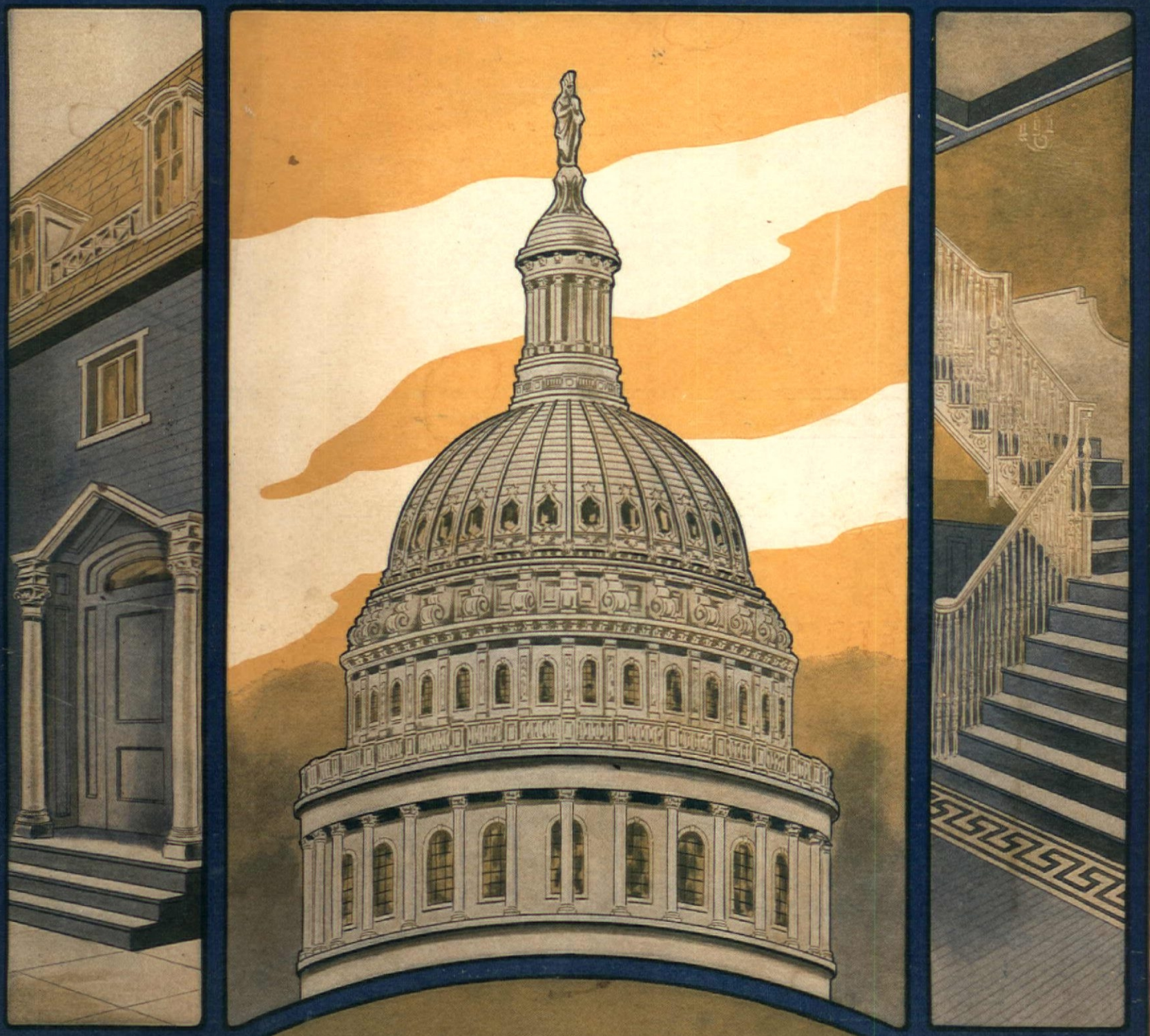
MORE COPIES
PRINTED AND CIRCULATED THAN ANY BUILDING PAPER IN AMERICA.

THE NATIONAL BUILDER



PUBLISHED
On The 15th Day Of Each Month
Twenty Cents Per Copy Two Dollars Per Year

APRIL, 1911

Amboy Minn
Feb 24 1911

Dear Sirs Plead send me some of your saw filing hints and a catalog showing some of your products.
P.S.
I sent to Germany for one of the best saws they could get and when it came it had H. Disston Sons on it then I laughed.

S.O. Wiehl
Amboy Minn.

AUGER BIT ESSENTIALS

The Sixth Feature which places

RUSSELL JENNINGS BITS

in a class by themselves, is the

CLEARANCES

It is the correctly formed clearances that enable the carpenter having a Russell Jennings bit to bore a smoother hole, bore it easier than with any other bit, and bore it more accurately as to size. The painstaking care put into the formation of clearances is returned a hundred fold to the user of our bits.

Our Standard auger bits and our quick-boring bits are put up in SETS of 32½ quarters, 13 bits, 4-16 to 16-16. A finely finished hardwood tool box or canvas roll is furnished with each set. The boxes are never sold separate from the bits.

OTHER SETS

22½ qrs.	11 bits
20½ qrs.	9 bits
18 qrs.	9 bits
17½ qrs.	7 bits

RUSSELL JENNINGS MFG. CO.
CHESTER, CONN., U. S. A.

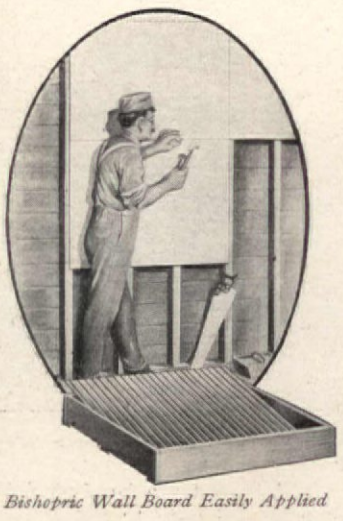
21-29

PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.

BISHOPRIC WALL BOARD AND SHEATHING

ANY WEATHER is "Good Building Weather" when you use Bishopric Wall Board as a substitute for lath and plaster. It is cheaper and better and does away with all delays in building. It is nailed to studding dry, ready for immediate application of paper, paint, burlap, or any other kind of decoration.

FOR WALLS AND CEILINGS



Bishopric Wall Board Easily Applied

This substitute for lath and plaster is made of kiln-dried, dressed lath, imbedded in hot Asphalt Mastic, surfaced with sized cardboard and cut at the factory into 4x4 ft. sheets, which are easily and quickly nailed to studding, ready for immediate application of wall paper, paint, burlap, or other decoration.

It is applied dry, is guaranteed not to swell, shrink, warp, crack, flake or blister; is clean, sanitary, and odorless; is proof against moisture, cold, heat, and vermin; saves fuel in winter and keeps out summer heat; also deadens sound.

It is suitable for dwellings, factories, new partitions in old buildings, finishing attics, porches, laundries, cellar ceilings, garages, etc.

Applied Dry Winter or Summer

Shows Construction of Bishopric Wall Board.

PRICE WALL BOARD AND SHIPMENT — Crate of 16 sheets, covering 256 square feet of surface, $6.40 per crate, or $2.50 per 100 square feet, f. o. b. New Orleans, La., Cincinnati, or Alma, Mich. We ship from nearest point.

Cheaper Than Lumber. Saves 75% on Labor. Does away with Building Paper.

BISHOPRIC SHEATHING

Ideal Material for Cement Buildings or Stucco Exteriors. Proof against Dampness.

Bishopric Sheathing is made of same materials as Wall Board, but finish is not necessarily so fine, therefore costs less. It is of uniform thickness, insuring a perfectly even surface when applied.

Bishopric Sheathing is nailed to studs, with lath and asphalt side exposed. Over laths, weather boards are nailed or cement applied.

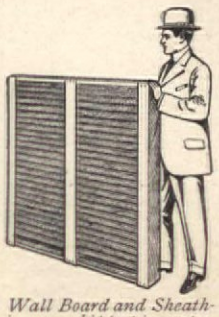
Shows Construction Of Bishopric Sheathing

Arrow points to Asphalt Mastic into which laths are imbedded.

Bishopric Sheathing makes a more solid and substantial wall than lumber. There are no gaping joints; no widening cracks due to shrinkage; no knot holes.

The Asphalt Mastic in Bishopric Sheathing is a non-conductor, moisture cannot penetrate it. It is proof against vermin. The pests cannot bore through the tough, gummy Asphalt Mastic. In applying weather-boards over the laths, dead air space is left between the laths forming splendid insulation. Does away with the expense of building paper and cost of its application

One Wagon load of Bishopric Sheathing covers an area from six to ten times as great as one load of lumber—a tremendous saving in hauling. Five thousand feet can be hauled in an ordinary wagon.



Wall Board and Sheathing are shipped in crates

The cost of applying Bishopric Sheathing is but $2.50 per 1000 feet—A SAVING OF ABOUT 75 PER CENT. Furthermore, 1,000 square feet of wood sheathing covers but 750 feet of surface, 20% less being due to tongue and groove. In Bishopric Sheathing 1,000 square feet covers 1,000 square feet of space.

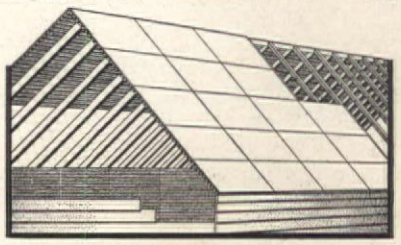
In applying ordinary lumber, heavier scaffolding, more tools and greater scaffold floor-space are required In applying Bishopric Sheathing, one man drives a few nails in each sheet; a common laborer or boy can finish the nailing.

Bishopric Sheathing insures comfort during the construction of the building. As soon as the building is closed in with Bishopric Sheathing, the men may work in comfort on the inside during bad weather, finishing the outside on suitable days. This insures continuous work, without loss of time, enabling the contractor to hold his men and complete the work in the least possible time.

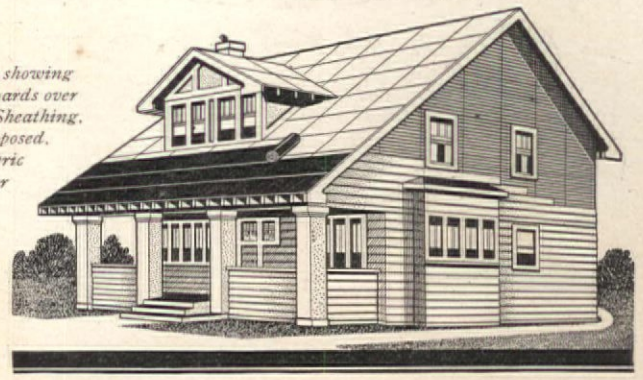
Bishopric Sheathing is used with equally splendid results under flooring and as a substitute for roofing boards. Used under floors, it serves as a sound deadener and keeps out dampness; used under the shingles, it keeps out summer heat.

ITS MANY USES—Bishopric Sheathing also is used with excellent results as a lining for dairy barns, ranch houses, poultry houses, driving stables or any out-door building where protection from the elements, Summer or Winter is desired.

Bishopric Sheathing is the ideal material for cement exterior or stucco work. Cement firmly adheres to the laths and Asphalt Mastic and makes a solid, smooth exterior. For factory or residence this form of cement or stucco construction is the cheapest and best known.



Shows Bishopric Sheathing over rafters ready for Bishopric Roofing, also Weather-boards over Bishopric Sheathing.



Ideal home showing Weather-boards over Bishopric Sheathing, lath side exposed, also Bishopric Roofing over Bishopric Sheathing. (smooth side of sheathing exposed)

PRICE SHEATHING AND SHIPMENT — Crate of 16 sheets, covering 256 square feet of surface, $6, or $2.35 per square of 100 square feet, f. o. b. New Orleans, La., Cincinnati or Alma, Mich. We ship from nearest point.

Write for Descriptive Booklet and Samples of Bishopric Wall Board, Bishopric Sheathing and Bishopric Roofing—All will be sent free.

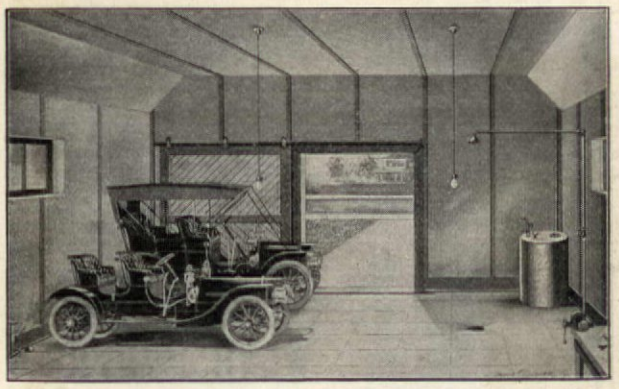
The Mastic Wall Board and Roofing Manufacturing Co., 27 East Third Street CINCINNATI, OHIO

PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.

UTILITY WALL BOARD

A Fibrous Water-Proof Board Made in Convenient Widths and Lengths

To be Used Instead of Lath and Plaster in New Building or Repair Work



Make your Garage Warm by Lining with UTILITY Wall Board

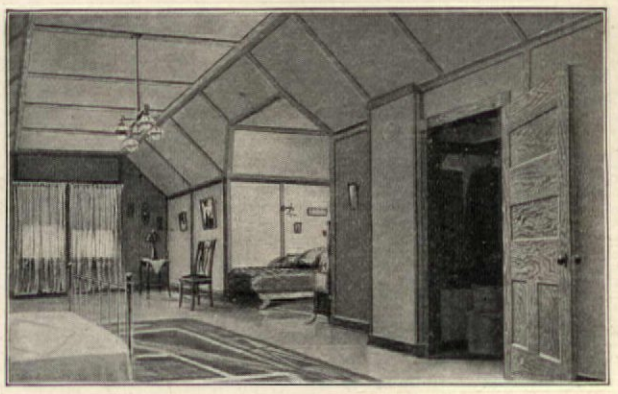
Utility Wall Board is better than lath and plaster. It saves the user a lot of money besides giving him a handsome, durable job. Utility Wall Board can be painted and decorated with the finest results. Utility Wall Board is being used in both small and large buildings. Everyone likes it.

Mr. Contractor

This is your chance to make more money and finish your jobs quicker. UTILITY WALL BOARD is right in quality and price. It has come to stay and is rapidly taking the place of lath and plaster.

Every up-to-date contractor and builder should get samples of UTILITY WALL BOARD at once. There are hundreds of places it can be used with a profit to you and satisfaction to the owner.

Remember that all delays of the plasterer are a thing of the past for those who use this modern building material.

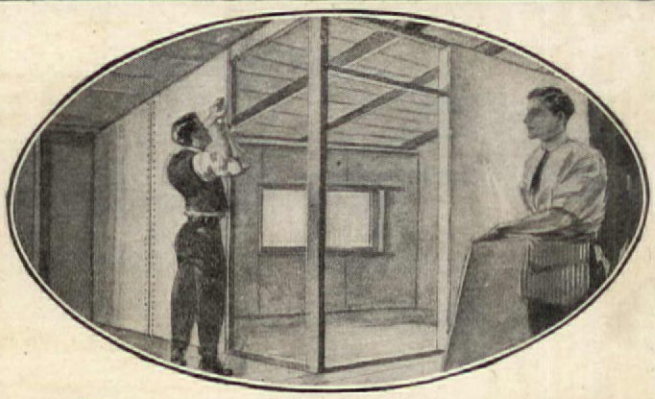


This shows how an Attic looks after being finished with UTILITY Wall Board.

Utility Wall Board can be applied by the carpenter—nailed right to the studs—easy and clean to handle—cuts with a saw—fits any space and can be put on in winter or summer—no waiting for plaster to dry—no cracked walls—no dirt—no ruined decorations—warm in winter and cool in summer

Write Now for FREE Sample and Prices

THE HEPPES COMPANY, 4502 Fillmore Street, Chicago, Ill.



Compo-Board

For Walls, Ceilings and Partitions

It is a modern wall lining. Moisture proof, fire resisting, warm in winter and cool in summer.

Better than lath and plaster in every way. More durable—will last as long as the building. Will not crack, crumble or fall off.

Compo-Board can be put on quickly and cleaply in any weather, and can be used in any climate.

Compo-Board is made of strips of thoroughly dried lumber, matched together and well glued. These strips are then covered on both sides with a specially prepared moisture proof paper, which is cemented on in intense heat and under heavy pressure.

Comes in strips four feet wide and one to 18 feet long, any length you want in even feet.

Compo-Board can be used in many different ways around the house, in the factory or office, in the cottage at the lake, and in the barn and chicken house.

SEND FOR SAMPLE AND BOOKLET

See what Compo-Board is and learn its many uses and advantages.

NORTHWESTERN COMPO-BOARD CO.

5776 Lyndale Ave. No. MINNEAPOLIS, MINN.

(The border of this advertisement is a cross section view of Compo-Board.)

Johnston's DULL KOTE PAINT

PAINT Wall Board

In order that it be SANITARY, BEAUTIFUL and LASTING

If every Architect, Contractor and Owner in the country knew of the REAL MERIT and ECONOMY of Wall Board and the decorative and artistic possibilities of this material when finished with

Johnston's WASHABLE Dull Kote Paint

we assure you more Wall Board would be sold and a dozen factories could not supply the demand for Dull Kote Paint.

Write for free color folder and suggestions for Interior Decoration. It will show you why you should specify and buy JOHNSTON'S Dull Kote Paints.

The R. F. Johnston Paint Co.

Pearl and Main Streets

CINCINNATI, OHIO

PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.

CHICAGO GRILLE WORKS

1892 1911

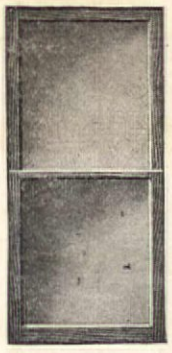
WHY NOT?

A little grille work
adds greatly to the beauty of
your house and costs very little.

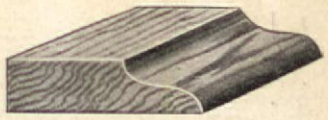
Try the **manufacturer** with your next order of Grille Work Colonnades, Consoles and Interior Columns. You may be agreeably surprised with prices and promptness in shipment. **Why not** send us your next order? We have thousands of well pleased customers; if you are not one of them, **why not** write today for our **Catalog No. Nineteen** and find out what we have to offer you in the way of interior decoration? Every dollar spent with us adds five to the value of your home.

828-838 Wells Street, Chicago, Ill.

Write for Our New Catalog—Mailed Free

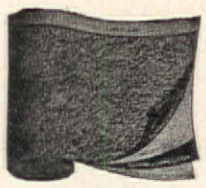


WINDOWS—42c and up



WINDOW BEAD—Best Yellow Pine, 27c per 100 lin. ft.

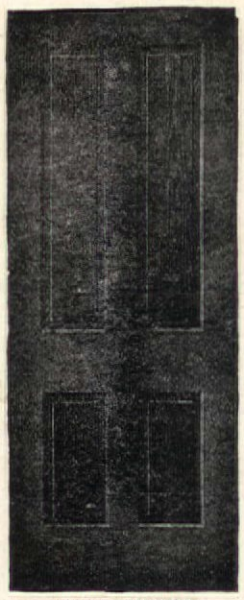
Quality Guaranteed



ROOFINGS—64c and up

Prompt Shipment Guaranteed

STAIR NEWELS $1.50 and up



DOORS—80c and up

INVESTIGATE

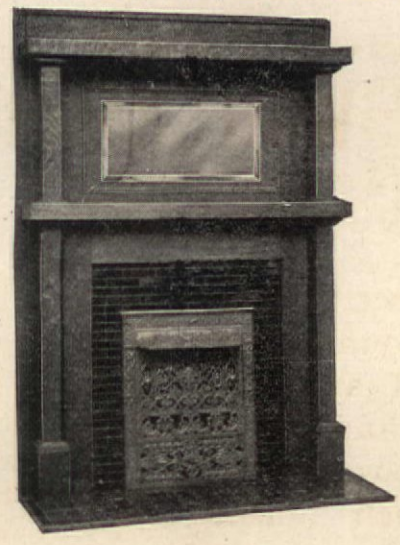
before you buy

and you will find we can save you lots of money on anything in the line of **HIGH GRADE** sash, doors, frames, blinds, mouldings, inside trim, grilles, colonnades, stair and porch work, mantels, grates, tiling, art glass, paints, roofing and building papers, wall boards, hardware, hardwood and parquetry flooring, rolling partitions, screens, steel ceilings, gutters, shingles, etc.

Our New Catalog Mailed Free Will Convince

PORCH NEWELS 42c and up

The Huber Builders Material Co.
39-43 Vine St. CINCINNATI, O.



$25.85

For this Elegant, Massive Selected Oak or Birch, Mahogany finished Mantel.

"FROM FACTORY TO YOU"

Price includes our "Queen" Coal Grate with best quality enameled tile for facing and hearth. Gas Grate $2.50 extra. Mantel is 82 inches high, 5 feet wide. Furnished with round or square columns, full length or double as shown in cut.

Dealers' price not less than $40.00.

"REPUTATION AND QUALITY COUNT"

CENTRAL MANTELS

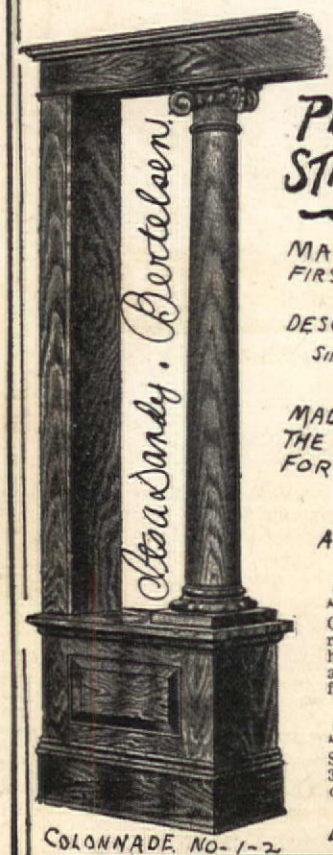
are distinctive in workmanship, finish and style. Twenty years' experience enables us to know and satisfy the needs of those who want Mantels of quality, different from the rest. We build all styles, Colonial to Mission.

CATALOGUE FREE. Will send our 112-page Catalogue, the finest ever issued, free, to carpenters, builders and those building a home.

CENTRAL MANTEL COMPANY

1237 Olive Street, St. Louis, Mo.

$8.50 FOR THIS COLONNADE



COLONNADE NO-1-2

A VERY LOW PRICE FOR THIS STRICKING NEW COLONNADE

MATERIALS AND WORKMANSHIP FIRST CLASS THROUGHOUT.

DESCRIPTION OF COLONNADE.
SIDE CASINGS AND CAP TRIM NOT INCLUDED
MADE FOR 5¾-INCH JAMBS
MADE IN OAK OR YELLOW PINE, IN THE WHITE, HAND SMOOTHED, READY FOR FINISHING

PRICES
ANY HEIGHT NOT OVER 9 FEET.

Style No. 1-2 EACH **$8.50**
Columns are 6 inches in diameter, tapering to receive 5-inch compo. cap, pedestals are 20 inches high over all and the width is 24 inches over all, and when set in to receive casings extension from jamb is 18 inches. Top shelf is 10 in. wide.

Style No. 2-2 EACH **$9.00**
Same measurements as above, only pedestals are 30 inches wide over all and when set in to receive casings extension from jamb is 24 inches.

SEND YOUR ORDER NOW, DONT LET IT GET AWAY FROM YOU.

BERTELSEN ADJUSTABLE GRILLE CO. 619. S. CLINTON ST. CHICAGO.

PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.

BOOST YOUR OWN REPUTATION, MR. CONTRACTOR, BY TELLING YOUR CUSTOMERS—"PUT A STOP TO DEPRECIATION—BUILD WITH CYPRESS *AT FIRST*"

IS THE "LIFE-SAVER" of an HONEST CONTRACTOR'S REPUTATION

Here is a letter just received from a builder who **knows** by experience. Probably you feel the same way. Why not **CUT OUT TROUBLE?**

——— — ——— **Contractor and Builder,** — ——— **Street,**

PITTSBURG, PA., Mar. 22, 1911.

Southern Cypress Manufacturers' Association, New Orleans, La.

Gentlemen: Please send me information about Cypress lumber. Have about a dozen frame houses, from two to 16 years old, which I never get through repairing. Window frames, sash, siding, sills, etc., become rotten in a few years, and *the contractor gets a bad name* (as if it was his fault!)

Yours respectfully, ——— ———

This is a bona fide letter—"hot off the bat." The facts are all too true. HE WILL BE A CYPRESS MAN FOREVER. HOW ABOUT **YOU?**

We say it again—that by honest and intelligent advice on **woods** we are not only saving losses to people who are going to **build anyhow**—but we are also

CAUSING MORE PEOPLE TO BUILD

This is going to be of more and more benefit to **you** month by month. It is **up to you** to intelligently take advantage of this by **learning for yourself** that **CYPRESS** is not only the ONE BEST OUT-DOOR WOOD for the owner—but also the ONE BEST WOOD FOR **YOU.** Cypress **"makes good."** That helps your reputation. Cypress is easy to work—that's **good for your tools.**

We are giving away complete working plans and specifications for THIS SHINGLE HOUSE. Many thousands of people ALL OVER THE U. S. are writing for them. THEY WILL HAVE TO GET **YOU** TO DO THE WORK.

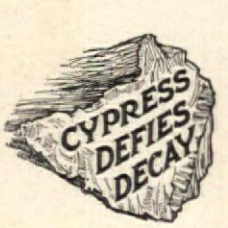
THEY WILL INSIST on CYPRESS.

It will be MONEY IN YOUR POCKET TO HELP THEM GET JUST WHAT THEY WANT.

CYPRESS

is the "comer" in YOUR territory.

LISTEN FOR IT



Why not FIND OUT what CYPRESS can do for YOU, NOW? WRITE US—ASK YOUR OWN QUESTIONS—about your own needs, big or little. You can rely on detailed and reliable **CYPRESS** information if you address our "BUILDERS' HELPS DEPT." We will recommend **CYPRESS ONLY FOR USES WHERE IT IS THE BEST WOOD TO USE.**

SOUTHERN CYPRESS MANUFACTURERS' ASSOCIATION

1212 HIBERNIA BANK BUILDING, NEW ORLEANS, LA.

We are *producing* CYPRESS—*and talking it—but not retailing it.* BUY IT NEAR HOME. *ASK your lumber man if he sells CYPRESS; if he does not, ask him WHY. Then WRITE US. We will tell you where you CAN get CYPRESS.*

PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.

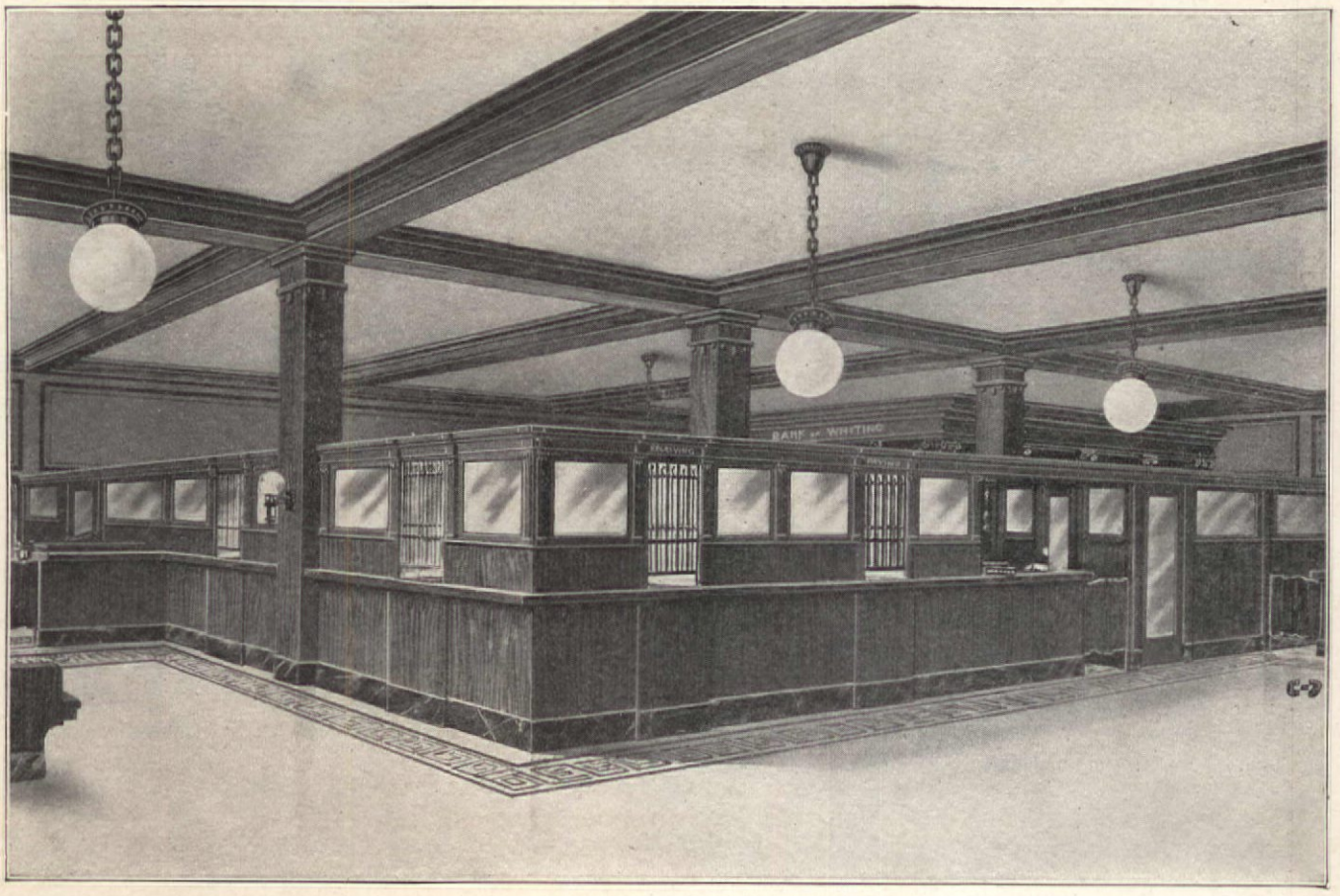
One of the best things a Contractor can do for himself is to be known as an authority on

RED GUM

(AMERICA'S FINEST HARDWOOD)

Here is a Photograph of the Beautiful New Bank of Whiting, Indiana. RED GUM Trim Throughout

"RED GUM is now an ARTISTIC NECESSITY"



It is our only high-class Native Cabinet Wood of Real Distinction

The above was designed and executed by the Bank Department of the Mosler Safe Co. (E. Jackson Casse, Directing Engineer), Chicago.

LEAD YOUR FIELD by recommending RED GUM Trim for all Interiors from Cottage to Skyscraper.
And as a base for **all White Enamel Work,** *"there's only one wood"* and it's

SAP GUM

GET PRICES ON THESE WOODS—IT WILL PAY YOU

"Clinch Your Reputation for Leadership by Recommending (and Using) GUM"

Builders desiring to see samples of ***Red and Sap Gum,*** *both rough and finished, or who want prompt quotations on selected* ***Red and Sap Gum,*** *should* ***write at once*** *to any or all of the following firms:*

HIMMELBERGER-HARRISON LUMBER COMPANY, Cape Girardeau, Missouri
LAMB-FISH LUMBER COMPANY . . . . . Charleston, Mississippi
CARRIER LUMBER & MFG. COMPANY . . . . . Sardis, Mississippi
BAKER LUMBER CO. . . . . Turrell, Arkansas
ANDERSON-TULLY CO. . . . . Memphis, Tennessee
THREE STATES LUMBER COMPANY . . . . . Memphis, Tennessee
CHARLES F. LUEHRMANN HARDWOOD LUMBER CO., St. Louis, Missouri

AT ITS PRESENT PRICE ***RED GUM*** *IS THE MOST REMARKABLE PURCHASE IN THE ENTIRE HARDWOOD FIELD*

PASTE THIS DOME ON LETTERS
THAT YOU WRITE ADVERTISERS.
IT WILL HELP.

We Want A Builder In Every Town

We Have an Attractive Proposition for One Carpenter or Builder in Every Community to Take Orders for Our Widely Advertised

EDWARDS' METAL SPANISH TILE

ARE EASILY SOLD BY OUR AGENTS

Home Owners Everywhere Are Reading Our Advertisements in the Leading Magazines

EDWARDS' INTERLOCKING METAL SPANISH TILE

ARCHITECTS EVERYWHERE SPECIFY THIS ATTRACTIVE ROOFING

Edwards' Metal Spanish Tile are stamped out of the highest quality Worcester Grade Terne Plate, size 10 x 14 inches, furnished either painted or heavily galvanized. They are provided with our patented interlocking device, which conceals all nails, makes it possible to get a perfectly moisture proof roof without **soldering** and without danger of having the tile crack open in extreme cold or hot weather.
Edwards' Metal Spanish Tile looks exactly like the best Terra Cotta Tile. They have the decided advantage of being much lighter, easier to apply, longer lived and cost much less.

Write us today about your territory. Here's an opportunity you should not miss. Many carpenters and builders have been so successful taking orders and laying our Metal Spanish Tile that they now devote their entire time to this business. Others have made big profits selling and laying our metal tile roofing "between jobs." We show you how to build up an independent, profitable business in your own community. Write for our proposition today. The territory is going fast. Don't be too late. Send a postal right now.

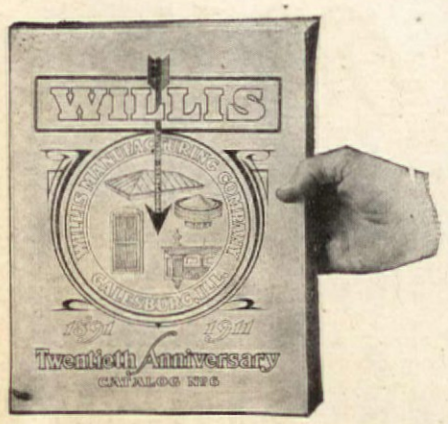
The Edwards Manufacturing Company

"THE SHEET METAL FOLKS"

430-450 Eggleston Avenue **Cincinnati, Ohio**

THE WORLD'S LARGEST MANUFACTURERS OF METAL ROOFING, METAL SHINGLES AND METAL CEILINGS.

WRITE TODAY FOR THIS CATALOG



We have just published our new *No. Six Catalog of Architectural Sheet Metal Building Material* containing 180 pages of helpful information to *Every Contractor* and *Builder* and it is *FREE*, postpaid, to any interested person.

It is the most complete catalog of its kind ever issued and we want to place it with all those who are interested in Cornices, Skylights, Steel Ceilings, Store Fronts, Ventilators, etc. Our facilities enable us to serve all customers promptly and our twenty years of experience in this one line insures you of the Very Best Value for Your Money.

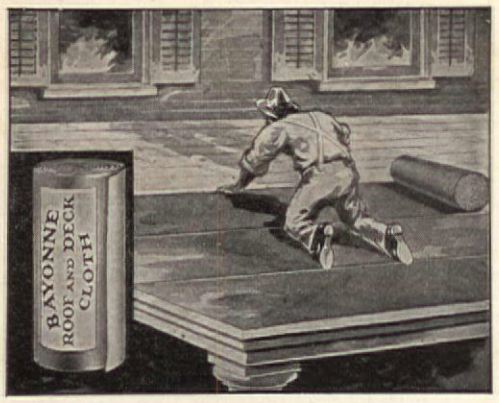
WRITE US TODAY

WILLIS MANFG. CO., GALESBURG, ILLINOIS

Originators of the Famous Willis Hip Shingle

PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.

For CANVAS ROOFS



Order the Scientifically Prepared—

BAYONNE ROOF AND DECK CLOTH

Easiest to lay—Lasts longest. Requires but one coat of paint.
The treatment permeates the fabric and preserves the fibre

BEST FOR PIAZZA ROOFS AND PORCH FLOORS

Ask for Sample Book B-6 and Prices

John Boyle & Co., 112-114 Duane Street, 70-72 Reade Street **New York**
202 and 204 Market Street, ST. LOUIS

The Standard Brand of White Canvas
All Widths—All Weights—Any Quality

GULF STREAM ROOFING CANVAS

Our co-operative department gives complete instruction for laying
SAYONNE OR GULF STREAM

JOHN BOYLE & CO.'S Awning Stripes have been the Standard for 50 years.

Genasco

the Trinidad-Lake-Asphalt Roofing

Consider Genasco from the three vital standpoints:

1. **What it *does***
2. **What it *costs***
3. **What it *saves***

1. Genasco waterproofs your roof to last. Trinidad Lake Asphalt, used in making Genasco, is Nature's everlasting waterproofer that has resisted the influences of weather-changes for centuries. It carries into Genasco these same weather-resisting qualities, and makes it defy rain, snow, wind, sun, cold, and heat; and it makes it *permanently* waterproof.

2. Genasco costs about the same in the beginning as the so-called "asphalt composition" or the "special process" roofings which would be wonderfully good imitations of Genasco if they didn't crack, break, and go to pieces. But they can't stand the real test—the weather. They haven't the lasting life which *natural* asphalt gives.

Genasco is economical because it resists and lasts.

3. The saving in Genasco Roofing is plain. You do away with leaky roofs and the expense of repairing them; you prevent costly damage to rooms and furniture, and you save the cost of re-roofing. Genasco first-cost is last-cost.

Get Genasco Roofing—either mineral or smooth surface. Guaranteed, of course.

The Kant-leak Kleet for roofing seams prevents nail-leaks, does away with dauby cement, and gives a fine finish to the roof.
Ask your dealer for Genasco with Kant-leak Kleets packed in the roll. Write us for samples and the Good Roof Guide Book.

GENASCO — THE STANDARD OF EXCELLENCE — TRADE MARK

THE BARBER ASPHALT PAVING COMPANY
Largest producers of asphalt, and largest manufacturers of ready roofing in the world
PHILADELPHIA
New York San Francisco Chicago

Cross-section Genasco Model Roofing

Vulcanite

Standard for 60 Years

Here's a roofing that has passed every test that *proves* good roofing—that has been made and sold on merit for sixty years.

Think of the experience behind it. Consider the number of highest awards it has received at expositions. Study the points that make it so good.

Made from the highest priced mineral compound known and the purest felt obtainable, in our own mills where we can watch the manufacture from start to finish. We use no paper or cheap filler—just the pick of materials that make roofing durable.

VULCANITE roofing will not freeze or crack—climatic conditions have no effect whatever. It's the most extensively used roofing in the world today because—there are reasons.

VULCANITE CRYSTAL SPAR SIDING

A new building material that has made good for use on Bungalows, Summer Cottages, Residences, etc. Fire and water-proof. Easy to apply, never cracks and saves painting and building paper. Used with clap-boards, this siding makes a substantial and well appearing building, besides effecting an all-around economy. Packed in rolls, 40 feet 6 inches long by 32 inches wide.

Send For Samples

To enable the carpenter, builder and contractor to be his own judge and jury of VULCANITE Roofing and VULCANITE Crystal Spar Siding we will send liberal samples free upon request. We merely ask you to examine it—to test them in competition with other brands—and to read our literature. Send today.

Patent Vulcanite Roofing Co., 1240 S. Campbell Ave., CHICAGO

PASTE THIS DOME ON LETTERS
THAT YOU WRITE ADVERTISERS.
IT WILL HELP.

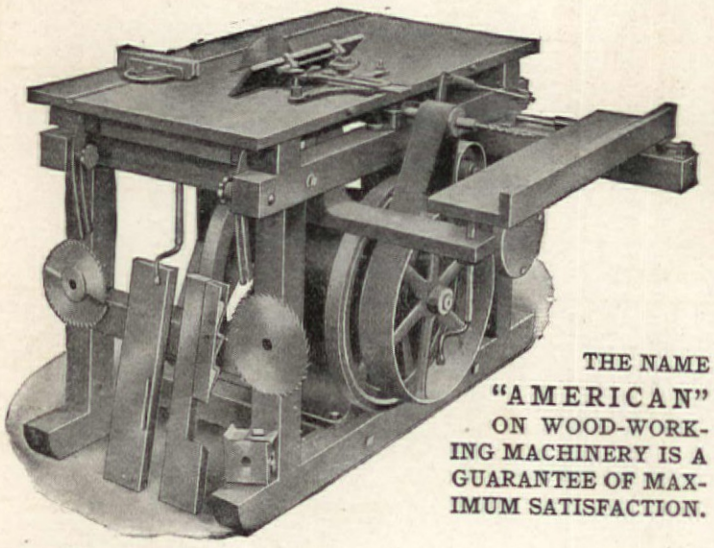
NAT. BUILDER

THE "AMERICAN"

PORTABLE

SAW BENCH

WILL PAY FOR ITSELF ON ONE JOB



THE NAME "AMERICAN" ON WOOD-WORKING MACHINERY IS A GUARANTEE OF MAXIMUM SATISFACTION.

Think what it would mean to you to have right on the job an **"AMERICAN"** Portable Saw Bench, which combines the functions of a

Rip Saw	Cut-off Saw	Mitre Saw
Dado Machine	Rabbeting Machine	Jointer
Boring Machine	Gaining Machine	Grooving Machine
Matcher		Moulder

And all with self-contained power—either gasoline engine or electric motor, as ordered—ready for work at a moment's notice.

If you'll figure the time and labor this machine will save you, you'll understand how **an "American" Portable Saw Bench will pay for itself on one job.** After that, **the money it saves you is clear profit.**

As to capacity, the "AMERICAN" in 1-inch lumber is good for 75 to 125 lineal feet per minute; in 2-inch, 25 to 50 feet per minute. It rips 3-inch stock easily and can be used on 4-inch.

Remember, this is no cheap machine—no make-shift—**but a high-class tool built, like all "American" machines, to do the most work at the least cost and with the fewest possible repairs.**

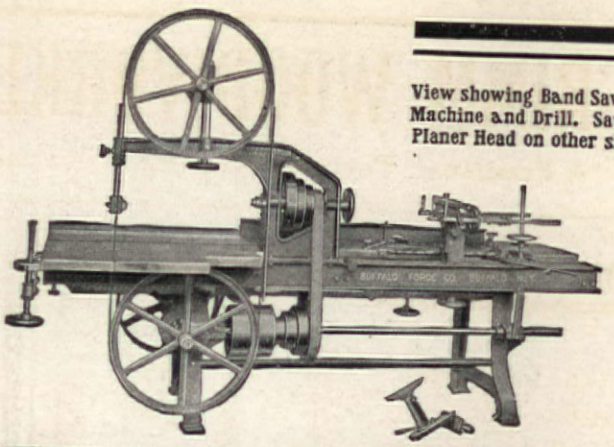
Write us for a complete descriptive folder.

AMERICAN SAW MILL MACHINERY CO.

Woodworking Machinery of All Kinds

80 Laight St.
HACKETTSTOWN
NEW JERSEY

650 Terminal Bldg.
NEW YORK CITY
NEW YORK



View showing Band Saw, Lathe, Boring Machine and Drill. Saw Mandrel and Planer Head on other side.

The "Buffalo" Crain Combination Woodworker

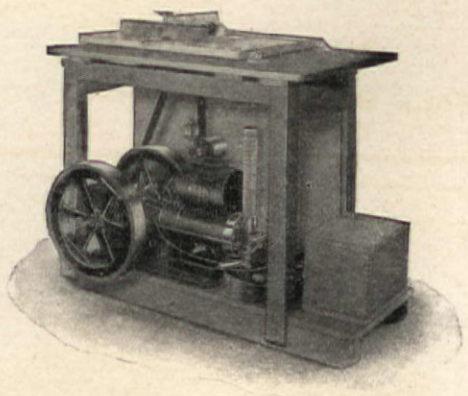
Has **Lathe** 40″ between centers; **Band Saw** taking 12″ under the guide; **Saw Mandrel** taking saws up to 12″ diameter; **Planer Head,** 5″ or 10″ **drill, boring machine, sizer, shaper, tenoner.** Three men can work at it at one time and perform a **Dozen Different Operations.** It is the latest invention and without comparison the simplest, strongest and most efficient machine made at the price. Low power cost; only 4 H. P. required at full load. No extra attachments needed. The facilities for adjusting every working part to suit the work in hand are unequalled.

Send for Complete Description and Prices. **Booklet 1785.**

Buffalo Forge Company
Buffalo, N.Y.

$165.00

For this Portable Saw Rig Complete 9 Machines in One.



Will rip 2" and cross cut 3" lumber. Write for descriptive folder.

C.H.&E. Manufacturing Co., Inc.

319 Mineral St. Milwaukee, Wis.

PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.

THE GRIMM WOODWORKER IS A WONDER WORKER

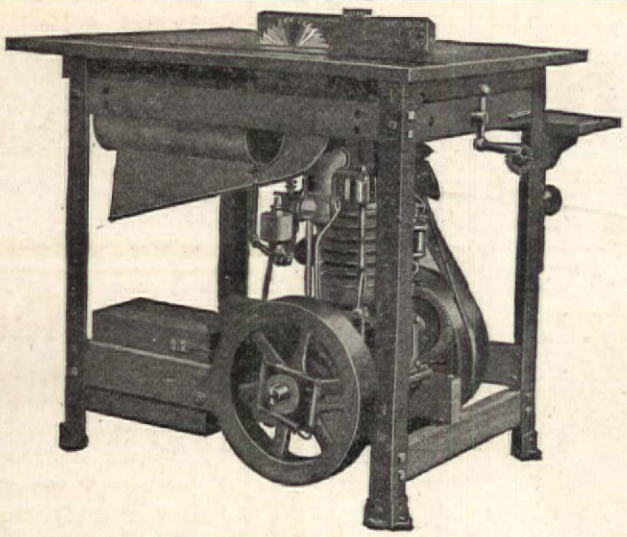
A Practical, Portable Planing Mill that Will Save You Time, Labor and Money

The Grimm Woodworker

Will Save You Time. No waiting for the planing mill to deliver your work.

The Grimm Woodworker

Saves you Labor. Does the work of five men.



"THE LITTLE WONDER WORKER"

The Grimm Woodworker

Saves you Money. Puts the profits of the planing mill in your pocket and its saving of time and labor means money to you.

The Grimm Woodworker

Will do all the mill work needed in the construction of any building.

CUSTOMERS WRITE OUR ADS

720 Clinton Ave. North, ROCHESTER, N. Y., Dec. 10, 1910.

GRIMM MFG. CO.:

Gentlemen—The Combination Woodworker which you sold me a short time ago, I am very much pleased with. It is the best wood-working machine of its kind I ever saw. If I knew I could not get another machine like it, I would not sell it for triple its value. Wishing you all success, I remain, yours truly,

(Signed) GEORGE WEGMAN.

Nine Machines in One

¶

Rip Saw Cross Cut Saw
Dado Head Jointer Sander
Moulding Knives
Emery Wheels Jig Saw
Boring Attachment

Send for Booklet and Trial Offer

GRIMM MFG. CO., 42 Erie Street, Buffalo, N. Y.

PARKS' WOODWORKER

ALWAYS READY FOR INSTANT USE

The FIRST and ORIGINAL COMBINATION of Circular Saw, Jointer and Band Saw, ever placed on the market.

Reversible Spindle Shaper, Boring and a dozen other valuable attachments can be added.

Each machine is sold separate or can take a circular saw and add to it all desired.

The long base best arranged for Portable Use with engine attached.

BUY from the ORIGINATORS and LEADERS in improvements and you will be sure to get the best

Our Ball Bearing Machines are the greatest improvement ever made in Foot and Hand Power Circular and Band Saws.

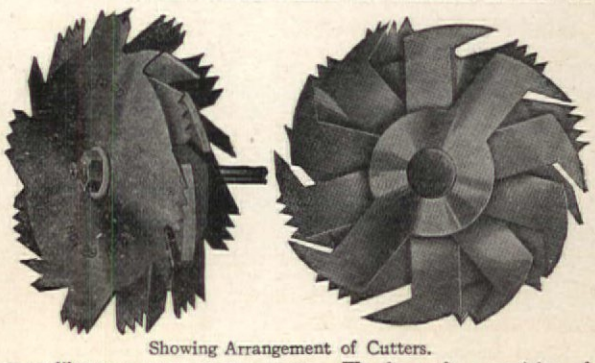
Write for Catalog and Prices.

PARKS' BALL BEARING MACHINE COMPANY

KNOWLTON AND FERGUS STREETS **CINCINNATI, O.** Canadian Agts., Bourneival & Co. St. Barnabe North, P. Q.

HUTHER BROS. PATENT GROOVER OR DADO HEAD

WILL SAVE COST IN THREE DAYS USE



Showing Arrangement of Cutters.

Can Be Used on Any Circular Saw Mandrel

For cutting any width groove from 1/8" to 2" or over. Will cut a perfect groove, either with or across the grain, and leave edges smooth. Will ship to any responsible firm on ten days' approval; if not satisfactory you are at liberty to return at our expense. We also make a specialty of concave ground smooth cutting circular Mitre Saws, for either rip or cross cut; Grooving Saws for all kinds of special work; Lock Corner Cutters, Concave Saws, Etc.

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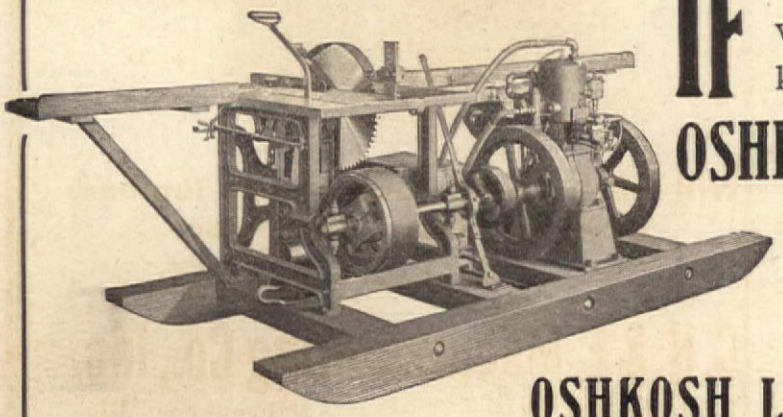
THE RIG WITH A GUARANTEE



IF You want a Saw Rig of Quality and Service that will stand up against the heaviest and hardest kind of contractors' work, investigate the

OSHKOSH PORTABLE SAW RIGS

Equipped with such patent devices as a combination rip and swing cut-off-saw, adjustable arbor for jointing, dadoing, etc., miter device, sliding scale, safety saw-guard, friction clutch and complete equipment.

