

AMERICAN CARPENTER AND BUILDER



THE WORLD'S GREATEST BUILDING PAPER

DECEMBER **Important Features** DECEMBER

Special Articles

- Christmas Suggestions for the Home Workshop
- How an Old Stone Barn Was Remodeled
- Wood Trim and Fireproofing

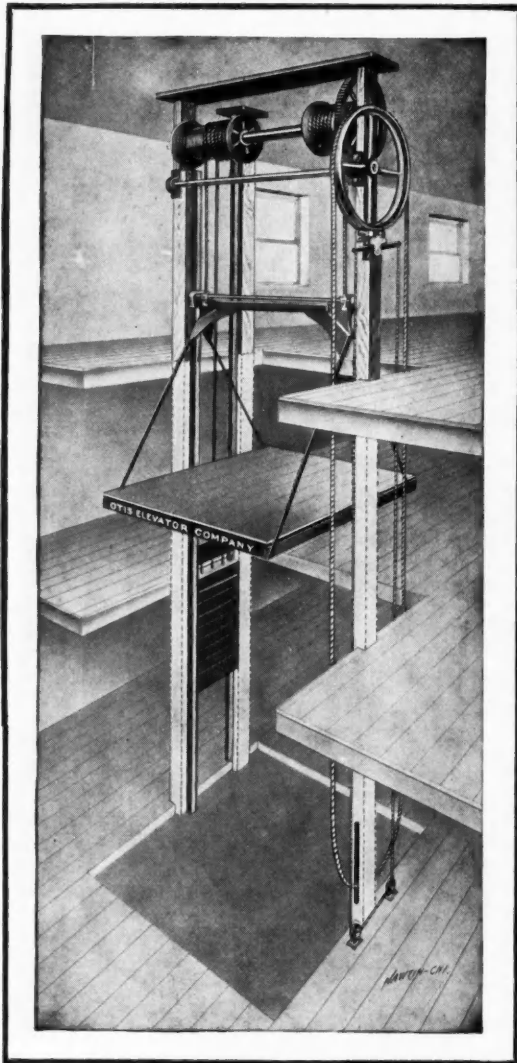
Plans and Details

- Very Desirable House and Cottage Designs
- How to Frame a Circular Bay
- Practical Farm Buildings

Recommended Practice

- A Pressure System of Hot Water Heating
- Cement Walks and How to Lay Them
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**HAND POWER ELEVATORS
AND
DUMB-WAITERS
AT
SPECIAL PRICES**



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OTIS ELEVATOR COMPANY

NEW YORK

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WE MANUFACTURE ALL TYPES OF ELEVATORS—WRITE FOR CATALOG

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

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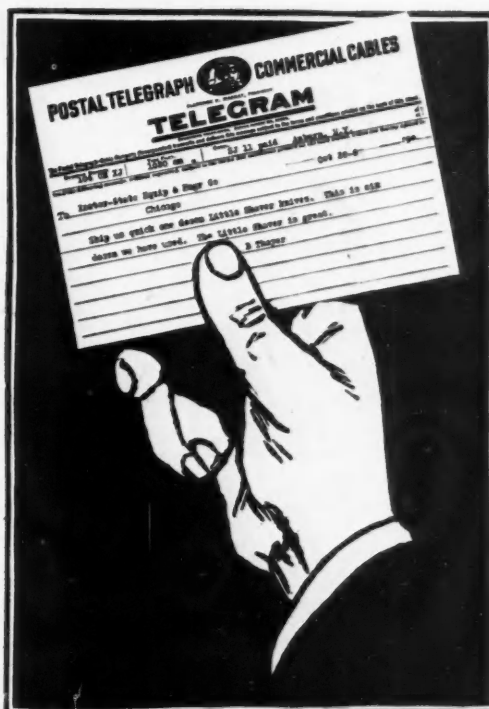
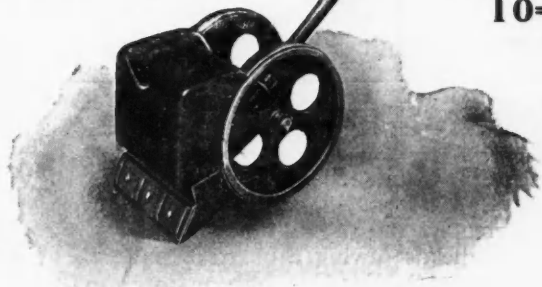
—ON THE—

"Little Shaver"

This Month

Write Us To-day

It will pay you to write us



Inter-State Equipment & Engineering Co. Old Colony Bldg. CHICAGO

The Floor Scraper

THAT'S ABSOLUTELY PERFECT

Of all the floor scrapers on the market not one can be quite as good as the Star, because no other embraces such durable features.

There's practically nothing about it to wear out. Consider the benefit obtained by the new mechanical principle. The principle that means better work and quicker.

The Star does **clean** work. A patented Ball and Socket device allows the blade to be set diagonally at any angle. This gives a shearing cut to the machine. It means a finished floor **free from planer marks and "waves."** It works the same on old floors as it does on new.

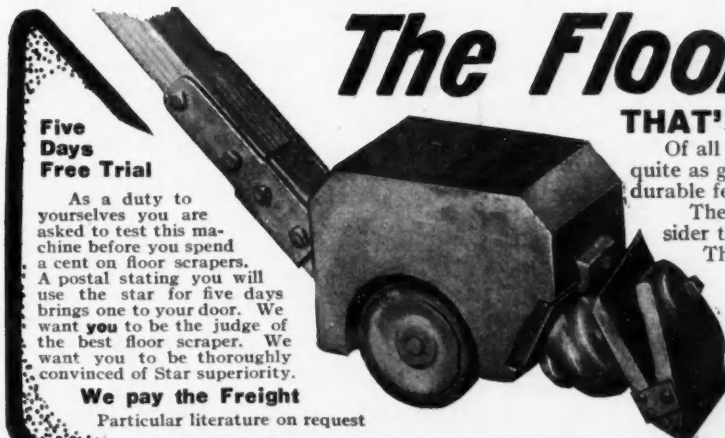
Star Scraper Co. - Elkhart, Ind.

Five Days Free Trial

As a duty to yourselves you are asked to test this machine before you spend a cent on floor scrapers. A postal stating you will use the star for five days brings one to your door. We want you to be the judge of the best floor scraper. We want you to be thoroughly convinced of Star superiority.

We pay the Freight

Particular literature on request



Remember—THE FOX PAYS FOR ITSELF

Fox Floor Scraper No. 1

A Perfect Machine for Perfect Work.

Old, Tried and True. None to equal it. None just as good, experiment with others, but when you want a Floor Scraper send for the FOX.

Fox Cabinet Scraper works like a plane. A FINE TOOL for fine work. Price Postpaid only \$1.25.

(Write us for Catalogue)



Fox Cabinet Scraper



Milwaukee, Wis.



The American Floor Surfacing Machine

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

Its work is **rapid, regular, smooth and even**, because the **power that drives the rolls propels the machine at the same ratio of speed**.

Its work has established the standard for surfaced floors, and the only machine whose work is specified by leading architects and meets the requirements of contractors, owners and hardwood floor companies for finely finished, smooth, even floors.

It has surfaced and polished millions of square feet of the finest floors in America and Europe.

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

The only one whose **construction is guaranteed and sold on its merits**.
Write for our book "Surfacing Floors as a Business."

Manufactured by

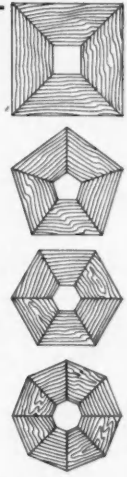
The American Floor Surfacing Machine Company
TOLEDO, OHIO



More Money, A Better Job and a Square Deal

NOTICE the **ABC Protractor Square**. It gives you degrees, lengths of timber and bevels of all kinds. It is a combination of five tools in one; the greatest and yet the simplest tool on the market. To use it is as simple as sawing a board off square. **Stairway** work is made as easy as ABC. For **Octagon or Polygon** work set the square in the form of the letter A. The directions are very short and plain and yet give you the full details of all the work. **No more mistakes**, and no Carpenter or Contractor can afford to be without the tool on a job. **Manual Training Schools** all over the country are adopting the square. It is a **time saver** as well as **accurate**.

Ask your dealer for them, or write to the following Jobbers for one:
MARSHALL-WELLS HARDWARE CO., Duluth, Minn.
E. C. ATKINS & COMPANY, Indianapolis, Ind.
Or send \$3.00 direct to **Crookston Tool Company**, **CROOKSTON, MINN.**



LATEST IMPROVED ALL IRON SWING CUT-OFF SAW

alone of its kind

—

Properly Counter-Balanced

—

Adjustable Hanger

With Six Inch Adjustment

—

CAN BE HUNG ANYWHERE

—

On the Floor
Under the Floor
On the Wall

With same ease of operation

—

Write for **FREE** Catalog of our complete line.

LOVELL MACHINE WORKS, Gardner, Mass.

L. S. STARRETT SAYS:



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

Send for free Catalogue No. 186.

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

COMPLETE OUTFIT \$15.00

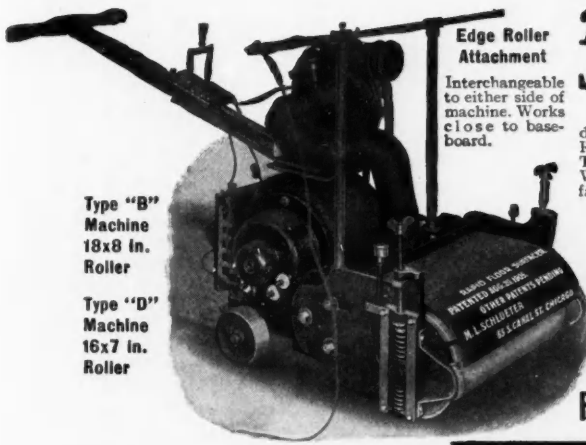
HAND AND FOOT-POWER MACHINERY

Our No. 7 Scroll Saw is warranted to be made of good material and workmanship, and to saw pine 3 inches thick at the rate of one foot a minute.

Send for Catalogue.



W.F. & Jno. Barnes Co.
74 Ruby St. **ROCKFORD, ILL.**



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

Edge Roller Attachment
Interchangeable to either side of machine. Works close to base-board.

Perfect Results Easily Obtained Schlüeter Rapid Floor Surfacer

Built on the only correct principle. 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 SCHLÜETER** will remove all joints or warped edges, and leave the floor perfectly smooth. Will remove shellac, varnish, oil, wax, lime stains or the "muck" from skate wheels in a most satisfactory manner.

WE SELL MACHINE OR SURFACE YOUR FLOOR

EASY TO OPERATE. NO DUST. Over 500 contractors are now using our Machines. Made in two sizes. We will surface your floor. Mail us size of floor, new or old, and kind of electric power. **In eight hours will sandpaper 4,000 to 5,000 sq. ft. once over.** Write for new prices, catalogue and our **FREE TRIAL** proposition.

Sandpaper the Only Perfect Way

The **SCHLÜETER 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

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

"YANKEE" Tool No. 31 Paid for itself—first job

says a Wisconsin Carpenter



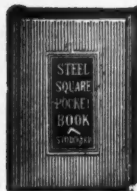
Have you seen
all our New Tools?

Get our Tool Book full of new ideas in reliable time and labor-saving tools for all classes of mechanics. Illustrated with photographic reproductions of the tools in use. It's worth having. **FREE** to mechanics who mention the "American Carpenter and Builder."

"I am the owner of four different "Yankee" Tools for which I would not take their weight in gold if I could not obtain any more. They are Nos. 30, 31, 35 and 44. No. 31 paid for itself on the first job—setting up school furniture."

All hardware dealers sell "Yankee" Tools
NORTH BROS. MFG. CO.
PHILADELPHIA, PA.

On the Square



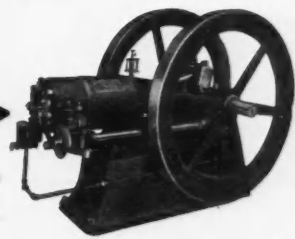
every builder should have my little works and be a constant reader of the "Cement World," the leading paper of its kind published.



- 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.

Power for Your Shop



Write for our Special Proposition on **3 H. P. and 6 H. P. Engines**

TO CARPENTERS AND WOODWORKERS

Backed by Five Years' Guarantee

Weber Gas and Gasoline Engines

Built on the Experience of 25 Years of Good Engine Building

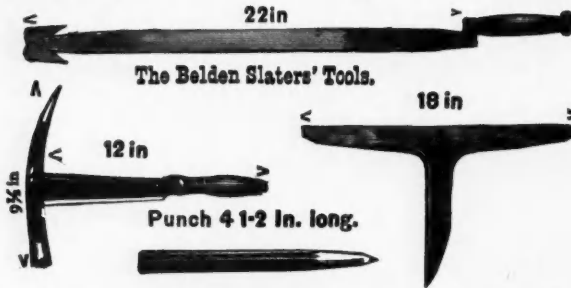
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KANSAS CITY, MO. Write for Catalogue Box 609

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.

FIRE PROOF WINDOWS

Pivoted or Double Hung Automatic Closing. Skylights, Ventilation and General Sheet Metal Work for Buildings. Write Dept. "F."

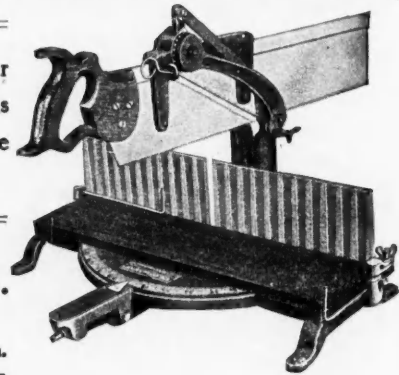
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KANSAS CITY, MO.

Improved Union Mitre Box

Write for our Circular B. It tells all about this many superior features and quotes prices.



The Dosch Mfg. Co.
823 R. R. Ave.
Bridgeport, - Conn.

Rapid Floor Scraping

Here's the Ackermann Proposition

Either the Ackermann Floor Scraper has **got to do** more work, better work and easier work than any other machine on the market, or we lose. It **must** save you two men's work every day or you get the machine **free**.

The claims we make are **proven** claims. Such a sweeping guarantee could not be made on theory. Neither is it. The success of the Rapid is due to the wonderful mechanical principle which no other machine has or can have.

Our free booklet explains details and tells where the advantages are. Write for a copy today.

Great Free Trial Offer

We ship you a machine on free trial, prepaying all charges. If satisfactory, purchase it. If not, return it at our expense. Or, if you find it is not better than any other machine made, keep the machine and the money too. Fill out the coupon or write today.

J. B. Ackermann Co.
100 Pearl Street
Grand Rapids, Mich.



This Brush is an Exclusive Patented feature. NO OTHER MACHINE HAS OR CAN USE IT. Patent Allowed Nov. 1 1907.
FILL OUT AND MAIL THIS COUPON

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

Name _____
Town _____
State _____



BACKWARD MOVEMENT

The WEBER ^{DOUBLE ACTING} Floor Scraper

TAKE AND TRY BEFORE YOU BUY

The Weber is the floor scraper that you can get on Free Trial before you have to buy it. I am willing to send it to you to try, because I know it will do more than I claim for it—because I believe in it. I know, and want you to know, why the Weber is unequalled in its wide range of adaptability; how it can be used equally well forward or backward and how the shearing cut attachment insures first class work even on cross-grained, old or parquette floors; how with my sander a perfect finish and polish can be put on any floor; and why it is the best all around scraper made.

For transportation the weights can be removed in an instant. The Weber will scrape within one-sixteenth of an inch of the baseboard and can be used in a two-foot, six-inch space. My bowling alley scraper will keep a bowling alley perfectly level and smooth. Send me your dealer's name and write for my booklet and **FREE TRIAL OFFER.**

THE WEBER AUTOMATIC SHARPENING DEVICE
enables the operator to sharpen a blade without removing it from the machine. The blade can't be sharpened at wrong angle—so simple a child can use it.

JOHN F. WEBER, PRESIDENT, WEBER MFG. CO. 670 71st AVENUE WEST ALLIS, WIS.

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

CHAPLIN'S IMPROVED PLANES

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

We invite the
**Severest
Comparative
Tests**

We want you to have a copy of our booklet

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

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

Tower & Lyon Company, 95 Chambers Street, New York

TRY BEFORE YOU BUY

The **ACME** Floor Scraping Outfit will be sent on a **week's free trial** to any party of responsibility.

Write for particulars and booklet.

Investigate. Convince yourself by actually working with the Acme machines of the merits and labor-saving features the same possess. Do it today.

JOS. MIOTKE, 249 Lake St., MILWAUKEE

"Little Giant" Floor Scraper

Sent on Free Trial

20,000 "Little Giants" are in use throughout this country and abroad. These were purchased because they were **better**; because they did more work—did it quicker, cleaner and cheaper—than any other machine made. So great is our faith in its ability to prove its worth to you that we are making the following liberal proposition.

Special Terms
A request from you brings a "Little Giant" to your door—you send no money and we pay all expenses. After you have tested it as thoroughly as you know how, and have found it satisfactory, pay for it. If you don't consider it the best floor scraper in existence, return it at our expense. That's all. Won't you give it this chance today?

CATALOG AND FURTHER DETAILS ON REQUEST

HURLEY MACHINE CO.,

155 South Jefferson Street CHICAGO



Ball Bearing



Woodworking Machinery Designed Especially for Carpenters

Best combination of the lightest running, fastest cutting, strongest made, and lowest priced woodworking machines in the world

Ball Bearings

Simply saves about half the power, close adjustment which means less chattering, stands a high speed under heavy pressure and never heat. Requires less attention, oiling, etc. They have been thoroughly tested in the last eight years and found to be the most valuable feature ever brought into use in this class of machinery.

Our Rip, Cross Cut, and Band Saw is a combination of three of the most useful machines, each ready for instant use without change. Can be furnished separate if preferred. We also make heavy machinery for belt power—36-in. Band Saw, Double Table Circular Saws, Jointers, Swing Cut-Off Saws, Single and Double Headed Sand Drums and Lathes.

30 Days' Trial Offer

As a positive proof of the truth of our claims we will put one or more if you like in any shop on thirty days' trial.
If you don't think it is the **best made**—the **most economical** and **easy to operate**—**send it back**. Purchase price will be promptly refunded.

Our large illustrated catalog describing woodworking machinery for every purpose will be sent free if you ask.



PARKS

Ball Bearing Machine ©

Fergus & C. H. D. Cincinnati, Ohio

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 3½ Acres of Floors

PLUMBERS' SUPPLIES

AT WHOLESALE



If you need anything in my line and wish to

SAVE
20 to 40 Per Cent

on every article, write for my free illustrated Catalog. Shipments promptly made from a very complete stock of guaranteed goods.

Small orders are as carefully handled as large ones.

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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.

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Geo. H. Anderson & Co.

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

The Adjustable Floor Scraper

THE MARVEL OF MECHANICAL PERFECTION. DOES THE WORK OF FIVE MEN—AND DOES IT BETTER



The cost of the Adjustable is so low that its entire cost is saved in a few weeks. This is possible because there are no complicated parts, also because a responsible company with a modern factory full of modern machinery is behind it.

Send No Money

We don't ask anybody to spend a penny on the purchase of this machine until they examine it thoroughly. Send at once for particulars of the machine and details of our liberal offer—an offer that interests every contractor in the United States.

Booklet on Request

Long Distance Telephone Mfg. Co.

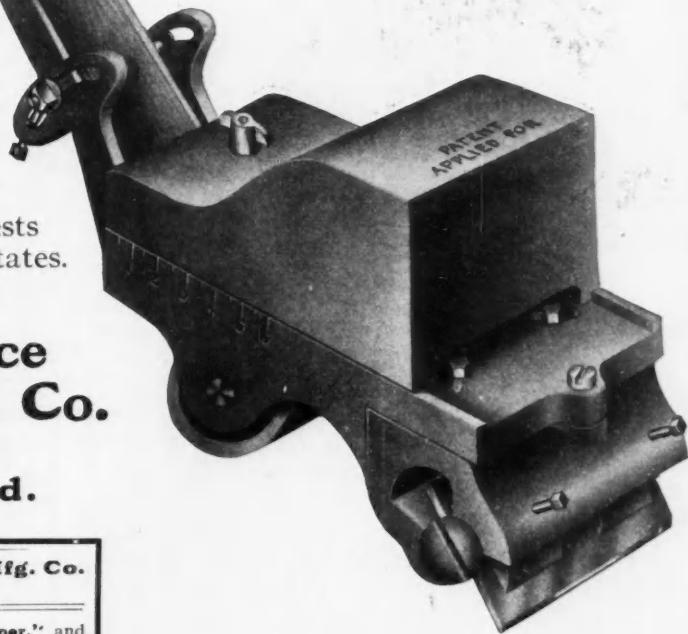
**Floor Scraper Dep't
South Bend, Ind.**

This floor scraper is adjustable positively to any condition of work. It's a thoroughly good machine—experts say that.

When mechanics say: "No chance for improvement over the Adjustable," "Only real Floor Scraper we have ever seen," etc. there **must be** superiority;—and there is.

Its adjustable features are magnificent. No other machine in existence can do such beautiful work in such short time. No other can save the owner so much in time and temper.

The principle of construction allows wonderful ease of operation. Its action is positive. Simply pull or push—as the case may be—and the knife cuts every time. No need to half lift it from the ground, such as other machines need.



Floor Scraper Department **Long Distance Telephone Mfg. Co.**
South Bend, Ind.

Send full particulars of the "Adjustable Floor Scraper," and of your selling plan. We are interested.

Name.....

Street.....

City..... State.....



**THE
'DIAMOND'
MORTISER**

will mortise $\frac{1}{2}$ to 1 inch wide, 3 inches deep or 6 inches deep by reversing the work, and with our patent adjustable tenoning tool will cut tenons $\frac{1}{4}$ to 1 inch wide. Has rigid iron column, powerful foot motion and accurate action, table has horizontal, vertical and angle adjustments.

It takes up but little space, is light and can be easily moved about to accommodate your work.

THE 'VICTOR' SCROLL SAW



cuts up to 3 inches thick. Swings 24 inches, has powerful tread motion, cuts rapidly and is easy to operate. Has adjustable tension spring on upper spindle, dust blower, drill attachment, iron tilting table, etc., suitable for very accurate work. Will furnish tight and loose pulleys for power in place of treadles if desired.

This is acknowledged to be in all respects the most complete foot power scroll saw made.

We make a complete line of Foot and Hand Power Wood Working Machinery suitable for Carpenters, Builders, Cabinet Makers and other Wood Workers. It will pay you to investigate their merits.

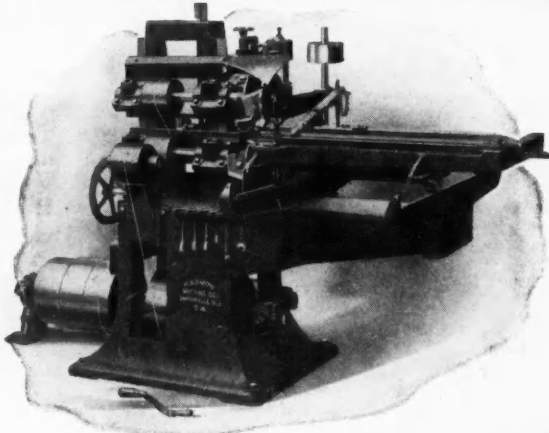
ASK FOR CATALOG "A."

THE SENECA FALLS MFG. CO.

218 Water Street,

SENECA FALLS, N. Y., U. S. A.

73



☞The annexed cut represents our Improved No. 225 Ce Single-end Tenoner, showing the Roller Bearing Table and all late improvements.

☞Also makers of Double-end Tenoners and more than 150 other different machines for Working Wood.

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H. B. SMITH MACHINE CO.

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DUMB WAITERS AND HAND ELEVATORS
OF THE MOST IMPROVED AUTOMATIC CONSTRUCTION
INVALID LIFTS TRUNK, CARRIAGE, SIDEWALK AND FREIGHT ELEVATORS
SEDGWICK MACHINE WORKS
POUGHKEEPSIE, N. Y.
AND
128 LIBERTY ST. NEW YORK
CATALOGS AND ESTIMATES FURNISHED
SEE SWEET'S INDEX

PUMPS, DOOR-HANGERS, STORE LADDERS
The Pump That Pumps SPRAY PUMPS Double-acting, Lift, Tank and Spray
MYERS PUMPS Store Ladders, Etc.
Hay Tools of all kinds Write for circulars and prices.
Myers Stayon Flexible Door Hangers with steel roller bearings, easy to push and to pull cannot be thrown off the track—hence its name—"Stayon." Write for descriptive circular and prices. Exclusive agency given to right party who will buy in quantity.
F. E. MYERS & BRO.
Ashland, Ohio.



"A Bit Of Utility"

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

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

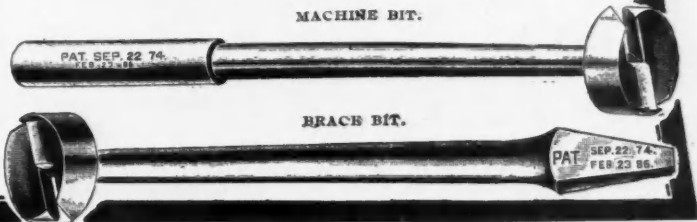
Unequaled for Delicate Work

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

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

The Progressive Mfg. Co.

Torrington, Conn.



"Last a Lifetime and give Satisfaction to the End"



The Celebrated Barton Planes and Edge Tools for carpenters and all other woodworkers are unequaled 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.

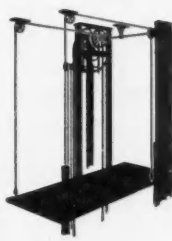
EATON & PRINCE

HAND-POWER

ELEVATORS



CORNER LIFT



CENTER LIFT

FOLDER No. 99 GIVES FULL DETAILS



EATON & PRINCE COMPANY

CHICAGO



You Will Sell More Window-Screens If You Hang Them With

GOSSETT HINGES

No experiment. Eight years of growing sales prove them the best. Find out for yourself.

Write for Free Samples Today

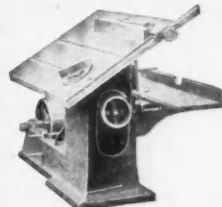
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Box 523

BEATRICE - NEBRASKA

CRESCENT WOOD WORKING MACHINERY SATISFIES PARTICULAR USERS

- Band Saws
- Saw Tables
- Jointers
- Shapers
- Borer



- Swing Saws
- Disk Grinder
- Planers
- Planer & Matcher
- Band Saw Blades

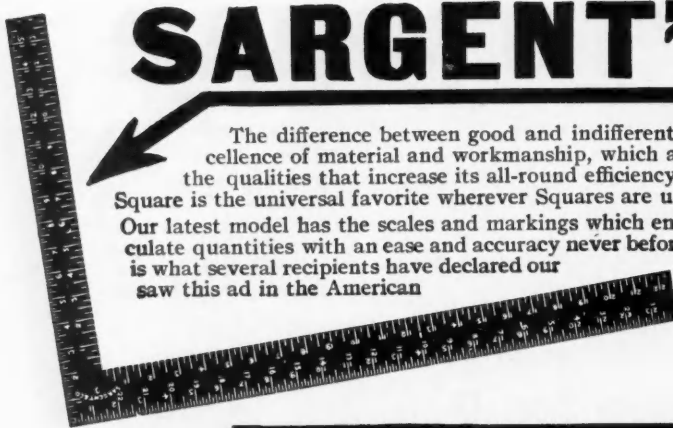
We want you to have our catalog. Send for it today.

THE CRESCENT MACHINE CO.

224 Main St.

Leetonia, Ohio, U. S. A.

SARGENT'S IMPROVED STEEL SQUARE

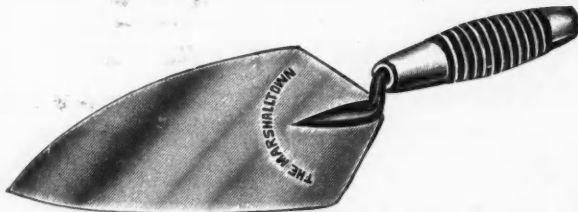


The difference between good and indifferent Carpenters' Squares lies in something more than excellence of material and workmanship, which are, of course, among other "Sargent" features—it is in the qualities that increase its all-round efficiency. That is why the practical "Sargent" Standard Steel Square is the universal favorite wherever Squares are used.

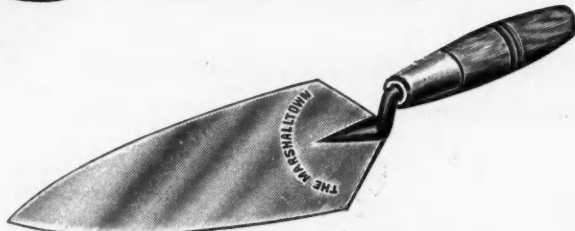
Our latest model has the scales and markings which enable the carpenter to lay out all kinds of work and to calculate quantities with an ease and accuracy never before thought possible. "A practical treatise on Steel Square" is what several recipients have declared our little publication. Copy free simply by mentioning you saw this ad in the American Carpenter and Builder.

Sargent & Company
Street New York

Three Big Sellers

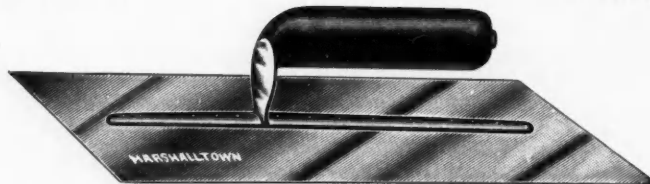


Wide Heel Brick Trowel
JUST OUT
Made of Best Quality Crucible Trowel Steel.
Leather Handle.



Philadelphia Pattern
Best Quality Crucible Trowel Steel.
Wood Handle.

Send For
Catalogue



Send For
Catalogue

Genuine Marshalltown Trowel

Straight Edges Always. Best Quality Spring Steel Blade. Hardened Mounting
Ten Rivets. Imitated because they are good.

Marshalltown Trowel Co., - - Marshalltown, Iowa

"Sterling" Transits and Levels

Represent the experience of a quarter of a century in making for a very critical clientele the highest types of Precision Instruments.



"STERLING" Profile and Cross Section Papers are the best made.

Send for Samples

Headquarters for Barometers, Anemometers and Field Glasses, Engineering Field Equipments and Drafting Room Supplies of the highest quality.

At very moderate prices.

Catalogue on request.

ISZARD-WARREN CO., Inc.

1122 VINE STREET

PHILADELPHIA, PA.

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

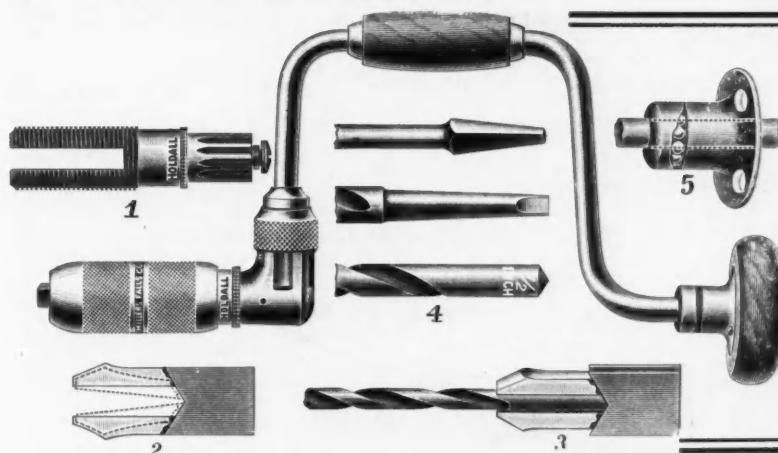


The Largest Saw Manufacturing Plant in the World and its Trade Mark—

EMBLEMATIC

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

HENRY DISSTON & SONS, Inc. PHILADELPHIA, PA.

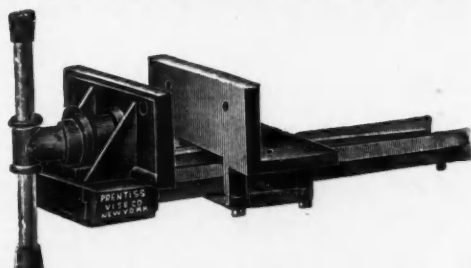


The HOLDALL BRACE

IT'S NEW and has jaws which adjust themselves to the shape of the shank. They grasp and hold securely straight, taper, round and square shanks. The sleeve is correct in shape for comfort to the hand and to obtain the firmest grip. Every part of the Brace is made with greatest care. We say without hesitation that the Holdall is the most perfect tool of its kind yet offered. Made in usual sizes, with 8, 10, 12 and 14 inch sweep. Ask for circular giving further description.

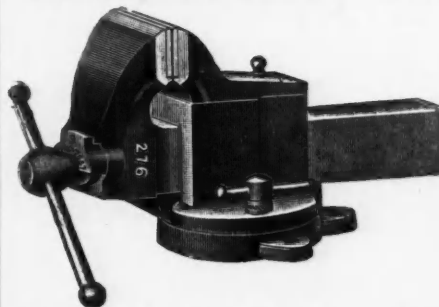
Millers Falls Company
28 Warren Street, NEW YORK

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

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MERIDEN, CONN.

CARPENTERS

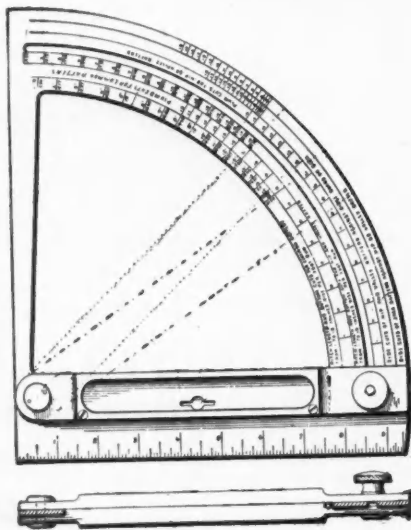
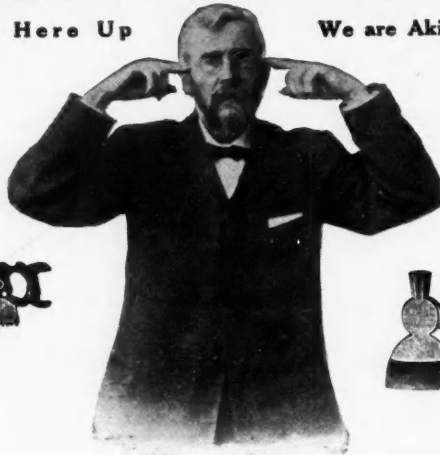
Would You Keep Abreast of the Times?

From Here Up

We are Akin to the Gods

From Here Down

We are Akin to the Ox



THE CALHOON Rafter and Polygon Bevel

Every bevel in the universe is contained in a quadrant; pass a line through it, from the center of the square to any degree or pitch, register on it the length (per foot run) and the opposite blades of the square will automatically (from that line) give bevels desired. See?

All calculations are based on 12 inches the unit of *base run* and 24 inches the unit of *pitch or rise*, and all hip, valley, octagon and jack, or cripple rafters on run and rise of principal or common rafter. We all know how difficult it is to read and apply the square. This tool will help you do both, or, rather, do both for you, as it is a practical tool.

The relative use of this tool in a carpenter's hands is that of an X-Ray machine to the surgeon, or of an interest book to a banker, or the computing scale or cash register to the merchant.

It is an organization of draft-board, square, tri-square, bevel-square, plumb, level and bevel-protractor into one tool.

This is a substantial TOOL 9 1/2—10 1/2. Made of Nickeled Steel.

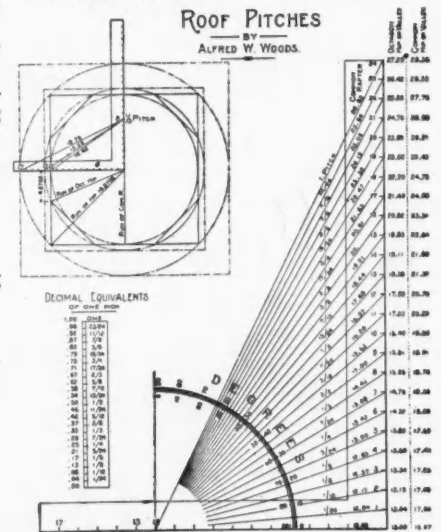
Testimonials

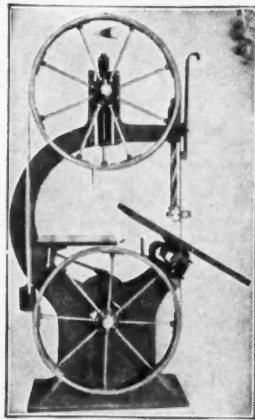
"The best framing tool in existence."—O. C. Kagelmacher, Case School Applied Science, Cleveland, Ohio.

"The most complete tool I have ever seen."—M. M. Lloyd, Master Mechanic, East St. Louis & Suburban Railway Company.

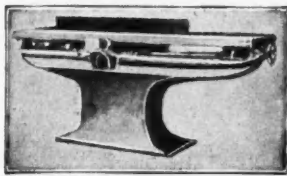
"The best mechanical device ever put on the market."—District Council, Kansas City, Mo., C. J. Huston, president, Edd. S. Abdill, secretary; District Council, Indianapolis, Ind., Chas. E. Bacon, president, Z. F. Carrigan, secretary; District Council, Cleveland, Ohio, Phil. Hyle, president Jno. B. Melcher, secretary; District Council, St. Louis, Mo., Wm. M. Davis, secretary.

This illustration gives an idea of adjustment. The book of instruction will explain its full uses and application. Booklet of instruction with each tool.

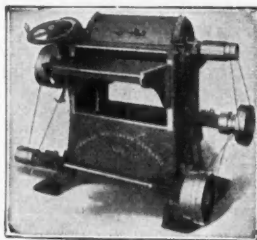




Chicago No. 1 Band Saw
27, 32 and 36-in.



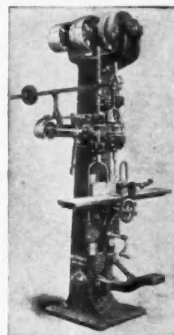
Chicago Hand Jointer
8, 12 and 16-in.



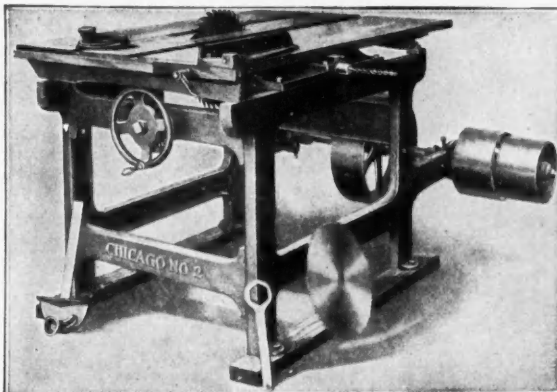
Chicago No. 35 Pony Planer



Chicago No. 7
Improved
Swing Saw



New Hermance
No. 1. Heavy
Power Mortiser



Chicago No. 2 Combination Saw Table
An excellent machine for ripping, cutting-off, mitering, dadoing, etc.

Money-Saving Machinery

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

500 Machines in Stock

For a small investment contractors can obtain sufficient machines from us to make them independent. We have new machines, direct from manufacturers, and many rebuilt machines as good as new. 500 machines are constantly in stock at our warerooms.

Prices are Favorable

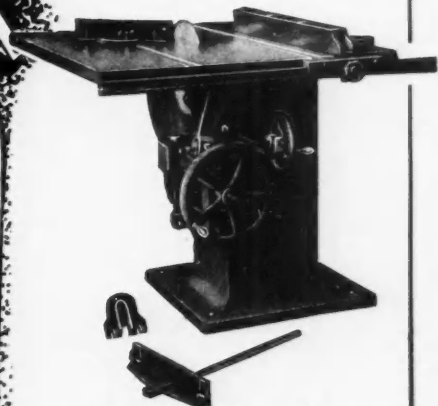
Our line is the most complete in the country and our prices are most favorable. All our machinery is of special construction to secure fine finished surfaces and reduce sand-papering to the minimum.

Send for Lists and Circulars

Our monthly list of rebuilt machines (free to contractors) shows just the machines you ought to have. Write to-day.

Chicago Machinery Exchange

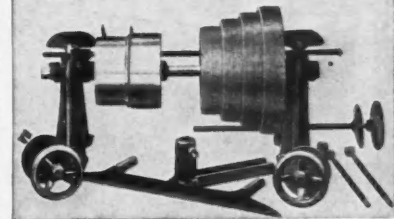
7-11 No. Canal St.,
CHICAGO



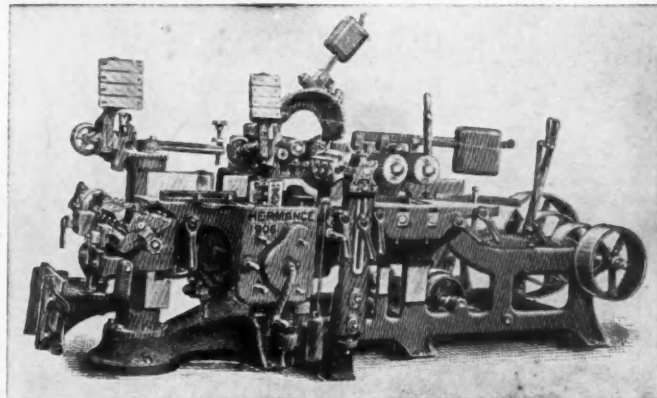
Chicago No. 10 Tilting Table
Improved Variety Saw Bench



Wood Turning Lathe and Countershaft
16 and 20-in.



New Hermance No. 3 Tenoner



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



Geo. H. Bishop & Co.

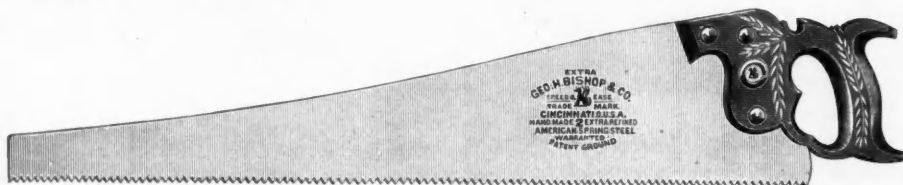
HAND-MADE SAWS

A good reputation is very pleasing. We are proud of ours. But goods made on honor and sold on merit each and every one MUST have intrinsic value.

A SAW OF QUALITY

**BISHOP
No. 2**

Mechanics value a good saw particularly when narrowed down by use. To meet this demand we have placed on the market our No. 2 Hand Saw. Hand Smithed, Hand Blocked, Hand Filed and Set. The life of this Saw is fully equal to the regulation width. The Blade is narrow and shapely. The 26-inch is 1½ inches at point, and about 6 inches at heel. Shorter lengths than 26-inch, while the same width at point, vary to 5 inches at heel. Light and rigid, full taper ground to the back. Made in Skew back of all lengths, either Rip or Cross Cut tooth.



RIP

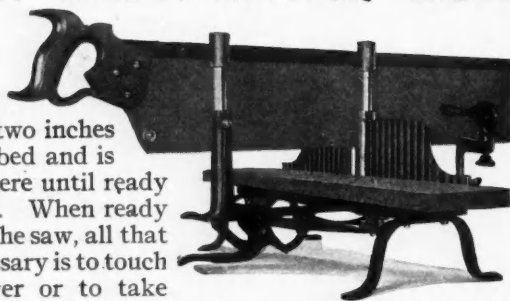
If your dealers will not supply you we will deliver one 26-in. Saw for \$2.00

Made on honor and sold on merit. Warranted.

GEO. H. BISHOP & CO., Factories, Lawrenceburg, Ind.

THE TRUE MITER BOX

Cut shows saw raised about two inches above bed and is held there until ready for use. When ready to use the saw, all that is necessary is to touch the lever or to take hold of the handle and the saw will drop down to the stock.



This miter box is so constructed that any piece broken or stolen can easily be replaced
NICHOLLS MFG. CO., OTTUMWA, IOWA

Ball-Bearing Spring Hinges.

THAT ARE PRACTICAL

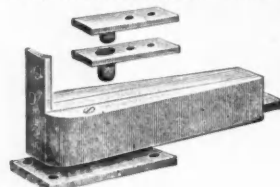
The Shelby Chief Double Acting Floor Hinge has solved the problem of easily get-at-able, hinges, impervious to water and dampness.

Doesn't go in the floor but rests on top. Easily applied, and very economical.

The labor saving feature is being appreciated by carpenters and builders everywhere.

Send for our free catalog which contains some sensible hinge talk, and also shows our full line of Double Acting Ball-Bearing Spring Butts and Builders Hardware. Free on request.

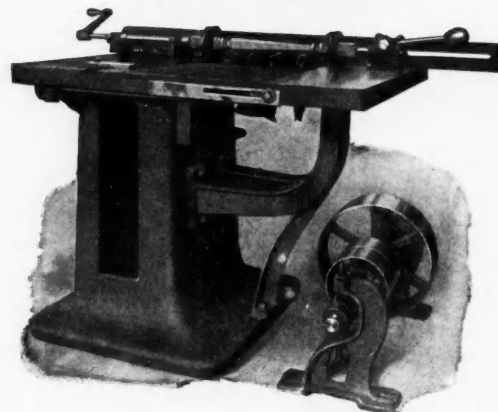
Write Today.



The Shelby Spring Hinge Co.,
Shelby, Ohio

Write for Illustrated Circular of our

No. 6 Universal Turning and Block Machine



It shows the machine set up for making twisted center balusters, for square turned work, for ornamenting ends and center of corner beads, for fan and sunrise panels, and as a saw table, all clearly illustrated.

There are also 28 other varieties of work our machine will do, so that it can be kept busy more than any other tool in the shop, to the constant profit of the owner.

Our circular also pictures the setting-up box, showing method of setting up and fitting knives to pattern, which is interesting, instructive and convincing as to their method of arrangement and their ability to make as clean a shear cut as a hand turner can do with a chisel.

Better send for that circular today.

C. Mattison Machine Works
879 Fifth Street, :: :: :: :: :: BELOIT, WIS.



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.



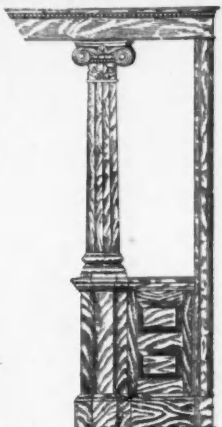
GRILLES COLUMNS AND CONSOLS

In quality and price our work is not surpassed.
You will make no mistake in writing us before ordering elsewhere.

Send for 48 Page Catalog No. 15

It contains many fine designs of modern Grilles, Columns and Consols.

Illustration at right shows half-section of Column design No. 552.



Northwestern Grille Works
CHRISTENSON BROS., Props. 1452 Milwaukee Ave., Chicago

MALLORY'S



**Standard
Shutter
Worker**

New and improved patterns and designs.

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

MALLORY MANUFACTURING CO.
204 Flemington National Bank Building, FLEMINGTON, N. J.

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

The "AUTOMATIC" SASH HOLDER



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

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

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

Automatic Sash Holder Company
277 Broadway, New York City.

Hot Water Heating at Much Lower Cost

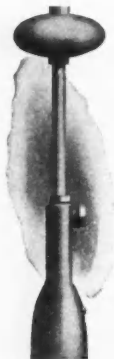
If you contemplate installing Hot Water it will be to your interest to investigate
THE HONEYWELL SYSTEM

It is not only the cheapest system to install, but by far the most slightly, efficient, responsive and economical system on the market. It contains one-third less water and heats one-third quicker, with a resultant saving in fuel. The water circulates from the boiler to the radiators from *three to five times faster* than in the old style system, hence quick results from firing with a minimum loss of heat in transmission. No large, unsightly piping through the rooms with this simple system. Owing to the very rapid circulation of the water $\frac{3}{4}$ " pipes are amply large to supply any sized radiator on the upper floors.

