunity of a life time. You will never again be able to purchase lumber and building material at such low prices as we offer today. Write for particulars.

#### Satisfaction Guaranteed.

We guarantee absolute satisfaction. We mean every word of that. We want your business only on a square business-like basis. We will deal honestly and fairly with you. If you buy any material not fully up to our description, we will either refund the purchase price or exchange it for correct material. This company has a capital stock and surplus of over One Million Dollars. We refer you to any Bank or Banker anywhere. Write to any commercial agency or ask us for names of people who have bought their lumber from us recently and we will send you copies of hundreds of letters received by us daily. Our best advertisement is the vast number of satisfied customers. **Write Today For Our Low Lumber Prices** Ask us to send you our latest lumber price list. It will be sent you so clearly and plainly that you can tell at a glance just what our quotations are. The grades are clearly defined. No attempt to humbug you on quality. We want to furnish you just what you buy. We want you to be able to say you "buy your lumber and building material from us and get value for your investment." That's the way we built up this business. That's the way we intend to continue to build. We require your patronage and good will. Out-line your needs and we will make you a reply so convincing and clear that you can't help but give us the business.

## Everything Used In Building Sold At A Big Reduction

### BARGAINS IN DOORS

5000 4-panel Doors 1-3-8 in. thick, size 2 ft. 6 in. x 6 ft. 6 in. 98c each. Size 2 ft. 8 in. x 6 ft. 8 in. \$1.05 each. We carry a complete stock of brand new doors of all sizes and in every specification. Handsome high grade front and vestibule Doors, strictly "A" quality and the best of their respective kind. They are set with bevel plate glass, or we can furnish them glazed with fancy lace design, double strength glass. They range in price from \$3.75 to \$20.00. High grade Front Doors, brand new, strictly "A" quality White Pine, glazed with sand blast glass size 2 ft. 6 in. x 6 ft. 6 in. \$3.15. Other sizes at proportionate prices. California Bed-wood Sash Doors strictly first class glazed with clear glass, 2 ft 6 in x 6 ft 6 in. \$2.50. 2 ft. 8 in. x 6 ft 8 in. \$2.60. Double Sash Doors for stores or vestibule strictly "A" quality White Pine, 1-3-4 in. thick, glazed, size 5 ft. x 7 ft. with double strength glass \$9.00. All sizes in stock up to 6 ft. x 8 ft. Brand new 6-cross panel O. G. Doors with panels raised both sides, size 2 ft. 6 in. x 6 ft. 6 in., \$2.07. Size 3 ft. x 7 ft. 6 in. \$3.00. A complete stock of all sizes. Four Panel O. G. Doors White Pine size 2 ft. x 6 ft. \$1.22. 10,000 Used Doors from various wrecking operations. In this lot we have doors taken from small cottages and buildings ranging from 2 ft. x 6 ft. to 3 ft. x 8 ft. in best condition at 40c. Also fancy sized Front Doors for residences ranging in various sizes at \$1.50, and up. One lot of large barn doors used at the St. Louis Exposition, fancy designs, strongly built, each \$2.00. Write at once for full particulars.

### HIGH GRADE NEW MILL WORK

We are in better shape to quote low prices than any other concern on earth. We do not buy our goods in the regular way. We purchase at Sheriffs' Sales, Receivers' Sales and Manufacturers' Sales. We can furnish you mill work of every kind and character. We can furnish everything needed in mill work, both regular and special. Send us memorandum of your requirements. Let us make you an estimate. Note our low quotations: Colonial Porch Columns strictly No. 1 Poplar, trimmed, sizes, 6 in. x 6 in., 4 ft. long at \$1.25; 8 in. x 8 in., 4 ft. long at \$1.45; 10 in. x 6 in., 8 ft. long at \$1.70; 8 in. x 8 in., 10 ft. long at \$2.70. Fancy Porch Columns, 4 in. x 4 in., 8 ft. long at 60c; 5 in. x 5 in., 9 ft. long at \$1.15; 6 in. x 6 in., 10 ft. long at \$1.80. Fancy Porch Newels 4 in. x 4 in., 4 ft. long at 35c. Stair Newels at \$3.15 and up. Angle Newels at \$1.90. Fancy Stair Balusters at 9c. Porch Balusters at 5c. Corner Beads at 10c. Base Angles per 100 ft., \$1.90. Porch Spindles at 2c. Porch Brackets at 7c. Fancy Face Brackets at 35c. Adjustable Cable Ornaments at \$1.25. Corner Blocks 2 1-4c. Head Blocks at 4 1-2c. Base Blocks at 4 1-4c. Top Rails per 100 ft., \$1.90. Bottom Rails per 100 ft., \$3.90. Quarter Round per 100 ft., 90c. In fact we can furnish at exceedingly low prices everything you can possibly require in mill work. Get our prices on Flooring, Shingles, Ceiling, etc.