TEAR OFF COUPON AND MAIL TODAY.

TEAR OFF HERE

Kindly send to my address below complete catalog and prices of the Oshkosh Portable Saw Rigs.

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Street.....

Town.....

State.....

OSHKOSH LOGGING TOOL CO.

414 South Main Street, OSHKOSH, WISCONSIN.

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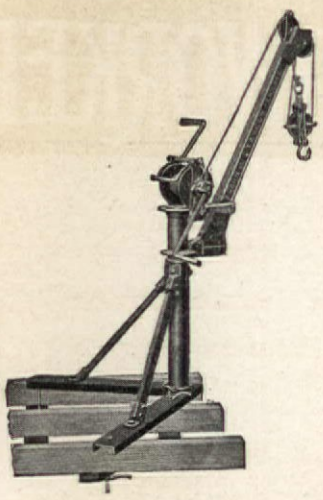

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For Builders, Roofers, Plasterers, Stone Masons, and with special equipment for unloading railroad gondola cars.

Constructed entirely of malleable and steel, roller bearing, circle swing, Hoists clear side wall and lands on eighteen-inch trucks. Adjustable capacity and speed.

One man operates both cranks and can hoist 1500 pounds

Price $40.00

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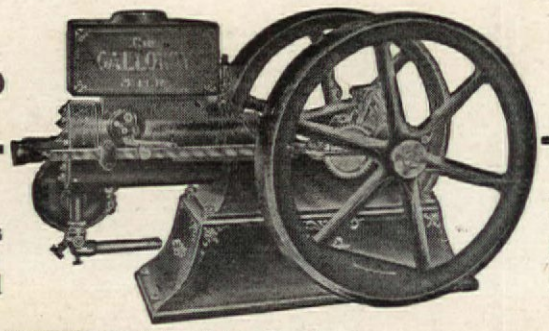
1034 W. Lake Street, - CHICAGO, ILL.

5 H. P.
$119.50



1¾-28 H. P.

30 Days Free Trial

Built for Service

CONTRACTORS AND BUILDERS ATTENTION

Galloway Engines are made in all sizes from 1¾ to 28 H. P. They run on gasoline, naphtha kerosene or distillate. We are furnishing complete mixing rigs and our price means a big saving of money to you—$50 to $300, depending on the engine you buy. You have the privilege of trying the outfit 30 days. If it is in any way unsatisfactory we refund your money with interest and pay freight both ways.

The Galloway Gasoline Engine

SIMPLEST ENGINE BUILT

Only four things to do:

Turn on the switch, turn on the oil, turn on the gasoline, give the flywheel a start and the Galloway will go right along all day without further attention. It is ideal power for a small shop, and it's got the capacity to take care of your growing needs for operating planers—matchers, lathes, saws and concrete mixers.

The Galloway has been classed as a standard, high grade engine for fifteen years. Over 4,000 n use in Iowa alone. Thousands in every other State and Territory.

If you try the Galloway engine, you will find that it is not overspeeded. Remember, the bore and stroke count, and you don't have to drive your engine faster than you ought to drive it to get the rated horse power. Rated by actual brake test.

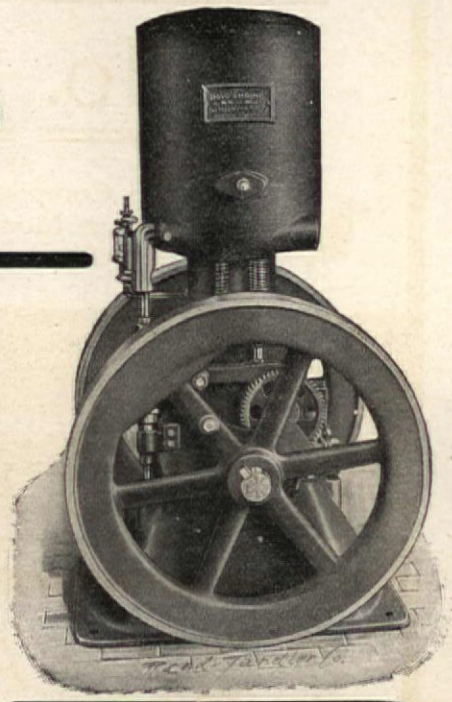
On the larger sizes, if it is not entirely convenient for you to pay all cash, we will take your note for the balance at the regular rate of interest for six months.

The price given is for the five-horse power only, but we make these engines in seven sizes.

Ask for free information on stationary and portable gasoline engines from two to twenty-eight horse power. We make the best, and we price them at a reasonable figure. Write today.

The William Galloway Company, 1695 Galloway WATERLOO, IOWA

The NOVO Engine



The NOVO gasoline engine in four sizes from 1¼ to 6 H. P. is especially adapted for use on portable and stationary machinery of every kind. It is **very light in weight, absolutely self-contained,** gasoline being in the base and the water contained in tank around the cylinder, which is guaranteed not to burst from freezing. The **upright form** and **low height** for vertical engine, and **small size of base,** adapts it for use on any machine requiring a self-contained power.

We should be pleased to furnish manufacturers or users of portable machines of any kind with full information, weights, and sizes of our different engines.

We make **three sizes** of **gasoline hoists** for builders' use.

THE HILDRETH MFG. CO.

C. E. BEMENT, Secretary and Manager

150 Willow St. LANSING, MICHIGAN

Barnes Hand and Foot Power Machinery

COMPLETE OUTFIT FOR

Carpenters and Builders

Price $15.00

IMPROVED FORMER. Has an adjustable table. Knives can be instantly reversed to suit the grain of wood. Speed of knife is 2,500 per minute, thus insuring smooth work.

Warranted to be well made; will saw pine 3 inches thick at the rate of one foot per minute. Other woods in same proportion according to hardness. **IMPROVED NO. 7 SCROLL SAW.**

We Make Sixty Styles of Knives

SEND FOR NEW CATALOGUE

W. F. & JOHN BARNES CO.

436 Ruby Street, Rockford, Illinois

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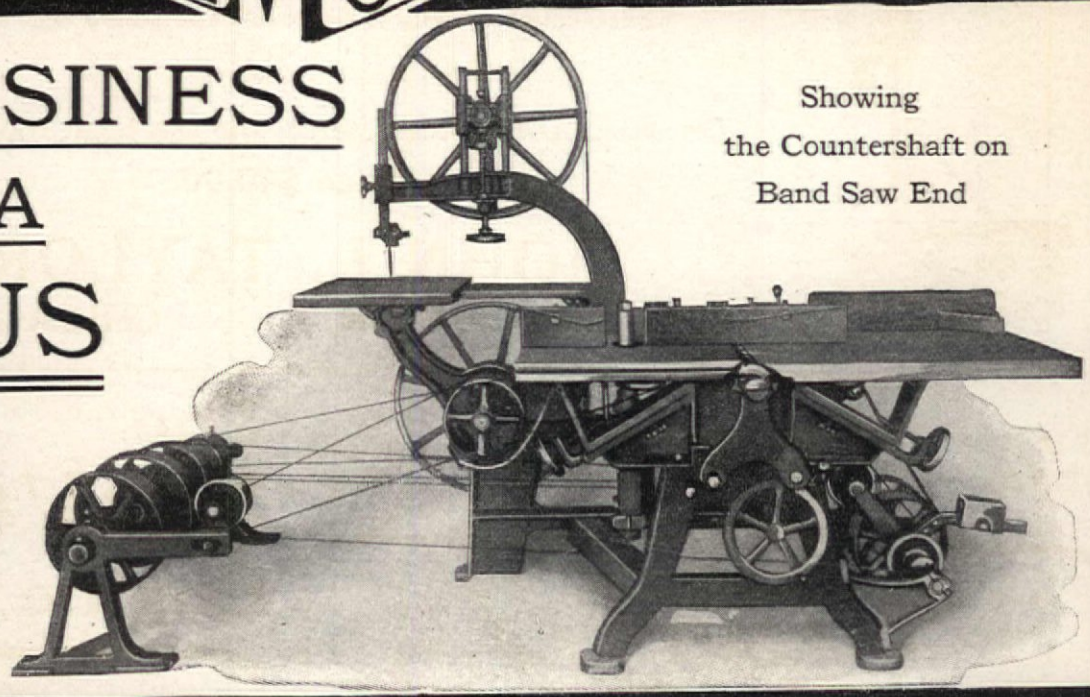
UNIVERSAL FAMOUS WOODWORKER

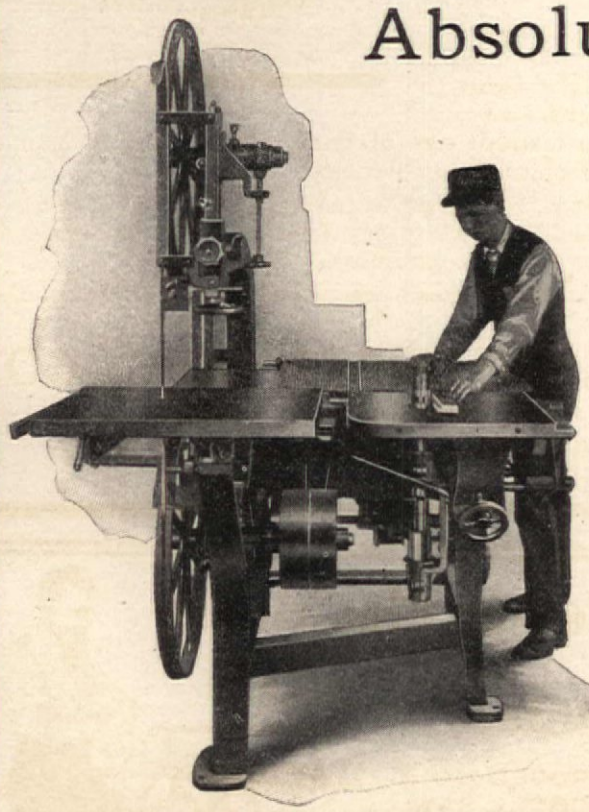
YOUR BUSINESS NEEDS A FAMOUS No. 14

Sixteen Complete Woodworking Machines In One



Showing the Countershaft on Band Saw End

1 27" Band Saw,
2 12" Jointer
3 Saw Table, with raising and lowering arbor
4 Single Spindle Shaper
5 Boring Attachment, arranged on special boring spindle.
6 Pony Planer
7 Tongue and Pole Rounder
8 Hollow Chisel Mortiser
9 Single End Tenoner
10 Drum Sander
11 Disc Sander
12 Knife Grinder
13 Emery Grinder
14 Band Re-Saw
15 Spoke Tenoner, Rim Borer and Wheel Equalizer
16 Adjustable Felloe Rounder



Absolute Simplicity in Operation

Single Spindle Shaper

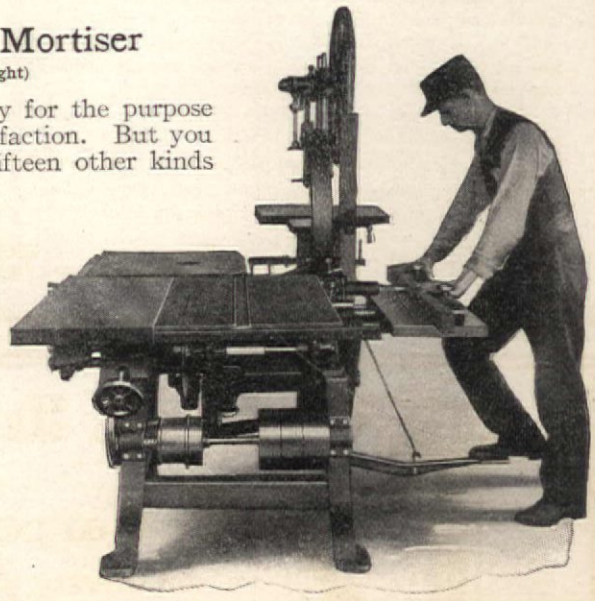
(Illustration at left)

Just as easy, just as rapid, just as durable, just as economical as a machine that does nothing else.

Hollow Chisel Mortiser

(Illustration at right)

A machine built expressly for the purpose could not give greater satisfaction. But you can use the FAMOUS for fifteen other kinds of work besides.



Every carpenter, contractor and builder needs a FAMOUS Universal Woodworker — **and can easily afford one.** Better than paying out your profits to planing mills—better than installing a number of machines —better for your business in every way.

Write today for full particulars of the machine, of our free trial offer, and prices and terms to suit you.

The Sidney Tool Co. Sidney, Ohio.

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The A. R. Williams Machinery Co.
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THE NATIONAL BUILDER

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Charles A. Miller, Jr. } Associate Editors
Wm. C. A. Stevenson }

Porter-Hodgson Co., Publishers, 542-550 South Dearborn St., Chicago

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THE NATIONAL BUILDER seeks the advertising of reliable houses only, and asks that prompt notice be given by any reader who has cause for complaint against an advertiser, that the matter may be investigated, and the advertisement discontinued should the advertiser be proved untrustworthy.

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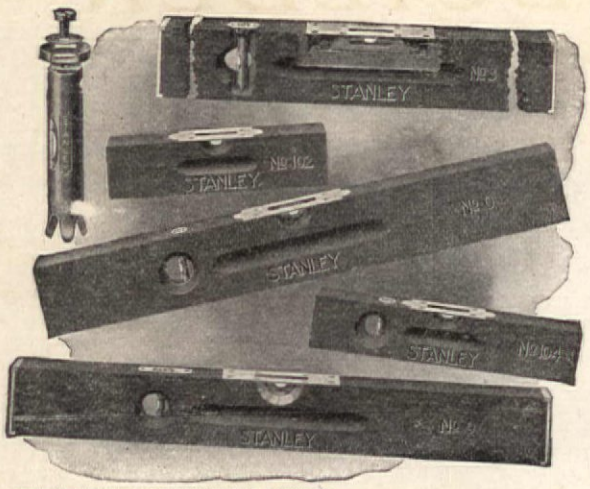


COPYRIGHTED, 1909, BY THE STANLEY RULE & LEVEL CO.

Stanley Tools

STANLEY PLUMBS and LEVELS, both adjustable and non-adjustable, are made of thoroughly seasoned and selected stock, and have many valuable improvements recently added which will appeal to the workman. Made in all styles for **Carpenters, Masons, Plumbers, Machinists, Millwrights,** etc.

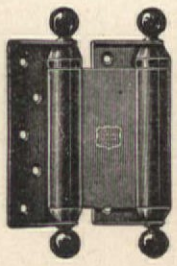
The name **STANLEY** appears on every tool we manufacture, and is a guarantee that for quality of workmanship and material they have no equal.

STANDARD THE WORLD OVER.

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

EVERY TOOL GUARANTEED

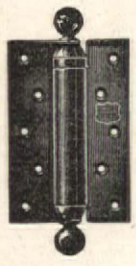
Bommer Spring Hinges are Quality Goods



But cost no more than the inferior kinds

The Springs Never Go Lame

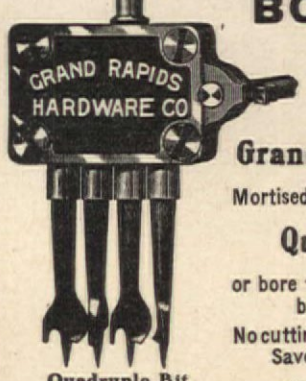
This Trade Mark on Every — THE BOMMER SPRING HINGE — Genuine Bommer Hinge



Reputations are made by consistently giving your customer the best spring hinges and avoiding imitations or substitutes

Bommer Spring Hinges are sold by all Hardware Dealers

HAVE YOU POWER BORING MACHINES?



Quadruple Bit
Price $5.00
Can not be used in a hand brace

IF SO,
No Sash Pulley Can be Classed with the

Grand Rapids No. 12

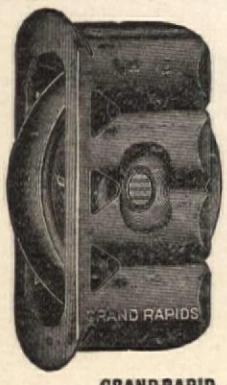
Mortised at one Punch with the

Quadruple Bit

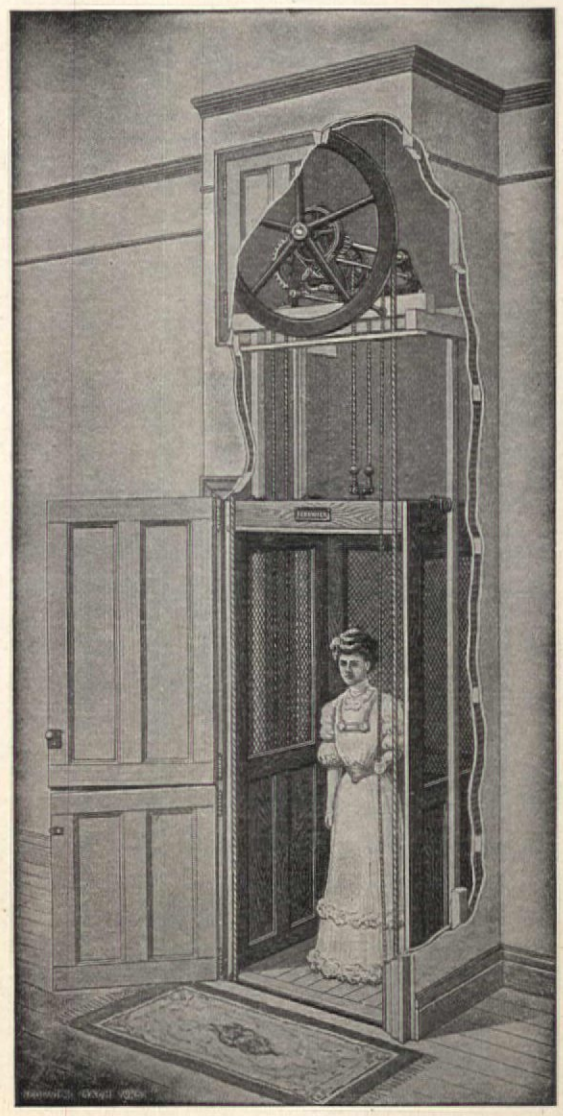
or bore four holes with a single bit and it's done.

No cutting, fitting nor trimming. Saves time and money

Write For Free Samples



Grand Rapids Hardware Co., 118 Pearl St. GRAND RAPID MICH.



Hand Power Elevators and Dumb Waiters

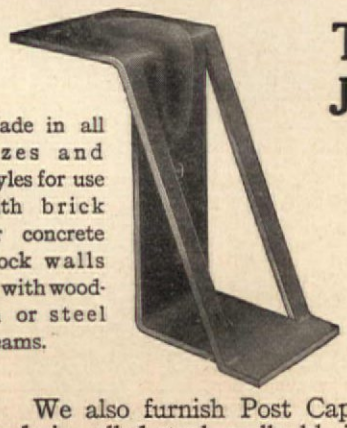
for all purposes

Cut shows the Improved Sedgwick Hand-Power Invalid Elevator Outfit.

Catalogue upon request

Sedgwick Machine Works

130 Liberty St.
New York



TRUS-CON JOIST HANGERS

Made in all sizes and styles for use with brick or concrete block walls or with wooden or steel beams.

Avoid cutting away and weakening of timbers and walls—save labor, time and money.

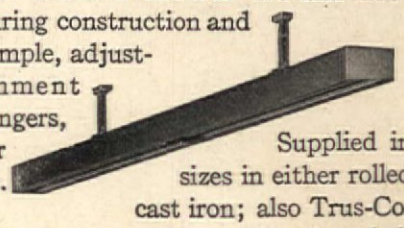
Trus-Con Joist Hangers are made from open hearth steel plates, and are proven by actual test to be the strongest on the market. Note the bulb-shaped reinforcement at upper angle.

We also furnish Post Caps, Post Bases, Wall Plates and Base Plates made in rolled steel, malleable iron, or cast iron.

Write for catalog and prices.

SHAFT HANGER SUPPORTS *for* CONCRETE BUILDINGS

Trus-Con Slotted Inserts are imbedded in the concrete during construction and furnish a simple, adjustable attachment for shaft hangers, sprinkler systems, etc.

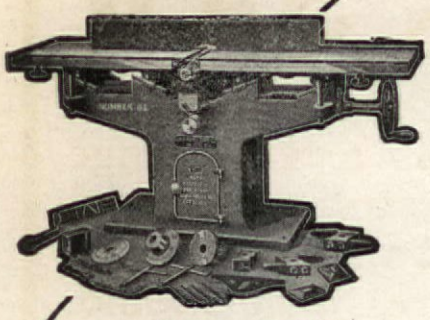


Supplied in various sizes in either rolled steel or cast iron; also Trus-Con Socket Inserts to receive threaded bolts.

TRUSSED CONCRETE STEEL CO., 384 Trussed Concrete Bldg., DETROIT, MICH.

PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.

NAT. BUILDER



No. 62 Universal Woodworker

16 MACHINES IN ONE

Other makes may combine eight or ten machines, but our

No. 62 UNIVERSAL WOODWORKER

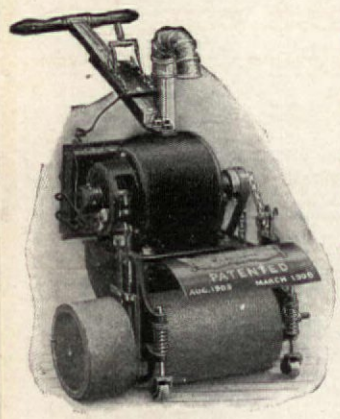
is the only one made combining all of the following in one machine:

1. Hand Planer
2. Rip Saw
3. Cross-Cut Saw
4. Panel Raiser
5. Rabbeting Machine
6. Routing Machine
7. Hollow Chisel Mortiser
8. Molder
9. Borer
10. Tenoner
11. Shaper
12. Circular Molder
13. Sander
14. Emery Grinder
15. Floorer
16. Gainer

A WHOLE WOODSHOP IN ITSELF

Let us tell you all about this machine in our large illustrated circular

J. A. FAY & EGAN CO., 327-347 West Front Street, Cincinnati, Ohio



Made in three sizes:
8x18, 8x15, and 8x12 in. Roller
Edge Roller easily adjusted to either side

Perfect Results are Easily Obtained by Using Schlueter Rapid Floor Surfacer

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

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

Earning Capacity, $20.00 to $35.00 per Day

Send for prices and Free Trial Proposition

M. L. SCHLUETER

101 N. Canal St., CHICAGO, ILL.
1001 Flatiron Bldg. NEW YORK.

Acme Floor Surfacing, Laying & Finishing Co. Not Inc.

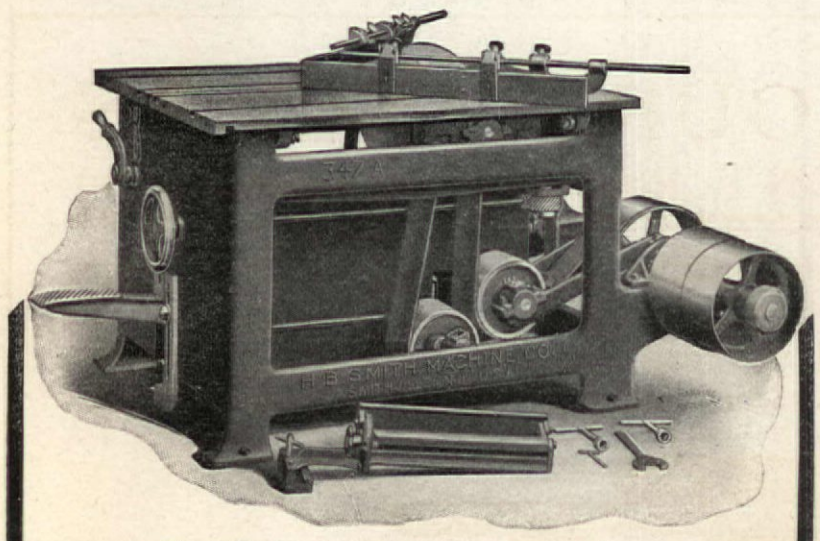
The Boss Improved Floor Scraper

Has double swivel allowing the knife to be set in any position. Gauge can be set for any thickness of shaving and keeps knife from making depressions in floor. Gives knife double support. The pear-shaped wheel which is in the gauge is attached to the gauge in front so that when the scraper is let down to take shaving, it lets the knife down gradually, and prevents the knife from making a deep cut. With this gauge and wheel attachment, the knife will leave no mark. Impossible to do poor work. Adjustment simple—positive. Gauge can be removed instantly. Sanding attachment. Prices very low. Write for descriptive circular.

GEORGE J. KEPPLINGER

DWIGHT, ILLINOIS

Adv. Dept. B.



No. 347. Combination Saw and Dado Machine.

Looking for a Modern Saw Bench?

The above cut represents our new Combination Saw and Dado Machine.

The **Frame** is quite substantial, with closed front.

The **Ways** adjust for depth of cut, and

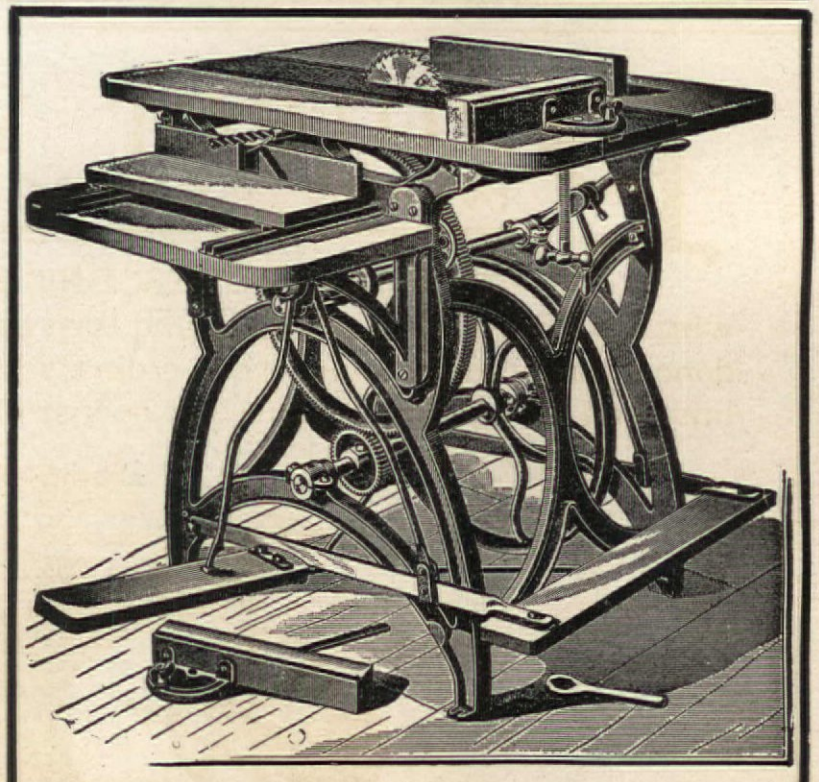
The **Carriage** moves on rollers having ball-bearings.

The **Saw Mandrel** runs in self-oiling boxes, and is brought into the work by a foot treadle, thus leaving both hands free to handle the work.

For further particulars concerning above and other machines, address

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

New York Chicago Atlanta Shreveport



MARSTON'S Hand and Foot Power CIRCULAR SAW

Iron frame, 36 inches high. Center part of top is made of iron accurately planed with grooves on each side of saw gauges to slide with grooves on each side of saw for gauges to slide in. Steel shafts and best babbitt metal boxes. Gears are all machine cut from solid iron. Boring table and side treadle. Two 7-inch saws and two crank handles with each machine. Weight, complete, 350 pounds.

SEND FOR CATALOG

J. M. MARSTON & CO., 193 Ruggles Street BOSTON, - MASS.

PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.

No. 8 "UNION" COMBINATION SAW

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

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

SEND FOR CATALOG A

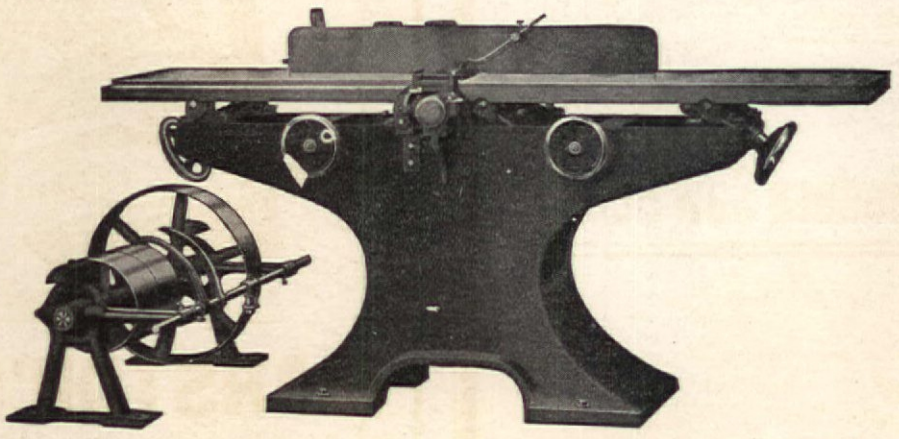
Describing our complete line of Foot, Hand and Light Power Wood-Working Machinery.

The Seneca Falls Mfg. Co., 629 WATER STREET SENECA FALLS, N. Y., *U. S. A.*

(182)

PROTECT YOUR FINGERS
by using a CRESCENT Jointer with Safety Head

The knives in CRESCENT Safety Heads are made of high speed steel which will hold an edge longer and turn out better finished and more work than can be done on a common jointer with ordinary knives. You may crowd the machine to the limit and the quality of work will be just the same as though you hadn't crowded it a bit.



The price of these splendid machines is very reasonable considering the very high quality of the machines and the enormous amount of accurate work they are capable of turning out.

Send for catalog giving complete description. It tells about our elegant line of Band Saws, Saw Tables, Jointers, Borers, Shapers, Planers, Planer and Matchers, Pole Rounders, Disk Grinders, Variety Woodworkers.

THE CRESCENT MACHINE COMPANY 10 MAIN STREET LEETONIA, OHIO, U. S. A.

PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.

As Sure as 2 and 2 Is 4

Occupation ..... State ..... City ..... Name .....

Please send me the "Daisy" Floor Scraper Booklet free.

Gentlemen:

The DAISY MFG. Co. South Bend, Ind.

A Shearing Cut Gets Best Results in Floor Scraping

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

A Shearing Cut is ALWAYS made with the

"DAISY" FLOOR SCRAPER

With One Ten-Inch Blade Single Shearing Cut is Made
With Two Five-Inch Blades Double Shearing Cut is Made

The "Daisy"

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

UNSOLICITED TESTIMONIALS

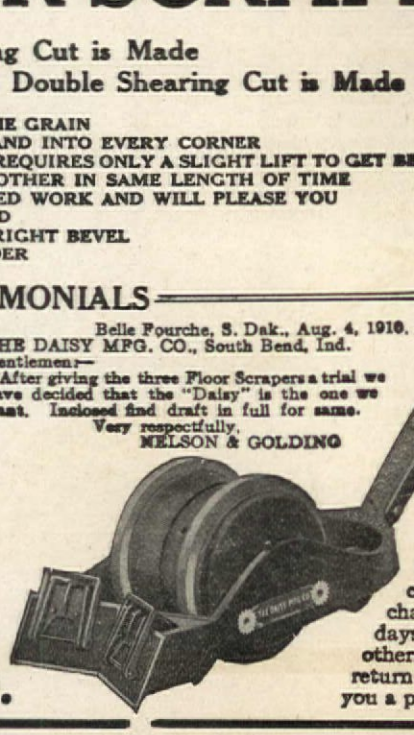
FRED L. WALTERS
CARPENTER AND BUILDER
Jobbing Given Prompt Attention
Estimates Furnished

Gillette, N. J., Oct. 11th, 1910.
THE DAISY MFG. CO.,
South Bend, Ind.
Gentlemen:—
The flooring has arrived and we have scraped it with your machine and I find it does all you claim for it. Inclosed you will find check as per agreement.
Thanking you for your kindness in allowing me to try this machine and for extending the time for trial, I am, Yours respectfully,
FRED L. WALTERS.

KUTSCH BROTHERS
CARPENTERS AND CONTRACTORS
Jobbing and Repairing
Promptly Attended to
No. 2043 Washington Street

Dubuque, Iowa, Sept. 1st, 1910.
THE DAISY MFG. CO.,
South Bend, Ind.
Gentlemen:—
Immediately after using the Scraper we have found it to be satisfactory and superior to any we have seen in use.
We herewith inclose draft in full for same.
Yours truly,
KUTSCH BROTHERS
Per J. P. E.

Belle Fourche, S. Dak., Aug. 4, 1910.
THE DAISY MFG. CO., South Bend, Ind.
Gentlemen:—
After giving the three Floor Scrapers a trial we have decided that the "Daisy" is the one we want. Inclosed find draft in full for same.
Very respectfully,
NELSON & GOLDING



Ten Days Free Trial Offer

We will ship a "DAISY" Outfit to any responsible contractor who intends purchasing a floor scraper for a ten days free trial. Test it with others, if you do not find it best return it. The trial will not cost you a penny.

DAISY MFG. CO., SOUTH BEND, IND.

"Nothing but the Highest Praise for THE TRIPLE "A" MACHINE"

This Letter is Self Explanatory

Flint, Mich., 11-23-1910.
Triple "A" Machine Co.,
Chicago, Ill.
Gentlemen:—
I take pleasure in writing you regarding the workmanship of your mechanics in scraping the floors of the Flint P. Smith Building, this city.
I have tried out three different floor scraping machines and am satisfied that the Triple "A" was the best. Owing to the work which your men and machines were able to do, I can have nothing but the highest praise for the Triple "A" Machine.
Yours truly,
W. E. WOOD.

Surfacing Floors

(by contract)

pays when you have the proper equipment.

We can't do all the floor surfacing in the country, but we're willing to furnish the machines and give others a chance.

Any carpenter can successfully operate **The Triple "A" Spring Driven Floor Smoother**—It's easy—the motor spring furnishes power.

SHARPENING UP

Make it your business to see this machine in operation

Triple "A" Machine Co.

110 South Clark Street, CHICAGO

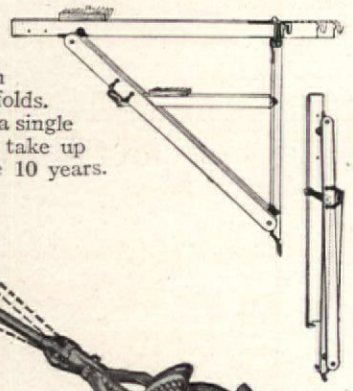
PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.

The Latest WEBER Work Savers

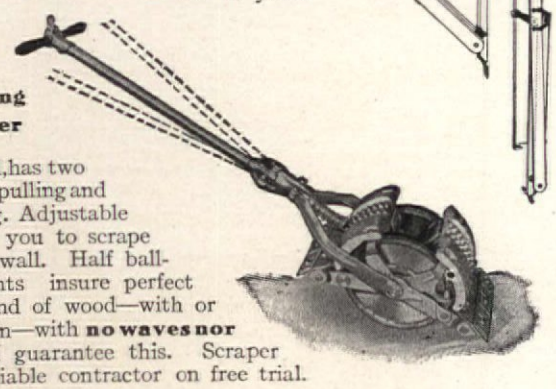
SAVE time and you make money. Crude tools delay work and turn out "botch" jobs. My devices are right up to the minute—mechanically correct—and you can't afford to be a day without them, Read every word of this ad; then send for complete catalog and prices. I've been a successful contractor for 25 years, and I absolutely **know** I can save you money at every turn of the road.

Double Scaffold Bracket

is the only one that can be adjusted for use on any kind of buildings. Will not swing sideways and has two scaffold boards which make it ideal for putting up cornices. Weighs only 22 lbs., but is much stronger than the old, heavy scaffolds. Can be folded without loosening a single bolt. When folded, 24 brackets take up space only 3 x 4 x 5 feet. In use 10 years.



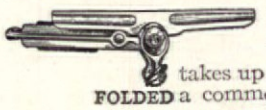
WEBER Double-Acting Floor Scraper



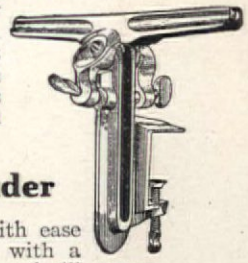
improved model, has two knives—one for pulling and one for pushing. Adjustable handle enables you to scrape right up to the wall. Half ball-and-socket joints insure perfect work on any kind of wood—with or against the grain—with **no waves nor chattering.** I guarantee this. Scraper ent to any reliable contractor on free trial.

Folding Saw Vise

holds the saw with rigid unyielding grip and is as nearly noise-preventive as such a tool can be made. Can be thumb-screwed to any plank or bench in an instant. When folded, it takes up no more room than a common hammer. Saves many an aching arm from using dull saws and should be in every kit.



FOLDED



OPEN

Cabinet Scraper and Sander

affords a firm grip and can be controlled with ease in the tightest corners. Knife is fastened with a clamp, not with holes or slots, and can be used till but a half inch remains. Scraper can be quickly reversed and used for sandpapering and polishing. Weight 22 oz. Handiest tool ever made for the purpose.

Sharpening Device

for floor scrapers holds the file at the correct level for an even, true edge on Weber and other floor scraper knives. With this tool, anyone can do excellent work in a short time without previous experience. Well worth investigation.

SEND FOR CATALOGUE

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

661 71st Avenue, WEST ALLIS, WIS.

A TIME AND MONEY SAVER

THAT'S WHAT ACTUAL USERS SAY

Read these Recent Letters

Marshalltown, Ia., Mar. 3, 1911.
Jos. Miotke,
Dear Sir:—

One year ago I purchased an Acme Floor Scraping Outfit and in regard to same can say that it has paid for itself many times, besides the hard labor it has saved. To-day I scraped 3½ squares of oak flooring in five hours in a first-class condition.

I have 2,000 sq. ft. of hardwood flooring to scrape at present and wish you would send me another burnisher, also your extra weight attachment.

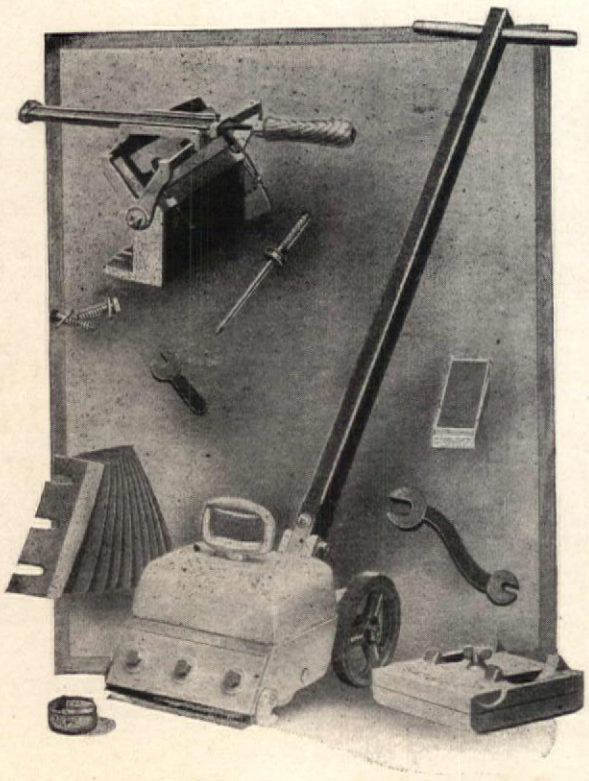
Trusting you will give this prompt attention, I remain,

Yours truly,
W. E. LANGER

Cincinnati, O., Mar. 1, 1911.
Jos. Miotke,
Dear Sir:—

Send at once by express one doz. blades for the Acme Floor Scraping Outfit which I purchased from you about a year ago. We are well pleased with the machines for we find them to be a great time and money saver, and think it is the best floor scraping equipment on the market,

Yours truly
FITE & FITE.



Read this Free Offer

I will send the ***ACME FLOOR SCRAPING OUTFIT*** to any carpenter or contractor on one week's free trial basis. I will permit the party receiving the outfit to work with the same for a week, and if it does not prove entirely satisfactory the machines are to be returned to me at my expense.

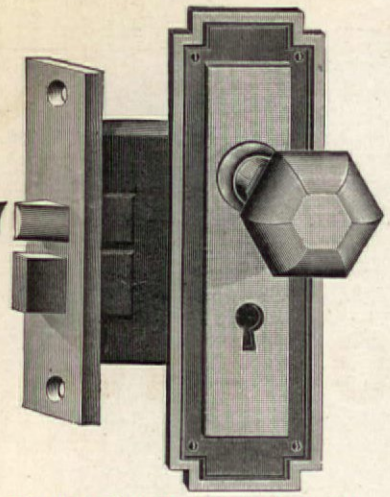
Isn't this a fair offer? Don't you think it is worth your while to investigate? Thousands of carpenters are saving thousands of dollars daily by using the ACME FLOOR SCRAPING OUTFIT, so it's up to you if you want to share in this saving.

The time for you to investigate is now. Drop me a line to-day and get my booklet and full particulars which I will send to you by return mail.

JOSEPH MIOTKE, 249 Lake Street, MILWAUKEE, WIS.

PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.

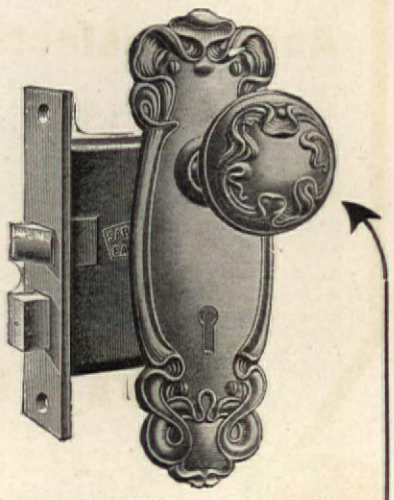
You Need Our New Illustrated Catalog of Builders' Hardware



No. 9253—Cast Brass Inside Lock Set; Dull Brass finish, per set, $3.35

¶ It contains 60 designs of Lock Sets, including Cylinder Store Door Sets, Union and Cylinder front door sets, and inside lock sets in cast bronze metal, wrought bronze metal, and wrought steel in the latest finishes.

¶ There are over 1500 illustrations in this catalog, including Lock Sets, Sash Locks, Sash Lifts, Cupboard Turns, Butts, Barn Door Hangers, Carpenter Tools, etc., and is so arranged that it will be a simple matter to select a bill of hardware for a job.



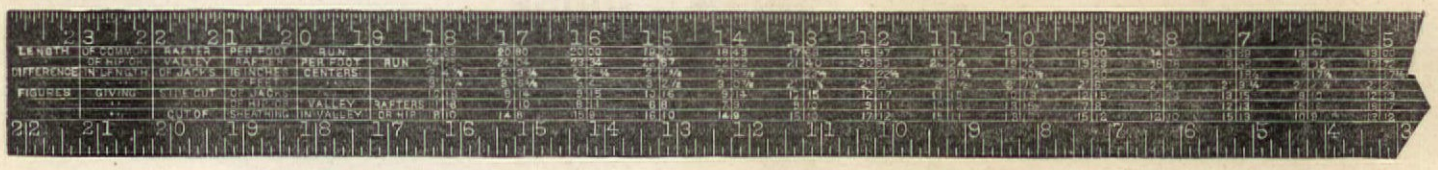
No. 5855—Steel, Old Copper Finish, Inside Lock Set; per set, 43c

¶ We want every contractor and carpenter to have one of these catalogs in his office. Will be mailed FREE on request. It will save you a lot of time and money. It will give you the latest designs to select from, and the lowest prices. In sending for this catalog please state whether you are a Contractor, Carpenter or Material Man.

REHM HARDWARE COMPANY
1503 Blue Island Avenue - - CHICAGO, ILL.

Nicholls' Rafter Framing Rule

FULLY EXPLAINED If your roof raises 8 inches to the foot, look under 8 and you will find your figures for length of common rafter, hip or valley rafter per foot run, length of first jack rafter and the difference in the length of others spaced 16 and 2 ft. centers, also their cuts.



FOR EXAMPLE

If your roof raises 8 inches to the foot, or, as it is called, third pitch, under 8 on the first line are the figures 14.42; this is the length of common rafter per one foot run; if the building is 16 feet wide, half the width of building would be the run of common rafter; in this case it would be 8; multiply

14.42 by 8
8
115.36

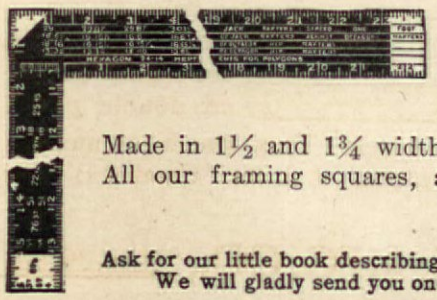
you have 115.36 inches, or 9 feet 7⅜ inches. To obtain the bottom and top cuts of common rafters, use the figures 12 on body and 8 on tongue; 12 side gives bottom cut; 8 side gives top cut; the same figures give bottom and top cuts for jack.

On the second line under 8 are the figures 18.78; multiply these figures by 8, which is the run of common rafter and gives lengths of hip or valley rafter.

18.78
8

This gives 150.24 or 12 feet 6¼ inches. This is the correct length of hip or valley rafter.

On the fifth line under 8 are the figures 10 and 12; by placing square on stock to be cut at these figures, 10 on body, 12 on tongue, and marking on 12 side, this gives side cut of jacks against hip or valley rafter.



Our No. 100A has the octagon roof framing rule on back of square as per small cut, giving all lengths and cuts of rafters for same. This square sells for **POLISHED STEEL $2.25 OXIDIZED COPPER $2.50 NICKEL PLATED $3.00**

Made in 1½ and 1¾ width tongue. Ask your dealer for these, but if he will not supply you we will prepay express. All our framing squares, also Nos. 100-1-2 and 3 standard squares have **HARDENED CORNERS.**

White portion of cut shows part hardened

Ask for our little book describing our framing rule. We will gladly send you one upon request.

NICHOLLS MFG. CO., Ottumwa, Iowa

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Big Sales—
Big Profits—
And Satisfaction To Your Trade

Plant of B. F. Goodrich Co., Akron, O., covered with J-M Asbestos Roofing

That, Mr. Dealer, is what our tremendous advertising campaign on J-M Asbestos Roofing means to you if you wish to take advantage of it.

In over eighty publications, covering every town in the United States and Canada, and reaching over 27,750,000 readers, we are running strong advertisements giving good, logical, believable reasons why J-M Asbestos Roofing is the best.

In publications reaching the architects, manufacturers, farmers, mine owners, owners of dwellings, etc., all over this entire country, J-M Asbestos Roofing is being powerfully featured. Over 300,000 of these readers are interested in the roofing of big manufacturing plants.

We are telling these people that

J-M ASBESTOS ROOFING

Is the only fireproof ready roofing, the only one that never needs painting, and is not affected by gases, chemical fumes, etc., and many other points which cannot be said of other ready roofings.

Will you couple your name with our fame and let us help you to your share of the profits to be made in your locality?

We will furnish you with handsomely lithographed metal signs, also with beautifully printed booklets, folders, catalogs and samples to give away.

To dealers promising to use them, we will furnish electrotypes of advertisements for use in local papers which will turn the local roofing trade their way.

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And—We don't ask you to carry a large stock, only enough to meet the first demand our advertising creates.

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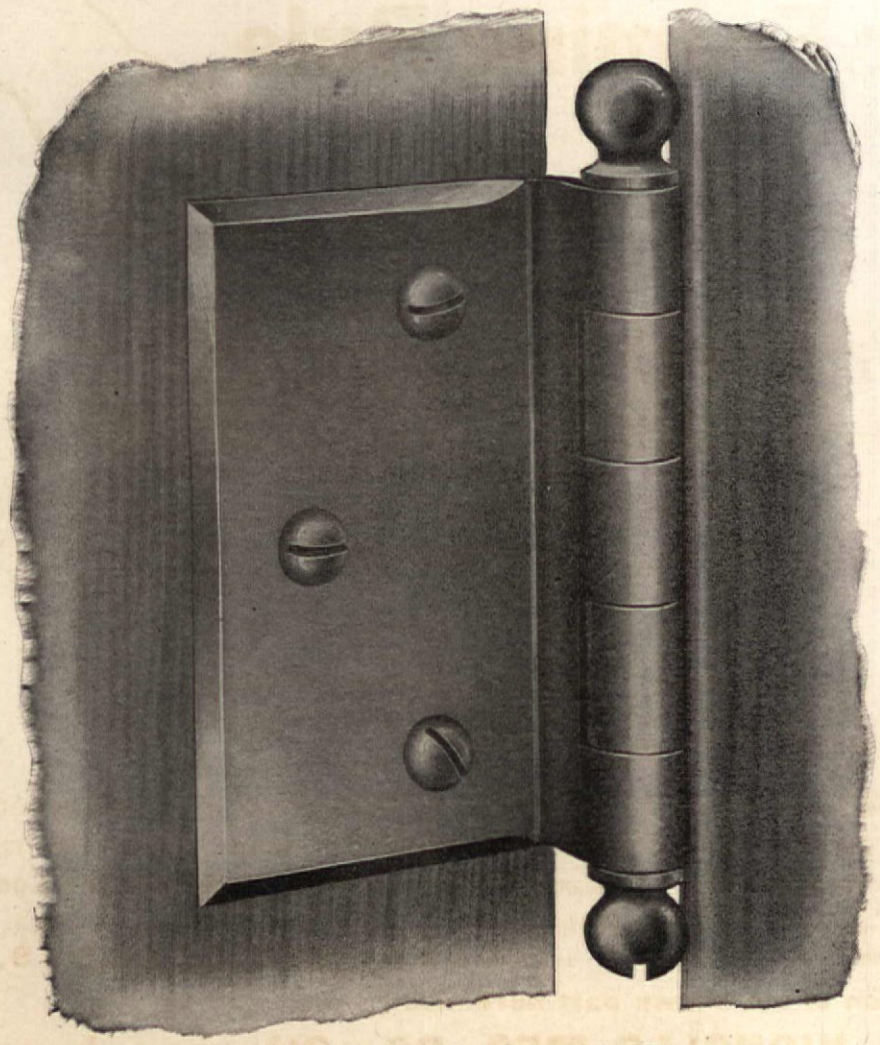

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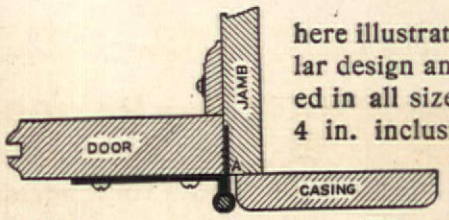
The TIP is threaded and screws into the Butt in both the Japanned and Plated finishes.