Every Radiator heats perfectly with the water at a temperature as low as 85 degrees, which can be increased to a temperature of **240 degrees** (hotter than steam) *without boiling* inside of a *few minutes*, giving the system the efficiency of steam at 10 lbs. pressure to meet extremely cold weather, while retaining all the valuable features of the mild temperatures of hot water.

Over 6000 Systems Installed In 1907

Endorsed and Sold by the Leading Manufacturers of Heating Materials.



HONEYWELL
HEAT GENERATOR

Free engineering advice given the trade on all installations.
 Failures absolutely guaranteed against.

If you have an unsatisfactory job of hot water heating, we can cure it at a very small cost and without remodeling.

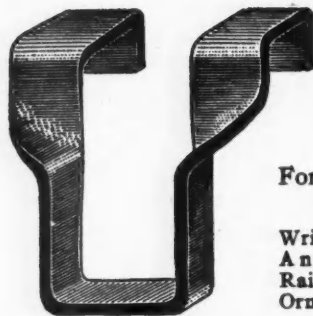
Write us for full information regarding this eminently successful system that is revolutionizing hot water heating.

HONEYWELL HEATING SPECIALTY COMPANY

Plant and General Offices
WABASH, INDIANA



THE HONEYWELL VALVE
HOT WATER RADIATOR VALVE



The Perfect Joist Hanger

For Concrete Blocks, Wood
and Iron Beams.

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

THE BERGEN IRON WORKS, Inc.
 135-159 51st St., Brooklyn, N. Y.

JOIST HANGERS

For Wood Timbers,
Concrete Blocks,
or Iron Beams,

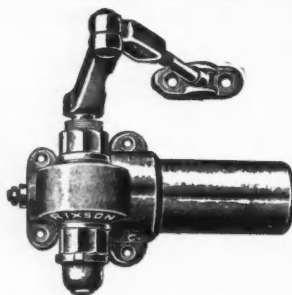
Many Sizes in Stock
 Special Shapes to Order

Steel Post Caps Wire Floor Clips
STRAPS, BOLTS, PIN ANCHORS

**BLACKSMITH WORK AND
 IRON FOR CARPENTERS'
 REQUIREMENTS**

Telephone Yards 403

Chas. Mulvey Mfg. Co.
 35th and Ashland Ave.
CHICAGO, ILL.



DO YOU WANT That Door Closed?

Then use a Rixson Check
and Spring. They are easy
to put on and are guaranteed
for two years.

For full particulars send for our
Illustrated Catalogue and Net
Price List.

Rehm Hardware Company
 354 Blue Island Avenue Chicago

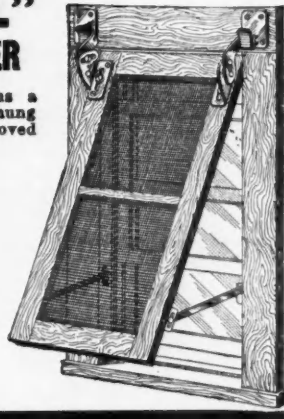
Smooth, tough "leads" are the
result of skilful and careful
grinding, working and firing.
It is this care and skill that
make Dixon's Carpenter Pencils
standard. Send 16c for gen-
erous sample lot 183 J.

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

The "UNIVERSAL" ADJUSTABLE HANGER

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

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

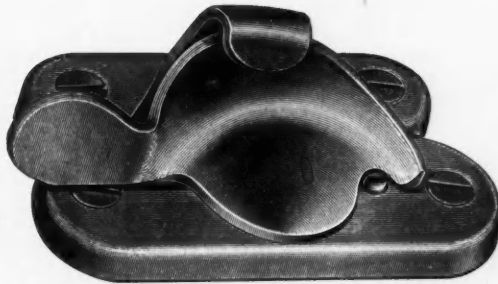


Don't Ask the Dealer for Sash Cord. Ask for **"SILVER LAKE"** and see that he gives it to you. It is impossible to



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

The Champion Safety Lock Co.
Geneva, Ohio

GRAND RAPIDS

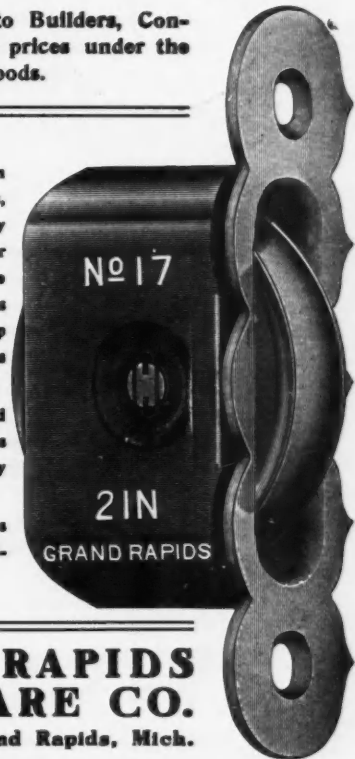
All-Steel Sash Pulleys

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

If you make ten or ten thousand window frames, we can save you money and give you a superior sash pulley. We are the largest sash pulley makers in the world. We ship direct, or through dealers and jobbers everywhere.

Write for catalogue and free samples and prices on gross, barrel, or any quantity.

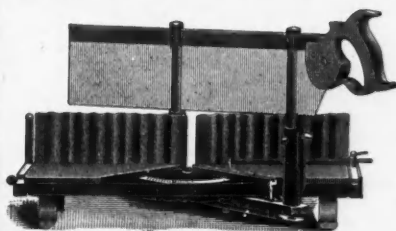
Direct from the makers to you. Inquiries welcome.



GRAND RAPIDS HARDWARE CO.
34 Pearl St., Grand Rapids, Mich.

GOODELL MITRE BOX

Made of STEEL - Cannot Break



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

GOODELL MFG. CO., Greenfield, Mass.

Chicago's Oldest, Largest and Most Reliable Hardware House

STEBBINS HARDWARE CO.

74 Van Buren Street
CHICAGO

Dependable Merchandise at Lowest Prices



"BIG 4" HANGERS



More of these Hangers Sold than of any other make



Front View "Big 4" Hanger

WHY?

Simplest in construction.
 Most convenient to attach to door.
 A flexible and rigid hanger in one.
 Great strength and durability.
 Cannot jump the track. (See illustration.)



View of "Big 4" Hanger showing Flexible Feature

Construction

Made entirely of steel.
 Anti-friction steel roller bearings.
 Axles and rivets galvanized to prevent rust.
 Shoulder on axle prevents wheel-housing from binding.

Send for "BIG 4" Booklet

It tells all about these hangers and gives some detailed drawings of barn construction you should have. Send dealer's name.



NATIONAL MANUFACTURING CO., Sterling, Illinois





Only the very best tools have this brand



We will send a sample Nail Set either 1-32, 2-32, 3-32 or 4-32 and our booklet, "Tools that Last," for 8c.

Manufactured by

BRAUNSDORF-MUELLER CO.

201-211 Madison Ave. ELIZABETH, N. J.

STANLEY Adjustable

Beading, Rabbet and Matching Plane



This Plane embraces (1) Beading and Center Beading Plane; (2) Rabbet and Filletster; (3) Dado; (4) Plow; (5) Matching Plane; (6) Sash Plane; and (7) a Superior Slitting Plane

No. 45 Nickel-plated, with Twenty Tools, Bits, etc., each..... **\$9.00**


For full description, write for Catalogue No. 34

SOLD BY ALL HARDWARE DEALERS

Stanley Rule & Level Co.
New Britain, Conn., U. S. A.



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



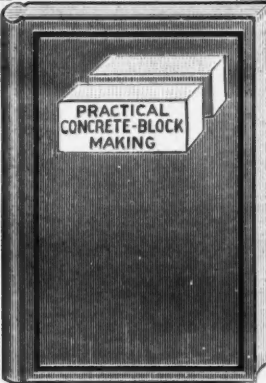
"OHIO" TOOLS are the product of nearly a century of active experience and progress in the edge tool business. Carefully made from the best materials, treated by the most improved methods, they are **Economical Tools for the User**.

Every tool covered by a broad guarantee.
Write for Catalogue No. A.

Ohio Tool Company, Columbus, Ohio



PRACTICAL Concrete Block Making



A Simple Instruction Book for the Use of the Practical Workman

By **CHARLES PALLISER**

75 Pages, (5x7 inches)

Elaborately Illustrated and Handsomely Bound in Cloth

Only 50 Cents Postpaid

Money Refunded If Not Satisfied

THIS new, practical book, written by a well known expert, gives reliable directions in simple language about every step necessary to make good, substantial concrete blocks. The book will be especially valuable to the beginner in this line of work, as the hints about how to avoid faulty work will save him the loss of many dollars.

The book tells about cement, concrete, blocks, molds and machines. How to select sand, gravel, crushed stone, how to find the right quantity of cement and sand to use, how to mix the aggregates, how to make the blocks and bricks, curing and seasoning, placing in wall, coloring, how to make wood molds for special ornamental work, rock facing, together with many practical hints and suggestions on how to obtain the best architectural effects, the standard specifications, and directions for testing the strength and durability of blocks.

Industrial Publication Co.
16 Thomas Street, . . . NEW YORK

222 Self-Setting Planes

Used for years by the **KANSAS STATE AGRICULTURAL COLLEGE**

Prof. Hood, Supt. of the mechanical department of above college, wrote 'in relation to the Self-Setting Planes * * * My belief that the best of tools should be and are safely given to students is confirmed. I find the adjustment of your plane irons positive, delicate and practical, and the material in the cutting iron superior to anything I have found elsewhere. The whole plane is an example of good construction and workmanship, and I believe it to be the best made.' Later, Prof. W. R. House,

THE BEST ALWAYS 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.

foreman of the carpenter shop, wrote—"In a place of this kind we need good wearing tools, as nearly half of the students have hardly used any tools at all. Their first experience in the use of any kind of tools is in the carpenter shop.

"Their first work is in truing up a board, and as the plane comes first, it is put to the most severe test possible. They have given entire satisfaction, and I can fully recommend the Gage Plane, for I believe that eleven years of hard usage is a good test for any tool."

The late Prof. Morris, of Cornell University, Ithaca, N. Y., wrote—"The planes purchased of you last year are pronounced by both foremen in our wood-working shops as the best they have ever used. We are working one hundred students in our wood shops at present, all beginners, not used to tools; they are hard on tools, but yours stand the test. We think the planes purchased of you this year are better than those of last year."

Mortimer Whitehead, lecturer of the National Grange, wrote—"I have your new Self-Setting Plane. It is all you claim for it. The bit will plane the end of a hard hemlock knot, and then without sharpening. * * * I never saw such a cutting edge, the cutter can be removed, replaced, and set to the 1,000th part of an inch in five seconds as timed by me. Although higher in price than others, I consider it very cheap for the same reason that we consider a mowing machine cheaper than a scythe. I heartily recommend it to all who wish to save time and do superior work."

After having used the Self-Setting Planes for 15 years, the G. Woolford Wood Tank Mfg. Co., office cor. Broad and Chestnut Sts., Philadelphia, with works at Darby, Pa., write—"We are better satisfied now with the planes than when we first commenced to use them.

"When we take on additional men, we absolutely require them to use the Gage Tool Co. Plane, as it is the only plane with which we can make a smooth cut over knots and cross grain pieces.

"Your Self-Setting principle, which is found in no other plane, enables it to be accurately set in one-tenth of the time it takes to set any other plane, and the cutting quality of your plane irons excels anything we find elsewhere. Our men all say there is no plane so satisfactory as yours."


The Brown & Sharp Mfg. Co., of Providence, R. I., per R. Viall, among other things wrote in relation to our Self-Setting Planes—"So far as we have tried them they are very satisfactory. The best planes we have ever had for smoothing across the grain of work."

Oberlin Smith, Pres. of the Ferracute Machine Co., Bridgeton, N. J., Manufacturers of presses, dies, etc., wrote—"We have had your Self-Setting Planes in use in our pattern shops for the last two years, and take pleasure in recommending them as the best tools of the kind we have ever used. The adjustment is convenient and accurate, and the quality of the blade superior to anything we know of in the way of a plane bit—especially in cross grained, knotty work."

We authorize any dealer, where our planes are not introduced, to sell one on 30 days' trial, and refund the price if unsatisfactory, the same as stated in our circular, or in our ad. in previous numbers of this paper. If dealers seem unwilling, send us their names and reasons, and we will make you an introductory offer that will be interesting.

GAGE TOOL CO.,

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

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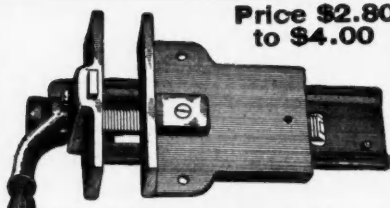


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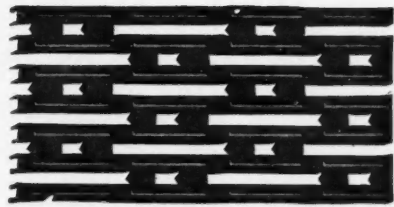
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Can be put on by any Carpenter.
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Manufactured all 4 ft. wide, 8, 9, 10,
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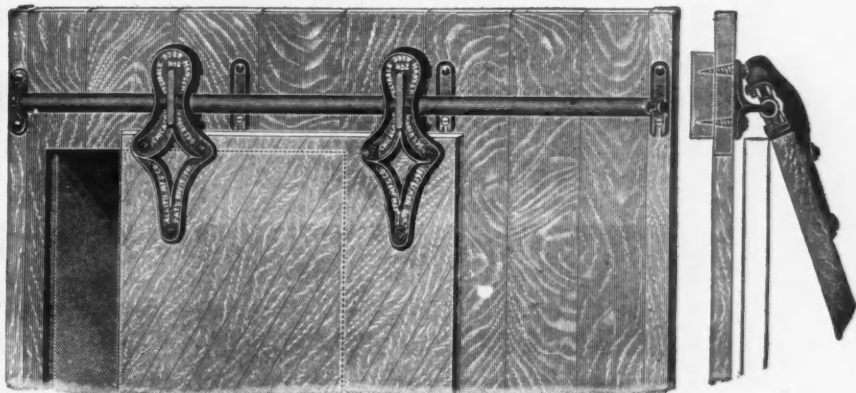
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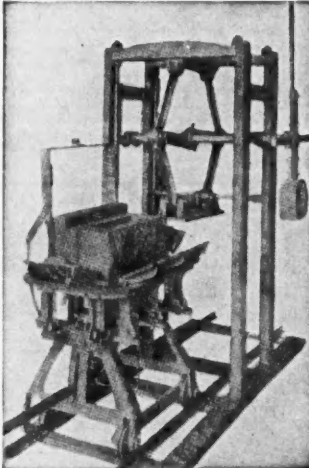
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"SOMERS" PRESSURE Block Machines



Chief Features are
The enormous pressure of 30 tons which creates a Dense, Compact Block and

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That 3 men can make two perfect blocks per minute on this machine, and by adding two molds its capacity can be doubled.

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

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

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

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For PASSENGER or FREIGHT SERVICE in Factories, Stores and Dwelling Houses.

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108

Automatic Drill



This tool is the finest of its kind ever offered to the carpenters of this country.

Materials are carefully selected and the workmanship and finish are of the usual high GOODELL-PRATT quality.

Every carpenter should have one of these tools in his kit, and every day he will find new uses for it.

Any wood can be drilled without danger of splitting and small holes can be made in plastering without damaging the appearance of the whole wall.

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Carry
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A LIFETIME—

A pair of our smallest size
Wall Brackets.

There isn't room here to tell you how cheap or how convenient they are.

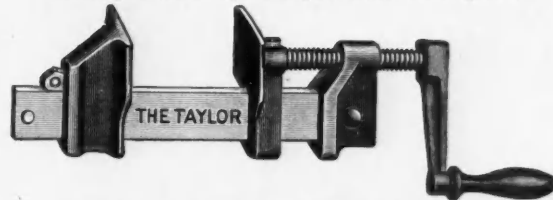
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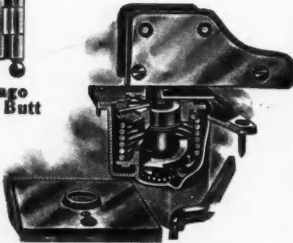
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This is one of the best saw sets that we make for the use of the carpenter who thoroughly knows his business.

Will set hand, band and jig saws, any width and not over 16 gauge.

If your dealer don't carry it we will send you one upon receipt of \$1.00.

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Have You Seen the New Nickel Plated Miter Box?

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Handy, Absolutely Accurate, and Finished in Dull Nickel.

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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

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185 JACKSON BOULEVARD, CHICAGO.

VOL. VI DECEMBER, 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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DO IT now, if you can; but do it right if it takes twice as long.

ATOAD will not move till you prod him. Don't be a toad.

THE man who thinks twice before speaking once may not say much, but he won't have to take any of it back.

TWO persons in the family think the boy is overworked; the mother is the other one.

Are We Downhearted? No!

DOES the outlook brighten? Well, rather! Reports from all parts of the country show that business is on the increase. Every line of industry and every kind of work is represented in this upward quickening. From all sides we hear of mills starting up, large orders being placed and contracts let.

During the second week in November more than fifty big steel steamers passed Detroit on their way north for cargoes of ore, which indicates that the big steel corporation is making a special effort to bring down enough raw material from the upper lakes to manufacture a large tonnage of steel products. Officers of this company state that 1909 will be the banner year, so far, in the steel industry.

The motor works at Flint, Mich., have engaged one thousand additional men which brings the force up to about two thousand.

The Indiana Bridge Company, at Muncie, Ind., has commenced work on a contract for the manufacture of 1100 tons of structural steel. Another order for 600 tons must wait a few weeks because the company have more work than they can attend to at the present time.

At Peoria, Ill., the National Copperage Company, employing 600 men, which had been closed down since last April, has reopened with its full force.

The piano makers in Chicago are hiring all the expert piano makers they can secure, as orders are coming so fast that they are unable to fill them promptly.

The Chicago, Milwaukee & St. Paul Railway is enlarging its shop force by about 1,000 men to handle its car building work. Steel under frames have been ordered for 7,500 cars. The company has placed an order for fifty locomotives, thirty to be built by the American Locomotive Company and twelve by the Baldwin Locomotive Company.

The New York, New Haven & Hartford Railway

reports that their freight business has increased this fall until it is nearly equal to that of last year, while the passenger business is steadily improving.

The Missouri Pacific shops are reopening all along the line. The master mechanic says he can give employment to all the machinists, boilermakers and blacksmiths who apply.

Such reports could be extended almost indefinitely. A general revival of trade is apparent in all parts of the country.



Now Get Busy

THIS grand old land of ours has had its fling, and is now squared around again to business, headed straight up the broad, open road toward Prosperity.

Confidence was the only real issue of the recent campaign. Lack of confidence was the exciting cause of the recent panic.

Confidence has been restored. Reports from every quarter show that the great black cloud of uncertainty has been dispelled.

Now get busy! Jump into the game and take your share of the winnings. Carve out a good large chunk of this prosperity for yourself.

It makes no difference which side of the political fence you were on during the Late Unpleasantness; you are *now* a workman and a business man; and you owe it to yourself to hustle.

It has been said that there are three ways of getting business, waiting for it to come to you, meeting it half way, and going out after it.

The man who waits for business to come to him has his first busy day when the sheriff sells him out.

The man who meets business half way won't meet more than he can handle with one cheap man to help.

The man who goes after business is the fellow who keeps it away from the other two.

We are just now at the opening of an industrial period that will furnish work and nice contracts enough for all. The men who start early and hustle will land the plums. Don't let some other fellow get your share.

Now is the time to go after the man who has been telling you all summer, "Yes, I would build this year, but I want to see how the election turns out." Go to him, and make him see that NOW is the time to build.

Fifty million farmers have just harvested and safely housed America's third successive record-breaking yield. Other fifty millions—workmen and business men—hear a noise closely resembling a steady job at good pay.

Now is the time to launch your business campaigns; to plan for bigger and better work.

The AMERICAN CARPENTER AND BUILDER wishes you all, the compliments of the Season. May it bring you many big contracts and much happiness; may the coming year see your name writ large and enduring in wood and steel and concrete.

Season for Study

THERE is no longer any question as to the value of reading and study for the workman who wants to better his condition; we have too much direct testimony to that effect from the men who are succeeding. Every day we hear of some workman advanced over the heads of his fellows—and usually much to their surprise!

The secret is, he had been quietly studying and reading. He was not satisfied with the small amount of knowledge he had been able to pick up by experience. He wanted to know the "why," the theory; he wanted to know what others besides himself had found out.

And, more than that, he was willing to *do* something about it!

Many of us have the proper discontent over our lack of training; we are disgusted enough with ourselves that ignorance keeps us down in the rut; but somehow we let ourselves stop right there; we never get around to *do* anything to improve the property.

The workman who has the right sort of stuff in him feels this discontent, and sets about to mend the trouble. He observes that the "best man on the job" is the one who knows most about it, who knows the practical ins and outs of his trade, and also something of the theory—how to read the plans, estimate the costs, figure the stresses; who keeps up-to-date on modern methods and construction. He figures it out that just a little reading and study, added to his own already practical knowledge, would brighten up *his* prospects—just as with so many others.

So he plans a self-improvement course, and then *sticks to it*.

This is the season of the year when work of this kind should be taken up. The long winter evenings are upon us, offering the best possible opportunity for quiet study; with a good many, during cold weather, only part-time of the working day can be put in "on the job." All of this leisure time, unless put to good use, is worse than wasted. During it the workman may gain either valuable knowledge and training, or else the loafing habit.

The young workmen, especially, should be careful of wasting any such opportunities. Modern building construction has become so diverse and intricate, so interwoven one branch with another, that it is no longer possible to work satisfactorily by the old cut and try methods. The younger workmen must get posted, and the older ones should keep posted.

There are text books and hand books, manuals of practice and cyclopedias of construction, which can now be easily secured, and which treat all these subjects in a clear, logical, understandable way. You know the special lines you need training in. Lay out a good course of reading and study, along that line; and *follow it up*. It will make you worth more during the coming season.



"Under the Mistletoe"

A Model Village of Homes

By Herbert Shearer

ABOUT sixteen miles north of the business center of Chicago is the village of Wilmette. It is strictly a residence suburb, without a manufacturing establishment, and without a business house of any kind except a few grocery stores near the sta-



A Typical Suburban Home

tion. The streets are nicely laid out, well kept, most of them paved, and liberally supplied with shade trees. In fact, the village is built in the woods. The trees are so thick that they obscure the view in summer.

A splendid feature of the village is the width of the lots, very few lots measure less than fifty feet in width, while sixty and seventy-five are common meas-

urements, and the lots vary in depth from 175 to 200 feet. In regard to houses, we are showing illustrations of several which may be taken as an average. The first one is a square built frame house, set well up on a brick wall. The first story is finished outside with metal lath and cement rough cast plastering, and the upper story is finished with clap-boards. It is 24 by 34 feet in size and contains three rooms and a hall down stairs and four bed rooms upstairs, with a good attic above. The floors are oak, varnished, and the interior woodwork finish is oak, filled and rubbed to a dull luster. At the right hand side of the veranda is the front entrance, which opens into a hallway. In this hallway is a solid oak stair, a flat archway opening into the living room and a doorway at the back which enters the kitchen. The way to the cellar is through a door opening from the hall, going down under the front stair.

The floor plan details, size of the rooms, etc., are shown in the figures. It will be noticed that every foot of space is utilized to advantage.

The price of such a house and lot is not far from \$6,000, as the cost of labor, wages of skilled mechanics and prices of building materials are just about the average in Wilmette.

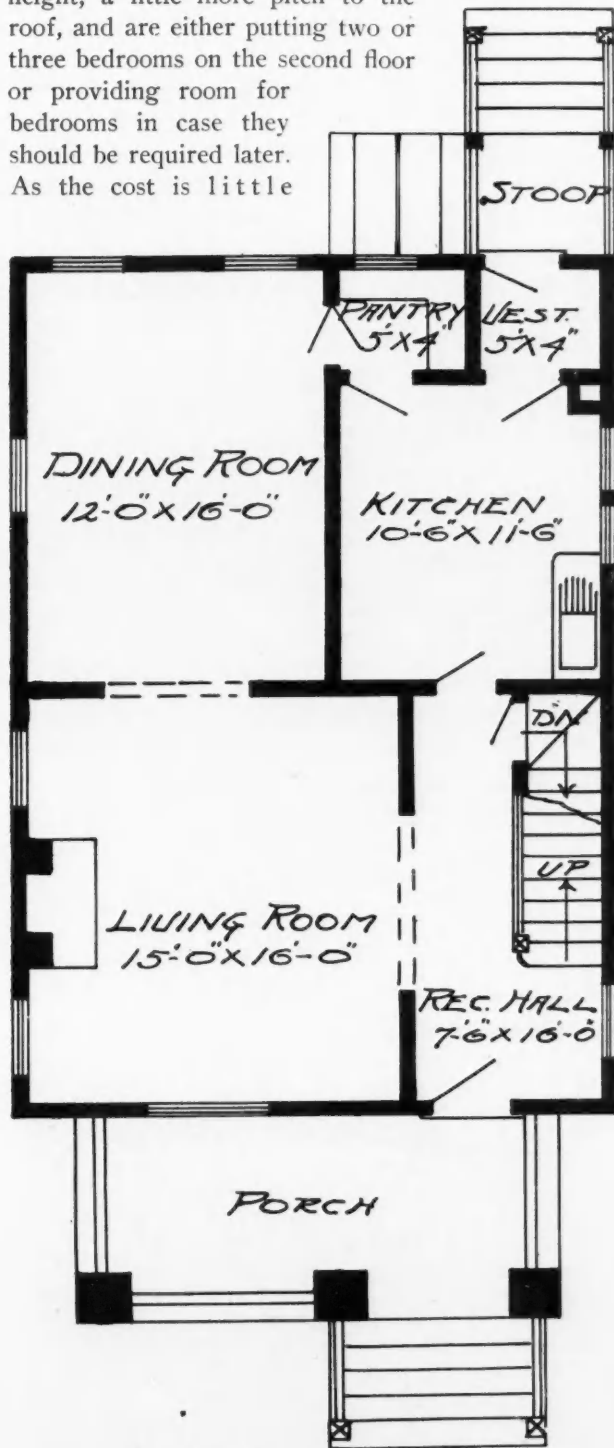
Three bungalows are shown in the other illustrations, the cost of which vary but little from the cost of the two-story houses, because a bungalow must be larger on the ground.

It is a question whether this style of building is becoming more popular or not. It is said that one hundred houses are in course of erection in Wilmette



The Back Yards Are Well Kept—The House to the Left Is the one Shown Above

at the present time, and that probably ten per cent of them are bungalows. A bungalow, properly speaking, is a one-story house with a low roof, but some of the Wilmette builders are adding two or three feet in height, a little more pitch to the roof, and are either putting two or three bedrooms on the second floor or providing room for bedrooms in case they should be required later. As the cost is little



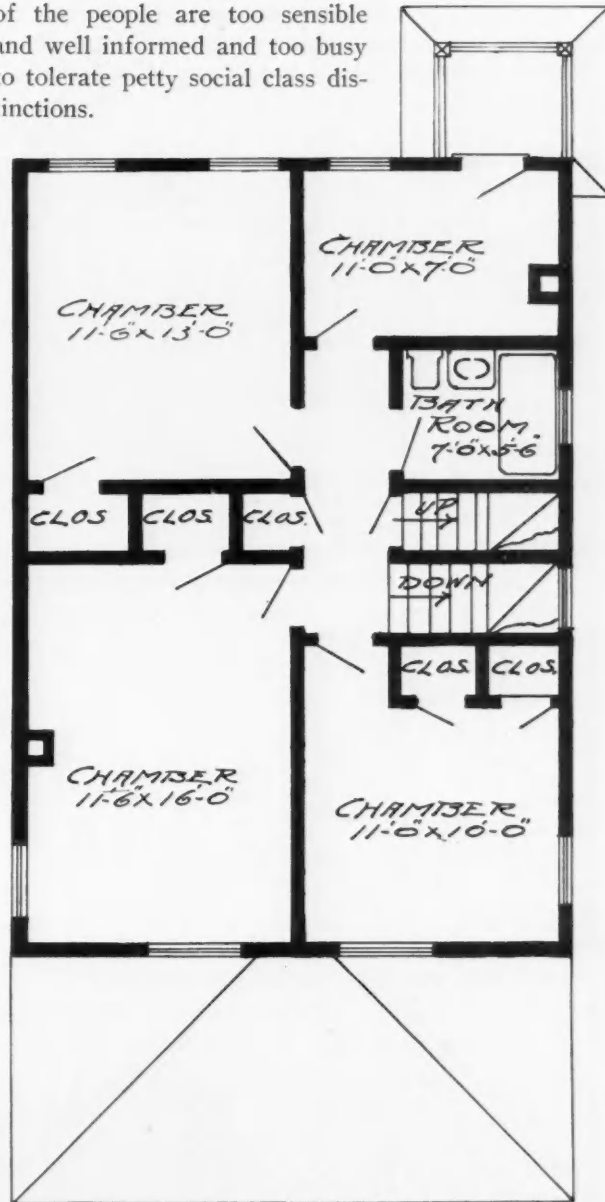
First Floor Plan—Typical Suburban Home

more when building, it seems a wise provision, because changes are necessary in families at times; and when you want to sell, a little extra room helps the real estate man with his arguments.

The last illustration shows the intersection of two streets, I was about to say principal streets, but the streets in Wilmette are all principal ones. There are no undesirable spots to be found. You could hunt the

place over with a fine-toothed rake without finding anything objectionable, in fact, the class of people living there won't have a nuisance of any kind.

Land is a little lower in price near the railroad, because people object to the noise of the trains. There is also a slight difference in values between the east side and the west side, because—as in many another town—of an imaginary social distinction; but this is not so pronounced as some social leaders would like to have it. The great majority of the people are too sensible and well informed and too busy to tolerate petty social class distinctions.



Second Floor Plan—Typical Suburban Home

There are interesting possibilities in connection with almost every town and village in the country in the way of civic improvement. Most of our small towns are somewhat raw. They have been built in a hurry without consideration for the proper placing of different kinds of business.

Factories, warehouses and mercantile establishments are desirable because of the business they create, but there is a right place for each one. Every town has a residence section; and in every case this residence

A Model Village of Homes

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The price of such a house and lot is not far from \$6,000, as the cost of labor, wages of skilled mechanics and prices of building materials are just about the average in Wilmette.

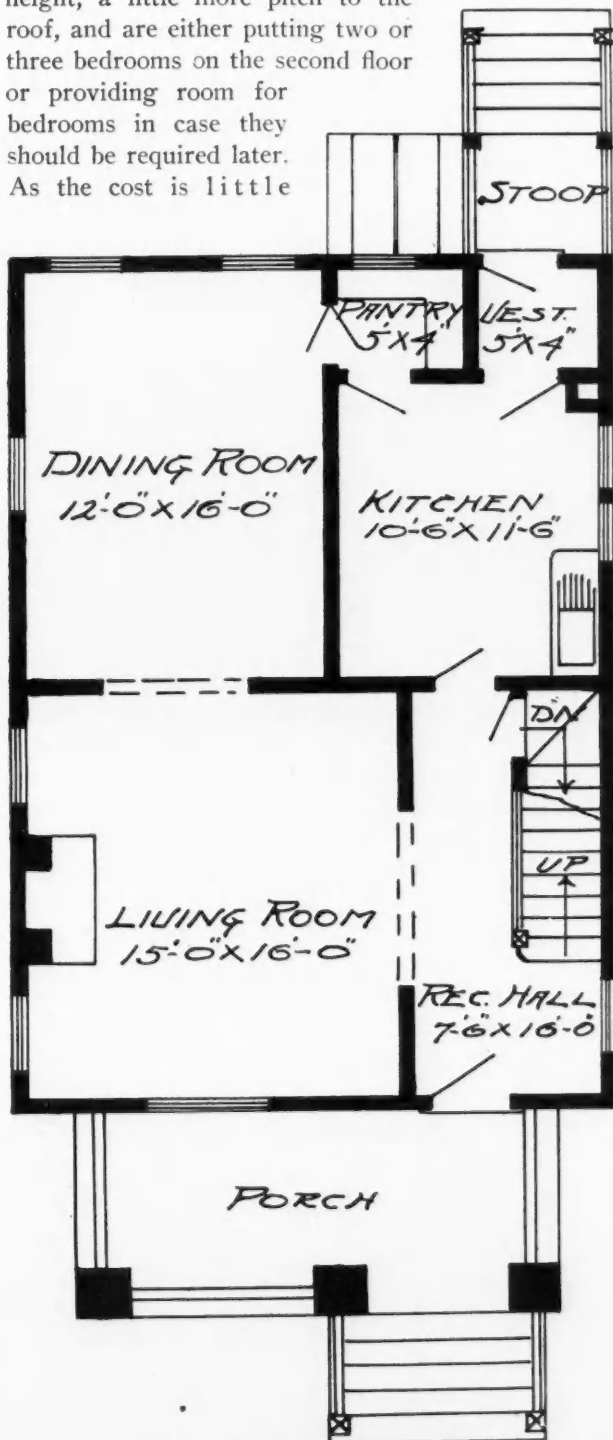
Three bungalows are shown in the other illustrations, the cost of which vary but little from the cost of the two-story houses, because a bungalow must be larger on the ground.

It is a question whether this style of building is becoming more popular or not. It is said that one hundred houses are in course of erection in Wilmette



The Back Yards Are Well Kept—The House to the Left Is the one Shown Above

at the present time, and that probably ten per cent of them are bungalows. A bungalow, properly speaking, is a one-story house with a low roof, but some of the Wilmette builders are adding two or three feet in height, a little more pitch to the roof, and are either putting two or three bedrooms on the second floor or providing room for bedrooms in case they should be required later. As the cost is little



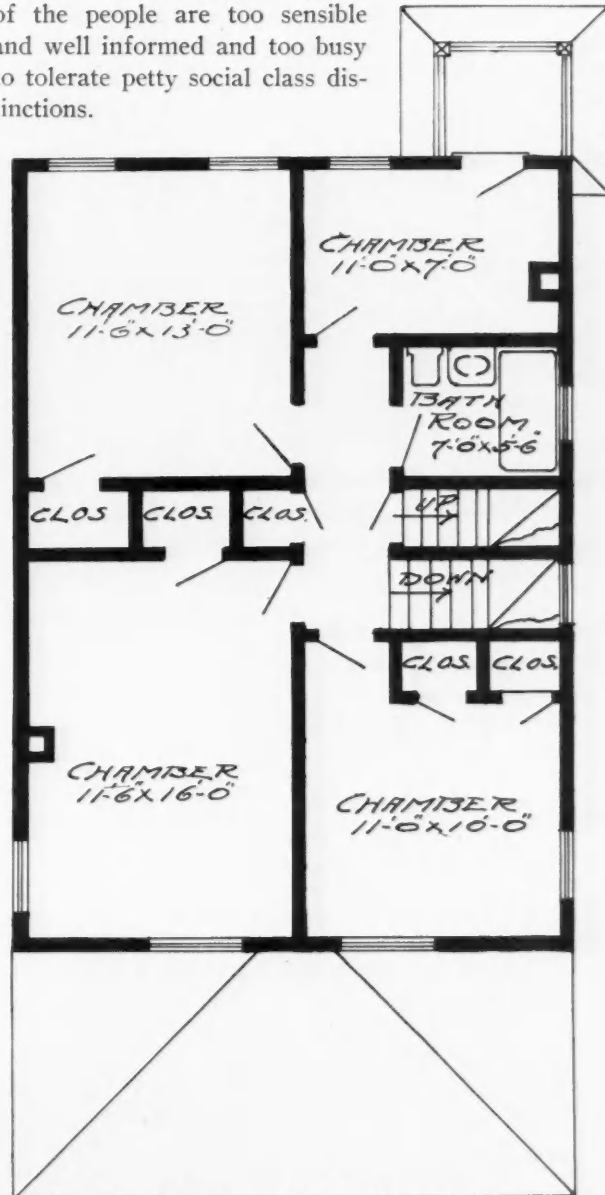
First Floor Plan—Typical Suburban Home

more when building, it seems a wise provision, because changes are necessary in families at times; and when you want to sell, a little extra room helps the real estate man with his arguments.

The last illustration shows the intersection of two streets, I was about to say principal streets, but the streets in Wilmette are all principal ones. There are no undesirable spots to be found. You could hunt the

place over with a fine-toothed rake without finding anything objectionable, in fact, the class of people living there won't have a nuisance of any kind.

Land is a little lower in price near the railroad, because people object to the noise of the trains. There is also a slight difference in values between the east side and the west side, because—as in many another town—of an imaginary social distinction; but this is not so pronounced as some social leaders would like to have it. The great majority of the people are too sensible and well informed and too busy to tolerate petty social class distinctions.



Second Floor Plan—Typical Suburban Home

There are interesting possibilities in connection with almost every town and village in the country in the way of civic improvement. Most of our small towns are somewhat raw. They have been built in a hurry without consideration for the proper placing of different kinds of business.

Factories, warehouses and mercantile establishments are desirable because of the business they create, but there is a right place for each one. Every town has a residence section; and in every case this residence

section may be improved very much to the advantage of everybody living in the place.

Concerted action is necessary to bring about improvement in this direction. Hundreds of small places



A Pleasant Five-Room Bungalow

are accomplishing results through commercial clubs or boards of trade. Such clubs are composed of business men who want to see the town go ahead and who are willing to do a little work and to spend a little money to bring it about. Carpenters and builders are financially interested in improvements of this kind to a greater extent than most business men, because they reap the first benefits of rehabilitation.

It is noticeable that when one house on a street is newly painted, other houses nearby begin to spruce up. New houses are painted and old houses are repaired. Such general improvement leads to more building and to better building.

When a commercial club is started committees are appointed to look after certain features of the work. One of the first improvements usually is a cleaning up process. Prizes are often given for the neatest houses

and the best kept grounds. Those having horses or automobiles, take pleasure in driving about the streets showing strangers the improvements that are taking place. Strangers talk to others about what they have seen, and this is the best advertisement a town can have. The commercial club also has an advertising promoter who makes it his business to advertise the town in the most effectual manner according to the means he has at his disposal.

One of the hardest problems is what to do with old dilapidated buildings that are too good to pull down and too poor to leave. In this same list comes the



A Neat Story-and-a-Half Bungalow

misfits; kinds of business structures on streets that should be reserved for residences; factories where stores should be and saloons on valuable corners where commercial activity should be at its height. Often a prominent corner is littered with parts of old wagons, worn out machinery and other such dilapidated trash that has accumulated around the village blacksmith shop. There are a great many such eyesores waiting for a commercial club to clean up. No one man has the necessary time, energy or authority to do it, but



Large Well-Shaded Lots Make the Bungalow Type of House Especially Attractive

when such civic improvements are backed by the prestige of a commercial club composed of the best citizens every one takes notice, and it becomes fashionable to fall in line and help.

Some comparatively small towns are spending a

A flat is a substitute for home, at one time a popular winter and summer resort, where traditions were allowed to grow up carelessly. Now in every well-conducted flat the traditions are drawn out every morning through a tube by the pneumatic-cleaning process.



The Village Beautiful—A Street Intersection

great deal of money to reorganize the place and to build it up. Surrounding towns feel that they are obliged to do something to hold their own, and the movement is spreading. One important thing carpenters can do is to continually, everlastingly talk better dwelling houses. Because a man lives in a small place is no argument in favor of his doing without a bath room. Carpenters and builders have a great deal more influence in this respect than they realize. When a man gets a few hundred dollars ahead and starts to build a house he doesn't know what he wants. His mind and energies have all been exerted in the process of getting his nest egg together, and he knows very little about building. It is natural for him to lean on the men who are well up in the building trade. This makes the builder's responsibility greater.



Flat Life as Seen by a Humorist

Flats are now cultivated extensively throughout the country, says T. L. Masson, in *Success*. Some varieties are short and scrubby; others grow to an immense height. Almost every flat has a spinal column running up and down its center. This is the elevator shaft, and consists of hot air.

When a flat is more costly than people can afford to live in, it is called an apartment. A flat in its primitive state consists of a small bathroom, almost completely surrounded by total darkness.

Babies happen occasionally, even in the best regulated flats. Thus we see that Nature, even under modern surveillance, sometimes nods.

Flats are constantly growing in size and importance. It is estimated that very soon they will hold all the people in the world, who will then come to depend entirely upon our fertile roof gardens for their means of sustenance.

Flats have an awful mean temperature of two degrees below zero in winter and ninety-two degrees above zero in summer.

When all the trees have been made into flats it is thought the millenium will have arrived. Every flat has the word "Welcome" over the kitchen door. Also many of them this motto:

"All ye who enter here leave soap behind."



How He Advertised

Wife—Be sure to advertise for Fido in the morning newspapers.

Next day the wife read as follows in the newspaper:

"Lost—A mangy lap dog, with one eye and no tail. Too fat to walk. Answers to the name of Fido. If returned stuffed, large reward."



Clean up the little tasks of today and you will be ready for the big tasks of tomorrow.



How an Old Stone Barn Was Remodeled

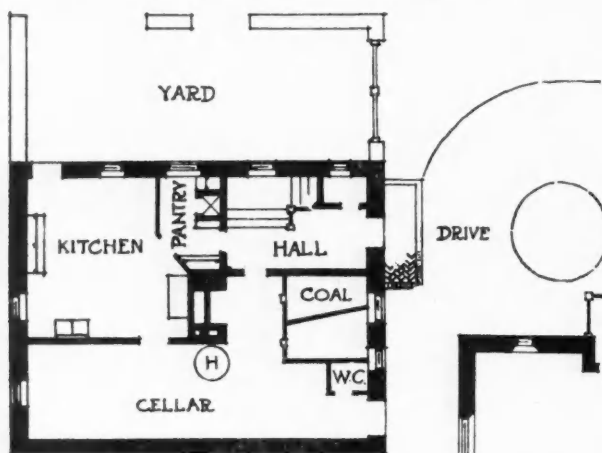
By M. H. Northend

A FEATURE of present day architecture, is the remodeling of houses or stables, turning what seems at first sight to be most unpromising material into attractive and artistic dwellings. An ex-

ample of this is the studio of Mr. Henry McCarter, at Bethayres, Pennsylvania, which has been developed from an old stone barn. Mr. Wilson Eyre was the architect, preparing the plans and super-

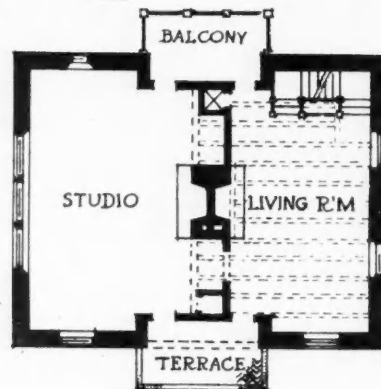
vising the construction of this charming home and studio. The total expense was \$3,500. The old floor of this stone barn has become the first floor of the studio, the stable below being the entrance, kitchen and basement floor of the reconstructed building. The old roof truss work was removed and the roof was carried on new partitions. The windows in the basement are the old openings, but it was found necessary to cut the walls in the upper floors and insert window frames. A large triple window with a southern exposure lights the studio, which has a clear story up to the attic floor.

The old barn door opening is filled in with frame

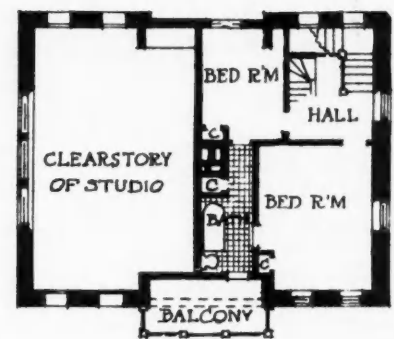


GROUND FLOOR PLAN

ample of this is the studio of Mr. Henry McCarter, at Bethayres, Pennsylvania, which has been developed from an old stone barn. Mr. Wilson Eyre was the architect, preparing the plans and super-



FIRST FLOOR PLAN



SECOND FLOOR PLAN

on each side of the building, forming a partly recessed porch where was formerly the old barn bridge entrance. A second floor balcony covers one of these. The opening on the east on the first floor forms a balcony overlooking the service yard, which was formerly the barnyard. In constructing these balconies, and trellis posts, the old original hewn oak barn timbers were used and stained a soft brown.

The entire outside of the barn is dragdashed, using natural yellow sand, giving it a soft creamy gray color. The old shingle roof was left as it was originally; the outside woodwork is an ivory tint with dark slat blinds, giving a quiet and satisfactory color scheme.

One of the illustrations shows a view of the outside, and gives one an idea of the unique appearance. The entrance on the lower floor has a comfortable settle at either side. The door is provided with an old-fashioned knocker. The second story windows

and two more bedrooms and tank room on the third.

In the living room we see the great rafters, and the stairs going up from it. Here is a fireplace with delicate carvings, and a fire screen in front. The furnishings give one an idea of comfort, and make us want to draw up one of the large restful chairs in front of the fire, and leaning back watch the glowing blaze and forget that cold and darkness reign without.



A Barn That Grows

A farmer down near Galiad, Texas, is having a novel experience. A year or two ago he built a small barn and in its construction used green willow posts at the corners and along the sides. For some time nothing unusual was noticed, but after a year he saw that where he had laid the floor near the ground it was three feet above the soil. He discovered that the



Cozy and Comfortable Living Room in the Remodeled Studio-Barn

with their arched tops give a quaint appearance to the front. The lattice work on the side of the entrance has vines trained over it and along the foot of the stone wall are low flowering plants.

In the interior on the ground floor are the entrance hall, pantry, kitchen and heater cellar; on the first floor are the studio and living room, each of them having a large open fireplace and fine old mantel. Two bedrooms and the bath room are on the second floor,

willow posts, instead of being dead, were alive, had taken root, and were growing. In their upward movement they had carried the barn along.

Last spring the barn was on stilts nine feet high, and he put in a new floor and surrounded the posts with siding, thereby making a two-story affair. We are told that there is now a space of nine inches between the floor and the ground, and that the owner expects before long to have a three-story barn.



STEEL SQUARE

ALFRED W. WOODS

How to Use the Steel Square

SHOWING WHAT PROPORTIONS TO TAKE ON THE STEEL SQUARE TO OBTAIN MITERS FOR POLYGONAL SHAPED HOPPERS—ALSO HOW THE SAME RESULTS MAY BE OBTAINED BY DIAGRAM

IN FORMER articles on hopper miters, we dwelt more with those having square corners, but with this, our concluding article for the time being, we will show how the same principles may be applied to hoppers of any regular polygonal shape.

For example we will take the pentagon, or five sided hopper for illustration purposes, and will illustrate two methods, as shown in Figs. 227 and 228. Suppose the desired pitch of the hopper to be 16 inches rise to the foot. Then the length of the line from 12 to 16 (20 inches) taken on the blade, will be the figures to use on that member for obtaining the angle across the face of the board. The figure to use on the tongue is not 12, as in the case of the square hopper, but is indirectly so when that number is used for the polygonal miters which we have many times explained in connection with the degrees on the square, and trust is not necessary to repeat here.

Referring to Fig. 227, is shown the angle for the pentagon miter, which rests at 36 degrees from the tongue and intersects the blade at 8 17/24. These figures (12 and 8 17/24) will give the miter when there is no pitch, or in other words, the regular pentagon miter, and by taking 8 17/24 on the tongue and 20 on the blade will give the angle across the face of the board; the tongue giving the angle. Thus it will be seen that 20 is a fixed point on the blade for any regular polygonal shaped hopper, so long as the rise of the pitch is 16 inches to the foot and the figures to use on the tongue are the same as that on the blade that give the common miter when 12 is used on the tongue.

Therefore, for a hexagon hopper, the figure to use on the tongue for the face angle is 6 11/12; for a heptagon 5 3/4; for an octagon 5, and so on to the end for any polygonal shaped hopper.