### BARGAINS IN WINDOWS

5000 Windows from various wrecking operations at prices ranging from 29c up. In this lot are a number of windows that are very fancy that will be sold at half the price of new ones. Fancy Front Windows brand new, high grade 1-3/8 in. check rail, they are up-to-date in design, bottom sash glazed with double strength clear glass, top sash with fancy ornamental glass, size 3 ft. 8 in. x 5 ft. 2 in. \$4.90. 4 ft. x 5 ft. 10 in. \$6.35. Cottage Front Windows size 3 ft. 8 in. x 4 ft. 2 in., \$3.52. 4 ft. x 5 ft. 2 in. \$4.20. 4 ft. 6 in. x 6 ft. 2 in., \$6.60. Two light check rail Windows size 1 ft. 8 1-8 in. x 3 ft. 2 in., 63c. 1 ft. 1 1-8 in. x 4 ft. 6 in., 74c. 2 ft. 1-8 in. x 3 ft. 10 in., 81c. 2 ft. 2 1-8 in. x 4 ft. 10 in., 95c. Four light check rail Windows size 2 ft. 1 in. x 3 ft. 10 in., 70c. 2 ft. 5 in. x 4 ft. 6 in., 55c. Eight light check rail Windows size 2 ft. x 4 ft. 6 in. 77c. Cellar Sash two lights, size 2 ft. 1 in. x 16 in. 38c. 2 ft. 9 in. x 20 in. 52c. 500 Storm Sash, first class, twolight brand new at 74c. 265 Fancy Windows from the St. Louis Exposition, each 60c. 1000 second-hand Barn Sash, each 52c. 5000 Used Sash from the St. Louis Exposition glazed with 1-8 in. ribbed factory glass in all sizes which we will sell at per sq. ft. 6c. All kinds of Window Glass, Plate Glass, Ribbed Sky-light Glass and everything required in Window Glass and Sash.

## DON'T BUY YOUR BUILDING MATERIAL UNTIL YOU WRITE FOR OUR ESTIMATE

### Rubberized Galvo Roofing \$1.25 Per 108 Square Feet.

The greatest Roofing value on earth. No higher grade manufactured. Unexcelled as to quality, wear and economy. Easy to put on. Requires no previous experience. Can be put on over shingles without removing them. Does not require a coating after it is on the roof. Weather-proof and fire-proof. Contains no coal, tar, residuum or injurious compositions. This roofing is bought direct from manufacturers and is usually sold at double our price. It is guaranteed to give lasting service. Rubberized Galvo Roofing is slate color, tough, leather-like material made of a combination of wool felt and highest grade of natural, pure asphalt. Makes buildings warmer in winter and cooler in summer. Not affected by acids or gases. Has rubbery surface and on this account we call it Rubberized Galvo Roofing. It toughens and hardens with age. We furnish with each order sufficient cement to make the laps and large head nails to put it on with. It is appropriate for any kind of building. 1 ply per sq., \$1.25. 2 ply per sq., \$1.40. 3 ply per sq., \$1.75. These prices are per sq. of 108 sq. ft., and are F. O. B. Cars, Chicago. Also have in stock 1000 sqs. of pure asphalt rock surfaced roofing bought by us at manufacturers' sale. Put up two to five lengths to a roll and each roll contains 108 sq. ft. Price per 108 sq. ft. including nails and caps, \$1.50. Red, Rosin-sized Building Paper per roll 500 sq. ft. 45c. Slaters Roofing Felt, per roll of 500 sq. ft. 75c. Write for free samples.

### FREE 500-PAGE CATALOG NO. 742

We urge you to write at once for this bargain book. It is just out and ready to be sent on request. It contains a full record of our wonderful stock of Building Bargains. It also shows what we have on hand from our mammoth wrecking operations. It contains a record of thousands of bargains secured by us at Sheriffs', Receivers' and other sales. It is a book that must be in your hands if you want to be posted. It also contains a complete account of our purchases of Household Goods from Sheriffs' and Receivers' Sales. Cut out the Coupon in the corner of this advertisement and mail it to us and we will immediately send you this book. **CHICAGO HOUSE WRECKING CO.** 35th and Iron Sts. Chicago, Ill.

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# Amatite

TRADE MARK

## ROOFING



If you had a sample of Amatite in your hand you would see in an instant why it needs no painting or coating to keep it waterproof.

It has a rough surface of real mineral matter on the weather side. It is evident to anyone that it is no more necessary to paint such a surface than it is necessary to paint a stone wall. Stone needs no paint; neither does Amatite. It is strong enough in itself to bear the brunt of rain and wind and sun without a protective coat of paint.

To paint Amatite would be a waste of time and trouble.

Amatite will last for many years without any care whatever. It is made to be trouble proof as well as weather proof.

A roofing that consists of smooth materials, made to receive a heavy coating of paint, is not a roofing at all—the paint is the real roof.

If you are told that certain roofings don't need painting when first laid, don't be deceived into thinking that they are like Amatite. The first coat of paint has been applied at the factory—that's all, and it will wear off in a little while and require renewal.

No paint is good enough to make a durable roof; a thick layer of pitch, faced with a real mineral surface, is far better—and that means Amatite.

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fire curtain and the general precautionary measures adopted for the safety of theater audiences. While the fire actually occurred about 4 o'clock in the morning, thus leaving entirely to conjecture the possible fate of an audience which might have become panic-stricken and behaved badly had the fire broken out during a performance, the fact that the auditorium was perfectly protected from fire and heat and not even uncomfortably filled with smoke should have an altogether reassuring effect upon the theater-going public. The absence of smoke and heat in the theater proper was due to the perfect action of the skylights over the stage in breaking early in the course of the fire, thus providing for the escape of smoke and gases to the open air.

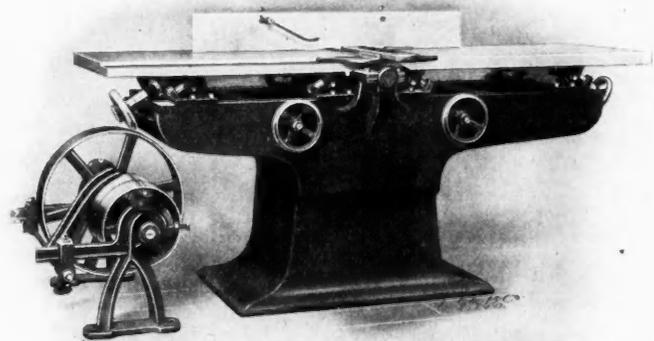
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The Silver Jointers are built from entirely new designs and patterns, and are made in five sizes with 8, 12, 16, 20 and 24 inch knives. The frames are made in column form, of the most substantial construction with large floor base. The cylinder heads are milled from solid forged steel and are T-slotted on two sides for molding, rabbeting and other cutters. For the protection of operator, a movable guard covers the unused portion during work. Pulley is four inches in diameter and of ample width for four-inch belt.