It is also SLOTTED for A SCREW DRIVER, making it easy to remove the tip and affords ready access to the pin.

The slot also indicates instantly which is the bottom of the butt—a feature greatly appreciated by the carpenter.

These are exclusive "NATIONAL" features.

Style No. 450



here illustrated is a very popular design and can be furnished in all sizes from 1½ in. to 4 in. inclusive. These butts are highly polished, double plated and have beveled edges. They match escutcheon plates with beveled edges. Ask for "Catalog B" and give dealer's name.

NATIONAL MFG. CO., STERLING, ILL.

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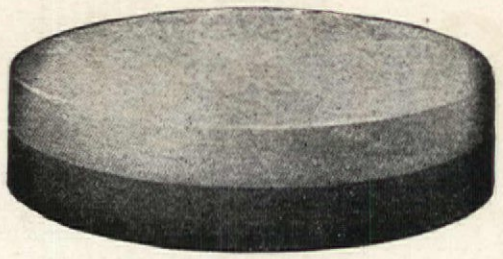

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Are always ready for use—never filled or gummy but always clean, free and fast cutting.
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Its minute crystals are brittle enough to break slightly after a time and turn up new cutting edges—that is why a Carborundum stone never glazes.

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Just the right shape for that rotary motion required in sharpening chisels and plane bits. Price each, $1.00.
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$150.00 Cash For the 41 Best Answers

WE want to know *what you think*— in your own words —just as you would talk to a man or woman about a job

We say — Johnson's Wood Dye is the best wood dye to be bought —it's the easiest to use.

We claim Johnson's Under-Lac to be far superior to any kind of varnish or shellac.

Now what we want to do is this—we want to furnish *you*—the man who knows a whole lot about woodwork and finishing—some of our Wood Dye and some of our Under-Lac to try out yourself and we want you to tell us in your own words—we don't care anything about fine writing—just *why you would recommend it.* To the 41 painters who send us the best reasons—in not over 150 words for using Johnson's Wood Dye and Johnson's Under-Lac to finish or refinish woodwork, floors or furniture, we will send our checks for one hundred and fifty dollars ($150.00) cash in the following amounts:

Best answer $25.00, next 5 best answers $10.00 each. Next 10 best answers $5.00 each, next 25 best answers $1.00 each, making a total of $150.00 for the 41 best answers.

Here's a chance to make a good Cash profit in less than one hour's time.

Take the coupon printed below to your paint dealer and get from him—without charge—no obligations of any kind—samples of Johnson's Wood Dye and Under-Lac to make a thorough test on some piece of woodwork or furniture.

Johnson's Wood Dye

is not a mere stain. It is a genuine, deep-seated dye that penetrates the wood, giving a rich, permanent color that will not raise the grain in the slightest. We make Johnson's Wood Dye in fourteen standard shades. These are the shades and stock numbers.

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No. 123 Dark Oak
No. 125 Mission Oak
No. 140 Manila Oak
No. 110 Bog Oak
No. 128 Light Mahogany
No. 129 Dark Mahogany
No. 130 Weathered Oak
No. 131 Brown Weathered Oak
No. 132 Green Weathered Oak
No. 121 Moss Green
No. 122 Forest Green
No. 172 Flemish Oak
No. 178 Brown Flemish Oak

Half Gallons—$1.50 Each

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is a spirit varnish. It will not chip, mar or scratch. Better than any kind of shellac or varnish. Can be easily applied, does not raise the grain, is not thick and sticky like varnish and *dries in half an hour.* Gallons $2.50.

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The 41 painters who give us the best reasons in not over 150 words—for using Johnson's Wood Dye and Johnson's Under-Lac for finishing and re-finishing woodwork, floors and furniture will receive our checks for a total of one hundred and fifty dollars ($150.00). *Do this today. Get the Wood Dye and Under-Lac at your dealer's* **FREE**—*no charge or obligation to you.*

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Paint Dealer's Name_____

If your dealer hasn't these samples, mail coupon to us with dealer's name—we'll see that you are supplied.

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You can buy our furnace direct from our factory AT THE FACTORY PRICE, and test it 60 days in winter weather. If not pleased, return it at our expense for freight both ways, and pay us nothing.

This offer, and lots of good furnace information, will be found in our free 48-page booklet. Ask us for one. A postal card will do.

Hess, 907 Tacoma Building, Chicago

Will You Write a Postal For These FREE Books Telling Furnace Facts That Make Us Warm Friends?

Investigate This Farm Home Furnace For Any Kind of Fuel

Let us send you this Home Heating Book, with other booklets and prices first—Now's the time to investigate—Think it over. We will save you first cost and lasting economy and reduce your fuel bills ½ to ⅔. Find out about the experience of thousands of satisfied owners of Hollands—Double Grate Surface—Patented Corod Air-admitting Double Firepot, burning fuel from sides and top, nature's way, for greatest even heat. Consumes gas, soot and clinkers with least smoke. No explosions. Book tells all improved tested points, convenience and satisfaction of the Holland. Unlike others. Less joints. No bolts. Simpler and easier and cleaner to run. Ideal damper arrangement. Consumes less fuel. Gives longest service from construction and double materials used where strains are greatest. Save money with

Holland Gas and Soot Consuming Furnace

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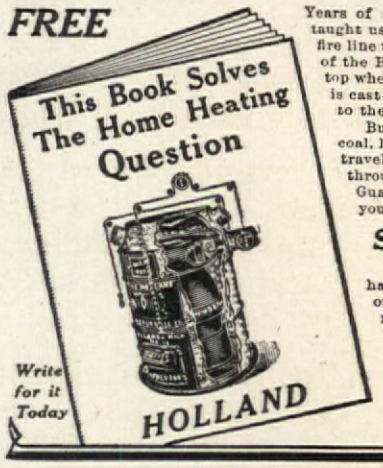

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Designers and Workers in Decorative Glass
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Write or come to the Studios of the

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Workers in Art Glass and Mosaics. Catalogue free

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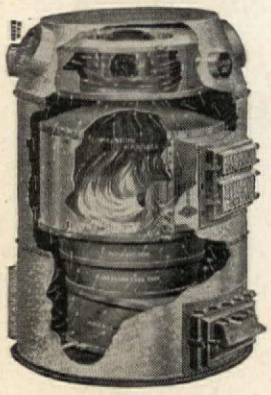
SAVES 50 PER CENT OF COST; 40 PER CENT OF FUEL



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The Only Practical Circle Swing Hand Power Derrick

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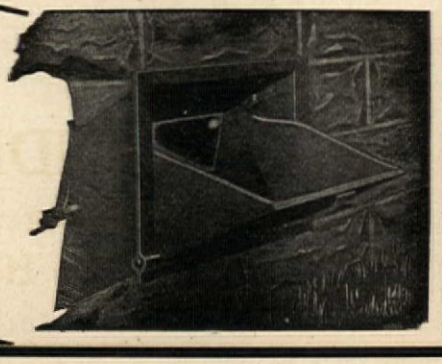

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MY plan is the simplest for you to make money on. It eliminates all preparatory work on your part, as I do this for you. It takes the risk of the plant's success off your hands, as I take the responsibility in my guaranty bond. It enables you to make both a good commission and profit on the erection.

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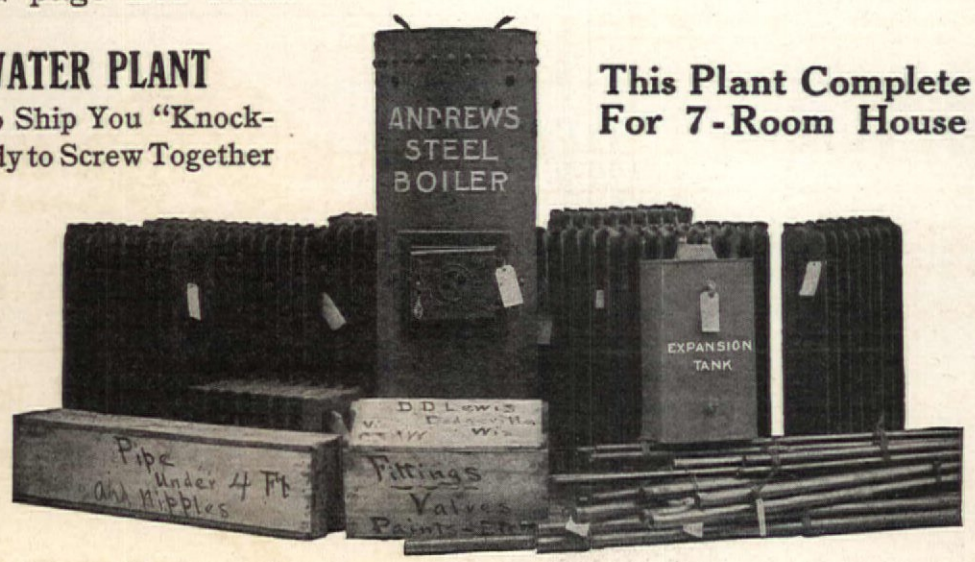

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Boiler, Piping, Fittings, Radiators, Expansion Tank, Regurgitating Safety Valve, Packing, Bronze and Brushes—everything that is necessary to make a plant the best and most satisfactory. With the plant is sent complete and easily understood plans and directions for erecting so that any one handy with tools can set up an average plant in one-half the time usually required the old way and do just as good a job as a skilled mechanic.

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Hardin's Special $43.00 Bath Room Combination No. 344

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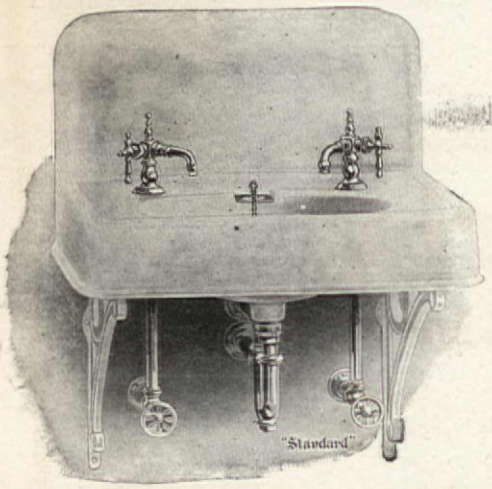

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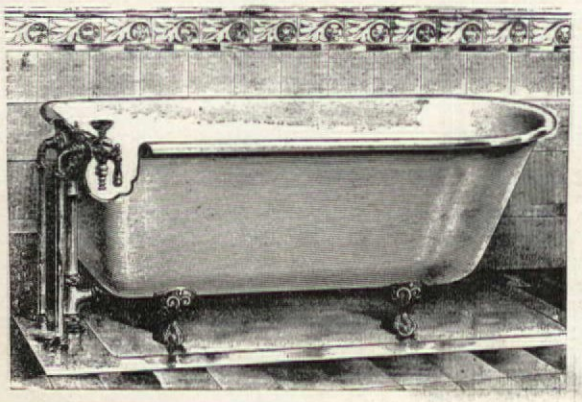
Porcelain enameled lavatory with slab, apron, oval bowl, overflow and back all in one piece, brackets, nickel plated Fuller faucets, nickel plated plain supply pipes and trap to floor or wall.

A very attractive and fine lavatory in every respect.

BATH TUB

One 4½ foot tub, 24, 26 or 30 inches wide, large roll rim, heavy nickel plated connected waste and overflow, extra heavy combination bath faucet, nickel plated supply pipes to floor.



CLOSET

The latest improved low-down outfit, tank heavily copper lined, high quality ball cock, latest improved Douglas flushing valve, round cornered, high grade woodwork, finished in either light or dark oak. Seat in light or dark oak with heavy nickel plated hinges attached to closet.

WE SELL ALL HIGH GRADE, STRICTLY GUARANTEED GOODS AT LOWEST PRICES

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JOHN HARDIN COMPANY

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EVERYTHING IN

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Hot Water and Steam Plants. We save you $100 to $250 on a Heating System.

Modern Plumbing at One-half Ordinary Cost. Water Supply Outfits from $42 Upwards.

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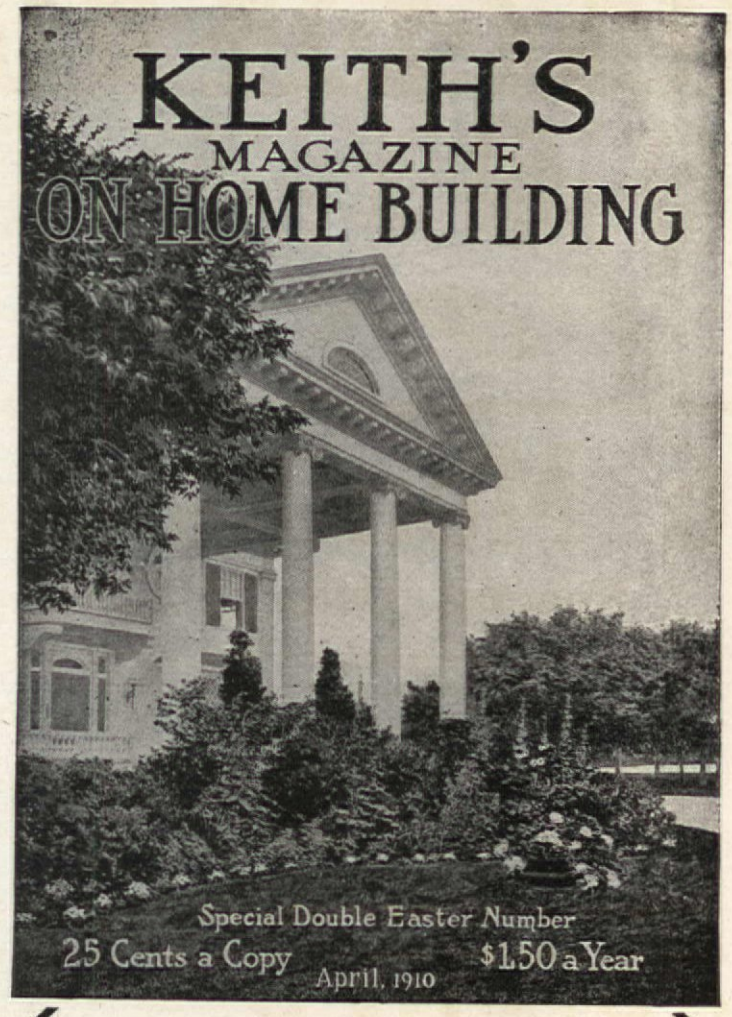

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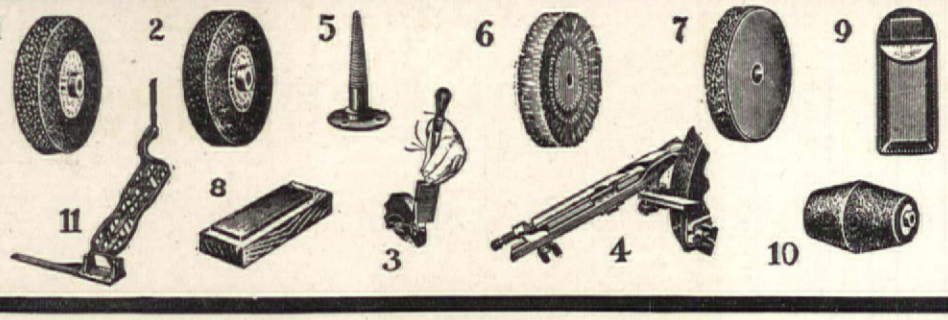

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Special Offer on Shop and Factory Outfit

We want every carpenter, every shop, factory, contractor and tool-user to try this grinding, buffing and polishing outfit for six months free—a whole half year for you to find out how this perfected genuine Carborundum grinder saves tools, saves time, and earns money for any shop, factory, or individual tool-user. We want you to prove these facts on your own tools. The whole half year's use will cost you nothing. Try it free for 6 months is what we ask and prove it is a big money-maker for you. Then send it back, if you wish—no hard feelings if you do. Send back the coupon at the bottom of this page for our 6 months' free trial offer.

LUTHER DIAMOND TOOL GRINDER

25 Times Faster than the Grindstone
6 Times Faster than Emery Wheels

The wheels on this grinder are genuine Carborundum. Nothing is so hard as Carborundum except the genuine diamond. Wheels actually made of genuine diamond would cut no faster. In reality Carborundum crystals are artificial diamonds, made by fusing the elements of real diamonds in the electric furnaces at Niagara Falls, in which fire brick melts and runs like butter. In this *utmost* heat, Carborundum crystals get a temper and sharpness that cuts hardest steel or toughest malleable iron as emery does copper. Carborundum wheels do not glaze—they peel steel away in tiny shavings at lightest touch—no hard pressure necessary, no frictional heat, no water cooling necessary, no danger of drawing temper. Genuine Carborundum wheels do not get soft in spots, wear lopsided, or glaze. They will outlast any number of emery wheels, saving that much money. They make it so easy to keep tools keen and bright, that tools are kept that way, and that means more, faster and easier work. They will not draw temper and tools last longer, which means another saving—to say nothing about the time saved in sharpening. But don't take our word—prove these facts by a half year's free use of this splendid outfit.

11 TOOLS IN ONE

This special offer on our shop and factory grinding, buffing and polishing outfit is a remarkable value—the greatest reasonably priced grinder offer ever made. This outfit, on which we will make a 6 months' free trial offer, consists of one Mechanic's Special Luther Diamond Tool Grinder with the following accessories:

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3. One chisel grinding attachment
4. One twist drill attachment
5. One polishing spindle
6. One buffer
7. One polisher
8. One oil stone
9. One Carborundum hone in leather case
10. One Carborundum scythe stone
11. One foot power attachment

This outfit supplies every grinding, buffing and polishing need. The chisel and twist drill attachments make it easy for inexperienced persons to sharpen drills and chisels correctly.

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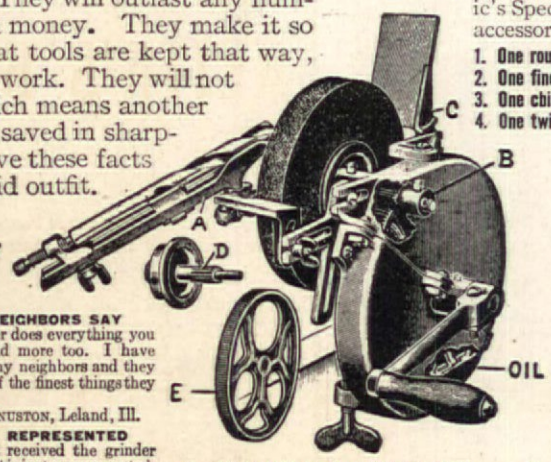
The Luther Mechanic's Special, forming the basis of this Special shop and factory outfit, is built for a life-time of service—has steel and malleable construction, dust-proof, bronze bearings, machine cut spur gears, bearings run in oil bath—speed 2,500 revolutions per minute. Carborundum wheels guaranteed 5 years.



A. Twist drill attachment to give drills proper angle and clearance.
B. Bronze Bearings
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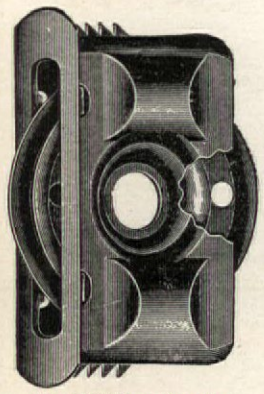

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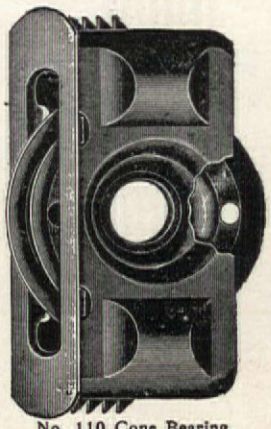

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Best for Fastening Fixtures to walls of brick, stone, plaster, etc.

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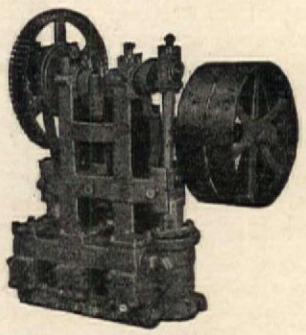

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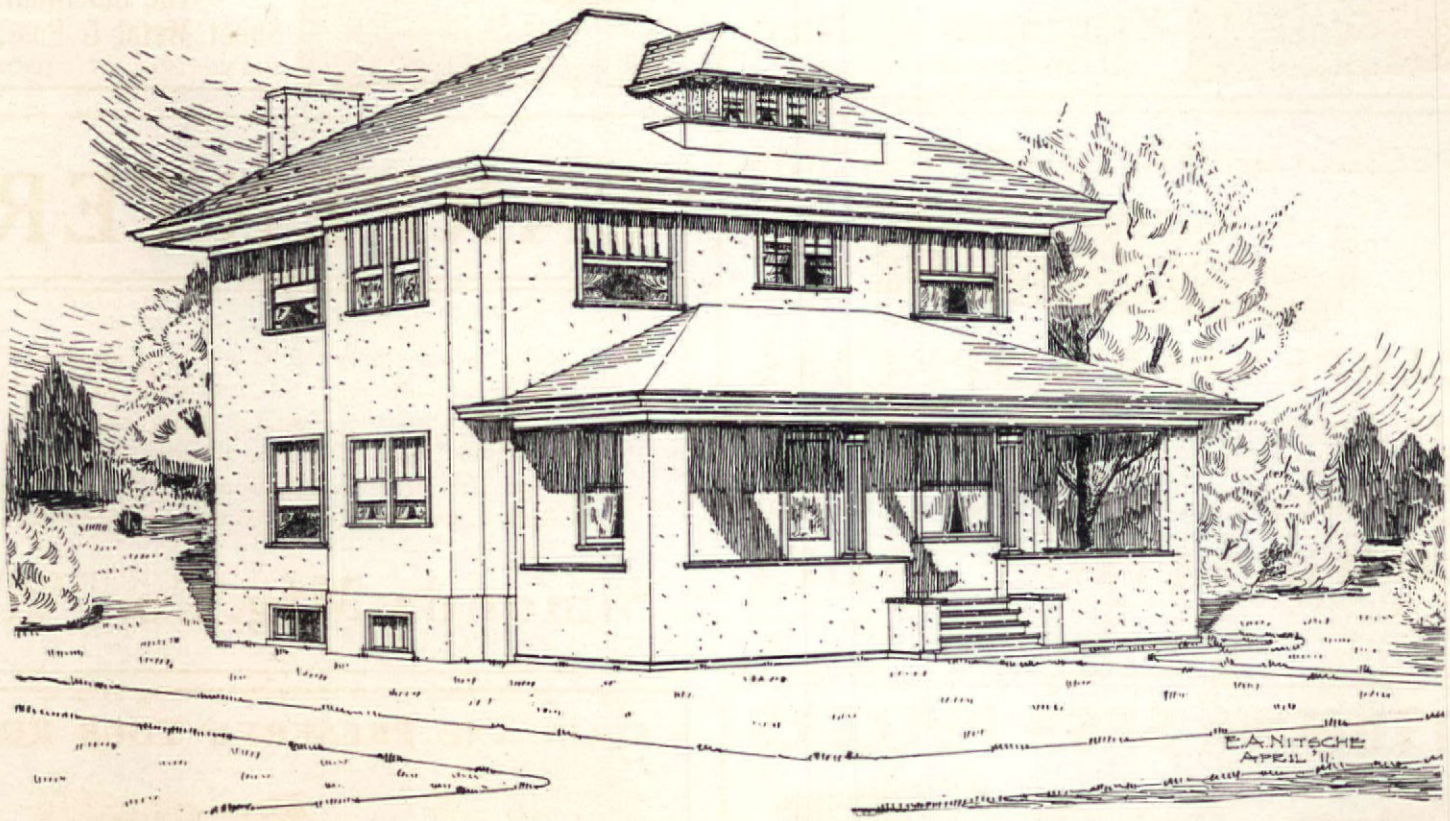
THE NATIONAL BUILDER

Vol. 52 CHICAGO, APRIL, 1911 No. 4



THE NORTHWIN ROUGHCAST HOUSE, for T. G. Windes, Jr., Winnetka, Ill.

NATIONAL BUILDER DESIGN No. 340

Alfred F. Pashley, Architect, Chicago

For Floor Plans, Elevations and Details, See Supplement of this Number. Estimated, Cost $41.24.00

THE NORTHWIN ROUGH CAST HOUSE

The house shown on our supplement sheet for April is a pleasing example of Colonial design, built at Winnetka, Ill., Alfred F. Pashley, architect, of Chicago.

In the basement, space is provided for a Furnace Room, Laundry, Workshop, and Stores. On the first floor a spacious Living Room has a fireplace at one end, on both sides of which are bookcases built in. Opening off the Living Room and well within range of the fireplace is a Den, secure in its isolation for rest, study and quiet. Across the central Entrance Hall are the Dining Room and Kitchen, the latter in particularly good arrangement with the Pantry and rear entrance. Three Bed Rooms and a Sewing Room, each with a separate closet, and a Bath Room, completes the second floor. The attic is devoted to storage room, although there is ample space for additional rooms.

The foundation is brick and the superstructure of frame with rough cast above the grade. When properly applied, this material is durable and adds greatly to the warmth of the house, while its appearance is pleasing. From its location in the suburbs, away from the dust and smoke of the city, the brightness and freshness of the finish should remain a long time, while the incombustible sides reduces the fire risk. The upper sash of the windows is divided into narrow vertical panes. Stained shingles on the hip roof, relieved by dormers, will harmonize with the soft tone of the walls.

ESTIMATE OF THE NORTHWIN

By I. P. HICKS

EXCAVATING AND MASONRY.

230	yds. excavating, 35c	$ 80.50
1,000	cu. ft. concrete walls and ftgs., 25c	250.00
9,000	brick laid in wall, $12	108.00
300	yards rough cast plaster, 70c	210.00
54	yards cement plaster, porch ceiling, 40c	21.60
18	lineal ft. chimney breast, $2.50	45.00
21	lineal ft. triple flue chimney, $2.00	42.00
100	yards cement floor in basement, 60c	60.00
	Total excavating and masonry	$817.10

LUMBER BILL.

		Feet.
1	8x8x10 ft. girder	53
4	2x4x12 ft.; 8 2x4x16 ft. basement	117
38	2x10x12 ft. first floor joists	760
15	2x10x16 ft. first floor joists	400
14	2x10x10 ft. first floor joists	233
16	2x8x16 ft. porch joists	320
38	2x10x12 ft. second floor joists	760
15	2x10x16 ft. second floor joists	400
14	2x10x10 ft. second floor joists	233
16	2x6x16 ft. porch ceiling	256

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4 2x10x16 ft. for porch	107
4 2x10x10 ft. for porch	67
8 2x6x16 ft. for rear porch	128
36 2x8x12 ft. attic joists	576
32 2x8x10 ft. attic joists	167
30 2x6x16 ft. plates	480
122 2x4x18 ft. outside studding	1,464
120 2x4x18 ft. partition studding	1,440
60 2x4x16 ft. plates	640
46 2x6x20 ft. rafters	920
24 2x4x16 ft. dormers	256
23 2x4x12 ft. collar beams	184
25 2x4x14 ft. porch rafters	233
20 2x2x18 ft. furring	120
30 1x4x12 ft. bridging	120
30 1x6x12 ft. braces	180
12 2x6x16 ft. for porch frame work	168
Total ft. framing lumber	10,782
10,782 ft. framing lumber at $27	$291.11
2,700 ft. sheathing, outside walls, $27	72.90
2,100 ft. sheathing, rough floors, $27	56.70
2,000 ft. 1x6 roof sheathing, $26	52.00
19¾ m. clear R. C. or cypress shingles, $4.50	88.87
2,350 ft. ⅞x2¼ face qr. sawed, Y. P. flooring, $45	105.75
415 ft. 1x4x10 ft. cypress flooring, porch, $45	18.67
400 ft. ⅝x4x10 ft. Y. P. ceiling, $32	12.80
820 ft. ⅝x4x12 to 16 ft. Y. P. ceiling, $32	26.24
350 lineal ft. 1x8x16 ft. fir finish, $40	9.32
180 lineal ft. 1x6x16 ft. fir finish, $40	3.60
250 lineal ft. 1x4x16 ft. fir finish, $40	3.32
100 lineal ft. 1x12x16 ft. fir finish, $40	4.00
80 lineal ft. 1x10x16 ft. fir finish, $40	2.68
24 lineal ft. ⅛x12x12 ft. fir finish, $40	1.20
400 ft. 1x6x12 to 10 ft., No. 1 flooring, basement, $30	12.00
1,070 ft. 1x6x12 to 16 ft., No. 2 flooring, attic, $29	31.03
10 2x10x12 ft. Y. P. select, cellar steps	6.00
150 ft. 1x12x12 ft. Y. P. finish, shelves, etc., $45	6.75
Total lumber bill	$804.94

MILL WORK.

4 cellar window frames, 32x10, 3 lt., $1.75	$ 7.00
1 cellar window frame, 22x10, 3 lt	1.75
1 cellar window frame, 26x10, 3 lt	1.75
4 cellar sash, 32x10, 3 lt., $1.00	4.00
1 cellar sash, 22x10, 3 lt	1.00
1 cellar sash, 26x10, 3 lt	1.00
1 front door frame, 3 ft. 0 in. x 7 ft. 0 in	2.50
1 rear door frame, 2 ft. 8 in. x 7 ft. 0 in	2.25
2 set jambs, C. O., 5 ft. 0 in. x 7 ft. 0 in., 90c	1.80
1 set jambs, dr., 2 ft. 8 in. x 7 ft. 0 in., 80c	.80
3 set jambs, dr., 2 ft. 6 in. x 7 ft. 0 in., 80c	2.40
2 set jambs, dr., 2 ft. 4 in. x 7 ft. 0 in., 70c	1.40
9 set jambs, dr., 2 ft. 6 in. x 6 ft. 10 in., 70c	6.30
2 plank frames, 2 ft. 6 in. x 6 ft. 6 in., $1.20	2.40
1 front dr., 3 ft. 0 in. x 7 ft. 0 in	18.00
1 rear O. S. dr., 2 ft. 8 in. x 7 ft. 0 in	4.50
1 5 panel dr., 2 ft. 8 in. x 7 ft. 0 in., 1¾	4.00
3 5 panel dr., 2 ft. 6 in. x 7 ft. 0 in., 1¾, $4	12.00
2 5 panel dr., 2 ft. 4 in. x 7 ft. 0 in., 1¾, $4	8.00
9 5 panel dr., 2 ft. 6 in. x 6 ft. 10 in., 1⅜, $3	27.00
2 5 panel dr., 2 ft. 6 in. x 6 ft. 6 in., 1⅜, $2	4.00
3 window frames, 56x27, $3	9.00
4 window frames, 56x22, $3	12.00
1 twin frame, 30x21	4.50
1 twin frame, 30x20	4.50
1 window frame, 30x22	2.25
1 window frame, 28x18	2.00
1 window frame, 38x22	2.25
1 window frame, 36x22	2.25
1 window frame, 20x22	2.00
1 window frame, 36x18	2.00
1 window frame, 20x18	2.00
1 twin frame, 14x28, divided	4.00
1 quadruple sash frame, 18x20	6.00
1 frame, 34x15	2.00
1 frame, 40x27	2.00
2 sash frames, 30x20, $1.75	3.50
1 dormer sash, 32x18	2.00
1 triple sash dormer frame, 16x24	4.50
1 sash door frame	2.25
3 windows, 56x27, top sash divided, $11	33.00
4 windows, 56x22, top sash divided, $9	36.00
2 windows, 30x21, top sash divided, $2.80	5.60
2 windows, 30x20, top sash divided, $2	4.00
1 window, 30x22, top sash divided	2.20
1 window, 28x18, top sash divided	2.00
1 window, 38x22, top sash divided	3.00
1 window, 36x22, top sash divided	3.00
1 window, 20x22, top sash divided	1.70
1 window, 36x18, top sash divided	2.50
1 window, 20x18, top sash divided	1.50
2 windows, 14x28, top sash divided	1.70
4 sash, 18x20, top sash divided	4.00
1 window, 34x15, top sash divided	2.20
1 window, 40x27, top sash divided	3.60
2 sash, 30x20, divided	2.40
1 dormer sash, 32x18	2.15
3 sash, 16x24	1.50
1 sash door, glass 24x34, div	3.00
800 ft, red gum casing, 2½c	20.00
800 ft. band mold R. gum, 1¼c	10.00
120 ft. window stool, R. gum, 2c	2.40
120 ft. apron, red gum, 2c	2.40
320 ft. door stops, 14 ft. red gum, 1¼c	4.00
420 ft. window stops, 14 ft. red gum, 1c	4.20
600 ft. red gum base, 4c	24.00
600 ft. floor mold, ½c	3.00
400 ft. picture mold, 1½c	6.00
2 bookcases, complete with shelves and doors, $20 each	40.00
Dining room cupboard, complete with doors, drawers, shelves and mirror	25.00
Kitchen cupboard, complete with doors, shelves, etc	30.00
Medicine case	5.00
Window seat	9.00
Main stairs	50.00
Attic stairs	18.00
50 ft. porch rail, 12c	6.00
300 ft. cove mold, 1c outside	3.00
300 ft. crown mold, 2c	6.00
100 ft. quarter round, ½c	.50
8 dormer brackets, 40c	3.20
2 porch columns, $4	8.00
6 porch newels, 40c	2.40
26 ft. top porch rail, 6c	1.56
26 ft. bottom porch rail, 6c	1.56
100 balusters, 1¼x1¼x24 in., 4c	4.00
Total mill work	$589.12

CARPENTER LABOR.

10,782 ft. framing lumber, $10	$107.82
6,800 ft. sheathing, $9	61.20
19¾ M. shingles, $2.25	44.44
2,350 ft. finish floor, $2	47.00
Smoothing 2,000 ft., $1.50	30.00
400 ft. porch floor, $1.50	6.00
400 ft. porch ceiling, $1.50	6.00
250 ft. cornice, 15c	37.50
Work on porches	20.00

FINISHING.

6 cellar windows, $1.25	$ 7.50
2 cellar doors, inside, $2	4.00
1 outside cellar door	2.00
2 hatchway doors	4.50
1 front door	4.50
1 rear door	3.50
2 cased openings, $2	4.00
1 double acting door	4.00
14 inside doors, $3	42.00
32 windows, $2	64.00
Setting frames	10.00
600 ft. base, 5c	30.00
Front stairs	32.00
Attic stairs	12.00
Cellar stairs, outside	3.00
Cellar stairs, inside	6.00
400 ft. picture mold, 1¼c	5.00
Book cases	20.00

Dining room cupboard	12.50
Kitchen cupboard	15.00
Medicine case	2.50
Window seat	4.00
Incidentals, 10%	65.19
Total carpenter labor	$717.15

RECAPITULATION.

Excavating and masonry	$817.10
Lumber bill	804.94
Mill work	589.12
Carpenter labor	717.15
Nails and hardware	60.00
Tin work	58.00
Plastering, 775 yards at 27c	209.85
Electric wiring	52.00
Plumbing	275.00
Heating, furnace	150.00
Painting	195.00
Incidentals, 5%	196.40
Total estimate	$4,124.56

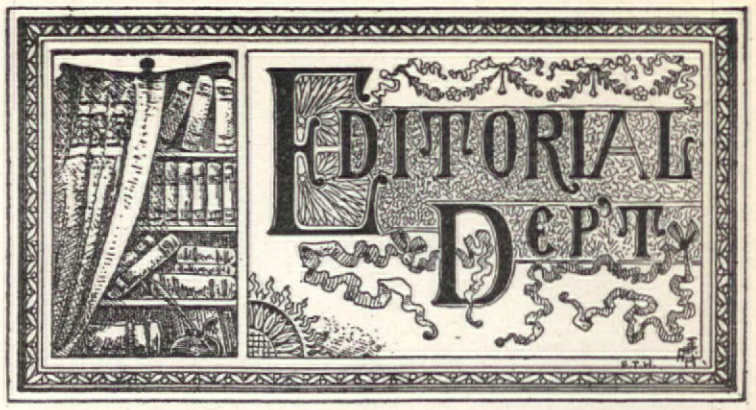
QUALITY OF BRICKS

THREE main points with reference to bricks have to be taken into account. 1. The power of resistance under pressure; 2, the appearance of the fracture, which should present an even texture, and a fine and brilliant grain, without cavities in the interior, and neither ribbony nor stony; 3, the exterior, which should be smooth and regular, the angles and edges sharp and straight. When the size of the bricks is equal throughout the mass it is a proof that the brick earth has been well prepared and the bricks generally well made. A brick, when struck, should give forth a clear, ringing sound. Good bricks are generally of a dark reddish-brown color, and sometimes they show vitrified spots on the surface; it is not well, however, to depend too much on this last fact, for it is often only an indication of the amount of heat to which the brick has been subjected, while the clay of which the brick is made may be impure and ill prepared. Bad bricks are readily recognized by their reddish-yellow color, but still more by the dull sound which they emit when struck; their grain being soft they crumble easily, and absorb water with avidity. A good brick should not absorb more than about one-fifteenth of its own weight of water; it should appear, and in reality be, dry. A brick that does not take up any water at all is too much burnt; the mortar adheres to it imperfectly, but it is a good conductor of heat. Such bricks may be used in damp soil and for pavements. When a brick left in water either scales or swells it is of bad quality and contains caustic lime. A brick which, being made red-hot, and then having water poured on it, does not crack, is of extraordinary and rare quality, and those which have borne the effect of moisture and dryness during two or three winters without scaling or cracking are excellent. In order to try if bricks will bear the effect of frost, let one be boiled for half an hour in a solution of sulphate of soda, saturated cold, and then suspended by a string over the vessel in which it has been boiled. In twenty-four hours the surface of the brick will be covered with small crystals; the brick is then to be immersed again in the solution until the crystals disappear, and again suspended, repeating this operation for five days, the crystals reforming after each immersion. If after this treatment a number of particles of the brick are found at the bottom of the vessel containing the solution, the bricks are incapable of supporting the effects of frost.

A COLOSSAL STATUE

WHAT may become one of the most famous statues in the world stands above Eagle's Nest, across the river from Oregon, Ill. It has been in process of making three years and is now near completion. It is constructed of concrete. The Indian figure, which is forty-eight feet high, stands facing the south, looking down the river. The head and profile and folded arms appear perfect in detail as they are outlined against the sky and forest from many viewpoints around the country.

The claim of the statue to fame lies in three things: First, any one may read its message. Second, the statue's great size, forty-eight feet, without counting either the artificial base or the natural rock foundation 250 feet high on which it is placed, puts it on a scale with the Goddess of Liberty in New York harbor and the great statue of "The Pilgrim" on the New England coast.



Brick is still king!

* * *

Late statistics inform us that more money was spent in 1910 for bricks, than was spent for all other building materials put together during the same year.

* * *

A material that holds its own for from five, to then thousand years, without being discarded, is not to be despised, particularly when it is used in larger quantities today than ever before. Will steel, Portland cement, or other material, excepting stone, hold as prominent a place in the building world, after another thousand years have come and gone?

* * *

A brick is a simple thing, and has been known as a "brick only." from time immemorial—it is a good thing, and when a man is dubbed a "brick," we all know the expression is intended to convey the idea that he is a "good fellow." Now, if it had been said, the fellow was a "clay product," you would not have understood what was intended; it would have reminded one of the colored man, who was told to pick up "that agricultural implement"—meaning a spade! The gentleman of African descent, was bewildered—and no wonder, for the term was new and unknown to him. Let us stick to the good old fashion "brick." It is the better word—more appropriate, than the new fangled "clay-product," and homelike. How many men—good men too—who handle brick often, and are regularly employed in the building trades, such as painters, plumbers, plasterers, carpenters and others, who cannot tell the exact size of a brick? Thousands of men who are working, and who have worked among bricks and brick buildings, for years, cannot tell you the standard size of a brick offhand when asked. Every tradesman in building construction, should know the exact dimensions of a brick, and give them immediately on being asked; can you tell at once?

* * *

A change in the style of interior finish is generally, and surely taking place. The change is tending towards a betterment of taste and chaste simplicity. The standards aimed at, which seem to be the objective points are those created by Chippendale, Hepplewhite, Shereton and other Georgian and colonial designers. We have in our mind a very handsome old colonial house, in New England, the home of a dear, wealthy, middle aged lady, who has lately renovated the building, leaving the outside as nearly as possible, as when first built, but the whole interior, with the exception of the hall and stairway, have been so changed that very little of the finishings as first put in, are in evidence. The drawing room and parlor are finished in strict Chippendale style, the furniture being all made of Spanish mahogany in the building, by the workmen who made the repairs and changes, all under the supervision of a competent Boston architect. The hall, as far as possible, and a large open reception room to the right, are finished in the style of Hepplewhite, and are really beyond reproach, both as to proportion and harmony, and in color and balance. But the beauty room, from the standpoint of the writer, is the dining room, which is to the rear of the drawing-room, and is fitted up in a solid Shereton style, the lambrequins, over-mantels and overdoors, are all richly moulded with fine colonial mouldings—all hand made, and, as one lady exclaimed, when she was introduced into the room, "Oh, my! it is an exquisite dream from fairy land!" The whole house—inside and out—is a combination of beauty, good taste and convenience.

* * *

We hope this new departure in domestic architecture will continue, and seize on the artistic good sense of the people. It will prove elevating in the extreme, and will tend greatly towards the cultivation of a broader refinement in matters of home building.

The various cabinet-makers throughout the country are certainly doing their share towards fostering a better taste in the way of artistic furniture and fittings, for much of the work now being placed on the market, is being built on the lines of the Georgian, or colonial practice, and much of the furniture made fifteen or twenty years ago, is finding its way into the upper attic or to the secondhand shops. THE NATIONAL BUILDER will not lag behind in this new movement, but will from time to time publish such items, and illustrate such designs as may be thought to be useful to those who are called upon to work on the lines suggested in the foregoing.

* * *

By the death of John Mervin Carrère F. A. I. A., of the firm of Carrère & Hastings, America, has lost another of her best architectural exponents, and a man who had endeared himself to every person who came in contact with him, either professionally or socially. Since the violent death of the late Stanford White, Mr. Carrère has been much in evidence, in artistic circles. It is rather strange that two of our greatest artists should be taken from us at an eardy age, and by untimely deaths. Mr. Carrère was thrown from a taxicab, which collided with a street car on Madison avenue, New York City, on Feb. 12th, 1911, striking his head on the pavement and rendering him unconscious—from which he never recovered. He died in the Presbyterian Hospital, New York, on March 1st—regretted by all who knew him personally.

* * *

The report of the progress of the work at Panama during December shows that during the month there was completed 1,488,880 cubic yards of excavation for plant, a total for the month of 2,603,206 cubic yards. As compared with the preceding month, there was an increase of 5,060 cubic yards in the amount of concrete laid, the daily average for the 26 working days being 2,085 cubic yards.

* * *

We note that, by a very large majority, the House has chosen San Francisco as the exposition city to celebrate the completion of the Panama canal in 1915. Although we consider that these great fairs have been too frequent in the past few years, and have been dominated too much by the spirit of commercialism, we congratulate San Francisco on its selection, and express the hope that the authorities will make the event what is should be—a great educational influence.

CEMENT STUCCO COTTAGE

THIS house designed and built by D. E. Wiseman, San Francisco, Cal., is one of exceptional beauty. It is built on a slope overlooking the Pacific Ocean. The exterior is pure white cement stucco, the casements and other exterior wood trim being stained a dark brown to give contrast to the whole. The roof is flat with eaves widely extending.

The steps leading from the side is a good arrangement, as it prevents a glaring appearance which would result if led directly from the front up to the main entrance.

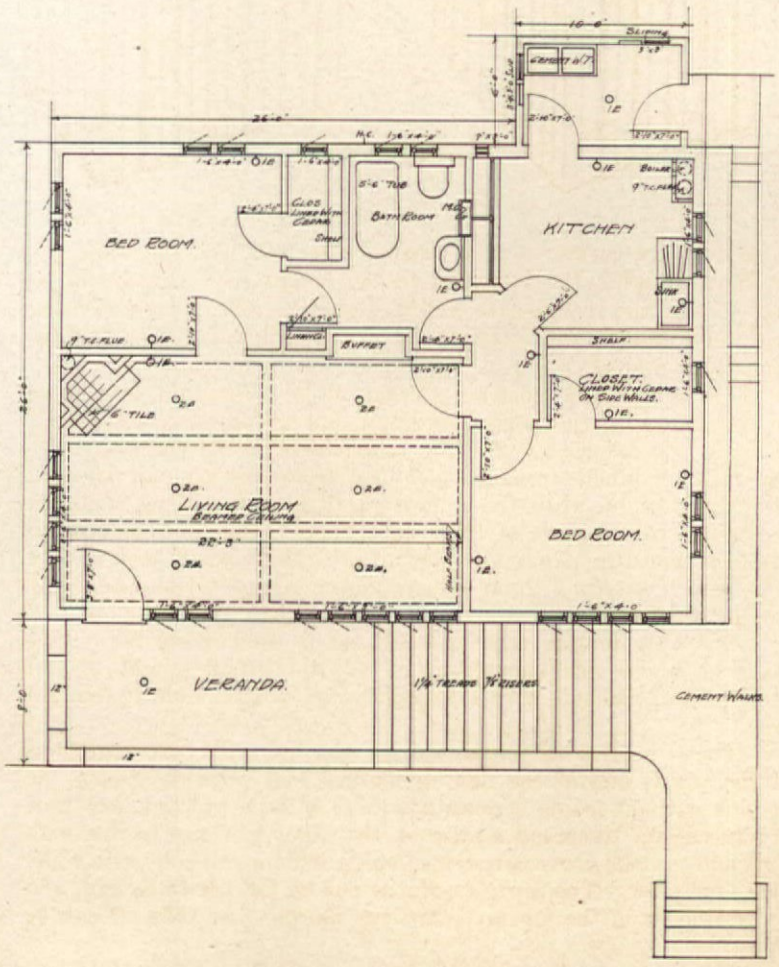
The space from the ground up to the first floor gives ample basement room, although no rooms are finished therein.

The veranda is commodious, being about 7 ft. x 17 ft., partially roofed and with one side closed with glass to prevent the direct draft of ocean breezes.

All windows are long and narrow and of the casement type, opening outwardly.

The floor plan shows a design for home comfort exclusively. All rooms are large and well lighted. The living room has a beam ceiling and a large fireplace across one corner. The closets are lined with cedar to make them moth-proof.

The approximate cost of this cottage is $2,50C



"In one benighted region of a certain state in the Southwest," says a Chicago lawyer, "they cherish some peculiar notions touching the duties of a juror.

"One day a case was being tried, when suddenly the justice exclaimed:

"'How is this? There are only eleven jurymen in the box. Where is the twelfth?'

"The foreman rose and addressed the court respectfully as follows:

"'May it please your honor, the twelfth juror had to go away on important business, but he has left his verdict with me.'"—Case and Comment.

BUILDING WITH TERRA COTTA HOLLOW TILE

By WM. J. TEAGUE

TERRA cotta hollow tile has been used as a building material in the larger cities for several years, and as a fire-proof material it has proved itself so superior that its use is rapidly spreading. Many tiles are now being used in smaller towns, and even country places, where local builders are not familiar with handling them.

Any competent bricklayer can lay tile, but when building a complete structure many problems present themselves that do not occur in brickwork. The tile used for the walls are scored with dovetailed groves about 3-16 inch deep. Those used for floors are marked with shallow groves which make them better for plastering against.

When starting to build with them it will be found that the tile vary in thickness and height, while some are winding or otherwise distorted. This is disturbing to some bricklayers, but if care is used by the corner men to select the straight tile the walls can be kept straight; the variation in the height of a course can be partly overcome in the next course, and while the important thing is to have face of wall straight, it is better if each course is kept somewhat in level.

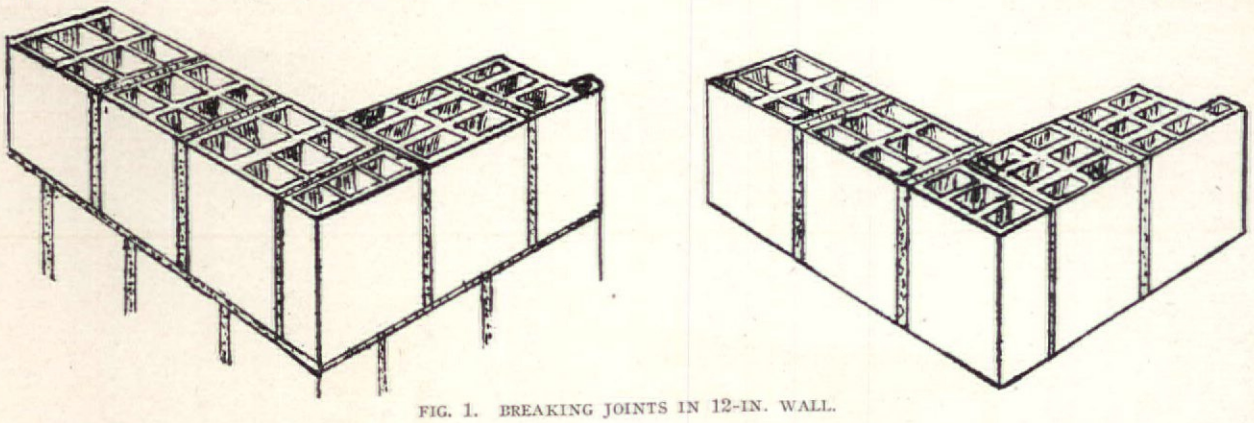


FIG. 1. BREAKING JOINTS IN 12-IN. WALL.