So far, the above only refers to the angle for the cut across the face of the board, and as it requires two angles to form the hopper miter another angle across the edge of the board is necessary to make it complete. This angle may be found as shown in Fig. 227, as follows:

The pentagon miter being at 36 degrees, gives the angle when the sides of the hopper are vertical, but since there is a pitch of 16 inches to one foot, it re-

quires a different angle across the edge of the board to obtain it, because the edge is thrown out of level. This may be found by drawing a line from 8 17/24 on the blade and parallel with the tongue to the perpendicular line from 12, as at A. Now with one point of a compass set at 12, and the other at A, swing to the pitch line, as at B; and from this point draw a parallel line to the one above and it will be found to intersect 7 on the blade. The line from 12 to 7 represents the required miter, and these figures taken on the square will give the angle; the blade giving the cut. If the hexagon miter is desired, the parallel line should start out from the blade at 6 11/12; for the heptagon at 5 3/4; for an octagon at 5, etc.

In Fig. 228 is shown another method for finding the miter and is as follows:

Note the proportions taken on the upper square are the same as shown in the preceding illustration.

The reader of course will understand that two squares are shown in this figure for illustration purposes only, as one is all that is necessary to lay off a diagram to obtain the working proportions. Note that the line from 12 to 9 on the lower square is at right angles to the pitch line (12 and 16) shown on the upper square. The reason of this is that the angle formed by these two lines represents the square edged board and the figures to use on the square are 8 17/24 on the tongue and the length of the line from 12 to 9 (15) taken on the blade; these give the angle, as shown in the proof illustration of the two methods in Fig. 229.

The latter method furnishes a splendid rule because it applies to any angle the edge of the board may have to its face. Eight and seventeen-twentyfourths is a fixed number on the tongue, while the point to use on the blade is governed by the length of a continued line in the plane with the edge of the board to the intersection at the blade. In the above example, the edge being square, it intersects 9 and forms an angle of 90 degrees with the pitch and the point to use on the blade is at 15.

If the edges are first beveled so that they will be level when set in place, then the length of the above mentioned line would simply be 12 inches. Twelve

and $8 \frac{17}{24}$ will give the pentagon miter because the square is applied to a level plane and is therefore just the same as the miter for a pentagon frame.

The reader will notice that in all our work we use the full scale for a one foot run. The reason we do this is because it answers for any run, or pitch, and the 12 is but the one point on the tongue, which is 12, represents unity, from which the measurements

hip and valley roofs for square cornered buildings, but when called on to do the same work for other shaped buildings, they were lost, because they did not understand the reckoning point from which the proportions to take on the steel square are based.

Of course, the same ratio exists in the $1/12$ scale, but it requires a mathematical problem that is beyond the average workmen to solve. If the full scale is

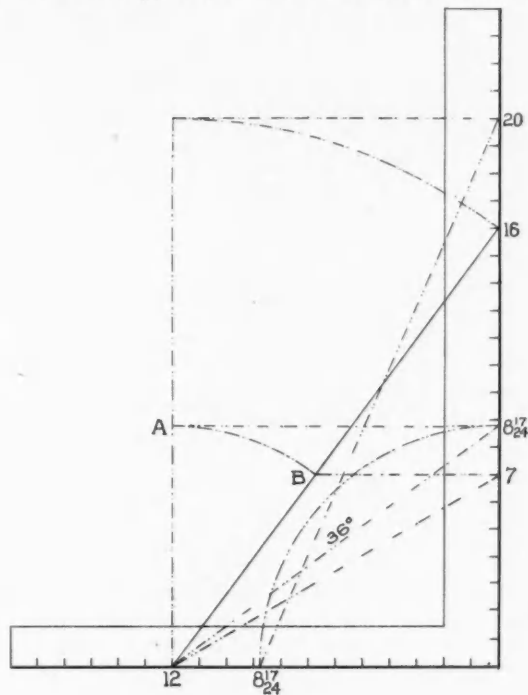


FIG 227.

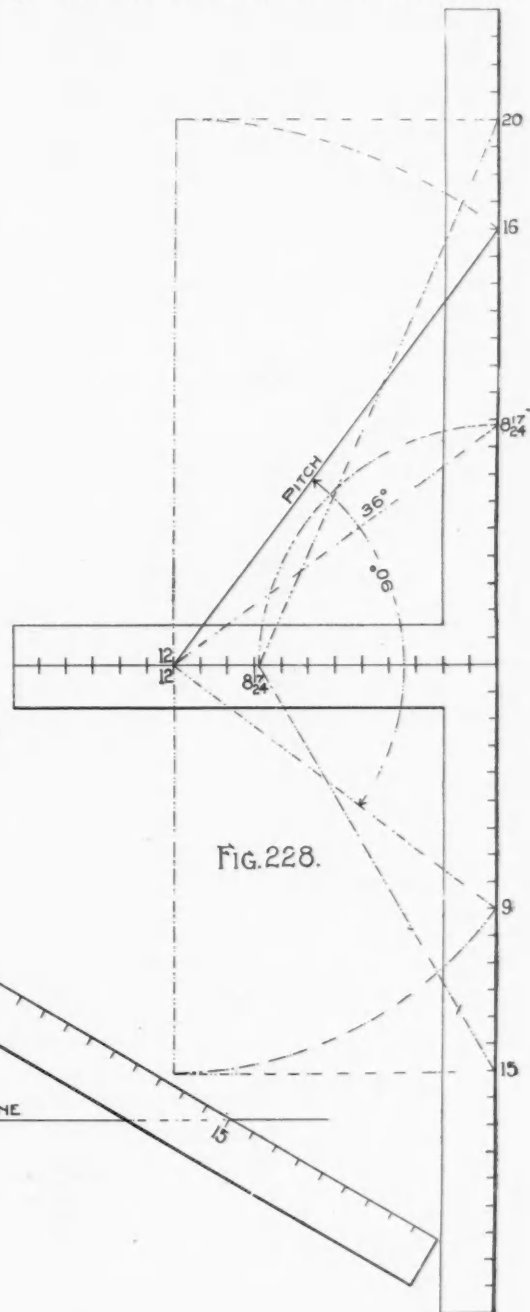


FIG.228.

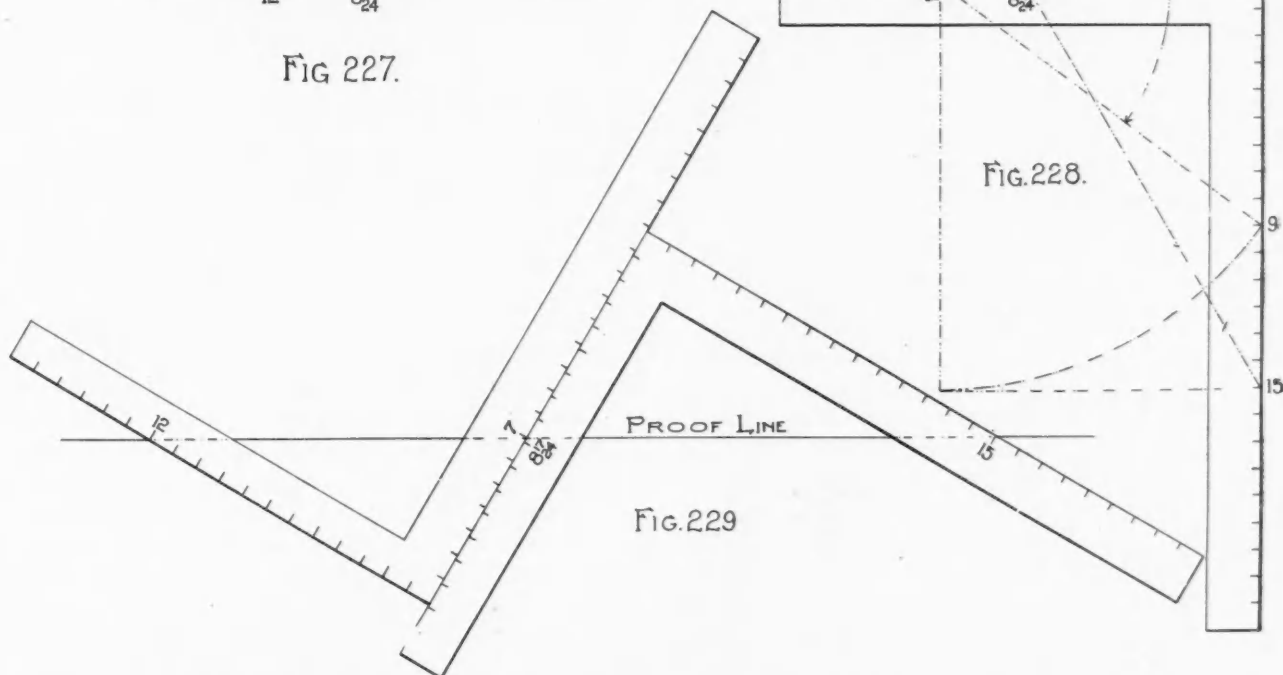


FIG.229

have either directly or indirectly their beginning, and is therefore applicable to any problem in framing. However, the general custom among carpenters is to use the $1/12$ scale or one inch to the foot, which is all right for the common run of square work, but this does not lend itself so readily to other angled work. We have known men that were quite proficient, and considered themselves experts in framing

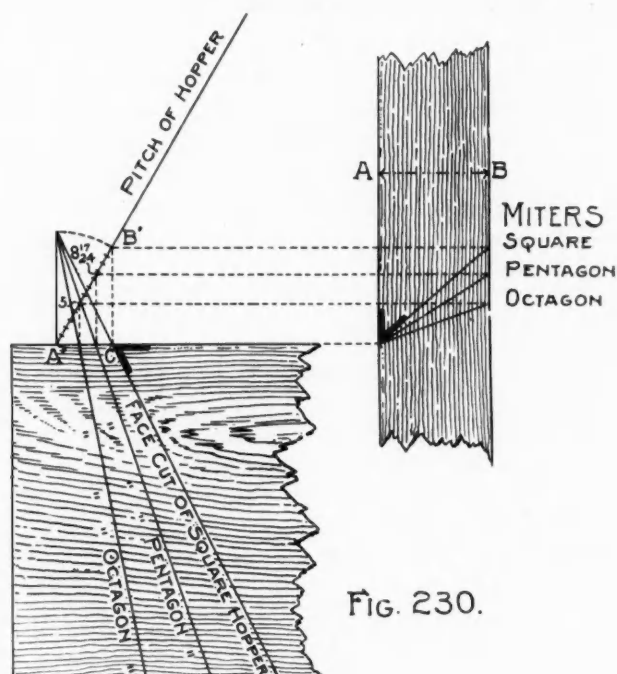
hard to understand, it is doubly so in the $1/12$, because fractions become fractions of fractions and even if one is capable of handling them, it would be a waste of time, because there are simpler ways of arriving at the same result.

It is not our purpose to show what may be done without the use of the steel square in finding angles. In fact, it is hard to get away from the square, be-

cause if we resort to diagram from which to obtain the angles by setting a bevel square to them, the steel square is most sure to be called into use to lay out the diagram; so it is used indirectly after all. Knowing this, it has been our aim to make those having occasion to use it better acquainted with its possibilities. That there are simple diagrams from which the angles may be arrived at, we do not question, but it is from the knowledge of the use of the square and the principles involved that one is able to lay out the diagram; this being the case, then why not use the square direct?

In Fig. 230 is a diagram showing how the angles may be reckoned from the thickness of the board, as follows:

A B represents the thickness of the board, and this amount is set off on the pitch line, as at A' B', and is divided into twelve equal parts. The rest is easy and explains itself; yet, how could this diagram be successfully laid out without knowing the proportions to use on the square? A' C and C B' represent the tongue and blade of the square on which the run and rise is taken. The pitch A' B' is divided into 12 equal parts and the proportions above mentioned for the



miters are taken on this line and transferred to other parts to arrive at the angles as shown.

How to Frame a Circular Bay

THE TROUBLE THAT ONE CARPENTER HAD WITH SUCH A JOB WORKING "BY RULE O'THUMB"—THE SCIENTIFIC, COMMON-SENSE METHOD ILLUSTRATED AND EXPLAINED

THE following letter was recently received; but since it is of a rather personal nature and not intended for publication, the name of the writer is omitted. However, it furnishes a subject too good to be lost to the readers of the AMERICAN CARPENTER AND BUILDER, and for that reason we have prepared an extended answer with illustration from the description furnished. The letter is as follows:

"I executed a piece of work last week which accidentally proved satisfactory to the contractor I am working for, but not to myself. Not knowing the proper way to go about it, I had a deuce of a time and worried myself half sick.

"The job in question was framing a roof over a circular bay window, as they are termed here. The window had a radius of 15 feet and with a projection of 2 feet 6 inches and a rise at the center of 1 foot 6 inches. The roof was sheathed and covered with tin.

"The way I went about it at first was to strike my 15 feet radius, then laid off the rise at center allowing for projection. Next I struck the radius of my roof which was 19 feet, something,—do not call to mind just what it was. By doing so I expected to get the true rise and run of my rafters. The rafters were spaced on 32 inch centers,—that is, I spiked my lookouts on every other joist and set my rafters on top of them. I spaced off my drawing 32 inches, commencing at the center and working each way. Then took the run and rise of each rafter separately and cut them, but when I commenced to put them up

something was wrong. The first, or center rafter, was all right and the others were wrong. I felt awfully cheap, but of course, the work had to be done and not knowing any better way than by the old, old fashioned one, or the rule of "thumb," I finished my roof that way. It looks all right, I suppose, to most people outside of a good practical man, but I am not satisfied. The chances are I will have more of the same work to do, as they are getting to be quite the style.

"If it is not asking too much, I certainly would esteem it a great favor if you would, or could, afford the time to enlighten me as to the simplest method of executing the above described work."

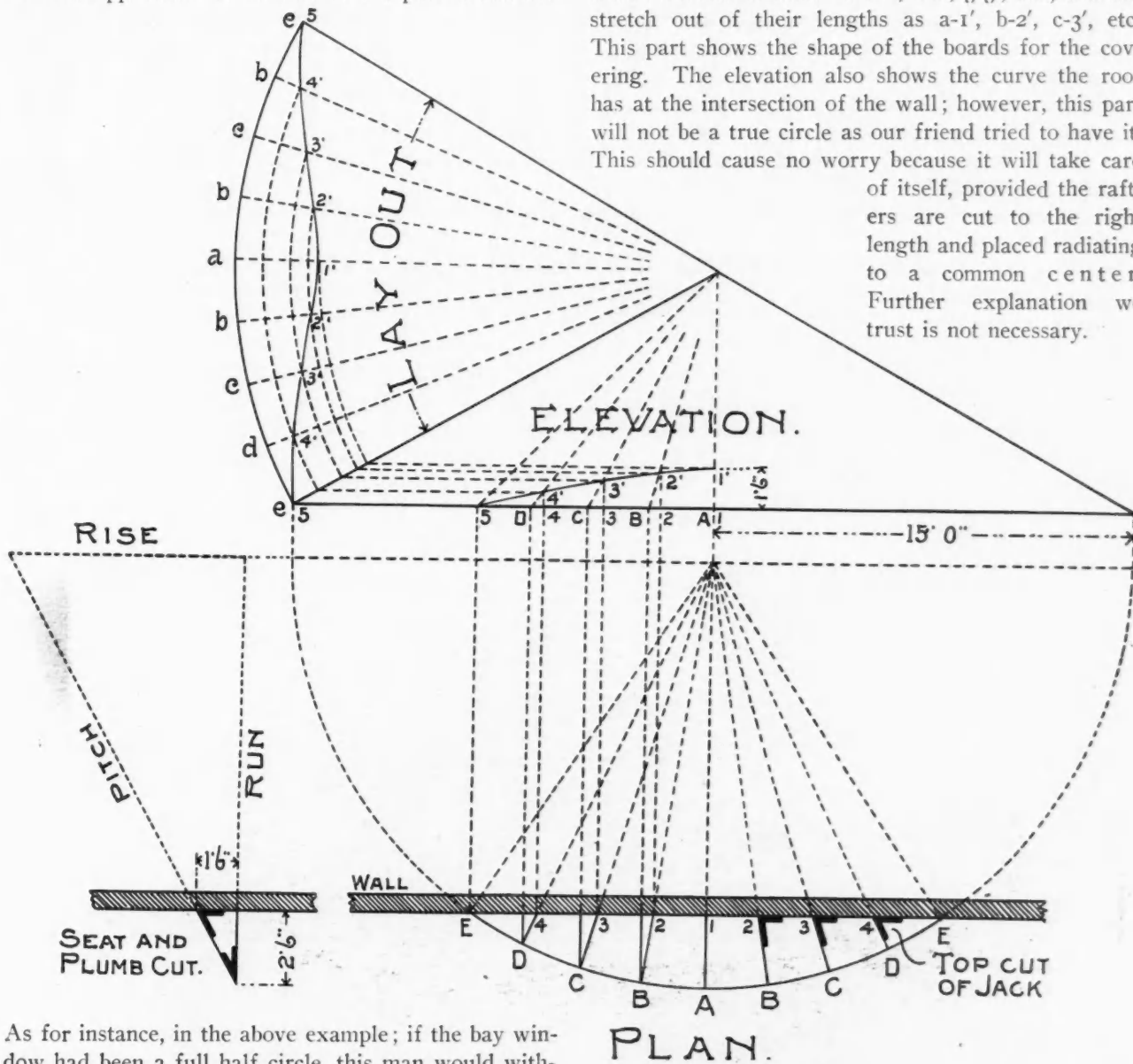
The above letter is printed in full, because it is clear cut and shows that the writer is after information pure and simple. He admits his error and is anxious to avoid a like occurrence in the future. His frankness in the matter shows that he is on the right track to better fit himself for his work and give value received to his employer with a good share of interest thrown in.

We are all given to mistakes; and from one another's experience we gain our knowledge for paving the way for others to follow. To the experienced, such questions may seem simple and a waste of words in the way of explanation, but all such should remember that they too were once groping in the dark for information just as thousands of others are today; and so it will ever be.

The great trouble experienced by the would-be

learner is that he does not stop to think, that is of the rules of application or relation of one part to another.

run of the rafters as A-1, B-2, C-3, etc. The elevation shows the rise of same as 1-1', 2-2', 3-3', etc., and the stretch out of their lengths as a-1', b-2', c-3', etc. This part shows the shape of the boards for the covering. The elevation also shows the curve the roof has at the intersection of the wall; however, this part will not be a true circle as our friend tried to have it. This should cause no worry because it will take care of itself, provided the rafters are cut to the right length and placed radiating to a common center. Further explanation we trust is not necessary.



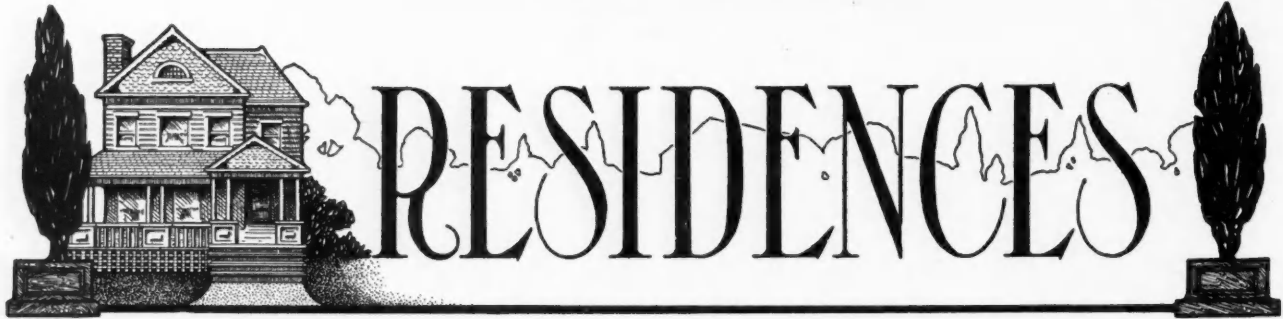
As for instance, in the above example; if the bay window had been a full half circle, this man would without hesitation have framed his rafters the same as for a circular roof; all of same length and radiating to a common center, but when only a fraction of the roof is wanted he forgets that the rafters must lie in the identical position as for the rafters for the half circle bay. In one case, the wall line of the house cuts through the center of a circular conical roof, while in the other, its cuts off only the edge of the roof. Therefore being a part of the same roof, the seat and plumb cuts must be the same in either case; but not being a whole rafter, they must be considered as jacks and therefore need a side cut with the exception of the center which is No. 1. The others of like numbers, will be rights and lefts, and may be obtained with a bevel square provided it is paralleled with seat cut line or at right angles—square out from the plumb cut. For work of this kind it is better to lay out a full size diagram of such parts as are required, on a level space, to get the measurements as shown in the accompanying drawing. The plan shows the individual

run of the rafters as A-1, B-2, C-3, etc. The elevation shows the rise of same as 1-1', 2-2', 3-3', etc., and the stretch out of their lengths as a-1', b-2', c-3', etc. This part shows the shape of the boards for the covering. The elevation also shows the curve the roof has at the intersection of the wall; however, this part will not be a true circle as our friend tried to have it. This should cause no worry because it will take care of itself, provided the rafters are cut to the right length and placed radiating to a common center. Further explanation we trust is not necessary.

PLAN.

Sprinkler System of Fire Protection

The most advanced form of fire protection at present is that provided by the sprinkler system. A series of pipe lines, running parallel, is hung from the ceiling of the building to which sprinklers are attached at distances of from 8 to 10 feet. The sprinklers are automatic in their action and the system has two or three sources of water supply, the city main, a tank on the building, a fire pump, etc. When the air about any sprinkler reaches a given temperature, the solder link in the sprinkler melts and parts, the valve cup which closes the outlet is released and the water pours through the opening against a distributor and is spread over the ceiling and the floor, thus extinguishing the fire. The system is always on the alert and requires no human assistance to start its operation. One prominent insurance company, which writes only risks equipped with automatic sprinklers, states in its report that more than ninety per cent of the fire loss can be prevented by the use of these sprinklers.



Two Practical Cottage Designs

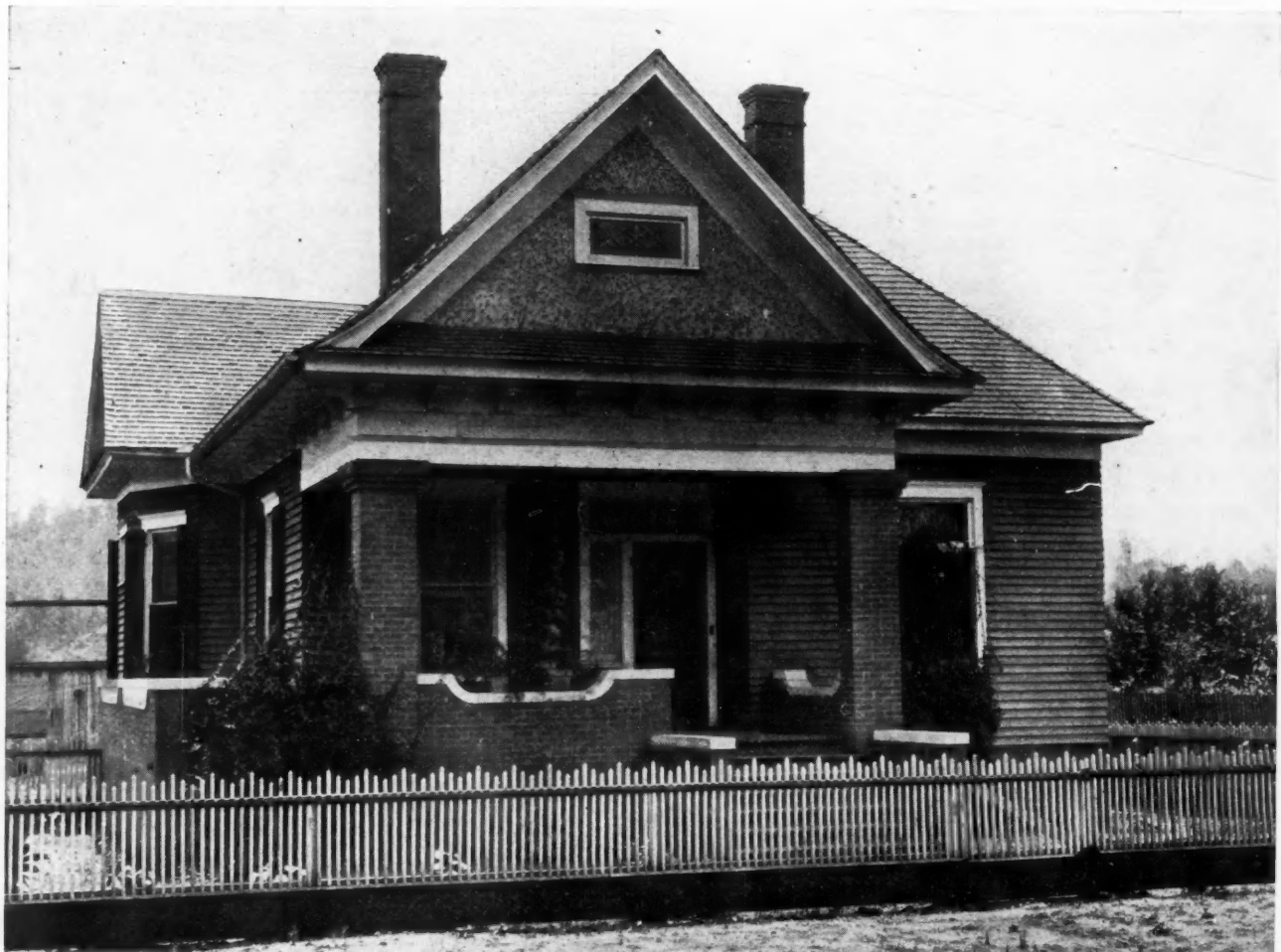
FULL WORKING DRAWINGS OF WELL-ARRANGED, HOME-LIKE LITTLE DWELLINGS, VERY MODERATE IN COST—SPECIAL FEATURES MENTIONED

THERE is an atmosphere of security and of contented home life about this first little cottage that would turn the heart of the city flat dweller sick with yearning, or would transform the most hardened bachelor and club-man into a prospective home-builder.

As a dwelling place, it is neat, cozy and inviting; as

bungalow style, broad on the ground and low of roof. The narrow weather boarding is painted a dull olive green; the casings and box cornice are white. The porch rail and piers of red brick add much to the substantial appearance of the design.

Six rooms besides the broad reception hall are provided. The living room and dining room, opening

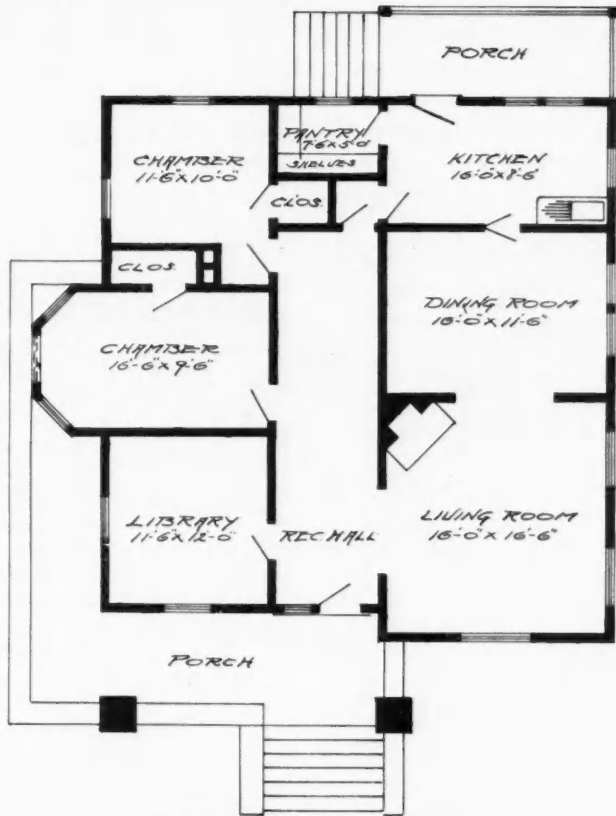


A Cozy Homelike Six-Room Cottage, Very Substantially Built

a piece of residence architecture, it is well designed and very substantially constructed. With such a house and site to work on the owner has found it an easy and enjoyable task to set out vines and flowers. It is the model of a well kept place.

The general lines of the cottage follow the popular

together, are very commodious. The kitchen just back of the dining room is well arranged and is easily accessible from all parts of the house. The arrangement of the two bedrooms and library secures more than the usual amount—for a cottage—of privacy. The broad hall running straight through the house



Floor Plan—Six-Room Cottage

assists greatly in ventilation. The roomy porch is a feature that is much appreciated in warm weather.

This cottage was built in the South where very

little provision had to be made for heating, a brisk fire on chilly days in the open grate being about all needed. The addition of two smoke flues more would adapt it to Northern conditions.

A Five-Room Cottage for Narrow Lot

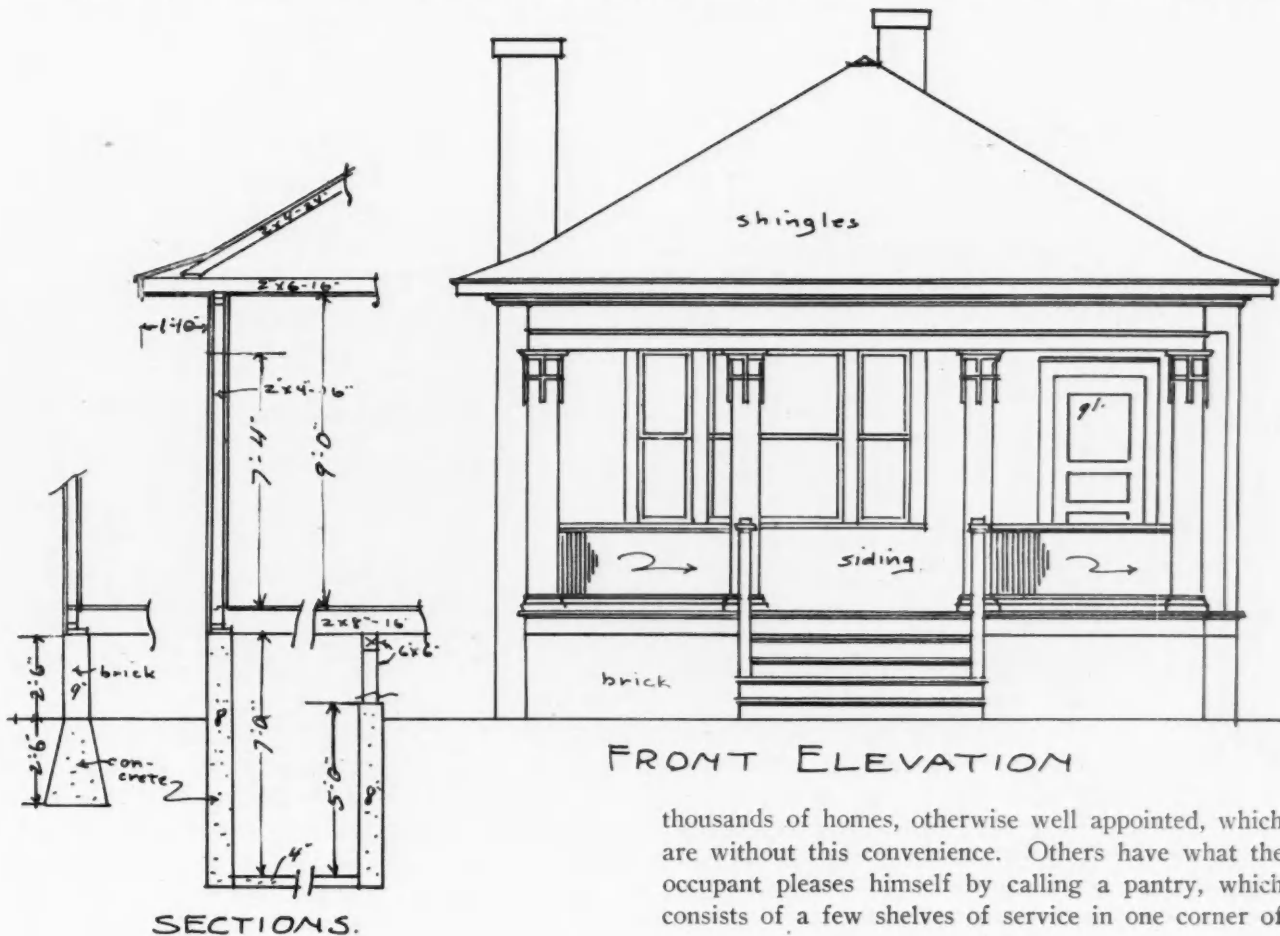
In connection with this we are showing the complete working drawings of a practical, well-arranged five-room cottage, especially designed to go on a narrow 25 foot lot. In some of our industrial cities where land is very expensive there has been a demand for thousands of such cottages. The arrangement shown in this design is one of the best for this purpose we have seen.

There is a generous, well lighted living room, dining room and kitchen conveniently arranged with pantry between, and two bedrooms with bath. A special feature of the design is the cozy nook just off the living room and dining room; also the hall in the center of the house.

There is a concrete cellar under the rear part. The position of the furnace and the piping for hot air installation are well shown in the plans. The details for interior finish are simple and neat. This cottage complete has been built for \$1,200.

Suggestions for the Pantry

The conveniences of the pantry will be admitted by every owner of a home. Nevertheless there are

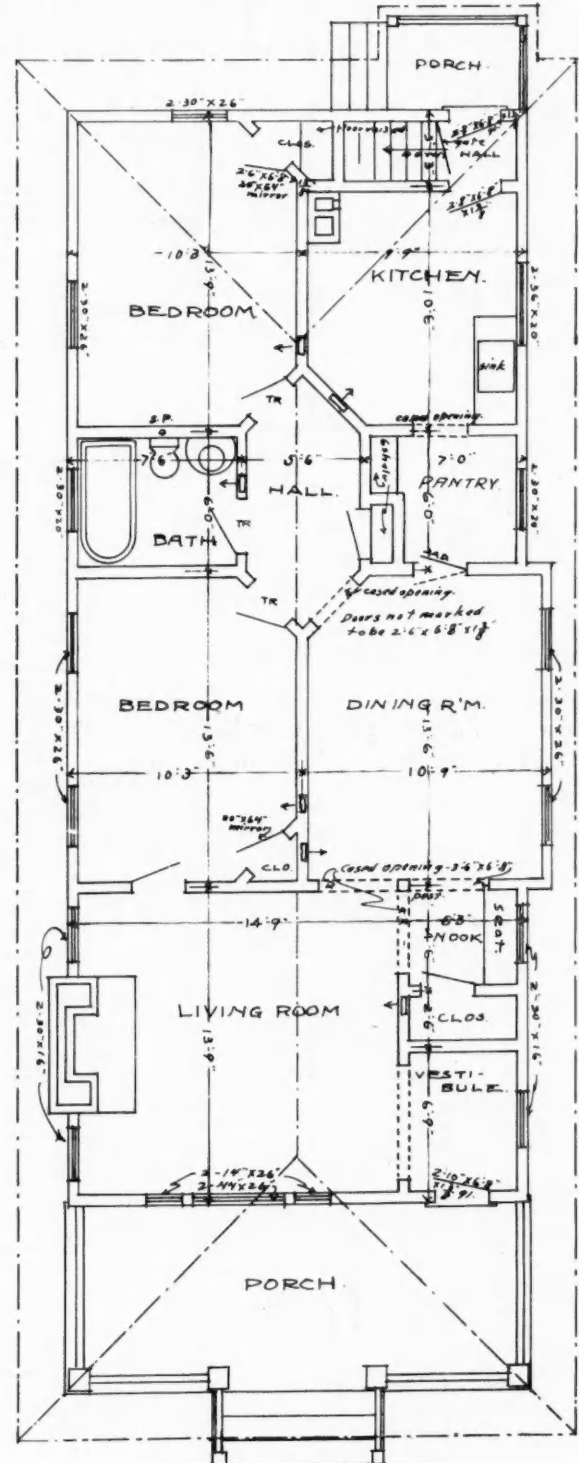
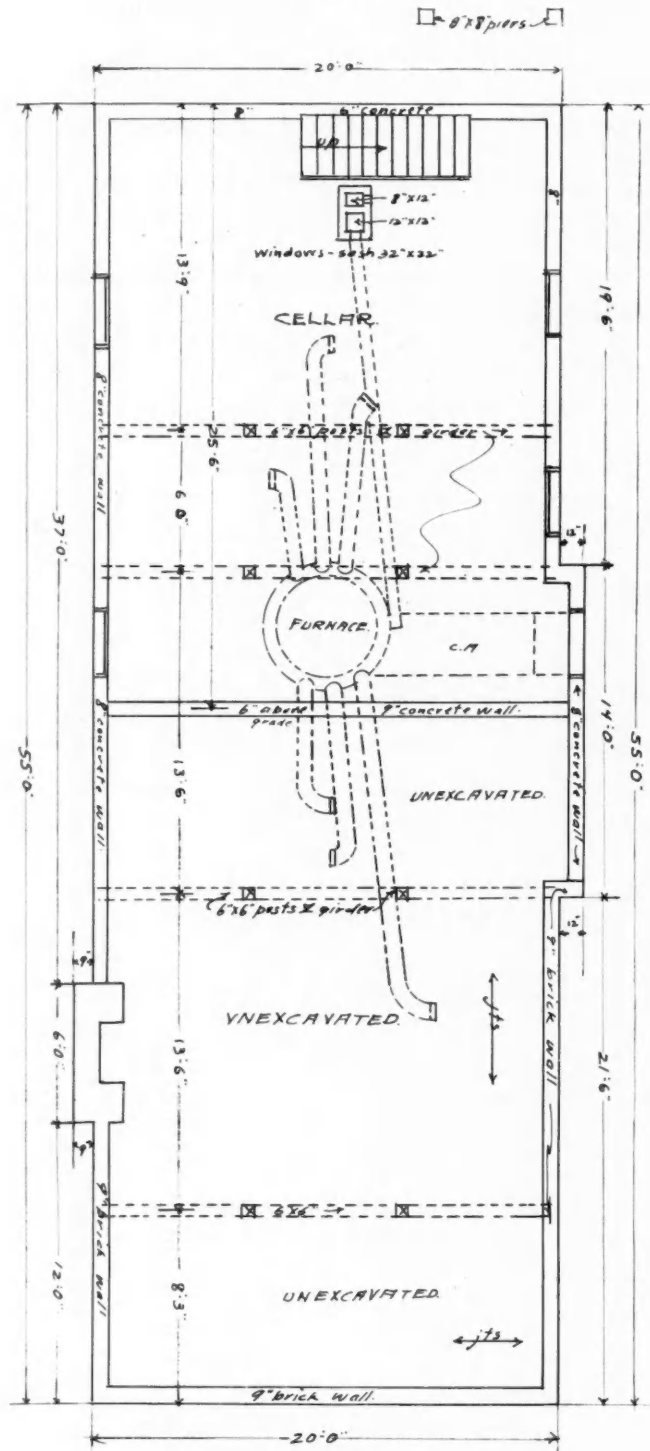


thousands of homes, otherwise well appointed, which are without this convenience. Others have what the occupant pleases himself by calling a pantry, which consists of a few shelves of service in one corner of

the kitchen. Of course, these shelves serve a purpose, and if an up-to-date kitchen cabinet is also used the housekeeper can manage to get along quite comfortably.

But the best homes of the present day always have

with shelves on one side, and the window and a broad shelf on the other. The location of the window is the most serious problem in designing it. The north has its advantages for the window, especially in summer, but in some localities it might be too cold



a genuine pantry, and many of them a butler's closet in addition. The pantry more than any other room of the house is constructed to suit, not only the house of which it is a part, but even more to suit the individual who is to use it, so that it is impossible to design a pantry which will meet the requirements of all.

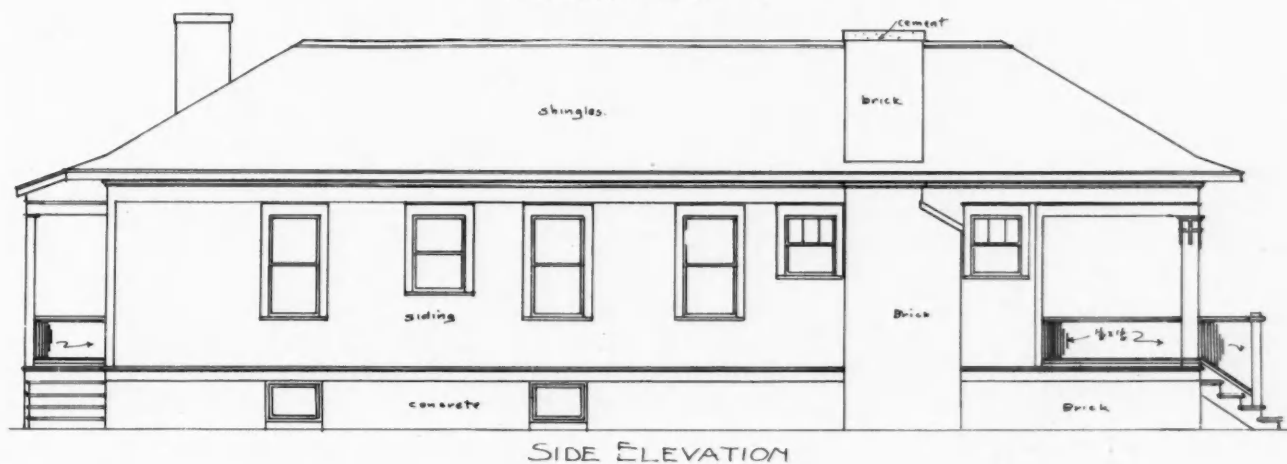
Practically, the pantry is nothing but a hallway,

in the winter. For all times of the year and in most localities, the west is probably the best location. But, wherever it is placed, it should be a regular window, hung on weights, as this is most necessary for ventilation purposes. The best and most convenient window is the regular two-sash pattern, but if one sash is preferred, it can be arranged with gib head, so that

it can be raised and lowered as easily as the two-sash window.

The broad shelf and the ventilating window are the two chief things which go to make a good pantry.

book cases. Book cases are cleaner than shelves and are a safer nest for rare volumes, but shelves are more attractive and friendly in their appearance. Book cases in the living room have a forbidding look, sug-



Many different kinds of bins are, of course, convenient, but common drawers will do ample service, and these should be placed under the broad shelf, which should be at least two feet wide. The shelves should be begun at a sufficient height from the floor to allow the placing of a barrel beneath them. It is true that the day of the barrel in the pantry has nearly passed, and the ordinary family usually purchases its flour in sacks, instead of, as in the olden times, in barrels. But a barrel in the pantry will always be useful, in the cold, hard winter, even if it is filled only with apples.

Book Cases and Shelves

In homes where no room is set aside specially for the library, the living room must be made to serve as two rooms. It becomes the gathering place for the family, not only for social enjoyment but for reading and meditation. The successful library-living room must blend the characteristics of the two apartments.

Books furnish a room quite as much as does a piece of mahogany. They give the same restful and comfortable air to their surroundings as does a well chosen bit of furniture. The choice lies between shelves and

gesting rare treasures locked up and not to be touched, while open book shelves suggest companionship at once. Shelves and cases are often combined in the



living room, the better bound volumes being locked behind glass doors, while the ordinary, every-day books are tucked away in convenient rows on open shelves.

If the living room is large enough to allow the de-

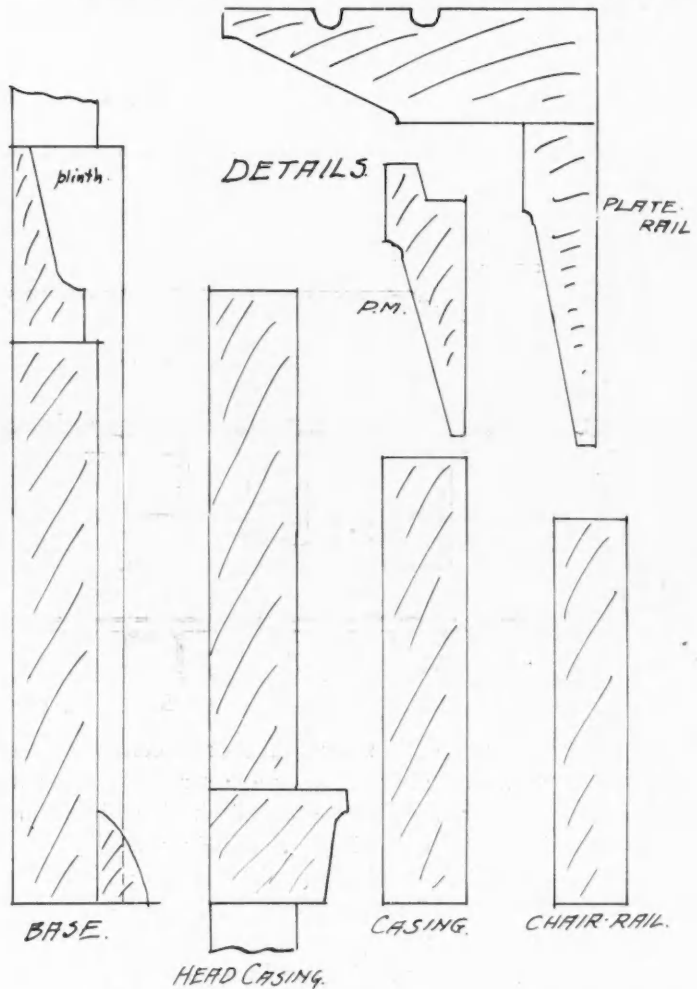
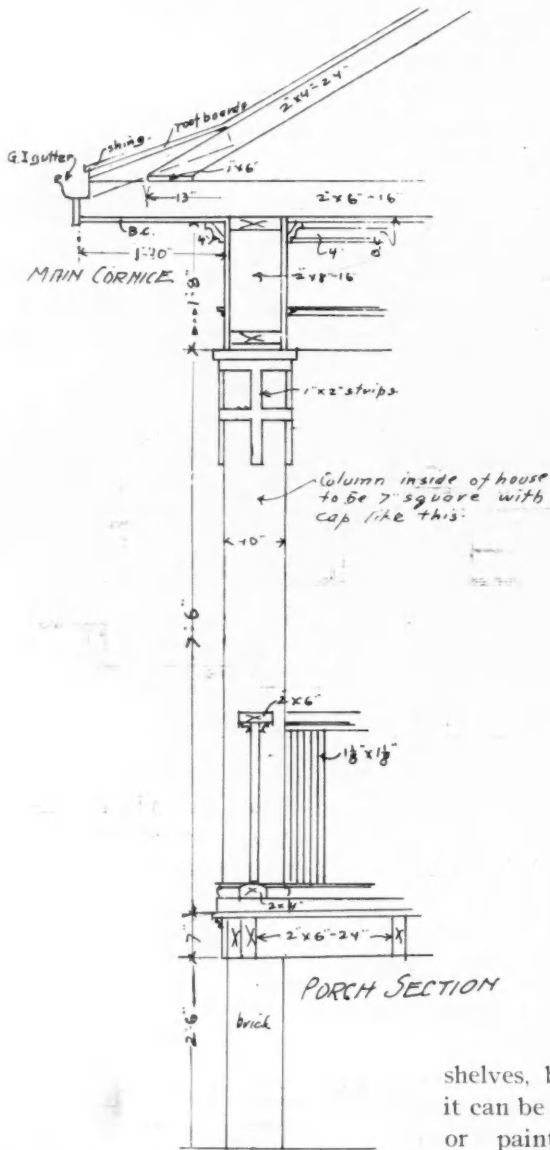
votion of an entire wall to the library feature of the apartment, built-in book shelves, arranged each side of the fireplace or of a central door are as satisfactory an arrangement as can be devised. The shelves should be of equal height and made to go with the decoration of the mantel. The wood should match, at least in color. If the mantel is of hard wood, a simple cheap wood, such as pine or poplar, will answer for the

on the shelves were arranged piles of magazines and reference books.

Where mantels are low and space is limited in the living room a set of shelves may be built above the mantel of the fireplace.

The Airship and Architecture

What has the airship to do with architecture, you will naturally ask and wait for the answer. Of course the architect of today is not following the




shelves, because it can be stained or painted in some color to match the rest of the woodwork.