The journals on a jointer are very important; therefore, they have been made of good length and diameter and have been lined with the best copper hardened babbit. They are provided with large oil chambers and self-closing oilers. The journal on pulley side is seven inches long, the one on operating side is five inches long and capped to prevent escape of oil.

The vertical and longitudinal adjustments of the table are simple and unique. They are independent of one another and can be regulated while machine is at rest or in motion, to suit the thickness of cut or to close the gap over the head.

The steel pin inclines on which tables are mounted are a decided improvement over the old slides or grooves. They are absolutely uniform, and have split bearings clamped with set screws to take up wear and keep table always firm. The



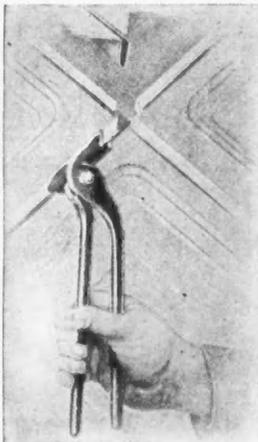
vertical movement of table on these pins is controlled by handwheel at end, and an auxiliary handwheel rigidly locks the table at any level.

Without disturbing this level in the least, the tables and attached sliding frame can be rapidly withdrawn from knives, making same easy of access for sharpening, adjusting or sub-

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Prevent the unsightly dust and smoke stains which accumulate through the imperfections of nearly all lap-joint metal ceilings.



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Absolutely Prevent Breakage Under

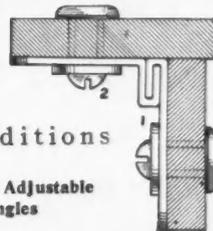
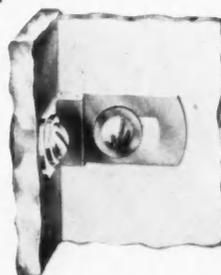
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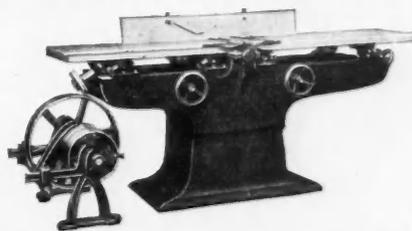
See description of new jointers elsewhere in this issue. Send for the Booklet.

**Silver Mfg. Co.**

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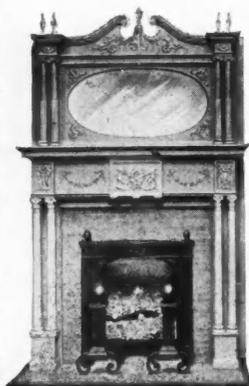


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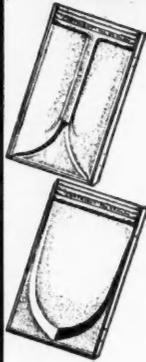
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stituting special cutters. This movement of table is governed by handwheel on working side of machine by means of cog-rack and pinion—totally different from the ordinary construction. The same handwheel, by clutch device, firmly locks the whole. This device is new and patent applied for.

Tables are of iron, planed perfectly smooth, are about 32½ inches from floor, and the rear table is constructed for rabbeting. Lengths: front table, 42 inches; rear, 36 inches (on eight-inch machine, front, 36 inches; rear, 30 inches.) The fence can be tilted to any angle from ninety degrees to forty-five degrees, and can be moved to cut full lengths of knives. A pressure spring is provided for holding the work to table.

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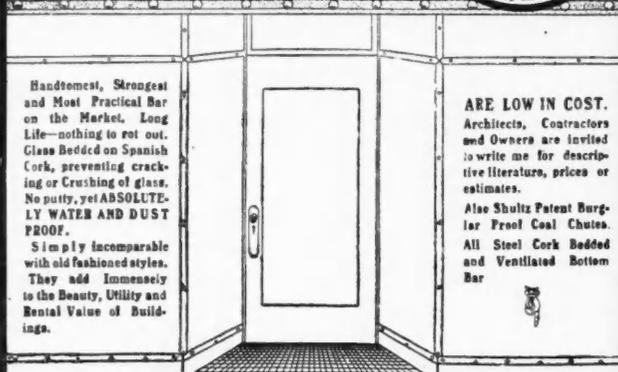
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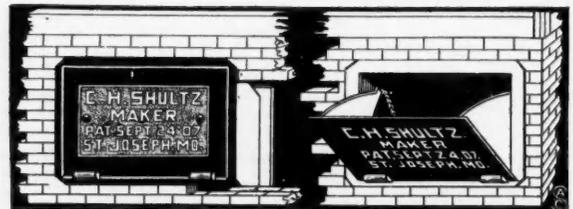


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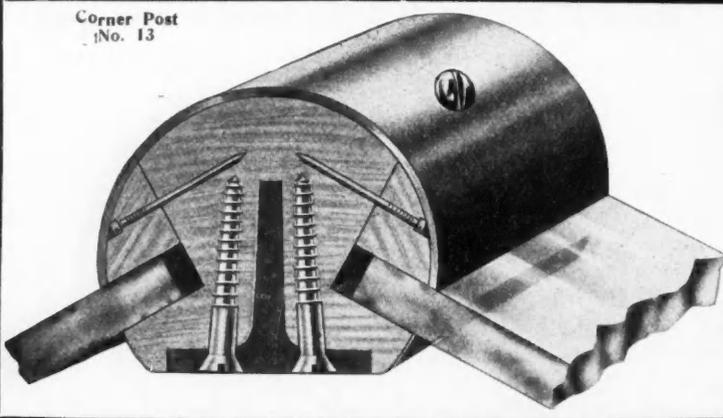


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We own the largest factory building in the world devoted exclusively to the manufacture of high grade column and porch work.