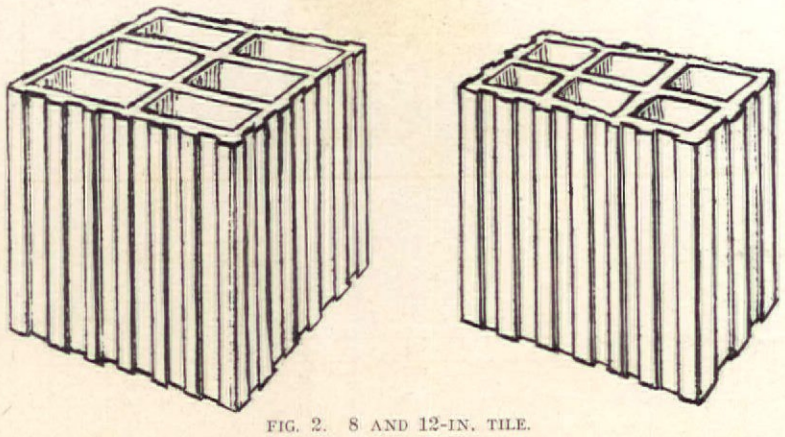


FIG. 2. 8 AND 12-IN. TILE.

The easiest and most natural way to lay tile would seem to be on the side with the holes horizontal, but in practice, the easiest and best way is on end with the holes vertical. In the first place the walls are much stronger when the tile are laid on end, the ends also, are straight, while the sides are a little full, making it almost impossible to use some of them on the side. The tile do not absorb the moisture from the mortar so readily when laid on the side, which avoids a great inconvenience when it is necessary to run to story height.

The only mortar that can be used is cement mortar. This must be made rich enough to be a little sticky—about 2½ of sand to 1 of cement, with the addition of a little lime if thought best.

The spreading of mortar on the narrow walls and partitions of the tile is one of the first difficulties that presents itself. To do this without losing a quantity, takes a little practice, but it is only necessary to spread mortar on the edges that run in line with wall and not the cross partitions, which seldom coincide with those above or below. The upright joint is put on the tile to be laid, and by resting it on the mortar board the mortar that falls off can be saved.

For 10 and 12 inch walls there are made corner blocks 15 inches long, for the purpose of breaking joints. Sometimes these are not provided, it is then best to start corners with a 6 inch tile on each course, as illustrated in Fig. 1. This will save breaking tile.

The 12 inch tile contain six holes as illustrated in Fig 2. The right way to lay them is with the three holes across the wall. In this way your wall will have four partitions of the tile as bearing walls with a corresponding increase in strength, and if an 8 or 6 inch tile is used as a closure, the partitions will be above the partitions in the 12 inch wall.

Piers are often built of tile and filled with reinforced concrete. When building for this purpose after every two or three courses, the inside mortar joints should be cleaned off. If this is neglected the holes will become choked with mortar at some of the joints making it almost impossible to insert the reinforcing rods. For this same reason the holes in piers and straight walls that have to be reinforced should be directly above each other where it is possible. Piers of large dimensions can be built with 2 inch tile and filled with reinforced concrete. The pressure of the wet concrete, however, will have to be provided for by braces.

It is not necessary to provide lintels to go across small openings in tile buildings, the tile itself with good cement mortar will be sufficient; sometimes spans of 6 or 8 feet have been built in this way without even cracking. The best way to make lintels for wide openings or in foundation walls is to build across a form or window frame that has been braced with 2 inch tile, a course in line with outside of wall and one with inside of wall as illustrated in Fig. 3. Fill the space with reinforced concrete and you will have an

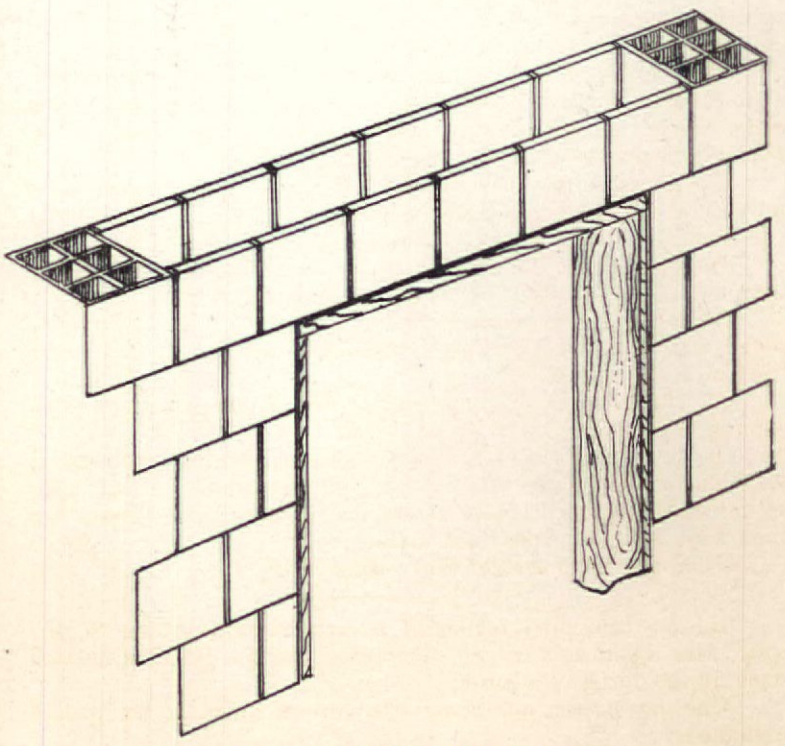


FIG. 3. METHOD OF BUILDING LINTEL.

8x12 concrete lintel. Some provision should be made for pressure by bracing.

This lintel is much better than a plan given by a Corrugated Iron Bar Company, in which tile the same width as the walls was shown laid end on end with the holes horizontal and made long enough to cross the opening. These were filled with reinforced concrete. The trouble with this method is that the concrete cannot be forced in the holes when laid flat across the opening, and if made standing on end it would take a power hoist to lift in place.

Much time is lost in building with tile if the attempt is made to cut to exact story height.

Tile are difficult to cut down from the end and some other way should be found to get as near as it is necessary to height. All sizes are sent with several wire cut tile. If these are kept back they sometimes become useful to get to height desired.

Most of the other difficulties that occur can be worked out by any good bricklayer or stonemason, to the satisfaction of owner and architect.

USUAL PRACTICE IN BRICK WORK

THE usual method of leaving a brick wall which is to be continued at some future time is to tooth the same, which consists in leaving each header projecting 2¼ inches beyond the stretching courses above and below to allow the new work to be bonded to the old as shown in Fig. 2.

The usual practice in joining new cross walls to old main walls is to cut out a number of rectangular recesses in the main walls equal in width to the width of the cross walls, three courses in height, and half a brick in depth, a space of three courses being left between the sinkings (as shown in Fig. 1) ; the new cross wall is then bonded into the recesses with cement mortar to avoid any settlement. It is necessary that the sinkings should not be less than 9 inches apart, as in the cutting the portion between is likely to become shaken and cracked.

FIG. 1.

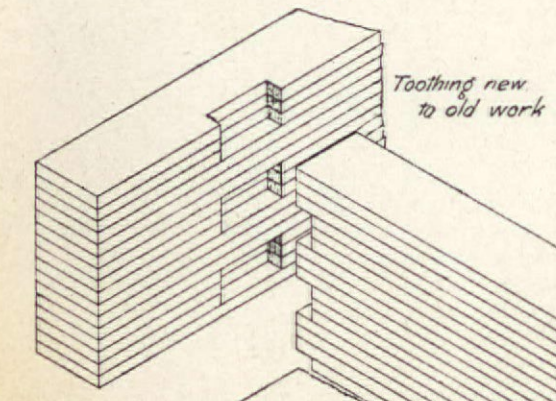


Fig. 2.

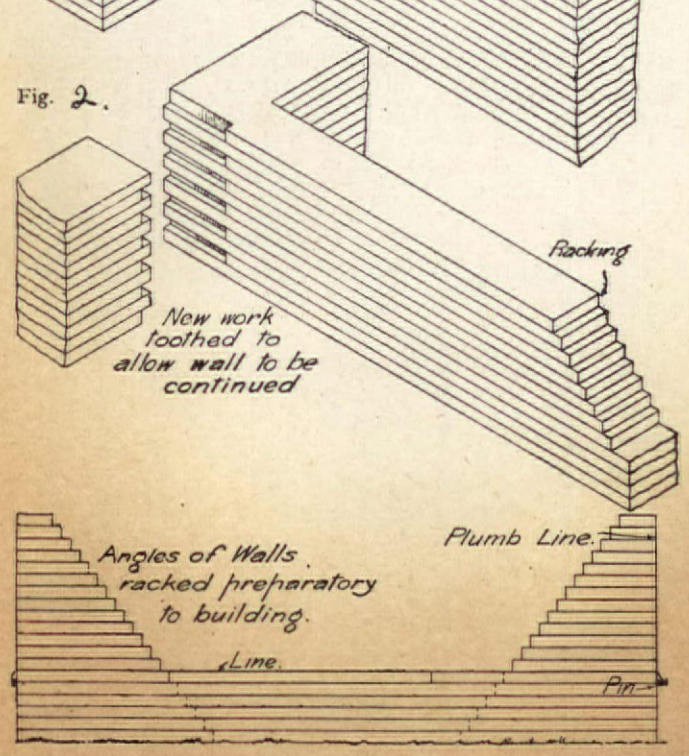


FIG. 3.

Racking is the term applied to the method of arranging the edge of a brick wall, part of which is unavoidably delayed while the remainder is carried up. The unfinished edge must not be built vertically or simply toothed, but should be set back 2¼ inches at each course, to reduce the possibility and the unsightliness of defects caused by any settlement that may take place in the most recently built portion of the wall.

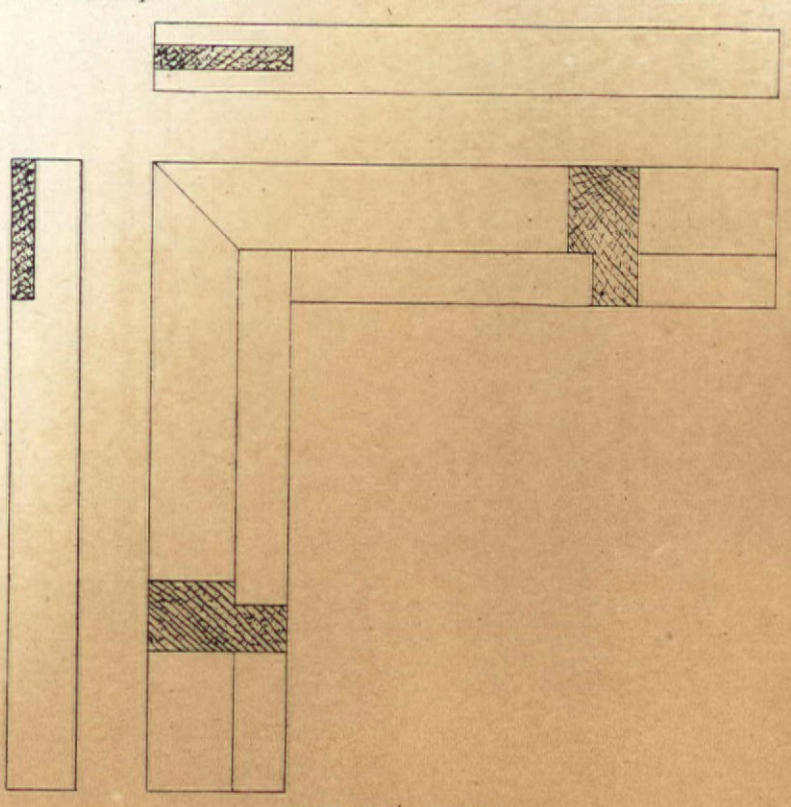
Also where new walls are erected the usual method of procedure is to build what is technically termed a corner, that is, the angles or the extremities of the walls, to a height of two or three feet, the angle bricks being carefully plumbed on both faces. The base of the corner is extended along the wall, and is racked back as the work is carried up, as shown in Fig. 3. The intermediate portion of the wall is then built between the two corners, the bricks in the courses being kept level and straight by building their upper edges to a line strained between the two corners.

A BRICKLAYER'S SQUARE

EDITOR NATIONAL BUILDER: I am sending you a plan of a square that I think saves considerable time when building a chimney, and one desires letting the top courses project out. It is used for squaring the corner bricks.

I do not claim to be the inventor, but have not seen the square used very frequently, nor have ever seen it advertised.

The plan is about one-third size. It can be made any size to suit the requirements. W. A. W.



BRICKLAYER'S SQUARE.

A writer in the "Zeitschrift fur Vermessungswesen" states that the slide-rule was invented 300 years ago, and calls attention to the fact that Gunter, shortly after the production of his logarithm tables in 1620, had logarithmic schemes engraved on wooden rules, and performed the operations of multiplication and division by subtracting the logarithms by means of dividers. In 1627, Wingate facilitated this operation by engraving the scales on separate rules sliding in one another, and in 1657, or over 250 years ago, Partridge brought out a slide-rule very similar to that used today.

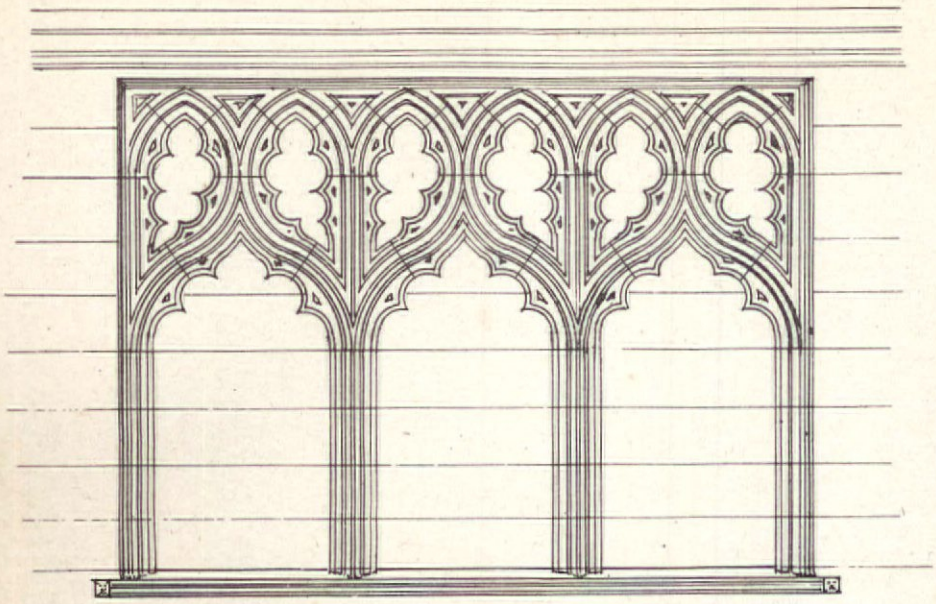


FIG 1

FIG 2

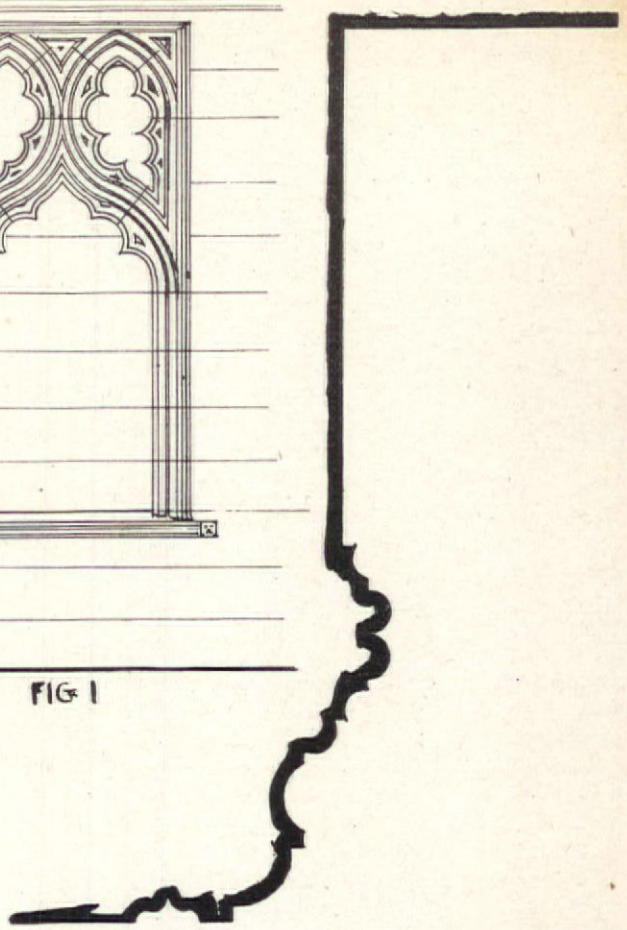


FIG 4

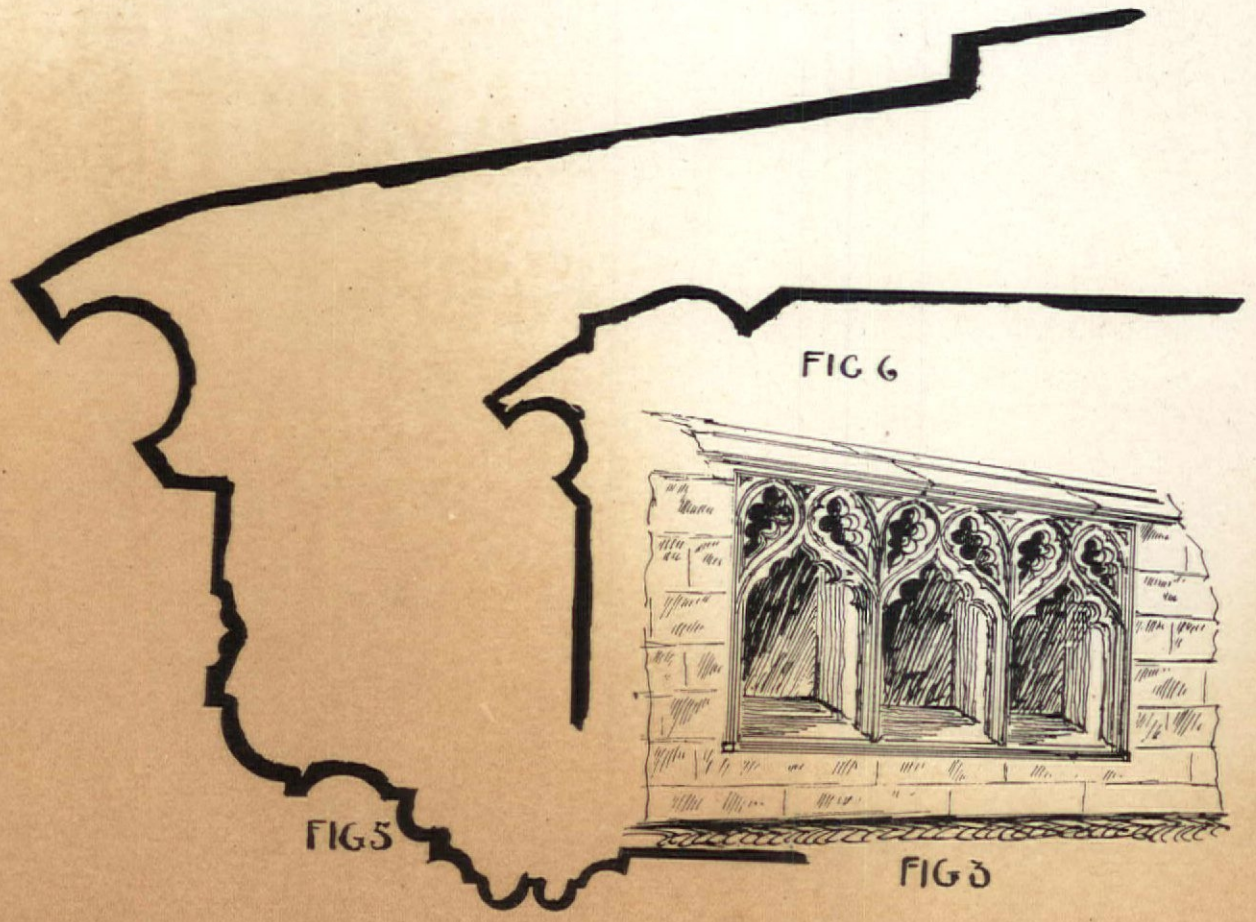


FIG 6

FIG 5

FIG 3

SEDELIA IN THE PAISLEY ABBEY, SCOTLAND

Drawn From Measurement—By John Y. Dunlop

THE sedelia, which are the seats for the high priests, built in masonry, is generally built on the south wall of the chancel.

Fig. 1 shows the front elevation with three seats, and is said to be the only one of that number in existence.

The lines of the tracery, which is of the decorated style, are very rich.

The general appearance is simple, caused by the graceful grouping of the various circles, and magnificent by the varying

size of the circles and the richness of the geometrical tracery. Figs. 4, 5 and 6 show the section of the jamb, lintel, and the front edge of the seat.

In each of those hollow moulding are very prevalent, these being special characteristics of the style.

This old monastery, of which the charter was confirmed in 1172, is of most beautiful proportions.

The walls of some part upon which there are many curious pieces of sculpture, are in a ruinous condition, and only about ten feet in height. On the south side near the east, where the high altar stood, are the graceful and highly decorated remains of the sedelia, Fig. 3.

The whole edifice of the once famous monastery, which stands as usual, with ancient churches, east and west, was 265 feet in length.

It would be most interesting to know who was the architect that designed in such beautiful proportions and symmetry, both internally and externally, the church of the old Paisley monastery.

BUILDINGS OF ADOBE BRICK

ADOBE is pronounced as if it were spelt doby, and adobe bricks are made of soil selected for the purpose, generally a mixture of clay and sand, and they are dried by the heat of the sun. These bricks can be, and frequently are, used for building through all the west half of the United States. The reason adobe is suited to this region is because there is never rain and moist atmosphere enough to dissolve, or in any manner affect their durability, though Northern California is an exception, for there the fall rains are occasionally so prolonged that this material is unsafe, and some houses built with it have fallen, or rather melted and sunk into the original mortar.

With the Mexicans, adobe is a favorite material; they build stables, dwellings, and churches with it, and there are adobe houses in Santa Fé and El Pasco erected fifty years ago, which are apparently as firm as when first put up. All the forts of the old fur traders, such as Bent's, Lupton, St. Vrain, and the like were adobe, and although they were vacated many years ago and dismantled, having no kind of protection on the top of the walls, the rains have made but little impression upon them. But it is usually considered necessary that the top of an adobe wall have a cover of wood, or of stone, or of burned brick. At Salt Lake the old Temple was adobe, and also the high wall around Temple square, while other structures and dwellings, many quite costly were of the same material. At present, however, all the business blocks are of burned brick, not perhaps because such are more durable, but because a great obstacle is presented in rain storms coming unexpectedly while the adobe is drying or are laid in the wall, since if a rain is heavy the whole is likely to go to ruin; therefore, they who are able and who are in a hurry cannot afford to run risks.

Still, adobe is the poor man's material, and a house once built of it is lasting, and it is comfortable in the extreme; for, as the bricks are laid in mortar of the same material, the wall becomes as firm as if of one unbroken mass; indeed, it is more solid than a wall of burned brick. The rooms are warm in winter and cool in summer, and the fierce and terrible winds blowing for days together are unfelt and unheard. When an adobe brick is thoroughly dried, which in summer requires about a week, it is hard and heavy, and it rings under a trowel almost like a burned brick. If put in water it will return to its original mud in about thirty minutes; but while in a wall, and having been thoroughly dried, the ordinary rain of the country may beat on it all day and make no great impression. However, those who live in adobe houses are always willing to have the rain stop, unless there is a porch or other projection.

The Salt Lake people devised a plan of plastering the outside with lime mortar, but it was not until they had made many experiments; for adobe plastering, though good for the inside, is worthless outside, as it washes quickly away, and lime mortar will not stick; but when shingle nails are driven into the wall 6 inches apart, then the mortar sticks, making an excellent stucco, and being painted or whitewashed the finish is beautiful; there is no more trouble, and the wall may be considered as indestructible as anything on earth. It is likely that an adobe building, well constructed and protected, will last thousands of years, for the material becomes so hard that no part of it wears away or crumbles. In New Mexico the women perform the duty of repairing the walls every spring by plastering over such parts as have suffered injury from beating rains or other causes, and the work is slight, for it is only required to mix the soil with water and lay it on in mortar.

One might at first suppose an adobe house extremely cheap, made as it is of a materal that costs nothing, and which is under one's feet; but this is not exactly the case, for the labor is so hard and the process is so long that those not accustomed to working in adobe are apt to get discouraged, or they may work so rapidly that the walls break down before they are dry, or a sudden rain may spoil many bricks ready for use; hence it has resulted that adobe ceases to be popular, especially with eastern men, and they forego all the benefits on account of the difficulties which they have not the patience to overcome.

It is indispensable that lumber shall be on hand to keep adobe brick from getting wet. It is true that months may pass when no rain falls, and during which they will become thoroughly dry; but there is a risk, and it is probably true that no pursuit carried on by day labor can be continued if there are risks. Only capital can afford to run risks, if they are profitable. When several thousand adobe brick are laid out in a yard to dry they become strong enough in a couple of days to be ranked one on top of another, so as to admit the air and yet to occupy a small space; but boards must be ready to cover them in case of rain. This is said of such bricks as are of the size of burned brick, but experience has proved that a larger size is more profitable, and such are usually made. These will require four days to dry so that they can be moved, and it follows that the expense of covering small ones which occupy greater space is nearly balanced by the risk and time involved in making larger ones, and the difficulties are about equal.

HARDWOOD FLOORING

HAVE you ever glanced down the columns of your local paper you have, you must have noticed how owners, investors and under the caption of "Residence Property for Sale"? If real estate dealers feature the most important parts of the construction. If oak flooring is used, they always draw particular attention to that fact: There are good reasons why they do this. Oak flooring is a most important factor when it comes to renting or selling a residence, as there is no other part of the construction that helps more to beautify a home, as its colors are soft, rich and cheerful and tones up a home just as much as furniture. It gives an air of refinement and elegance to a home, whether it be in a humble cottage or a mansion.

AN ECONOMICAL USE OF OAK FLOORING.

The standard thickness of oak flooring are 13/16 and 3/8 inch thicknesses. The 13/16 inch thickness makes the most substantial floor, and usually is about 35 per cent more expensive than 3/8 inch. The 3/8 inch oak flooring can be laid over old floors very economically, taking the place of carpets, without in any way interfering with the woodwork of a room. When laid it has the appearance of heavy flooring, and not even an expert could detect its thickness. The highest quality of clear quartered oak flooring 3/8 in. x 2 in. wide can be bought, laid and polished for half the cost of fair quality of carpet, which proves that carpets are an expensive luxury, as compared with oak flooring.

ADAPTABILITY OF VARIOUS GRADES.

The following is a general outline of the uses that are generally made of the various grades of oak flooring:

Clear quarter-sawed or first grade.—For high class residences, hotels, apartment houses and club houses.

Sappy clear quartered or second grade.—An economical substitute where a dark finish is desired. This grade is as durable a floor as the clear grade.

Clear plain sawed or first grade.—For high class residences, hotels, apartment houses, churches and club houses.

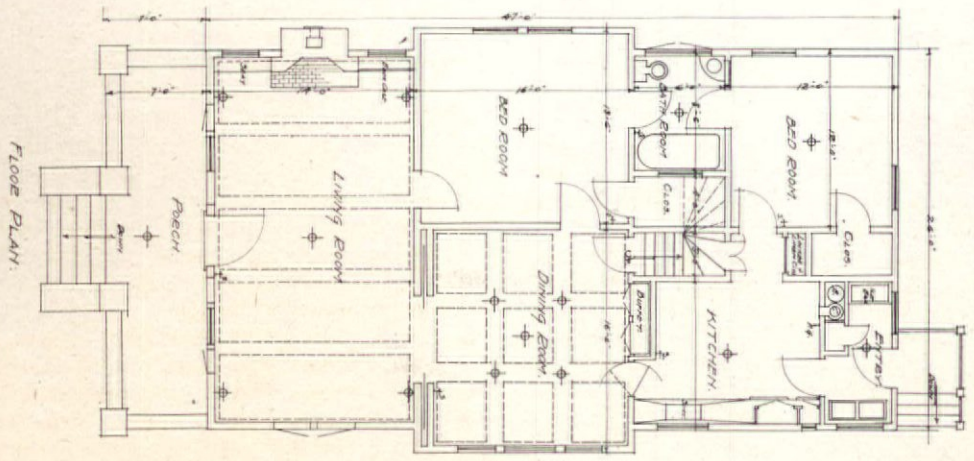
Select plain sawed or second grade.—For medium-priced residences, hotels and apartments, schools, office buildings and stores.

No. 1 common or third grade.—For dwellings, tenements, stores, high class factories and manufacturers' buildings.

Factory or fourth grade.—For warehouses, factories and cheap tenements.

"Say, when are you going to pay me that money you owe me?"
"My dear fellow, I'm not a prophet."—Lippincott's.

BUNGALOW, OAKLAND, CAL.



THIS house, designed and built by Price Bros., Oakland, Cal., appears to be an unusually valuable one for the reason that it gives practically an eight-room house and for a cost of about $3,000 in Oakland, where it has recently been built. With the three upstairs rooms and bathroom not finished, as indicated in the drawings, it would cost about $500 less.

The exterior is of the handsome bungalow type with good and pleasing relief produced by the various courses of siding, first the lap siding to the bottom of window sills, then shingles and last the vertical siding with battens in the gables.

The front dormer helps form one of the second-floor rooms, and the rear dormer is left open for a sun balcony.

The tapered window casings add an artistic effect that is very popular at present.

The porch columns and trimmings, as well as the large outside chimney are clinker brick with a large fireplace in the living-room, made of Carnegie tile. This living-room is very roomy, extending across the entire front. This living-room and dining-room have beam ceilings, a bungalow essential.

The two bed-rooms on the first floor are each directly accessable to the bath-room, and each have large closets.

The kitchen is most conveniently arranged with cupboards, sink and shelving, as well as a cooling cabinet.

The entire floor plan shows a very careful study of home requirements.

For the investment it would seem that this design is difficult to excel.

FLOOR SCRAPERS

WE have reached the age in building where the floor scraper is as essential a part of the builder's tool equipment as the plumb bob and the level almost. We have gotten away from the old method of building a plain floor and covering it over with carpets, and the disposition today where a good house is built, no matter whether it is a cottage or a mansion, is a hardwood floor, and it is necessary to finish this floor off by scraping it. One of the things that has delayed the coming of the hardwood floor has been the indisposition on the part of carpenters to lay and finish them, and often this indisposition is traceable directly to the lack of being equipped with tools for scraping and finishing.

The carpenter that goes without this equipment is simply standing in his own light. He should have something of the kind, have the best that is offered if he can get it, and his work will justify it, but have something anyway. It is not the easiest thing in the world to decide which is the best floor scraper offered and which may be best for each individual builder. There are probably some that give better service than others, and there are probably many which would give better service if they were better handled and cared for. This is a matter for each man to figure out for himself after thoroughly investigating all the offerings.

HOW TO DRAW A STORE FRONT

By CHAS. CLOUKEY

THE store front is an important branch of carpenter work which any good carpenter can lay out and put through with satisfaction and profit, if he is able to understand the requirements or rather the desires of the owner.

It is not often that the ordinary tradesman has to get out the store fronts for new work of much pretension, as such construction is usually included in the general contract and let along with the other mill work. But there are so many cases where the taking out of the old style fronts nad putting the mod-

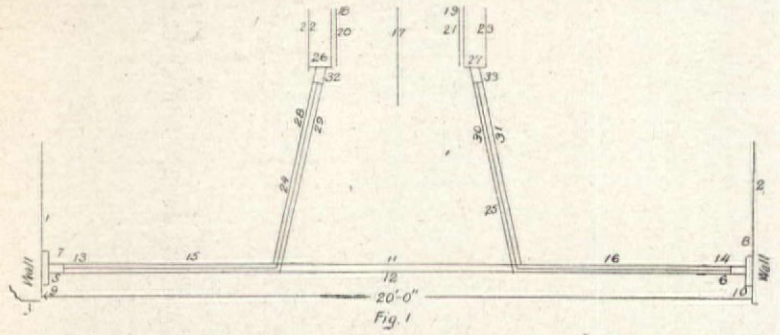


Fig. 1

ern show window fronts constitutes a separate job, that many carpenters take hold and figure this kind of work, although they attempt nothing in the regular contracting line.

To be able to make a good scale drawing of a proposed store front, showing up the several desirable features clearly so that the owner catches the idea of every part and can see just about how it will look when completed, will often mean the securing of the contract, all other things being equal.

But just how to go about making the necessary drawings when the essential figures are given is a puzzling problem for many a carpenter who has no very wide experience as a draftsman. So let us see what we would do if we got the following specifications to work into a plan and elevation for a common sized front.

Whole opening, 20 by 14 feet.

Front and recess glass to be polished plate, 72x86 inches, mitered.

Door 3 ft. 6 in. by 7 ft. 6 in., 2¼ in. thick, with plate glass, one light.

Paneled base below sash sill, 24 in. from bottom of front to bottom of plate.

Floor of recess to have 1½ in. fall.

Transom bar to be about 8 in. wide and transom to be divided into three lights.

Transom to be full width of front over the front plates.

The above specifications are enough for the purpose of making the drawing, as it does not make any difference in the lines whether the transom glass is double strength sheet, prism sheet, prism lights set in lead or copper, or if the lights are plain or beveled

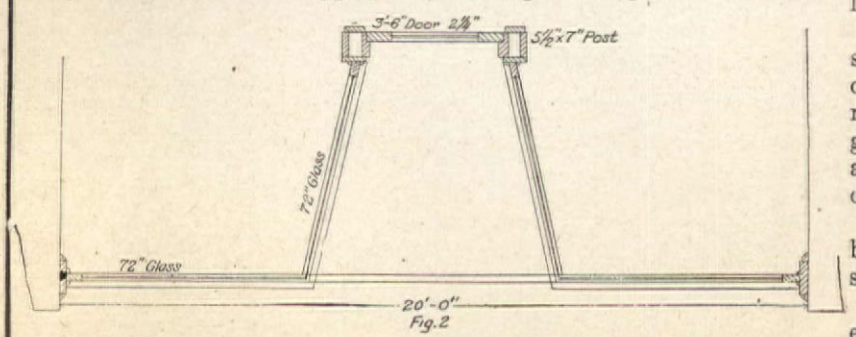


Fig. 2

plate, unless the carpenter making the drawing wishes to show how the small lights would look. It makes no difference with the woodwork, as the glass is stopped in from both sides.

Now if we are ready to begin, let us get a good smooth piece of paper, and if we cannot get hold of a sheet of detail paper, let's find something in a good heavy manilla wrapping paper, as this is about the right color and will stand lots of wear. It is not best to attempt such drawings on white paper, as they are almost sure to get so soiled that we are ashamed to show them to our customers, and at the same time dislike very much to do the work all over again.

Now get a smooth board and square it up for a drafting table if you haven't already got one, and make a T square with a tongue about 3 feet long.

Fasten your paper on the board with thumb or other tacks, being sure that it lies smoothly.

I should have said before this that the scale of 1½ inch to the foot is a very good size to use for a store front, as it works out ⅛ of an inch to every inch of the full sized work. This would make the drawing of the elevation of the store front specified, 30″ wide and 21″ high and the drawing of the plan would be 30″ wide and about 12 deep.

Now, referring to Fig. 1, we see that the lines are numbered from 1 to 33, which is as far as we can go in the first illustration without confusing the learner and making him lose track of the simplest way to draw the whole.

Lay the rule on the paper to be sure that the contemplated drawing will have enough room and to spare before beginning to draw. Now draw the first line back a convenient distance and then measure off the 20 feet to the right and draw the second line. The lines 3 and 4 make the angles of the wall and at once give the visible bounds of the work in width.

The lines 5 and 6 represent the face of the jambs outside of the store front proper, and their location back from the corner of the brick often depends upon the location of the I beams which

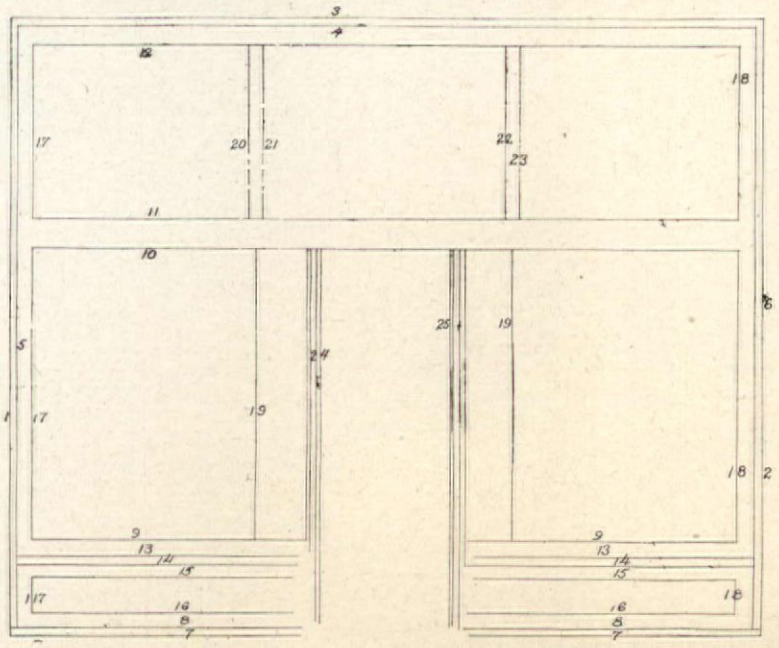


Fig. 3

support the superstructure; anyway it is necessary to locate them at the building. The short lines 7, 8, 9, and 10 complete the outlines of the jamb sections.

The two full lines 11 and 12 serve as the location for the main sash and transom of the front. 13 and 14 are the short lines which cut off the amount of width required in the stile of the sash. This may vary to suit the owner, and in this style of front may vary a good deal without having any noticeable effect upon the front as a whole, as it only makes the outside space of the recess a little more or less.

As this front shows a mitred plate glass and has no sash or bar at the angle, the lines 15 and 16 are run out 6 ft. from the sash which will be 9 inches on the drawing.

So far everything has been easy, but now we come to the hardest part of the whole task which is locating the door just far enough back so that the 72″ glass and sash will just reach the outside casing of the door post. As the door is in the middle of this front, let line 17 be the center line, and draw it lightly as also all the lines from 17 to 23 as the greater part of all of them will have to be erased before the drawing is complete. The reason these lines are drawn so long is that we cannot tell exactly where the door is to come when we draw the lines. 21 inches on either side of the center line draw the lines 18 and 19 which give the width and lateral location of the 3′ 6″ door. ½ inside of these are drawn 20 and 21 which form the door rabbet and also the inside edge of the post. 22 and 23 are drawn 5″ outside of the door line and form the opposite side of the posts.

Now returning to our mitred corners, we draw the other two glass lines 24 and 25, aiming them at the middle of the space marked off for the door posts. At the end of the 72″ we add the width of the sash and make the lines 26 and 27 which become the outer faces of the outside casings of the door posts. 28 to 31 inclusive are the sash lines for the recess lights, while 32 and 33 mark of the width of the recess sash.

We now pass to Fig. 2 which is the completed drawing of Fig. 1 and shows how the posts are developed and the door drawn into the plan. The sill lines on the outside of the sash are not drawn until the section is developed in connection with the elevation drawing, showing the width of the sill.

In Fig. 3 it will be seen that the first 6 lines serve to outline

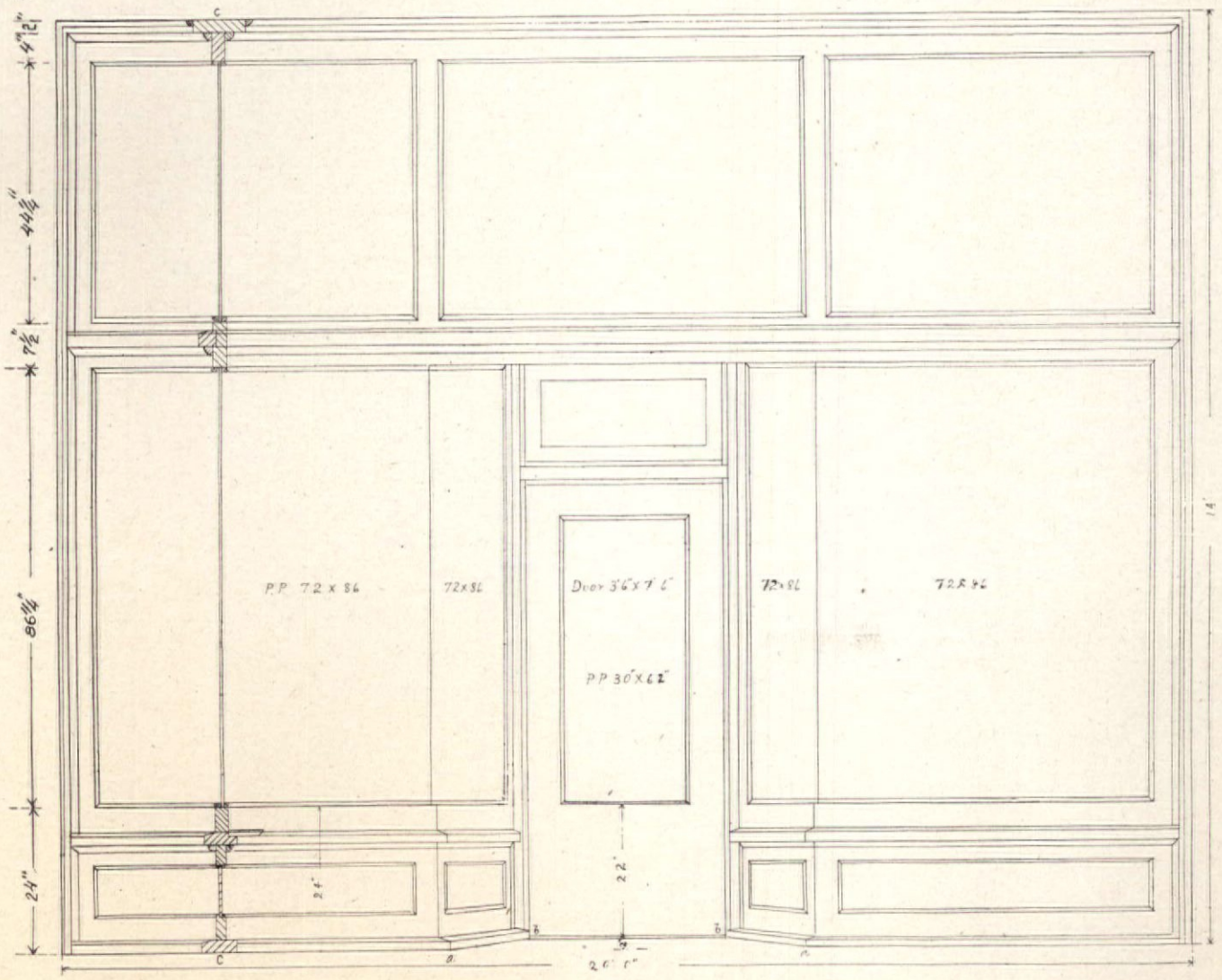


Fig. 4

jamb opening, while the next two show the lower sills. These horizontal lines are numbered the same on both sides as they are drawn with the same stroke but broken in the middle for the recess. Here too, the lines should be light to facilitate erasing, as we do not know just now where all the vertical lines will fall.

Measuring off 2 feet from the bottom, we draw 9 which is the bottom of the plate. Then going up 84¼ inches draw 10, and 7½ inches farther draw 11. As the specification calls for about 8 inches in the bar, we make it 7½ as that will work out of an 8″ plank. Coming down 4 in. from the jamb at the top, we draw the top rail of the transom in line 12. Line 13 is the bottom of the sash, 14 the bottom of the sill and 15 and 16 are the outlines of the panel in the base.

As the horizontal lines given in this figure are all drawn, it is now best to slip the drawing, Fig. 2, under the bottom of this sheet of paper, having the jamb lines coincide perfectly and the front line parallel with the base of the elevation. We are now able to square up from our plan to get all of the vertical lines without going to the bother of measuring them off. Now finish all the lines given in Fig. 3 and draw lightly the bottom part of the door post lines.

From the base line measure up 2 inches to get the bottom of the door and then drop a half-inch from that to get the floor line.

Now it is better to shift and draw in the section as shown at *c c*, or this section may be placed outside of the elevation and figures, if it is likely to be confusing to the customer through having it break into the elevation as shown in the figure. But the reason for developing it at this time is to get the projection of the sills and place them on the floor plan. From there they may be squared up to the proper place on the elevation as shown at *a a*. After having located *a* it is easy to continue the base line to *b*, which is the floor line at the door.

It is difficult to see it, but the slant of 1½ in. is divided up between the bottom rail and the panel in the recess base and looks better this way than to take it all out of the panel.

As the door plate lines up with the front plates, it makes the bottom rail 22″ wide. If the door is to be made by hand it would be better to draw in a panel at the bottom; and if the paneled base were a little higher, the door could take the same panel as the base. Allowing 6 in. for stiles and top rail outside of the glass, this will make the door plate 30″x60″.

The exact height of the transom over the door and of the glass in the large transom are usually incidentals which are determined as the drawing develops, and rarely occur except approximately in the specifications.

In Fig. 4 is given the detailed height in figures at the left, and for the large lights ¼-inch play is allowed and this is not too much.

It is very seldom that a customer will ask for further details than are shown on the plan and elevation, and as this article does not contemplate the detailing of a store front, I will not confuse the reader by showing any more than those given in the section *c. c.*

It will be understood that the elevation shown in Fig. 4 may be drawn with fewer lines by not drawing in all the stops and mouldings, and the draftsmen can use his judgment as to whether it will be wise for him to spend the extra time for this purpose.

Wherever the lines have been made light for the purpose of erasing a portion of them, the remaining part should be gone over and made of a uniform strength. Avoid using a dull pencil or one that is very hard or very soft. The hard pencil will make creases in the sheet so that the erasures will show too plainly, and the very soft pencil will smudge the paper. Try and have all the lines accurate and sharp so that the drawing will stand out like a picture, and if you don't land the job it will be a pure case of bad luck!

STAIRS AND THEIR CONSTRUCTION

Materials.—Stairs are made in stone, concrete, brick, iron, and timber; all but the latter two have been already treated.

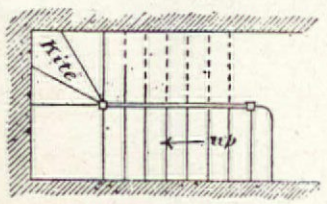
Iron Stairs.—Iron stairs are used for internal and external construction, where there is a minimum of space to be occupied, and where the least obstruction to light and air, and a measure of fire-resistance and economy are chiefly required, such as where the internal plan space is small, spiral steps are used, and for external area steps; they are not combustible, but they are slippery when worn, and are not much used for other purposes.

Planning of Stairs.—Buildings should be designed for and provided with convenient staircases, and the planning of the stairs considered as of primary, and not of secondary importance.

Design of Stairs.—Properly designed stairs should (a) be well lighted and ventilated directly from the exterior; (b) have the approaches convenient and spacious; (c) have the headroom in no case less than 7 feet measured vertically; (d) have a clear width between the strings of the straight portion of flights kept at all turns, landings, and approaches; (e) have the stairs of a convenient and easy pitch; (f) not have a landing between two adjacent flights, the center lines of which are in one straight line, with a length less than the width of the adjoining stairs; (g) have winders (if any at all) at the bottom and not at the top of a flight; (h) have not less than four steps in each flight.

The non-compliance with these conditions has resulted in numerous accidents.

Technical Terms.—Stairs.—Timber stairs or steps consist of a number of wooden blocks or casings fitted into, or resting upon inclined beams called strings and carriages, which distribute the load upon the main members of adjacent floors.



DOG-LEGGED STAIR

FIG. 1.

Staircase.—The chamber containing the stairs is usually known as the staircase.

Tread.—The upper surface of a step upon which the foot is placed.

Nosing.—The exposed edge of the tread, usually projecting and moulded.

Riser.—The face of the vertical member directly between the nosing of an upper and the back edge of the lower step.

Fliers.—Steps rectangular in plan.

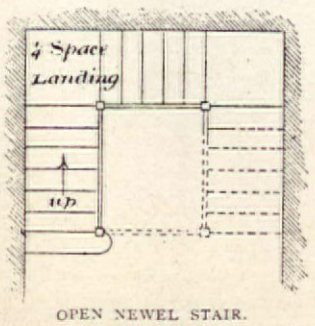
Winders.—Steps tapering in plan. Those fitting into a wall angle, as shown in Figure 1, are called kite winders.

Going.—The horizontal distance between two riser faces.

Rise.—The vertical height between two tread faces.

Flight.—A series of steps without a landing.

Landing.—The level platform at the top of a flight between floors.



OPEN NEWEL STAIR.

FIG. 2.

Half-space Landing.—A rectangular landing extending across the widths of two flights and against one edge, of which both flights abut, and on which a half turn is made.

Quarter-space Landing.—A rectangular landing, the breadth and length of which are of the dimensions of the two abutting flights, as shown in Figure 2, and on which a quarter turn is made.

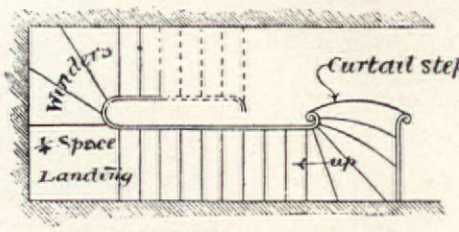
Line of Nosings.—An imaginary line parallel to the strings and tangential to the nosings. It is useful in the construction of handrails, giving the line with which the under-surface of the handrail should coincide.

Newels.—Posts forming the junction of flights of stairs with landings or other flats.

If the outline plan of newel stairs enclose a space or solid they are known as open or solid newels respectively.

Straight Stair.—Flight or flights of parallel fliers that may be seen from top to bottom, the centers of which being in the same straight line.

Open Newel.—Stairs, the turns of which have newels and enclose a well.



GEOMETRICAL STAIR.

FIG. 3.

Dog-legged Stair.—A flight of stairs with abrupt angular turns, usually about a newel, and often with winders and landing. The name is given owing to its supposed resemblance to a dog's hind leg, as shown in Figure 1.

Geometrical Stair.—Stairs having continuous strings or handrail, and usually compassing a well. Typical examples of those rectangular and circular in plan are shown in Figures 3 and 4.