A practical method of arranging a set of shelves is to have them built into the angle of the wall and start from the center corner cabinet. The angle section will serve as a place for putting rare books, china or other cabinet pieces, and when used for this purpose it should be fitted with glass doors. A combination of cabinet and book shelves of this kind was built into the corner of a gentleman's "den." The shelves were about six feet high and the cabinet a few inches higher. The middle part of the cabinet was arranged to hold a humidor and smoking outfit. Above was a three-cornered cabinet with leaded glass doors in which the owner kept small and handsomely bound books. The lower part of the cabinet was open and

development of the dirigible balloon, the aeroplane or the helicopter as are the students of transportation, but the time will come when these same aerostats will have to be provided for in the laying out of cities and the construction of office buildings.

It is evident that the aerostats for some time to come will occupy considerable space, and perforce have no place on the streets where automobiles now block the traffic. A large park, commons or resting place will be required to accommodate the machines during the business hours and to which they will retire after landing their owners on top of their office buildings.

Roof construction in large office buildings, apartments, hotels and the like will be the first factor to receive consideration at the hands of the architects of the future. Commodious airship terminals will be built, equipped with all things needed. Welcome to the flying machine. The terminals will be ready.



THE HOME WORKSHOP

Ira S. Griffith

Christmas Gifts of Hammered Metal

TIMELY SUGGESTIONS FOR THE HOME-CRAFTSMAN—CLEAR AND COMPLETE DIRECTIONS FOR DOING THIS INTERESTING AND PROFITABLE WORK

THIS is the season of the year when we begin to bestir ourselves to prepare our Christmas gifts for our friends. As most of us usually delay this preparation until the last moment, the making

accompanying illustrations, first: cut off a piece of copper so that it shall have one-half inch extra metal on each of the four sides. Second; with a piece of carbon paper trace upon the copper lines that shall



Copper Plates Hammered and Etched by Students of Normal Dept., Chicago Art Institute

of large pieces such as the pieces of woodwork we have been describing in the Home Workshop department are now out of the question. Whatever is made must be of such a nature that it can be easily and quickly made. Therefore, instead of the usual woodwork we are going to describe this month the making of some pieces of sheet metal work. The necessary tools for this kind of work are few and are such as can be found about the carpenter shop. There will be needed for this work a riveting hammer, file, metal

represent the margin of the tray proper and the lines along which the up-turned sides of the tray are to be bent, also trace the decorative design. Third; with a nailset make a series of holes in the extra margin, about three-quarters of an inch apart and large enough to take in a three-quarters inch slim screw. Fourth;

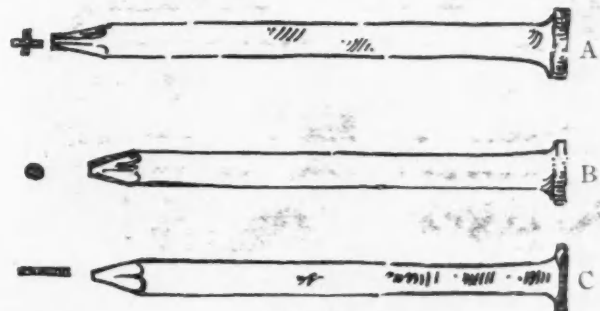
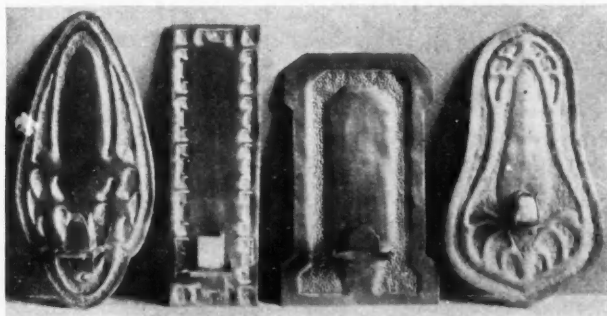


Fig. 1

fasten the metal to a thick board by inserting screws in these holes. Fifth; with a twenty penny wire nail that has had the sharpness of its point filed off, Fig. 1, B, stamp the background promiscuously as in Fig. 2. By holding the nail about a quarter of an inch above the work and striking it with the hammer, at the same time striving to keep it at a quarter of an inch above the metal, very rapid progress can be made. This stamping lowers the background and at the same time



Candle Holders of Hammered Brass

shears, rivet punch, flat and round nosed pliers, screw-drier and sheet brass and copper of number 23 gauge.

To make the copper trays, such as are shown in the

raises the design. Sixth; chase or stamp along the border of the design and background using a nail filed as in Fig. 1. C. This is to make a clean sharp division between background and design. Seventh; when the stamping is completed remove the screws and the metal from the board and cut off the extra margin with the metal shears. File the edges until they are smooth to the touch. Eighth; with the flat pliers

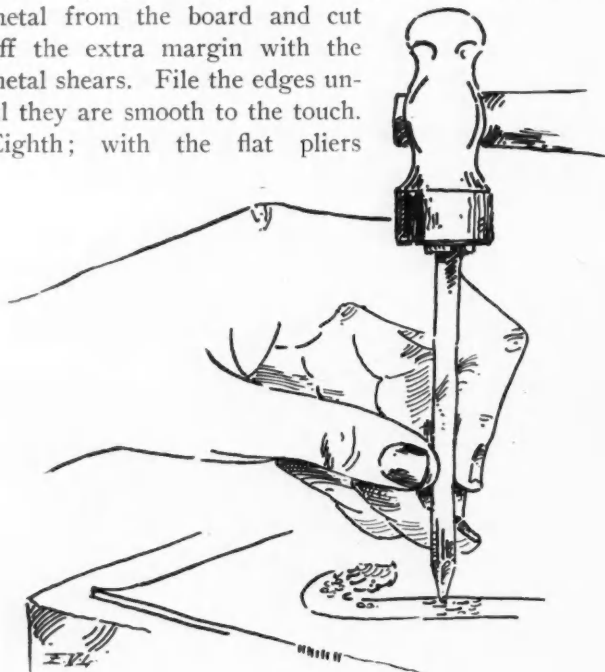
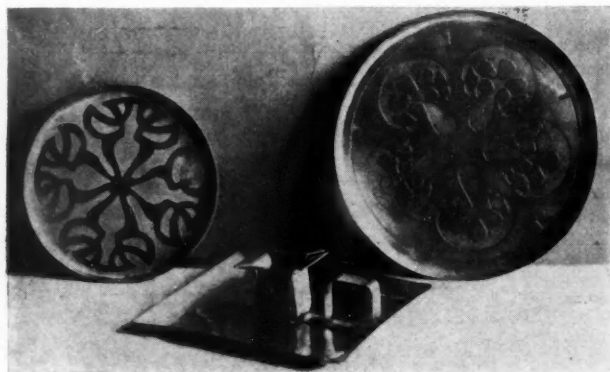


Fig. 2

“raise” one side of the tray, then the other side. Ninth; raise the ends, adjusting the corners as shown in the illustration. Use the round nosed pliers for this purpose.

Copper is frequently treated chemically to give it color. For these trays, however, the color which copper naturally assumes with age is quite effective.

In making symmetrical designs—designs in which two or more parts are alike, only one of the parts is drawn free hand. The others are obtained from this



Brass Candle Stick and Etched Plates

one by folding the paper upon which the design is to be made, placing carbon paper between and tracing the part of the design already drawn. This insures exact symmetry.

Figs. 3 and 4 illustrate the manner of beating up a copper bowl. In Fig. 3, the piece of copper is placed over a hollow in one end of a block and is beaten with

a round nosed hammer. The metal is given a circular motion as the pounding proceeds. Bowls may be ornamented by having borders made around the edge, a small metal cutting saw being used to cut out the



Good Work by Boys in the Grades—Oak Park, Ill.

open parts of the design. These saws are manipulated quite like the wood coping or scroll saws.

A design for a sconce or candle stick holder is shown in Fig. 5. It is to be made of No. 23 gauge brass and the design is worked up quite like that just described for the trays. The drip-

cup is a piece of brass cut circular and shaped as indicated in Fig. 3. The holder may have four arms as in Fig. 5, and is bent to shape by means of the round nosed pliers.

The form of the bracket which supports the drip-cup and holder is clearly indicated in Fig. 5.

Having pierced the bracket, drip-cup and holder, these three parts are riveted as in Fig. 6. It will usually be found easier to rivet if the holder is not shaped until after the riveting is done. The bracket is then riveted to the back of the sconce. Small copper rivets are used.

It is best to polish all of the pieces before fastening any of them together. Metal polish of any kind will answer the purpose.

Once the worker gets into the spirit of the work

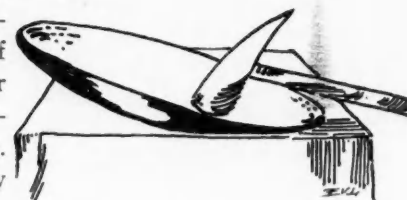


Fig. 3

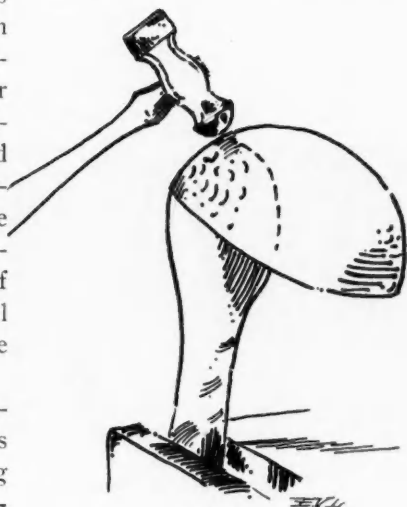


Fig. 4

many things such as match-safes, whisk-broom holders, etc., which can be made with but few new operations, will suggest themselves.

Another method of treating sheet metal—and a simple one too—is to etch its surface by immersing

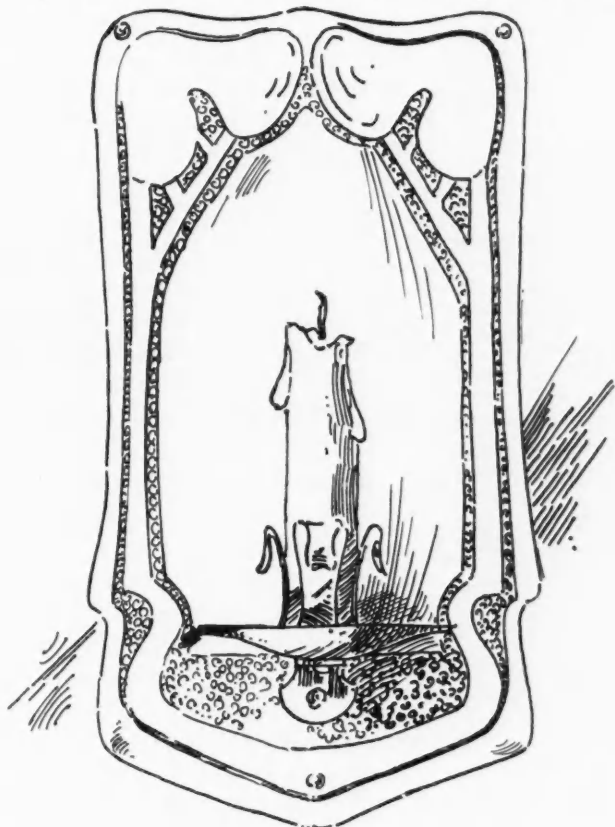


Fig. 5

it in an acid bath. The metal is cut to the size desired after which the design is traced upon it by means of the carbon paper. Ordinary asphaltum or black varnish such as can be procured at the paint store is painted

over that part of the design which it is desired to protect from the acid. The back also is covered with asphaltum. Two or three coats may be necessary to cover the metal properly—a small brush being used to apply it.

After the varnish is dry, the object is immersed in a solution composed of nitric acid and water—some-what more of water being used than acid. This solution should be placed in a stone jar and should be kept off the hands and clothes.

The acid will eat the metal to a depth of one-thirty-second of an inch in about four or five hours—depending upon the strength of the solution. The metal should be examined occasionally and when the desired depth has been reached it should be placed in a pan of turpentine and cleansed of the asphaltum by scraping and swabbing.

Such articles as belt buckles, corner pieces for blotter pads or for book cover, copper picture frames, panels, covers for jewel boxes, book rack ends, etc., can thus be etched.

To color the metal, heat it quite hot then dip it into the acid solution. Another color—green—may be given by first cleaning the metal with the acid solution then covering it with a thin coat of one part ammonia muriate, three parts ammonia carbonate and twenty-four parts water. Added applications increase the depth of color.

Banana oil or laquer applied over the metal will protect its surface from the air and keep it from corroding.

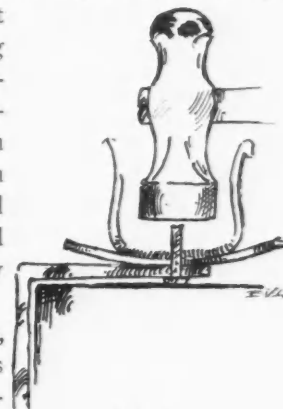


Fig. 6

Something the Boys Can Make

A MAGAZINE STAND OF VERY PLEASING, YET SIMPLE DESIGN—DETAILED INSTRUCTIONS FOR ITS MAKING—BEST MATERIALS TO USE

A MAGAZINE stand is always a popular project with the boys. This month we shall illustrate and describe one with keyed tenon fastenings and of the ever popular craftsman design. Like all other craftsman designs, it is pleasing in its appearance because of its simplicity and honesty of design. Such a stand would make a splendid place for keeping such books as are in constant use, in fact, it might be well used for both books and magazines.

There will be needed for the sides two pieces that may be squared to a width of ten inches and a length of four feet. These and all the rest of the pieces are to be three-quarters of an inch thick when finished. For the shelves square up four pieces to a width of ten inches and a length of twenty-one and one-half inches. Stock for the keys can, no doubt, be got from the waste made in cutting the other pieces.

Any kind of wood can be used, but since the design is so pleasing, and the stand will probably be placed

in the living room when finished, it will be a good idea to get the best. The cost is but little more and then one feels more like doing his best work when he is working on the best wood procurable. It is not necessary to secure mahogany. Most of our readers have access to quartered white oak and this makes up into as pretty a piece of furniture as one could desire. If possible have its two surfaces planed and sanded at the mill. It costs but very little more. The cheapest way to order stock such as this is to combine the different short lengths into one or more pieces of standard length, unless the mill man should happen to have some short lengths left from his own work that would answer. Since all these widths are the same, it may be well to have the edges jointed also so that the proper width, ten inches, is obtained.

It is best for beginners to work with the rough stock. On the more simple pieces such as are suitable for those just starting to learn the use of the tools,

rough stock is specified. Every boy should be able to square up completely his stock from the rough before beginning to use mill-planed stuff. After he has once learned to do this without much trouble, it would be a waste of time and muscle to use the rough stuff when it can as easily be ordered mill-planed. This stand is not supposed to be undertaken by the boys

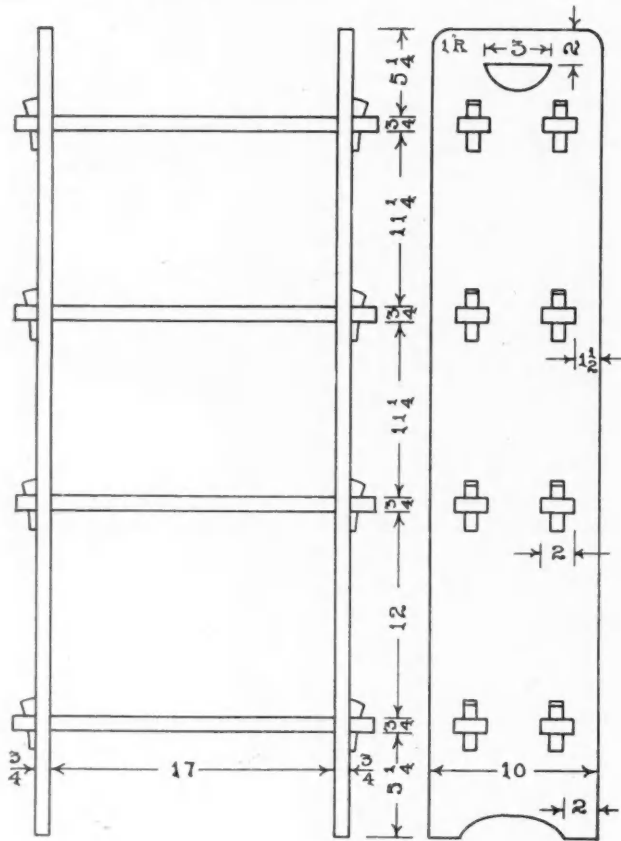


FIG. 1.

who are just beginning the use of tools, hence the specification for mill-planed stock.

It is rather difficult to cut the tenons on the shelves and the mortises on the sides so that there shall not be some unevenness where their edges adjoin. That this may not show so readily, many mechanics would make the shelves slightly narrower than the sides. This difference should not be greater than three-sixteenths of an inch on each side. The shelves would then need to be made three-eighths of an inch narrower, due allowance being made in laying out the tenons.

Supposing the pieces are of the correct width and properly surfaced, begin by cutting the two sides to length, planing the ends smooth and square. Likewise cut the shelves to length.

Place the two side pieces in the vise, edges up and ends evened, measure from the lower ends and mark with a very sharp pencil, lightly, five and one-quarter inches, three-quarters, twelve, three-quarters, eleven and one-quarter, three-quarters, eleven and one-quarter, then three-quarters. There should remain five and one-quarter inches from this line to the end of the

piece. Square lines across the edges at these points then separate the pieces and square lines across both sides of each piece that shall correspond to the lines on the edges. The light sharp pencil lines should still be used, the knife marks would ruin the outer surface. Set the panel gauge to one and one-half inches. Keeping the head against the joint-edge, one edge of each should be marked for a joint-edge even if it was jointed at the mill, and gauge between the lines that were laid out three-quarters of an inch apart. The successive settings of the gauge for the other sides of the mortises can be figured easily from the drawings. Keep the head of the gauge always against the joint-edge even while laying out the sides of the mortises farthest from the joint-edge. There is a very good reason for this. These markings should be laid out on both sides of each piece, and the shelves if of the same width as the sides should be prepared so they can be gauged with the same settings of the gauge. The same precaution about holding the gauge against the joint-edge holds good in marking the shelves just as in marking the sides.

The tenons on the shelves are laid out by measuring from each end each way two and one-quarter inches, Fig. 2, and squaring knife lines entirely around the pieces at these points. Place all four pieces in the vise, even the ends and square across the four edges at once to insure their being all of the same

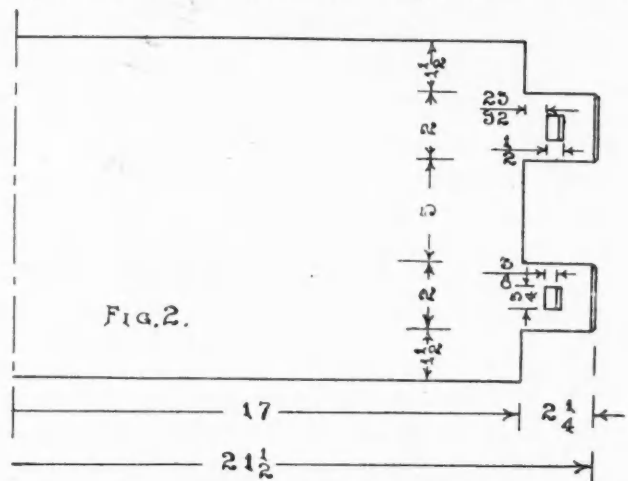


FIG. 2.

length. They can then be separated and the lines carried around each end of each piece.

The gauge marks should be carried over the ends and on each of the two surfaces. If the shelves are narrower than the sides, do not fail to make due allowance in setting the gauge.

Before cutting the tenons lay out the mortises for the keys. The first line is to be twenty-three thirty-seconds from the shoulder lines of the tenons and is to be placed on both sides of the shelf. The next, one-half an inch farther out measured on the top side of the shelf and three-eighths measured on the under side. If a long key is to be used, this will be found to give too much slope, in which case the lower line should be moved out a sixteenth more.

The gauging for the mortises of the keys should be done so as to allow the entrance of a key three-quarters of an inch thick and should be placed in the middle of the tenons. Fig. 2.

In cutting the mortises in the side pieces, a series of holes almost the width of the mortises should be bored. Bore them so that the holes shall break into each other. Bore and chisel from each side, chiseling from the middle of the mortise out to the lines gradually. One hole of good size will be found sufficient for the mortise in the tenon.

The tenons of the shelf should be cut with the tenon saw, accurately to the line, so that no chiseling need be done. The shoulder between the tenons is to be got at by boring a hole on the waste wood and inserting a key hole saw here. Keep the saw kerf at least a sixteenth of an inch away from the line. The rest is to be chiseled. Use a broad chisel and set it in the knife lines. Cut from each side of the board.

The keys may be made in any one of a variety of styles. The essential thing is to see that they shall fit their respective mortises without having to be made in different sizes. This may be assured by proceeding as follows: Plane all the key pieces to the correct

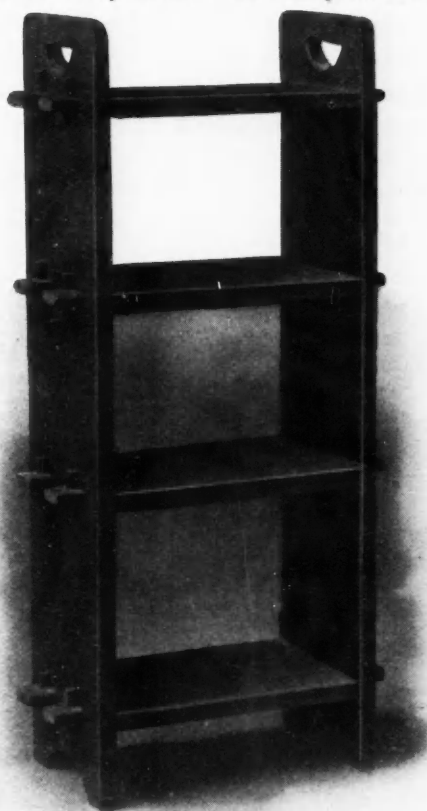
width, three-quarters of an inch, joint one edge and cut the pieces to the length desired. Find the middle of the key's length and measure toward each end three-eighths of an inch. Square lines across at these points. Measure from the jointed edge along the top line one-half an inch, which is the size of the opening that was laid out on the top side of the shelf for the key. Along the lower line measure three-eighths, or whatever the opening in the mortise on the tenon was made. The front of the key may be made any desired shape, but, whatever the shape, its edge must be made to pass through these two points.

The hand holes at the top of the stand are three inches long and two inches from the top end. The center of the arc is not on the top line but somewhat above it.

The design at the bottom is to be laid out from a templet or pattern. Make a half of the design free hand, fold on a center

line and cut the two parts alike.

A variety of finishes may be had. A pleasing dark finish may be obtained by using any one of the many arts and crafts finishes now on the market. These finishes are especially well suited to a much used piece of furniture of this kind. Follow directions closely.



A Pressure System of Hot Water Heating

THE INSTALLATION OF SUCH A SYSTEM IN A COMBINED RESIDENCE AND DOCTOR'S OFFICE—ITS EFFICIENCY AND ECONOMY COMPARED WITH ORDINARY SYSTEMS

By Perry Weber Rathbun

HOT water heating has been for many years a problem on which experts have worked to bring about efficiency through the construction of a first-class apparatus at a reasonable price. A few years ago there were several types of pressure apparatus put on the market claiming to revolutionize hot water heating.

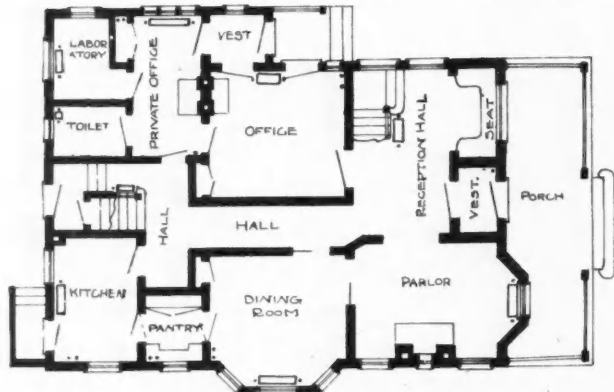
Practically the entire public, including prospective builders, have been misled by theoretical writers on this subject. They made a hot water heating system cost the party installing it a vast sum of money—more than was necessary. This was due to the large piping with its attendant added amount of physical exertion in cutting, threading and assembling; which piping was recommended by the pipe manufacturers to overcome friction. By practical experiments the writer has found

that with pressure, either by the use of regulating valves or mercury appliances, the pipe areas can safely be reduced 50 per cent and the radiation 15 per cent, with tappings from 60 per cent to 80 per cent smaller than are used with the old open tank system. Besides this, the water under pressure can be run up as high as 240 degrees Fahr., without boiling, which gives such a system of hot water the efficiency of steam without any of its disadvantages. A pressure system contains 25 to 30 per cent less water than the ordinary hot water system. This reduction of water causes the plant to be very responsive to firing, thereby causing a quicker circulation and overcoming the slowness to heat which is very common with the old-style waterlogged system.

This quickened flow of water over the heated plates of the boiler absorbs heat more rapidly from the fire,

and delivers it quickly to the radiators and the radiators in turn, to the rooms; therefore, all around better results and a decided saving in fuel is accomplished.

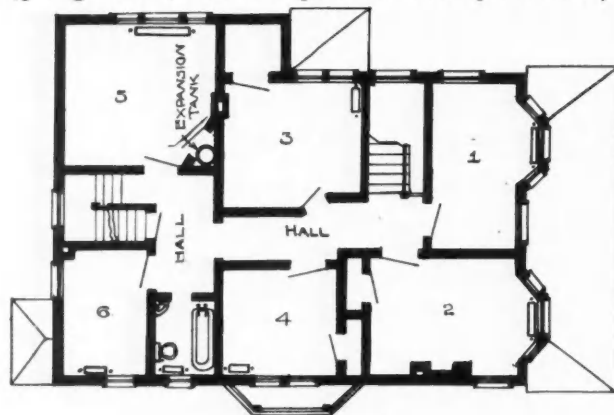
The accompanying plans show a pressure system of hot water heating designed by the author two years ago. This system is better adapted to the emergencies of all seasons than an open tank system. This job has



First Floor—Residence and Office

been operated during the winter months to the entire satisfaction of all concerned. There has been a practical saving in fuel of from five to seven tons of hard coal each winter. The reason for this saving is very simple; with the system operating under a pressure of ten to twelve pounds, the radiation and pipe lines are reduced, the boiler remaining the same size, which causes a quicker and more rapid circulation of the water throughout the entire job. When testing this job, it was found that a temperature difference between the flow leaving the boiler and the return entering the boiler, was only 4 to 8 degrees; so it is evident that the consumption of but little fuel is required to again heat this water to its former temperature.

Instead of taking the branches off the mains with 45 degree ells, as is the practice with open tank sys-

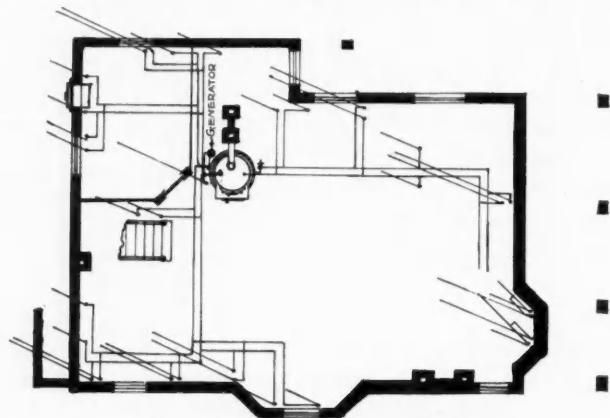


Second Floor Plan

tems, they are taken off in the manner shown in the sketch. When branches are taken from mains in the old style, the hottest water which always travels at the top of the main, will enter the first radiator branch. The second, third, fourth radiators in turn get the next hottest water, and so to the end of the main, leaving the last radiator to be supplied by the coolest water, or rather, that which has traveled on the bottom main

all the way from the boiler. When the branches are taken from the sides of the mains near the boiler in the manner shown in sketch, however, the result is quite different; the water in the flow main will not enter a branch until it has heated down in the main to a depth level with the top of the outlet or side of the tee.

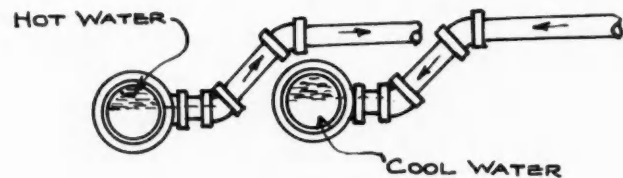
Before the water is heated deep enough to enter the first branch or the ones nearest the boiler, it will have traveled a considerable distance up the main. As the water heats deeper, it will pass on and in turn enter the other branches. The hottest water, however, which is at the top of the main, will circulate to the last or end



Basement Showing Heater and Mains

radiator, thus insuring good circulation in radiators farthest from the boilers.

The experience the author of this article has had in the installation of hot water heating systems the past three years has shown that one cannot put too much stress upon the fact that the old-style of hot water



heating systems are waterlog. There being too large a quantity of water, it requires too long a time and too much fuel to heat it, as well as too long a time to circulate to the radiators. In the morning most every one wishes warm rooms as quickly as possible. Our readers who have hot water heating systems of the old style are aware of one great difficulty which they experience in the way of heating the rooms in the morning. With the pressure system and the one designed herewith in particular, an armful of shavings and a little wood has in twelve minutes produced a temperature of 70 degrees in all the rooms.

We are aware that large bodies move slowly, so does the water in an old style large pipe system, and the circulation is comparatively sluggish, causing the plant to be inactive. Where pressure is produced by a regulating valve the risk run by the operator of the system is very great. The writer has in mind at the

present time one job in which the pressure was regulated by an automatic mechanical valve. After some months the valve stuck and refused to operate. The result was an explosion, which blew out the entire side of the room, and carried the expansion tank some distance. With a mercury regulator, of which there are several kinds on the market, there is practically no danger, for the mercury column is of just the right height to exert a maximum pressure of the required amount (10 pounds per square inch) on the system; above that the mercury seal is displaced and the system relieves itself into the expansion tank. With this extra 10 pounds of pressure the water in the heating system can be raised to 240 degrees without changing into steam. This would mean the difference between suffering and comfort on a cold day.

The next important and interesting consideration, is the fact that this system of heating as shown in plans can be installed and operated for a smaller amount of money than the old-style system.

The schedule of radiation for this particular job was as follows:

Rooms	Height of Radiation	Sq. ft. of Surface
Reception Hall..	38 inches, 3-Col.	135
Parlor	20 inches, 5-Col	95
Dining Room	20 inches, 5-Col.	95
Office	38 inches, 4-Col	70
Private Office ..	20 inches, 5-Col	60
Laboratory	20 inches, 5-Col.	45
Toilet	38 inches, 3-Col.	25
Back Hall	38 inches, 3-Col.	55
Second Floor		
Bath Room	38 inches, 3-Col.	45
Bed Room No. 1.	20 inches, 5-Col.	90
Bed Room No. 2.	20 inches, 5-Col.	95
Bed Room No. 3.	38 inches, 3-Col.	60
Bed Room No. 4.	38 inches, 3-Col.	50
Bed Room No. 5.	20 inches, 5-Col.	75
Bed Room No. 6.	38 inches, 3-Col.	55

The cost of installation was as follows:

1 Round Sectional Cast Iron Water Boiler, with 1900 square feet Rated Capacity.....	\$195.00
550 square feet 38 inch Radiation.....	104.50
555 square feet 20 inch Radiation.....	133.20
1/2 inch, 3/4 inch and 1 inch Valves and Union Elbows	14.40
16 Air Vents	1.28
1 1/2 inch Feed Cock.....	.40
1 5/8 inch Drain Cock.....	.55
1 H. W. Thermometer.....	1.00
1 Altitude Gauge	1.50
1 26 Gallon Galv. Expansion Tank, Complete with Gauge	5.50
N. P. Floor and Ceiling Plates.....	2.50
Pipe Hangers, Cast Iron Fittings, Nipples and Pipe	120.00
Bronze and Liquid	2.00
Asbestos Pipe Covering	40.00

Asbestos Boiler Cement.....	6.00
1 Mercury Regulator	16.00
<hr/>	
Material	\$643.83
Smoke Pipe	3.00
Foundation	2.17
Drayage	12.00
Labor for one fitter and one Helper, and Contractor's Profit	159.00

Contract Price\$823.00

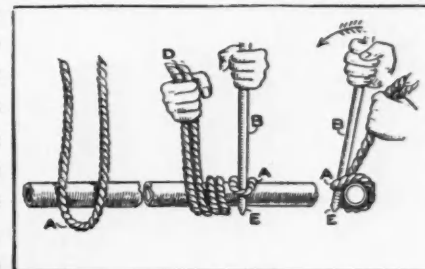
By the above one can see that this pressure hot water heating system costs 75 cents per square foot. An old style open tank system would have cost 77 1/2 cents per square foot. The above quotations are made at present market price in the city of Chicago and the job being installed by a good contractor at a reasonable profit.



To Turn a Pipe Without a Wrench

A piece of rope makes a good substitute for a pipe wrench if used as shown in the accompanying sketch. Double the rope and form a loop, A, in the middle and wind it around the pipe a couple of turns, pass a bar or piece of pipe, B, through the loop with its end, E, against the pipe as shown.

Hold the end, D, of the rope taut and push the handle end of the bar in the direction as shown by the arrow. This will tighten the rope and make it grip the pipe which will turn in the direction the bar is pushed. Slack up on the bar and rope and bring them back again to the first position for another grip. Repeat the operation until the pipe is turned out or in. This device will turn pipe as well as a pipe wrench and will not crush the pipe.



Obeying the Impulse

Slowly, almost reverentially, the young clergyman who was taking his first trip across the Atlantic bowed his head over the vessel's rail.

"I'm doing this," he muttered with pale lips, "in response to an inward prompting."

Thereupon the others drew away in silence and left him communing with the great deep.—*Chicago Tribune.*



A manufacturer who, it is needless to say, has never advertised, is now said to be having his name stamped on 100,000,000 toothpicks. His idea is to get his name into everybody's mouth as quickly as possible.



CONCRETE CONSTRUCTION



Cement Walks and How to Lay Them

EXPERT OBSERVATIONS ON THE WORK, TOGETHER WITH EXAMPLES OF FAULTY CONSTRUCTION—HOW TO BUILD AND HOW NOT TO BUILD CEMENT WALKS

IT IS safe to say that more cement is used in the construction of sidewalks than for any other purpose. There is hardly a hamlet in the land that has not adopted this material for walks. Out of the vast fund of experience from this work has come a fund of information that covers every branch of the subject and is valuable for the guidance of workers in the future. We take it for granted that every man who undertakes to lay a walk desires to do good work. Careless work or work in which there is a skimping

In many localities, a well constructed sub-base will offer sufficient drainage, but in some soils and under some conditions, additional drainage is necessary.

Drainage. If water is allowed to accumulate in the sub-base, there is danger of the walk being heaved by frost. Therefore, in soil where the sub-base and the natural drainage cannot take care of the water, other drainage should be provided. The best means of supplying this additional drainage will depend somewhat upon the available outlets, etc. In some cases stone filled trenches properly placed at intervals along the walk will provide adequate drainage, while in other cases a tile drain will be necessary.

Material. The material to be used for the foundation or sub-base of a walk will depend to a great extent upon the locality in which the work is contemplated. The builder can best determine from the materials available, which one is the most satisfactory



Sand Joints Saved this Walk

of materials for any cause whatever is the most expensive kind, for it stands as a black mark, so to speak, against the worker, and is a constant warning to property owners not to employ him.

But mistakes are often honestly made in this business just as in all other lines. We have at hand a handsome book contributed to the industry by C. W. Boynton, chief inspector of the Universal Portland Cement Company, which is intended to guide the worker in the construction of walks. Mr. Boynton has used the camera in his investigations and he presents a number of examples of poor work and explains wherein the fault lies. In reviewing this book the *Cement World* points out a number of important facts. By special permission we are enabled to give some of these, together with extracts from the book.

The foundation must provide a permanent bed for the walk and serve as a means for disposing of water which would otherwise accumulate under the walk.



Walk Destroyed by Expansion

and economical. The one chosen must be of such a character as to withstand tamping without crushing to the extent that it will prevent proper drainage. Steam cinders are commonly used for the sub-base, and if the fine material is eliminated, they afford a solid foundation and provide excellent drainage.

Although the same precautions regarding fine material are not necessary in the case of gravel and crushed stone, the arguments in favor of well graded material are equally applicable. To give the maximum strength and require at the same time the least

cement, the aggregates should be so graded that each successive size material will fill the interstices left by the preceding larger size. Of course, such ideal material is not a commercial article, but in selecting an aggregate the points which go to make up the ideal should be kept in mind.

Aggregates exceeding $1\frac{1}{4}$ inches in diameter should not be used. Undoubtedly there are many gravels which would give good results, though containing larger sizes, but this limit is safe and the one most often applied to this class of work. The lower limit, $\frac{1}{4}$ inch, which is also the upper limit for sand and stone screenings, is almost universally accepted.

Unscreened Gravel. In many districts, unscreened gravel (gravel as it comes from the bank containing both coarse and fine particles), is used. This practice should be avoided, as such material usually contains a large excess of sand, and would be much improved if screened and the proper proportions of fine



Dishonest, Skimpy Work

and coarse particles remixed. The increased value of the remixed aggregate over the natural material would more than justify the additional expense.

Construction. In the construction of a walk, it is necessary that the foundation be so built that neither time nor the elements can change its ability to support the walk. Improperly constructed fills and poor sub-bases result in a great many defective walks. It is true that a crack through the center of a walk may not necessitate its rebuilding, but when it is understood that perfect walk can be obtained with so little additional effort, such failures are absurd. If the foundation settles to any great extent, the walk will be practically destroyed, unless it is built strong enough to resist breaking and to tilt instead.

Preparation of Sub-Grade. As walks seldom rest upon the top of the ground, it is usually necessary to prepare the sub-grade upon which the sub-base or foundation is established. If the soil at the excavated grade is firm and solid, there is no necessity for further preparation, but if it contains any soft or spongy places, these should be removed and the holes

filled with firm material and packed solidly. When the sub-grade occurs on fills its preparation requires more care and it is not strange that many foundation failures can be traced to improperly made fills. When



The Limit—Laid on the Ground

the material and conditions will permit, the intelligent use of water will assist greatly in compacting a fill. The sides of the fill and sub-base should be given a slope of about $1:1\frac{1}{4}$, so that it will not slip away, and when granular materials are used, the slope should be banked with sod or clay. The sub-base should be flooded and tamped to the proper level.

Proportioning. It is surprising how little interest is manifest in actual practice in determining the best and most economical proportions for concrete to be made from a given material. Any piece of work is large enough and of sufficient importance to justify a study of the aggregates for the purpose of determining the correct proportions. Mr. W. B. Fuller states that the ordinary mixture for water-tight concrete is about 1 part cement, $2\frac{1}{2}$ parts sand and $4\frac{1}{2}$



Proper Fill Is Lacking

parts of coarser aggregate, which requires 1.37 barrels cement per cubic yard of concrete. By carefully grading the materials he did on one occasion obtain water-tight concrete with a mixture of 1 part cement,

3 parts sand and 7 parts coarse aggregate, which reduced the cost of the concrete 58 cents per cubic yard. When it is appreciated that the terms strength and density, or water-tightness, are quite synonymous when applied to concrete, it is readily seen that Mr.



Crack Resulting from Poor Foundation

Fuller obtained a concrete in the 1:3:7 mixture equally as strong as the 1.2½:4½ mixture at a very marked reduction in cost.

Under ordinary conditions, the most practical way of arriving at the proper proportions is by the determination of voids. By voids in a mass of material is meant the space that is occupied by air. These air spaces, or voids, are usually referred to as a percentage of the whole volume.

The form nearest the street should be slightly below the inside form, thus providing a drain. The side forms should be securely staked; the stakes alternating on either side about every two feet. If the



Result of Not Protecting the Edge

special metal cross-form is used, fewer stakes will answer, for when the form is keyed into position, it is rigidly fastened and holds the outside forms in their proper relative position. Wooden cross-forms need only be held in place by stakes on the opposite side from which the concrete is to be deposited. When

the concrete is being placed, a shovelful or two will hold the cross-form firmly until it is tamped into position.

When wooden cross-forms are used, the location of the joints should be definitely determined and plainly marked on the side forms before any concrete is placed. The cross-forms should be placed so that the face against which the concrete is to be packed is in line with the points indicating the position of the joints.

Providing for Expansion Joints. About every 50 feet one of the wooden cross-forms should be replaced by a metal parting strip, which should be left in the walk until it is opened to traffic, when it will be removed and the opening thus produced filled with paver's pitch or other suitable material. This forms an expansion joint, which insures the walk against such defects as are noticeable in some of the illustrations. This precaution is also necessary when a new



Result of Building Curb Next to Walk

walk abuts curbing or other cement or stone walk.

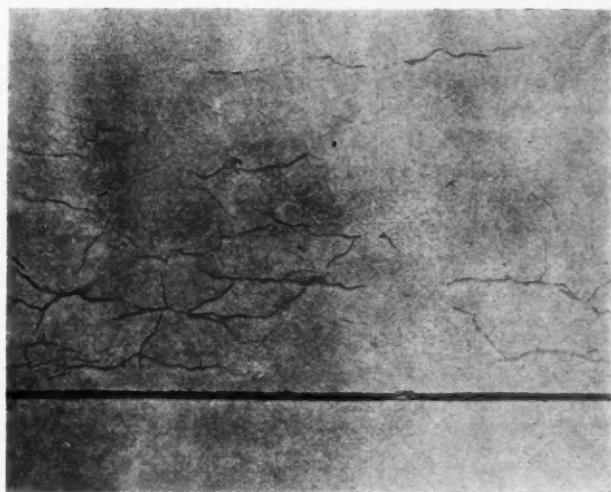
Mixing. Obtaining the proper proportions does not guarantee first-class concrete. Proper mixing counts for much. The sand and cement should be first mixed dry and then mixed wet into a homogeneous mortar. The coarse aggregate, previously drenched, should be added to this mortar, and all thoroughly mixed together. This practice can be followed in either hand or machine mixing, provided a batch mixer is used. On small work, hand-mixing seems to be the most popular, and if honestly done, will be entirely satisfactory. But oftentimes mixing is sorely neglected, being intrusted without proper supervision to laborers who have little appreciation of what is really necessary and less interest in final results. Machine mixing, when the batch type of mixer is used, is much more certain and reliable.

Consistency. Generally speaking, wet concrete will give better results than dry, and though it is not practicable to use as wet concrete in sidewalk construction as in some other classes of work, the concrete should be mixed with as much water as it will stand

and permit of thorough tamping. Probably all who have had anything to do with mixing concrete by hand have noticed that the mass becomes more moist as the mixing progresses. This is because the particles are being forced into closer contact, and indicates that the object of the mixing is being accomplished. The same plasticity is apparently obtained by the use of an excess of water and less mixing. This does not give the same results and should never be substituted for thorough mixing. The mixing should always be conducted in a manner which will not permit of the loss of cement through the running off of surplus water.

Care in Adding Water. Care should always be exercised in adding water to a concrete mixture, for if the water is introduced in a flood, as it is sometimes, by carelessly dashing from a bucket, the cement is washed from the mixture. The water should never be added faster than it can be taken up by the materials, excepting that when water is first introduced, it can be applied in a quantity if the material is formed into a basin or trench which will prevent the water from flowing from the mass. When additional water is required in a mixture, it is an excellent practice to add it in a spray, such as is obtained by the use of an ordinary sprinkling can with a perforated nozzle.

Quantity to be Mixed at One Time. The size of a batch of concrete should be governed by the speed



Cracks Caused by Imperfect Bond

with which it can be mixed and deposited, but should never exceed 1 cubic yard.

Retempering. Under no circumstances should concrete or mortar, which shows perceptible hardening or drying out, be remixed and used. Any disturbance of concrete after hardening has begun will weaken it. Usually concrete which is retempered is a portion of a batch and, therefore, the real value is small. The saving which may result from the use of such concrete will not justify the introduction of uncertainties into the work. Any practice which has a tendency to weaken the work should be avoided. Such defects

as are shown in the illustrations may result from the use of retempered concrete.

Surface Treatment. The surface treatment which a walk receives depends largely upon the practice in the community in which the work is being done. The smooth steel trowel finish is probably the most common and at the same time the poorest finish used. Such a finish frequently results in crazing or hair-



Crack Caused by Tree

checking the surface, which is due to nothing more than a slight contraction which takes place in a film formed on the surface by the steel trowel. Besides the smooth finish showing every little blemish and variation in color, it is much more slippery than any of the other finishes.

The wooden trowel finish is growing in popularity, and certainly has many points in its favor. The brush finish is similar to the wooden trowel finish.



Concrete Boats in Italy

Reinforced concrete barges and pontoons of considerable size have been in use for some time in Italy and have proved so satisfactory that the Italian Government has contracted for several large barges for use in harbor work. The first of these boats is of sufficient size and has been in use long enough to furnish a test of their utility. It is a double pontoon, built in 1897, 67 feet long and 27 feet out-to-out of the two parts on which is built a boat-house for the Rome Rowing Club. In 1905 the Italian Navy Department built the "Liguria," a reinforced concrete barge of 150 tons burden, 57 feet long and of 18 feet beam. This was first put upon the harbor work near Rome, but has since been towed to and from many of the ports of Italy. The Liguria was so successful that the government built another 100-ton barge, on the model of which four others are now under contract. In several other places in the kingdom, notably across the River Po, near Pavia, pontoons of reinforced concrete are used to carry small or light bridges. Most of these constructions have been carried on by Messrs. Gabellini of Rome.

Coliseum Cement Show

All arrangements for the Second Annual Cement Show in Chicago have been completed. It will be held in the Coliseum February 18-24, 1909. These dates were chosen in accordance with the expressed preferences of the great majority of previous and prospective exhibitors.

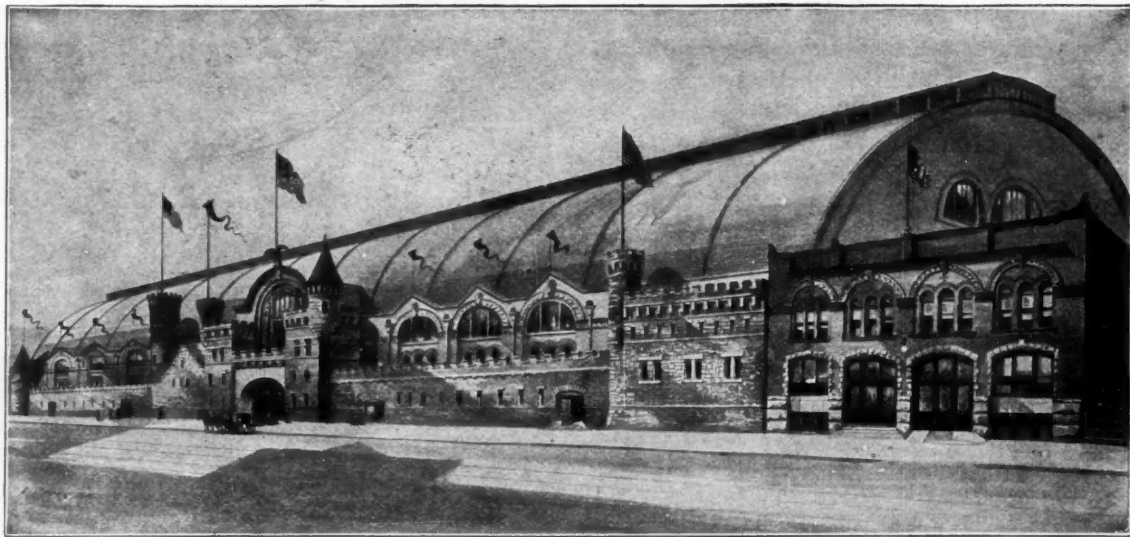
A uniform scheme in the arrangement of booths and the decoration of the Coliseum will be employed. This makes it practically unnecessary for the exhibitor to do anything else than to move into the space allotted to him. His whole booth, including partitions,

many persons directly interested in the uses and appliances for the use of cement.