Send for catalogue M19 of columns, and M29 of sun dials and pedestals.

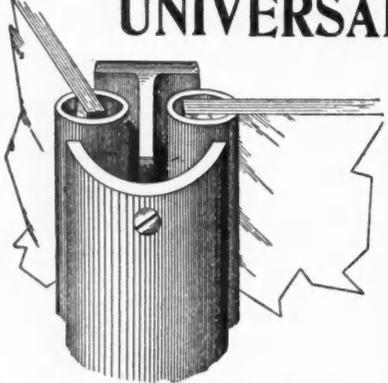
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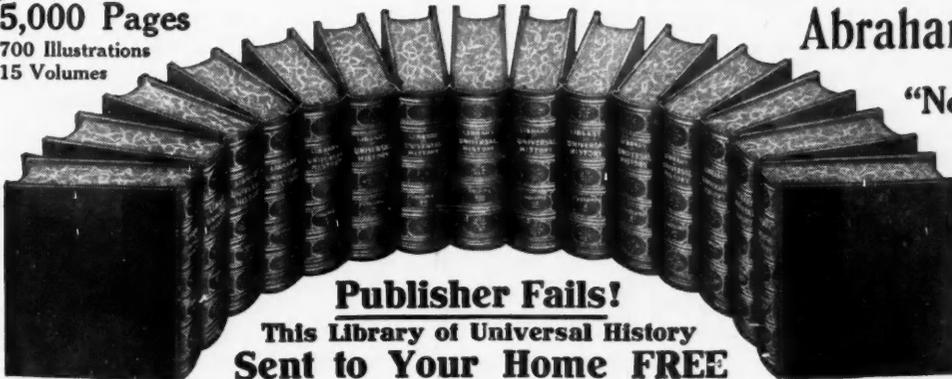
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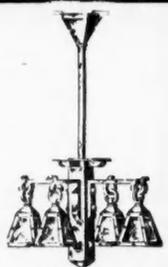


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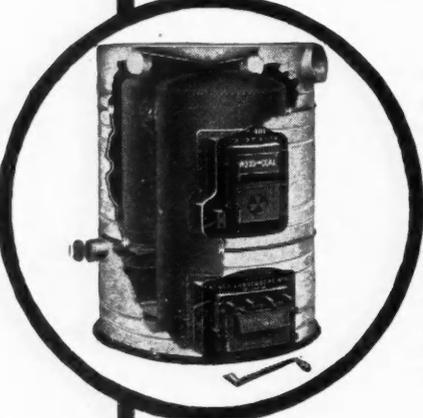