Solid Newel.—Stairs radiating from a solid central newel, circular or rectangular in section.

Ramp.—A plane curve without change of direction, and occurs in handrails, as shown later, and in those parts of strings over windows and landings.

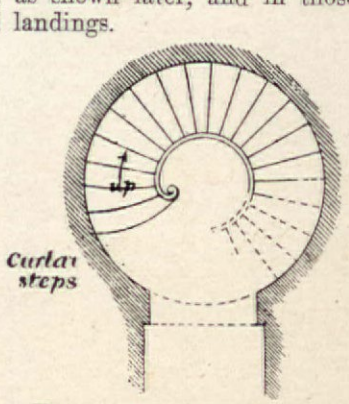


FIG. 4. CURTAIL STEPS.

Swansneck.—A plane continuous curve, such as would be formed by joining a concave with a convex ramp.

Iron Core.—The iron band about 3-16 inch to ¼ inch in thickness, used in the handrail and to which the balusters are fixed. Iron cores, are used in all stairs having iron balusters.

Balusters.—Vertical members between the handrail and strings to stiffen the handrail and prevent persons falling through.

Balusters should be tenoned to close strings and handrails, and dovetailed to the treads of cut strings, the return moulding of tread being planted, mitred, with returned end and covering the dovetail.

There are usually two balusters for each step of a cut string, and in close strings they are placed about 4 inches apart.

Balustrade.—The framed fence formed by strings, handrails, and balusters.

Curtail Step.—A step, the outer end of which follows the plan of a spiral scroll, and under which it is directly situated.

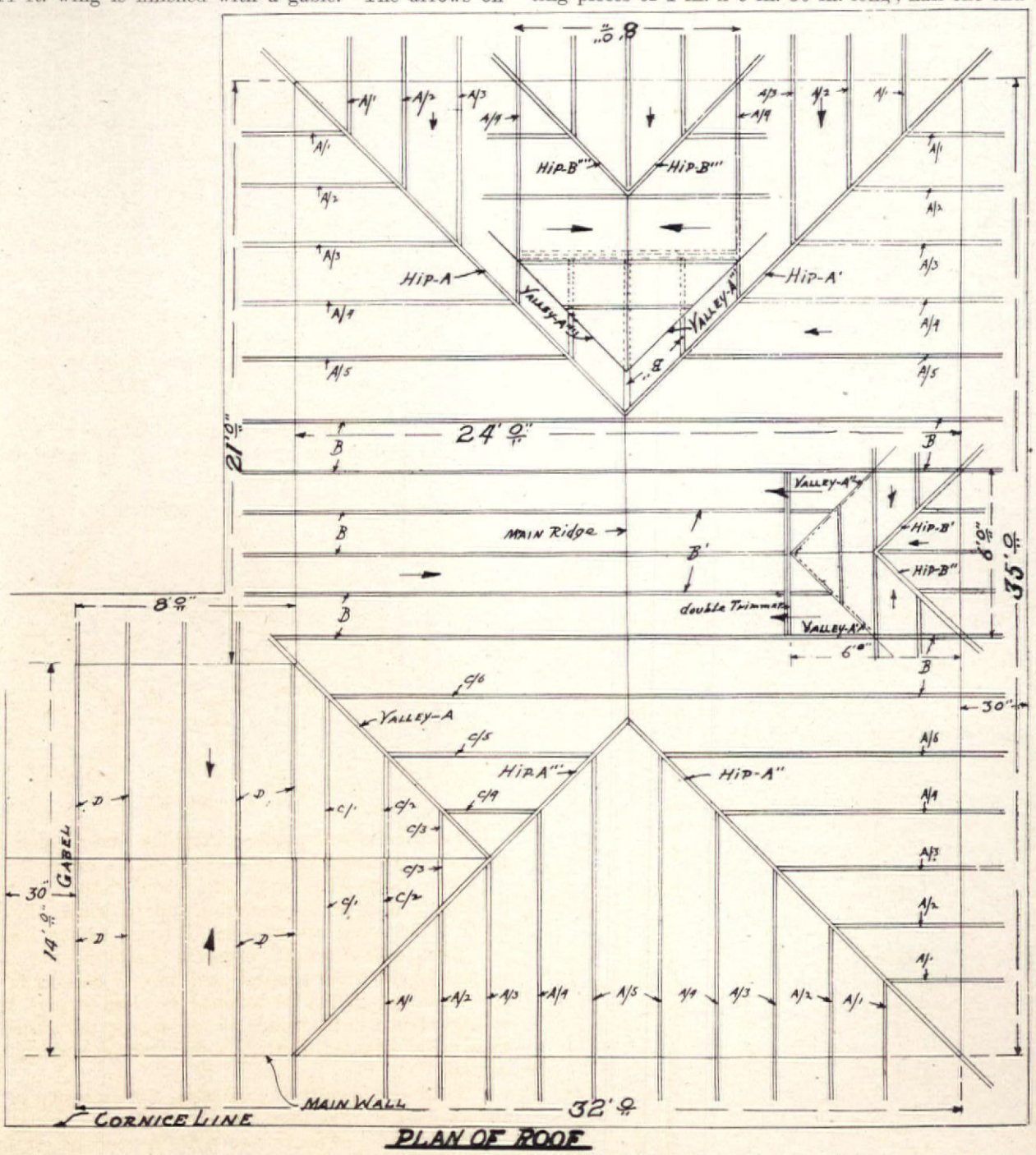
Bull-nose Step.—Steps with rounded ends, and may be quarter round, or half round.

Built-up Steps.—Wooden steps are usually built up of a number of comparatively thin casings, and dressed only on the seen faces. Each step takes a bearing on at least two or three varriages, or rough, or dressed strings, the soffit of which is plastered, or it may be boarded. The space enclosed is sometimes objected to as being unsanitary. (To be continued.)

AN EXAMPLE IN ROOF FRAMING

By WM. C. A. STEVENSON

WHILE roof framing is undergoing a period of discussion in the columns of the NATIONAL BUILDER the writer feels it to be a proper time to submit another article that seems to him to be an extra good example, inasmuch as it not only deals with the problem of finding lengths, but also with framing for a sweep at the eaves and the framing in for dormers (a question that was recently asked). The drawings show the roof plan and the elevations of the frame of the front dormer and gable. Referring to the plan of roof, we see that the main building is 24 ft. x 35 ft., which is covered with a hip roof at both ends, with an 8 ft. dormer in the front and a 6 ft. dormer in the side; these also have hip roofs and a 30 in. cornice with a sweep the same as the main roof. The 8 ft. x 14 ft. wing is finished with a gable. The arrows on



PLAN OF ROOF

later. The front dormer end and front elevation show the manner of framing. It will be noticed on the plan that jacks A/4 are set to suit the width of this dormer 8 ft. outside; the studding for the wall of the dormer being set plumb with the outside of these rafters. In this case the plates are made 5 ft. 6 in. above the main plate, the double trimmer being cut between the rafters A/4 just where the dormer plate meets the main roof, which will be found to be about 6 ft. 6 in. in from the plumb of the outside wall; rafters B'' are then cut from this trimmer to the hips in the main roof, the main roof boards being run across and the dormer cripples cut down onto the main roof boards thus forming the dormer valleys A''' A''''.

The manner of forming the sweep in the roof is done by cutting pieces of 1 in. x 6 in. 30 in. long; nail one end to the wall of the plan point in the up direction of the roof on all sides. All the rafters in the main roof are marked as follows: The four long hips are all the same length, but in order to designate any particular one of them I have marked them A, A', A'', A'''. There is only one valley in the main roof marked A, valleys A', A'', A''', and A'''' being formed by the dormers setting on the main roof. The common rafters are marked B on the main roof, and D on the wing; there are five different jacks in the main roof of which there are 3½ pair of each A/1 to A/5. The cripples are marked C/1 to C/6; hips B', B'', B''', and B'''' are on the two dormers, the jacks on the dormers I have not marked, but will discuss them

building 15 in. below the top of plate; nail it to the tail of rafter which has been left to hang over as shown. Then pieces of 2 in. x 4 in. are cut to fit on top of the rafter, nailing one end onto the rafter at the sweep line and the other end to the 1 in. x 6 in., taking care to keep the 1 in. x 6 in. lookouts level and in line. The other dormer and the main roof is formed in precisely the same manner. However, when we come to the gable over the wing we meet a different proposition. We must either build a return as shown for the gable cornice to die down on, or extend the sweep across the end as indicated by the dotted lines.

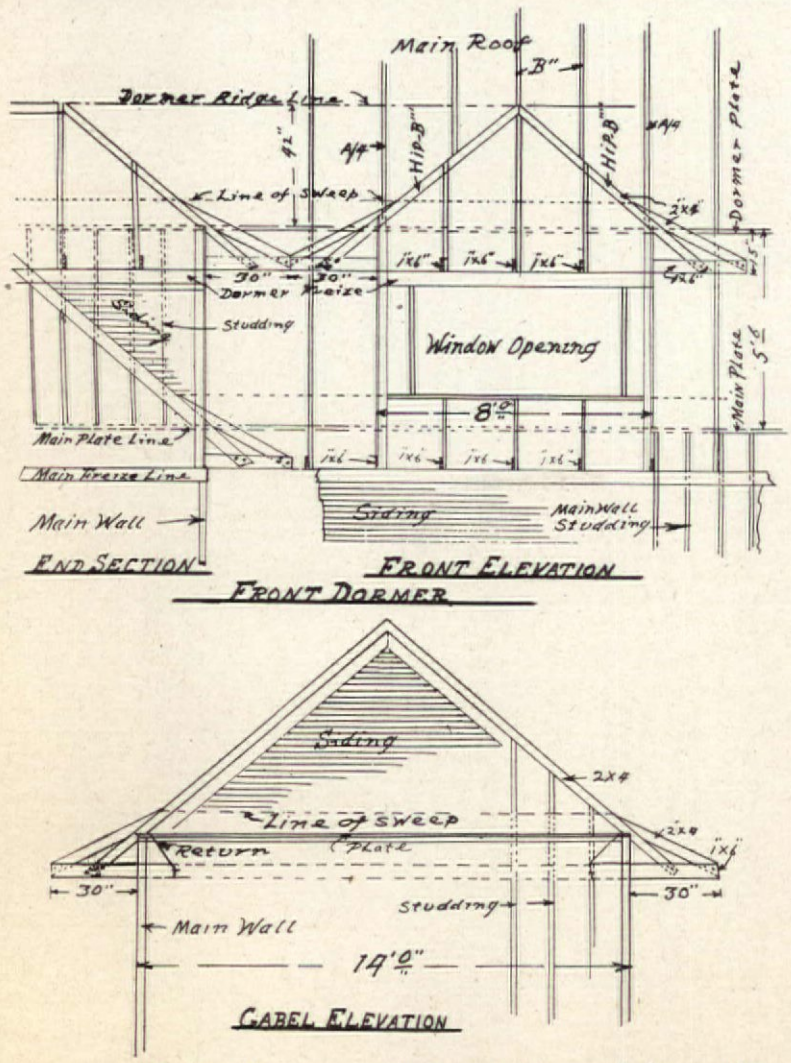
Hip A''' will only show as a hip above the point where the

valley A and the ridge of the wing intersect with it. It is extended down to the main plate in order to gain support for the roof. Cripples C/2 and C/3 and jacks A/1 and A/2 when nailed to the hip, in reality form a common D, as the reader will see by a moment's study of the plan.

PITCHES, LENGTHS AND BEVELS.

The pitch of this roof is 10 in. rise to the foot run—dormers as well. It ought not be necessary to go into this part of the question to any great length, as it was dealt with in my article in January; however, for the benefit of those who may not have that copy, I will briefly tell how to find the lengths for this roof.

For a rise of 10 in. to the foot, the length of the common is found to be 15⅝ in. to each foot of run; as the run in this case is just 12 ft. it would be 12x15⅝ equal 187½ in., or 15 ft. 7½ in. The figures 10 and 12 on the square give the foot and plumb cut. Half the thickness of the ridge must be cut from this length. The top of the main ridge will be 10 ft. plus 2 in., the portion of the rafter standing above the plate. The run of the long hips A, A′, A″, and A‴ is the square of 12 equal 17, then 17 x the rise 10 on the square 19¾ in. x 12 equal 19 ft. 9 in.; figures 10 and 17 on the square giving the bevels for the cuts. To cut the cheek cut for the hip to fit the ridge: Use the figures 13 and 15, cut on the 15 side; the first jack set 2 ft. from the corner would be 2x15⅝ in.



equal 2 ft. 7¼ in. Each one would be just that much longer than the one before it; the same figures used for the common would give the foot and plumb cut; the cheek cut to fit the hip would be found by using the figures 10 and 13 cut on the 13 side. To find the length of cripples scale the run of them on your draft and multiply by 15⅝ in. for each foot run. Example: C/4 is found to have a run of 3 ft. 6 in. x 15⅝ in. equal 54¾ in, or 4 ft. 6¾ in. long short to long point. The cheek bevels are found same as for jacks.

The commons D have a run of 7 ft. then 7x15⅝ in. equal 119⅜, or 8 ft. 9⅜ in. long, same bevels as long commons. Valley A has a run of the square of 7 or 9 11/12 in., the rise is 7 x10 equal 70 in., or 5 ft. 10 in. Then to get the length of valley A use the figures 9 11/12 and 5 10/12 on the square and we get 11 6/12 equal 11 ft. 6 in. long, same bevel as long hips, except it has no cheek cut, as it fits fair against the hip A‴. It must, however, be cut half the thickness of hip shorter than length given.

The ridge of the 6 ft. dormer will be 30 in. plus 2 in. above its plates, and the 8 ft. dormer 40 in. plus 2 in. above its plates. The hips on the 6 ft. one will be 4 ft. 11¼ in. long; on the 8 ft. one, 6 ft. 7 in. long. The bevels and lengths of jacks will be found the same as for the main roof.

It must be remembered that the figures given apply only to a roof of this pitch, 10 in. rise to the foot run.

LUMBER CALCULATION, SHORT METHODS

By E. P. HOERR

ANY man who has lumber to figure will do well to have the following table of aliquot parts. He will then be able to extend promptly and accurately lumber quantities and prices. In most cases he will find it possible to set out the correct answers with mental calculations, it not being necessary to first set down the examples on a separate paper to figure them out.

His knowledge of this table will place him in a position to figure mentally most any multiplication problem that comes before him. Then it will seem strange to him that he was not obliged to learn it "by heart" while at school.

The following table thoroughly mastered is worth many dollars to anyone:

87½	equals	⅞	of 100	37½	equals	⅜	of 100
83-1-3	equals	⅝	of 100	33 1-3	equals	1-3	of 100
75	equals	¾	of 100	25	equals	¼	of 100
66 2-3	equals	2-3	of 100	16 2-3	equals	1-6	of 100
62½	equals	⅝	of 100	12½	equals	⅛	of 100
50	equals	½	of 100	6¼	equals	1-16	of 100

After learning the table it is necessary to know how to make use of it.

Let us take first the simple figures—

You have bought 654 ft. lumber at $50.00 per thousand feet. What is the price?

If the price were $100.00 per thousand feet it would be seen at a glance that the cost of 654 feet would be $65.40. But the price is only $50.00 or one-half of $100.00, so it would be but $32.70, which is just one-half of the price it is at $100.00 per 1,000 feet. The above table says that 50 equals one-half of 100. We've first found the price at $100.00 per thousand, then taken one-half of that. That's the first rule. Find the cost at a basis of $100.00 per thousand, then take a part of it.

Let us use the same quantity at different prices:

654 feet of lumber at $25.00 per M. equals ¼ of $65.40; 16.35
654 feet of lumber at $12.50 per M. equals ⅛ of $65.40; 8.17
654 feet of lumber at $87.50 per M. equals ⅞ of $65.40; 57.22
654 feet of lumber at $75.00 per M. equals ¾ of $65.40; 49.05

As you can use the table at various prices—say at $62.50 per M, it would be ⅝ of the price at $100.00 per M; at $37.50 M, it would be ⅜ of the price at $100.00 per M.

Now let us use the above table in a different way. Let us figure up a list of lumber quantities at various prices.

Two hundred and fifty feet at $37.50 per M.

You have here the price per M. feet and before setting down figures to multiply in the long way notice that 250 feet is just one-quarter of a thousand feet; so the price would be just one-quarter of what the thousand feet price is—i. e., ¼ of $37.50 equals $9.37.

Three hundred and seventy-five feet at $24.00 per M.

Remember the table; 37½ equals ⅜ of 100; so 375 feet would be ⅜ of a thousand feet—thus ⅜ of a thousand feet at $24.00 per M. would be $9.00.

Seven hundred and fifty feet at $36.00 per M.

This would be ¾ of a thousand at $36.00 per M. or $27.00.

One hundred and twenty-five feet at $48.00 per M.

Would be ⅛ of a thousand at $48.00, or $6.00.

Eight hundred and thirty-three feet at $36.00 per M.

Would be 5-6 of a thousand at $36.00, or $30.00.

Now it must not be thought that each and every number extension can be so easily figured. It will be found though that much time can be saved in using this method, and the whole secret is in knowing this table here given.

You have often seen men calculate quietly, and it is only because they use rules such as these.

Seven hundred and fifty feet at $75.00 per M.

This can be figured by the two methods explained above. First by saying that 750 feet at $100.00 per M. would be $75.00, and that 75 is ¾ of $75.00, or $56.25.

Or you can say that 750 feet is ¾ of a thousand feet at $75.00 per M, getting the same answer, or $56.25.

ADVICE TO ASPIRING CONTRACTORS

By. CHAS. ANDERSON (Concluded from March.)

IN my article in the March number, a brief synopsis was given for keeping accounts; herewith I will endeavor to give a few hints on estimating and keeping the cost of the job.

It is not my purpose to give any lesson in estimating at this time, as space will not permit; in fact, it is too wide a subject to deal with in the brief space allotted (better secure a copy of Hodgson's Estimator and Contractors' Guide, or some other good work of which there are several in the field), but rather to show the importance of making the estimate and the manner of making it, etc.

The specimen estimate sheet illustrated herewith is a good example and shows how it should be made out. The Colonial shingled house published in the March number is taken as an example. The lumber bill only is shown here; but, of course, the whole list of the entire job should be made out.

ESTIMATE SHEET

ESTIMATE FOR Residence FOR name here NAME OF CUSTOMER

ESTIMATE No. ____ LOCATION st & no here

DATE PLANS AND SPECIFICATIONS MADE BY

PIECES	SIZE	LENGTH	MAT.	ARTICLE	Ft. BM	PRICE	$	¢
2	4/6	22	Y.P.	Sills	88			
4	4/6	14	"	do	112			
1	6/8	14	"	Girder	56			
1	6/8	12	"	do	48			
8	2/4	14	"	For Coal bins	72			
19	2/8	22	"	Floor joist	651			
25	2/8	20	"	" "	675			
96	2/4	18	"	outside studdg	1152			
12	2/4	12	"	Gable do	96			
100	2/4	16	"	Part & plates	1100			
40	2/4	14	"	Roof	360			
14	2/6	10	"	Porch joist	140			
14	2/4	12	"	" Ridge	126			
14	2/4	16	"	" Roof	154			
22	2/4	20	"	Ceiling joist	286			
10	1/4	12	"	bridging	40			
20	1/6	12	"	Braces &c	240			
10	2/2	16	"	Furring	55			
	Total framing Lumber				5351	@ $27.00	144	47
	1/8	Rand.	Y.P.	Shiplap D4S.	3100	27.00	83	70
	1/6	"	"	Roofing D.2S.	940	27.00	25	38
36 M			R.C.	Shingles		4.75	171	00
138	1/10	2 D4S.	O.P.	Cornice & Porch	115			
100	1/6	"	"	" "	50			
250	1/4	"	"	" "	84	$ 50.00	20	15
80	1/8	"	"	" "	53			
80	1/8/12	"	"	" "	100			
	1/4	19	W.P.	Flg	175	$ 50.00	8	75
	5/8/4	14	Y.P.	Ceiling	175	.30 ¢	5	25
	7/8/2/4	Rand.	Oak	Flg in Lite	1460	45 ¢	65	70
100	1/12 2 D4S		Y.P.	Skirting	100	50 ¢	5	00
				Total Lumber bill			$ 529	40

WORKMANS TIME CARD

NAME HERE ____ CONTRACTOR

FOR WEEK ENDING SAT. ____ 191

NAME OF WORKMAN ____ OCCUPATION ____

TIME ON JOB No. ____ OWNER ____

	HOURS	STATE HERE WHAT DOING
MON		
TUE		
WED		
THU		
FRI		
SAT		
TOTAL	RATE	AMOUNT $ ¢

REC'D PAYMENT ____ WORKMANS SIGNATURE

THE WORKMAN WILL STATE ON SPACE BELOW AND OVER SIDE. ANY MATERIALS TAKEN TO JOB BY HIM NOT OTHERWISE ACCOUNTED FOR

Keep each list separate, that is the lumber bill on one sheet, mill work on another, etc., etc. The object for this is, so that you can hand a copy of each separate sheet to the men in that particular line to get their figures without having to give them something they do not figure on. You should make as many copies at the one time as you will require to hand out for figures and two for yourself; these can be made by using carbon paper and they will all be exactly alike. When making these out do not put the prices on as shown on the specimen here, but carry these out on one only afterward to file away for your own private information; the other one made for yourself is to carry with you in case you secure the job; this will be found to save considerable trouble, as it will show you what each item was figured for. Without such to guide you or your foreman, materials are very liable to be used in the wrong place, causing a waste of materials, confusion and loss of time.

You should number your estimates and number the job if secured to correspond to it. By filing away these sheets they will be found to be of considerable help in figuring on future jobs, and also if some items run over or under the estimate you will be able to correct the error on the next job.

THE COST KEEPING.

In the writer's opinion, one of the most important considerations of all is the keeping the cost of the job, as unless you do so you do not know how you have come out. Many a man has continued losing on job after job and finds it out too late to save himself from ruin, whereas if he had kept account and found he was running behind he might have been able to redeem himself.

The specimen time card shown herewith will be found to minimize the labor very materially in keeping account of the cost. See that each workman keeps his time on the card for the work done on the job during the week. If he has worked on more than one job then he must make out a card for the time on each; also, if he has taken any materials to the job from stock he must enter it on the card in the space allotted for that purpose.

By filing all these cards together for each job and also the other material bills, etc. chargeable to the job, it is no trouble to figure by just totaling up all the bills and cards what the job has cost, and also how it was divided up, i. e., how much labor, etc. By crediting any materials that may be left you can easily tell what you have made on the job.

Never put in a 20 horse-power motor and expect to take off 30 horse-power all the time. It can be done for a time, but it does not pay in the end, and is expensive for both armature and field winding and for current. In laying down belt transmissions, or, in fact, transmissions of any kind, it is important not to increase the speed of shafts or machines unnecessarily.

A BUILDER'S COURSE IN ARCHITECTURAL DRAWING.

RALPH F. WINDOES.

(Continued from March.)

AS we observed in the study of orthographic projection, three views are generally necessary to properly show the shape and dimensions of an object. But these views do not clearly show the appearance the object would have after it had been constructed, so we sometimes resort to another method of pictorial representation to show this appearance. There are three general methods in use; perspective, isometric projection and oblique projection. This latter is sometimes known as cabinet projection. Perspective is the most difficult to master, and later on an article will be devoted to it, but at present the other two will concern us.

Isometric projection. Besides showing the shape of an object, isometric projection sometimes gives the dimensions, as all lines are drawn full size. Often it gives the object in the drawing a distorted appearance as it makes parts of it look larger than they are in reality. For an explanation of the principles governing this projection, let us consult Plate VIII.

PLATE VIII.—ISOMETRIC PROJECTION.

In Fig. A we have the isometric axes, *a* being a *vertical* line, *b* and *c* lines at an angle of 30 degrees with the horizontal. These axes represent lines mutually perpendicular to each other, and correspond to the three dimensions, length, breadth and height. In Fig. B we have the isometric of a cube. Here we find that the edges are drawn in three fixed directions, respectively parallel to the isometric axes. All of them are in their full length and are either vertical or at an angle of 30 degrees to the horizontal. The view taken is in the direction of the diagonal of the cube, as indicated by the arrow in Fig. C, which is the top view of the cube. The isometric view is always taken in this direction. Note that while all the edges are in their true lengths, the angles are not shown in their true size, right angles being represented at 60 or 120 degrees. Isometric projection the direction of the ray of light is 30 degrees downward to the right, instead of 45 degrees as in orthographic. The shade lines are supposed to divide the light from the shade surfaces, hence the positions of these lines on the plate.

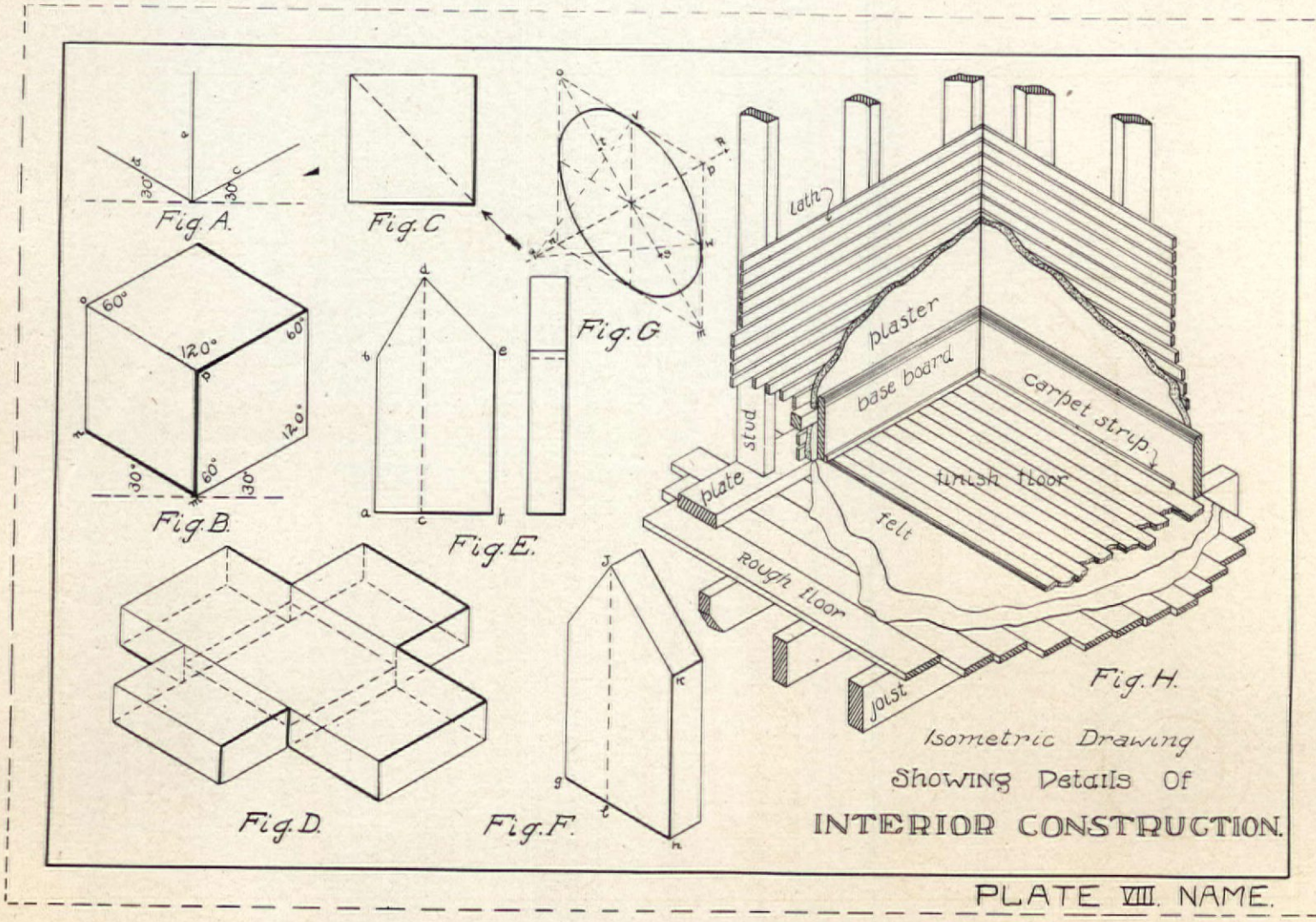


PLATE VIII. NAME.

A simple example of these principles is given in Fig. D, where we have the isometric view of a half-lap joint.

Non-isometric lines are those which cannot be drawn parallel to the isometric axes. This classification includes lines that are neither vertical nor horizontal and also curves.

In Fig. E we have an object, two of whose edges *bd* and *ed*, are oblique. In the isometric view they cannot be parallel to the isometric axes, hence we have to locate them by co-ordinates. To do this, draw the vertical dotted line *cd*. Start Fig. E by drawing the base *gh* equal to *af*. Draw the verticals *gi* and *hk* equal respectively to *ab* and *fe*. Lay off *gl* equal to *ac* and draw the dotted vertical *lj* equal to *cd*. Connect *i* and *j* and *k* and *j*, and complete the figure by drawing in the side. In a way similar to this, any oblique lines can be drawn in isometric.

In an isometric drawing a circle takes the form of an ellipse. It is projected on one of the planes of Fig. B, in this case we have taken *m. n, o, p.* Theellipse is drawn from four centers, *q, r, s, t.*

To locate centers *s* and *t*, lay off *ms* and *ot* equal to *ob*. To locate centers *q* and *r*, lay off *qw* and *qv* equal to *mp*. This locates center *q*. Lay off *rx* equal to *qx* and the fourth center is found. The ellipse drawn is not tangent to the sides, but the error is very slight and can hardly be detected.

Fig. H gives a practical application of the principles and should be drawn with extreme care by the student. It gives the interior details of the framing and finish of a house, and is the sort of work that draftsmen are sometimes called upon to do.

In this plate no dimensions are given for the student to work by, but he should make his figures large enough to balance the spacing on the plate.

PLATE IX.—OBLIQUE PROJECTION.

The oblique axes, as observed in Fig. A, are vertical, horizontal and at an angle of 45 degrees. This angle may be made enther 30, 45 or 60 degrees, but the 45 degree line gives the better appearance to the drawing. If the edges of the object to be drawn are at right angles to each other, they are drawn in parallel to the oblique axes, the same as in isometric drawing, and in their true lengths.

Fig. B is the oblique drawing of a cube, and is constructed under the above principles. The shade lines have the same general position as in isometric drawing, the top, front and left-hand edges being light.

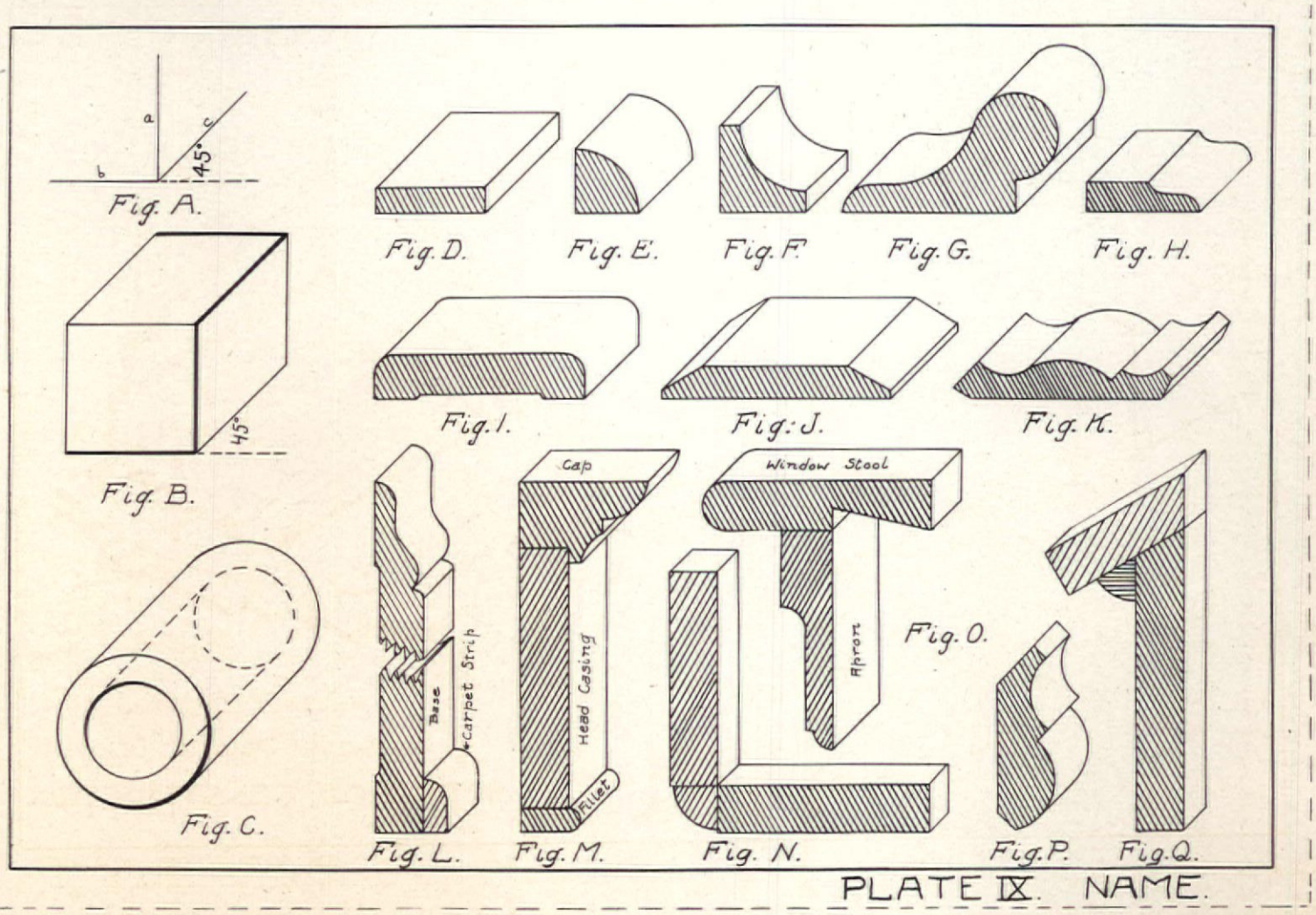
In Fig. C is illustrated one of the principle advantages of oblique over isometric drawing. It represents a hollow cylinder and it is observed that the faces are true circles, whereas in isometric they are ellipses.

The next fourteen figures represent work that draftsmen are very often called upon to perform. They show sections of mouldings, etc., that are sometimes given as details on a set of house plans. Whenever they are so given, they are drawn in full size, so it would be well for the student to draw them in full size. Two sheets will be needed to do this properly, from Fig. A through Fig. K on one sheet and the balance on another. In the drawing here given no particular scale has been used. Shade lines have also been omitted from the details, this being left for the student to do. The parallel lines close together are known as section lines, and are used to show that the piece is viewed from the end. This end face is drawn in full size with vertical and horizontal lines, and then the lines at 45 degrees are added to it, giving it the appearance of having length.

The pieces represented by the figures are:

Fig. D. Parting stop.
Fig. E. Quarter round.
Fig. F. Quarter cove.
Fig. G. Picture moulding.
Fig. H. Window and door stop.
Fig. I. Casing.
Fig. K. Crown moulding.
Fig. L. Base with carpet strip.
Fig. M. Head casing with cap and fillet.
Fig. N. Corner board with quarter round.
Fig. O. Window stool with apron.
Fig. P. Bed mould.
Fig. Q. Water table.

(To be continued.)



TELEPHONES IN THE UNITED STATES

THE United States leads the world in its intelligent use of the telephone. It has eight instruments to every 100 inhabitants, and no other country uses half so many. Herbert N. Casson, in the Electrical Review and Western Electrician, says that Germany has as many telephones as the State of New York, and Great Britain as many as the State of Ohio. Chicago has more than London, and Boston twice as many as Paris. In the whole of Europe, with her twenty nations, there are but one-third as many telephones as in the United States. In proportion to her population, Europe has but one-thirteenth as many.

The average European family sends three telegrams a year, and three letters and one telephone message a week, while the average American family sends five telegrams a year, and seven letters and eleven telephone messages a week. The United States, owns 6 per cent of the earth, and is 5 per cent of the human race, has 70 per cent of the telephones in use in the world.

OUR READERS' PAGES

[The Editor does not hold himself responsible for the opinion of correspondents. Short, crisp letters will be appreciated. To insure publication, the name and address of the writer must accompany the communication, not necessarily for publication. Sketches of work or methods will receive our earnest attention. These columns are open to our readers at all times without cnarge, and any questions or experiences will be given proper space.—Editor.]

ANSWERS

CLEANING OFF CEMENT.

From H. W. C., Detroit, Mich.

In answer to G. W., Buffalo, N. Y. Cement may be cleaned off a rough faced brick by scraping or friction—not otherwise, without the use of muriatic acid.

A PITCH OR TAR ROOF.

From "J. P. C.," Clinton, Ill.

In reply to "C. G. W." of Rome, N. Y.—If he will take six gallons of pitch or coal tar, and mix with it one and one-half gallons of gasoline, and stir up good, then apply, and properly sand, he will have a cheap, durable, and effective roof. This amount will cover about two squares.

PAINTING SHINGLES.

From "B. O. T.," Spokane, Wash.

In answer to Michael J., Green Bay, Wis., in regard to painting shingle roofs, in this state where we have a wet and dry season, I have had some repair jobs on cedar shingle roofs that have been painted. I find that at the end of each shingle the paint line is just a little higher than the shingle under, which has a tendency to hold the water that drains between the shingles, and as there is no way for the water to pass over this line, it therefore goes into the wood and stains can be seen on the under side of the shingle, unless the roof be very steep. Many of our architects specify stain, using the common creosote stain, but the shingles are dipped before laying, which gives the stain an even surface for more than two-thirds the length, and makes a lasting and perfect exposed surface. I have found old roofs not painted, made of cedar shingles that were perfectly sound and waterproof.

NAILS FOR COPPER ROOF.

From "A. S.," Milford, Conn.

Answering H. R., New Orleans, La., I may say from long experience that I have found galvanic action has no direct bad effect on copper, but would have on the nails that hold the copper. As a matter of fact, the union of zinc and iron in galvanized nails, is not sufficiently strong to withstand the unequal expansion of the two metals, and the zinc coating gradually peels off, which exposes the iron to a more rapid corrosion, by the chemical action of the electro change produced. Herein lies the dangerous influence of the galvanic action on the zinc coating of the nails. When copper is used for roofing or for similar purposes, only copper nails should be used.

ARCHITECTURAL DRAWING.

From "M. C.," Spokane, Wash.

If "S. S." of Lagrange, Ind., is a regular reader of THE NATIONAL BUILDER, he must have read a whole lot of good things—instructive ones, regarding "Architectural Drawing." There is a series of excellent drawing lessons which are ample in themselves to show how to draw for ordinary work. These articles are quite clear and easy to understand. If S. S. subscribed for another or two building papers, or purchased a few of Hodgson's books on drawing and architecture, the investment would bring him in good results. Knowledge, like everything else, can not be obtained without an expenditure of either money or experience. I have always found it so and guess everybody else has too. "There is no royal road to either learning or wealth."

DRAFTSMANSHIP.

From "J. A. B.," Lake Magantic.

If S. S., Lagrange, Ind., would take a series of lessons from F. B. Dobe, who advertises in your paper, or take a course in either "The American Correspondence School of Chicago," or "The International School of Correspondence," Scranton, Pa., he will soon learn to become a good draftsman. This is what I did, and I am considered a pretty fair draftsman.

BOARD COVERING.

From "M. E. M.," Topeka, Kans.

I have taken your really good paper for years and derived much benefit from it. In answer to "J. B. R.," Palestine, Texas, I may say I have used "Beaver Board," in damp, as well as dry places, and it does equally well in either case. For damp, it requires closer nailing than in drier places, and must be drawn as tight as possible. I have never had any complaint about it.

QUESTIONS

CURING WARPED DOORS.

From "Aug. G. S.," Centralia, Ill.

Having been a reader of THE NATIONAL BUILDER, for a number of years, would like to ask if any of the readers could tell me how to straighten out doors that have drawn in from the stop, or twisted? The door in question is an inside door 2½ ft. x 7½ ft. 1⅜ in. Warp caused by a heating stove standing near. Had it in press for several days, but of no avail. Would be thankful for any reliable and inexpensive remedy?

COVERING UP A DOOR OPENING.

From "H. J. E.," Lackawanna, N. Y.

I would like to have some of the readers of our journal tell me the best way to put a door, or perhaps a roller curtain, in a grille opening between parlor and front stair hall? Size of opening 3 ft. 6 in. x 6 ft. 10 in., without grille. There are times when we would like this opening closed, and a door of this size would be a nuisance.

From "Slivers," Flushing, N. Y.

Will some "Chip," who knows all about it, publish in this department the proper figures to use on the "square" for obtaining the "side cuts" to fit against a "hip rafter" having unequal pitched roof; also how to find the lengths and cuts or bevels of common rafters without going to the trouble of making a draft? Suggestions of any kind along these lines will be appreciated very much.

REFRIGERATOR OF BRICK.

From "J. F. E.," McKenny, Va.

I want to build a small refrigerator of brick, 3x6x6 feet, and would like some advice on the matter. I would like to know more particularly how to prevent the walls from sweating on the inside? Any information on this subject will be thankfully received.

BEAM CEILINGS AND PANEL WORK.

From "John L. P.," Waupon, Wis.

I should be very much gratified if you would occasionally ask some of your subscribers to send you for publication some design for wood beam and panel ceilings, dining-room furniture, buffets, hall seats, settees, and other "odds and ends," that a good "carpenter" should be able to make for his own home?

CURVED CONCRETE WORK.

From "W. H. P.," Miltonvalle, Kans.

Would like very much if some reader would explain how to prepare the forms for making cement circular steps and other curved concrete work?

ROOFS AND STAIRS.

From "J. A. B.," Lake Megantic.

I am obliged for the nice and instructive answers to my questions. I am a constant subscriber, and have received a great deal of good from the paper. Just now I am studying roof and stairs,

and would like to see something more on these subjects, for I am sure others, as well as myself would appreciate such instructions.

DEADENING WALLS.

From "Fred T.," Flint, Mich.

I am an old reader of your "good paper," and go to you for advice. I wish to "deaden" a wall in a double house. We have now two partitions, with a space of two inches between the studding, leaving a hollow of that much, with deadening felt between, but it does not work well, as sound passes through. Will some reader help me out or explain and oblige?

ESTIMATING.

From "H. H. H.," Roanoke, Va.

For years I have bought all my books from you, and have been a regular subscriber to your paper for a long time, and have learned many good things from its pages, and expect to gather much more information from it, as time progresses. Just now I would like a few pointers on the method employed for estimating excavating, and if you, or some kind reader would work out the following details for me, I think I would be able to work similar matter out without outside help?

Excavating—For a cellar: 10 ft. deep, 30 ft. wide, 50 ft. long. Brick wall for a building 30 ft. wide, 50 ft. long, 19 ft. high. Weather-board for frame house 30 ft. wide, 50 ft. long, 19 ft. high.

To estimate flooring: 30 ft. wide, 50 ft. long.

After this is done, I can see a clear way with this little aid, and a little more of your help, and I thank you in advance.

H. H. H.

DEADENING FLOORS.

From "H. G. M.," West Homestead, Pa.

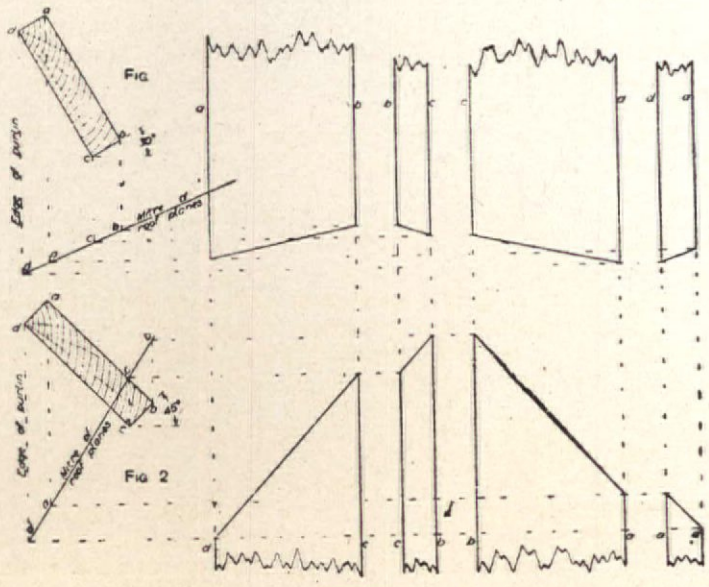
I would be thankful to any reader who would kindly describe an effective method of deadening floors in a three-story apartment building to be constructed of brick? Any suggestions will be appreciated.

OUR PRACTICAL COLUMN

BEVELS FOR HIPS AND PURLINS.

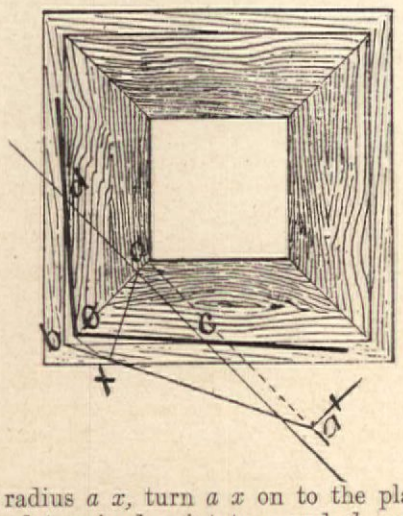
The bevels for the purlin shown in the Fig. mentioned are for an ordinary 45-degrees mitre. The angles of the cuts given by this method are as follows: Fig. 1 shows the bevels for the purlin marked on diagram. Fig. 1, p. 128, and Fig. 2 shows the bevels for the purlin at hipped end that meets the latter.

FIG. 1.



BEVELS FOR MITREING HOPPERS.

The shaded portion shows the plan of the hopper, *a b* being the plan of the mitre. At any point in the plan draw *c a* at right angles to it. Through the same point draw a line at right angles to the true length of the mitre, which is shown at *b* a^1. With *a*



as center, and radius *a x*, turn *a x* on to the plan of the mitre. Join the newly determined point to *c* and *d*, and the contained angle θ is the true angle at the corner of the hopper, and half this angle will be the mitre.

ROOFING SLATE

Table of Sizes and Number of Slates in One Square (100 Square Feet) of Roof

Size in Inches	No. of Slate in a Square	Size in Inches	No. of Slate in a Square	Size in Inches	No. of Slate in a Square	Size in Inches	No. of Slate in a Square
6x12	533	9x14	291	10x18	192	11x22	137
7x12	457	10x14	261	11x18	174	12x22	126
8x12	400	12x14	218	12x18	160	14x22	108
9x12	355	8x16	277	14x18	137	12x24	114
10x12	320	9x16	246	10x20	169	14x24	98
12x12	266	10x16	221	11x20	154	16x24	86
7x14	374	12x16	185	12x20	141	14x26	89
8x14	327	9x18	213	14x20	121	16x26	78

A square of slate is roughly estimated at from 600 to 700 pounds per square, varying according to the thickness of the different makes.

Weight Per Square Foot

Thickness	1/8	3/16	1/4	3/8	1/2	5/8	3/4	1
Weight	1.81	2.71	3.62	5.43	7.25	9.06	10.87	14.5 lbs.

Weight per cubic foot, 174 pounds

On account of laps, it takes an average of about 2½ **square feet** of slate to make one of slating.

PINE SHINGLES

Number and Weight of Pine Shingles to Cover One Square (100 Square Feet) of Roof.

Table based on 4 inch width. For other widths multiply given number by 4 and divide by the width.

Number of inches exposed to weather.	4	4½	5	5½	6
Number of shingles per square of roof.	900	800	720	655	600
Weight in pounds of shingles on one square of roof.	216	192	173	157	14

The number of shingles per square is for common gable roofs. For hip roofs add 5% to these figures. The weights per square are based on the number per square. Shingles come 250 to the bundle. 4-inch shingles weigh 240 pounds to 1,000.

SKYLIGHT GLASS

The Weights of Various Sizes and Thicknesses of Fluted or Plate Glass Required For One Square (100 Square Feet) of Roof

Dimensions in inches	12 x 48	15 x 60	20 x 100	94 x 156
Thicknesses in inches	3/16	1/4	3/8	1/2
Area in square feet	3,997	6,246	13,880	101,768
Weight in pounds per square of roof	250	350	500	700

No allowance is made for lap in above table.

NUMBER BRICK REQUIRED TO CONSTRUCT ANY BUILDING

(Reckoning 7 Bricks to Each Superficial Foot)

Superficial Feet of Wall	Number of Bricks to Thickness of				
	4 inch	8 inch	12 inch	16 inch	20 inch
1	7	15	23	30	38
2	15	30	45	60	75
3	23	45	68	90	113
4	30	60	90	120	150
5	38	75	113	150	188
6	45	90	135	180	225
7	53	105	158	210	263
8	60	120	180	240	300
9	68	135	203	270	338
10	75	150	225	300	375
20	150	300	450	600	750
30	225	450	675	900	1,125
40	300	600	900	1,200	1,500
50	375	750	1,125	1,500	1,875
60	450	900	1,350	1,800	2,250
70	525	1,050	1,575	2,100	2,625
80	600	1,200	1,800	2,400	3,000
90	675	1,350	2,025	2,700	3,375
100	750	1,500	2,250	3,000	3,750

HIP RAFTERS FOR CURVED MANSARD ROOFS.

Draw an elevation, say an inch and a half to the foot, of the side rib, perpendicular stud and outlooker. Strike the concave of the side rib, as shown by A B in the accompanying sketch. (Fig. 1.)

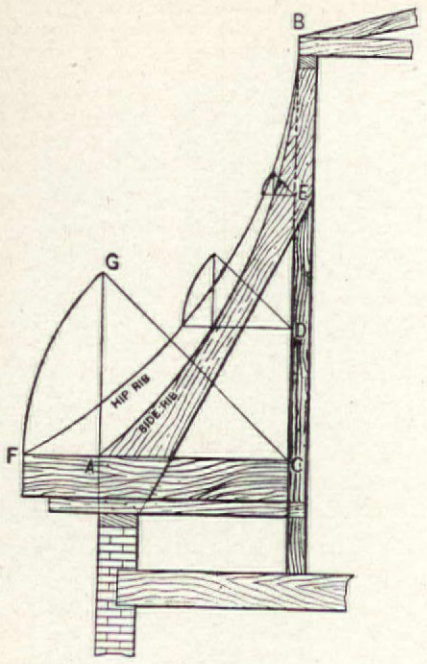


FIG. 1.