The management requests intending exhibitors not to apply for more space than they actually need, as it is desired to provide for all applicants so far as possible and it is practically certain that all of the space will be taken.

Those entering applications later than November 18th will be allotted space in order of the filing of their applications in the office of the Cement Products Exhibition Company, Commercial Bank Building, Chicago.

At the first drawing of spaces for the show, spaces



The Coliseum, Chicago

signs, railings, floor coverings, desk, table and chairs, will be furnished by the management and placed in his booth. This plan it is believed will meet with unanimous approval, as the expense involved in putting up a booth by each individual exhibitor is saved and the great incidental annoyance and confusion is avoided. The general effect is also much more attractive to the public, upon whose interest the success of the show depends very largely. This of course does not prevent the exhibitor from placing any additional articles in his space that he may desire, provided he conforms to the rules and regulations. The space rental has been fixed at a rate consistent with the beautiful decoration of the Coliseum and convenient and attractive equipment of the booths, together with advertising and publicity on a scale that will insure a large attendance.

The Central Passenger Association has authorized a rate of one and one-half fare for the round trip on the certificate plan from points in its territory, and it is also likely that other associations will authorize similar reductions. These reduced rates will no doubt attract a large attendance from out of town.

The Illinois Masons' Supply Association and the Illinois Lumber Dealers' Association have announced that they will hold their conventions in Chicago during the show. This will mean the presence of a great

were drawn and allotted as follows in the order given:

- Rockford Sand and Gravel Co., 130.
- Edmundson Concrete Machinery Co., 150.
- Engineering Record, 92.
- Association of American Portland Cement Manufacturers, 142-3.
- M. C. Clark Publishing Company, 114.
- Meacham & Wright, 21.
- Robert W. Hunt Co., 76.
- United States Cement Co., 19.
- Williams Patent Crusher & Pulverizer Co., 94.
- United States Gypsum Co., 35 and 36.
- Chicago Architectural Photo Co., 141.
- George W. De Smet, 61.
- Concrete Publishing Company, 95.
- Chicago Builders' Specialties Co., 182-3.
- American Carpenter and Builder, 62-63-64.
- Chicago Concrete Machinery Co., 27-41-127-128.
- Ernest Benninghoefen, 30.
- Sandusky Portland Cement Co., 33.
- Cowham System, 8.
- American System of Reinforcing, 157.
- F. P. Smith Wire & Iron Works, 34.
- Garden City Sand Co., 37.
- Marquette Portland Cement Co., 20.
- Parker Hoisting Machine Co., 55.
- Cement Era, 40.
- Arthur Koppell, 32.
- Peerless Brick Machine Co., 49.
- Eureka Machine Co., 125.
- Universal Portland Cement Co., 73-74-75.
- Cleveland Akron Bag Co., 82.
- Engineering News, 93.
- Atlas Portland Cement Co., 69.
- Ornamental Tile Co., 60.
- Multiplex Concrete Machinery Co., 54.
- Chas. Wesley, 149.
- Technical Publishing Co., 153.
- American Lumberman, 47.
- Cement Machinery Co., 131-132.
- Miracle Pressed Stone Co., 155-156-175.
- Chicago Portland Cement Co., 48.

Wadsworth, Howell & Co. 96.
 Dodge Manufacturing Co., 38.
 Marblehead Lime Co., 91.
 Simpson Mold Co., 146-147.
 Oneida Community, 159-160.
 Western Concrete Construction Co., 102.
 Luck Cement Post Co., 145.
 Centrifugal Concrete Machine Co., 25.
 Concrete Age, 139.
 Meremac Cement & Materials Co., 7.
 William Perry, 97.
 Indiana Concrete Form Co., 163.
 Ballou White Sand Co., 104.
 Wabash Portland Cement Co., 140.
 Arrowsmith Concrete Tool Co., 138.
 Cement Age, 109.
 M. J. Morehouse, 44.
 Knickerbocker Co., 31-45.
 Mateer Bros. Co., 126.
 Paul Holmes Manufacturing Co., 22.
 Foote Concrete Machinery Co., 173-174.
 Kerlin Automatic Post Machine Co., 23-24.
 Universal Stone Crusher Co., 129.
 Kramer Automatic Tamper Co., 196.
 Chain Belt Co., 171.
 O. W. Overturf & Co., 178.
 Lock Bar Steel Concrete Co., 168.
 Luman Bearing Co., 136.
 Dexter Bros. Co., 144.
 Aiken Cement House Co., 59.
 St. Paul Cement Machine Co., 17.
 Marblecrete Products Co., 112.
 Monolith Steel Co., 6.
 Chatfield and Wood Sack Co., 90.
 De Arman-McKinney Mfg. Co., 39.
 George W. Jackson (undecided).
 Wege Brick Machine Co., 148.
 Western Iron & Foundry Co., 113.
 American Contractor Publishing Co., 154.
 Rutherford Cement Construction Co., 26.
 F. G. Gannett, 164-165.
 Besser Manufacturing Co., 11-12.
 American Asphaltum & Rubber Co., 50.
 W. E. Barney, 135.
 Miles Manufacturing Co., 51-52.
 Chas. Dietrichs, 167.
 Hill Clutch Co., 124.
 Climax Co., 197.
 Ironite Co., 5.

First Canadian Cement Show

It has been decided by the Canadian Cement and Concrete Association to hold its first convention and exhibition at the St. Lawrence Arena, Toronto, March 1st to 6th, 1909.

The exhibition will include not only products from the different manufacturers of cement, but also from the manufacturers of machinery, appliances and kindred articles.

The convention proposes to bring from the United States and elsewhere a number of very prominent business and scientific men identified with the cement industry, to address the convention.

Being the first show of its kind ever held in Canada it will be supported and encouraged, not only by the people interested in the business, but by the general public as well. The management are arranging with the railroads to give a reduced rate to Toronto that week.

An Exception

Binks—Very few women have any knowledge of parliamentary law.

Jinks—You should hear my wife. She has been speaker of the house for the last twelve years.

Big Cement Convention at Minneapolis

The fifth annual convention of the Northwestern Cement Products Association will be held on March 2-3-4, 1909, in the Armory at Minneapolis, Minn. The wide-awake and progressive Commercial Club of Minneapolis donated the use of the building to the association gratis. The members of the Commercial Club are intensely interested in the show and are spending their time and money freely to help the executive committee make the coming convention the biggest thing of its kind ever held in the northwest. The building is exceptionally suited for a cement convention, as it is of reinforced concrete construction throughout, with the exception of the exterior, which is of cement brick, and the immense span steel arches that support the roof over the drill hall.

The building itself occupies a ground space of 40,000 square feet, and includes within its walls, besides



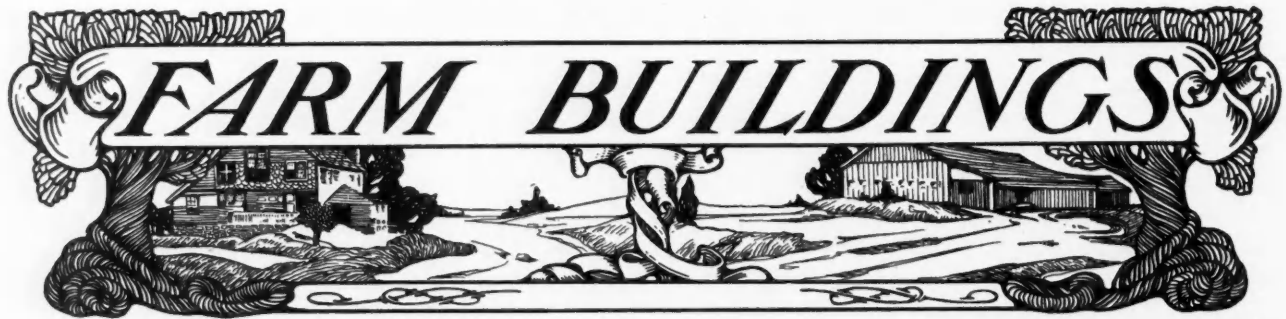
the drill hall, which is 160 feet square, a thoroughly equipped gymnasium 60 by 100, large storage room for artillery, company rooms for six companies and battery, thirty-yard rifle range and magazine under ground, officers' quarters, general reception room, private offices for commanding officers and adjutant, kitchen with all modern improvements, a dance hall 70 by 100 which will make an ideal convention room. The ceilings over the exhibit floor are 65 feet high.

Anyone wishing information regarding the coming convention should address either Martin T. Roche, President, St. Paul, or J. C. Van Doorn, Secretary, Minneapolis.

Cement Users Select Cleveland

The City of Cleveland, Ohio, has been selected for the fifth annual convention of the National Association of Cement Users, to be held during the week of January 11-16, 1909.

The association can do great educational work in that part of the country in exploiting the proper use of cement in all its varied applications, and it is, therefore, the duty of every member to become interested in and attend the fifth convention at Cleveland.



A Convenient Barn and Stable

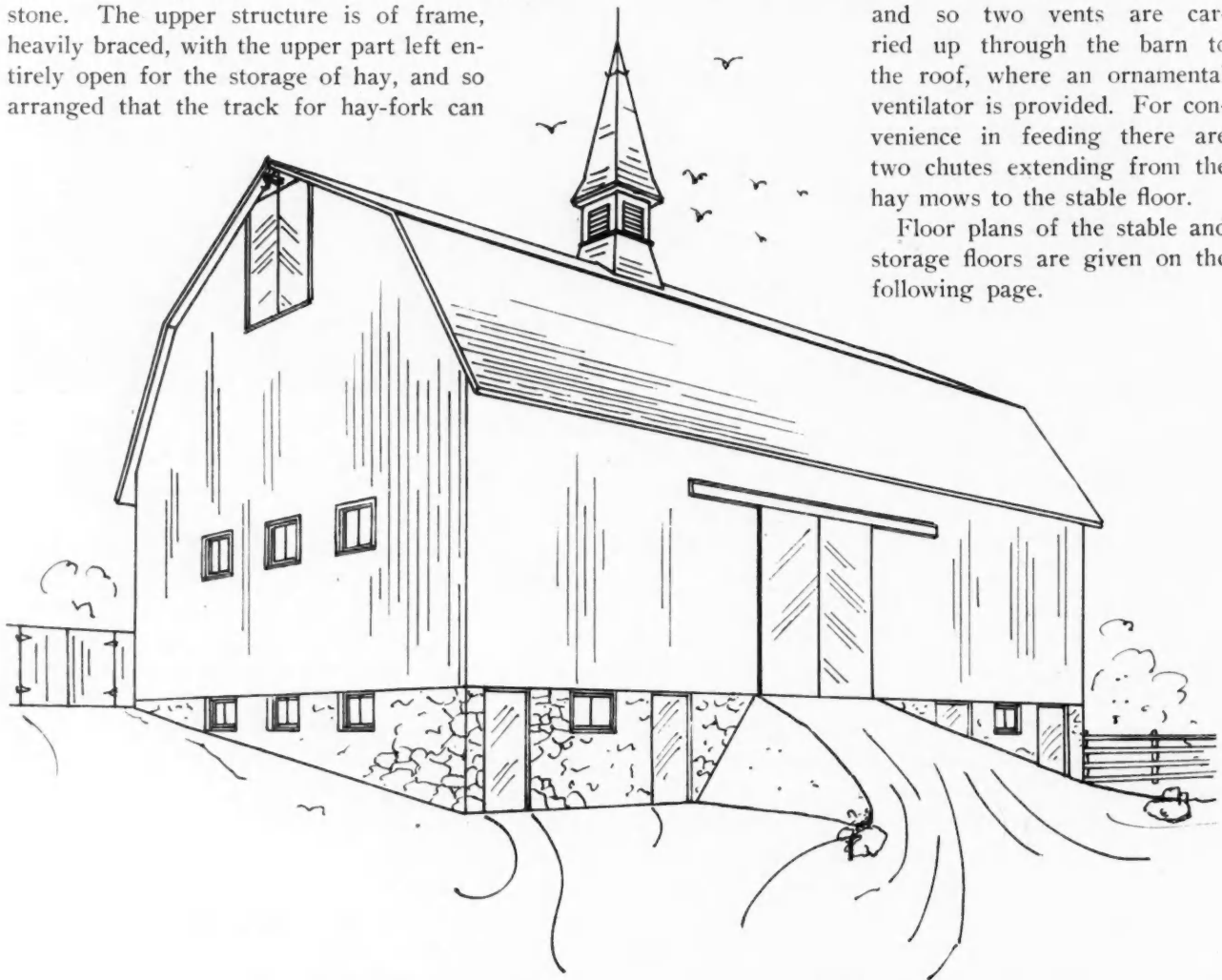
DESIGN OF CONSIDERABLE MERIT GIVEN FOR A GENERAL-PURPOSE FARM BUILDING ESPECIALLY ADAPTED TO A SLOPING SITE

THIS barn, which is to be built on a bank or slope, has the advantage of an entrance to either floor from the ground level. It is 30 feet wide by 80 feet long, with a full sized basement built of stone. The upper structure is of frame, heavily braced, with the upper part left entirely open for the storage of hay, and so arranged that the track for hay-fork can

has the special feature of providing ample space for vehicles and farm implements, and also for other storage in addition to hay.

Ventilation in the basement is of great importance, and so two vents are carried up through the barn to the roof, where an ornamental ventilator is provided. For convenience in feeding there are two chutes extending from the hay mows to the stable floor.

Floor plans of the stable and storage floors are given on the following page.



extend from end to end. Hay can be put in either from the central driveway or from the ends of the barn.

In locations where stone is scarce, the basement could be built equally well of concrete. This basement is arranged for twenty cows and six horses. The upper floor, which has two sets of large double doors

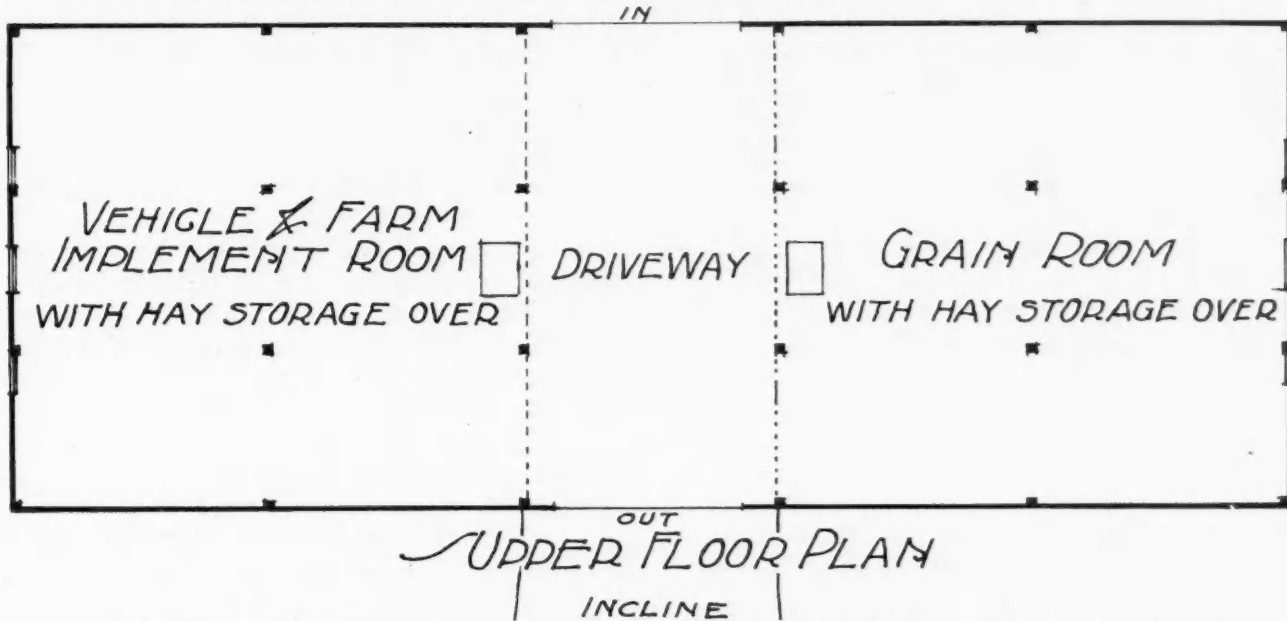
Modern Plumbing Fixtures

It is only a little more than 125 years since the first patent was issued in England for a water closet. This was the first one that had what was known as a "trap," to contain water for a seal. Three years later, in 1778, a patent was issued for a water closet with a valve at the bottom. After this, but little progress

was made in the improvement of water closets until 1833, when the first American patent was issued. Indeed, until the filing of the application for a patent for a siphon closet, no real cleanly and sanitary type of closet was on the market.

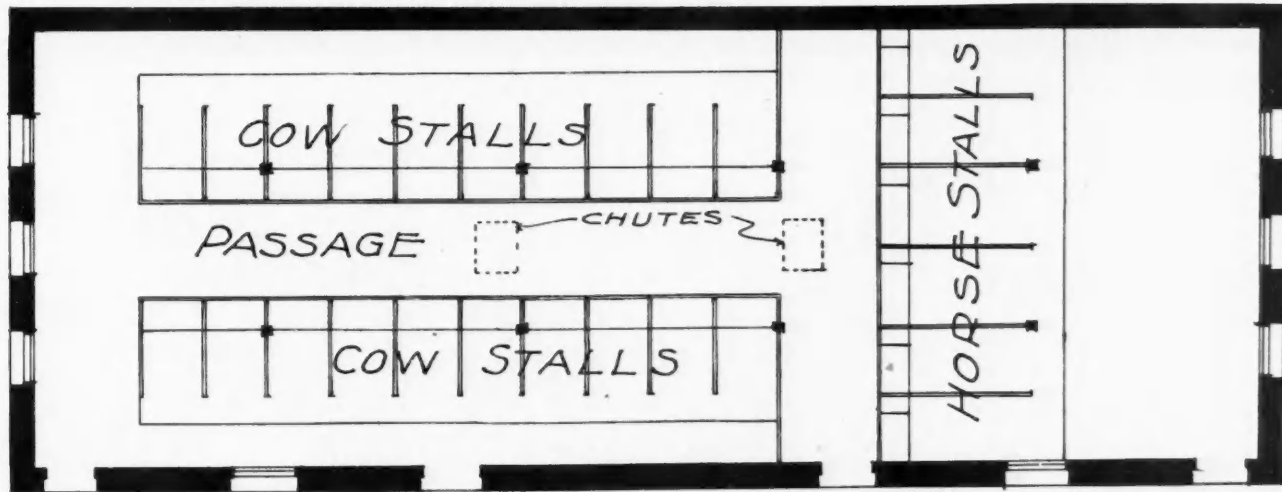
Bath tubs and lavatories have improved as much in

plete revolution in the design of these fixtures. Within twelve months the marble top lavatories were driven as completely from the market as though they had never existed, and today, in the newly built house, they are quite as much a matter of curiosity as the old pan closet.



appearance in the time that has elapsed as have water closets. The earliest bath tubs were hewn out of marble. Later, when they came into extensive use in the United States, they were chiefly made of wood, lined with sheet zinc or sheet copper, tinned on one side, and it is quite recently that imperial porcelain and

The essentials for a perfect system of plumbing, in modern times, are an adequate supply of water to flush the various fixtures; fixtures that are of enameled iron or porcelain, set open, in well lighted and ventilated rooms; waste pipes large enough to carry off all waste material, but not too large to be self-clean-



GROUND FLOOR PLAN

porcelain enameled tubs came into use, and that porcelain tubs were manufactured in this country. Open plumbing was unknown twenty years ago, and in its stead plumbing fixtures were concealed as much as possible by encasing them in woodwork of more or less ornate design. At that time lavatories were all made of marble, and of this material fully 90 per cent were made up to about the year 1902. About that time porcelain enameled and imperial porcelain lavatories began taking the lead, and they worked a com-

ing; a system of ventilation so arranged that it will ventilate every part of the drainage system properly; a quality of piping for soil pipe and drains that will not corrode, or be affected by sudden changes in temperature; and a thorough system of testing and inspection by practical men, not only when the work is finished, but during the installation of all piping.

The plumber is the man who saves the doctor's bills and keeps many diseases from the home by his skill and knowledge of what good plumbing means.

Some Useful Articles for the Farm

HOW TO BUILD AN ECONOMICAL SILO, A SERVICEABLE FRUIT PICKER'S LADDER AND OTHER USEFUL ARTICLES THE COUNTRY CARPENTER IS CALLED UPON TO BUILD

By Harry Shepherd

THERE is considerable business to be found in meeting the needs of people. One has to look around and judge their wants. Nowhere is this so true as in dealing with the farmers. One little implement may establish a desirable reputation among many, fill a short interval of leisure and use up some odds and ends of stock. To be sure, carpenters and builders have become such close estimators that they

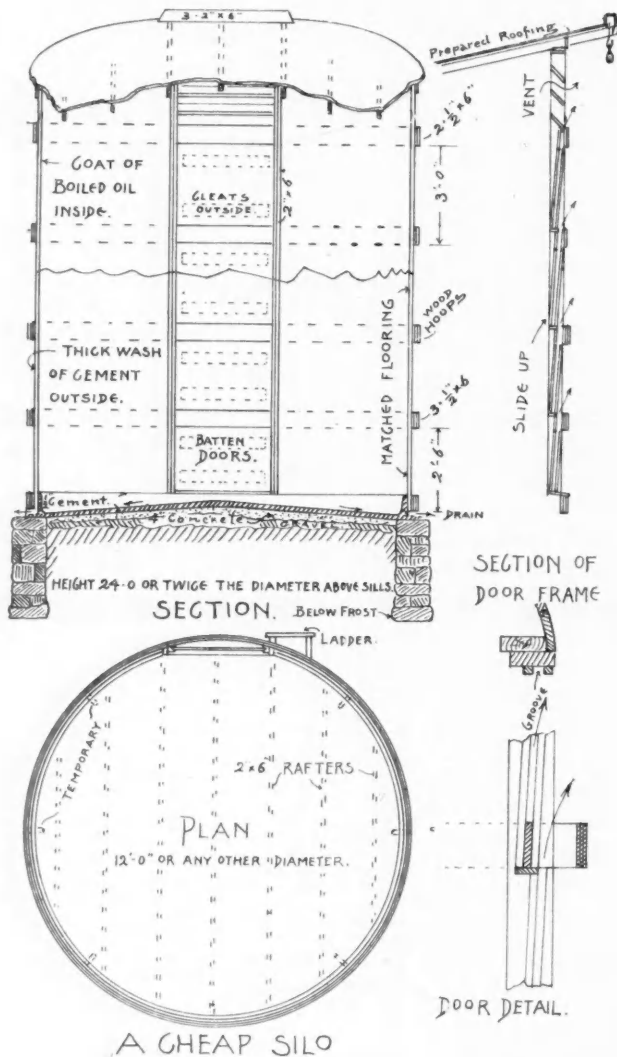
16 feet in length into place, then another until they meet around the circle. Start the second layer in the middle of the first strip, lapping joints. The lower hoops should have a third layer.

Build a temporary form of scantling. The silo should be about twice as high as the diameter.

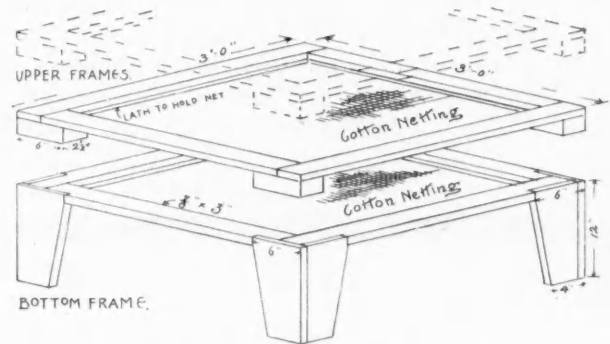
The hoops are then to be placed 2 inch, 6 inch to 3 inches apart, being a little closer together at the bottom.

Next put up two 2 by 6 pieces with a slightly beveled edge, and extending above the top hoop, for the door jambs. From one of these start the sides of the silo by nailing a strip of tongued and grooved flooring inside the hoops. This should be of a quality free from knot holes.

After the flooring has been carried all around, remove the temporary form and place two rafters from the top of the door frame, pitching down towards the back onto the top hoop. With a straight edge a line can then be drawn along the inside of the flooring



A CHEAP SILO



FRUIT DRYING FRAMES.

by which to saw off the top. Place the other rafters, and roof over with more flooring.

The doors in this design are planned to slide up independently. This is accomplished by making the grooves in the frame slightly diagonal, overlapping top and bottom behind each hoop. The cleats of the doors have to be on the outside so as not to interfere. This can be easily measured out on the jambs and the grooves nailed on before they are put in place. Then the sills and the ventilator blinds can be fitted.

A cross piece should be laid on the roof in case a pulley is used. Some prepared roofing can be laid and tacked over the edges.

A ladder should be built along the side of the door. Check out the stringer to receive the rounds. Do not rely on wire nails in important places.

The silo will be finished with a cement bottom with drain holes at the edges. It should be coated with boiled oil inside and cement outside.

In locating the silo, or any other outbuildings, have an eye to the general effect. Do not let them straggle

seldom have a piece of wood left over; but is it not better to have a little stuff on hand for chance needs?

Among the requirements of the farm there is probably nothing so much in demand as a cheap silo for preserving fodder. The one for which drawings are shown is not only simple of construction but durable also. The wooden hoops are said to be as lasting as iron. They should be of close grained wood free from knots or flaws.

Make a circular form against which to bend the hoops. This can be done with some blocks on the ground. Tack a smooth strip 1/2 by 6 inches by 12 or

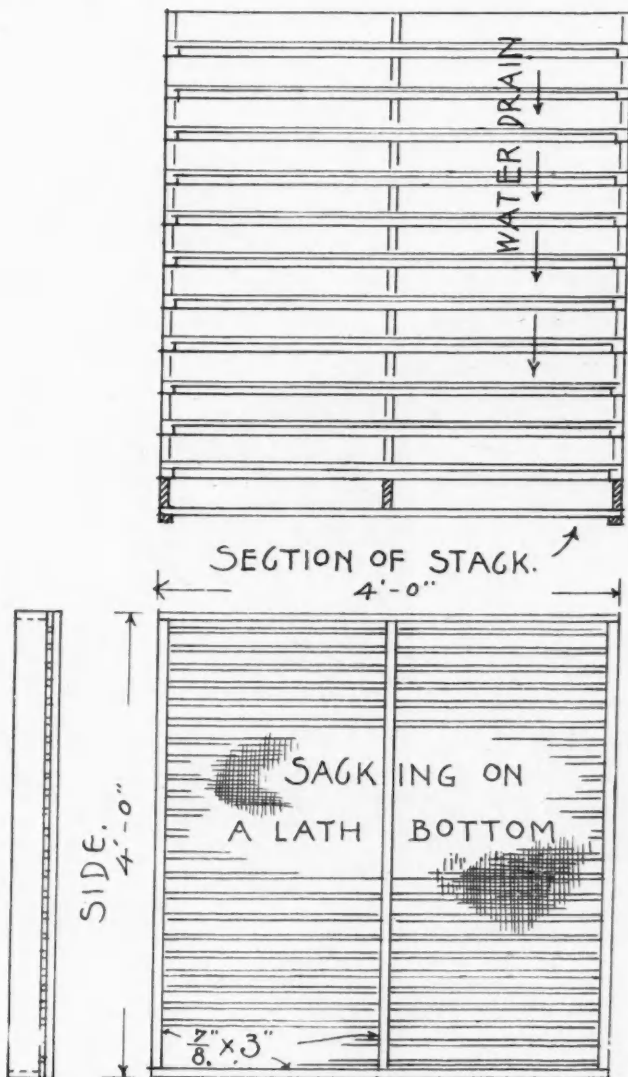
around. Let them preserve a boundary to the farm yard or be in connection with the stock barn. Line them up conveniently or preserve a symmetry from the road.

A Useful Drying Frame

Some useful furniture for the country estate is also shown. Sun dried fruit has a flavor superior to that drier by any other method. For this a stack of frames is needed with bottoms of cotton netting. A lath will hold this in place. Blocks on the corners will insure circulation and easy handling. The frames should be about 3 feet square and can be made of $\frac{7}{8}$ inch stuff as shown.

For Poultrymen

There is another kind of frame used by poultrymen for preparing chicken feed. This is for soaking oats until they sprout, forming dense cakes. A shallow tray 4 feet square and 3 inches deep is made with a lath bottom. There should be a strengthening parti-



Rack for Oat Sprouts

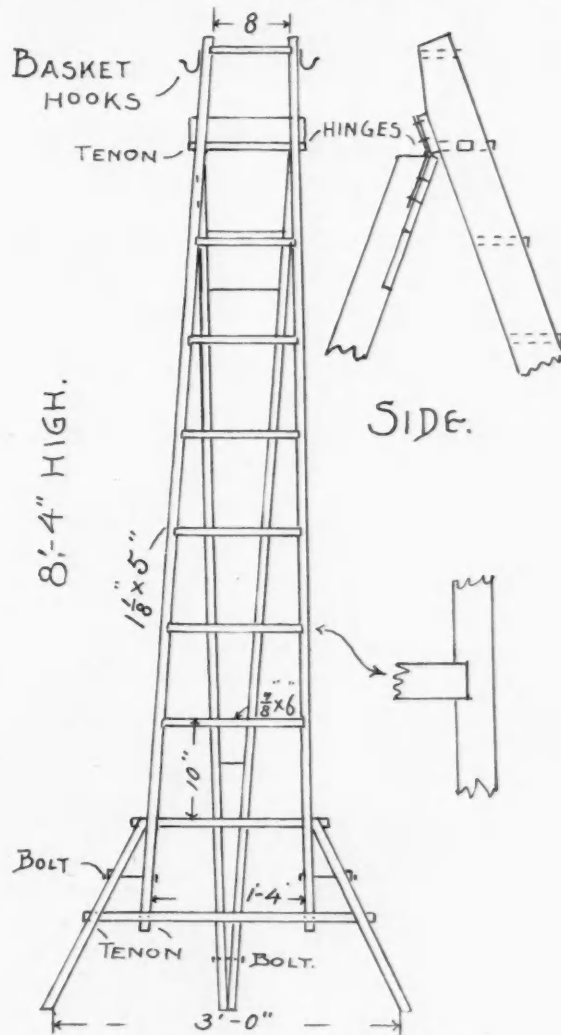
tion in the middle. Coarse sacking is placed over the bottom to keep the oats from falling between the laths, which should be about $\frac{1}{4}$ inch apart.

When these trays are filled an inch deep with oats

they are stacked up and water poured through from the top. Fresh frames full are added daily until the first ones have sprouted sufficiently for use, so quite a lot of them are needed.

A Fruit Picker's Ladder

Where there are many fruit trees a suitable step-ladder is needed. The support behind should be nar-



LADDER FOR FRUIT PICKING.

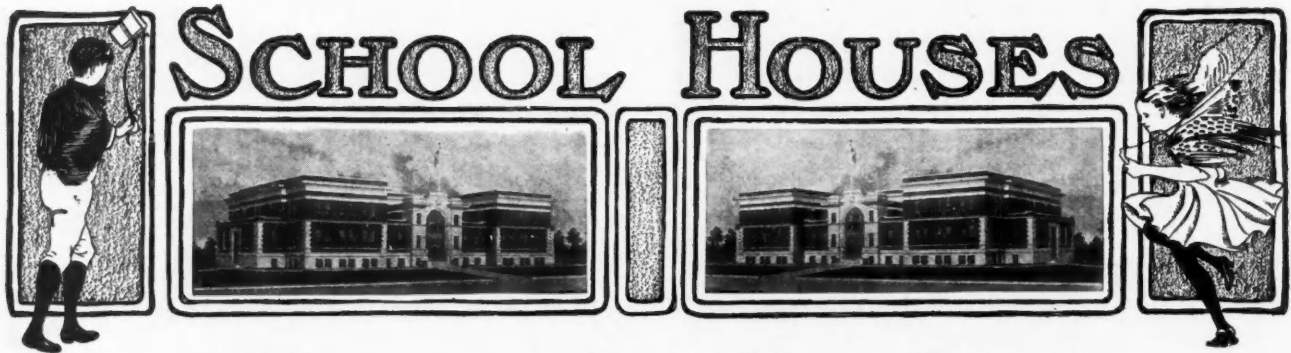
row so it can be thrust in among the branches. This necessitates a wide front, splayed out as shown in the diagram. It may not always need to be so high.

The sides should be $\frac{1}{8}$ inch thick, allowing grooves to be made for the ends of the treads. The ends where the strain comes should be tenoned with a nail to pin them. Several bolts should also be used. There is a web in the top and bottom of the back brace, as it has to withstand considerable wrenching in being thrown about. Long strap hinges should finish a good job.

The farmer saves time in having articles like these to work with, and accomplishes more than where some temporary rig is improvised.



Don't tell about what you would do if you were someone else—just show what you can do yourself.



A Convenient Eight-Room School

A DESIGN OF EXCEPTIONAL MERIT PRESENTED, SHOWING ARRANGEMENT FOR GREATEST CONVENIENCE AND ECONOMY IN BUILDING

THROUGH years of experience in the designing of public school buildings certain standard types have been evolved, which seem to fulfill the ordinary conditions better than any of the others. It is another instance of the law of the Survival of the Fittest.

The general plan and arrangement of rooms given

connection with each room, are so arranged that the pupils can march around through them for their wraps without crowding or confusion. The principal's office on the first floor and the library, similarly located on the second, are special features.

The exterior in this design has been handled very successfully; it presents a very pleasing, dignified ap-



herewith is one of these types. It is the design for an eight room graded school building that has stood the test of time, proving itself to be safe, sanitary, convenient and economical to a greater degree than any other. It is the work of Geo. W. Ashby, architect.

The plan is simple rectangular, two stories and basement, four class rooms on each floor, the doors all opening on to the broad central halls. All class rooms are exceptionally well lighted. The coat rooms, in

pearance. The basement courses are lime stone, the walls of sand-lime brick, the roof of slate. The broad eaves add to the roomy, inviting appearance of the building. The floor plans are given on the next page.



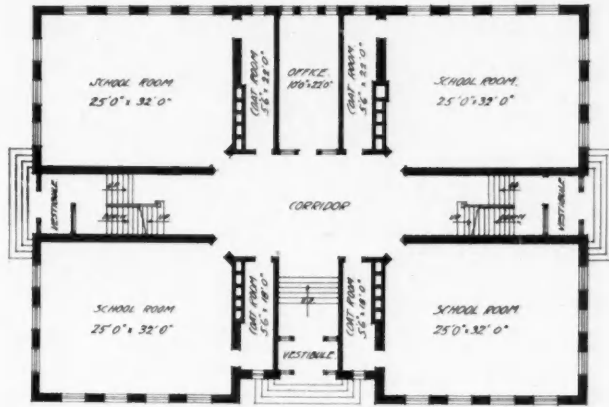
Wood Construction Still Leads

Great as the advance in fire-proof construction has been during the last ten years, there has been no let-up in the use of lumber, and both architects and builders

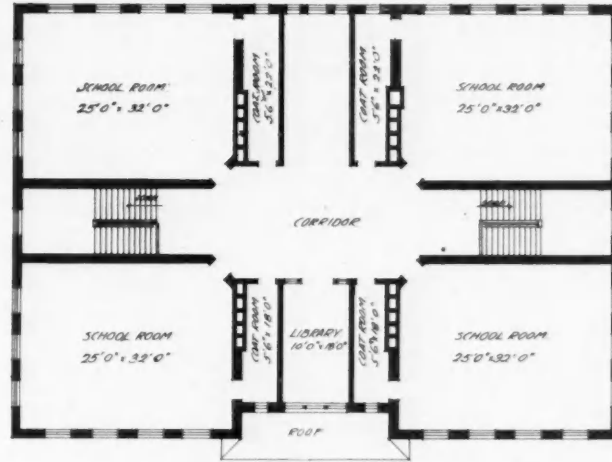
find themselves so dependent on wood today that they are compelled to admit that the forests of the country are likely to be the chief source of building material for many years to come.

"The use of cement, terra cotta, brick and stone, with a framework of steel, will make it possible soon to do away with wood entirely," is a remark often heard, and, indeed, when one stands on lower Broad-

erected last year, approximately 61 per cent were constructed of wood, and the remaining 39 per cent of fire resisting material, according to a report issued by the Geological Survey on operations in forty-nine leading cities of the country. These figures are the more significant when it is realized that they only represent the building activities in the larger cities; they do not take into account the construction of dwell-



FIRST FLOOR PLAN -
Eight-Room School Building



SECOND FLOOR PLAN

way and looks up at the towering skyscrapers, the statement seems to contain much truth. As a matter of fact, however, the popular idea that fire-proof materials will do away with the need of using lumber in a comparatively few years is a very erroneous one. All of the various fire-proof materials going into the approved construction of the more substantial buildings are used in greater quantities now than the world dreamed of a few years ago, yet the heavy demand for lumber continues.

That wood predominates is shown by the annual building records. Of the permits issued for buildings

lings, stores and other buildings in the thousands of small cities and towns scattered over and not included in the forty-nine cities on which the reckoning is made.

In towns and small cities wood is usually the predominating building material, and it is safe to say that if the statistics had included figures for all places of whatever size, the percentage of wooden construction would have been much greater. These figures, as a rule, are only for the corporate limits, and the suburbs of these cities have each very large amounts to be added. The cost, also, is relatively higher in these cities than in towns nearer the base of the supply.

The Strength of Chains

A PRACTICAL RULE FOR THIS IMPORTANT MATTER THAT IS HANDY AND EASILY REMEMBERED

By T. B. Kidner

VERY often in construction work the question arises as to the amount which a chain will safely bear in hoisting some beam, girder or other heavy article. Of course, all engineering and construction pocket note books give the safe working strengths of the various sizes of chains, but sometimes these books have a knack of getting into the pocket of a coat at home just when wanted on the job.

Here is a simple rule, which can be remembered and easily applied, the result giving an approximately safe working load for chains of different sizes: "Square the number of eighths of an inch in the diameter of the iron of which the links of the chain are made, and strike off the last figure as a decimal, and call the result tons."

For example, in a chain with links made of iron 1

inch in diameter, $8 \times 8 = 64$, and 6.4 (6 $\frac{4}{10}$) tons would be the safe working load. Or, in a chain with links of $\frac{3}{8}$ iron, $3 \times 3 = 9$, the safe load would be .9 or $\frac{9}{10}$ of a ton.

These loads are, of course, a very long way from the breaking, or "ultimate" strength of the chains, but it must be remembered that a hoisting chain is subjected to the very worst kind of stresses; for the loads are not only "live" loads, but are generally applied in a series of jerks and sudden stresses.

Another important point to remember in using chain gearing is that "the strength of a chain is the strength of its weakest link." Therefore, all connections must be looked after very carefully. The writer has witnessed several chain accidents and in every case the cause was the breaking or failure of some connecting pin or link, and not of the main chain.

How to Apply the Wood Trim

PROPER METHODS OF CONSTRUCTION FOR PLASTER WALLS HAVING OPENINGS CASED WITH WOOD—
HOW BASE-BORD AND FLOORING ARE APPLIED

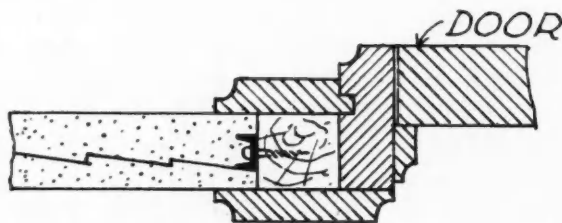
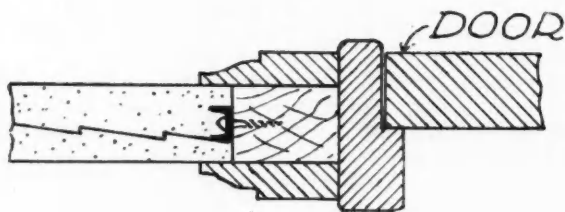
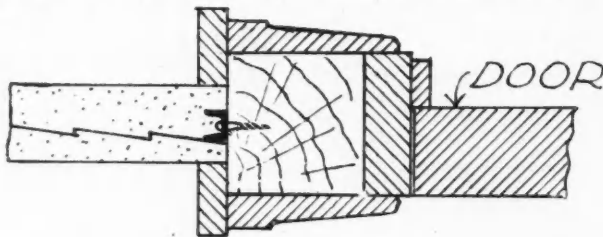
By Charles P. Rawson

THERE are a number of features in connection with modern fireproof construction that are of particular interest to carpenters, especially to those working in the larger cities where steel, tile and

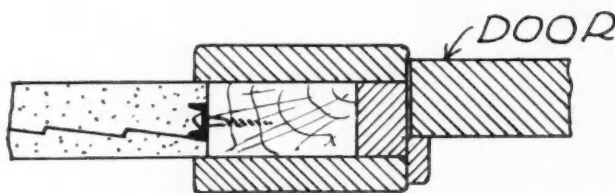
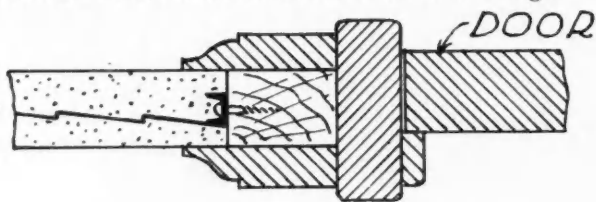
wood frames are set in place before the partition is erected and to these the metal studs are secured with screws. The partitions themselves are usually erected by the plasterer.

The difference in the various styles of framing shown is principally in the character of the finish. Naturally, those sections which have the widest door jambs will be found the stiffest. Various modifications of these details, to suit the judgment or taste of the architect, may, of course, be made.

The third figure shows the method adapted for securing the base board. The rough 2 by 3 inch piece is laid on the line of the partition and secured directly

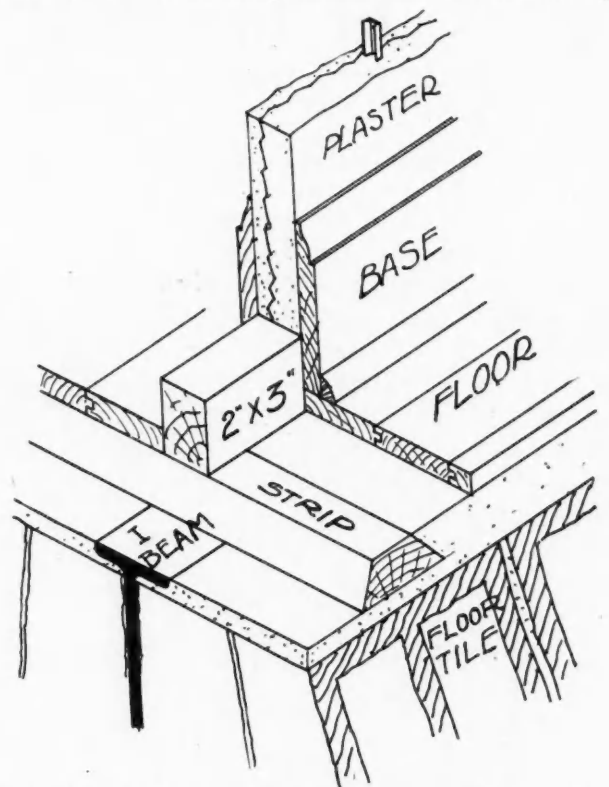


cement are now so generally used. A question very frequently heard is—"How do they nail on the finish to make a good job of it?" The detail sketches show the answer with special reference to plaster partitions—a type of wall by the way which is often very serviceable in small wooden store and office buildings.



In order to economize floor space as much as possible in fireproof buildings, thin partitions, as a rule about 2 inches thick, are introduced.

In the first two figures methods of framing for doors in this kind of partitions are shown. The rough



to the floor strips, and the partitions built on this piece.

After the floor is laid the base is nailed directly to this strip. For securing picture molding, strips of wood may be laced to the metal lath at the required height before the plastering is done. These are sufficiently firm, after the plaster has dried, to hold the picture molding, which should be put up with screws instead of nails. In case close-warp metal lathing is used the screws will engage the meshes of wire work sufficiently to hold the picture molding without any preliminary strips.

With slight modifications, the methods shown for door framing could be adapted to hollow tile partitions.



It is not enough to hold the key to the situation. You must be able to turn it to open the door.

A Talk on Ventilation

BREEZY ITEMS FROM AN ADDRESS BEFORE THE ANNUAL CONVENTION OF BUILDING MANAGERS—
POINTS OF SPECIAL INTEREST TO CONTRACTORS AND BUILDERS

By Edward S. Sidman

IN CONSIDERING the subject of ventilation, we should bear in mind the fact that heat, humidity and ventilation are so interwoven that it is impossible to separate them. It seems needless to dwell on the necessity of ventilation, and still from the fact that so few of our buildings are properly equipped with ventilating system, it seems imperative to say why we should ventilate all classes of buildings.

In olden times, which I myself and I presume several of those present can recollect readily, our buildings were built in such shape that there was no question about getting all the air we needed, and the old fireplace made the best of foul air vent flues. The more congested our towns and cities become, the higher we build our skyscrapers, the better we build our flats, apartments and houses, the more necessary becomes artificial ventilation. Men can live several days without food or water, but deprive them of air for a very few minutes and you will see their finish.

Value of Ventilation

The value of ventilation cannot be overestimated. In either offices, factories or residential property, well ventilated buildings form one of the best investments that can be made. Why? Because any office property equipped so that each and every occupant thereof receives the thirty cubic feet of pure air per minute that is due him in nature's laws, can and will do more work and easier than he or she could possibly do in a foul, dry atmosphere.

Another point which appeals to tenants, who are employers of labor, is the fact that there is a decrease from loss or absence through sickness of their employes, as high as from sixty to ninety per cent, if offices and rooms are properly ventilated.

Therefore, any office building properly equipped in ventilation, can be rented to any sensible, thinking tenant at a better figure than it could without. In fact, there are thousands of offices where the tenant himself goes to the expense personally of equipping his offices with ventilators.

Today, very few people, comparatively, have any other home than such as can be found in a flat or apartment. Why should these people, even though they have to be packed like sardines in a box in some modern flats where it is necessary to take the wall paper off in the hall in order to move the piano, be deprived of all the benefits, not to say luxury of pure air? It is not a theory, but a fact, that the better ventilated, better heated, and more sanitary are offices, flats, apartments, or any description of property, the more rent they will command.

Another point: With proper heat, humidity and ventilation of buildings, the spread of tuberculosis and

kindred diseases is to a great extent prevented; the tenants are then a cheerful, joyous set of people, who never rise up in the morning with a dark brown taste in the mouth, ready to fight with their landlord on sight.

While there are many different variations in ventilating systems, there are really only three systems of ventilation: mechanical, or fan system, semi-mechanical and natural. A complete mechanical or fan system, consists of both removing the foul air and introducing fresh air by fans, while the natural system depends upon the laws of nature, aided by heat, to positively withdraw the foul air, while the fresh air comes in naturally through properly equipped devices spread around the room to fill the places of the foul air so withdrawn.

In very few, in fact, if in any office building, has there been or can there be a complete mechanical system installed. From the very construction of our office buildings, the building of conduits and vent flues, are impracticable above the banking floors. In fact very few of our office buildings in this country have made any effort towards ventilation, outside of the basement or banking floors, managers leaving it to the tenants to either suffocate or furnish their own ventilation in their offices.

While we do not depreciate, and are still willing to engineer and lay out a mechanical system of ventilation, as we are the natural system, still when our advice is asked and taken, we recommend the natural system of ventilation for the following, which seems to us, good reasons:

The Mechanical System

The theory of the mechanical system is that forcing air into the room by mechanical means, we create an air pressure in the rooms of from three to four ounces, thereby sealing the windows against the inrush of air, and furnish pure air to the occupants. While this theory is very pretty, looks good and sounds good, we have never found it (although it may have been found by others) to work out satisfactorily in practice. We have taken numbers of carbocidometer tests, and while we have always found pure air in contact with the air coming in from the fan, we have invariably found foul air outside of this direct line. This, of course, refers to tests made in schools and offices, where all the occupants were more numerous than the cubic contents called, or designed for. As you well know you may have an office with proper accommodations for eight people, but the tenant may put a score or more into the room. On the other hand, in every building of any description fitted with natural ventilation, so that there is a positive withdrawal of foul air

at all times, there must be and will be inrush of fresh air to take its place.