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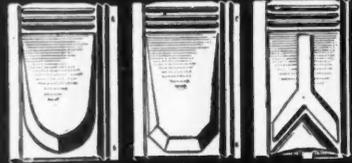
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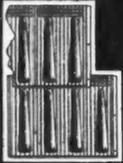
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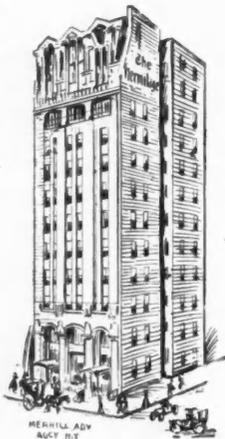
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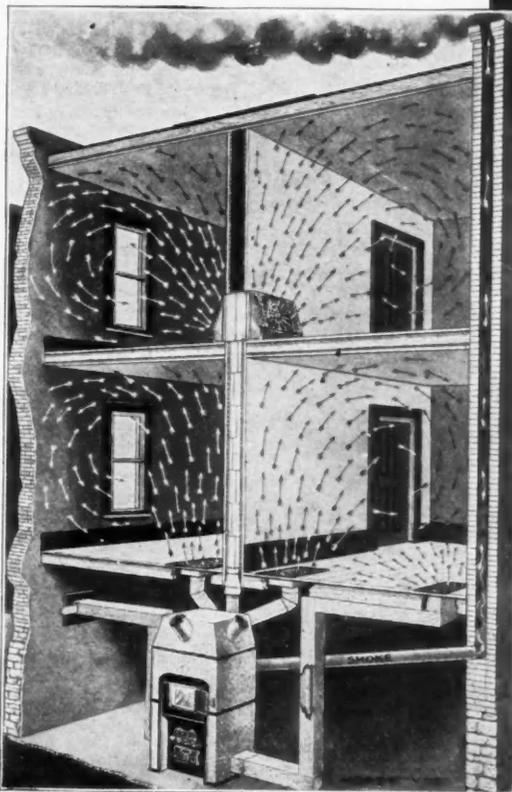
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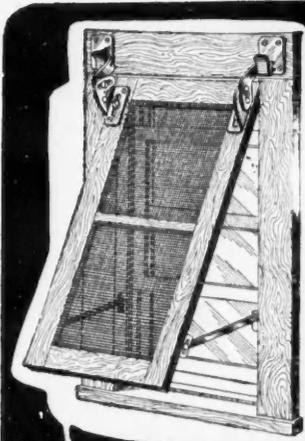
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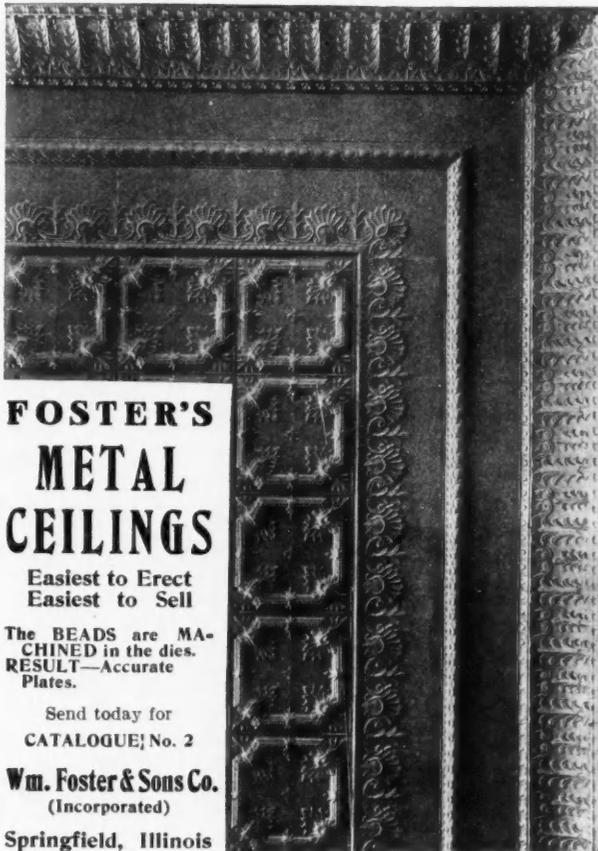
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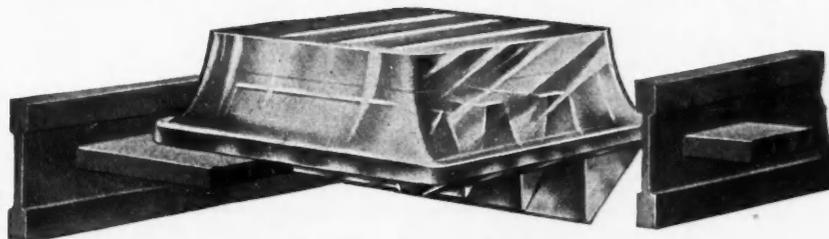
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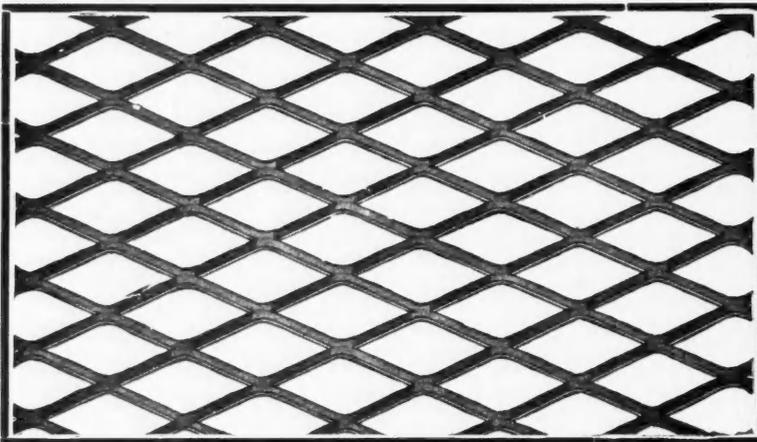
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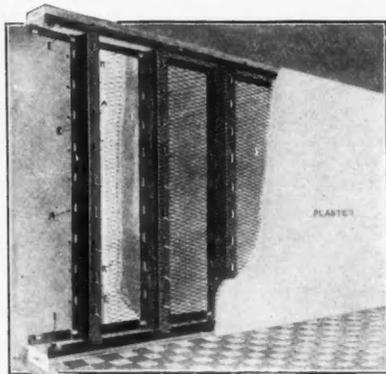
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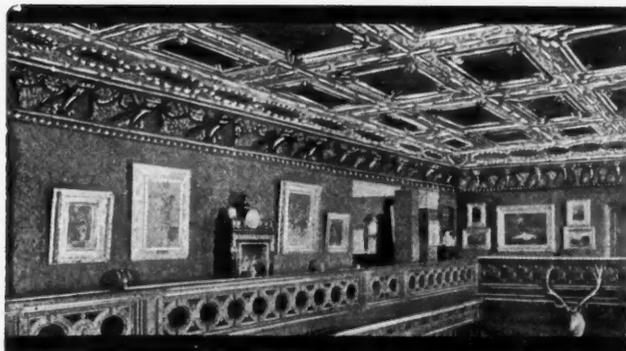
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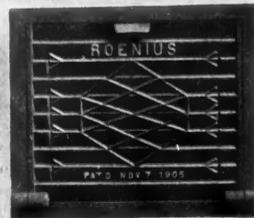
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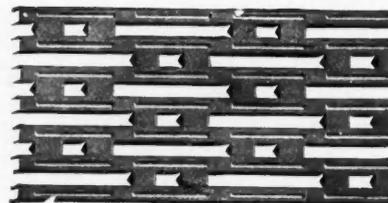
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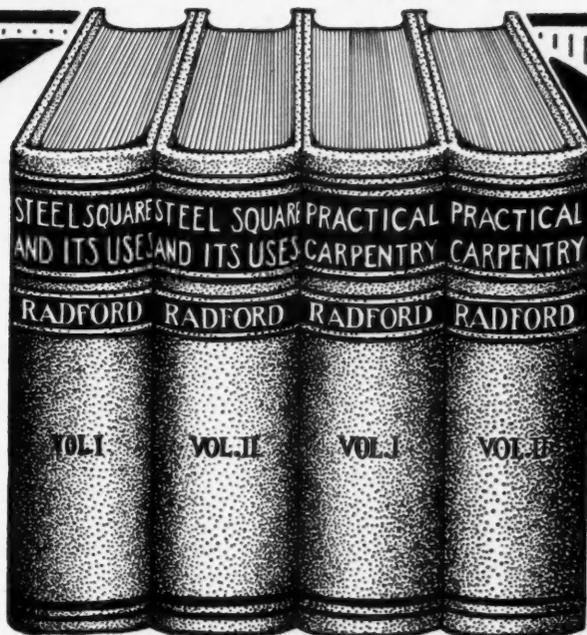