Divide the line of perpendicular stud B C into any number of equal spaces—in this case three, as indicated by E D C. From each of the points thus obtained and at right angles to B C, draw lines indefinitely, as shown by C F, cutting B A as indicated. From the point of intersection of each of these lines erect a perpendicular, as shown by A G, making A G equal to A C. Connect G and C; then from C as center, with C G as radius, describe arcs as indicated by G, just intersecting C F in the point F; then F will be the point in the curve of the hip rib on the line F C. In like manner obtain other points upon the several division lines set off from B C. Then a line traced through the points thus obtained, as indicated by B F, will be the curve of the hip rib.

ANOTHER METHOD.

Let A B, Fig. 2, be the seat of the given rib E, standing square with the building. Let C D in the plan be the seat of the angle rib. By laying off the thickness of the angle rib on the plan, as shown by the lines parallel to C D, operations to be explained further on will be more clearly understood. From any point on the top edge of the given rib E, as indicated by *a a*, etc., draw lines perpendicular to A B, intersecting the center line of the seat of the angle rib, as indicated by C b^2 b^2 b^2 and D, from which points erect lines perpendicular to C D, producing them indefinitely. Upon these lines erect perpendicularly to the seat of the angle rib C D, set off distances corresponding to the height of similar points measured upon like lines from A B to the edge of the given rib E, or, in other words, make D *e* equal B a^1, and each of the several spaces b^2 *b* equal to a^2 *a*. Through the points *b b b*, etc., trace the form of the upper edge of the angle rib in like manner. By setting off on the lines perpendicular to C D spaces equal to the distance from A B to the under side of the given rib E, as indicated by the points b^1 b^1 b^1, etc., the under line of the hip rib may be developed. Of course, it is not necessary to be so particular about the lower edge in a case of this kind, but the two edges may be obtained in one operation if desired.

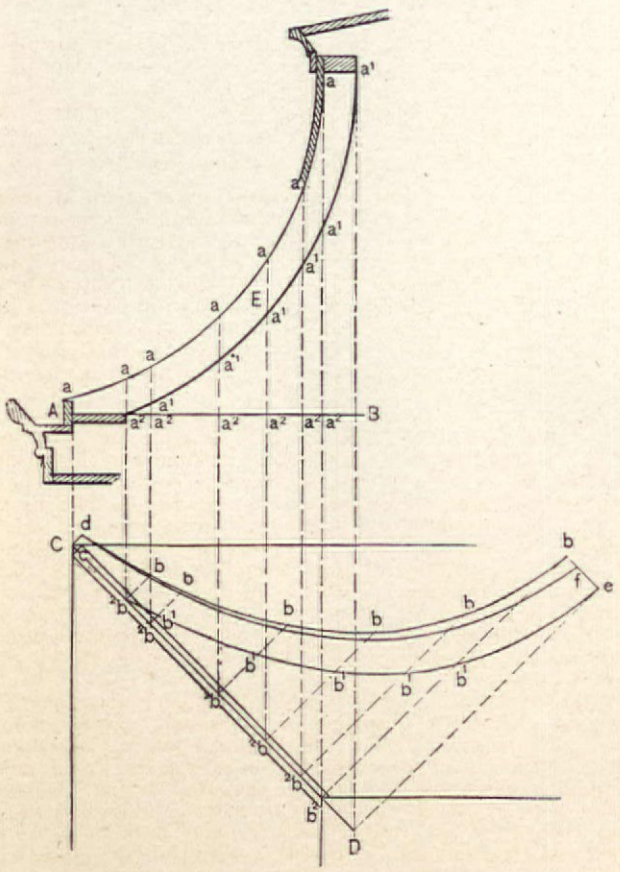
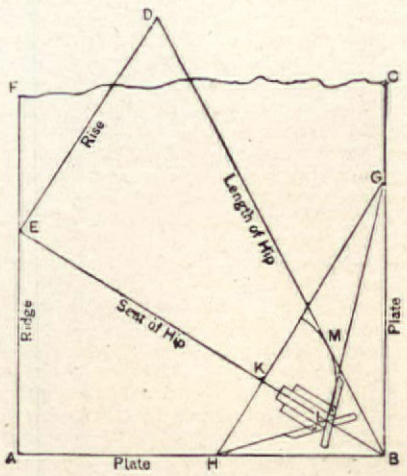


FIG. 2.

To back the angle rib, slide one rib on top of the other from C to *c* at the root, and from *b* to *f* at the top, making the space from *b* to *f* equal to C *c*, and mark the line *a f*. Reverse the ribs. and mark the other side in the same manner; then trace each side from the lines thus obtained to the center line on the edge of the rib; thus will give the required backing.

A HIP ROOF.

In the accompanying sketch let A B C represent the plates of a roof. Let A F represent the ridge of a roof. Let B E represent the seat of hip rafter, E D the rise of roof, and consequently D B the length of hip rafter. Draw G H at right angles



to B E; then, with K as center, find the radius of a circle that will touch the line B D, as shown at M. Make K L equal to that radius, and join L G and L H; then L G will be one and K L H will be the other bevel for backing the hip.

SCREWS IN SOFT WOOD.

The hinges of boxes, especially very small ones, frequently break loose on account of the small size of the screw, which easily pulls out of the wood. Consequently it is often very difficult to repair an article of this kind. Even experienced cabinet makers and others who work upon fancy articles find difficulty in making the screws hold. If the screw hole is not too badly broken out, the hinge may be taken off entirely, some thick glue made, and the hole filled with it. The screws are then immersed in the glue, the hinge put in place, and the screws driven home as quickly as possible. When the glue hardens, the screw will be held fast even in soft wood. If the screw hole is deep and glue is not at hand, an easier way is to heat the screw until it is hot enough to melt rosin. A little rosin is then put on so as to fill up the threads, and the screw is then quickly put into the hole and driven home. The rosin melting upon the screw, and being forced into the wood, makes a very strong and durable cement, which holds the screw firmly in its place. In this way fancy articles can easily be repaired, and often will be stronger than when they left the manufacturer's hands. These directions are especially applicable to screws which are driven into pine and softer woods.

BOOK NOTICES

(Notice.—All books noticed in these columns may be obtained from this office at publishers' prices. All postage or express prepaid. Money and address must accompany all orders.)

GARAGES AND MOTOR BOAT-HOUSES, GARAGE CONSTRUCTION AND GARAGE EQUIPMENT.—Comprising a large number of designs for both private and commercial builders. Showing the latest ideas in their planning and construction. For the country, suburban towns and cities, also motor-boat houses. The designs are contributed by well-known architects from different sections of the United States, compiled and edited by Wm. Philips Comstock, editor of the Architects' and Builders' Magazine. Bound in cloth and art paper. 119 pp., size 7½x10½. Price, $2.00.

The author states in his introductory remarks that "The garage, as the most modern of structures, presents a problem to architects and draughtsmen, with which they have had less experience than with any other form of building. In addition, the precedents which they may follow are not so clearly defined, nor so inviolable, as in the case with other buildings. Yet, this style of structure possesses requirements of a distinctive character, and usually of extreme simplicity, and in order to meet these requirements satisfactorily, all that is really necessary is a liberal application of the laws of common sense."

The work over 128 plans and elevations of well-designed garages for both motors and boats. These are in wood, brick, stone, concrete and half-timber buildings, and are designed with the intention of being convenient and complete. The book is decidedly the best exhibit of garages that has yet appeared, and will doubtless prove useful and instructive to every person who either designs or builds this kind of structure. The fact of this style of building being a departure from the ordinary, will render the book of great assistance to those who have never tried their hand on this line of architecture; and for those who have had experience, there are many things between its covers that will prove suggestive and of value.

DISTINCTIVE HOMES OF MODERATE COST.—Being a collection of country and suburban homes in good taste, with some valuable suggestions for the home builder. Compiled and edited by Henry H. Saylor. Bound in boards and cloth—flat. About 10x13 inches. Over 172 pp., with several hundred illustrations of exteriors and interior finishings. Published by McBride, Winston & Co., New York.

This is a very convenient work for those who are about to build or about to make changes in their residences, as it deals largely with construction and decoration of all kinds—including style of building, details of construction, roofing, porches, windows, doors, fireplaces, mantels, including an essay on heating systems and water supplies, installation, maintenance, and cost of steam heating, hot air and other methods. A long description of lighting by power and independent plant, electric fixtures of all sorts. Another chapter deals with built-in conveniences, bookcases, cabinets, wainscoting and built-in furniture. Floor and floor coverings—including furnishings, carpets of various sorts. Rugs—with a description as to their characters, styles and costs.

Various methods of furnishing living rooms, dining rooms, parlors, libraries, bed rooms, and dens. There is a chapter on portieres, window, wall and other draperies; ornaments, picture hanging, distribution and places for bric-a-brac, with advice as to the use and application of ornament.

Part Two.—This part shows and describes garages—a number of high-class residences, gardeners' cottages, some old-fashioned buildings and a number of excellent examples of tasteful and desirable structures. The work is an excellent assistant for the home where there is any intention to build, enlarge, or improve, and many useful hints can be gleaned from it for laying out lawns, landscape gardens, and outdoor decoration of any kind.

A POPULAR HAND BOOK FOR CEMENT AND CONCRETE USERS.—A comprehensive and popular treatise of the principles involved and methods employed in the design and construction of modern concrete work. A standard reference book, covering the uses of plain and reinforced concrete. Everything of value to the concrete user is given, including kinds of cement employed in construction, concrete architecture, inspection and testing, waterproofing, coloring and painting, rules, tables, working and cost data. By Myron H. Lewis, C. E., author of "Examinations of Civil Engineers," "Waterproofing of Concrete," etc., etc., and Albert H. Chandler, C. E., author of "Materials Employed in Construction," etc., published by The Norman W. Henley Publishing Co., New York. 430 pp. Over 120 illustrations and diagrams. Cloth. Price, prepaid, $2.50.

The title and introduction as shown in the foregoing give a fair idea of what this book contains, but it is impossible in an announcement of this kind to convey to the reader an idea of the real practical benefits that may be obtained from its contents. As the author states in his preface, "To compile material, all of which shall possess some definite value; to explain the principles and methods in concise and non-technical language; to describe the variation of cost for different kinds of concrete work; to give the reader a handbook that will prove interesting, as well as useful; to bring home the great economic and artistic qualities of concrete as a building material; and finally to help in producing a better, higher grade of concrete work. These are the criteria which have helped to shape the characters of this book, criteria difficult to satisfy and almost impossible of complete attainment."

After close examination of the contents of this book we are convinced that the authors have examined critically every subject pertaining to the use of cement and concrete and have given to the building trades a mass of the most useful of practical knowledge obtainable. Their discrimination from our point of view seems to be faultless—as nothing is presented that is not of value and much matter that might have been introduced, but which to a large extent, would have been repetition, has been avoided; and although the book is somewhat bulky, due to comprehensive references, it does not carry on its pages anything that may be considered useless. It has been our fortune—or misfortune—in our capacity as editor of a building journal, to wade through many a big tome of technical literature, but we do not know of many works now in the market where the true objects of the writings have been so easily reached, and made understandable, with less effort than in the work before us. This is quite an advantage to the busy man, whose time is taken up largely with his business affairs.

Nearly every phase in concrete and cement work is discussed, and methods, proper proportions, and correct usage are exhibited with a minimum of technical explanations, and yet, the language is clear and ample and conveys directly to the mind the author's intention.

The work is printed in good readable type, on strong book paper, and is well and durably bound, and will, we are sure, find its way to the book shelves of every contractor, engineer and architect in the land.

HOW TO READ PLANS. A simple practical explanation of the meaning of various lines, marks, symbols and devices used on Architectural working drawings, so that they can be correctly followed by the workman.

By Charles G. Peker, Co-Author of "Easy Lessons in Mechanical Drawings," etc.

Fully illustrated, Second Edition, revised and enlarged. Published by the Industrial Book Company, New York—1911.

Well bound in cloth. Price, 50 cents.

This is a very useful little work, and particularly so for students and young draftsmen, as it describes the scales used, and all the peculiar marks and symbols made use of by draftsmen. It contains over 100 pages and is illustrated with over 80 well defined illustrations, and some lessons in drawing and perspective. There being a complete set of architect's plans for a six-room frame cottage. The work is simple, low priced, instructive, and effective. Sent post-paid to any address on receipt of price.

VENEER MATERIAL

WASHINGTON, D. C., February 20, 1911.—The outlay for veneer material, both domestic and imported woods, during the calendar year 1909 was $8,977,516, as against $7,891,431 in 1908 and $6,436,237 in 1907. The number of establishments engaged in the manufacture of veneers during 1909 was 637, an increase of 235 and 267 over the number reporting in 1908 and 1909, respectively.

This information appears in a preliminary comparative report covering 1909, 1908, and 1907, which was transmitted today to Census Director Durand by Chief Statistician William M. Steuart, under whose supervision it was prepared by J. E. Whelchel, expert special agent of the division of manufactures. In cooperation with the Forest Service of the Department of Agriculture the Bureau of the Census annually collects and publishes statistics pertaining to the group of lumber and timber industries.

The rapid rate at which this industry has grown during recent years continued through 1909, the showing for that year disclosing not only a substantial increase in the number of mills, but also the fact that in point of geographical distribution the industry has extended from 30 states in 1907 to 34 states in 1909.

States Leading in the Industry.

Although veneer manufacturing was engaged in during 1909 in practically every state in which lumber timber occurs in commercial quantity, nearly three-fourths of the material consumed during the year was reported from the 11 states of Illinois, Michigan, Florida, Indiana, Tennessee, Missouri, Arkansas, New York, Virginia, North Carolina, and Kentucky, ranking in point of quantity consumed in the order named. Furthermore, of these states, the group composed of Illinois, Indiana, Florida, and Michigan alone contributed nearly one-third of the total, showing that the industry is still to some extent localized.

A point of interest in this connection is the fact that although the three states, New York, Illinois and Indiana, reported but 20.9 per cent of the total quantity of material consumed during 1909, their contribution formed 42.8 per cent of the total cost of all veneer material consumed during that year. This showing is due directly to the fact that the manufacture of veneers from imported and high-priced cabinet woods, especially mahogany, is to a large extent centered in these three states, Illinois alone reporting more than half of the mahogany consumed during 1909 and New York following with nearly one-third.

New York led in the consumption of both Spanish cedar and Circassian walnut, reporting more than three-fifths of the total of each of these species.

For many years the manufacture of veneers was mainly from the imported cabinet woods and to a limited extent from such domestic woods as walnut, oak, and bird's-eye maple. The extension of the industry has been more in the nature of the development of a new industry, the large increase in the total annual consumption of material being made up chiefly of domestic woods which are converted into veneer stock, from which are made baskets, berry crates, packing cases of various kinds, furniture, material for laminated lumber, barrels, etc. It is this branch of the industry which is widely distributed and in which the growth is most rapid.

LATEST LEGAL DECISIONS

A contractor with a city to make alterations in a public schoolhouse let a contract to a subcontractor for a part of the work, and the subcontractor contracted with a material man to furnish part of the material. The subcontractor failed to perform his contract, and the contractor paid a portion of the claim of the materialman, and, after the subcontractor failed, let the contract to another subcontractor. The amount paid the last subcontractor and the amount paid to the materialman exceeded the amount which the contractor agreed to pay the first subcontractor. Held, that the materialman had no lien upon money owed by the city to the contractor.—Meurer v. Kilgus, 75 A. (N. J.) 899.

A building contract provided that, should the contractor be delayed in the completion of the work by the act or default of the owner, architect, or other contractor, then the time fixed for the completion of the work shall be extended to a period equivalent to the time lost by reason of such causes, which extended period shall be determined by the architect; no allowance to be made unless a claim is presented in writing to the architect within 48 hours of the occurrence of such delay. No written claims were made to the architect, and no allowances of time were made by the architect. Held, that parol evidence that the architect had promised the contractor that he would take care of it on final payment was inadmissible in an action against the builder.—Van Buskirk v. Board of Education of Passaic Tp., Morris County, 75 A. (N. J.) 909.

A building contract provided that the entire building should be completed by the 15th day of September, 1908, providing, however, that the owner remove the present building from the proposed site before the 15th of May, 1908. The contract further provided that the contractor should pay to the owner the sum of $25 per day as liquidated damages for each and every day's delay that the work shall remain unfinished after the date agreed upon for the completion of the same. The contract provided that in case of delay in completing the work caused by any act or default of the owner, or other contractor, the time for completion should be extended for a period equivalent to the time lost; such period to be fixed by the architect upon written demand of the contractor. There was no extension of time by the architect. The owner removed the old building entirely from the proposed site on May 17th. The building was not completed until November 14th. Held, that the contractor was liable for liquidated damages from September 17th to the date of the building's completion.—Van Buskirk v. Board of Education of Passaic Tp., Morris County, 75 A. (N. J.) 909.

In an action on a contractor's bond for breach of a contract to erect a house for plaintiff, whereby plaintiff was compelled to pay certain lien claims against the property, findings in the lien case, to which plaintiff was a party, that certain claims for labor and material were for work not embraced in the contract, will, in the absence of the record in the lien suit, be presumed to have been within the issues in that suit.—Sheard v. United States Fidelity & Guaranty Co., 107 P. (Wash.) 1024.

To determine whether the limitation of time to sue in an indemnity bond given by a contractor is reasonable, the bond, the contract, and the facts of the particular case must be considered, and where a guaranty company gave a bond to indemnify the plaintiff from any pecuniary loss from the contractor's breach of a contract to furnish material and labor and erect a house for him, and providing that no suit could be instituted thereon later than February 22, 1906, the limitation was unreasonable where the contract was not completed until June, 1906, the liens were not filed against the property until after February 22, 1906, and the judgments in action thereon not rendered until June. 1908, since the obligation of the guaranty company was to indemnify against pecuniary loss, which occurred only when the liens were established against the property, which was long after the time to sue fixed in the bond.—Sheard v. United States Fidelity & Guaranty Co., 107 P. (Wash.) 1024.

A tenant cannot, without the authority, expressed or implied, of the landlord, charge the leased premises with a lien for material used in repairing a building thereon.—Cross V. Eyerley, 125 N. W. (Neb.), 1085.

The word "another," as used in Lien Law (Consol. Laws, c. 33) §17, providing that, if the lienor is made a party defendant in an action to enforce another lien, the lien of such defendant is thereby continued, is equivalent to "other."—John A. Philbrick & Bro. v. Ignatz Florio Co-op. Ass'n, 122 N. Y. S. 341.

When more than four months intervene between items of an account for material furnished a mechanic's lien will not attach for the items preceding the hiatus, unless it is made to appear by competent evidence that all the items were furnished pursuant to one contract.—Cross v. Eyerley, 125 N. W. (Neb.) 1085.

Under Employer's Liability Act (Code 1907, §3910) subd. 1, making a master liable for a defect in the ways, works, machinery, and plant, a ladder used in doing the master's work is a part of the "plant," and the master is liable for injuries caused by a defect in it.—Grasselli Chemical Co. v. Davis, 52 So. (Ala.) 35.

Ordinarily, as between a subcontractor and the contractor, who is in control of the general work to be performed, the law places the latter under an obligation to the former to make good all losses consequent upon delays in the progress of the work not attributable to the former.—Norcross v. Wills, 91 N. E. (N. Y.) 803.

A provision in a contract for building a county courthouse for the sum of $37,349 that the contractor should pay the county as liquidated damages $10 for every day the completion of the building was delayed after the contract date of completion was valid as a provision for liquidated damages, and was not a penalty.—Thompson v. St. Charles County, 126 S. W. (Mo.) 1044.

Where the express provisions of a contract between a subcontractor and contractor referred the former to the owner's architects, and offset their delays in furnishing plans by extensions of time for completion, the subcontractor could not enforce a claim against the contractor for damages for such delays of the architect.—Norcross v. Wills, 91 N. E. (N. Y.) 803.

Rev. Codes, §7290, giving any person performing any work on or furnishing any material for any building, structure, mining claim, etc., a lien on the property, provides for a lien in favor of any person bestowing labor on any character of property as such, or by whom material is furnished for the improvement of the property.—McIntyre v. Montana Gold Mountain Mining Co., 108 P. (Mont.) 353.

Under a contract between a subcontractor and contractor stipulation for liquidated damages for delay in the completion by the subcontractor, but, if he was not at fault and the delay was caused by the contractor or the architects, there was to be an extension of time equivalent to the time lost, the contractor was not liable for the default of the architects in furnishing plans.—Norcross v. Wills, 91 N. E. (N. Y.) 803.

Under Lien Law (Consol. Laws, c. 33) §17, providing that, if the lienor is made a party defendant in an action to enforce another lien, the lien of such defendant is thereby continued, the action to foreclose "another lien" which will keep alive a lien filed by a defendant to the action for the foreclosure of a lien created by a lien law, and not an action to foreclose a mortgage, although that in a sense is a lien upon the property.—John A. Philbrick & Bro. v. Ignatz Florio Co-op. Ass'n, 122 N. Y. S. 341.

Where a contract between a subcontractor and contractor provided that the architects were "acting for the purposes of this contract as agents of the owners," a subsequent provision that the architects should furnish the subcontractor further drawings necessary to detail and illustrate the work was not a covenant of the contractor, since, when read in connection with the part quoted, it simply meant that the subcontractor was to look to the architects for the delivery of the drawings.—Norcross v. Wills, 91 N. E. (N. Y.) 803.

A provision in a contract between a subcontractor and contractor that the contractor should "provide all labor and material not included in this contract in such manner as not to delay the material progress of the work" referred to what the contractor had undertaken to do, or furnish, for the owner, aside from the subcontractor's part of the work, and was an agreement by the contractor that the rest of the work should be proceeded with, so far as he was in control, without any delay which would interfere with the subcontractor's performance.—Norcross v. Wills, 91 N. E. (N. Y.) 803.

PATENTS.

The following list of recent patents and trademarks relating to building interests is especially reported for THE NATIONAL BUILDER by Wm. G. Henderson, solicitor of American and foreign patents and trademarks, Norris building, 501 F street, Washington, D. C. A copy of any of the United States patents will be furnished by him for 25 cents.

980,397. Window refrigerator. Thos. W. Barry, Chicago, Ill.

980,406. Mandrel for reeling ready-roofing fabrics. B. G. Casler, assignor ½ to F. W. Ritter, Jr., Washington, D. C.

980,229. Locking mechanism for emergency exit-doors. C. J. Ericson, Salt Lake City, Utah.

980,414. Reinforcing device for concrete. Chas. A. Hanson, Chicago, Ill.

980,443. Fire-curtain for windows. A. Shuman, Philadelphia, Pa.

981,383. Machine for treating interior woodwork and flooring. Chas. H. Comstock, Indianapolis, Ind.

981,460. Self-closing door or shutter. H. T. Moody, assignor to Victor Mfg. Co., Newburyport, Mass.

981,972. Metallic window-sash. W. F. Bonness, Chicago, Ill.

981,913. Door-releasing device. H. C. Bunday, assignor to M. H. Hart, Akron, Ohio, and R. Many, Chicago, Ill.

981,613. Runway for stair-ways. Ed. V. Carter, Huntington, W. Va.

981,992. Collapsible building. G. Fugman, assignor to A. L. F. Fugman, Cleveland, Ohio.

982,055. Centering for concrete work. L. G. Hallberg, Chicago, Ill.

981,937. Metal door-frame. E. Ohnstrand, Syracuse, assignor Art Metal Construction Co., Jamestown, N. Y.

981,884. Earthquake-proof building. O. Ruhl, Bremen, Germany.

982,759. Floor surfacing machine. A. A. Bagalio, assignor to Andrews Floor Planing and Surfacing Co., New York City.

982,721. Apparatus for heating, cooling and ventilating buildings. E. C. Hodges, Joliet, Ill.

982,522. Removable floor-strip. W. S. Mitchell, San Francisco, Cal.

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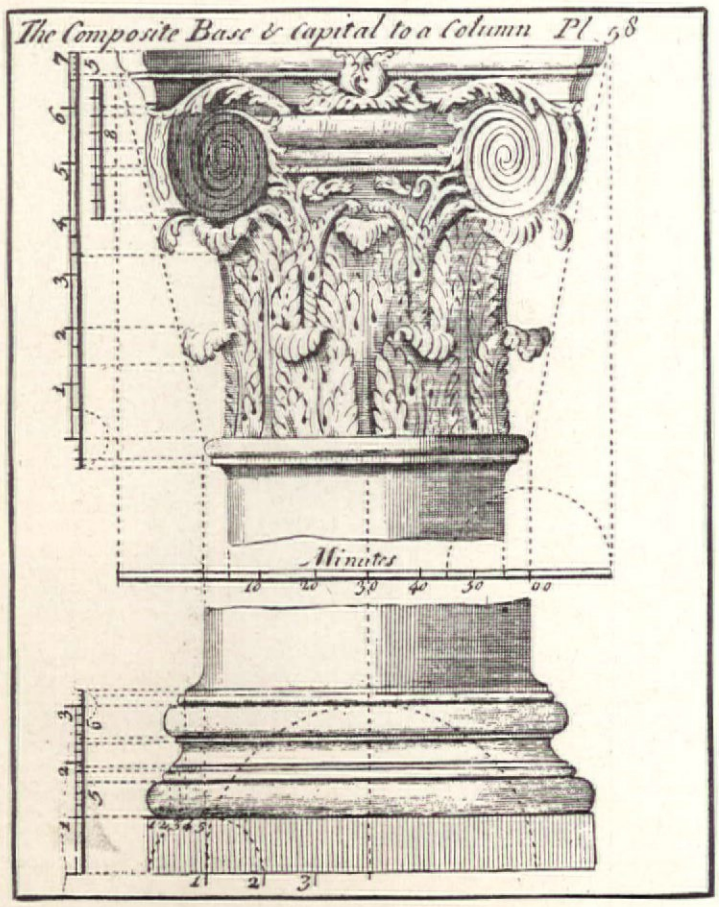

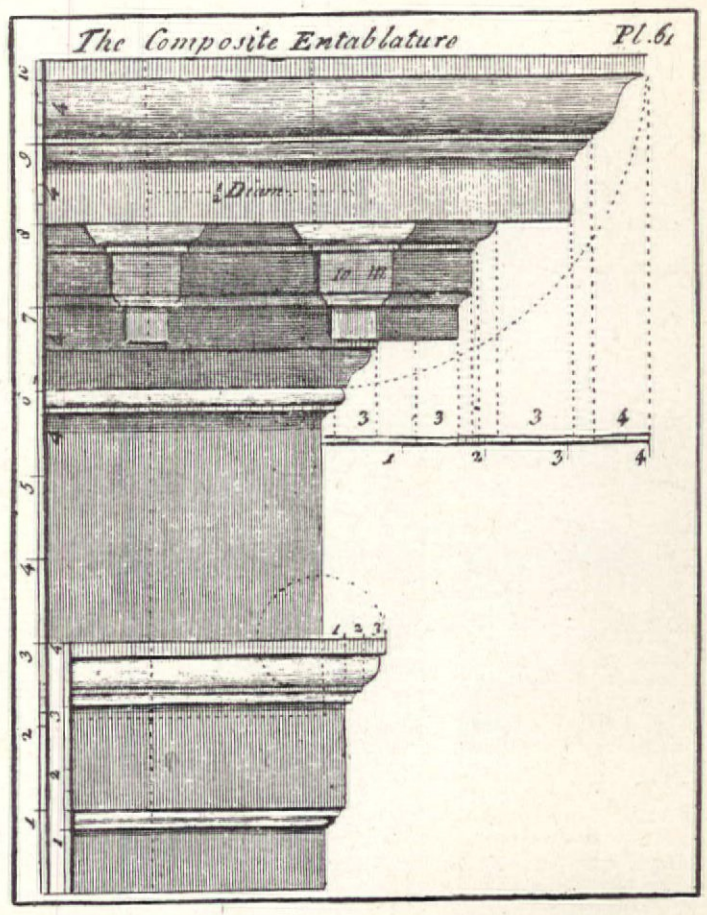

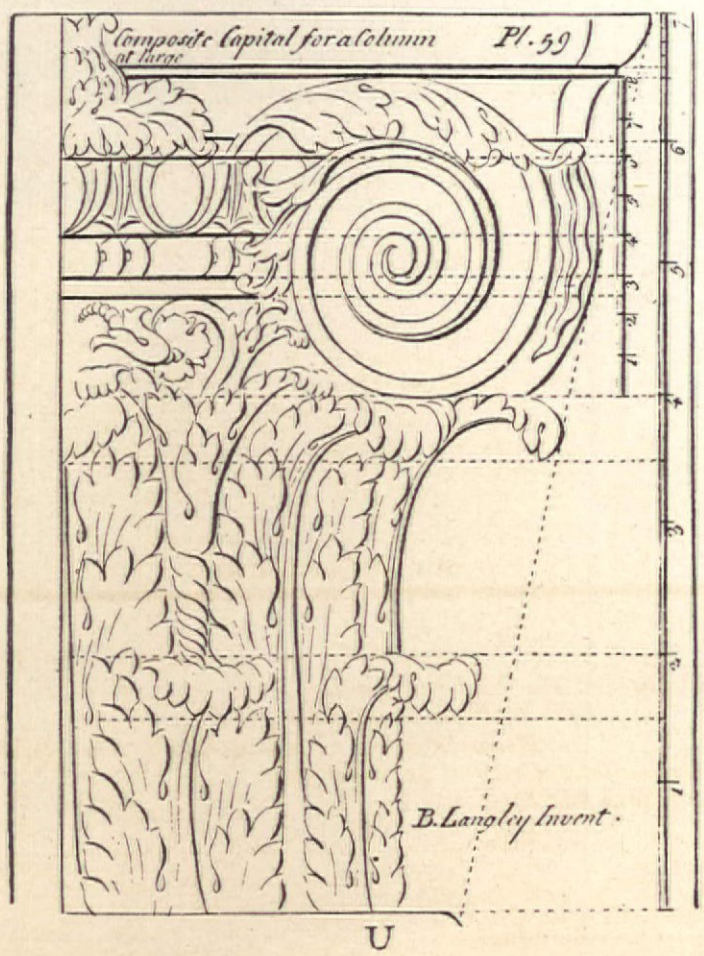

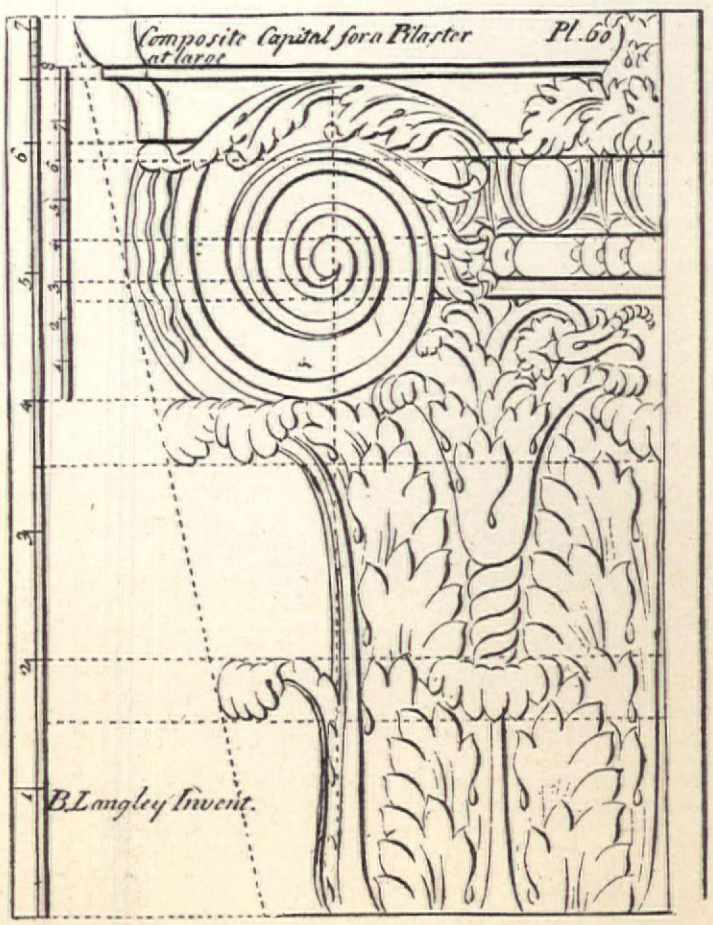

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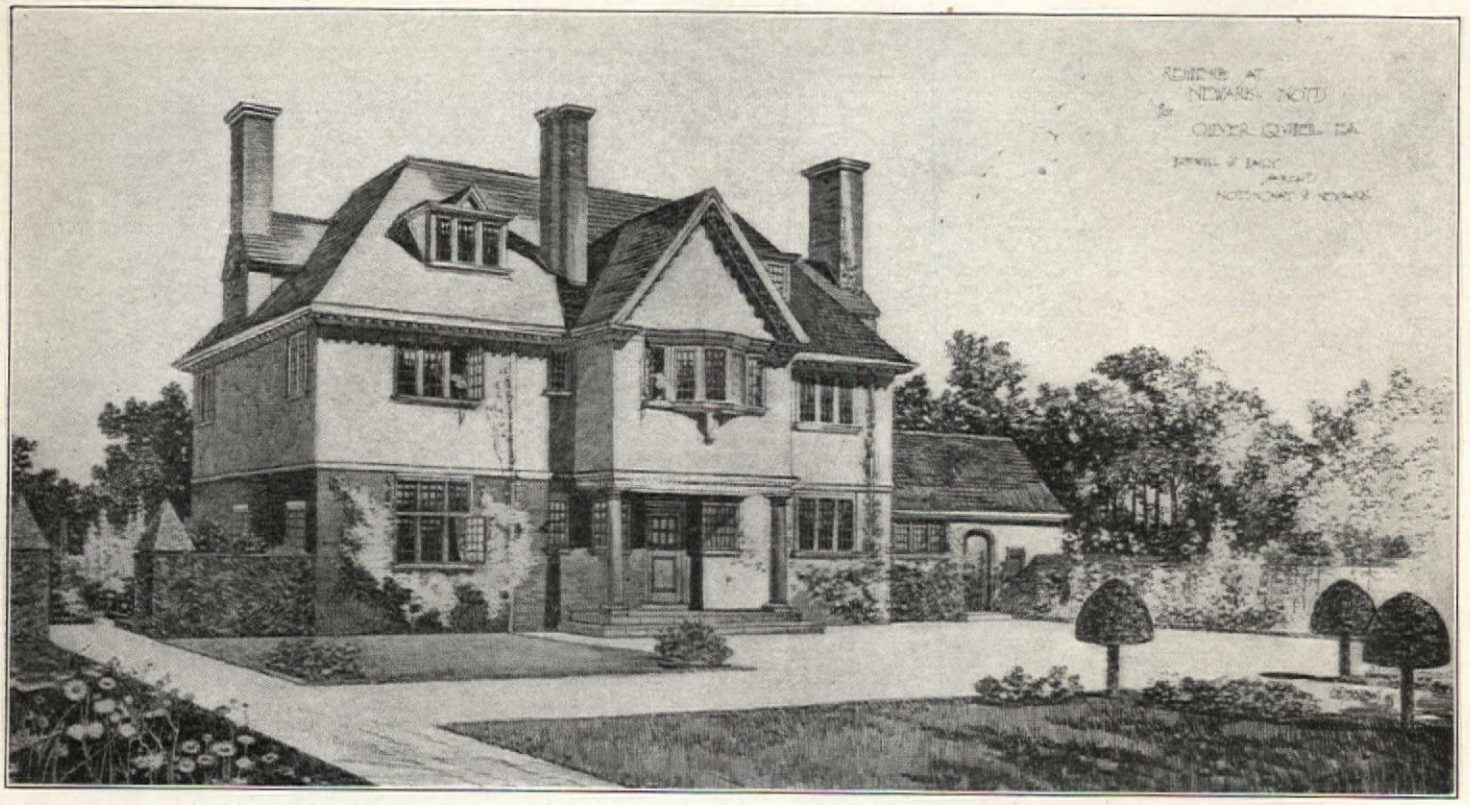
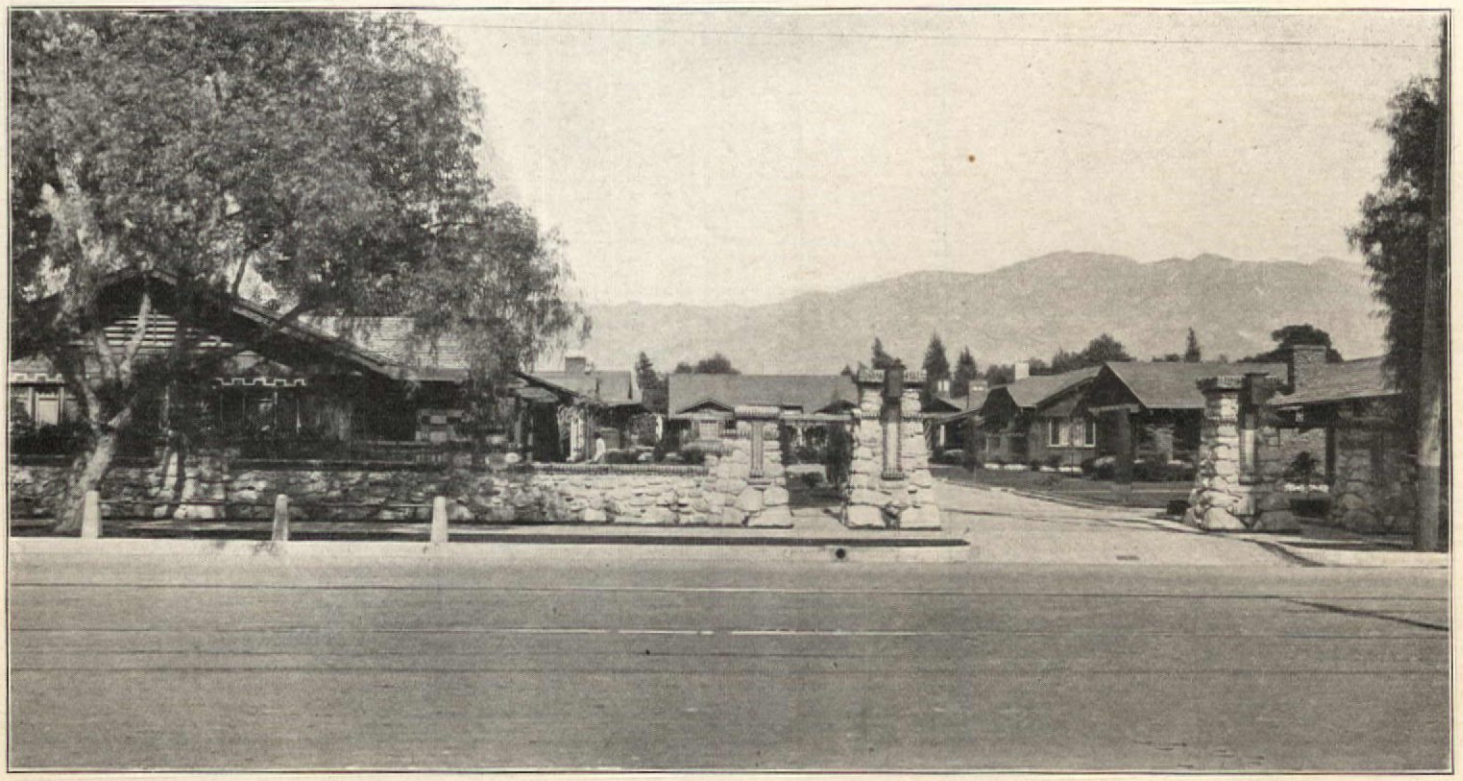


A BRICK AND STUCCO HOUSE.



A VIEW IN BUNGALOW LAND, SOUTHERN CALIFORNIA.

BUILDING MATERIAL PRICE LIST

REVISED TO DATE

*—Price not given. yp—Yellow pine. wp—White pine. np—Norway pine. op—Oregon pine. rw—Redwood. s—Spruce oc—Ontario cedar. h—Hemlock. bc—British Columbia cedar. rc—Red cedar. F—Fir. BM—Board measure. S 1 S—Sized one side. D 4 S—Dressed four sides. KD—Kiln dried. RG—Rough. C—Clears. Cdr—Common cedar.

	Philadelphia, Pa. Corrected by N E. Duffey.	Chicago, Corrected by J H. Touchstone.	Los Angeles, California, by Courtesy of B & C.	Omaha, Neb Corrected by I P. Hicks.	Southern Ontario. Corrected by F. C Franta.	Buffalo, N. Y. Corrected by J. W.	New York, N. Y. Corrected by F. M. Sammis.	Cleveland, Ohio. F. O. B. Yard Courtesy P. T. Co.	Seattle, Wash F.O.B. Mill or Yard Corrected by Courtesy F. T. Bradley
Dimensions, Hemlock Lumber	M ft. BM S 2 S	M ft BM S 2 S	M ft BM R G	M ft. BM S 2 S	M t. BM S 2 S	M ft. BM S 2 S	M ft. BM S 2 S	M ft. BM S 2 S.	M ft. BM S 2 S
2"x4" to 8" up to 16', No. 1	h $23 00	yp $20 00	op $22 00 to 24.00	yp $27. 0	h $24 00	h$22.00	yp. $28.50	yp $26.00	F $13.50
2"x4" to 8" up to 16', No. 2	23 00	16 00	21 00	25 00	22 00	20 00	*	24.00	11.50
2"x4" to 8" 18 & 20', No. 1	26 00	21 00	23 00	28 00	26 00	26.00	31.50	28.00	13.50
2"x10" up to 16', No. 1	24 00	21 00	24 00	29 00	24 00	22.00	31.50	27.00	13 50
2"x12" up to 16', No. 1	*	22 00	24 00	31 00	25 00	23.00	32.50	29.00	13 50
2"x14" up to 16', No. 1	*	24 00	25 00	*	26 00	25.00	34.00	35.00	14.50
Each 2 ft. over 20 ft., add per M	2 00	1.00	1 00	1.00	2 00	1.50	1.25	2.00	up to 32'1.00
Select stock as above, add per M	*	5.00	10 00	*	*	*	3.75	*	2.25
Exterior Finish, Etc.	M ft. BM D 4 S.	M ft. BM D 4 S.	M ft BM D 4 S.	M ft. BM D 4 S.	M ft. BM D 4 S.	M ft BM D 4 S	M ft. BM D 4 S.	M ft. BM S 4 S.	M ft BM D 4 S
1"x3" to 1"x8", No. 1	e $48.00	yp $35 00	rw $35 00	yp $46.00	wp $35 00	wp $43 00	wp $62.50	wp $48.00	F $33.25
1"x10", No. 1	*	35 00	36.00	44.00	40 00	49 00	66.00	50.00	36.00
1"x12", No. 1	*	40 00	37 00	48.00	42 00	50 00	70.00	50.00	36.00
1¼"x3" to 1¼"x12", No. 1	60 00	42 00	50 00	50.00	45 00	48.00	70 00	52.00	36.00
1½" and 2" same as above	60 00	42 00	52 00	59.00	42 00	52 00	73.00	55.00	36.00
1" drop siding, No. 1	53 00	25 00	26 00 to 30 00	32.00	35 00	35 00	38.00	49.00	27.00
½" lap siding, No. 1	37.50	18.00	18.00 to 20 00	30.00	30 00	36.00	35.00	37.00	re 27.00
Enclosing and Fence Boards.	M ft BM S 1 S	M . BM S 1 S	M ft. BM D 2 S	M ft BM S 1 S	M t BM S 1 S	M t. BM S 1 S	M ft. BM D 4 S.	M ft. BM S 1 S.	M ft. BM S 1 S
1"x4" to 1"x8", No. 1	apc $40.00	yp $18.00	op $25.00 to 30 00	yr $25 00	wp $30 00	wp $35 00	wp $32.50	wp $37.00	F $13.50
1 x8" to 1"x10" No. 1	50 00	18 00	25 00 to 30 00	24 00	h 24 00	h24 00	38.00	39.00	13.50
1"x10", No. 1	50 00	18 00	30 00 to 35 00	24 00	24 00	26 00	38.00	34.00	13.50
1"x10", No. 2	45 00	15 00	25.00 to 30 00	22 00	22 00	24 00	36.50	35.00	13.50
Interior Finish, Flooring, Ceiling, Etc.	M ft. BM D 4 S.	M t. BM D S.	M ft. BM D 4 S.	M ft. BM D 4 S.	M ft. BM D 4 S.	M ft. BM D 4 S.	M ft. BM. D 4 S.	M ft. BM D 4 S.	M ft. BM D 4 S.
⅛", T. & G. Flooring No. 1	yp $43.00	yp $30 00	op $40 00	yp $40.00	wp $40 00	yp $40 00	yp. $28.00	wp $35.00	$34.25
⅛", T. & G. Flooring No. 2	40.00	25 00	35 00	36 00	wp 30 00	35 00	26.00	30.00	29.75
Add for ceiling per M	*	1 00	1.50	2.00	1 00	1 00	1.50	2.00	M ft 27.00
Add for partition per M	*	2 00	2 50	2 00	2 00	2 00	2.25	2.00	29.25
⅝"x4", Ceiling No. 1	*	25.00	27.50	30 00	np 30 00	30 00	28.00	31.00	24.50
	100 ft. run	100 ft. run	100 ft run	100 ft run	100 ft run	100 ft run	100 ft. run	100 ft run	100 ft run
4¼" Moulded Casing	wp $3.00	yp $1.85	rw or op $3.00	yp $2 00	wp 2 00	yp $2 00	$2.25	wp $3.00	$2.75
4¾" Moulded Casing	3.75	2.10	3.50	2 50	2 50	2 50	2.50	3.25	2.75
7¼" Moulded Base	6.00	3.25	6.00	3 50	4 50	4 00	4.50	4.20	3.50
7⅛"x9¼" Moulded Base	7 50	3.75	8.00	4 00	6 00	5.00	5.75	6.00	4.50
1⅛"x4½" Moulded Window Stool	5.50	3.00	7.50	4.00	4.00	4.00	4.75	5.00	3.50
Miscellaneous List.	Per M.	Per M.	Per M	Per M	Per M	Per M.	Per M	Per M.	Per M.
Shingles, No. 1	re $16.00	re $3.50	rw $2.75	$4 25	be re $3.75	t $4.00	bc $5.00	re $4.75	re *A*e $2.25
Shingles, No. 2	13 00	3 00	2.00	3.75	*	3.50	4.00	4.25	*A*e 2.00
Shingles, fancy	18.00	5.00	rw 4.00	4 50	8 00	7.50	9.00	5.50	2.75
Lath, 4 ft., No. 1	6.00	yp 3 60	4 50	F 5.50	wp 5 00	h 4.00	5.00	5.25	F 2.25
Lath, 4 ft No 2	4.00	2 75	3.50	5.00	s 3.75	3.80	*	4.75	2 25
Pickets, 1"x3"x4' 6", dressed	h 40.00	40.00	25.00	30.00	*	wp42 00	40.00	wp 45.00	25 00
Pickets, 1 x3"x4' 6", rough	30.00	*	20.00	*	*	38.00	36.00	30.00	20.00
	Piece.	Piece.	Piece.	Piece	Piece.	Piece.	Piece.	Piece.	Per 100.
6"x8' Post split	*	Cdr $0.13	re $0.30	Cdr $0.30	*	$0.25	.28	Cdr $0.15	re $12.50
8"x8' Post split	*	.20	.40	.35	*	.30	.32	.22	12.50
8"x8' Post whole	*	.44	.50	.40	Cdr $0 30	.50	.50	.40	Above prices
6"x8' Post whole	*	.25	.40	.35	.25	.40	.45	.30	prevail with a 10% discount.
Hardware List.	Cwt.	Cw	Cwt.	Cwt.	Cwt.	Cwt	Cwt.	Cwt.	Cwt.
Nails, wire, common	$2.25	$3 50	$3.00	$3.00	$2 85	$3.50	$2.25	$2.30	$2.95
Nails, cut, common	2.15	4 00	3.10	*	3 00	*	2.10	4.10	2.95
Nails, wire, fine finishing	2.45	1.60	3.50	3.50	4 00	3.50	2.50	2.20	2.95
Sash Weights, cast iron	1.50	1.50	1.60	1.50	2 25	1.60	New 1.50 S. H. .90	1.60	1.75
Tarred Felt Paper, best 2-ply	Roll $ .90	Roll. *	Roll *	Roll $1.00	Roll *	Roll .60	Roll $1.25	Roll $0.60	Cwt $5.00
Tarred Felt Paper, 3-ply	1 15	*	*	1.25	*	1.75	1000' 0.95	.80	Cwt. 5.00
Red Rosin, Atlas brand	1.60	.90	*	.90	$2.50	0.90	1000' 1.15	1.20	*
Red Rosin, durable brand	1.25	.75	*	.75	60	1.75	Per lb. .02¼	.90	*
Black Neponset	2.25		*	*	2 50	*	250 ft. 1.15	2.60	*
						Courtesy, Buffalo Bldr's Supply Co.			
Masons' Supplies.	Per M.	Per M.	Per M.	Per M.	Per M	Per M	Per M.	Per M.	Per M.
Brick, blue, at kilns	*	*	$9.00	*	Hudson River	Not used	$6.50	*	*
Brick, blue, at kilns, No. 1	*	*	6 50	*	" "	" "	6.00	*	*
Brick, blue, at kilns, No. 2	*	7.50	6.00	*	New Jersey	" "	Pressed 22.00	*	*
Brick, white, delivered, face	30 00	7.00	*	7.50	*	7.50	" 25.00	$40.00	$45.00
Brick, red, delivered, backing	9 00	7 00	*	*	*	7.50	14.00	18.00	8 00
Brick, delivered, dry pressed	22.00	18.00	*	18.00	$17.00	18.00	25.00	22.00	35 00 to 45 00
Brick, vitrified, dry pressed	*	*	*	24.00	*	25.00	18.00	*	20.00
Lime, best gray	bu $0 27	bbl. $1.30	bbl. $1.80	bbl. $1.25	bbl. *	$ .80	bbl. $1.40	bu $0.27	bbl. $1.65
Lime, best white	27	1.40	2.00	1.25	*	1.00	145 to 190 Atlas-	.27	1.85
Cement, Portland	bbl net 1 85	*	2.25	1.85	1 80	bbl. 1.60	1.50 pr bbl.in wood	bbl. net 1.60	Cwt. 4.00
Plaster, calcined	" " 1.90	2.40	2.25	1.80	bbl. '2 50	ton. 6.00	(In bags $1.80 per	ton 5.50	bbl. 2.50 to 2.65
Hair, 8 lb. per bush	.25	.25	0.48	.25	*	.32	bbl., 4 bags to bbl.,	*	*
					Plaster (patent) $6 per ton. White Rock $11.00 per ton.	Note, Plaster $5.00 ton. Portland Cement $1.75 barrel. All other prices correct to date.	with rebate of 7½ per bag.)		