The old idea—and still I won't say old, as there is still in the minds of many people the idea that ventilation consists of a blast of fresh air blown in on one side of a room and out through the other side, or through the doors or transoms, or that to rid the room of foul air all you have to do was to lower a window or punch a hole in the ceiling—this idea, I say, has been proven to be one of the greatest fallacies or fables that we have.

Ventilation should be as nature intended it, a gradual change of air in every nook and corner of the room without perceptible draft, but enough to furnish each and every occupant of the room with pure air at all times. Our contention is, that such ventilation cannot be accomplished as well, as economically nor as satisfactorily in any manner as by a natural system of ventilation.

The Natural System

The advantages of natural ventilation as previously spoken of, consists of the positive withdrawal of foul air instead of trying to force the fresh air into the room. By these means, that is natural means, we can utilize the fireplaces and other foul air vents, which nearly every office, or apartment or residence has, as a means of withdrawal of the foul air. Then the fresh air is brought in in small quantities, through devices equipped with cleanable screens, so that there is never any stoppage of the device by dirt without raising the window for fresh air, we accomplish something that no mechanical system can do. At the same time, we reduce the first cost of the ventilating system to a minimum, and there is never any expense for maintenance or operating, unless you can charge up the expense necessary to wash the screens in the ventilators whenever the windows are washed.

It is either absolutely necessary to wash the air through expensive and cumbersome machinery of a cleansing system, or else equip the natural system with cleanable screens in order to have absolutely pure air without dirt or dust at all times.

We would not depreciate results obtained from washed air under any circumstances, we simply contend that this expensive machine in the first place, with its necessary expense for operating, can be readily eliminated by using the Natural System.

I have shown by carbocidometer test, which is the only true test for impure air known, what impure air is. This takes the place of the old bothersome system of micrometering the flame of a candle with its usually unsatisfactory results.

I wish that you gentlemen would always bear in mind that the main evil of all our offices, flats and apartments above the thirty-fifth parallel is over-heating, therefore a thermometer in every room or office is practically of as much importance as the heating system itself. In all cases wherever possible the heat should be controlled thermostatically.

Another point:—The question of humidity is a question that cannot be dodged. Humidity in our rooms is what makes the heat feel good. There isn't a single one of you gentlemen that has not at some time or another sat around a stove, register or radiator, with your coat on, and swore because the house was cold when the thermometer showed seventy degrees or above. At the same time any one of you will go out doors in the spring or summertime, with your coat and hat both off and enjoy life when the thermometer only registers sixty-two to sixty-three degrees. Why? Because the outdoor air contains sixty-five to seventy-five degrees of humidity, which is needed for comfort, while your indoor air, probably by hygrodeik test, would only show from twenty-five to forty. This, gentlemen, is the reason that the furniture goes to pieces, that everything you sit on squeaks in the winter time, that your piano gets out of tune, and that you rise up in the morning with a dark brown taste in your mouth, and when you strike the outdoor air, you are frozen. At the same time it is one of the simplest mechanical propositions ever to furnish a building, no matter by what system heated, with the proper degree of humidity.

Automatic Regulators

Every manager, of any class of building, should have in his possession at all times, an anemometer carbocidometer and a hygrodeik, and be thoroughly equipped to demonstrate to his tenants that they are getting the air they should have. An apartment or flat manager should equip his property with a heating system that nullifies or eclipses the janitor, whose entire duties should consist in putting in the coal and taking out the ashes. Every apartment should be equipped with a thermostat, so that the tenants have just exactly the heat at all times that they want, and are neither frozen nor roasted, as is now the case in ninety per cent of our flats.

Gentlemen of the Building Managers' Association, you are waking up to what managers of factories have long since found out; that buildings properly equipped with heating and ventilating systems attract a class of tenants that cannot be otherwise secured. While I do not feel like roasting you nor blowing at you for the faults of your previous methods, there has been a sad lack on your part of this vital question.



Washington Memorial

Americans in England have subscribed funds for restoring the church tower at Purleigh, Essex, where Lawrence Washington, great-grandfather of George Washington, was formerly rector.



Eph Green—Ah desires to purchase ah razzar.
Clerk—Safety?
Eph Green— No, sah; dis am fo' social usage.

CORRESPONDENCE



House of Oil Cans

To the Editor:

Tonopah, Nev.

We have about as strange a miner's cottage here in this silver city as you often see. Lumber of all kinds is very scarce, and so we have to use other material when we can. This shack is built of old kerosene oil cans, which are laid up like blocks in a natural adobe mortar. The only wood that is used is for the door and windows and the poles that hold up the mud roof.

The shack is 8 by 12 feet and is a single room. The walls

soon. Again, in regard to the inside finishing, I would like to have explained just a little more fully.

While we are glad to know it was accomplished, and to know that almost anything can be accomplished if one sets himself out to accomplish it, yet after all it may be hardly practical to build a home in a day, as the paint, plaster, etc., need just a little more time to make the very best job.

While this beats anything I ever heard of in the line, to finish complete a home in a day, yet after all the photos



Miner's Cottage Made of Old Kerosene Oil Cans

are about eight inches thick. Since they are practically all dead-air-space, the room keeps quite cool in spite of the awful heat down here.

J. C. JAKOBS.

There Have Been Others

To the Editor:

Indianapolis, Ind.

I read with much interest "A Cottage While You Wait." While I had heard of it before through the daily papers, your article, giving it in detail, made it of far more than ordinary interest; the illustrations and facts and figures were what made it of so much practical value. You should be given great credit for being able to secure it as you did.

The idea of building a home complete in a day is surely a new one to me, and I have tried hard to keep up with the times for the last quarter of a century. The only part that was not as complete as I would have liked was just how and what the house was primed with so the lumber could be handled at once, and the second coat of paint to follow so

showing the work from 7:30 a. m. to 3:00 p. m. do not show anything more than we often come in contact with.

For instance, my own home shows more rapidity on the start, though it was not finished in a day by a long ways. I had a lot and wanted to build on it, and get to living there to stop paying rent. I was working at the time and did not want to quit the job; so the boys said to me to get my lumber on the ground and they would come down Decoration Day in the afternoon and we would put it up. I did so; got the lumber there and everything ready as much as possible, and at 1:00 we commenced; soon had the sills and joist in place and went to raising the walls. As soon as one wall was up some one went to putting the lumber onto it, while we raised another wall; and so on, one following the other up. Soon the ceiling joist was put into place and the roof was raised, cornice built and the shingling started. All this was done with not so very large a force of men; and at just 5:00 o'clock, or in four hours' time, my home of four rooms

was practically enclosed, and so near completed that with what little I could do night and morning I moved in on the first of June.

But I was so anxious to stop paying rent that I moved in before the house was plastered. I built on a summer kitchen and shed, and lived there while the house was plastered. Then, after these four rooms were completed, from time to time I have built three or four more, until I now have a lucky home of thirteen rooms. So you see, although I started it in a hurry, it took me a long time to finish it.

Last year my neighbor, who had a nice cottage of six rooms, wanted to make it two story. As the old roof was completely worn out there was no use to try to raise the roof, so I got some men on the ground on a Friday, a lucky day, and we got everything possible ready. Saturday morning we went at it, and soon the house was entirely without a roof. Up went the second story. All arrangements were made for one to follow the other with cornice, setting frames, siding, etc., etc., and we were just getting along fine when our fine day darkened and very suddenly came up a regular Kansas cyclone. The wind and rain came in sheets; it was the most noted storm that passed over Indiana last year. While it drove us under cover several times, the boys stayed with me, and when it would stop so we could, we went at it again. Between showers, by working until 6 o'clock Saturday night, the little six-room cottage of the morning was changed to a complete two-story building, so far as the outside appearance was concerned, though, of course, it was not painted, and the plastering and finish was not done on the inside.

A few years ago there was a lot here in Indianapolis, over which there was some dispute as to who really owned it. One party was sure he did; and I guess that all have agreed now that he did. But until this time I am about to mention, the other parties would not let him build on it. He made up his mind that possession was nine points in the law, so he talked it over with us; and we agreed to put him up a good-sized business block (not a skyscraper however). So one rainy morning at 8:00 o'clock the first load of material arrived. We worked there in the rain all day, and in just eight hours, we had it entirely complete except the painting, which we could not do on account of the rain, as far as the outside was concerned. The windows were all in and the doors, which we locked up and left, to return and finish at our leisure.

And so I might go on and mention many out of the ordinary, but none of them surpass the one you mentioned, so we are ready to take our hat off to Contractor Carl.

I finished two rooms with black walnut, but it was not properly filled, so the varnish cracked; now if some of your readers can tell me how is the best way to make a job of it, I assure you I will appreciate it.

D. L. STODDARD.

Another "One-Day" House

To the Editor:

Bellwood, Pa.

I notice in your November, 1908, number, "A House While You Wait." Our congratulations to the builder, Mr. Carl. But to you, let me say, Bellwood can beat it. My father, who is in the same business as Mr. Carl, "Built a House in a Day," on the eighth day of August, 1893, a seven-room two-story wooden house with front veranda. This house was plastered, painted and finished in all respects, the keys handed to the owner the evening of the day it was built.

The house referred to is standing today in its glory.

CHAS. W. GHEER.

Utilizing Waste Heat in Furnace Flue

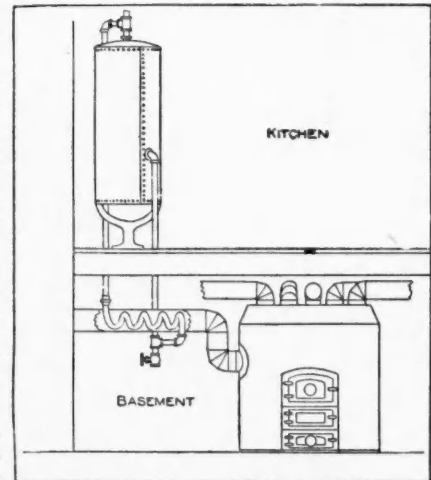
To the Editor:

Chicago, Ill.

Last winter an auxiliary hot water heater in conjunction with a hot air furnace was put in operation in my residence

which demonstrated that the efficiency of the old type of house heating furnace could be materially increased, and the coal bill thereby reduced. As the latter seems to be the chief object of the maker, a description of the plan may not come amiss for many that own furnaces.

This heater not only gives something for nothing by using a waste product, but makes possible the warming up of exposed rooms, halls, etc. Also, when gas stoves are used for cooking, and have no water back, connections can be made to the house service boiler, furnishing an ample supply of hot water at all times.



Water Heated by Waste Gases

The sketch shows the device installed for use in connection with a range boiler. A $\frac{3}{4}$ inch brass pipe (which is easily bent) is coiled and placed in the smoke flue of the furnace and connected to the water supply and the radiators or hot water boiler, or both. In this case it is used for hot water supply only, as a gas range is used for cooking.

The smoke pipe is short and only 7 inches in diameter, and the coil takes up a large part of its cross sectional area. As the draft is strong this loss of area does not prevent satisfactory operation.

When the furnace is started in the early morning, and before new coal is supplied, the outgoing gases in the smoke pipe easily reach 300 to 400 degrees. At this time the water in the heating system is at its lowest temperature and can best absorb this waste heat and utilize it.

It must be remembered that the coil should be placed between the furnace and the check damper, as the cold air admitted by this damper will decrease the heat absorbing capacity of the coil.

J. R. THOMPSON.

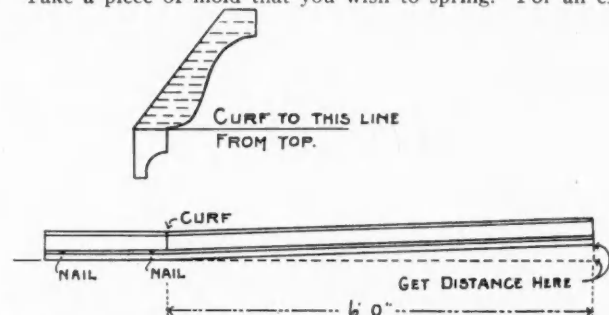
To Fashion a Curved Molding

To the Editor:

Flint, Mich.

Will endeavor to give Mr. George Schlamersdorf my method of springing mold to a curve, which answers very well where the work is to be painted.

Take a piece of mold that you wish to spring. For an ex-



ample, we will take a six foot radius for the circle. Measure off six feet and saw into the mold as shown. Draw a straight line on the floor, or bench, and nail the mold on this line; swing the mold until the cut closes tight. Measure the distance between the line and mold, which will be the required distance between the kerfs. Kerf the mold as far as the curve is desired, then nail in place fast as it is bent; all kerfs will close perfectly at the upper edge, and the mold will be to the shape of the curve.

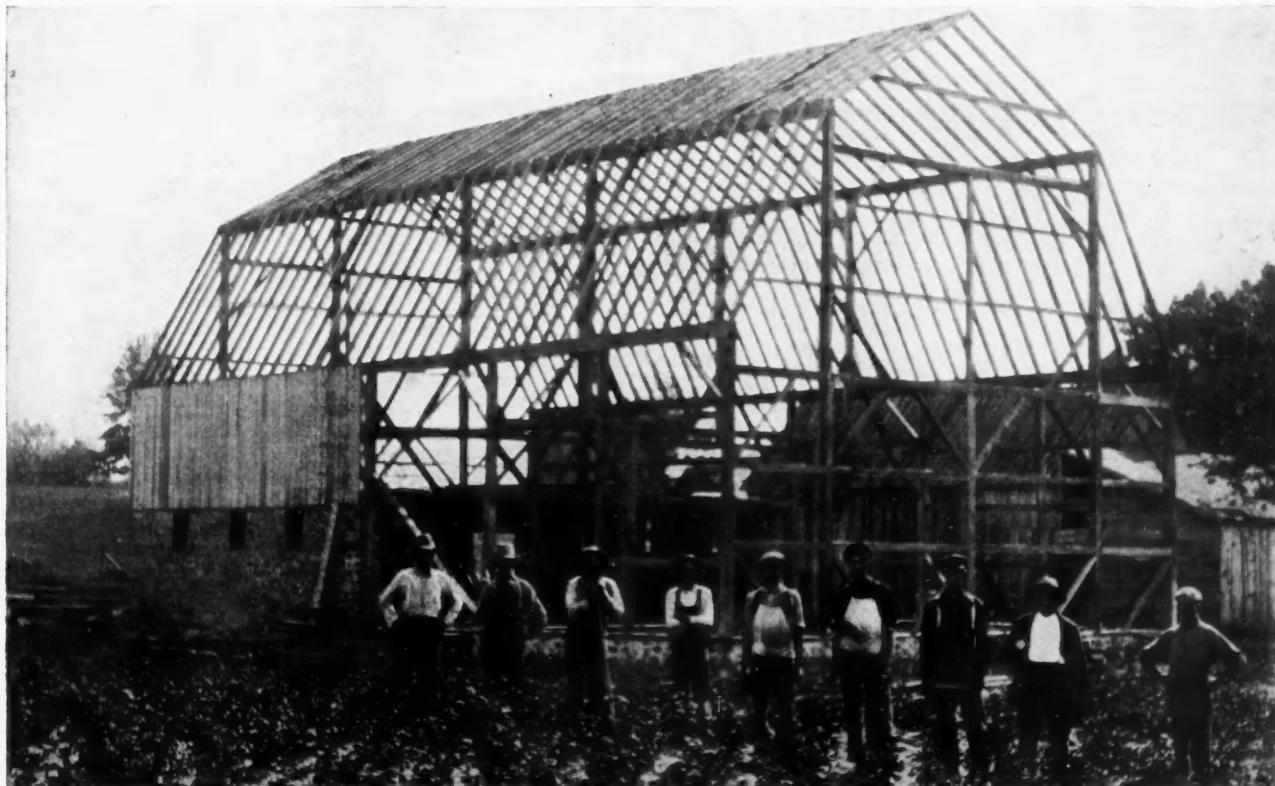
F. H. STOVER.

A Well-Framed Barn

To the Editor: Williamsburg, Mich.
 I will send you a photo of a barn frame that I have just completed. It was taken the next day after the raising. All

and toe-nailed to the plate. The pieces can be put on the rafters on the bench or saw horses and is what I call a rafter foot.

I am a charter member of the AMERICAN CARPENTER AND

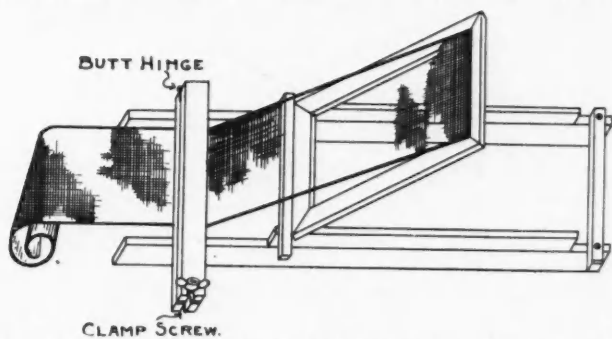


timbers in this barn are mortised and pinned. The size on the ground, 42 by 74 feet. It is 18 feet from sill to plate. There has been quite a lot of building around here the past summer. F. E. ORCUTT.

BUILDER, and will say it is the best paper for the carpenter that I have been able to get. HENRY CAIN.

Device for Stretching Screens

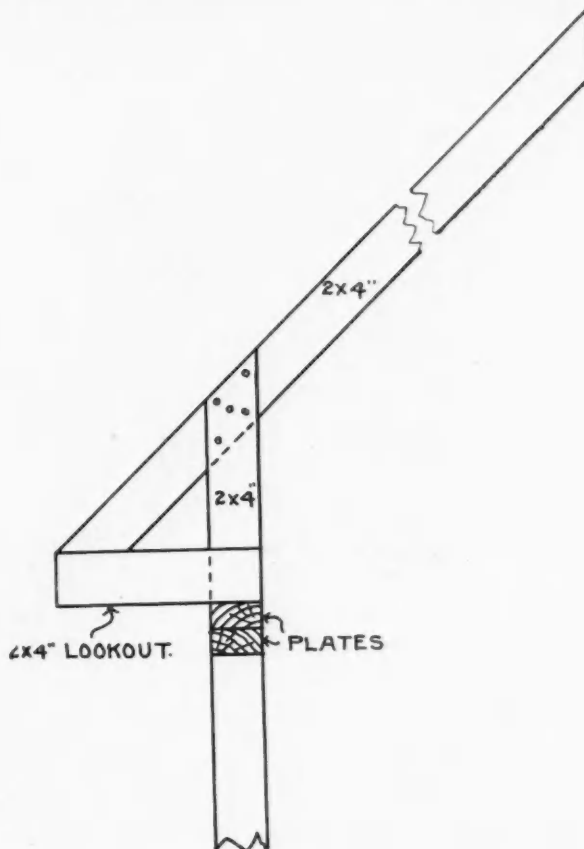
To the Editor: Lima, Ohio.
 I am sending you a sketch of a device I made for stretching screen wire on frames for doors and windows. I first tack



the wire along one end of the frame, then raise it to the position as shown and tighten the clamp, then force it down on the stretcher frame and tack the wire all around and put on the molding before cutting the wire. L. D. BOND.

Rafters for Story-and-a-Half Cottages

To the Editor: Beaver Crossing, Neb.
 I am sending you a rough sketch of a rafter which I use quite often for small buildings of 10 to 16 foot posts, where there are to be finished rooms on the second floor. By using this kind of construction, I gain the rise of the roof for the projection above the plate, as shown in the illustration. This makes a good stiff job, as all pieces can be spiked together





PRACTICAL TRADE APPLIANCES

A Progressive Concern

All lines of business combine to make Chicago the "Great Central Market," and her commercial supremacy is worthily upheld, as regards the hardware business, by the Stebbins Hardware Company. Located at No. 74 East Van Buren street, a short half block from State street, and readily accessible from all parts of the city by means of the various surface and elevated car lines, this establishment typifies the aggressive-progressive spirit of Chicago. Their three-story and basement building on Van Buren street houses a most capable and efficient force of practical hardware salesmen, and their warehouse facilities at 50 Eldredge Court permit of their purchasing stock in such quantities that the perpetual completeness of their stock has made the saying axiomatic, "If you can't get it at Stebbins, you can't get it in Chicago."

The business was established in 1860, and they point with pardonable pride to their record of nearly 50 years of successful endeavor to meet every demand of the most exacting of the skilled mechanics in America.

The stock carried embraces an unusually wide range of supplies, including what has been said to be the most complete assortment of tools ever assembled under one roof, also every requirement of the contractor and builder as far as hardware goes. We feel that we do not exaggerate when we

say that every one of our readers (provided he does not already enjoy that privilege) will find that he will be the gainer by directing at least a portion of his trade to this recognized headquarters for good hardware at a fair price.

Ford Plant and Products

At Vandalia, Illinois, is located the immense plant of the Ford Manufacturing Company, an illustration of which is shown herewith. Ford's Galvanized Rubber Roofing has a celebrated reputation. It has been made and sold under the same brand for forty years. This company claims to be the largest manufacturers in their line in the world. They own and operate their own natural asphalt mine and consequently know the quality of every ounce of asphalt they use. They gather and sort their own wool rags and all the wool-felt the use is made in their own felt mill. Their roofing factory is the world's largest and it performs every operation required to produce all their roofing products.

Controlling as they do, the entire supply of all raw materials entering into any part of their output, they are enabled to strictly maintain the high standard of quality that has won them their great reputation; this also enables them to stand back of their goods with guarantees of the most positive character.

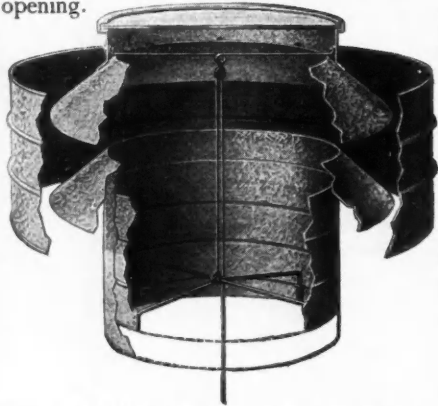
Besides their roofing factory and felt mill, the Ford Manu-

Workmen are Never Drowsy

where ventilation and light are good. Therefore more good work is the result.

Burt Combination Skylight Ventilators

have the greatest ventilating power of any. They are made from the very best of material, strongly braced and will give lasting service; made with metal or glass tops as desired, provided with Patent Sliding Sleeve Damper, Storm and Dust Proof, open or shut, and adjustable to any degree of opening.



Notice Sliding Sleeve Damper. Patented.

The Burt Mfg. Co., 500 Main St., Akron, Ohio

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

GEO. W. REED & CO., Montreal, Sole Manufacturers of "Burt" Ventilators for Canada.

Send for our new 96-page catalogue, giving fine illustrations of Mills, Factories, Shops, Foundries and Residences where Burt Ventilators are in successful use.

4 Screws instead of 12

Is all it takes to hold the



Watrous Combination Storm Sash Hanger and Screen Hinge

Mounted Model Sent Free

A mounted model that shows the entire proposition on a working principle sent free of charge prepaid to any carpenter or interested person. Important literature on screen and storm sash hanging sent at the same time.

More Profit for Builders

Only four screws are necessary to hang any kind of storm window or screen, which means a great saving of labor, consequently more profit for the carpenter. In addition the sash or screen can be set more easily and more rigidly than by any other method. This is effected by a gauge and steel points on each hinge which insure positive accuracy. You simply adjust by the gauge and drive the points into the wood, therefore you always get your screens hung right, no guess work about it. Every hinge will bear 300 pound weight, and is japanned so it will not rust. It's the only hanger that will hang sash either full or half size sash or screens. It will hang sash from top or side casing.

Remember this model costs you nothing. It's free. Just drop a card, we do the rest. Do it today.

516 So. The E. L. Watrous Mfg. Co. DE MOINES, IOWA

ARE YOU A FIRST CLASS DRAFTSMAN AND DESIGNER?

WITHOUT DOUBT many readers have in the past wished to be successful, first-class Draftsmen and Building Designers, and probably often looked for a long time at plans and drawings, trying very hard to figure out certain lines, or had experienced an intense desire to be able to do the best drawing in best



F. V. DOBE

up-to-date manner; and many men in most any kind of business, especially in Architectural lines, have often felt greatly embarrassed because unable to read even a simple sketch or unable to make any kind of businesslike drawing.

No Carpenter is first-class and competent unless he is an A-1 Draftsman in addition. Without this knowledge he can never rise any higher and will remain only a Carpenter paid by the hour or day.

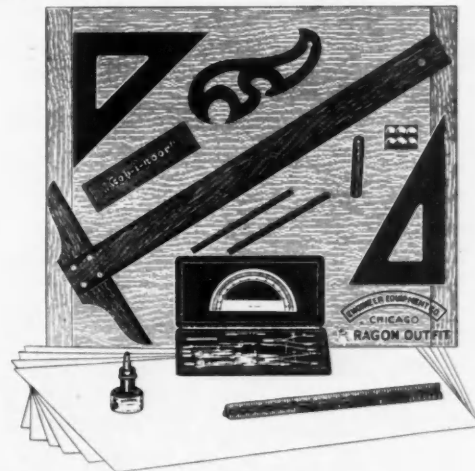
To become a successful Draftsman it is necessary, first of all, to receive the most practical and personal training. Not a lot of school or book knowledge, but practical Drafting room work.

Mr. F. V. Dobe, Chief Draftsman of the Engineer's Equipment Company (inc.), Chicago, has for many years made a practice of giving personal and individual Drafting instruction in complete Architectural Drawing and Building design; and is prepared to accept a few more personal students, young or old.

His instruction is given by mail, but

must not be compared with ordinary "for all alike" correspondence school lessons, as all the work is laid out personally by himself and prepared especially for your individual requirements and advancement. He treats each student according to the student's ability; and with his individual practical method, *which consists of actual Architects' work*, thereby giving the student the necessary required practical experience, he is able to qualify any experienced or absolutely inexperienced intelligent man.

He does not give or sell diplomas, but insists on your work being the only practical and *necessary evidence* of your ability, and able to do the talking for you. He guarantees by contract to qualify you in a few months by his practical instruction to be able to hold a first-class Draftsman's position. Instructions are given *until competent in every respect*. Mr. Dobe furnishes to his students, as a premium for the best practical drawing, and with which to make the best drawings, one of the



finest complete Drawing Outfits, including a full set of German Silver Instruments, worth \$13.85, free this month.

His "Successful Draftmanship" book, size 6 by 9, is sent free with full particulars to any one interested by writing to F. V. DOBE, Chief Draftsman. ■

Engineers Equipment Co., Chicago.

facturing Company own and operate their own paper mill, in which are manufactured all manner of building papers, etc. The favorable location of their plant as to shipping, together with their supreme capacity for storage, enables them to make most favorable terms for mixed cars of their product.

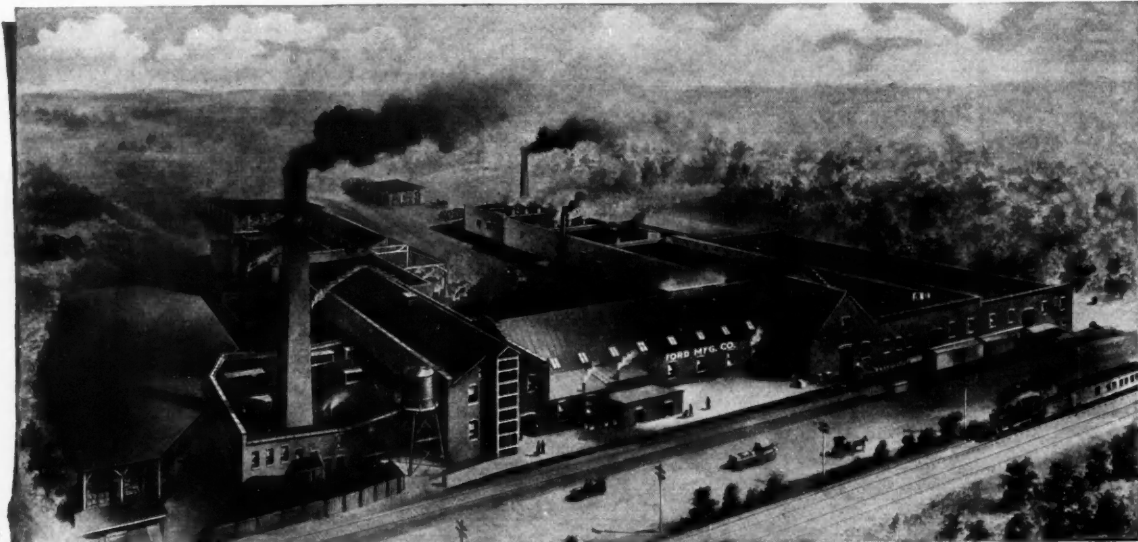
The line of specific products they manufacture are Ford's

Mr. Dobe's catalogue shows that his course of instruction is plain and practical, and therefore worth taking.

His announcement appears on another page. Look it over.

A New Electric Light

Thousands of dollars are spent annually by owners of electric light plants to increase their efficiency. They provide



galvanized rubber roofing, Ford's Aquaproof rubber roofing, Ford's gravel surfaced ready roofing, Ford's sanded asphalt ready roofing, Ford's solid asphalt roofing, Ford's 2 and 3-ply ready roofing, Ford's asphalt saturated felt, tarred felt, threaded tarred felt, Slater's felt, tarred board, blue plaster board, Lion brand insulating and sheathing papers, cyclone sheathing, red rosin sized sheathing, wool deadening felt, cedar carpet lining, roofing pitch and coal tar, asphalt for roofing and paving, Ford's mineral rubber coating, Ford's Elaterite rubber coating, Ford's asphalt coating, Ford's m-roon roof coating, Ford's Elaterite rubber paint and roofing caps, nails and brushes.

Draftsmanship for the Carpenter and Builder

When business and building operations are booming, it is an easy matter for the average young man to get and hold a job. But when things get slack—when there are few jobs to be had and then a host of applicants for each, it's the time the man with special training or knowledge comes strongly into the limelight.

Perhaps the best reason why "John" is working—and there are dozens just as strong and willing as he, who are out of work—rests simply on the fact that "John" does not have to ask questions about the plans or blue prints he is working from.

It doesn't seem much perhaps even to the man who has spent his spare time studying, but it sure does help at times to know even just a little bit more than the other fellow.

Draftsmanship to the carpenter or contractor is an important item. There are lots of good schools to be found along this line if a person can afford to travel a long distance and live in a strange city for months, but it is hardly necessary to do this.

Mr. Dobe, of the Engineers' Equipment Company, Chicago, has a course of individual instruction in draftsmanship which is first-class in every respect. He has many satisfied men who have taken his individual courses to refer the doubting ones to.

Mr. Dobe has had some twenty years' experience as a draftsman, and he knows what a fellow is up against in taking a course of instruction by mail. Everything must be plain and practical.

the highest grade of boilers, engines and generators that the market affords and every item of the equipment is purchased with but one idea—to obtain the highest efficiency possible. The construction is watched with the most careful attention and the coal and oil are subjected to the most rigid tests—in fact everything is provided that will mean increased efficiency.

Why, oh, why, then do they purchase the cheapest lamps they can get, thus neutralizing the effect sought for when the most expensive and efficient equipment was purchased?

Anything that converts current into light, no matter how extravagant it may be in its consumption of current, is considered satisfactory.

Low priced lamps give an inferior light, consume an excessive amount of current and are not uniform.

Experience will show that quality is all that really counts when an incandescent lamp is concerned.

For a given amount of money you can get either *quality* or *quantity* in lamps—but you are buying *light* not *lamps* and your money will go farthest if you buy quality.

A new quality of artificial light has been created through the medium of the Sunbeam Tungsten lamp, recently placed upon the market by the Sunbeam Incandescent Lamp Company, Chicago, Ill.

The Sunbeam Tungsten lamp is the grandest achievement in the electric lighting industry, and is as much superior to the carbon filament lamp as that was to the pine torch. It is revolutionizing electric lighting.

The light from the Tungsten lamp is the light de luxe. It is the first artificial illuminant by which colors can be truly distinguished.

Color is an ocular conception. By the light of the Sunbeam Tungsten, each shade of every color is as clear as in the clear sunlight. It shows up things as they really are. Violet is *violet*—not blue. Pink is *pink*—not red. Even the most delicate tint of each shade stands out clear and true.

The light of every home, store, office or building, will be made distinctive by the use of the Sunbeam Tungsten lamp. It is the lamp—for you.

Comparative figures and complete data are contained in bulletin No. 6-B. free for the asking.

A year ago this was a laboratory product. Now, this com-

(Continued on page 316.)

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 lifetime. 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 "bought your lumber and building material from us and got 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. 95c 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, glass with sand blast glass, size 2 ft. 6 in. x 6 ft. 6 in. \$3.15. Other sizes at proportionate prices. California Redwood 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 2 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 from small cottages and buildings ranging from 2 ft. x 6 ft. up to 4 ft. x 8 ft. in good condition at 40c. Also fancy glazed 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; 6 in. x 6 in., 8 ft. long at \$1.70; 8 in. x 8 in., 10 ft. long at \$2.70. Fancy Porch Columns sizes, 4 in. x 4 in., 8 ft. long at 65c; 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. Fancy Newels at \$3.15 and up. Anglo Newels at \$1.90. Fancy Stair Callisters 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 Cabinet Ornaments at \$1.25. Corner Blocks 2 1/4-in. Head Blocks at 41-2c. Base Blocks at 41-4c. Top Rail, per 100 ft., \$3.90. Bottom Rail per 100 ft., \$3.90. Quarter Round per 100 ft., 30c. 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, 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., \$6.69. Two light check rail Windows size 1 ft. 8 1/8 in. x 8 ft. 2 in., 43c. 1 ft. 11-8 in. x 4 ft. 6 in., 74c. 2 ft. 1-8 in. x 3 ft. 10 in., 81c. 2 ft. 2-8 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., 95c. 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. 25c. 2 ft. 9 in. x 20 in. 42c. 500 Storm Sash, first class, two light 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 sq. 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, \$1.60. Red, Rosinized Building Paper per roll 500 sq. ft. 45c. Slaters Roofing Felt, per roll of 500 sq. ft. 75c. Write for free samples.

PLUMBING AND HEATING

\$1.25 for a White Enamelled Kitchen Sink. 3,000 handsome cast iron, flat rim, white porcelain enameled, brand new kitchen sinks 16 in. wide and 24 in. long, with nickel plated strainer and collar for connection, all ready to install. Kitchen sinks with backs, made in one piece at prices ranging from \$7 to \$15.

Steam and Hot Water Heating Apparatus. We guarantee to save you from 30 to 50 per cent on heat- ing jobs of every kind. Send us your blue prints and specifications for our estimate. Our plants are of the most moderate construction. Write for anything.

\$9.50 for a White Enamel Lavatory. In assorted styles and shapes for straight wall or corner of room. Our price is for lavatory slab, including waste plug, nickel plated overflow and brackets. Other styles including supply pipes, basin cocks and all nickel plated appliances, ranging in price to \$20.00. We carry in stock at all times everything needed for installing plumbing for a building of any kind. No other concern on earth has such an enormous quantity of brand new material for sale. Send today for our plumbing catalog.

White Enamelled Bath Tub

\$3.00 buys a White Enamelled Bath Tub. 600 "New Style" bath tubs, enamel galvanized steel with the finest baked on the inside, nicely finished on the outside, heavy wood rim, 5 ft. long. Bath Room Outfits \$25. With steel enameled tub, vitreous earthen closet bowl, polished, hardwood seat and tank, complete with nickel trimmings ready to install. Other complete outfits from \$38.00 to \$150.00.

Plumbing Material of all kinds at prices that do not represent cost of production. We buy at Sheriffs' and Receivers' Sales only; that's why we can undersell all. Send today for our low estimates on plumbing material.

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. 135th and Iron Sts. Chicago, Ill.

OUR FREE PUBLICATIONS

Building News. We publish regularly a pamphlet devoted entirely to building material. It contains some 64 pages of sound information bearing strictly on items of interest to the Contractor and the Builder. Quotes our low prices on lumber and all kinds of mill work. Acquaints you with the best bargains we are constantly purchasing. If you want it ask us to put your name on our mailing list.

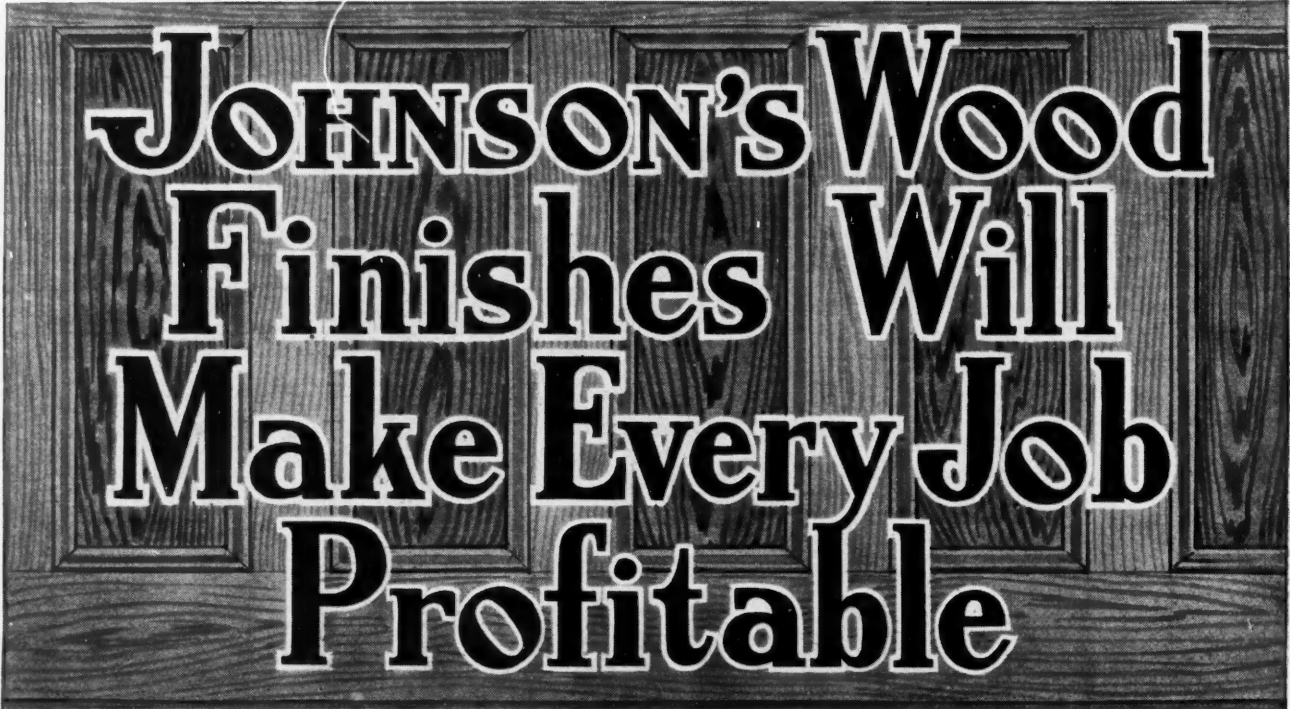
Book of Plans. We issue a Catalog containing from 50 to 100 designs of modern Bungalows, Cottages and Barns. We can furnish you a proposition to supply complete, all the material needed for the construction of any one of these plans and in addition we will supply blueprints and complete specifications. It is valuable and will be sent free.

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 Shall we send 500-Page Catalog.....
 Do you want our Plan book.....
 What items in this ad most interest you?
 I am a reader of American Carpenter and Builder

Address Chicago House Wrecking Co.



JOHNSON'S Wood Finishes Will Make Every Job Profitable

In Figuring on Old or New Jobs

WHENEVER you are asked to make a competitive bid and find that you are the loser, you will notice that the one item which you cannot figure upon accurately is that of labor.

If you will use Johnson's Wood Finishes you will find out that all the time and trouble which your high-priced men take for mixing stains, preparing finishes, removing old finishes, etc., can be reduced to one-third.

If you are a progressive painter, decorator or wood finisher, you will instantly recognize that the use of Johnson's Wood Dyes will give you an incalculable advantage over your competitor.

Read the opposite page.

Save Time, Money, Labor

There is no guess work about the preparation of the Johnson's Wood Finishes. 26 years' experience as leading hardwood floor manufacturers and finishers of America have taught us how to make wood finishes that are beautiful in effect, permanent for wear and absolute as to results.

They furnish you the short cut to the profitable handling of any old or new wood-finishing jobs.

They are specified by the leading architects of the world. They appear in the finest buildings ever erected. There is no question as to their superiority, for they are made on right principles.

Fill out and mail the coupon on the opposite page now. You will find it the most profitable thing you ever did.

S. C. JOHNSON & SON, Racine, Wisconsin

"The Wood Finishing Authorities"



MAIL the coupon today for two shades of Johnson's Wood Dyes and one sample of Electric Solvo.

Try them as soon as you receive them. This will be your introduction to a method of refinishing old work or finishing new work, which will prove a most profitable branch of your business.

Johnson's Wood Finishes are widely advertised and known for their quality to consumers all over the United States. Many of them have tried Johnson's Wood Finishes in a small way themselves. They know. If you use Johnson's Wood Finishes, they will be glad to entrust their business to you.

People are rapidly becoming educated to the use of proper finishes, and more and more are ceasing to consider varnish stains, water or spirit stains, varnish, oil or shellac finishes.

Send for the Samples Today

Let your customers know that you are up-to-date in wood finishing, and you will find it greatly increases business.

In addition, Johnson's Wood Finishes supply the progressive painter with the most economical method of handling his business. There is no guess work about them—the result is sure, and no labor is required in mixing or matching shades or time lost in rubbing down or re-applying coat after coat of finish.

Johnson's Wood Dyes are made in fifteen shades:

- | | | |
|-----------------------------|----------------------|-----------------------|
| No. 131 Brown Weathered Oak | No. 122 Forest Green | No. 130 Weathered Oak |
| No. 132 Green Weathered Oak | No. 172 Flemish Oak | No. 140 Manilla Oak |
| No. 178 Brown Flemish Oak | No. 121 Moss Green | No. 125 Mission Oak |
| No. 128 Light Mahogany | No. 180 Silver Gray | No. 126 Light Oak |
| No. 129 Dark Mahogany | No. 110 Bog Green | No. 123 Dark Oak |
- Gallons, \$3.00; quarts, 85 cents; pints, 50 cents; half-pints, 30 cents.

Your name and address and that of your paint dealer on the coupon will bring you two samples of Johnson's Wood Dyes, one sample of Johnson's Electric Solvo and our 48-page color book as described on the opposite page. Better mail the coupon now.

S. C. Johnson & Son, Racine, Wis.
"The Wood Finishing Authorities"

ACB-12
S. C. Johnson & Son
 Racine, Wis.

Gentlemen: My paint dealer's name is

CUT OR TEAR OFF ON THIS LINE.

.....
 for which please send me **free**, prepaid,
 two cans of Johnson's Wood Dyes.....
 shades, and one can of
 Johnson's Electric Solvo, and copy of your new
 48-page color book, all **free**, as per your offer.

Name.....
 Address.....

[Continued from page 312

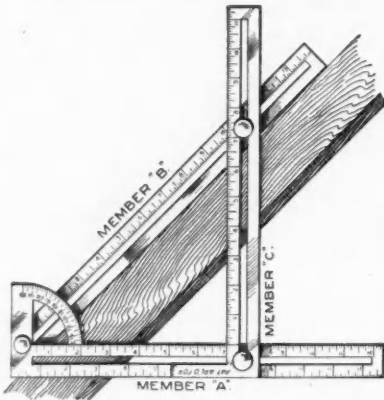
pany offers the perfected lamp, and it should instantly appeal to all users seeking *better light*.

Aside from the *quality* of light produced, the Sunbeam Tungsten lamp gives approximately three times as much light, at the same current consumption, as the ordinary carbon filament lamp. For example: the 50 c. p. Tungsten lamp takes 60 watts, while the 16 c. p. standard carbon lamp takes 56 watts.

Under ordinary conditions the average life will exceed 850 hours and the service is identical whether used on *alternating* or *direct* current, either in a horizontal or vertical position.

An Ingenious Framing Tool

The A. B. C. Protractor square, manufactured by the Crookston Tool Company, of Crookston, Minn., is sold under an absolute guarantee that it will do all that is claimed for it. The square is a combination of five tools in one, and gives degrees, bevels, cuts, lengths of timber, height of roof and width of buildings all in one setting. It is so simple in its construction and method of applying that, with a very little practice, anyone can become a complete master of its use—and at the same time of the difficult and valuable



art of steel square framing.

To operate the square, set it at the right numbers and it figures absolutely correct. It is operated in a second; it saves hours of figuring by the old method, and sometimes very expensive mistakes. Time is the essence of profit to the contractor or builder. This square is used by the best manual training schools, architects, carpenters and builders in the country, saying, "I do not see why it was not thought of a hundred years ago."

Awarded Gold Medal

The Jury of Awards of the Jamestown Tercentennial Exposition has just issued to the Simonds Manufacturing Company, of Fitchburg, Mass., and Chicago, Ill., a certificate awarding that company a gold medal on Simonds saw steel. This is the first award that we know of that has been given on saw steel, and the Simonds Company feel justly proud of this recognition of the quality of steel they make for Simonds saws and knives.

"Old Style" Tin Used

In the November number we presented, under the title "The Test of Time," a matter of a good deal of practical interest to carpenters and builders; namely, the results of the Underwriters' Laboratory tests of the fire-resisting properties of good Old-Style tin roofing. With this report was published an illustration of a building. Possibly some of our readers have been puzzled to know what the building is.

It is the new Philadelphia opera house, the noted Hammerstein project which has aroused so much interest. When completed, this opera house will probably be the most sumptuous in this country. It will be ready for the operatic productions this winter. It was our intention to state that N. & G. Taylor Company's "Target and Arrow Old-Style" tin was used for the

An Eighty-year-old Tin Roof Prevents Destruction by Fire of All Surrounding Property

THE fire occurred at the White Lead Works of Wetherill & Brother, Philadelphia, Pa. The buildings indicated by the arrows were completely destroyed inside, but the roofs remained almost intact, smothering the flames and preventing the spread of the fire to the adjoining structures and lumber yards. The buildings have been covered with tin for upwards of eighty years.

WHEN these buildings were reconstructed "Target-and-Arrow Old Style" tin was selected for the roofs over other leading brands, the owners desiring to get the same kind of tin as that which had given such excellent service on the old roofs. "Target-and-Arrow Old Style" is the only tin now made by the old-fashioned, hand-dipped process—a process that has given this country its eighty-year roofs.

We have a book for architects or for the clients of architects called "A Guide to Good Roofs," which we send free on request.

N. & G. TAYLOR CO., Est. 1810
PHILADELPHIA



WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

FORD'S Galvanized RUBBER ROOFING

Our Prosperity Rooster.

CROWS, Because! Because! Because! Because!—the election is over and everybody is again the friend of every other body.

He also crows because of the fact that **Ford's Galvanized Rubber Roofing** has had the most prosperous year it ever had and has leaped ahead of all in popularity and both public and private reputation.

The reason for this is—that "thoroughbred" Quality. This quality is put into this roofing by the use of pure material and our special manufacturing process which is the development of forty years' growth under the same brand.

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



Has Successfully Satisfied For Forty Years

Send for our Booklet on Roofing. All Our Products Satisfy

Our "Quality" Grow

"Quality", backed with positive guarantees, is the key note of everything we claim for Ford's Galvanized Rubber Roofing. There's no "ifs" or "ands"

about our protecting Dealers who handle this roofing.

Send today for our Special Co-operative plan under which we help dealers make sales. That word "Galvanized" means something. It distinguishes the special manufacturing process briefly referred to above. For your own and our protection insist on having Ford's Galvanized Rubber Roofing for all buildings.