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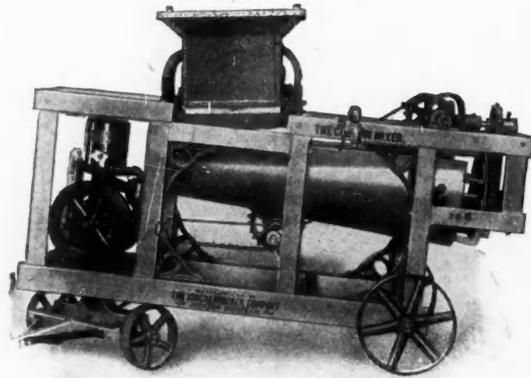
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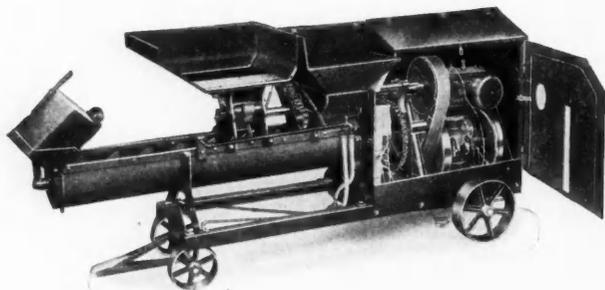
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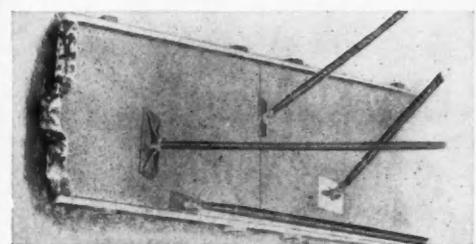
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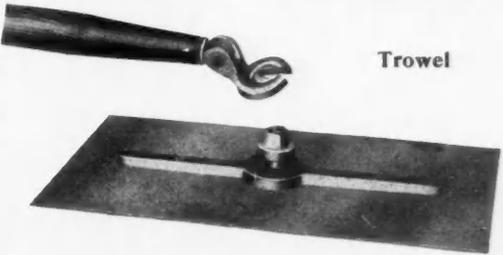
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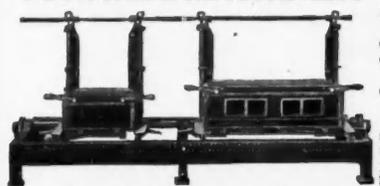


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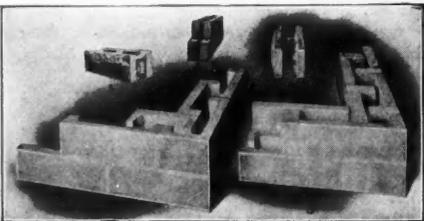
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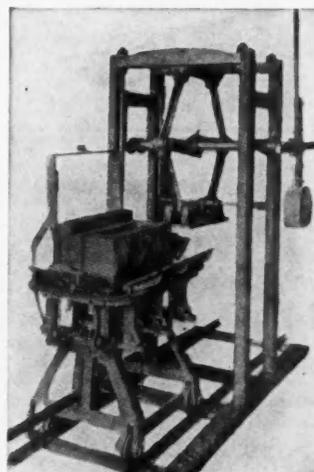
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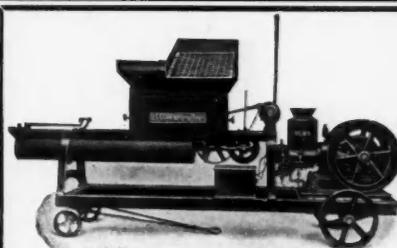
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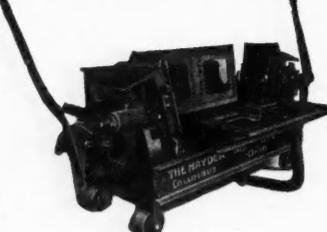
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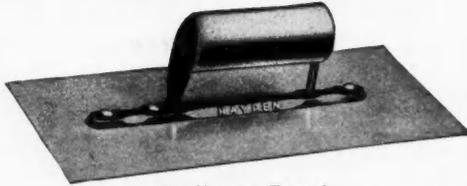
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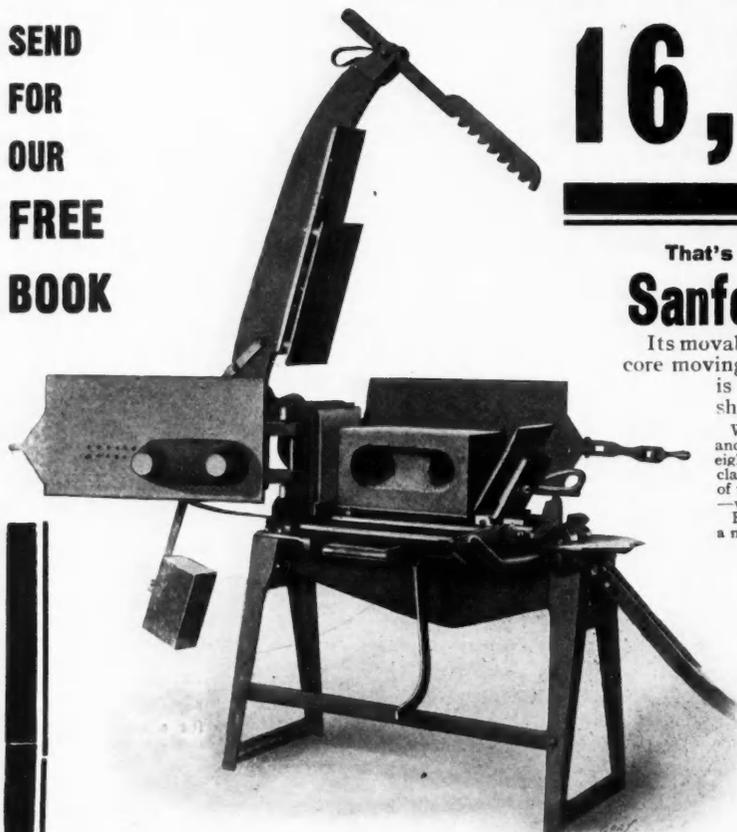
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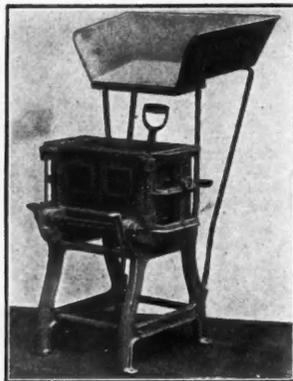
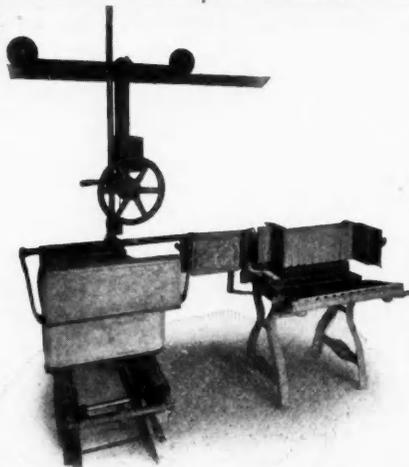
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NOTICE TO ADVERTISERS