NOTE—While these figures are approximately correct at the time of preparing, the continual fluctuations and shifting of prices make it necessary to advise our readers to consult local price lists when making up tenders.—ED.

TRADE REVIEW

ATLANTA TOOL GRINDER.

Corundum, as a grinding agent, has the advantage of rapid cutting, small weight and bulk, does not require water for cooling and does not draw the temper of edged tools.

One man with an Atlanta Tool Grinder will do more work, and do it better in less time, than a power grindstone in a shop. Moreover, the grinder is small enough to go in the tool box and can be set up anywhere on the job.

The first requirement of a tool grinder is that it shall be capable of adjustment to do the various work required. The parts should be strongly made to stand the knocks it received on the job, and the bearings should be protected against the fine dust. In the Atlanta Tool Grinder, all these conditions are provided for, it being possible to grind close up to the handle of a knife blade and can be changed in a second to face off the head of a bolt. As the wheel gets smaller, the handle can be quickly adjusted to increase the number of revolutions, keeping the face speed uniform.

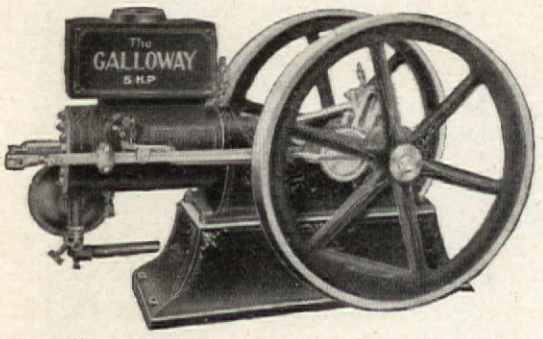
A rather novel construction is in the crank being set at right angles to the surface being ground, the operator standing at the side, where he can watch the progress of the work. This makes it as easy and safe to grind a butcher knife or scythe as a small chisel.

Corundum grinders are rapidly superseding the grindstone, and should be in every tool box, as well as in the shop and on the farm.

The A. A. Woods & Sons Company, Atlanta, Ga., are placing the

The A. A. Woods & Sons Company, Atlanta, Ga., will send you a descriptive folder and full particulars if you mention The National Builder.

THE WILLIAM GALLOWAY GASOLINE ENGINE.



The gasoline engine has done wonders in the building construction field. It has made it possible for the contractor and builder to buy and operate power woodworking machinery and use it so economically that many jobs of millwork formerly turned over to the big mills are now done by them in their own shops.

The gasoline engine, when well designed and made, will do more useful things for the building contractor than any other machine or tool. It can be used to operate saws, planers, lathes, matchers, and concrete mixers, and many contractors are now using the gasoline engine right on the job when the building is going up. The main thing in buying a gasoline engine is to get one that can be relied on under all conditions.

The William Galloway gasoline engine is one of the best known and best liked standard engines. It is so well made and so good in every particular that the manufacturers give the buyers 30 days' free trial.

The William Galloway gasoline engine is the simplest, easiest running and most satisfactory engine selling at any price, and each engine has to stand a very rigid test before shipped.

The William Galloway Company have a decidedly different way of figuring the cost and selling price of their engine, which gives the buyer an unusually good buy. For example, they have set their stakes for making 10,000 gasoline engines for 1911. The price was based on that quantity. In other words, if a contractor or builder were to go to Waterloo and have his money right in his pocket and would ask the price on 10,000 engines, he could not get one cent better price on that number than he could on a single one, as the price of every one is based on the quantity of 10,000.

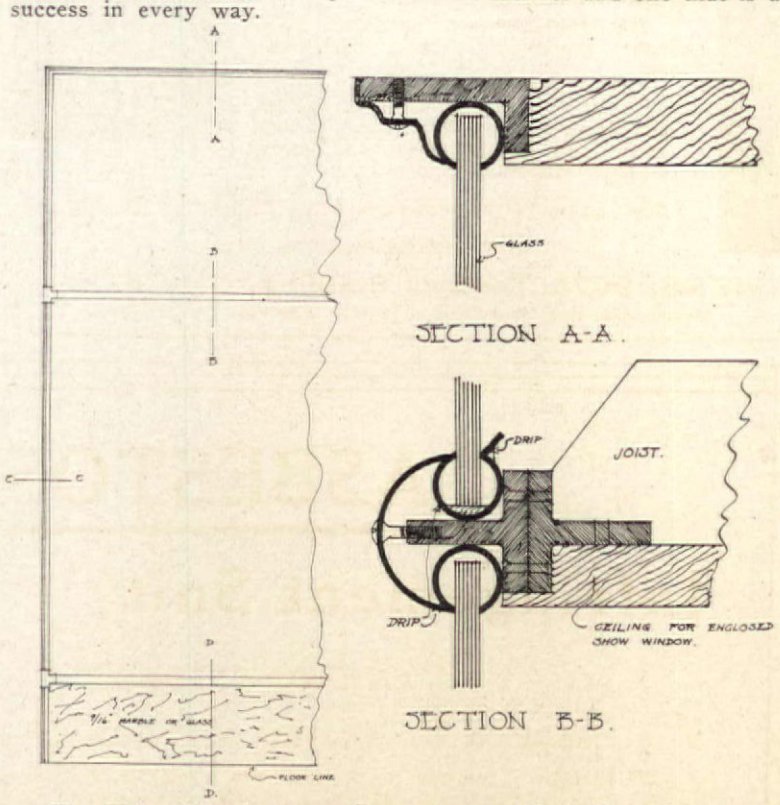
The William Galloway gasoline engines are manufactured in a factory 250 feet long by 100 feet wide, and which is crammed full of automatic machinery of the very latest type, giving them a capacity of 30 to 50 engines a day. One of the most interesting machines is a tremendous test block that permits the manufacturer to give every engine the most thorough test. Both this engine factory and the Company's new office building are constructed with concrete; made with a patented mold and under the flush concrete system and which gives the outside effect of limestone construction. All this construction work was done in the dead of winter with the thermometer as low as 15 to 30 degrees below zero. This speaks well for the contractors on the job and especially when it is a fact, that not a foot of the work was lost. A new sample room was also built during the winter for the accommodation of visitors and as the William Galloway Company does an immense business in manure spreaders, cream separators, agricultural implements, etc., besides their gasoline engines, many prospective customers and old friends call upon them.

The William Galloway Company issue a catalogue on their gasoline engines which is the finest piece of literature on this subject issued. The catalogue is beautifully illustrated and the reading matter is made up so as to give the prospective buyer an exact idea of how the engines are made; how they are sold and why they are better than any other engine, and why it is possible for the company to sell them on the most liberal terms.

A copy can be had by writing the William Galloway Company, 1695 Galloway, Waterloo, Iowa.

MARBLE OR VITROLITE GLASS FOR A BASE.

The Voltz Manufacturing Co., 1101-1103 S. 8th st., St. Joseph, Mo., call attention to the fact that their system of Universal Sash bars for store fronts is the first and only system wherein it is practical and easy for the small contractor, as well as the large one, to use Marble or Vitrolite glass for a base. With the Voltz system, the marble or glass requires no drilling, wiring or cement and the edges do not have to be polished, beveled or mitred. A sure fit at the corners, where the marble meets at the entrance, is always assured. Besides, the job is so simple that the services of a tile or marble setter is not required, and any carpenter or mechanic can do it with satisfactory results. An examination of the illustration in this article, will show that from the bottom of the plate glass to the top of the marble, there is but 1⅞ inch of metal between them. This makes the finest front ever placed on the market and one that is a success in every way.



The Voltz Manufacturing Co. state that this is the only system that will bring the use of Vitrolite glass for a base back into favor with architects and contractors. The Voltz system does away with any strain on this kind of glass and there is ample room for it to expand or contract. Therefore, there is no breakage.

At the present time it is a hard matter to find any other vitrolite base that has been up a few months where at least one glass is not broken. Architects and contractors have heretofore shied on marble, because of the trouble and risk in setting. The Voltz system is such a great improvement and gives such splendid satisfaction that contractors using it will have an immense advantage over those who do not.

The Voltz Universal Sash Bar now well known among architects and contractors as the one that "Holds with the Grip of Iron, Yet with The Touch of Velvet" is the system of construction to use for holding the most expensive glass store fronts. It makes any angle; it allows for the settling of buildings, and keeps windows from frosting. Voltz Universal Sash Bar will make it possible for the architect and contractor to give the property owner a finer store front, and one that will bring credit to all concerned.

The Voltz Mfg. Co. have a plant at 1101-1103 S. 8th St., St. Joseph, Mo. The high class work which they have done in Missouri and near by states in putting in the Universal sash bar store fronts quickly and safely, without the loss of any expensive glass, is a guarantee that the confidence shown in their system by men who want the best, is not misplaced. Their motto seems to have been, ever since they began the manufacture of the Universal Sash Bar, years ago, not to build up an immense business and sacrifice quality, but rather to go a little slower, and see that every customer

The NORTHWESTERN TERRA COTTA COMPANY

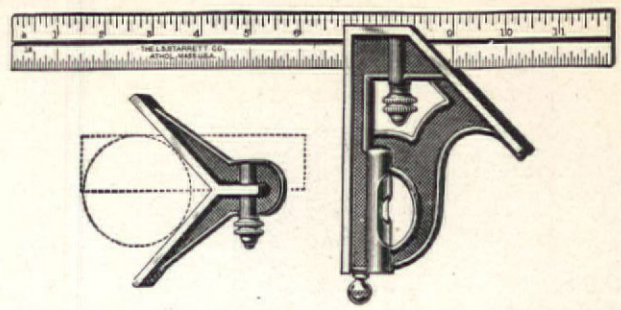
Manufacturers of High Grade

Architectural Terra Cotta

Enameled Work a Specialty

Main Office and Works, 2525 Clybourn Ave.
Branch Office, Room 1415 Railway Exchange

CHICAGO, ILLINOIS



STARRETT TOOLS

for Carpenters are made with just the same superiority in respect to accuracy, workmanship, design and finish as Starrett Tools for Machinists. And that's saying a good deal.

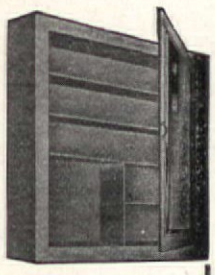
Complete Catalogue No. 18-M sent free

THE L. S. STARRETT CO., Athol, Mass., U. S. A.

HESS MEDICINE SANITARY CABINET LOCKER

The Only Sanitary Steel Medicine Cabinet or Locker

FOR YOUR BATHROOM



Handsome Beveled Mirror Door. Snow white everlasting enamel inside and out.

Costs less than wood and is better. Should be in every bathroom. Is dust, germ and vermin proof and easily cleaned with warm water.

Made in four styles and three sizes. **PRICE, $7.00 and up**

SEND FOR ILLUSTRATED CIRCULAR

HESS, 907L Tacoma Building, CHICAGO

Makers of the Hess Steel Furnace. Sold on Approval. Free Booklet

The A. W. True Residence, Hinsdale, Ill.

143 Cities USED "Stonekote" ROUGH CAST in 1910

Before you build or repair the old home have your architect write us for book telling of "Stonekote" Portland Exterior. What color would you like a sample to be: Gray, Silver Gray, White, Buff, Red, Brown.

THE GARDEN CITY SAND COMPANY
MANUFACTURERS
709-11 Chamber of Commerce, CHICAGO, ILL.

ASBESTOS SHINGLES

Infringement Suit Injunction

THE PRESIDENT OF THE UNITED STATES
to

H. W. JOHNS-MANVILLE COMPANY, and its associates, directors, officers, servants, agents, workmen and employees, GREETING,

WHEREAS, it has been represented to us in our Circuit Court of the United States for the Southern District of New York, that Reissue Letters Patent of the United States No. 12,594, were issued to Ludwig Hatschek in due form of law on the 15th day of January, 1907, and that the Asbestos Shingle, Slate and Sheathing Company is the sole and exclusive owner of the rights to make, use and sell the inventions and improvements or discoveries of said Reissue Letters Patent No. 12,594, and that you, said H. W. Johns-Manville Company have infringed upon said Letters Patent, and upon claims 2, 3, 4, 5 and 7 thereof, which read as follows:

"2. The herein-described process of producing artificial stone plates, consisting of first mixing fibrous material and hydraulic cement in the presence of a great bulk of water, then forming therefrom a series of thin layers of the mixed cement and fibrous material superposed on each other until the required thickness is secured, then pressing the same and allowing the material to set or harden."

"3. The herein-described process of producing artificial stone plates, consisting of first mixing asbestos fibres and hydraulic cement in the presence of a great bulk of water, then forming therefrom a series of thin layers of the mixed cement and asbestos superposed on each other until the required thickness is secured, then pressing the same and allowing the material to set or harden, substantially as set forth."

"4. The herein-described process of producing artificial stone plates, consisting in mixing fibrous material and hydraulic cement in a bulk of water sufficient to render the cement colloidal, then forming therefrom a series of thin layers of the mixed cement and fibrous material superposed on each other until the required thickness is secured, then pressing the same and allowing the material to set or harden."

"5. The herein-described process of producing artificial plates, consisting of first mixing fibrous material and hydraulic cement in the presence of a great bulk of water, to render the cement colloidal, then forming therefrom a series of thin layers of the mixed cement and fibrous material superposed on each other until the required thickness is secured, then pressing the same and allowing the material to set or harden."

"7. A product of the invention herein-before set forth, being a composition containing hydraulic cement which has been rendered colloidal."

and upon the exclusive rights of the Asbestos Shingle, Slate and Sheathing Company thereunder.

NOW, THEREFORE, we do strictly command and enjoin you, the said H. W. JOHNS-MANVILLE COMPANY, your associates, directors, officers, servants, agents, workmen and employees, and each of them, from either directly or indirectly making or causing to be made, using or causing to be used, selling or causing to be sold, or disposing of in any way, or advertising for sale any Imitation Stone Plates, Slabs or Tiles containing or embodying the invention covered by said Reissue Letters Patent of the United States No. 12,594, issued to Ludwig Hatschek, and particularly specified in claims 2, 3, 4, 5 and 7 thereof.

WITNESS THE HONORABLE EDWARD D. WHITE, Chief Justice of the Supreme Court of the United States, at the City of New York, on the 18th day of February, 1911, and in the hundred and thirty-fifth year of the Independence of the United States.

JOHN A. SHIELDS,
Clerk of the Circuit Court.

[SEAL]

KEASBEY & MATTISON CO., Factors, Ambler, Penna.

PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.

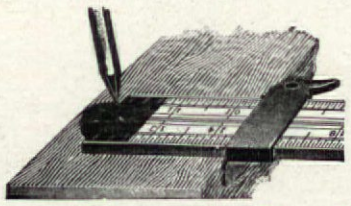
received the right attention, service and materials. Although it would be easy to put cheaper materials in the construction of Universal Sash Bars, and seemingly not affect their quality for some time, the Voltz Mfg. Co. have always used only the best. That this is known and appreciated by architects, contractors and property owners is evidenced by the high class business handled by this company and the constantly increasing demand for Universal Sash Bars.

Full particulars and samples can be had by writing the Voltz Mfg. Co.

FREE RULE GAUGE.

The A. W. Miller Mfg. Co. call attention to their lock mortiser, which has been improved until it is now recognized as one of the greatest time and labor saving mortisers on the market. It is no exaggeration or misstatement when the claim is made that this mortiser will cut an opening in any kind of wood complete in two minutes and any carpenter can do it in that time.

If the builder will have one man bore the two holes and another follow up with the cutter, the job can be done in one minute. There is no other mortiser operated by hand that can beat this time. The A. W. Miller Mfg. Co. have made a study of mortisers for years. All kinds of methods and devices have been tested by them and after years of experimenting the mortiser they now offer is the one worth having, and does the complete job easily in two minutes.



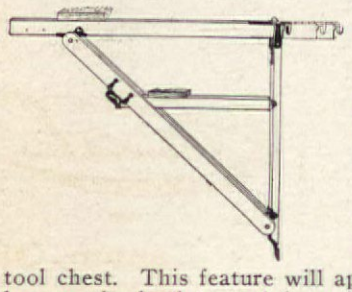
Mr. D. H. Minton of Panama City, Fla., under date of January 30th, 1910, writes as follows: "I have thoroughly tested your lock mortiser and find it is one of the greatest time savers I have ever seen. It is a complete piece of machinery and it does the work perfectly in every respect. I fully recommend it to any man who wants to put his money in something to get it back at once. It is just everything you claim for it. With thanks for the trial and having notified the agent to forward your money, I remain." When a contractor talks this way there must be something to the Miller Lock Mortiser.

The A. W. Miller Mfg. Co. will send a Howell's Rule Gauge, which is worth 15 or 20 cents, free to any of our readers who will give them the names and addresses of a few contractors they may know, and will enclose two cents in postage to cover cost of mailing.

Howell's Rule Gauge is a small, very complete device, and enables a line to be laid off with absolute accuracy and with great speed.

WEBER DOUBLE FOLDING BRACKET.

This bracket has supports for two standing planks, 22 inches apart, which makes it ideal for putting up cornices. By adjusting the top support, it can be used on any kind of a building—frame, brick veneer, or cement block. It is excellent for putting on siding, sheeting, etc., as it can be attached anywhere without injuring the surface. It also fastens into any window frame.



Many Scaffold Brackets seem sound enough when first put into use, but soon work loose and develop "side swing," one of the most annoying and dangerous of defects. Great care has been taken to eliminate any trace of "side swing" in the Weber Double Folding Scaffold Bracket.

Without loosening a single bolt, it can be quickly folded into a piece so small that 12 of them will not take up any more room than the ordinary tool chest. This feature will appeal to every contractor, as it greatly lessens the haul to and from jobs, and saves the time of the workmen.

While the sales on these brackets are just now assuming their greatest proportions, they have been in use ten years. During that time the inventor, a man who has devoted the major part of his life to perfecting such devices, has spared no pains to put them to the most exacting tests. And, while the principle has not been deviated from, many important changes were made, each one for the better.

Contractors and others can purchase these brackets complete, wood parts and all, or the castings separately. By sending a postal to Weber Mfg. Co., 661 71st Ave., West Allis, Wis., complete information and prices on these brackets and on numerous other labor saving devices can be had. The Weber Double Acting Floor Scraper alone is well worth knowing about.

THE QUICK ACTION DOVETAILER.

In these times of sharp competition, the man who wins is the one who takes most advantage of time and labor saving tools. The live man does not look upon modern tools as a useless expense but as a necessity. Much time and labor can be saved in making balusters by the use of Archer's "Quick-Action Dovetailer" for wood turning lathes. It is claimed to be the only tool known for making perfectly square shoulder and dove-tail, true to size and taper on balusters. One thousand of these perfect balusters can be turned in ten hours. The price of this tool, $15.00, would be saved on a few jobs. Write for further information or order the tool of the makers, Davis & Archer, 2515 Hanover street, Richmond, Va., mentioning THE NATIONAL BUILDER.

ON THE LEVEL TALKS.

Not so many years ago, some advertisers felt that the more hot air they placed in their advertisement, the better it was, but now many of the best advertisers believe the only way to properly sell their material is to tell the prospective buyer how the article is made and all about it.

The Baker-McMillan Co., Akron, Ohio, is one of these advertisers. If our readers will turn to their first advertisement on Page 73 of the February number and then to Page 69 of the March issue and also to their third talk in this number, they will find that each advertisement is really a short, instructive lecture on the way the Akron Eclipse Levels are manufactured and what they will do.

For instance, talk No. 2 in the March number calls attention to the Silver Lines in the Akron Levels, and states that these silver lines are an exclusive feature of these well-known levels. These silver lines show the exact level at once without any guess work. There is no straining the eyes on a cloudy day or when working in a dark corner to read the Akron Levels and they can be read accurately at a considerable distance.

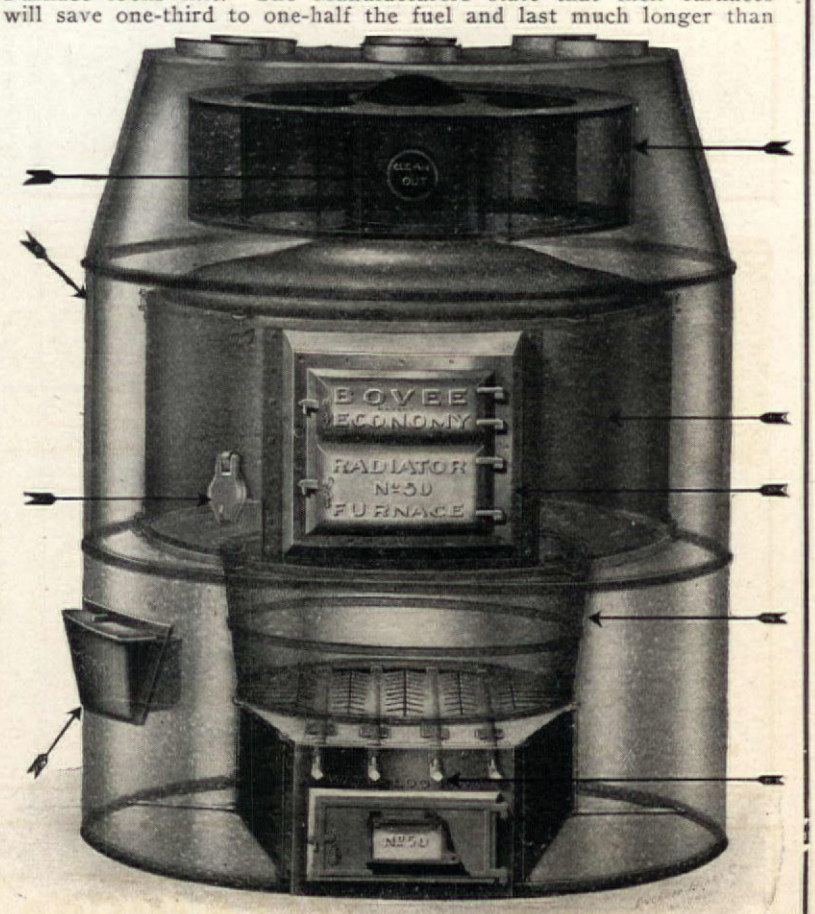
Akron Levels are made in 33 styles and sizes for every purpose, some with two plumbs and some brass bound and the manufacturers state every workman will find them the best levels for his special purpose but read the advertisement and write for their circulars.

Look for "On the Level" Talks by The Man From Akron every month, and you will surely learn a lot about levels that will be worth knowing.

THE BOVEE FURNACE.

The Bovee Grinder & Furnace Works, 60 Eighth St., Waterloo, Iowa, are offering special manufacturers prices on their three run heating plant for residences, and which include the pipe, registers and all fittings. They are also making special prices on their 54-inch furnace designed for stores, churches and schools.

The accompanying illustration gives a good idea of what a Bovee Furnace looks like. The Manufacturers state that their furnaces will save one-third to one-half the fuel and last much longer than



an ordinary furnace. They sell direct, giving the buyer a high grade furnace at the lowest possible price, and at one small profit.

In the furnace shown here, the arrow on the left hand side, at the top, calls attention to the clean out, with smoke pipe on opposite side and can be turned to any direction to reach the chimney most conveniently and have the furnace front just where desired.

Some of the other good points are the galvanized iron castings, the sheet iron lining with asbestos between; the hot blast ventilator, the waterpot which supplies any desired amount of moisture, a return circulating-radiator, and a specially designed combustion chamber, etc.

The Bovee Grinder & Furnace Works are an old, well established company, owning and operating their own plant. They aim to manufacture a first-class furnace at the lowest possible cost, and feel sure that if those interested in heating will write for their circulars.

New Books for Building Mechanics

MODERN PLUMBING ILLUSTRATED. By R. M. Starbuck.

This book represents the highest standard of plumbing work. It has been adopted and used as a reference book by the United States Government, in its sanitary work in Cuba, Porto Rico and the Philippines, and by the principal Boards of Health of the United States and Canada.
It gives connections, sizes and working data for all fixtures and groups of fixtures. It is helpful in demonstrating and in figuring work. It gives the mechanic quick and easy access to the best modern plumbing practice. Suggestions for estimating plumbing construction are contained in its pages. This book represents, in a word, the latest and best up-to-date practice, and should be in the hands of every architect, sanitary engineer and plumber who wishes to keep himself up to the minute on this important feature of construction. 400 octavo pages, fully illustrated by 55 full page engravings. Price.....**$4.00**

STANDARD PRACTICAL PLUMBING. By R. M. Starbuck.

A complete practical treatise of 450 pages covering the subject of Modern Plumbing in all its Branches, a large amount of space being devoted to a very complete and practical treatment of the subject of Hot Water Supply and Circulation and Range Boiler Work. Its thirty chapters include about every phase of the subject one can think of, making it an indispensable work. Fully illustrated by 347 engravings. Price **$3.00**

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This book is the standard and latest work published on the subject and has been prepared for the use of all engaged in the business of steam, hot water heating, and ventilation. It is an original and exhaustive work. Tells how to get heating contracts, how to install heating and ventilating apparatus, the best business methods to be used, with "Tricks of the Trade" for shop use. Rules and data for estimating radiation and cost and such tables and information as make it an indispensable work for everyone interested in steam, hot water heating and ventilation. It describes all the principal systems of steam, hot water, vacuum, vapor, and vacuum-vapor heating, together with the new accelerated systems of hot water circulation, including chapters on up-to-date methods of ventilation and the fan or blower system of heating and ventilation. 367 pages. 300 detailed engravings. Price.....**$3.00**

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The manufacture of all types of concrete slate and roof tile is fully treated. Valuable data on all forms of reinforced concrete roofs are contained within its pages. The construction of concrete chimneys by block or monolithic systems of is fully illustrated and described. A number of ornamental designs of chimney construction with molds are shown in this valuable treatise.....**50 Cents**

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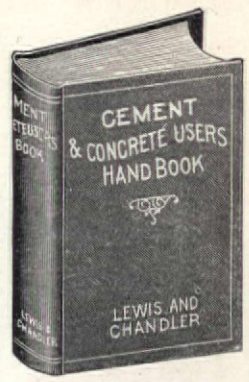
This is a concise treatise of the principles and methods employed in the manufacture and use of cement in all classes of modern works. The author has brought together in this work, all the salient matter of interest to the user of concrete and its many diversified products. The matter is presented in logical and systematic order, clearly written, fully illustrated and and free from involved mathematics. Everything of value to the concrete user is given, including kinds of cement employed in construction, concrete architecture, inspection and testing, waterproofing, coloring and painting, rules, tables, working and cost data. Price.....**$2.50**



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The process for making ornamental concrete without molds, has long been held as a secret and now, for the first time, this process is given to the public. The book reveals the secret and is the only book published which explains a simple, practical method whereby the concrete worker is enabled by employing wood and metal templates of different designs, to mold or model in concrete any Cornice, Archivolt, Column, Pedestal, Base Cap, Urn or Pier in a monolithic form—right upon the job. These may be molded in units or blocks, and then built up to suit the specifications demanded. This work is fully illustrated with detailed engravings Price.....**$2.00**

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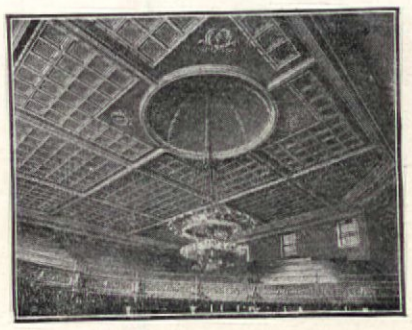

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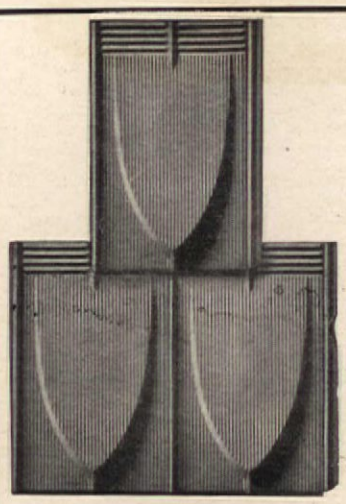

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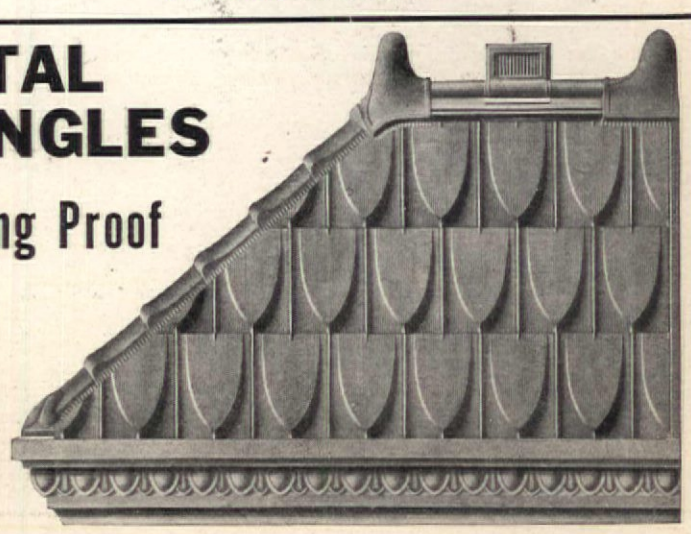


STYLE B. With Ridge and Hip Finish.

PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.

INSULATION FOR WALLS, PARTITIONS, CEILINGS, FLOORS.

A Flax Fibre Product Which Comes In Rolls Used with Great Success by Architects, Builders and Carpenters Everywhere.

Architects, builders and carpenters of late years have been advocating the use of more advanced forms of insulation for walls, partitions, ceilings and floors—manufacturers of various so-called building papers and quilts have been put to the test. Even owners have pressed hard on the acquirement of an efficient lining for homes and buildings which should be in as far as possible, a non-conductor of heat, cold and sound. That is, that it should not allow those to pass through it.

As a natural consequence, a product of flax, a form of flax fibre, from the same source as linen, obtained in rolls like ordinary building paper, is now advanced as the best insulating material for residences and buildings, and is being used very successfully by all who have given it a trial.

What we Mean by "Insulation."

To insulate is to "make an island of"—to "separate from conducting bodies by means of non-conductors." So to insulate a room the walls must be so constructed that they neither admit nor release, heat, cold, sound, dampness or vibration. Such a state of entire insulation—or isolation—is of course practically impossible to attain, and would in many respects be undesirable even if possible.

The usual insulation used in the construction of homes and buildings is known as "building paper." This "building paper" is most efficient in all uses for which it has been intended.

It accomplishes almost none of the results it is supposed to accomplish—and why any builder will longer tolerate its use is more or less of a mystery. The trade name of the real efficient material for insulating is Linofelt. It is a linen felt made from flax fibre. This is a product of the Union Fibre Company, of Winona, Minnesota. Winona is generally conceded to be the greatest flax market in the world—hence the location of this factory.

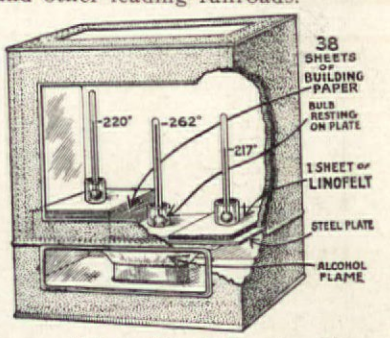
Linofelt (pronounce the "i" as you would in "light") is an insulating quilt made of degummed flax fibre, felted and stitched between two sheets of rosin-sized building paper. By this degumming process, all the vegetables, gum and oils are extracted from the flax straw and thereby all source of decay or disintegration is removed. The reason that a woolen blanket is warmer than a cotton one is because the wool fibre contains more of the tiny air spaces than the cotton.

Linofelt is like the woolen blanket—it contains countless of these little air cells and this "confined air" is the best possible non-conductor of heat, cold and sound. Linofelt is odorless and absolutely vermin proof. Bugs, rats, mice or other vermin will never touch flax fibre after it has been treated by the degumming process. It is also antiseptic and odorless—as sanitary as a surgical dressing.

As a sheathing Linofelt is used like building paper, between the weather-boards and lumber sheathing. It comes in rolls and is fastened on with lath exactly the same as you would put on ordinary building paper. A second layer of Linofelt (called Frost Linofelt) is used in place of back plaster. For this purpose it is not laid directly in contact with the lath, but it is tacked to the studs about two inches back of the lath, thus dividing the space between the lath and sheathing into two air spaces. It has been proven by actual tests that the above construction will save 40 per cent on fuel bills.

Real Insultation for Cold Storage Plants, Creameries, Breweries, Refrigerator Cars.

Linofelt is just as powerful in keeping heat out in summer as for retaining it in winter. In other words neither heat nor cold can penetrate this material. The best proof of this argument is that Linofelt is used in cold storage plants, creameries and breweries, such as Van Blatz Brewing Co., John Gund Brewing Company, A. Booth & Company, Fairmont Creamery Company. It is also used in refrigerator cars on the Chicago, Burlington & Quincy, Chicago & Northwestern R'y. Company, Illinois Central Railway Company, the Harriman Lines, and other leading railroads.



The Importance of Best Insulation for Farm Buildings.

The care of live stock during the winter months is a problem every farmer should give careful attention. It is particularly important that the barn should be so built as to keep out draughts; nothing will so quickly cause cows to run down as draughty quarters. The loss in milk supply would frequently amount to more than what it would cost to have made the barn comfortable and warm. A horse kept in a warm stable will go through the winter in much better condition. A chilled animal cannot digest food so as to get the greatest benefit from it. It is an old saying that a warm barn in winter is a cool barn in summer. A warm, comfortable poultry house is just about the best investment that the owners of the poultry can have. Give hens comfortable quarters where they won't freeze their combs and your supply of eggs will keep up to a surprisingly high figure.

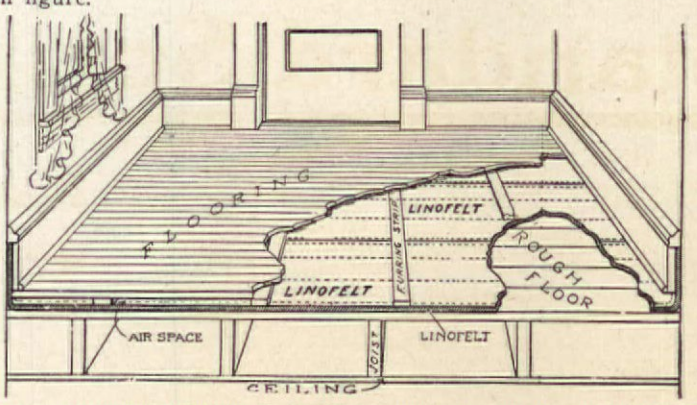


DIAGRAM SHOWING METHOD OF USING LINOFELT IN FLOORS FOR SOUND-DEADENING PURPOSES.

Linofelt is not Expensive.

Yet Linofelt is not expensive and adds less than one per cent to the cost of residences and buildings—but at least 40 per cent to their warmth in cold weather—and almost equals that record in keeping out the extreme heat of summer.

As a deadener of sound Linofelt is extremely efficient. Experiments have demonstrated that the same sound heard 200 feet through ordinary building paper is heard only two feet away through Linofelt. Apartments that have been made sound proof by the use of Linofelt are found to be in great demand and besides renting more readily bring a larger rental. Its sound-proof quality is desired everywhere and especially in school buildings, hospitals, offices and hotels. When dance floors are insulated with Linofelt no disturbance occurs on the floor below.

No house is too small to have Linofelt. It makes the house quiet, comfortable, and restful. The booklets issued by the Union Fibre Company are sent free upon request. These books show the methods adopted in using Linofelt in walls, floors, ceilings and partitions.

Architects, builders and contractors, invariably specify Linofelt after they become acquainted with it.

The Union Fibre Co., Winona, Minnesota will send samples and full information freely upon request and a large force of experts who are familiar with scientific insulating is constantly maintained for consultation. The services of these experts are free to contractors, architects and any others requiring such advice.

THE WINTHROP

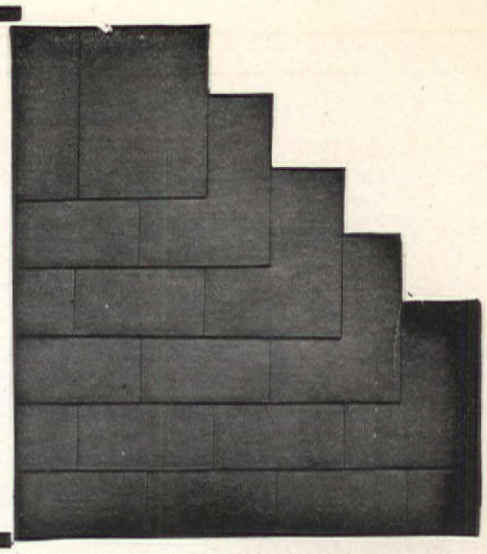
SOLID TAPERED ASPHALT SHINGLES

Are of a Cool, Gray Slate Color

And have the durability of asphalt—the fine appearance of slate and the light weight and low cost of wood shingles. They are fire-resisting—weather proof—wind and sun-proof and never crack, break or fall off. Laid with regular shingle nails, the same as wood shingles.

Special Inducements to Those Who Apply First Roof in Each Town. Catalogue on Request

WINTHROP ASPHALT SHINGLE CO., 1100 THE TEMPLE CHICAGO, ILL.



All Gears Guarded

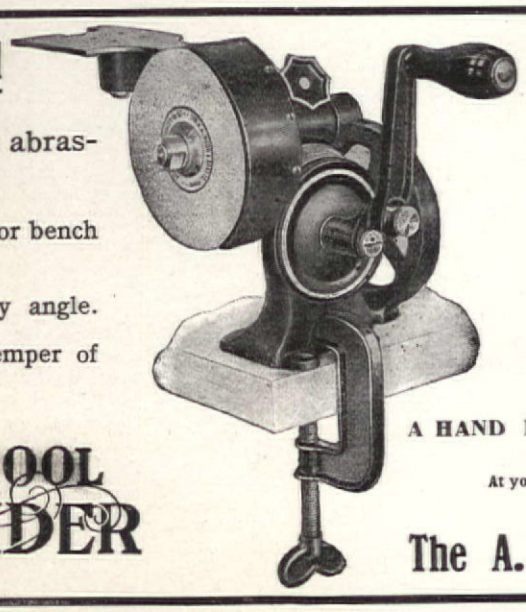
WHEEL—Best known abrasives, 5″ x 1″

Can be clamped on table or bench —Weight 11 lbs.

Rest adjustable to any angle.

Positively will not draw temper of any edge.

ATLANTA TOOL & GRINDER



CARPENTERS

Every workman needs sharp tools for good work. You can have yours sharp at all times by owning an "Atlanta" Grinder, an accurate, workmanlike, high-grade machine.

It costs only $7.50—is always handy to sharpen and grind out a nick when you need a tool the most.

It pays for itself in a short time. Any carpentry or building contractor can save its cost many times over in time saved in grinding tools and in faster and better work due to tools being kept in perfect condition.

A HAND POWER GRINDER THAT MEETS THE MOST EXACTING REQUIREMENTS

At your dealer's—If not, the manufacturers will send by express prepaid on receipt of price.

Manufacturers

The A. A. Wood & Sons Co., -:- Atlanta, Ga.

Standard Spring Floor Hinges

Chicago, Ill., Feb. 23, 1911.

THE STANDARD MFG. CO.,
Shelby, Ohio.

Gentlemen:

In my twenty-two years experience I have used all kinds of double acting spring floor hinges. I have also used the STANDARD Spring Floor Hinge, and astonished by the results superior to any other.

First of all, one of the essential points: It eliminates labor necessitated by cutting a hole in the floor, which has its disadvantages.

The Spring is very powerful and another advantage is proven in the convenience by which it can be adjusted, simply by removing the plate instead of removing the door from its position.

I cannot say too much of it as a labor saver.

Yours, etc.,
A. SORENSEN

Torrington, Conn., Feb. 7, 1911.

THE STANDARD MFG. CO.
Shelby, Ohio.

Gentlemen:

I am a persistant user of your handy STANDARD Double Acting Spring Floor Hinges, and am always glad to express my reasons to anyone.

The following is the argument I employ when questioned about this device:

1. It is made of good material.
2. It is simple and has lasting qualities.
3. It does away with all floor wedges used to hold the door open, thus saving the valuable time of the builder as well as his customer.

Thus far I have never met anyone that did not appreciate the usefulness of your world-beater floor spring.

Yours, etc.,
AUGUST DIDIER.

Lanark, Ill., 2-21-1911.

THE STANDARD MFG. CO.,
Shelby, Ohio.

Gentlemen

The Standard Spring Floor Hinge is the best. Is all steel, double acting, durable and simple. Will positively control doors swinging in either direction. Is noiseless and positive in action. Is adjustable to doors of various weights. Will remain open if desired. The case hardened ball bearings and wearing parts carry weight of door and thrust of spring. The hook attachment does away with mortise and brings weight of door directly over bearings. Alignment screws are placed where anyone can adjust door. Finish plates cover all defects in cutting. The STANDARD Spring Floor Hinge satisfies all customers because it is always in working order.

Yours, etc.,
WALTER HAWES.

Results of Prize Contest

We have known all along that STANDARD Double Acting Spring Floor Hinges were **good.** But until the answers from our prize contest began pouring in we had not realized how enthusiastically the trade had adopted them.

The five letters herewith reproduced were considered the best from among the huge quantity sent in. The judges could not decide upon which one was better than the other four, so the prize was divided into five equal parts and a check for the amount has been sent to the winners.

All you carpenters and builders who use hinges are requested to read these letters. They are written by men like yourselves—actual users of STANDARD Hinges — and clearly prove **our** statements are based on facts.

After you have read them, write for our literature and prices.

The Standard Mfg. Co.

SHELBY :: :: OHIO

Lincoln, Indiana, Feb. 13, 1911.

THE STANDARD MFG. CO.,
Shelby, Ohio.

Gentlemen:

The STANDARD is neat and simple in construction. It has a detachable floor plate that adjusts itself to the floor level. It will hold the door open in either direction, also permits door to be taken down without removing any screws.

The short plunger takes same side movement as spring; this with the ball bearings produces a noiseless and easy moving door. The hardened steel bearings and ball race give life to the hinge. The hook attachment with easy access to spring adjustment and alignment screws, together with the separate finish plates, saves half the labor of other makes. Yours, etc.,

O. H. BECKWITH

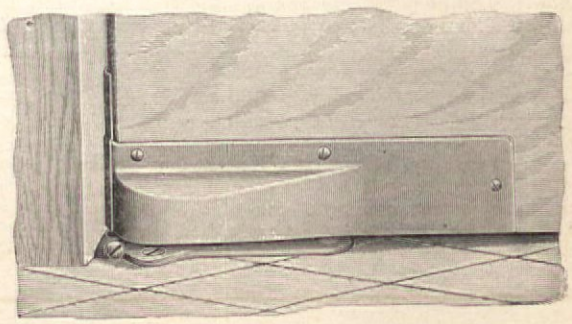
Cincinnati, Ohio, Jan. 31, 1911.

THE STANDARD MFG. CO.,
Shelby, Ohio.

Gentlemen:

First the hinge is placed at the bottom of the door and carries the weight of the door on ball bearings, thereby reducing the friction to a minimum and causing the door to swing easily and noiselessly. Second, the wearing parts are made very true and of hardened steel, which contributes to ease of action and long lasting qualities. Third, the construction is very simple and the hinge is therefore easily put on a door, quickly adjusted to work right and does not get out of order. This commends it, not only to the expert mechanic who wants to get his work done quickly and to do it well, but also to the less skilled man who may not have had much experience in putting on hardware of this description. And finally after the hinge is put on it pleases the owner because it works easily and well, and looks neat whether it is put on a common pine door or upon the most expensive oak, birch or mahogany door, and is therefore never out of keeping with its surroundings. Yours, etc.,

EDWARD A. PEACOCK



PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.

AMERICAN "CONTRACTORS'" PORTABLE SAW BENCH.

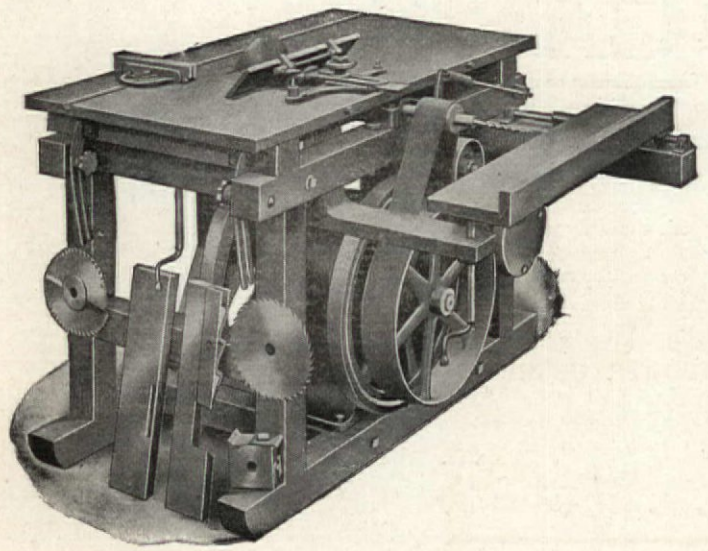
No matter how large or how small the job, nor how carefully the material is listed for the mill, there is always a large amount of sawing, boring, mitering, dadoing, etc., to be done in the shop or on the job.

Until recently, this either has been done laboriously by hand or foot power and a delay resulted from sending to the shop or mill for extra or odd pieces. Then, too, there is a lot of work which cannot be run out until the building is practically ready for it.

At a time like this, every contractor appreciates work which may be done on a portable saw bench and variety worker. The variety of work suitable for a machine of this character makes it valuable for the shop as well as the job. Its portability allows its use in the shop in getting out the bulk of the work, and then being taken to the job for the cutting and fitting.

As it is practically self-contained, it can be placed to the best advantage as to light, etc., or moved to another place where another strip may be run up through doorways or windows.

Some contractors move the machine up from floor to floor as the work progresses, as it can either be brought to the work or the work brought to the machine.



A machine of this description is manufactured by the American Saw Mill Machinery Co., Hackettstown, N. J.

Standing on hard-wood skids, covering a space only 54 inches square and weighing less than 1,000 pounds, it is equipped to do cross and rip sawing, boring, dadoing, jointing, rabbeting, etc. It is designed to rip 1-inch stuff at the rate of either 75 to 125 feet per minute, and will work up to 4-inch stuff.

The manufacturers claim that the machine will save its cost on one job, and that is easy to believe when it is considered that a large part of the cost of concrete construction is in the cost of cutting the lumber for forms, etc. As will be seen from the cut the frame of the machine is built for service, being of hard wood bolted together, insuring strength, rigidity and durability. The motive power may be either gasoline engine or electric motor, built in the frame. The adjustment of the machine allows a variety of work to be done with little delay in changing from one class of work to another.

The American Saw Mill Machinery Co., Hackettstown, N. J., will be pleased to give further information and quote prices on an equipment best suited to the contractor.

"RED TOP" ASPHALT SHINGLES.

The Cincinnati Sheet Metal & Roofing Co., 36-40 Main St., Cincinnati, O., have been manufacturing an asphalt shingle for quite a number of years—the entire output of which has heretofore been used up in their home city. This in itself is an unusually strong recommendation for its use for the home architect is often the last to believe in a locally manufactured material. But in the case of "Red Top" Asphalt Shingles, the leading architects needed just such a roofing. The beautiful gray, green and red slate colors in which these shingles are made give the architect and property owner an unusually good opportunity of securing a roof which not only adds greatly to the fine appearance of the building, but also makes a substantial material.

"Red Top" asphalt shingles are manufactured in one size and that is 8x13 inches. They are made of pure wool felt and of the best asphalt. The top or exposed surface is covered with real slate chippings in red granite, gray, green plate and red slate colors, doing entirely away with painting. "Red Top" asphalt shingles are fire, hail, storm and water-proof. As the shingles are made of asphalt, it is not necessary to use galvanized nails for every nail when driven through a "Red Top" shingle is coated with asphalt, giving it a much longer life. The shingles are laid 4 inches to the weather. A hammer and a knife are all the tools that are needed for laying "Red Top" shingles. The knife is used to trim when laying around ridges or trimming for gutters. The work of laying is done twice as quickly as with wooden shingles because one asphalt shingle covers twice as much surface. When "Red Top" shingles are laid they are flat, and flat they remain, never buckling or warping and the longer they are on the tighter the roof gets. They are packed one-quarter of a square to a case and one square covers 100 square feet.

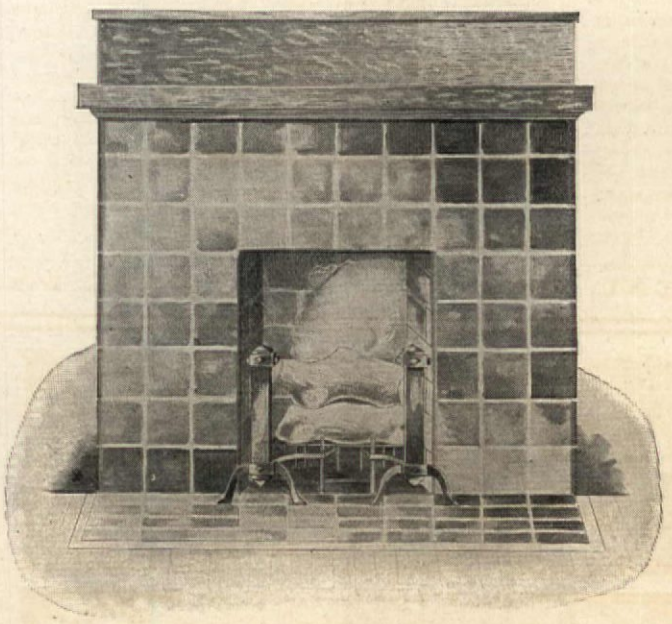
The Cincinnati Sheet Metal and Roofing Co. will be glad to co-operate with architects and contractors in other states, with a view of getting "Red Top" asphalt shingles introduced. They will send samples, catalogue, and prices on request, and their guarantee is one which fully protects anyone who specifies or buys their shingles.