The Guarantees We Give

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

On 3-Ply

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

On 2-Ply

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

On 1-Ply

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

Send for Free Samples and Specify Ford's Galvanized Rubber Roofing

FORD MAN'F'G CO. 163 W. Wash. St. CHICAGO

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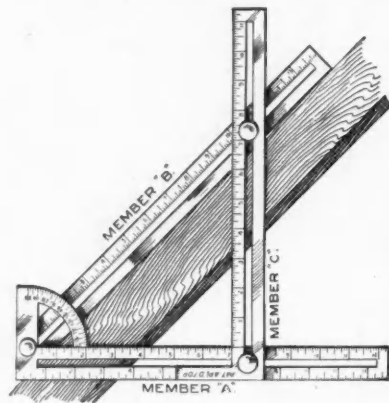
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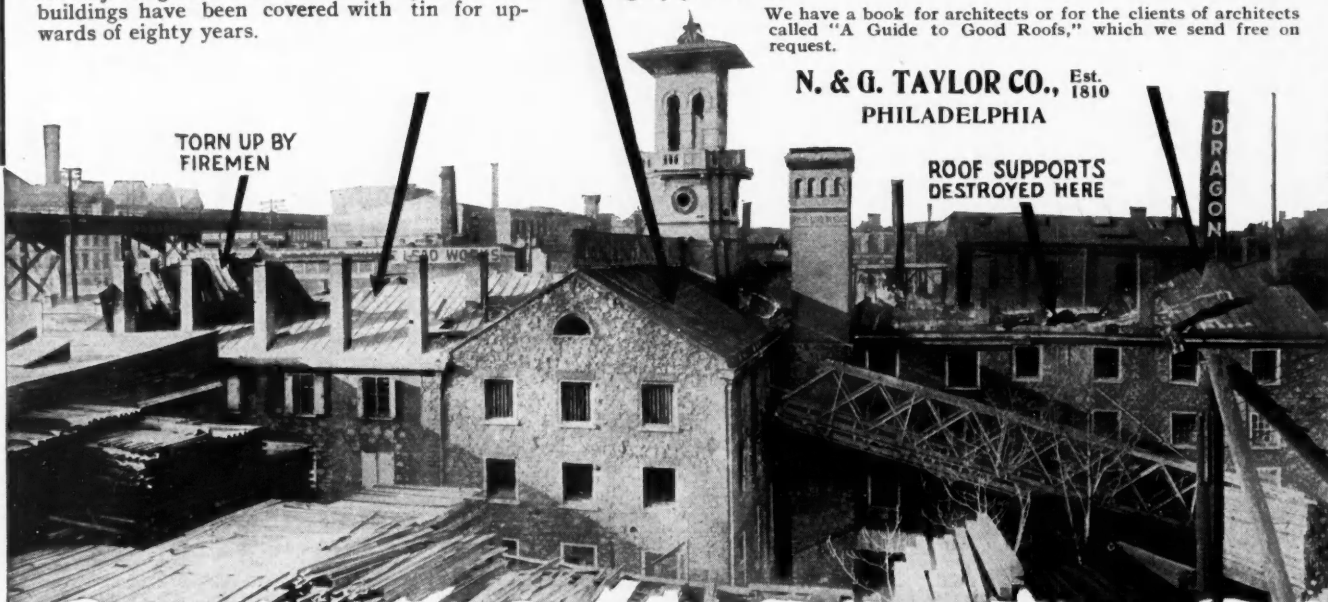
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Our Prosperity Rooster.

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He also crows because of the fact that **Ford's Galvanized Rubber Roofing** has had the most prosperous year it ever had and has leaped ahead of all in popularity and both public and private reputation.

The reason for this is—that "thoroughbred" Quality. This quality is put into this roofing by the use of pure material and our special manufacturing process which is the development of forty years' growth under the same brand.

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Send for our Booklet on Roofing. All Our Products Satisfy

Our "Quality" Grow

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

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Send for Free Samples and Specify Ford's Galvanized Rubber Roofing

FORD MAN'F'G CO. 163 W. Wash. St. CHICAGO

Has Successfully Satisfied For Forty Years

sheet-metal work on this building. The roofing contract was awarded to the Lyster Sheet Metal Company.

Blocks Used Abroad

Jackson, Mich.
AMERICAN CARPENTER AND BUILDER, Chicago, Ill.
Gentlemen: Thinking that perhaps you might be interested, we take the liberty of sending to you, under separate

cover, a cut of a building erected of concrete blocks at Freetown, Sierra Leone, West Africa. This is the Albert Academy, built by Methodist missionaries. This goes to show what is being accomplished with our machinery in foreign countries. We are pleased to say that we have Miles' machines in most every foreign country. In some parts of the world there is little work of this kind being done, but in West Africa, they are just beginning to realize the advantages to be gained in using concrete blocks as a building material.



Albert Academy, Freetown, West Africa

to be gained in using concrete blocks as a building material.

You might be interested also to receive a copy of a portion of a letter received from Mr. A. E. Greensmith, who has charge of the Miles machines that are used in Sierra Leone. He writes as follows:

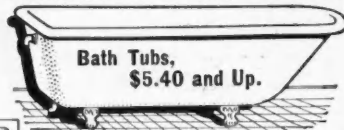
"Possibly there will be a demand for these machines when the Africans begin to realize the beauty and cheapness with which they can put buildings up. At first they are doubtful, but the Albert Academy and the Bo Church and another building or two

Money Saving Catalog Free

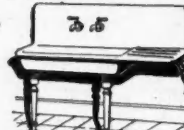
PLUMBING AND HEATING MATERIAL

Direct to the Consumer at Factory Prices

Our perfect ALL IRON PIPE system of plumbing will enable any handy mechanic to install the material on farm or in city. Send us a list of your needs. All we ask is an opportunity to figure on your wants. We carry everything necessary for installing this class of work. Soil pipe, lead and water pipe and fittings of all kinds, etc. All goods are brand new and high grade.



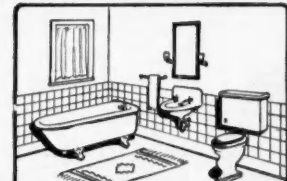
Bath Tubs, \$5.40 and Up.



HANDSOME ROLL RIM KITCHEN SINKS



This Complete Closet Outfit, \$11.50.



COMPLETE BATHROOM OUTFITS, from \$24.50 to \$125.00.



White Enameled Iron Sinks 18x30 for \$1.85

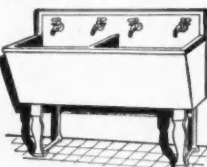
GALVANIZED RANGE BOILERS
All tested to 200 pounds pressure; 30 gallons. Only \$4.90. Complete with Stand, Tube and Couplings, \$6.25.



READY ROOFING

Mill Ends of #2 and #3 grades of Vulcan Roofing, several pieces to each roll of 108 square feet at

95c Per Roll



CEMENT STONWARE LAUNDRY TUBS

Cast seamless in hydraulic mould, with zinc metallic rim—furnished with cast iron legs—

\$3.95 AND UP.



IMPROVED ROTARY WASHING MACHINES.

Made to sell at \$5.50 each. We bought them from the Underwriters. They are a little scorched but not otherwise damaged. A snap at \$1.95 each while they last.

HOME WATER WORKS Air Pressure Water Supply Systems

For the country or suburban home. Sun-proof, frost-proof, at \$40 and up.

HEATING PLANTS

Don't think you cannot afford a modern Hot Water or Steam Heating Plant until you get our figures. Special price for first plant in each locality. Plans free. Tools loaned.



We send FREE detailed estimate on receipt of rough sketch or plan of the building to be heated. Prompt attention. Quick shipment in time for this winter.

Write today for new enlarged Catalog No. 108 covering Home Builders supplies. All prices revised to "Hard Times" basis.

Central Machinery & Supply Co.

553 S. State St. Chicago

Money refunded if not satisfied.

The Sun Never Sets on VULCANITE Roofing



When You Experiment With
Experimental Roofings
You Lose. Buy a Roofing
With A Reputation

VULCANITE
Has Stood the Time
Test for Sixty Years

Vulcanite was first made in Europe sixty
years ago and is the most extensively
used roofing in the world today.



Why Vulcanite Excels

Because it is the best ready roofing in existence, it has been awarded Gold medals and highest honors at many Expositions. The same high standard of quality is maintained—and even increased.

Not cheapest at first cost, but cheapest in the end. "The Roofing of Ultimate Saving."

Vulcanite is a mineral rubber compound and is the highest priced material used in the manufacture of any ready roofing, but it pays us to use it because the quality is there.

An Honest Roofing

Following the unusual material is the exceptional manufacturing process. Vulcanite is subjected to enormous pressure which renders it very dense and firm, yet pliable and as tough as leather.

All the felt used for Vulcanite roofing is pure wool. No paper or other cheap filler is used. We manufacture it ourselves at our extensive mills in Franklin, Ohio, and therefore know what goes into it.

From start to finish it's an honest roofing.

Our Guarantees

Vulcanite Roofing will not freeze or crack in winter, will not crumble in dry weather—will absolutely refuse to leak in wet weather. Backed by a responsible company, our liberal guarantees are always valid.

To dealers who sell it—to contractors who lay it—to owners who buy it, Vulcanite is absolutely guaranteed to wear for a great number of years.

It's the positive protection against an inferior roofing. If there's any loss it will be ours.



Mail this Coupon
Today

Patent Vulcanite Roofing Co.
Chicago

Franklin, Warren Co. - Ohio

VULCANITE Free Samples and Information

Fill out this coupon and receive Free Samples and booklet of roof information.

Patent Vulcanite Roofing Co., Chicago

Name.....
Address.....
City.....State.....

now being erected by concrete blocks will cause them to desire such machines.

"To my knowledge there are three concrete machines in the Colony of Sierra Leone. Two of them are your own and both owned by missions, the third is of a different type and owned by a company. Yours is quite equal to the other, if indeed, it is not in many respects superior, and the price of yours is far below that of the company's machine."

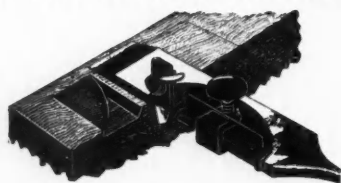
In addition to the Albert Academy they are erecting a church at Bo, Sierra Leone. This building, Mr. Greensmith says, will surpass the Academy building.

Yours very truly,
THE MILES MANUFACTURING CO., INC.

Tools you Should Have

Two handy and serviceable tools for the carpenter made by the A. W. Miller Manufacturing Co., of Cincinnati, O., are Howell's Rule Gauge and the O-K Butt Mortiser.

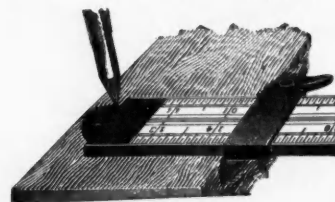
As will be seen by the accompanying cut Howell's Rule Gauge is a small device very complete in itself, which enables a line to be laid off with absolute accuracy, and with great



speed. With the Howell's Rule gauge you do not have to consider the steadiness with which you hold the pencil or the rule. The gauge fixes the line and keeps it absolutely in position. There is no chance for the pencil to wobble. It is a pleasure to use it.

The OK Butt Mortiser cuts out (in soft or hard wood) the seats for butt hinges in doors, jambs and similar work. The work is done perfectly, quickly, accurately; impossible

to split the door frame. No tedious, slow work. Any carpenter can make two seats with this tool in the same time that one could be made by the old method. Perfect accuracy is secured by the use of the thumb screw and clamp. This valuable tool can be attached to any ordinary chisel.



Any one can use the O-K Butt Mortiser, whether a mechanic or not. Mistakes are not possible. It is so easy and so sure. The seat is made before you know it.

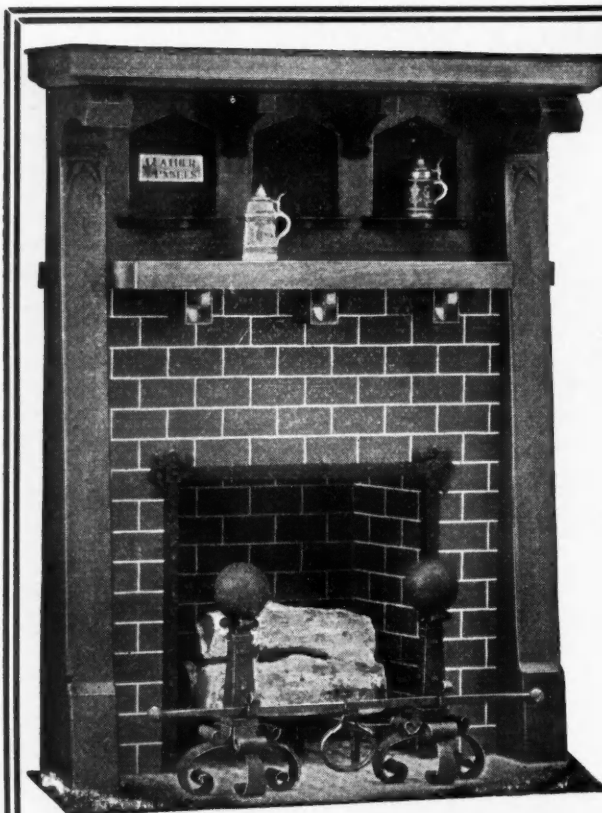
Examine the cut. It shows the cutting tool, the thumb-screw and clamp. Every carpenter will readily understand the use of the tool, and how it is operated. This tool is made of steel, and nicely finished throughout.

Self-Setting Bench Plane

The self-setting plane manufactured by the Gage Tool Company, of Vineland, N. J., is not like any other plane, having many superior points. It is simple, easier, better. It does not require the "Know How" other planes do, can be used by the inexperienced and beginner. It should be in every mechanic's kit, in every manual training school, on every farm, in every home.

It is self-setting in every respect, can be perfectly set for the finest work with the eyes closed. Dropping the plane bit and cap into their place sets it exactly right and does it instantly.

When properly adjusted, it cannot be set wrong. The cap and cutter may be removed, replaced, and accurately set in five seconds, by actual trial; this alone would save every carpenter many days a year spent in trying to set other planes.



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. Porian-Vitres tile hearth and facing. Hand-wrought Andirons of Romanesque design.

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

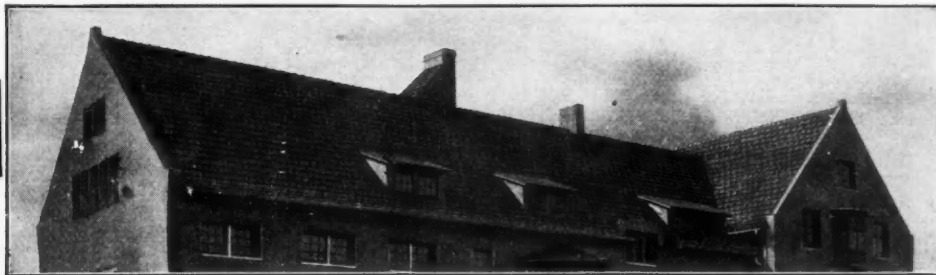
They have a distinction of design and workmanship not possessed by any others. Our well-equipped factory, skilled workmen, large stock of air-seasoned lumber of every description, and years of experience making mantels, are a strong guarantee to you of quality and reliability. As for our prices—our immense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

Chas. F. Lorenzen & Co.

305 No. ASHLAND AVE., CHICAGO.



Asbestos "Century" Shingle Roof—Private Stable, Pabst Farms, Oconomowoc, Wis.: Fernekes & Cramer, Milwaukee, Architects; Constructive Sheet Metal Works, Milwaukee, Contractors.

Asbestos "Century" Shingles

"The Roof that Outlives the Building"

A house gets its market value quite as much from its appearance as from what it represents in dollars and cents. An unattractive, cheap roof knocks enough off the selling value to offset the "saving" a dozen times over.

Asbestos "Century" Shingles dress up the house—made the most of its good points, and fill the eye of the prospective purchaser. And they *protect* the house from fire and weather as no other roofing can.

Dense, elastic sheets of asbestos-fibre cement, formed and compacted by tremendous hydraulic power. Cannot decay—improve with age and exposure. Absolutely fire-proof. Three colors, numerous shapes and several sizes. Five cents per square foot (and upwards) at Ambler, Pennsylvania. Write for booklet "Roofing 1908."

The Keasbey & Mattison Company

Factories - - - - - Ambler, Pennsylvania

SEND FOR OUR CATALOG, "HOME HEATING"

HOT-WATER HEATED \$198

by ANDREWS SYSTEM EACH

IT IS WELL WORTH READING

1908 CATALOG Of Hot Water and Steam Heating

Our new catalog explains fully the principles and advantages of hot water heating, based on 18 years' experience in the cold Northwest, and describes how any carpenter or mechanic can erect the Andrews System in any building from complete plans and directions which we send with each heating plant.

This book should be in the hands of every contractor and builder. Send your address and names of others who expect to buy heating plants, and we will send our catalog postpaid. (See our special offer for such service.)

WE DO IT RIGHT IN 44 STATES, CANADA AND ALASKA. Our catalog contains a partial list of our customers from all parts of the country. Look them up and examine the Andrews System in your vicinity.

PRICES. We will sell you the plant with all material complete, pipe cut to fit so you can erect it yourself. The cost of each heating plant here shown is based on Minnesota climate and includes an Andrews Steel Boiler, richly ornamented radiators, for every room except the kitchen, pipe cut to fit, fittings, valves, gold bronze, brushes and all other material ready for use, with diagrams and directions so plain and simple that any man handy with tools can erect the plant and save money. You can in this way include the heating plant in your general contract for the building.

FACTORY TO USER. We design, manufacture, guarantee and sell each plant direct from Factory to User, giving you the lowest price for the value. Estimates free. **ALL PLANTS GUARANTEED AND SOLD ON 360 DAYS' TRIAL FREE.** Freight rates equalized. **Old Houses Easily Heated.**

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955 Heating Building, Minneapolis

MANUFACTURERS CONTRACTORS CONSULTING ENGINEERS

UNITED STATES

ALASKA

NEW FOUNDLAND

CANADA



means much. Our Boss Carpenter gives some points on our saw.

"Every carpenter wants a good **cutting** saw, for a dull saw means extra labor and most of us get tired enough."

You can't keep your saw sharp unless it's tempered right, this is where the Simonds people are strong. They have a special patented process.

Another point, because the **SIMONDS SAW IS MADE OF SIMONDS STEEL** you are sure of getting the finest crucible steel, made especially for this saw in their own mills.

Now here's another point, you're never sure of a saw that isn't trade marked. The trade mark means the makers are back of it.

It's a fact.

THE SIMONDS SAWS ARE BEST And They ARE Best

In a nutshell:—Buy a Simonds Saw, because it's made right, tempered right and cuts right.

You'll know it by the trade mark.

Save extra work by using a Simonds Saw, and my advise is **buy it now**.

If your dealer don't keep them write to headquarters. Tell them what kind of a saw you want and ask for a free copy of "Simonds Carpenter Guide," a valuable booklet.

SIMONDS MFG. CO.
FITCHBURG, - MASS.

Chicago
San Francisco

New York
Portland

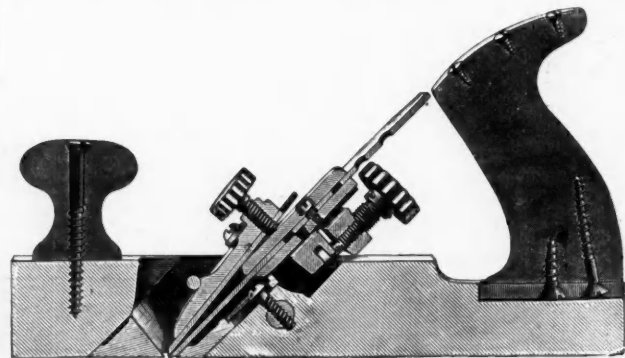
New Orleans
Seattle

The adjustment is such that the cutting-iron may be set square with the face of the plane, even if the cutter is not ground square with itself.

The mouth is prevented from wear by being within the adjustable iron throat or bit-holder which extends through the plane and holds the self-setting device.

The cap is not attached to the cutter, but remains stationary while the cutter is moved up or down by a thumb-screw; thus, even while at work, the thickness of a shaving can be changed by a simple movement of the thumb and finger, without breaking the shaving or stopping the plane. A shaving less than a foot long, can be taken with a dozen changes in thickness, all done without removing the plane from the board and without breaking the shaving. This variation of thickness may be made less than one-thousandth or more than one-hundredth of an inch.

So accurate is the self-setting device of this plane that one can take one-half dozen or more shavings, removing and re-setting the cap and cutting iron after taking each shaving, and the extreme variation in the thickness of the shavings



will be less than four one-thousandths (.004) of an inch. Can you do this with any other plane? Do you want a plane easily working to the thousandth of an inch?

This self-setting plane can be changed from a double to a single iron, or from a single to a double iron plane in two seconds. It is adapted to the coarsest or the finest work, and will properly smooth any cross-grained, hard or soft wood against the grain, working perfectly on both.

The plane-stocks are saturated with hot linseed oil to hold them straight.

Every plane is tested and ready for use before leaving the factory. This saves time and trouble spent in fixing so many new planes. Do you want to save muscle, time, trouble, temper, and do better work?

If so, send for one on trial. It will cost you nothing if you return it.

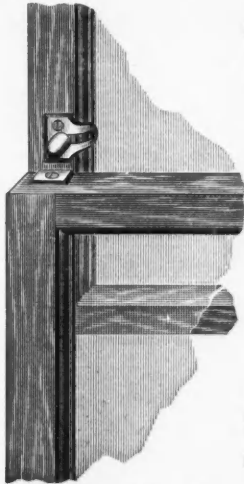
Made \$2,400 in Six Months

That is what one man made in the real estate business after a few weeks' study, and there are hundreds of such men today who are making from \$250.00 to \$500.00 per month, and are their own bosses.

Mr. Carpenter or Builder, has it ever occurred to you that there is no other business so closely allied to the building industry as the real estate business? Without real estate, in fact, there can be no building.

Perhaps you've had many opportunities to get a job at building if you only knew how to put through the real estate end of it. Some times, perhaps, you turned it over to a real estate man and he gave you a small commission. Sometimes, perhaps there was no real estate man handy and the deal fell through. In either case the proper knowledge would have obtained





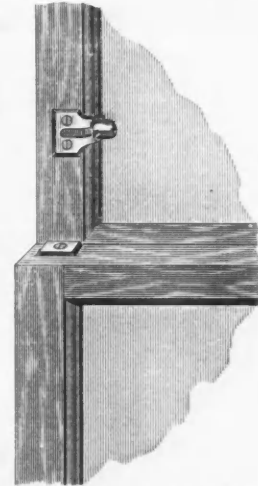
Ventilation Without Risk

IVES PATENT VENTILATING LOCK

A safeguard for ventilating rooms, allowing windows to be left open at the top, the bottom, or both top and bottom with entire security against intrusion, a permanent fixture easily applied and quickly operated, affording three times more protection to the window than the ordinary sash fastener.

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You're Losing Money Every Day You Wait
THE
Shrp-Shavr Safety Razor

At 25 Cents

is the quickest selling and biggest business-building proposition you've ever had a chance to get in on.



It's all in our blades

A complete Safety Razor, with a money-back guarantee FOR 25 CENTS—an absolutely virgin field of customers to draw from—A CONTINUOUS SALE OF BLADES—a magnet that pulls a mass of new buyers into your store for shaving-soap, strops and all shaving accessories—and a clear profit of 50 per cent on every single one of the hundreds of razor sales—that's exactly what you're losing every day you delay in putting in a stock of Shrp-Shavr Razors.

We're spending thousands of dollars to create customers for you. Co-operate with us. Do your share and get your share. We're working tooth and nail for you in the magazines. Won't you take your part of the profits that are waiting for you?

Write your jobber, or if he will not supply you, order direct, and get your share of the Shrp-Shavr business.

PRICES

SHRP-SHAVR RAZOR with one blade, per dozen - - - \$2.00
SHRP-SHAVR BLADES, 5 in a pkg., per dozen pkgs. - - - 2.10
SHRP-SHAVR STROPPERS, per dozen - - - - - .75

SHRP-SHAVR RAZOR COMPANY
70 Duane St. NEW YORK CITY



"The Roof that Proves"
Sun-proof and Rain-proof

Needs No Paint or Repairs

Rubber Sanded Roofing is held in high favor by contractors and builders wherever it has been introduced—in Canada, Mexico and throughout the Pacific Coast States. Successfully used on flat as well as pitched roofs—residences, hotels, business blocks, out-houses; anywhere that a rain-proof, sun-proof roof is required.

Let us put you in touch with our representative in your locality. Write for booklet—"Roof Talk."

ASPHALT AND ASPHALT PAINT

The Pioneer Roll Paper Company are refiners of Asphalt and manufacturers of Asphalt Paint—which they supply direct from their factories in Los Angeles.

Pioneer Roll Paper Company

California Agents for Northwestern Compo-Board Co.
Address Dept. 21, Los Angeles, Cal.



The modern home is not complete without a Fire-Place which is its most attractive feature

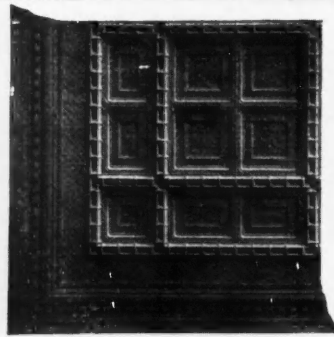
You will be interested in our line of Patented Grates. They are guaranteed to heat from 8,000 to 10,000 cubic feet of space in zero weather. Request descriptive circular or send 7 cents to cover postage on large, handsomely illustrated catalogue of Artistic Wood Mantels.

We pay the freight. Contractors, kindly send your business card and we shall quote interesting prices.

Estimates furnished promptly on Tile Floors and Wainscoting, etc.

Heitland Grate & Mantel Company

No. 124 South Fifth Street :: :: QUINCY, ILLINOIS, U. S. A.



THE EDWARDS METAL CEILINGS AND SIDE WALLS

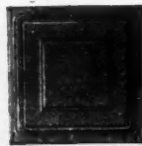
Artistic taste and specially devised machinery have made it possible to use Steel for Ceiling and Side Wall decoration. It is more healthful than plaster; does away with dampness in buildings incident to the use of plaster; takes a low rate of insurance, being Fire and Water Proof, very easily applied; it improves the acoustic properties of a room, and by the artistic arrangement of panels and mouldings, offers possibilities or treatment hitherto unattained.

Catalog "A" sent free to those in the market.

**THE
EDWARDS
MANUFACTURING
CO.**

"THE SHEET METAL FOLKS"

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Heppes NO-TAR ROOFING is Easy to Lay



—Because it is as flexible as rubber, though tough as leather and hard as flint.
—Because it lays smooth and skin-tight.
—Because we furnish simple instructions free in every roll.

—Because we supply a complete Roofing Book, with photographs, showing how to measure roofs and make chimney and wall flashings, well finished eaves, valleys, and gutters;

—How to cut the roofing to fit corners, angles, and odd spaces, without waste;
—Where to nail; how to cement laps;
—How to cover old shingle roofs;
—How to secure contracts, and how to make good money easily in the roofing business.

FREE SAMPLES FOR EXAMINATION AND TEST

Learn all about the roofing that is made of genuine asphalt without a trace of tar. Examine the coatings of mica and flint. Note the extreme toughness of the long-fibre wool felt. Get the facts about our wonderful process of water-proofing under intense heat and tremendous pressure.

Everything about this popular roofing is told in the free Roof Book. Send today.

THE HEPPEES CO. 648 S. 45th Ave.
CHICAGO

for you not only *all* the commissions on the real estate deal but the profits on the contract as well—and the beauty of all this, Mr. Contractor, is that you can learn the real estate business and all its details right in your own home—a couple of hours a day, or, at night after your regular day's work. When you take into consideration the opportunities for making big money, the small cost for learning how is less than "spending money."

If you are located where the real estate opportunities are ripe for development, or if you are not satisfied with your present location and want to change, learn the real estate business. It's opportunities are unlimited.

The advertisement of the Gray Realty Company, 1699 Century building, Kansas City, Mo., occurs in another part of this magazine. Read it. Send for their booklet, and testimonials of what others have done. Let them show you how to make more than you are making now and be independent. Send them your name and address and they will be glad to write you all about their course and how easy it is to learn.

An Appliance for the Home

The Hurley Machine Company, 153-159 South Jefferson street, Chicago, Ill., is offering the electrically operated washer and wringer herewith illustrated.

The machine, with the aid of the current from an ordinary incandescent lamp socket, does all the work of washing and

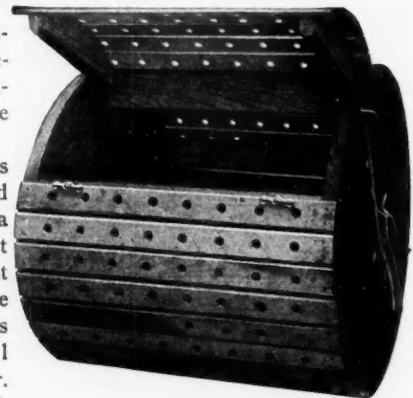
wringing. It will, the company states, do an ordinary family washing in an hour at a cost for power of two cents or less. A $\frac{1}{8}$ h. p. motor is employed for running the machine. It is of the enclosed type, which keeps the water out and protects it from mechanical injury. The revolving cylinder is belt driven, while the wringer is positive drive. All gears are enclosed.



The wringer and cylinder operate independently, with control of either at the option of the user.

The cylinder is made of selected wood and contains not a screw or nailhead that might stain or rust clothes. Inside are five wooden carriers running the full length of the cylinder. The carriers, with each revolution, are designed to take some of the clothes to the top, then drop them back into the hot suds, spreading them out in a new position each time, so that all parts of the garments may be exposed to the circulating water that pours through the perforations in the surface of the cylinder. It is declared that it is not even necessary to rub the wrist or collar bands when using the machine.

A small heater underneath the machine keeps the water



No. 1



Fire Proof

STANDARD—Lock Joint—METAL SHINGLES
Ornamental, Easily Applied Guaranteed Weather Proof

CANTON MANUFACTURING CO.

We can save you money on
Cornice, Skylights, Ventilators, Metal Ceilings, Roofings, Sidings, Eave Trough, Conductor Pipe

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CANTON OHIO**

ABSOLUTELY STORM PROOF

No. 2




Catalogue FREE

No. 3




Current is Coal Coal is Currency

What Does this Mean to You?



Tungsten



Tantalum

Sunbeam TUNGSTEN Lamps give 20 candle power, consuming only 25 watts, as compared with the ordinary lamps giving 16 candle power and consuming 56 watts.

Sunbeam TANTALUM Lamps give 20 candle power, consuming only 40 watts, as compared with the ordinary lamps giving 16 candle power and consuming 56 watts.

Either will pay for themselves in a short time.

Which Do You Want? Write For Prices

Sunbeam Incandescent Lamp Co.
32 West Polk Street, - - CHICAGO
150 Bank Street, - - NEW YORK
Toronto, Canada

GILMAN'S SPIRAL SNOW GUARD



Double the strength of any other

Don't forget to specify and use them

The Guards bear on both sides over double slates. Made from galvanized steel and pure copper wire. We carry a large stock, both **COPPER** and **GALVANIZED STEEL**, on hand for prompt delivery. Packed in cases of 500 each and in barrels containing 2000.

Send for prices and descriptive folder.

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BRASS AND COPPER CO.**
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METAL COVERED MOULDINGS

CONTRACTORS on the look out for superior Metal Covered Mouldings—the different kind—should investigate the merit of "Chicago" mouldings. At our own modern factory is manufactured the finest line of metal covered wood mouldings in the country.

We constantly keep in stock and in wonderful variety a large selection of mouldings covered with Polished German Silver, Brass, Copper, Oxidized copper, etc. Let us hear from you by return mail. Let us estimate on whatever you want in any quantity. *Write for Catalogue No. 15—Our prices are right.*



641

Chicago Metal Covering Company
69-71 North Green Street
CHICAGO



224

Every roof-leak makes a pocket-leak.

Genasco Ready Roofing

stops both. It stays waterproof, and does away with needless expense-bills. It is made of Trinidad Lake Asphalt—Nature's one perfect waterproofer. Guaranteed by a thirty-two-million-dollar company.

You want to be money in pocket, so insist on Genasco. Look for the trade-mark. Mineral or smooth surface. Write for book 76 and samples.

THE BARBER ASPHALT PAVING COMPANY

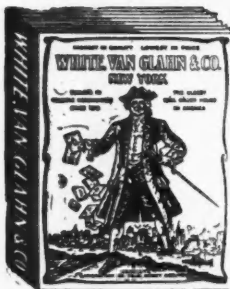


Largest producers of asphalt, and largest manufacturers of ready roofing in the world.

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Are you beginning to wonder what to buy for this year's gifts? Write today for a FREE copy of this great Catalog No. 94—700 pages full of illustrations of useful and beautiful things suitable for holiday presents. Over 75,000 articles are described so clearly you can select as safely and satisfactorily as if you were right here on the ground. No store in the largest city shows the great variety of goods covered by this catalog. No store anywhere makes such low prices. We sell in small or large lots at wholesale prices. We can't begin to tell you here how complete the Catalog is. You must see it yourself. This book costs us one dollar each to print—but we send it FREE to anyone who writes for it in good faith.

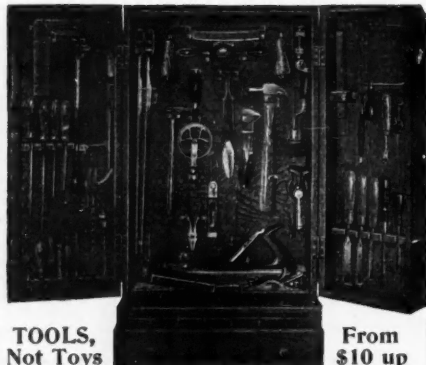
Why Don't You Buy in New York?

This Catalog shows you how to do it and save money on everything. Write for it today and make your holiday purchases early.

TOOL CABINETS MAKE POPULAR CHRISTMAS GIFTS

Give one this year to your husband, your brother or son. Helps to keep the boy at home. Our tools are the best grade, full size tools—not toys—just such as carpenters use. Complete Cabinets from \$10 up. Ask for our Special Tool Cabinet Catalog.

We sell reliable goods only. We guarantee everything we sell to give satisfaction or money refunded. We ship promptly and guarantee safe delivery of our shipments, and refer to the publisher of this paper as to our responsibility.



TOOLS, Not Toys From \$10 up

White, Van Glahn & Co., No. 3 Barclay Street NEW YORK CITY
Oldest Mail Order House in America. Established 1816

at the right temperature, thus effecting a great saving in time, labor and soap.

The wringer is a new invention, having three rolls instead of the old-style two rolls, and is virtually two wringers in one. The clothes may be wrung from the machine through the two lower rolls into the rinsing tubs, and from the rinsing tubs back through the upper rolls of the same wringer. The rolls are guaranteed for five years and will wring anything from dainty laces to heavy woollens and blankets.

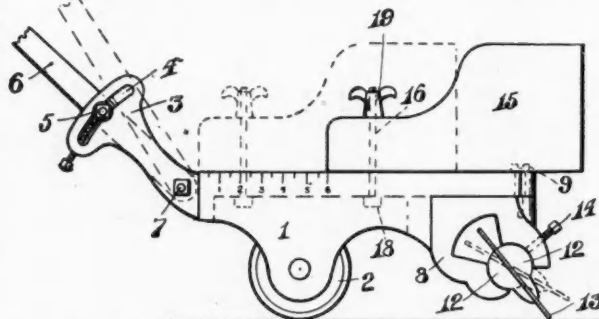
The simplicity of the machine throughout is especially emphasized. It is on casters and designed for use in any home.

A New Floor Scraper

A careful examination of the points and parts of the Adjustable floor scraper, as shown in the accompanying mechanical drawing, will reveal to any workman the rare and real value of this machine.

It is simple, substantial, easy to adjust, easy to operate. One man can in a day accomplish as much as four or five with hand scrapers. Its adjustable features make it so efficient and so easy to operate that one man can accomplish fully twice as much in a day as with any other machine of which we have knowledge. It does not weary the operator as do other machines where weight on knife can only be had by partially carrying the machine.

We are told by contractors with large experience that this is the only floor scraper that can be ranked as at all perfect, and they pronounce the Adjustable as being so perfect that



they do not see how it can be improved. They also say that there has been a standing need for a good floor scraper, and that this fully fills the place. The weight of the machine is 120 pounds.

In the drawing the parts, by number, are as follows:

- No. 1. Side view of the iron frame.
- No. 2. Wheels with rubber cushions.
- No. 3. Rear extension of the frame for holding handle.
- No. 4. Slot for adjusting handle to suit operator.
- No. 5. Bolt with nut to clamp handle to desired adjustment.
- No. 6. Handle.
- No. 7. Bolts upon which handle is pivoted.
- No. 8. Adjustable head secured to frame by pivot 9.
- No. 9. Bolt with shoulder to pivot head 8 to frame 10.
- No. 10. Top view of the iron frame.
- No. 11. Bolts in slots by which head 8 may be given a bias (or shear cut) position.
- No. 12. Iron clamps between which blade 13 is held. These clamps are movable in head 8, giving blade 13 any desired angle to the floor, as shown in Fig. 2.
- No. 13. The scraping blade, size 4½ by 5 inches (cutting edge 5 inches).
- No. 14. Set screws to hold blade 13 between clamps No. 12, also to hold blade at any angle to the floor.
- No. 15. Sliding iron weight to give desired pressure on blade No. 13.
- No. 16. Bolt movable in slot 17 to hold block 15 firmly to frame.



FLOOR FINISH

is a TRIUMPH OF THE VARNISH MAKING ART

No other Floor Varnish or Floor Finish of a varnish nature is so tough, so elastic or so durable. It produces a smooth, handsome gloss finish unaffected by water or atmospheric conditions. It will not crack, chip or mark white.

If you are interested in a high-class article for floor work—a finish that is made to walk on and to stand the severe wear to which floors are subjected, write us for further information.

Our New Catalogue "D" listing our complete lines of "Nice" Varnishes, Fillers, Paints, Stains, Enamels, Colors, etc., will be ready very soon. We wish to send it to every reader of this paper who will write for it.

EUGENE E. NICE
272-274 No. 2nd St. PHILADELPHIA
201-3-5-7 Spruce St.



The Truth About Roofing Guarantees

Several roofing manufacturers are offering with every roll of their roofing a Guarantee Bond, the Guarantee usually being made for 10 years.

The Guarantee specifies, however, that the roof must be painted every year or the Guarantee becomes void.

This in itself is an admission of poor quality. The ready roofing requiring an annual painting cannot be a good roofing. The manufacturers issuing these bonds know that their roofing could not last 10 years on its merits, therefore they insert the annual painting clause.

The principal purpose of a Guarantee Bond in connection with roofing is to draw the attention of the dealer or consumer away from the vital question at issue—the actual merit of the roofing itself. At first sight a Guarantee Bond may appeal to you, but on second thought it must stand out in its true light—that of really being a 10-year paint contract, advantageous in some cases to the manufacturer because he can sell you his paint, but always a losing proposition for YOU because a first-class ready roofing requires no annual painting.

Which is the better policy—to buy a ready roofing which will give you 10 years of service with no annual painting, or to buy a ready roofing that is going to require the trouble and expense of annual painting to make it last out 10 years, in order to fulfill the conditions of the Guarantee Bond which is in reality a flimsy selling scheme and an expensive one to the roofing buyer.

Every manufacturer of repute should, of course, guarantee against defective material, and this the Stowell Mfg. Co. does.

Let us send you samples of Monarch Roofing and the opinions of people who have used and sold it for years.

Stowell Manufacturing Co.,

99 Culver Ave., JERSEY CITY, N. J.

PHILADELPHIA KANSAS CITY CHICAGO

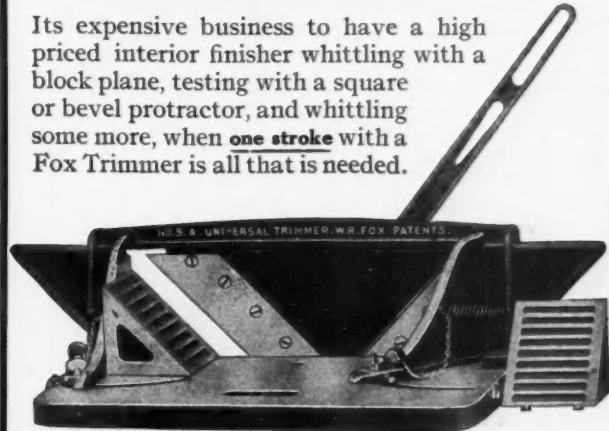
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Fox Trimmer

FOR

Interior Finish

Its expensive business to have a high priced interior finisher whittling with a block plane, testing with a square or bevel protractor, and whittling some more, when one stroke with a Fox Trimmer is all that is needed.



We'll send our new Trimmer catalog on request

FOX MACHINE COMPANY

756-776 N. Front St.

GRAND RAPIDS, MICH.

We Can Point With Pride



to some of the hand-somest store fronts in the United States made with the Petz System.

Your customers look to you to specify the store front construction that gives the maximum of light and strength. You can fill these requirements by specifying **Petz Store Front Construction**. You will find this System without an equal in quickness of installation and ease in setting glass.

Write for details of this system. Our booklet, "Modern Store Front Construction," sent free, contains valuable information and describes and illustrates fully our different forms of bars. Write for it today.

DETROIT SHOW CASE COMPANY
SOLE MAKERS

491 West Fort Street

DETROIT, MICH.

For sale by Pittsburg Plate Glass Co. at all branches



CLASSIFIED DEPARTMENT

Do You Want Help?
 Do You Want a Situation?
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 Do You Want Machinery or Supplies?

[An advertisement in the "Classified Department" of the American Carpenter and Builder will be the least expensive and the most thorough way of letting your desires be known. Rates: 5 cents a word each insertion.

CASH MUST ALWAYS ACCOMPANY ORDER

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FOR SALE—A four-horsepower Fairbanks-Morse gasoline engine; for further information write Henry Meyn, Boyden, Iowa.

Instruction.

Architectural engineering, design, drafting and mathematics taught nights, quickly and privately, by architect and engineer. Candidates for architect's license prepared for state examination. Write 1353 N. Mozart St., Chicago.

Patents.

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

"Creole"
 "Etowah"
 "Cherokee"
 "Kennesaw" } **Georgia Marble**
 THE GEORGIA MARBLE CO., - - TATE, GA.

House Sewage Disposed of Without Sewers Scientifically by a natural, speedy process. Easy to install anywhere. In use in thousands of country homes, cottages, public buildings. Send for Free Book.

Agents Wanted
Ashley Sewage Disposal System
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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.

FURNACE AND FITTINGS \$55.00

OUR SPECIAL OFFER



Absolutely a first class furnace, either upright or horizontal, capacity to heat 8,000 to 12,000 cubic ft. with pipe, registers and fittings, \$55.00. A 40-inch furnace, capacity to heat 12,000 to 16,000 ft., \$65.00. Larger furnaces at correspondingly low prices. We make 25 different furnaces, and can ship everything ready fitted so that any handy man can install a furnace in two days. Send for FREE CATALOGUE.

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I will teach you the Real Estate Business by mail and appoint you my special representative. I handle Real Estate on the co-operative plan, the only profitable way, and need you, no matter where you are located or what business you are in. Ten dollars (\$10) will start you. I will help you make money. You should make \$200 to \$500 per month. Write for my free book, "The Real Estate Business and Its Present Day Opportunities. It is a guide to the Real Estate Business and it is free. Address

C. H. GRAY, Pres. Gray School Real Estate, 1699 Century Bldg., Kansas City, Mo. Mention the American Carpenter and Builder.

WANTED: To manufacture special machinery models, dies and tools. We take contracts for stampings and manufacture patent specialties and novelties in metal of all kinds. **NATIONAL STAMPING & ELECTRIC WORKS, 153-159 S. Jefferson St., Chicago, Ill.**



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 6, 10, 12, 16, 20 and 40 parts. Also free catalog on request. See our two-page ad in American Carpenter and Builder for January, 1907. **ANDREWS HEATING CO. 949 Heating Bldg., Minneapolis. 978 La Salle Bldg., Chicago.**

GENUINE BANGOR Roofing Slate, Structural Slate, Blackboards.

Large Facilities, Prompt Deliveries
EAST BANGOR CONSOLIDATED SLATE CO. - - East Bangor, Pa.

- No. 17. Slot permitting bolt 16 to slide forward and backward adjusting weight 15 to desired position.
- No. 18. Head of bolt 16 as it appears under the frame.
- No. 19. Thumb nut of bolt 16.

The Adjustable Floor Scraper is being placed upon the market by the Long Distance Telephone Manufacturing Company, of South Bend, Ind. Write to them today for full particulars.

McKenna Slates

We have received an exceedingly interesting and instructive pamphlet from David McKenna, Slatington, Pa., on the subject of slate—structural slate and slate roofings; how they are cut and how they should be applied.

It appears that McKenna is prepared to cut roofing slate into the various patterns and styles to suit the taste of the fastidious architect, etc.

In justice to himself, every reader of the AMERICAN CARPENTER AND BUILDER should become acquainted with the McKenna slates.



Carpenters \$75 TO \$200
EVERY MONTH

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Made of best material, carefully tempered, tested and inspected—warranted for six months. Carpenters and pattern makers endorse them highly. Name, address, lodge emblems, photos of self, etc. beneath indestructible handles.

A Good Winter's Job

Big commission paid. Write quick for terms. Now is the time to take orders for Christmas. Send 2c for catalog.

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80 Bar Street, . . . CANTON, OHIO

NOTICE CARPENTERS!

The Fifth Edition of

The Lightning Estimator

is enlarged and brought up to date. Teaches you to estimate housework in an easy, rapid, accurate and practical manner. Gives actual cost of each separate part of the labor and material. Guards against errors and omissions. Based on actual experience, not theory. Quickest reliable method in use today. Now is the time to post yourself on this vital part of the business. *Price postpaid, \$1.00.*

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SLATE WE HAVE WHAT YOU WANT

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

SATISFACTION GUARANTEED IN QUALITY AND PRICE
ASK FOR DELIVERED PRICES

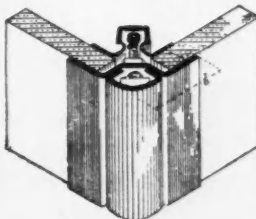
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ALL METAL STORE FRONT CONSTRUCTION

It's all metal in construction, all glass in effect. Complete from I-beam to sidewalk or adapted to the installation of Plate and Prism glass only. The only system supplying perfect ventilation and drainage. Provides for expansion and contraction of glass. **High** standard of efficiency. **Low** rate of insurance. All of these and many other points of superiority merit the careful consideration of ever Architect and Builder. *Your request will bring full information.*



"It stays and pays"

KAWNEER MFG. CO.

121 Factory St. NILES, MICH.

Patented August 12, 1902.

WE MAKE A FULL LINE OF TOOLS

**THE CEMENT WORKERS IDEAL FINISHING TOOL.
THREE TOOLS IN ONE
—RIGHT AND LEFT HAND EDGER AND JOINTER.—**

MANUFACTURED ONLY BY
ERNEST A. BENNINGHOFEN
HAMILTON, OHIO., U.S.A.

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Our Specialty
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Here are a few items of our product on which we will quote special prices for a short time. Send for your New Catalog No. 17. It shows our complete line. It contains pages, all illustrated. Do it now—Write today.

Buffet Side Board No. 402
Sideboard Style G
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Plate Rail 3 in., 1 in., 3 in.

We are Specialists in Our Particular Line
Send for our New Catalog No. 17 — 112 Pages.
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Grilles
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583-587 AUSTIN AVENUE CHICAGO, ILL.

ART METAL CEILINGS
LET US FIGURE WITH YOU
We make PROMPT SHIPMENTS
The Kanneberg Roofing & Ceiling Co.
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Manufacturers of Everything in Sheet Metal

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of Steel and Brass CORK BEDDED
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Handsome, Strongest and Most Practical Bar on the Market. Long Life—nothing to rot out. Glass Bedded on Spanish Cork, preventing cracking or crushing of glass. No putty, yet ABSOLUTELY WATER AND DUST PROOF. Simply incomparable with old fashioned styles. They add immensely to the Beauty, Utility and Rental Value of Buildings.