New copy, changes and corrections for advertisements must reach office of American Carpenter and Builder, 185 Jackson Boulevard, Chicago, not later than June 20 in order to insure insertion in the July number.

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**INDIA OILSTONE**

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✦ **CARPENTERS** ✦  
 This Is the Best All Round

**Oilstone  
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**WHY?**

- Because,**—The India Oilstone is made by a special process which makes it sharp and quick cutting.
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Sole Selling Agents, Dept. 6

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 Metal Tile**

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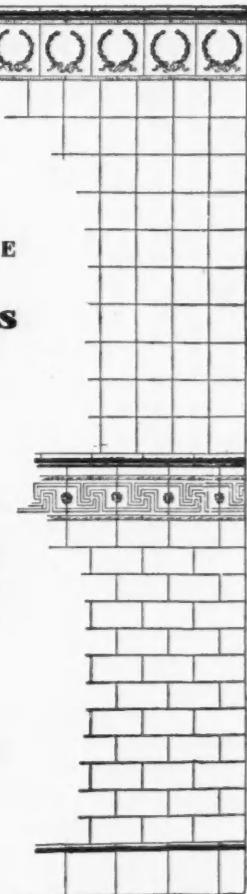
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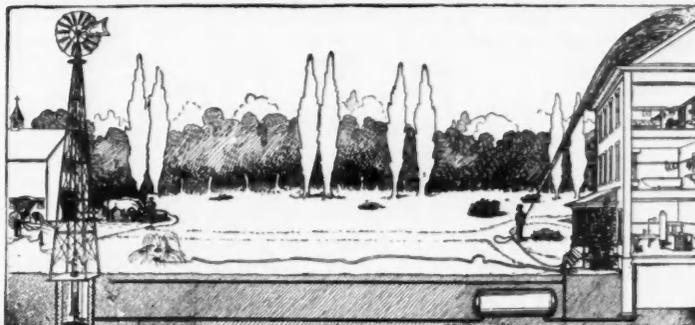
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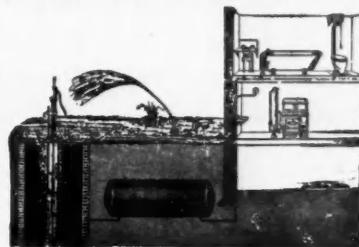
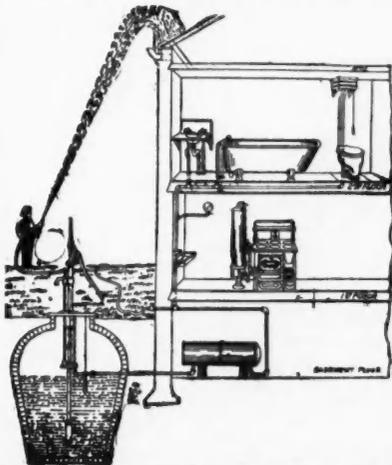


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35 West 2d St., KANSAS CITY, MO.



# How to DOUBLE Your Profits on Hardwood Floor Jobs

## Gordon, Van Tine Thin Oak Flooring a Money-Maker for Carpenters and Contractors

### DO YOU CARPENTERS AND CONTRACTORS KNOW WHY YOUR BUSINESS IS SO IMPORTANT?

Do you realize that all the building in your locality depends on you? Do you realize that the people building homes and other structures have to depend on you for proper results, for advice for the thorough construction of a building and the economical work, as well as the economical purchase of material? In a word—do you not see that the erection of buildings, and consequently the sale of most building material, centers around you—the carpenter or the builder?

Now we want to say something, particularly to the thoughtful men in the building trade. In the past—in fact, until Gordon, Van Tine Co. began selling at factory prices direct to carpenters and contractors, resulting in half regular prices to them, the carpenters and contractors generally waited until the prospective builder looked them up to figure with them on the building plan, the materials, etc. Now Gordon, Van Tine Co. have arranged it so that the carpenter and contractor has a basis on which he can get right out among the property owners and all the people of his community and uncover business. Instead of waiting for business to come to him, the reader of this paper finds the business for himself and makes a market for his services and plans his work so that he occupies his time at a better profit all the year 'round. For instance—Gordon, Van Tine Co. quote their lowest prices to carpenters and contractors. A carpenter knowing that he can get a 3-8 inch hard wood flooring at 80 cents per 100 lineal feet can go to any owner of a house and say "Neighbor, why not modernize that house of yours? You can do it for such and such a price. I will get the materials, save you 50% on the cost, and lay the job for you on such and such a date." He has the basis on which to sell his services and having Gordon, Van Tine Co.'s prices that are half what the lumber yard could sell the material for, if they could sell it at all, the carpenter has a particularly interesting offer to lay before the property owner, and in the majority of cases he will get the property owner's work.

Such is the case with stair work. Such is the case with porch work and hundreds of other lines sold by Gordon, Van Tine Co. at half regular prices. A carpenter can actually uncover business, can handle twice as many jobs in a year, can get a reputation for himself as a close figurer and a good buyer because he can supply the property owners with material through Gordon, Van Tine Co. at half the price the property owners have been used to paying.

It has been a favorite way with lumber dealers to make the carpenters and contractors feel that they owed a big end of their living to the lumber dealer, that the lumber dealers turned business to the carpenters and as a consequence the carpenters were expected to feel under obligation to the lumber dealer. As a matter of fact, the carpenter is the key to the situation. Without the carpenter, who has the building knowledge, the lumber dealer would not sell his merchandise. Gordon, Van Tine Co. work just the other way from the lumber dealer. They recognize the carpenter and contractor as the big factor in the situation. They encourage the carpenter and contractor when he secures an order from them—they give him the best and brightest qualities of goods and they accredit him in the mind of the consumer.

Gordon, Van Tine Co. enable the carpenter and contractor to talk about as follows to the lumber dealer:

"Yes, Mr. Lumber Dealer, we have been doing business together for a long time. You have been feathering your nest—lining your pockets with gold—out of the sales I have made possible for you. I have helped you sell all kinds of lumber and building material that you carried in stock, and I have sometimes had to give the consumer less desirable things than I wanted to see him use because of your limited supply or long time it would take to get exactly those things we wanted. I have turned over to you many nice orders for odd size stuff out of which you have made gigantic profits. I have got day wages out of the matter and you have made rich profits out of the customers I have sent you. Instead of turning work my way—I have been the one that developed the business for you.

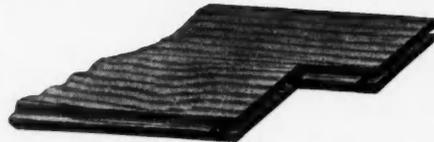
"Now I am going into business for myself. I buy my goods where I can get the most satisfactory prices—the best qualities—the greatest assortment—the promptest service—the best co-operation—real, genuine help; that is—from my wholesale plant—that is, the Gordon, Van Tine Co."

The Gordon, Van Tine Co. will send every carpenter and contractor in America their Grand Catalogue of 5000 Bargains in Building Material. They will send him their great Book of Plans showing houses large and small, cottages, bungalows, frame buildings, etc.; they will send him a book on Ready Roofing or Steel Roofing at half regular prices; they will send special pamphlets on flooring, porch work, interior finish, special booklets on how to construct screens from stock and make twice as much money and hundreds of other things that dignify the position of the carpenter and contractor and make him the truly important figure in contracting and labor circles.

Write to Gordon, Van Tine Co., 417 Federal St., Davenport, Ia., for any of these booklets or the Grand Catalogue and ask them for their special letter "How to get Business." This letter "How to get Business" will add hundreds of dollars every year to the salary or income of every carpenter and contractor in America.

## Great Special Offer On High Grade Oak Flooring 80 c Per 100 Lineal Feet Every Foot Guaranteed

At the high prices charged by local dealers for Hardwood Flooring, the contractor generally makes little or no profit on the material.



His only profit is on the labor of laying the floor. Our special high-grade thin Red Oak Flooring,  $\frac{3}{8}$ x1 $\frac{1}{2}$  inches, at 80c per 100 lineal feet, opens the way to double profits. The first cost is only a fraction of the cost of thick flooring and it answers the purpose just as well or better. To meet the big demand for this special flooring we have made up an immense stock for quick shipment. The quality is absolutely guaranteed. This flooring is seasoned, polished, matched, wrapped—ready to lay. Shipped in random lengths. Send us a trial order.

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This wonderfully cheap flooring can be laid right over the old floors or over cheap boards. Not necessary to change the old base boards. It makes a superb floor.

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A trial order will convince you that this is the equal of the most expensive oak flooring. Your money refunded if it fails to give perfect satisfaction. Our big reserve stock enables us to guarantee prompt shipment. Increase your profits on flooring jobs by using our 80 cent oak. It's a big winner for the carpenter and contractor.

### Our Grand Free Builder's Catalog is a Treasury of Bargains.

Over 5,000 Big Bargains in Building Material—Sash, Doors, Mouldings, Inside Finish, Screen Doors, Window and Door Frames—everything needed for building or repairing. Send for the big free Catalog today and don't forget to include an order for Oak Flooring.

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