ARE LOW IN COST. Architects, Contractors and Owners are invited to write me for descriptive literature, prices or estimates. Also Shultz Patent Burglar Proof Coal Chutes. All Steel Cork Bedded and Ventilated Bottom Bar

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The Neatest, Strongest and Most Convenient Coal Chute Made. Prices also Lowest. No modern residence complete without it. Locks itself when closed up. Can only be opened from inside. Architects, Contractors and Owners are invited to write for descriptive circular.

C. H. SHULTZ, Manufacturer, St. Joseph, Mo., U. S. A.



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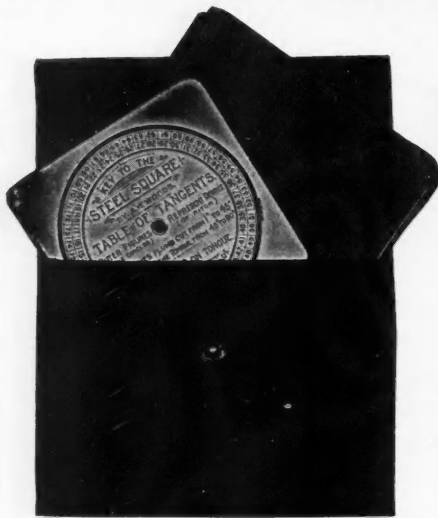
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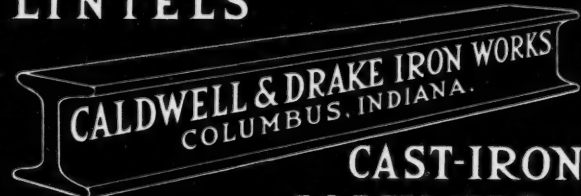
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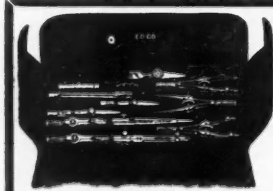
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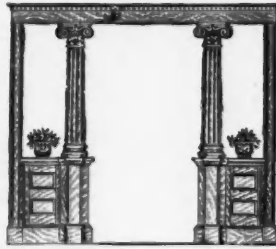


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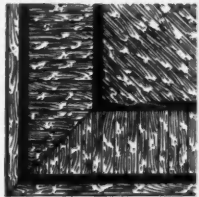
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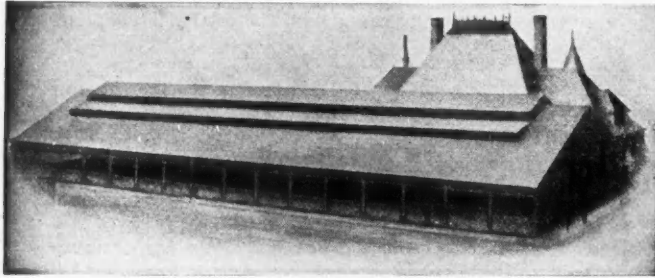
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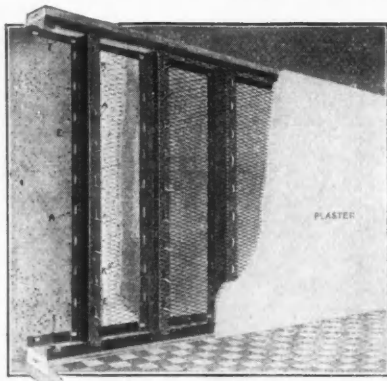
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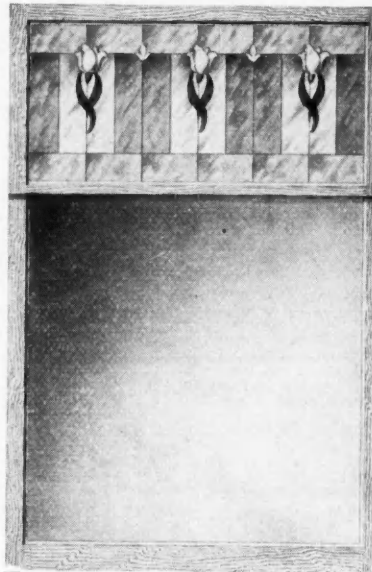
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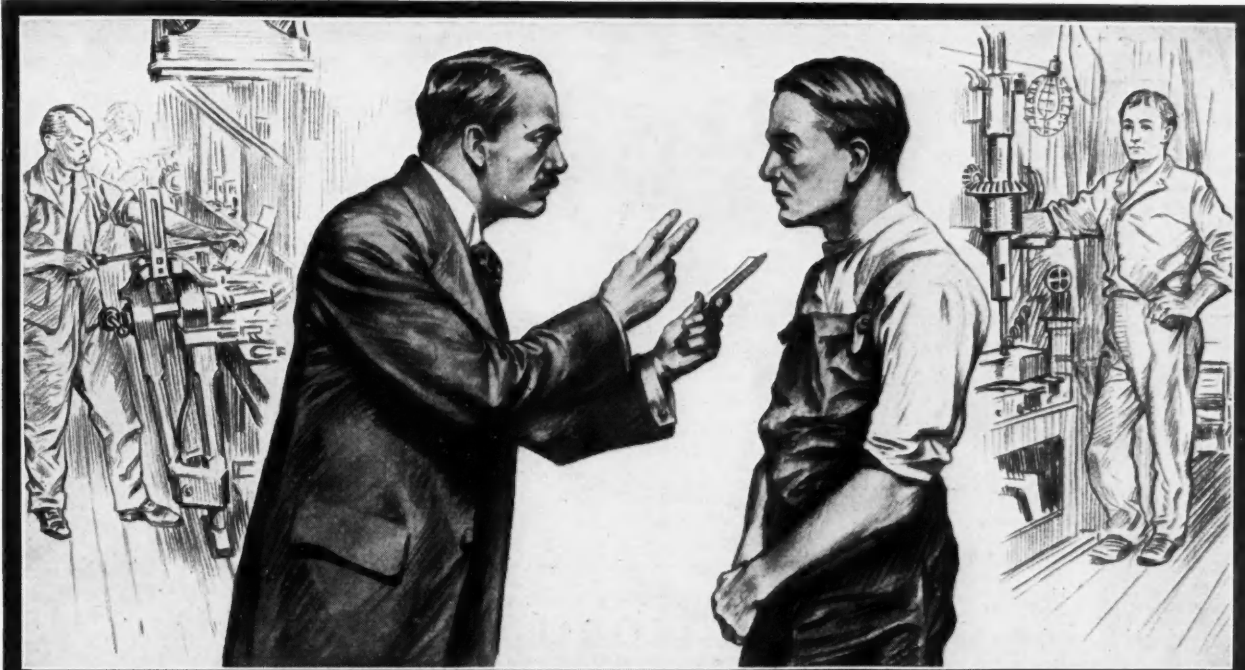
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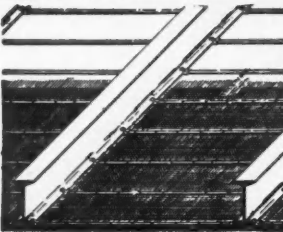
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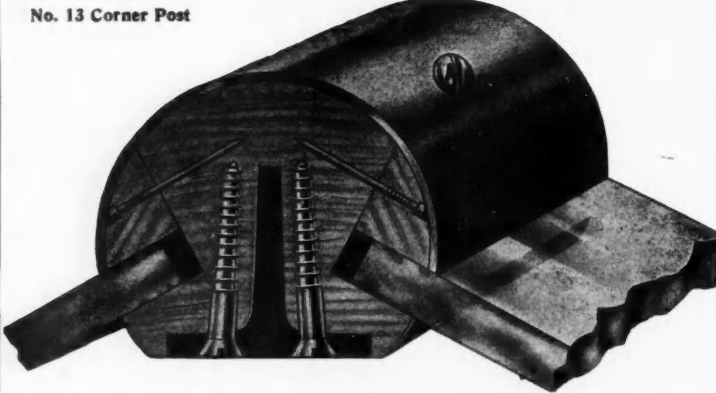
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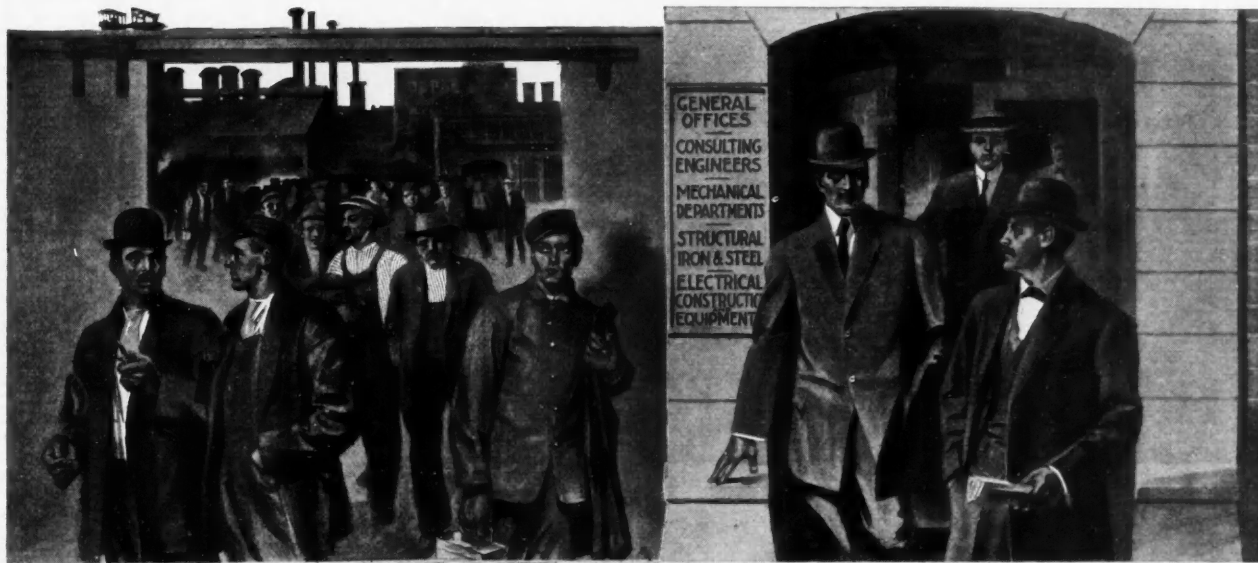
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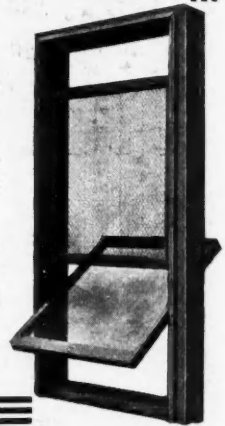
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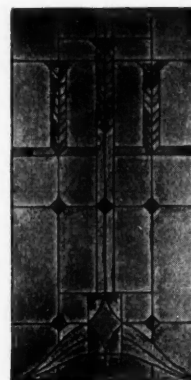
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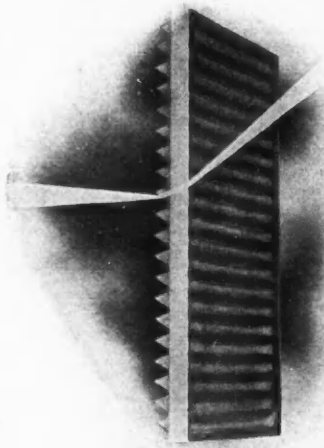
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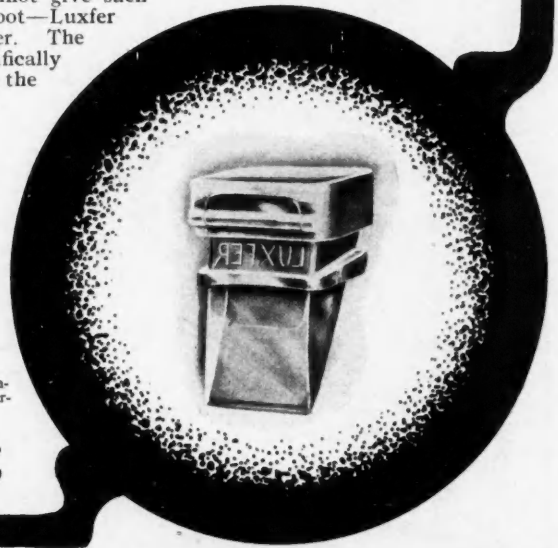
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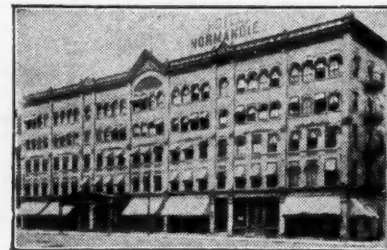
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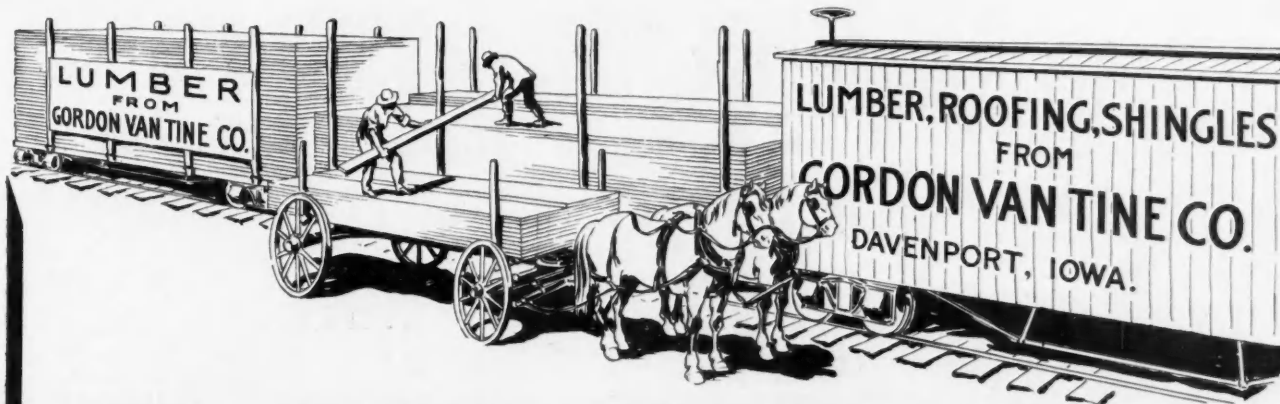
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GEORGE FULWELL, Proprietor



LET US SHIP YOU ONE BILL OF MILLWORK ON TRIAL

A SAMPLE SHIPMENT WILL PROVE TO ANY CARPENTER OR CONTRACTOR THAT WE UNDERSELL EVERYBODY. IF GOODS ARE NOT AS REPRESENTED, WE WILL PAY THE FREIGHT BOTH WAYS AND REFUND YOUR MONEY.

Building operations in all parts of the country are rapidly assuming the proportions of a boom. In every city, town and hamlet and every rural community, the increase in number of new buildings planned or contracted for indicates an exceedingly prosperous year for Carpenters and Contractors.

In addition to the erection of new buildings, there is unusual activity in the line of remodeling old-style buildings. Every builder can add a goodly sum to his earnings by taking advantage of our extraordinary low prices on all kinds of building material.

Hundreds of Carpenters and Contractors buy all the material they use, direct from our big plant, saving an average of 50 per cent. on every item.

We solicit your order for a trial shipment. Your business makes you a keen judge of quality. We propose to prove, at our own risk, that we can and do sell

Millwork, Roofing, Lumber at 50% Below Current Market Prices

Our proposition is this:

Make up a trial order from our Grand Free Millwork Catalog, of any quantity of material, large or small.

Examine the goods at your freight depot. If you find them below our specifications in any particular, *refuse the shipment!* We will refund every penny of the purchase price and pay the freight both ways on any shipment that is not exactly as represented in our catalog.

How Gordon-Van Tine's Goods are Made and Guaranteed

Our goods are all manufactured in strict accordance with the Official Grades prescribed by the Sash and Door Manufacturers' Associations.

We quote below from our Catalog the following regarding the material and workmanship in our Doors and Windows.

GORDON-VAN TINE DOORS

(Extract from Catalog)

The lumber from which Gordon-Van Tine Doors are made is sawed from the best logs, in modern, mills-air-dried for months in the lumber yards, and then, as an extra precaution, put through a scientific drying process.

Joints are made with heavy hardwood dowel pins, glued with imported glue, pressed together by heavy steam power press. There is no "come apart" to our work.

The panels are sand papered on a special machine of our own invention before the door is put together and the entire door is then smoothed with extra fine sand paper.

This brings out the figure and grain of the wood and gives to each door the finished appearance that is a characteristic of all our products.

GORDON-VAN TINE WINDOWS

(Extract from Catalog)

We use selected Soft Pine, air-seasoned and then scientifically kiln dried, in the manufacture of our windows. We use only the best quality of "A" glass in all our two-light windows, and "B" quality in our 4, 8 and 12-light windows. In glazing we use Weather-Proof putty. Our glaziers are experts, and do their work with the utmost care and skill. All our Windows and Transoms are primed in Pure Linseed Oil, so they can be used for oil finish work or painted.

EXAMPLES OF DOOR PRICES

4 panel Y. P.	"B" Quality Door—2-6x6-6-1	\$1.43
4 panel Y. P.	"A" Quality Door—2-6x6-6-1	1.72
5 panel W. P.	"A" Quality Door—2-6x6-6-1	1.93
4 panel Cypress	"A" Quality Door—2-6x6-6-1	2.00
4 panel Painted Door—2-6x6-6-1	1.13

EXAMPLES OF WINDOW PRICES

Windows — 8x10-1	—8 lights, glazed	\$0.52
Windows — 10x20-1	—4 lights, glazed	.64
Windows — 20x28-1	—2 lights, glazed	.87
Barn Sash— 8x10-1	—4 lights, glazed	.39

WRITE FOR FREE CATALOG OF 5,000 BARGAINS

Everything required by the Carpenter, Contractor and Builder is offered at bargain prices, averaging 50 per cent. below ordinary retail prices. Doors and Windows in all styles and sizes; Mouldings; Porch Work; Stair Work; Roofing; Glass; Frames; Mantels and Grates; Grilles and Colonades; and hundreds of other items. Get the Catalog and put us to the test. Remember we guarantee Quality, Satisfaction and Safe Delivery. **Get Your Name on Our Mailing List for Special Bulletins.**

GORDON-VAN TINE CO., 443 Federal Street, DAVENPORT, IOWA

The **WINTHROP** SOLID TAPERED **Asphalt Shingle**

WINTHROP ASPHALT SHINGLES are being substituted for other roofings because they retain the good points of each and eliminate the bad ones.

In other words: slate and tile look good, but weight and cost are exorbitant; metal roofings are light and easily laid, but lack durability; good wood shingles are scarce; cheap wood shingles are in constant need of repair and are easily set on fire.

Winthrop Asphalt Shingles look and wear like slate, weigh no more and are as easy to lay as metal roofings. Their cost barely exceeds wood shingles.

Cool, Grey, Slate Color

The illustration is from a photograph and shows Winthrop Shingles as they appear when laid.

They are laid without cement or other material.

They are as indestructible as an Asphalt Pavement.

Never require painting, never leak, crack, break, or fall off.

No other roofing in existence can show such real advantages—so much actual "dividend-paying" value.

Fire-resisting, weather, wind and sun-proof.

Special to Contractors

Winthrop Asphalt Shingles are residence roofing. Contractors and builders can apply them at about the same cost to themselves as wood shingles. Laid with regular shingle nails, in the usual manner.

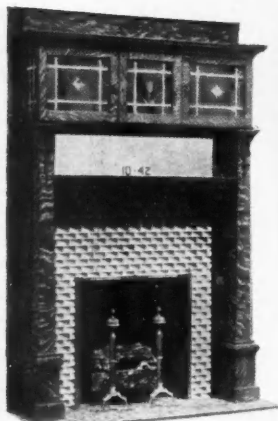
We offer special inducements for applying first roof of these shingles in each town.
Particulars and the booklet are free.

Winthrop Asphalt Shingle Co.

1102 Woman's Temple :: Chicago

Cross
Section
Showing
Butt End
of Shingle

Photo—
Looks Like
Slate



BURRITT Mantels

are gaining new friends every day among CARPENTERS and BUILDERS because of excellent design, perfectly seasoned stock, thorough workmanship and beautiful finish. Write today for Catalogue "A." We are prepared to furnish Mantels in special sizes and woods or build same from Architect's sketches. Let us hear from you.

TILES AND FIRE PLACE GOODS

The A. W. Burritt Co.

349-473 Knowlton St. "THE MANTEL FOLKS"

Bridgeport, Conn.



This Catalogue and a "Little" Money Builds a "Big" House Now!

FROM MANUFACTURER DIRECT



ECONOMICS OF MILLWORK BUYING

Every important economic movement, marking the progress of commerce during the past twenty-five years has been centered upon one bull's eye—the elimination of the middleman. This has been and is true the world over.

Competition, in solving the problem of marketing manufactured products, has naturally sought the avenue that does away with paying somebody an unnecessary profit between the producer and consumer.

Realizing the opportunity that existed for establishing the business of selling high-grade or "Quality" millwork—"From the manufacturer direct"—the **Chicago Millwork Supply Co.** was established as the pioneer concern of its class, that took for its foundation "Quality" at a price that means no middleman's profit paid by the consumer.

In this day and age **the Economics of Millwork Buying** mean that every owner, prospective owner, contractor, builder and jobbing carpenter should thoroughly investigate the possibilities and advantages of buying their construction material direct from the manufacturer.

TO THE OWNER

To the owner buying direct this means immense saving and that means **Interest earned in advance** on any building investment. It means better and guaranteed qualities in all the material because the manufacturer is directly responsible to the owner for what he sells and ships.

TO THE CONTRACTOR

Every contractor and jobbing carpenter owes it to himself, as a shrewd business man, to make his iron clad policy to buy direct whenever possible. It not only saves you middlemen's profit but it enables you, **under our system**, to expand your business without investing great additional capital and helps you estimate on a basis that means more and bigger contracts, executed with more satisfaction to yourselves and customers.

The buying Direct policy keeps you in close touch with the outside markets and broadens your business experience.

OUR SPECIAL EQUIPMENT

The equipment of the **Chicago Millwork Supply Co.** consists of our immense warehouse located at Chicago, "The Great Central Market" supplemented by two large factories at the base of supply. We carry immense stocks, fill orders for all stock stuff without delay and offer you superior service and best qualities at lowest prices. We, as manufacturers, have to keep ahead of the times and constantly on the alert in producing what we sell, and you get the benefit.

Estimates cheerfully furnished
Write for our catalog No. 20 today

Chicago Millwork Supply Co. 236-242 W. 20th St. Chicago

Our Catalogue No. 20 is free but we appreciate 10 Cents in Stamps to cover cost of Mailing



FROM MANUFACTURER DIRECT

FROM MANUFACTURER DIRECT

BUY DIRECT

Colonial Columns

SAVE 50 PER CENT

DIRECT FROM FACTORY TO CONTRACTOR

HERE ARE TWO REAL BARGAINS

OUR COLUMNS ARE THE BEST ON THE MARKET. WE SELL DIRECT TO CONTRACTORS, CARPENTERS, BUILDERS AND HOME OWNERS ALL OVER THE UNITED STATES AT FACTORY PRICES, POSITIVELY SAVING YOU 50 PER CENT OR MORE INCLUDING THE FREIGHT. WE SHIP EVERYWHERE AND GUARANTEE SAFE DELIVERY. OUR CATALOG CONTAINS HUNDREDS OF BARGAINS ON GLAZED SASH, DOORS, INTERIOR FINISH, MOULDINGS, STAIR WORK, PORCH WORK, GRILLES, ETC. SATISFACTION AND SUPERIOR GOODS ALWAYS GUARANTEED

WRITE TODAY FOR OUR MILLWORK CATALOGUE



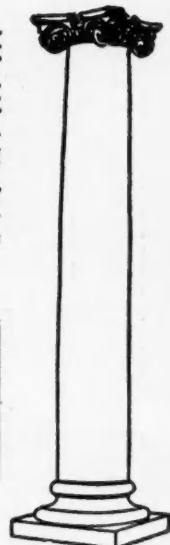
No. 2216
Primed
No. 1.

Stock	Sizes	No. 2216
6x6,	8 Ft.	\$1.72
8x8,	8 Ft.	2.06
8x8,	9 Ft.	2.35
10x10,	8 Ft.	2.99
10x10,	9 Ft.	3.83

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DIRECT TO CONSUMER AT SAW MILL PRICES. SEND US YOUR LISTS FOR PRICES.

Stock	Sizes	No. 2217
6x6,	8 Ft.	\$2.47
8x8,	8 Ft.	2.81
8x8,	9 Ft.	3.08
10x10,	8 Ft.	3.79
10x10,	9 Ft.	4.14



No. 2217
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"The Miles" Improved Block Machines

Make the Best Block Face down. Adjustable, Rigid, no Springs or Cogs to bother. Wet mix used. Prices right. Ask about our Metal Lined Universal Adjustable Sill, Cap and Step Mold.

The Miles Mfg. Co. (Inc.)
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Hand - Power Elevators

☐ We furnish the iron work complete with plans and instructions for building the platform and overhead frame; your carpenter can do the rest.

YOU SAVE ONE-THIRD

☐ Our data sheet, sent on request, helps you tell us what you want.

☐ We also manufacture Electric and Power elevators for any service.

☐ Estimates cheerfully furnished.

HOLLISTER-WHITNEY CO., QUINCY, ILLINOIS

The Interior

of your home is where you live and derive the most comfort, and a well designed mantel contributes more to the interior appearance of the home and comfort of its occupant than any other article of furniture or decoration.

CENTRAL MANTELS

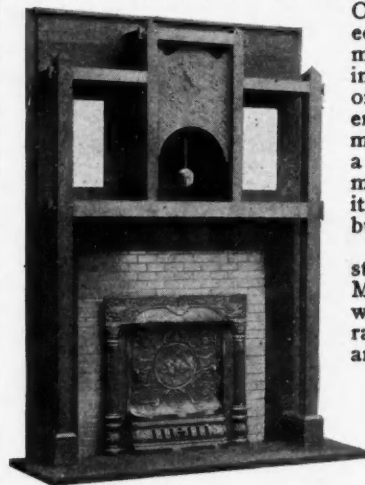
are distinctive in character, workmanship and finish. Twenty years' experience catering to the wants of the home builder enables us to know and meet their wants.

Our factory being equipped with all of the most modern labor saving devices and keeping on hand constantly an enormous stock of raw materials, places us in a position to sell better mantels cheaper than it is possible for you to buy elsewhere.

We can furnish any style from Colonial to Mission, and in any wood or finish at prices ranging from \$10.00 and up.

The above is one of the many designs shown in our 113 page catalog, which is the finest, most complete and expensive mantel catalog ever issued. Catalog sent free on request to Carpenters, Builders or anyone building a home.

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No. 1247 Olive Street - - - St. Louis, Mo.
"Reputation and Quality Count"



HUNDREDS OF BOOKS ON CARPENTRY AND BUILDING DAMAGED BY WATER

owing to a break in the water pipes on the floor over our stock room on the night of October 19th to 20th

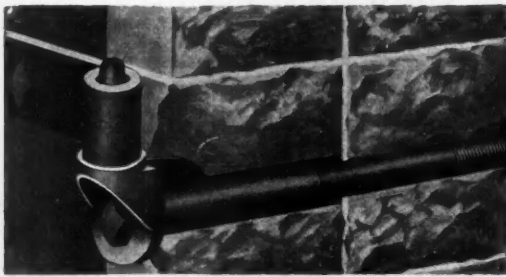
Many of our books were utterly ruined, but the greater portion received only a slight sprinkling on the edges. These cannot be sold as perfect copies, but for the purpose of reading and study they are as good as new copies. We are selling these way below cost and as the supply is limited we advise the readers of the American Carpenter and Builder to order early, as we cannot afford to sell any more than the number mentioned below at this low price.

No. of Copies	Regular Price	Bargain Price	No. of Copies	Regular Price	Bargain Price
2	\$5.00	\$2.00	2	Book of Alphabets	\$0.50 \$0.30
48	1.00	.50	6	Practical Graining and Marbling, by Hasluck	1.00 .50
131	.50	.25	3	Modern Wood Finisher, by Maire	.50 .30
6	1.00	.50	1	The Signist, by Henderson	1.50 1.00
84	.50	.25	5	Wall Papers and Wall Coverings, by Jennings	2.00 .50
104	.50	.25	1	Gilders' Manual	.50 .25
80	.50	.25	1	Scene Painting, by Lloyds	1.00 .60
36	.50	.25	38	How to Become a Good Mechanic, by Phin	.25 .10
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Industrial Publication Co.

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THE OLD RELIABLE

Zimmerman's Anti-Sag Strap Hinge

HIGHEST AWARD JAMESTOWN EXPOSITION

Cannot sag or twist—easily attached to Wood, Brick, Stone or Cement by standard bolt or lag screw.

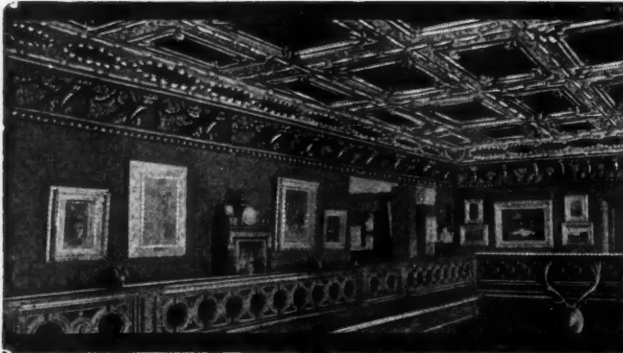
For use on Heavy Barn Doors, Gates, Fire Doors, Fire Shutters—every place where a perfect hinge is desired to carry a heavy load without sagging or breaking down.

Made in 22 sizes, from six inches up to six feet. The strongest

hinge ever offered to the trade—stays where put. Far superior to hinge made by blacksmith and at one-half the expense.

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THE NEW CEILING AND SIDE WALL ON THAT ROOM

What shall it be? Steel, of course—because it is the most modern, sanitary and inexpensive, practically lasts forever.

Write to-day, giving dimensions and particulars. We will go into the matter with you thoroughly.



"When it has the Eller trade-mark, it's the best in steel."

ELLER MANUFACTURING CO.
 Canton, Ohio

60,000 columns at an average of \$5.00 each, or 6,000 at \$50.00 each, gives you an idea of the annual capacity of our plant.

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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Sole Manufacturers of

KOLL'S PATENT LOCK JOINT COLUMNS

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The Best Columns for Porch, Pergolas or Interior Use.

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Wire & Iron Works
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IRON LINTELS

Beams, Angles, Anchors, Hangers, Ornamental Cast Iron Fronts and Stairways.



A Roll Ready for Use

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(Sign your name and let us prove it to you.)

LINOVELT is Made by the Makers of "LITH"—the Cold Storage and Refrigerator Insulation

Not Expensive

500 Million Yards in Use Adds less than 1 per cent to cost of buildings.

The Philip Carey Company Distributors, Cincinnati

Branches & Warehouses in all large cities in the U. S., Canada and Mexico

PAID IN FULL

The average trained man earns
\$22,000 more in a life time than
the average
untrained
man



The great "bug-bear" of the average carpenter is the intelligent use of the steel square. Watch the ordinary man at work; he is good enough at framing ordinary rafters; he can lay out and construct ordinary roofs, but unfortunately for him all roofs are not ordinary. Most of them have some peculiarity or complication that he does not understand. He cannot lay out his work on the ground or cut his timbers with the certain knowledge that each piece will find its place accurately when carried aloft to be put together. No, the average carpenter never learned how to do this kind of work; that's why he is an average carpenter. If he is working on a job under a foreman carpenter he goes to him to find out just what to do. If he is working by himself, he experiments; he lays one stick against another; somehow he guesses at an angle; after repeated failures, waste of good material, waste of time, he adopts a "pattern." Sometimes the "pattern" works all right for a while; then he comes across a new difficulty, a new problem is met which only the right kind of knowledge can solve. That means more experimenting, more waste of material, more delay. In the end he has pieced together a make-shift—if he is allowed to finish the work at all. More often the owner steps in and calls a halt to this kind of work and the carpenter loses one more good job, one more customer, and gets a reputation for being a poor workman.

Roof construction is not the only thing that the average carpenter finds difficult; stair building is another important feature too little understood. The old time circular stair-case is not so common now but even the ordinary inside stair-case presents enough difficult problems to test the ability of even the best workman.

Every carpenter and contractor must have a good knowledge of the strength of materials. He ought to know what size timbers to use to support a given weight; he must have them heavy enough to stand the necessary strain, but they must not be unwieldy. Furthermore, it is unnecessary expense to use heavy timbers when lighter ones will answer the purpose satisfactorily.

The carpenter or contractor who stands head and shoulders above the average man is the one who has an intelligent knowledge of the preparation and reading of drawings. He does not have to run to the foreman carpenter to explain every little job that he undertakes; in fact, he is nearly always the foreman carpenter himself. He is the man who does know how to read the blue-print and drawing—lay out his work exactly, without any experimenting, guess work or "rule-of-thumb methods."

It is just as important a part of your work to learn how to read drawings; how to use the steel square intelligently; how to figure strength of materials, and a thousand and one other things so often neglected, as it is to know how to get a true surface on a piece of wood, to saw to a line or to use the chisel, the rule, or the hammer.

The Steel Square and Its Uses

New and revised up-to-date. Two big volumes, size 6½x9 inches; handsomely and durably bound in green art canvas; over 700 pages of text; hundreds of plates, designs, diagrams and special drawings; a large number of full page perspective views and floor plans of actual houses and hundreds of worked out problems to show just how to do the work that is described.

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2. To divide the different ingredients more reliably into any desired proportion.
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5. For moderation in price.

Manufactured by
THE ASHLAND STEEL RANGE & MFG. CO.
Ashland, Ohio
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Take It—Try It And You'll Find It will Do All we claim



It makes Face Down, Side Face, Two Piece Wall and Veneer Construction. No limit to size, number of shapes or variety of designs. Wood pallets. A very wet mixture can be used, which makes hard, dense and non-absorbent blocks. Absolutely no loss from chipped edges or cracked blocks.

\$40.00

The Dunn Combination Cement Block Machine

You can prove these facts for yourself on the machine in your own home town, before you accept it. The machine will stand on its merits. That's probably the way you would like to buy. That's the way we are willing to sell.

Send for our illustrated catalog. It shows what the machine is and just how it works

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All blocks made face down; automatic in action; great strength; easy to operate; very rapid; large range, simple in construction.

HAYDEN Concrete Block Machines and Mixers

The Standard of Excellence

Send for Catalog "M" Today

The Hayden Automatic Block Machine Co.

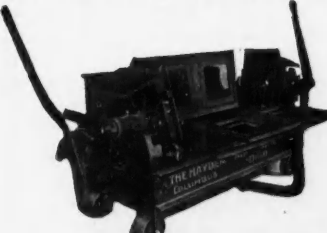
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The Hayden Concrete Mixer mixes sand, gravel or crushed stone — any proportion. Maximum capacity 70 yards per day. Water arrangement perfect. Uniformity and thoroughness absolute



The Hayden Down Face Machine
Two sizes—24-inch and 32-inch



View of mixer on steel skids, showing clean out door open. Also mounted on trucks with power

Don't! Tamp Your Life Away " Money "

WHY?

Make 100 Strokes to produce a block
Make 100 Blocks a day

WHEN

You can produce a block with one stroke
You can make 2000 Blocks a day on
a machine that don't cost any more.

We could not show cut of Multiplex here and do it justice. But our catalog "R" illustrates and explains it in every detail.

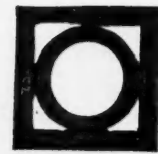
You can make all styles and sizes as well as chimney block on the one machine.

These statements are not advertising statements, we can prove it. Write

for catalog "R" and you will readily see the reason. Our chimney block is the only one of its kind.

THE MULTIPLEX CONCRETE MACHINE CO.

744 Ohio Building
TOLEDO, OHIO.



"TRUS-CON" TRADE MARK

JOIST HANGERS

Strongest

as shown by
University Tests.

Made from OPEN
HEARTH STEEL.

SAVES cutting and weaken-
ing of timber.

SAVES labor in installation.

LOWEST FIRST COST.

All styles and sizes for Brick
and Concrete Walls, Steel and
Wooden Beams.

WRITE TODAY FOR PRICES
To SPECIALTY DEPT.

TRUSSED CONCRETE STEEL CO.
624 Trussed Concrete Bldg., DETROIT, MICH.



"Standard" Concrete Machinery

"MACHINES OF QUALITY"



Is the fastest Hand Brick Machine on the Market; will make plain, veneered and ornamental face and shape; all perfect, smooth brick, true to size and design. Send for catalogue giving complete line of Mixers and Brick Machines.

SOUTH BEND MACHINE MFG. CO.

General Sales Offices, 108 La Salle St.
CHICAGO, ILLINOIS

IN THE MOUNTAINS



The Knickerbocker Co., Jackson, Michigan.

Gentlemen:—Under separate cover am sending you photo of my Coltrin Concrete Mixer I bought of you last year. It has given me the greatest satisfaction.

Yours very truly,

Butte, Montana, August 31, 1908.

GEO. TUCKER, Contractor.

COLTRIN CONCRETE MIXERS

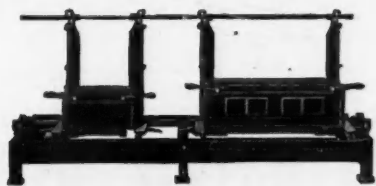
Manufactured by
THE KNICKERBOCKER COMPANY, JACKSON, MICHIGAN

OUR MIXERS will be shown at the Coliseum, Sections Nos. 31 and 45, Second Annual Cement Show, February 18th to 24th.

If you are going to open a Concrete Block Plant, don't handicap yourself by starting wrong. Get a reliable machine—one with a reputation back of it.

HERCULES CONCRETE BLOCK MACHINES

ARE NOT EXPERIMENTS



They have the reputation of years behind them; the world's best engineers endorse them, because!

They are Unlimited as to Production

They Enable you to Supply Superior Grade of Stone

They are Simple in Construction

Easy to Operate

Send to-day for beautifully illustrated catalogue, showing our complete line of Concrete Machines. IT WILL PAY YOU.

CENTURY CEMENT MACHINE CO
273 Main St. West, ROCHESTER, N. Y.

Are YOU Willing To Be Shown

WHY

—THE—

DAYTON CEMENT BLOCK MACHINE EXCELS

All other Block

Machines in the following particulars:

Speed: Simplicity: Accuracy:
Range of Work: Ease of Operation:
Durability: PRICE.

☞ This can't be told in this small space. But if you will write us, we shall try to show you.

DAYTON CEMENT MACHINE COMPANY

Successor to

Detrick Cement Machine Company

118 W. McPherson St.,

DAYTON, OHIO

You Make a LIVING On Your Staple Product but you make your Big Profits on your Concrete SPECIALS



Fancy molds are the big profit-earning special of the Concrete Industry. Are you getting your profits; or missing your opportunity?

A **LAWN VASE** like this can be made for \$1, and sold at an average price of \$5 to \$7.

WOOD PORCH COLUMNS, with composition cap usually cost \$7 to \$10 each, (and in a few years they rot at the base); A Miracle Concrete Column (in any of the standard designs) costs you \$2 to \$3 to make and can easily be sold at the price of wood, for they last forever and are cheap at \$10.



PORCH RAIL like this, is in frequent demand.

It is easy to make, can be turned out at 10 cents per running foot, and sells readily at 50 cents per foot.

Manitowoc, Wis., May 29, 1908.
MIRACLE PRESSED STONE CO.,
Minneapolis, Minn.

Dear Sirs:—The Lawn Vase Mold was received this week and it is a dandy. I have made up some of the vases and am selling everybody I show them to. Sold six yesterday to one man at \$5.00 per.

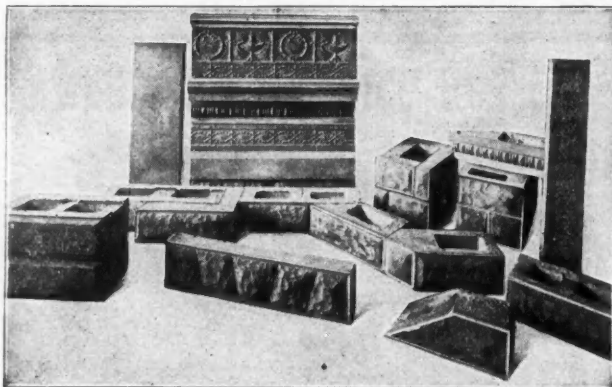
There certainly is a great opening in the ornamental stone business, as the margin of profit is to say the least,—good. The profit on the first eight vases we sold was more than the cost of the outfit.
Respectfully yours,
H. MURPHY

LET US SEND YOU OUR NEW SPECIAL FANCY MOLD CATALOG

Miracle Pressed Stone Co.

MINNEAPOLIS, MINN.

Largest Manufacturers of Concrete Machinery in the World.



THE FRANCISCO DOWN FACE

block machine makes three 16 in. blocks at each operation, or two 24 in. in either the 8, 10 or 12 in. for width of wall, without extra cost for parts. Also the two-piece L block, all five walls shown in cut, are made on machine, caps, sills, lintels, water table up to 4 ft.

USING WET PROCESS COARSE MATERIAL

either iron or wood pallettes are used. The L block can be used to form solid heavy wall, by laying one face course at a time, and filling in with cobbles and wet concrete, saving the cost of forms and making a perfect finish. SEND FOR CATALOG G.

FRANCISCO BLOCK MACHINE CO.,

338 North High Street :: :: COLUMBUS, OHIO

MADE ON THE FRANCISCO

Down Face

Coarse Material

Wet Process

“BRADFORD PRESSED BRICK” “BRADFORD REDS”

Trade-Mark—Sept. 12, 1905—July 15 1907



Size 2 1/4"x4"x8 1/2"

Positively Unequaled for Richness of Color
Perfection of Shading and Uniformity of Size

MANUFACTURED EXCLUSIVELY BY

Bradford Pressed Brick Company

BRADFORD, PA.

Standards, Romans, Moulded and Ornaments
Selected Brick for Mantels

Classified List of Advertisers

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East Bangor Cons. Slate Co.

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BRASS WORK
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BRICK MANUFACTURERS
Bradford Pressed Brick Co.

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Automatic Sash Holder Co.
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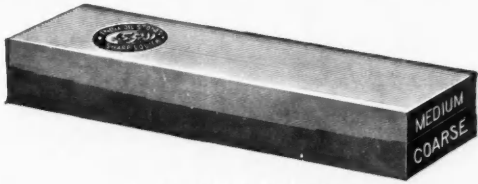
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NOTICE TO ADVERTISERS

New copy, changes and corrections for advertisements must reach office of American Carpenter and Builder, 185 Jackson Boulevard, Chicago, not later than December 20 in order to insure insertion in January number.

INDIA OILSTONES



COMBINATION STONE

For carpenters' use. One side coarse for fast work on dull tools; the other to set a keen working edge.

THE MARK OF QUALITY

No Matter
What the
Tool, There is
an India to
Sharpen It.



Will Cut
Metal on
Which a File
Will Slip.

ON EVERY INDIA STONE

We will send a descriptive price list and sample stone to any carpenter who will ask for them.

Write us! We want to show you what India Oilstones are—and why they are superior to other oilstones.

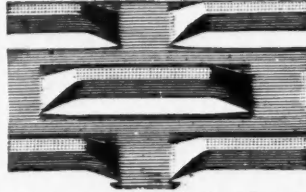
Sole Selling Agents

Pike Manufacturing Co.

PIKE, N. H. Dept. 6.

NORTON COMPANY, Worcester, Mass., Mnfrs.

SYKES METAL LATH



The lath that is positively different to anything else made; different because it combines more good features.

Cup lath is the only Expanded Metal Lath that can be plastered on either side—cannot be applied wrong because both sides

are alike.

We make two kinds—Sykes Expanded Cup Lath, and Sykes Trough Lath. Both are supreme for their own purpose.

The top illustration shows Trough Lath, bottom cut depicts Cup Lath.

NO PICKLED LATH

Sykes Lath is absolutely guaranteed not to have been pickled in an acid bath. This means that the weight and thickness is not reduced and is less susceptible to rust. Requires no furring out from studs because it is self furring.

It has been approved by U. S. Government and by leading architects, carpenters and builders throughout the country. In fact, when we say it is the best ever made we are simply stating a proven fact.

Samples and prices mailed upon request.

Sykes Metal Lath & Roofing Co.
NILES, OHIO

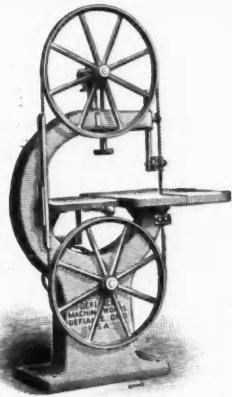


“DEFIANCE”

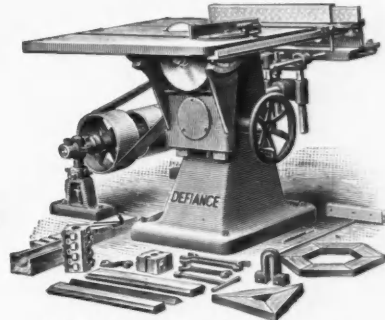
Wood-Working Machinery

Invented and Built By

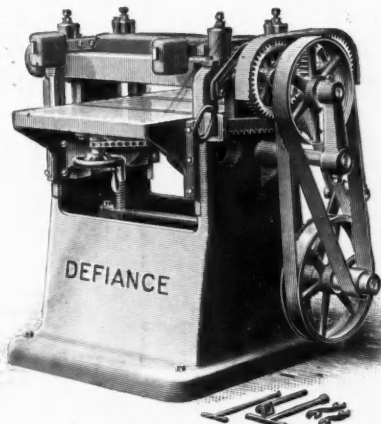
The Defiance Machine Works
Defiance, Ohio



28" Band Saw



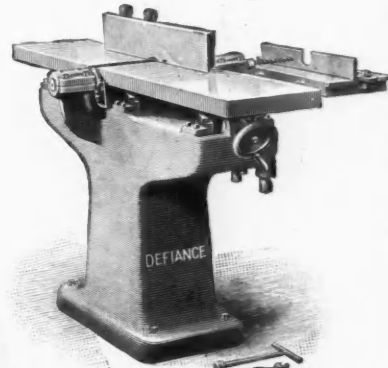
No. 8 Variety Saw—Cut-Off and Rip



24" Single Surface Planer



No. 1 Knife Balancing Machine



12" Hand Planer with Boring Attachment

These machines are of the highest grade, built in large numbers and sold at moderate prices
..Write for Particulars..

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

On The Job!

He is on the job! That's what we all say about the man who *knows* his work. The phrase expresses our confidence in his knowledge. We are glad to let him go ahead and plan and direct how the job shall be done. We are anxious to get him to do the work. *He is sought after.*

He is offered the best of work, the kind that pays good money. And he does not have to do the actual labor himself. You will very nearly always find him directing the work of others.

It is easy enough to get men of ordinary ability, they may be hired today by the score and discharged tomorrow just as easily. But the exceptional man, the man who has the knowledge that enables him to direct others, is the one that sticks on the job continuously in good times and bad. He is the man who keeps up-to-date in every branch of his trade. He is not content to stand still while other men pass ahead of him to other positions paying more and more money. He takes advantage of every possible chance to fortify himself against failure. If you are such a man, this advertisement means a great deal to you for it will help to train you thoroughly in an important feature of your work.

Of course you know and fully realize how necessary it is to learn all you can about your own work. Even if you are one of the best men in your line of work, to keep that position you must always be watching for the chance to improve. Building methods are constantly being changed to meet the requirements of modern architecture and construction. The use of cement and reinforced concrete is becoming so general that you have got to get a good working knowledge of its uses and limitations if you are going to maintain the pace in your field of work. To do this you must read

The CEMENT WORLD

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