ATTRACTIVE AND COMFORTABLE HOMES.

Home is what we make it—within its walls. The home as a structure may be ornamental and attractive to look upon, but the most elaborate exterior could not add to the comfort and attractiveness of the interior, "the dwelling place of the house."

It is the sacred pledge of our lives where the ties of love and affection are knit more closely together.

Every home builder should give the interior of his home the most careful consideration and one of the most important features that makes a home comfortable and attractive is the open fireplace combined with a suitable and well proportioned mantel. The greatest care should be exercised in the selection of mantels, to get the proper wood and finish and also the color and texture of tiling, producing a happy and pleasing combination in perfect harmony with each other.



The great variety of designs shown in the handsomely illustrated catalogue issued by Moorman & Otten, 611-613 Main St., Cincinnati, Ohio, will enable the home builder to make a ready selection for his new home. With a copy of the catalogue before him, the contractor or architect is able to assist the owner in the selection of a mantel best suited to his individual requirements.

This firm has been in the mantel business over twenty years and has established a record for fair dealing, and is well qualified to give any information or supply anything appertaining to the mantel or fireplace proposition. Their catalogue, showing about fifty of their latest designs, will be sent upon request.

Carpenters and Builders—Read:

Take Up Slate Roofing in Your Territory—This Spring

Wherever there are roofs of private residences, churches, schools, public buildings, barns or factories to be laid—slate is stipulated in the contract.

Prepare now to get and hold this profitable business—by taking up slate roofing. It is easy to learn, can be conducted in connection with your present line with no extra trouble or expense and will yield sure and increasingly satisfactory returns.

If *your* territory is *not* already covered by a slate roofer—now is the time to establish yourself in this business and take orders for

SEA GREEN OR PURPLE ROOFING SLATE

the one roof that *never wears out;* can't rust or decay, crack or disintegrate; that never requires repairs, is fire and spark proof; that reduces insurance rates, affords clean, pure cistern water and is practically indestructible.

Wherever new roofs are to be laid or wherever there are worn out shingles, metal, tin or composition roofs *to be replaced*—there is business for *you.*

A few simple, inexpensive tools and a little capital is all that is necessary. If there is no Slate Roofer in your territory—write to us at once for delivered prices on slate, tools, supplies. We furnish all the necessary *instructions free.*

Don't put off—write now—today.

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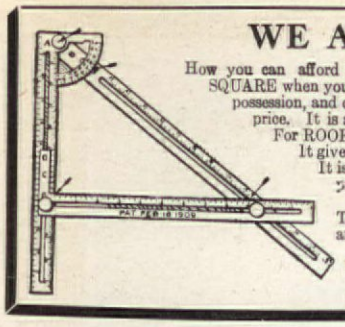

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The Tannewitz Works, Grand Rapids, Mich., are completing the tryout of a new combination woodworker for millmen, contractors and builders, and will place it on the market within the next thirty days. The machine will be illustrated and discussed at some length in a later issue of this journal. Such information that has been given out so far indicates that this concern has spent over a year in careful investigation and consideration of the needs of this branch of the woodworking industry. They promise that the result of their labor will be recognized as a decided step upwards for all contractors, builders and millmen who are interested in modern methods for reducing labor costs and quickening the completion of jobs. Such a machine would prove of great benefit and it is suggested that all interested readers should write the Tannewitz Works, Grand Rapids, Mich., for the advance information, which it is understood will soon be off the press.

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The catalogues which the Rehm Hardware Company began printing years ago, have been steadily increased in size, until now they are able to give, without any charge, whatever, a book so full of illustrations of high-class builders' hardware, etc., that it gives the contractor specifying and estimating from it, an extraordinary advantage over the man who is not lucky enough to have one. Their 1911 catalogue is just off the press and ready for distribution. In it, is illustrated everything needed to complete houses with the latest and most up-to-date hardware. It contains a fine assortment of Cylinder Front Door Sets and Handles in all of the leading finishes; Cylinder and Regular Store Door Locks and Handles, ranging in prices from $1.45 per set up to $15.00 per set. Sargent's Union Lock Sets, Cylinder and Bit Key Door Sets in Cast Bronze Metal wrought bronze metal and steel plated finished. Prices from $1.35 per set to $10.00 per set.

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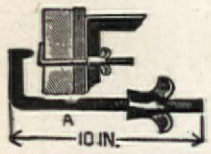

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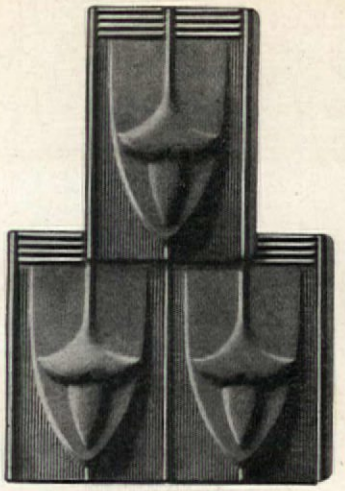

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"Titelock" Shingles are made in two sizes, 7x10 inches and 10x14 inches—painted or galvanized in both styles, "A" and "B."

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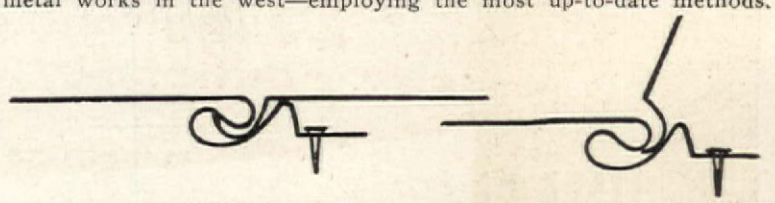

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using only the best materials and producing a line of sheet metal shingles which have gained for that company a high place in the building material field.

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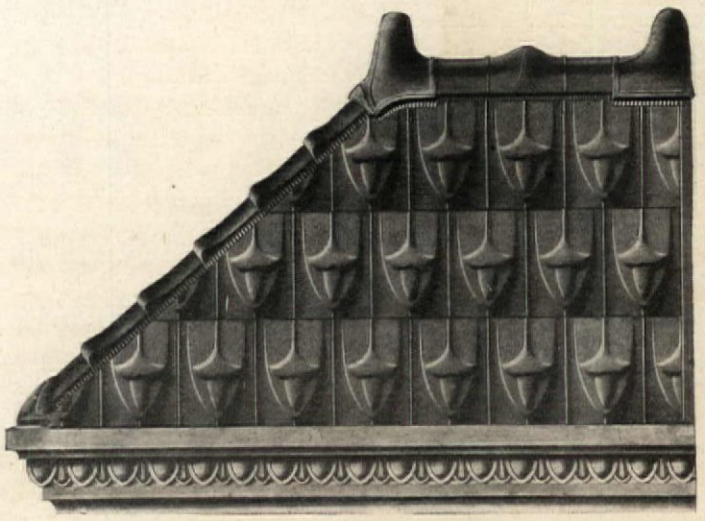

STYLE A—WITH RIDGE AND HIP FINISH

lets and these, together with samples of their "Titelock" shingles, they are sending out free of charge to those interested. We would suggest, therefore, that any of our readers or their friends who are interested in building should take advantage of the opportunity of posting themselves thoroughly on these shingles and write the Milwaukee Corrugating Co., Milwaukee, Wis., or Kansas City, Mo., to send them this information, prices and samples.

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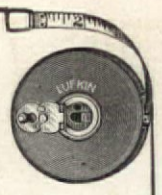

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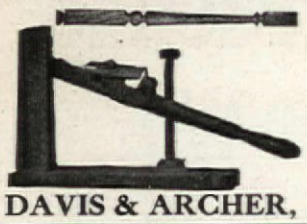

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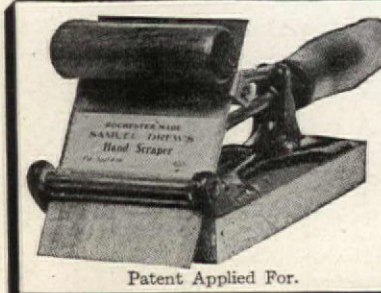

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Positively meets the requirements of a scraper which does work properly and satisfactorily. It has been thoroughly tried and comes nearer to perfection than any other hand scraper in existence.

For cabinet or floor work the DREW HAND SCRAPER is unsurpassed. Ask your dealer about them—if he cannot furnish them write to us for information, or we will upon receipt of price **($2.00) express one, charges prepaid.**

Patent Applied For.

DREW & JUDD
191 Genesee St., ROCHESTER, N. Y.

The Pruden System Portable Fireproof Garage

A Pruden Unit-Built Home Garage will quickly pay for itself in the rent it saves. Keeps your auto handy—safe from fire, weather and vandalism. Made of interlocking units of heavy galvanized steel. No framing whatever required. Set up in one or two days by yourself or inexperienced help. Extremely strong and durable. *Never costs more, often less than wood.* Ideal cottages, hunting lodges, boat houses, work shops, etc., are quickly set up by the Pruden System of Portable Fireproof construction.

Send for Catalog, giving full particulars of building in which you are interested. Please write today.

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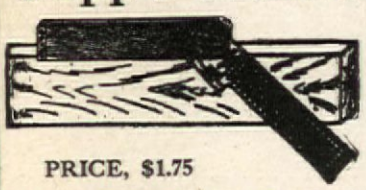
Topp's Framing Tool A PERFECT TOOL, AND THE ONLY TOOL FOR THE PURPOSE EVER INVENTED



Saves from 3 to 24 hours in laying out a single roof. Saves time for the skilled mechanic, and enables the ordinary workman to frame the most difficult roof with absolute certainty.

IT DOES ALL THIS
- It is accurate, thus preventing all mistakes.
- It gives angles for any pitch.
- It gives lengths for any rafters.
- It gives cuts for principals, jacks, hips, valleys and cripples.

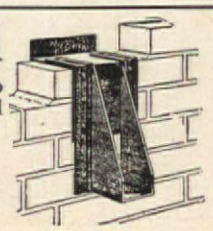
PRICE, $1.75

G. A. TOPP & CO., Indianapolis, Ind. See tool at Your Hardware Dealer's.

Van Dorn's Steel Joist Hanger Has no Equal

Send for Catalogue

THE VAN DORN IRON WORKS CO.
CLEVELAND, : : OHIO
Structural Steel and Ornamental Iron Workers



No. 1—Steel Joist Hanger for Wood Header.

No. 4.—Steel Joist Hanger for Brick Walls.

PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.

ried that small Luther grinder with him, when working up among the trees, and sharpened his axes right on the job. It wasn't long, either, before Luther Diamond Tool Grinders were being used entirely in that neck of the woods for sharpening the axes. So the manufacturer found out in that way that Luther Grinders, although small, compact affairs, and not intended for such heavy work as sharpening axes for timber, were plenty strong enough and well made to do more than they were originally intended for.

Right there is the point that manufacturers often overlook, but the Luther Grinder Mfg. Co. started out to make the very best grinder they could, and the evidences of their success is daily shown by the great number of Luther Grinders that are being used, and the constantly increased size of their factory. They are now said to be the largest manufacturers of Carborundum grinders in the world, having increased their outfit from a few to thousands. Luther Diamond Tool Grinders are claimed to be 25 times faster than the grindstone and six times faster than emery wheels. Luther grinder wheels are genuine carborundum. Carborundum wheels do not glaze, they peel steel away in tiny shavings at the lightest touch; no hard pressure is necessary, and there is no danger of drawing temper.

There are many other good points about the Luther grinders, and the best way to find out about them is to write the Luther Grinder Mfg. Co., 55a Madison St., Milwaukee, Wis., for their circulars, prices, etc. They will be glad to give full particulars.

OTTUMWA SASH PULLEYS.

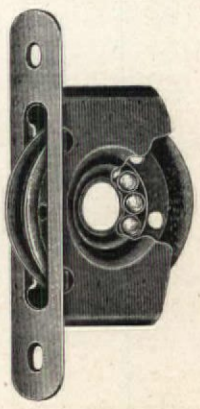
In Ottumwa Sash Pulleys it will be noticed that the manufacturers have done away with the small pin axle, and instead, make a pulley (in either ball bearing or cone bearing) which has a large ⅝ inch bearing. The extreme size of same insures long life, a rigidly upright wheel and smoothness in operation. The wheel is fastened together by six circular eyelets, not simply the points turned over, but are wedged down tightly around the full circle, on the principal of a shoe eyelet. The two sides of the casing are swedged securely together by a large ½-inch circular eyelet, formed in the same manner as in the wheel and far superior to the fastening of axles.

One-half actual size. Detail showing deep groove, gripping the lower half of the balls.

This method of manufacturing guarantees greater strength than the methods heretofore employed, and the weatherproof finish with which these pulleys are coated is also a valuable feature. It is not uncommon to see buildings partly constructed with the window frames set or lying about and the pulleys exposed to the elements in such a way that the ordinary pulley cannot help but prove unsatisfactory from rusting within a short time. Ottumwa pulleys, however, being weatherproof, are not affected as other pulleys are in this respect.

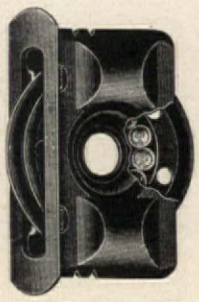
Close inspection of Ottumwa pulleys clearly shows that they are made for service, and have distinctive features. The large lubricating bearing (built on scientific principles), the rigidly upright wheel that does not wabble nor chatter, together with the weatherproofing means long life and a noiseless, fine running pulley.

In the Ottumwa plan of construction the use of the largest possible number of balls is employed and these give a larger bearing, and Ottumwa pulleys are guaranteed under cord and equal weight to carry longer than any other pulley without noise.



No. 2. One-half actual size.

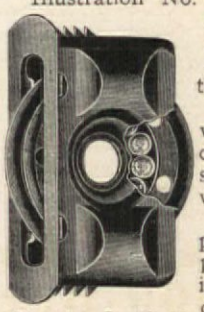
No. 2 shows an Ottumwa Ball Bearing Pulley, made in black finish. It has extra heavy face, 1 inch wide by 4 inches long and $\frac{1}{16}$ inch thick. Mortise 2½ inches long by ⅝ inches wide. Actual size of wheel is 2 inches.



No. 7. One-half actual size.

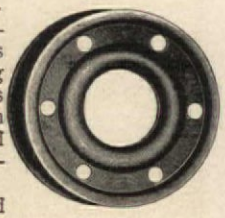
For No. 7 mortise in any one of three ways: First bore three one-inch holes in line, centers ¾ inch apart of bore mortise with Johnston & Sharp Manufacturing Company's Triple Boring Bit, or make a common straight side mortise with round ends, 1 inch wide and 2½ inches long. This style of fastening is preferred for soft wood frames.

No. 9 can mortise any one of three ways. This pulley fastens itself securely when driven into the mortise, thus saving much time. It is recommended for use in hard pine frames.



No. 9. One-half actual size.

Illustration No. 4 shows the large conical, concaved axle in the Ottumwa Ball Bearing Pulleys, the deep groove gripping the lower half of the balls, and explains in detail the unusually fine workmanship and scientific operation of the pulley.



No. 5.

Cut No. 5 shows the Ottumwa Cone Wheel containing lubricant. Attention is called to its scientific regard for centralizing wear under pressure within its

The Ottumwa line of sash pulleys, both ball bearing and properly fitting concaved conical track.

cone bearing are manufactured by the Johnston & Sharp Manufacturing Company, Ottumwa, Iowa, who feel that a test will make permanent users of their pulleys. It is this high class trade that they are aiming to secure through our readers. Many sash and door or mill concerns have for years been using these pulleys, and contractors operating good sized shops will find the Ottumwa line the one to use in all their work. They are packed in cases of 50 dozen and in barrels, 100 dozen each, and can be had in black, brass, oxidized copper or lacquered face.

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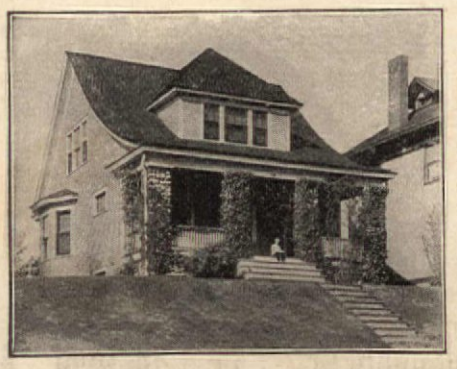

$766 buys all the millwork and lumber for this comfortable 6-room cottage. Cost, complete, $1,960. Here we have a big house for little money.

Outside dimensions are 26 ft. x 26 ft.

Bank References. We have been established here since 1865. Our financial responsibility is unquestioned. We refer you to the Scott County Savings Bank of Davenport, Iowa; the Iowa National Bank of Davenport, Iowa; the Bankers' National Bank of Chicago, or any Bank in America.

See our rating in Dun's or Bradstreet's Commercial Agencies.

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Gordon-Van Tine Co. 574 Federal Street Davenport, Ia.

$739 buys all the lumber and millwork for this cozy home, including Blue Prints and Specifications. This house would cost you complete, $1,841.

This house is 21 ft. x 32 ft. 6 in.

$1,019 buys all the lumber and millwork for this beautiful stucco house. This house would cost you complete, $2,373. This house is pleasing in appearance and practical.

Outside dimensions, 36 ft. x 24 ft. 6 in.

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Please find inclosed 10c in stamps and send me your Plan Book.

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LEVELS for $16 and Upwards

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THE JACKSON ALUMINUM LINE LEVEL

Is designed particularly to meet the requirements of all Mechanics in building construction, especially Bricklayers, Masons, Carpenters, Millwrights, Architects, and Cement Workers.

By using the Aluminum Line Level you can take Levels in one-half the time required by the old method of the Straight Edge.

This is possible because the Aluminum Line Level weighs only one-fourth ounce and is easily and quickly attached to a line. Levels thus taken are guaranteed to be accurate on a stretched line from one to forty feet. Besides, from its construction, it can be used as a Pocket Level.

This cut shows the Aluminum Line Level, including Attachment and 40-ft. line. Complete in Leatherette Case.

PRICE $1.00, POSTAGE PREPAID

It is especially adapted for laying out foundations for buildings. It will do the work no other level will do. For sale at hardware dealers, or

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Drawing Materials **Surveying Instruments**

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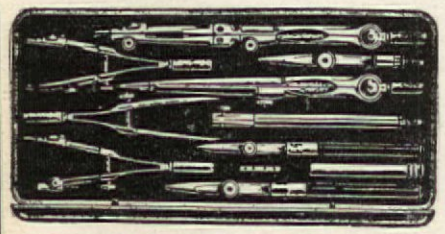

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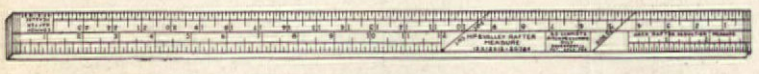

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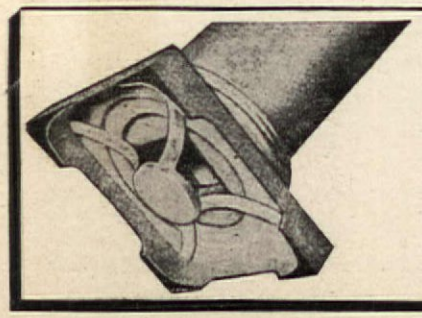
For Framing Rafters

ROOF FRAMING is easy, accurate, and quicker with these rules, no figuring or setting. Use it like a common rule. The pitch on one foot run is divided into 12 inches of pitch measure for hip and common rafters. The rules are from 1 inch rise to a foot run and up, two different measurements on each. Roof framers should not be without them.

They are time savers. Price per rule $3.00 postpaid

Send for circular telling about the rules, and how to make roof framing easy

R. D. SCHMIDT, 738 West Fourteenth Street, Davenport, Iowa



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IS THE ONLY

IRON COLUMN BASE

that has a center bearing which supports the required weight without causing the corner supports to sink into the floor and prevents the base of column and floor from rotting.

Send for circular J.

SYRACUSE CORNER BLOCK FACTORY
SYRACUSE, N. Y.

PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.

A catalogue is issued by the Johnston & Sharp Manufacturing Company which describes the full line and can be had for the asking by those interested in good sash pulleys.

"BURMITE" ROOFING AND SIDING.

Because of unusual activity in the construction of buildings during recent years, there have been many new and improved building materials offered to building owners, architects, contractors and others interested. Important building materials are roofing and siding, and consequently considerable attention has been given to these products. Inventors and manufacturers have devised and tested various kinds of roofing and siding that have proven practical because of their economy of application and their durability of surface, one of these being "Burmite," which is manufactured by the Bermingham & Seaman Company, offices in the Tribune building at Chicago. This company is a well known paper manufacturer, and its roofing department is extensive and rapidly growing because of the success of "Burmite," which is referred to as the only material except one having a cement composition between the burlap and felt base, the felt base being thoroughly saturated with pure asphalt, and the claim is made that it will not dry out. In the center of this "Burmite" material is embedded an eight-ounce Calcutta burlap, placed there to give added strength, and carefully protected on the top and bottom by heavy layers of pure asphaltum composition, into the upper layer of which is embedded, under great pressure, and put there to stay, bird-sand for the one, and two permanent attractive natural colors of slate chips for the other style of surface covering. Further meritable features are included in the following claims:

"On account of the great resisting qualities of the slate-surfaced material, it is well adapted for the roofing of acid and fertilizing plants, chemical works, pulp mills and other buildings used for like purposes.

"This material, of either the bird-sand or the chipped-slate surfaces, when properly laid will last from 15 to 20 years, and the manufacturer guarantees it for 10 years without coating.

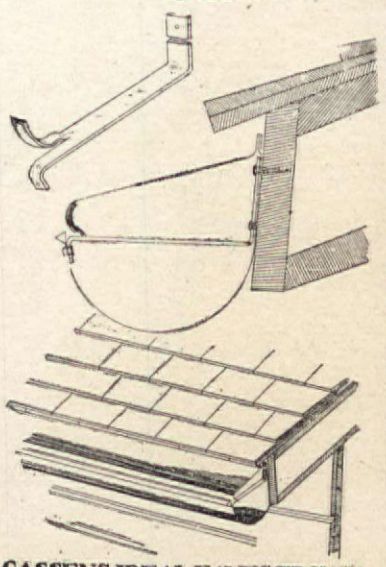
"'Burmite' is durable and attractive in appearance, the first cost being practically the only expense for years. Rain water is not affected by it, and immediately after the roof is laid the water running from it can be used for domestic purposes. Not only is the material adapted for flat or pitched roofs, but it can be laid over old shingles or tin.

"It is made to meet extreme weather conditions, and is not affected by summer's greatest heat or winter's most rigid cold. It can be applied in winter as well as in the summer without danger of buckling, expanding or contracting—a feature which cannot fail to be appreciated by people experienced in roofing construction.

"It requires no painting, is odorless, is easily applied, does not require an expert to lay it, is inexpensive, always remains in a flexible state and is strong and durable.

"Galvanized nails and lap cement, with instructions for laying the material, are packed in the center of each roll for all package shipments, and these articles are packed separately for bulk shipments."

CASSENS IDEAL EAVES TROUGH.



CASSENS IDEAL EAVES TROUGH
PAT. NOV. 13, '06. OTHER PATENTS PENDING.

Among the objections to the ordinary hanging gutter are the clogging with leaves, freezing when full of ice and snow, and the certainty that during the long summer the birds will build their nests in them or over them.

The "Ideal" Eaves Trough is designed to overcome these objections and an examination of the cuts will show how this is accomplished. The cover of the trough is arranged to allow the snow, leaves and rubbish to slide over the edge without entering the trough, while the water follows to the surface of the cover and drops into the trough. This insures clean cistern water. It is also noticed that sleet will not fill the trough, as the first drops freeze the opening tight shut, leaving the trough empty.

The back of the trough is nailed to the cornice while the front is supported on strong braces, which also support the cover, which is removable for painting, etc. By the cover, the protection afforded should add to the life of the trough at a minimum expense.

The Cassens Manufacturing Co. of Edwardsville, Ill., will be pleased to receive inquiries concerning the "Ideal" Eaves Trough. They are establishing agencies throughout the country.

SHEET METAL AND ROOFING HINTS.

A new catalogue is now being issued by the Willis Mfg. Co., Galesburg, Ill., on their complete line of Architectural Sheet Metal Supplies. This book contains 180 pages devoted to a complete line of cornices, skylights, metal ceilings, ventilators and ornamental and stamped metal work. It is fully illustrated, conveying to the builders these products as they appear ready for use.

The reading matter also contains valuable information for men who deal with this line of work and also those who have not as yet branched into this line.

Every man in the building business should have a copy on file for ready reference. It is sent free of charge to readers of the National Builder, so in writing for same, mention that you are a reader or subscriber.

QUALITY COUNTS IN TOOLS.

The workman who wants to make a reputation for good work and so advance to a better place at better pay, usually is very particular about his tools. He not only wants tools that are adapted to the various kinds of work, but these tools must have quality, and be so well made that they will not give out at a trying time.

In buying tools upon which so much depends in his daily work, the wise workman will place quality before price. He will buy tools that last, such as those which Braumsdorf-Mueller Co., Elizabeth, N. J., have a well-earned reputation for producing. This company has been making high grade tools for twenty years and its products are in demand throughout the land. To still further reach the man who wants the best, the company will deliver its tools to mechanics anywhere at close prices. An illustrated catalogue with prices will be sent on request. Better send a postal today. The Braunsdorf-Mueller Co. make quite a variety of tools for wood-workers such as nail sets, prick punches, bits, awls and chisels. A tool that every carpenter should have is the Dorn Revolving Mitre Box. That it stands high is shown by the extracts here given from letters received by the company. One writes: "It is the only mitre box I ever saw that I could cut a square mitre on a 12-inch board with a 24-inch saw. A saw can be used till it is worn out. For framing door and window frames it saves all laying off with a square after the pattern is made." Another says: "I have used the Dorn Revolving Mitre Box for four years. It has given perfect satisfaction. As a time-saver it is the best, and does work that cannot be done on other boxes." "It is adapted to all kinds of work." "It is superior in quality and quantity of work that can be done." Send to the company for illustrations and full particulars of the Dorn Mitre Box before deciding on what make of mitre box to buy. In writing mention the NATIONAL BUILDER.

THE "PRUDEN" PORTABLE FIREPROOF GARAGE.

In these days of the rapidly growing popularity of the automobile and the necessities in the way of convenient accommodations for housing it, the garage which we illustrate here cannot fail to prove of widespread concern. Interest attaches not only to the fact that the structure is fireproof, but is also portable, and, if necessary, can be taken apart in a few hours and re-erected on another location without loss of value. The construction is of sheet metal, there being no wooden framing whatever used. By ingenious architectural and structural methods, the siding, roofing, gables, cornices, ridges, sills and tie rods are so made as to interlock and support each other, producing a building in "knock-down" form which may be erected without skill and labor at small cost. The sheet metal is galvanized iron and the paneled siding sheets are embossed, while the roofing sheets are fluted in a way to represent tile. The doors are embossed metal, with heavy hinges and interior braces, while the windows are galvanized metal frames and the sash is glazed with wire glass if desired. The floor may be of cinders, cement, or wood, according to preference. The windows may be inserted in every other unit 2 ft. from any corner, and a single door inserted in any unit 2 ft. from any corner.

In cases where it is necessary to heat the building, the company has provided an ingenious and effective method of lining with any of the various makes of composition wall boards. The sheet metal garage shown here measures 12x20 ft. in plan, and is intended for a residential district. In the present picture are shown the purchaser's concrete floor and base. The "Pruden" portable fire-proof galvanized steel buildings are made by the Metal Shelter Company, 5-50 W. Water street, St. Paul, Minn., and the claim is put forth that this system permits of buildings being set up ready for occupancy within 48 hours after the receipt of the materials. These buildings are adapted to a great variety of uses, including outing cottages and auxiliaries, private garages, boat and bath houses, shore pavilions, hunting lodges, municipal voting booths, moving-picture show houses, farm implement shelters, dining or sleeping halls, railroad, switch or tool houses, vehicle shelters, etc., etc. A point which is emphasized in connection with the portable garage is that it is adapted to either pleasure cars, runabouts or commercial trucks, although for the latter the side walls are made 12 ft. high, and entrance doors with 11 ft. 9 in. opening. In the combination garage and sleeping apartment, which is found desirable, one end is provided with double doors and at the necessary distance back a partition is made across separating the two rooms. The rear or sleeping room has separate entrance door and windows as desired, while a single door establishes communication between the two rooms. The partitions are of the same height as the side walls and do not run to the peak of the roof. The porch may be open, screened or closed by siding sheets and have a window or doors where wanted. Another point

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Don't be satisfied with merely pushing a saw and driving nails Be a *master* of your craft. Learn to *plan* as well as to work—to use your *brain* with the *same skill* that you use your hands.

Learn to fill a *big-salaried* job—the kind of a job that hundreds of other men, with no more natural ability than you, are filling with ease and success.

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This Cyclopedia of Architecture, Carpentry and Building

is the most exhaustive, comprehensive and *practical* work on the building trades that has ever been published. It covers *every detail* of building construction from common carpenter work to reinforced concrete and steel; from masonry to heating and ventilation; from specifications and estimates to building laws and superintendence. It covers all the *practical* things that you *want* to know, all the things that you've *got* to know if you're going to be a success. It contains over 3,000 drawings, full page plates, diagrams, etc., has 4,670 pages, is bound in handsome half morocco and printed on special paper in large clear type—10 massive volumes—titles engraved in 23 karat gold. No *carpenter, contractor* or *building owner can afford to be without it a single day.*

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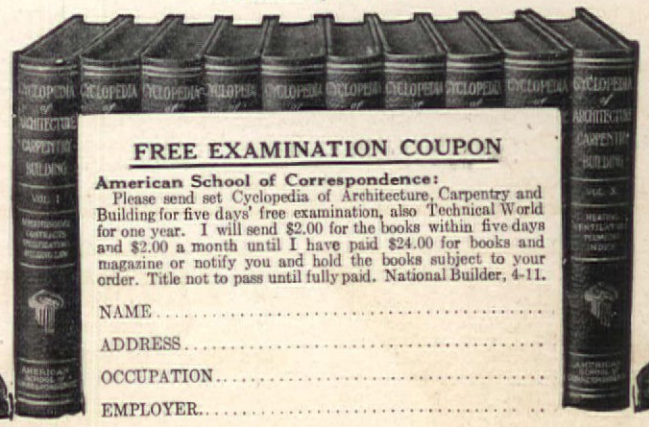

FREE EXAMINATION COUPON

American School of Correspondence:
Please send set Cyclopedia of Architecture, Carpentry and Building for five days' free examination, also Technical World for one year. I will send $2.00 for the books within five days and $2.00 a month until I have paid $24.00 for books and magazine or notify you and hold the books subject to your order. Title not to pass until fully paid. National Builder, 4-11.

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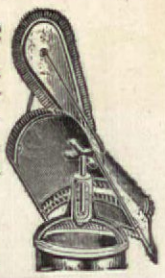
PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.

With Its Back to the Wind and the upward sloping opening in the back taking the full force of the wind, the Iwan Volcano Revolving Chimney Top makes a sure draft on the chimney.

Mountings can be bought separately and the hood and vane can be made in your shop according to patterns furnished free with all iron mountings. Sizes 6 to 12 inches.

Prices and catalog sent promptly.

Iwan Brothers, 1509 Prairie Avenue, **South Bend, Ind.**



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

MECHANICALLY PERFECT

State your requirements, giving capacity, size of platform, Lift, etc., and we will name a money saving price on your exact needs. Write today.

SIDNEY ELEVATOR MFG. CO. SIDNEY, OHIO

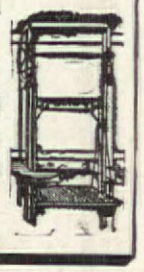
Improved Quick and Easy Rising Steam Electric and Hand Power Safety

ELEVATORS

and Dumb Waiters, Automatic Hatch Gates

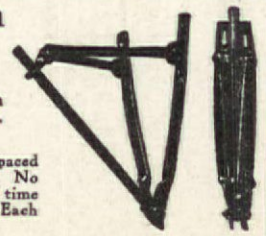
SEND FOR CIRCULARS

KIMBALL BROS. CO., Council Bluffs, Iowa



1000 Pounds Easily Carried on THE ASHLAND Folding Scaffold Put up with Four 10d. Nails.

Strongest and Best Bracket made. Instantly adjustable to any spaced studding or pitch of roof. Can be used on any kind of siding. No pins or bolts used in adjusting. No boring holes in siding. Saves time and money on every job. Special Discount for First Order in Each Locality. Write for Circular N and Prices.



Ashland Folding Scaffold Co., : 17 Washington Street ASHLAND, : OHIO

"Diamond N" Expansion Shields

Have increased holding power on account of the corrugated ribbed exterior surface.

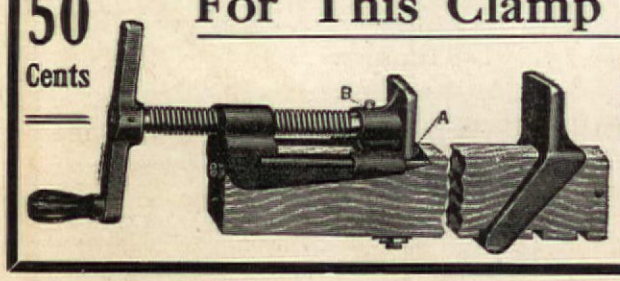
Securely clamped together without the use of springs or wires.

A better shield at the same price.

DIAMOND EXPANSION BOLT COMPANY

90 West Street, corner Cedar, - - - NEW YORK

50 Cents For This Clamp Fixture

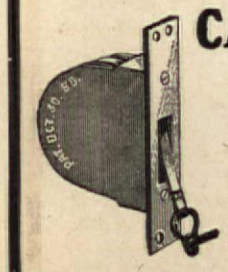


IT IS UNEQUALLED FOR STRENGTH—QUICK ACTION AND LASTING QUALITIES

Write for Catalog of Sheldon's Clamps and Vises

E. H. SHELDON & CO.
321 N. May St., CHICAGO

CALDWELL SASH BALANCE



Does away with weights and cords and VASTLY more durable.

Makes sashes work perfectly.

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

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

Write for circular to the

Caldwell Mfg. Company, 2 Jones Street Rochester, N. Y.

PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.

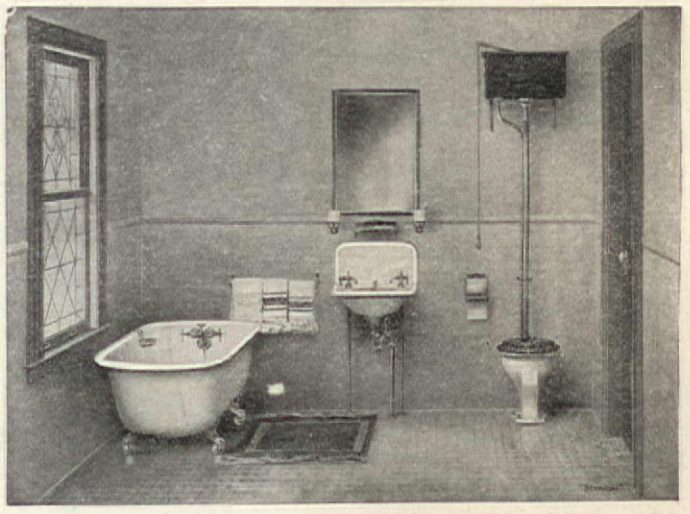
which the company makes is that any man handy with tools can, with the aid of a helper, put up one of these portable buildings in one or two days, the only tools necessary being a monkey wrench and a screw driver. When built the house is fire-proof and neat and attractive in appearance. It is also thoroughly substantial, strong and durable.

PLUMBING GOODS.

For a quarter of a century the John Hardin Company, 4543 Cottage Grove Ave., Chicago, Ill., has been supplying their customers throughout the country with plumbing, heating and water supply material and outfits. Besides the Standard Plumbers' Supplies and Steam Goods, this company has for some time been making special efforts to introduce their complete outfits for the purposes stated.

There is a considerable advantage in this method, as it insures a harmonious assembly of fixtures and parts. Wherever possible a complete plan is sent with every outfit, thus insuring proper installation.

A very large stock insures prompt delivery of almost anything



in their line, but should special fixtures manufactured by another company be required, their trade relations enable them to fill this class of orders with little delay.

Being pioneers in the mail order line, they early saw the necessity for systematic methods of making their outfits complete, for it is annoying to find an order complete except for a few necessary fittings. The delay incident to supplying them costs the purchaser at times nearly as much as the original bill of goods.

The cut shown above illustrates one of the many combinations which may be made up from the goods shown in their catalogue, which is sent on request. Anyone contemplating the installation for a plumbing, heating or water system will do well to write them in regard to it, or send a list of material required.

IMPROVEMENTS ON THE OSHKOSH SAW RIG.

The Oshkosh Portable Saw Rig is used extensively by retail lumbermen for sawing up broken, warped or defective lumber and has been found a good investment for the operator for that purpose. The outfit can also be used to big advantage by contractors for sawing work, in the construction of cement forms, etc. This machine is manufactured with either a gasoline engine or electric motor for power and is mounted on heavy hardwood skids, so bolted and mortised together as to afford a base practically as solid as a permanent foundation, thus insuring perfect and permanent alignment of shaft, boxes and belts, an extremely important consideration in the constitution and operation of a portable saw rig.

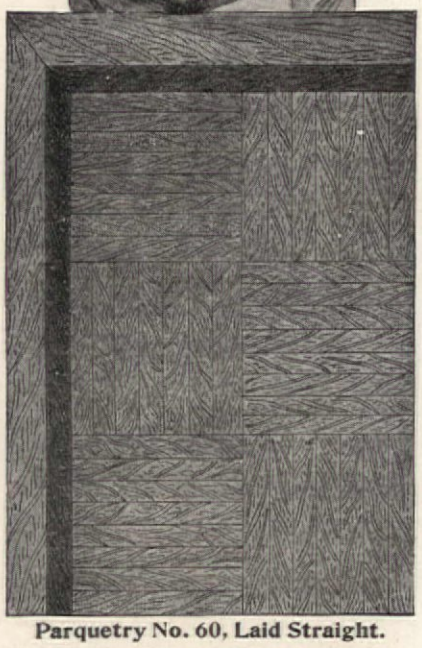
The machine part of this rig, it is claimed, is the only one of its kind on the market today, and is fully covered by patents. The feature of this machine is the swinging arbor which is made to swing for cross cutting and held rigid for rip sawing and is controlled by a lever on the side of the machine. A lever is placed in a suitable position for operating the saw when cross cutting. These machines are equipped with sliding scale for sawing various widths, also miter device for all kinds of miter sawing. The saw is covered by an adjustable saw guard which may be set to any height. Iron saw tables are made amply large enough. Attached to the iron tables are two side tables which make the sawing of long and heavy lumber much more handy. A hook is fastened on each end of the skids which allows the handling of this rig by team of horses and may be hauled to any desired place.

The portable saw rig is made in two sizes. Size No. 1 carries 14-inch saws and weighs 1,800 pounds and has a 6 horse-power gasoline engine; with the same saws and with a 5 horse-power electric motor weighs 1,400 pounds. Size No. 2 carries 20-inch saws with a 10 horse-power gasoline engine, weighs 2,400 pounds; with the same size saws and 10 horse-power electric motor weighs, 1,600 pounds. The manufacturers of the Oshkosh Portable Saw Rig have just added a very useful improvement to their outfit, which is in the shape of an adjustable device for raising and lowering the arbor. This device can be used for jointing and dadoing and is said to be a much better arrangement than the tilting table, as it does not weaken the frame and accomplishes the same results.

In order to make this device as perfect as possible, the manufacturers have constructed a separate pair of plates; the one in the rear being adjustable so that the operator can set it the same height above the table as desired for planing. This insures a smooth piece of work so that when the operator is near the end of the lumber which he is working, it does not leave a gouge in the stick, such as the old fashioned planers used to make.

The Oshkosh Logging Tool Co., 414 S. Main street, Oshkosh, Wis., are the manufacturers of this well made portable saw rig and will be glad to quote prices and give full particulars on request.

Johnson's Hardwood Floors



Parquetry No. 60, Laid Straight.

are recognized by authorities as the most elegant and highclass floors on the market. If you are interested in hardwood floors you cannot afford to be without our new Illustrated Floor Catalogue containing the latest original designs. **Mail us the coupon below today, and get it FREE.**

You See

Parquetry No. 811.

Every Johnson Hardwood Floor is the product of 20 years' close attention to the manufacture of fine hardwood floors.

Every Johnson Hardwood Floor is of the most carefully selected stock from the woods of Wisconsin, Michigan and Minnesota, which our location gives us special advantages in obtaining.

Every Johnson Hardwood Floor is cured and finished with the utmost caution in every detail by the world's most skilled workmen who have been in our employ for years.

Every Johnson Hardwood Floor is absolutely guaranteed to be first class. We stand back of it with our reputation.

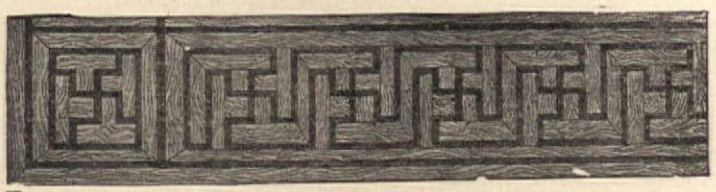
Please note the three floor designs in this advertisement, and the following prices on same:

Parquetry No. 60. 12 x 12 inches.
Plain Oak, 13c sq. ft.
Quartered Oak, 18c sq. ft.

Parquetry No. 811. Oak.
Maple and Cherry, 42c. sq. ft.

Border No. 721. 16-inch. Oak and Dark Oak.
60c lineal ft. Corners $1.00 each.

We have hundreds of other beautiful designs in our catalogue



Border No. 721.

Any good carpenter can easily lay our floors over old floors.

We have just published our new **Illustrated Catalogue of Ornamental and Plain Hardwood Floors.** It is the most elaborate and complete catalogue of its kind, and should be in the hands of every Carpenter and Builder, and others interested in floors. It **contains valuable information about floors**—Ornamental, Plain and Parquetry—and about different kinds of wood. Please fill out coupon below, mail and we will send catalogue **FREE.** Write today.

S. C. JOHNSON & SON
RACINE, WIS.

"The Wood Finishing Authorities."

CUT OR TEAR OUT THIS COUPON

FREE COUPON

S. C. JOHNSON & SON,
Racine, Wis.

Without any obligation on my part, please send me FREE (prepaid) your illustrated catalogue of Ornamental and Plain Hardwood Floors.

Name.....

.....

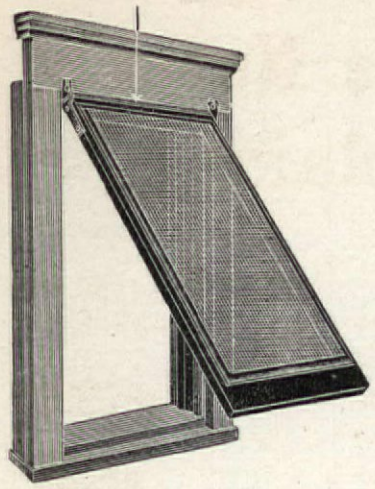
Town and State.....

N.B.4

.....

PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.

THE "E-Z-WAY" HANGERS.



The "E-Z-Way" Hanger is a recently patented device for hanging whole or half screens and storm sash on windows in either masonry or frame walls.

The hanger is applied to the screen or sash after it is fitted to the opening and is so constructed that one piece is put on the sash, the top of the hanger coming flush with the top of the screen, the other piece being applied to the outside casing, or in a brick building, to the corresponding brick mold. There is, therefore, no necessity for measuring or close fitting to be done, and in consequence, the manufacturers claim the carpenter can equip the windows very rapidly. In one case, Mr. Peters, the patentee, equipped forty-eight windows in 11 hours and 40 minutes.

The requirements of a device of this character are such that the screen must be instantly removable without the use of tools and still be secure against falling out accidentally or being blown off by a high wind.

To remove the screen for cleaning or putting away for the winter, it is only necessary to swing the sash out (as shown in the cut) when the screen can be lifted up out of the hanger. While the hanger holds the screen securely in position and close against the frame, the bearings are loose enough so that one side can be removed, while the other remains in position.

The sales department of the Peters & Grant Co. are meeting with such success with the "E-Z-Way" Hanger that it has been necessary to increase the manufacturing facilities. The "E-Z-Way" Hangers are manufactured by Peters & Grant, 2218 18th St., Kansas City, Mo., who will be pleased to give further information, prices, etc.

THE WINDOW-CHUTE.

Every house must have coal, and the question of combining utility with ornament has interested builders ever since the first basement superseded the cellar.

For many years we have been satisfied to put up with the inconveniences of the hinged or removable glass sash or solid door with its awkward fastenings. A careless driver "never even knew the glass was broken and didn't leave it open anyway."

Now, however, we have a great improvement in the Window-Chute, manufactured by the Holland Furnace Company, Holland, Mich. The coal opening is no longer a black eyesore, but a clean, neat window when closed, and a wide chute when open. Just as easy to open and close, too, and no chance to be left unlocked. The manufacturers are anxious to have the Window-Chute installed in every home, new or old, and want to hear from every builder. Their literature is interesting and convincing.

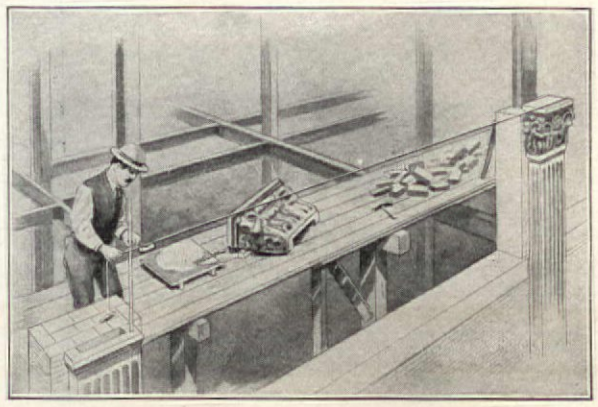
DISPLACES THE OLD STRAIGHT EDGE.

The Jackson Aluminum Line Level is the most unique time and labor saving device that has been offered the trade for years. It is a radical innovation, yet so accurate, practical and compact a tool that the Bricklayers' and Masons' International Union have formally endorsed it, while unsolicited commendations of it daily reach the manufacturers from architects, engineers, contractors, builders, carpenters, etc.

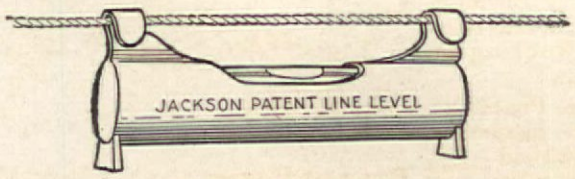
In building construction it fills every requirement of the ordinary 16-foot straightedge, and an accurate level can be taken by one man in half the time formerly needed by two men.

The Jackson Line Level weighs but one-fourth of an ounce, is easily fastened to a line. It is made of the highest grade of aluminum, handsomely finished, filled with a proved level glass, and is practically indestructible. Its accuracy is guaranteed on a line stretched from one to forty feet. It can be used as a pocket level.

A double spring clamp permits attachment to any ordinary steel square, giving a perfect plumb and level. It can also be fastened to a regular pocket rule, a machinist's steel scale or a strip of wood for leveling larger surfaces.



Although on the market but a few months, orders are coming from every state in the Union, and many foreign lands. It takes the place of a surveying instrument, and is invaluable for foundation work, grading, getting angles, etc.



The outfit is placed in a handsome black leatherette, stiff case, holding the level, a forty-foot line, and the spring clamp, yet suited for the vestpocket in size. The price complete is $1. The makers are Joseph Woodwell Co., 201-203 Wood st., Pittsburg, Pa.

STANDARD SPRING FLOOR HINGES.

In the January issue of the NATIONAL BUILDER, the Standard Manufacturing Company of Shelby, Ohio offered to pay $10.00 for one hundred words or a 100 word article, written by a contractor or builder who would send in the best arguments on why the Standard Double Acting Spring Floor Hinges are better than others.

These articles were to reach the Standard Manufacturing Company by March 15th. The manufacturers, wanting to be perfectly fair with every carpenter and builder who had sent in an article, asked three prominent carpenters and practical men located in their town to aid them in going over the large number of replies received and making a selection of the best one.

After carefully reading all of them, there were five articles which were so good that it was impossible to tell which one was actually the best and, therefore, it was decided to divide the prize between the five and a check for $2.00 was forwarded to each one of the five prize winners. These are Axel Sorensen, Chicago; O. H. Beckwith, Linton, Ind.; Walter Hawes, Lanark, Ill.; August Didier, Tarrington, Conn., and Edward A. Peacock, Cincinnati, Ohio.

In order that the readers of the NATIONAL BUILDER may see the articles and know why the Standard Spring Floor Hinges are so well liked by the man who specifies and buys them, the Standard Manufacturing Company reproduces the five replies in their advertisement in this issue and it would be well to turn to the announcement and read it through carefully.

Amatite ROOFING

Why the Buyer of Amatite Never Complains

WHEN a man buys ordinary ready roofing he usually neglects to paint it and after three or four years he comes back to the dealer with a protest. It is human nature to neglect painting roofs.

When a man buys Amatite Roofing he lays it on his building and in three or four years it is still as good as new and does not need any paint. He forgets he has such a roof but no harm is done by that.

There is nothing to neglect in the case of Amatite. Amatite has a peculiar surface—a sort of plastic concrete made of pitch and mineral matter.

This surface is plastic enough so that the material can be rolled up into handy rolls in the usual manner and handled just like any other ready roofing. When unrolled on the roof and nailed down it presents to the weather a continuous surface of mineral matter and pitch. On this surface wind, rain, storm, heat and cold have little effect. Year after year it looks up to the sky undisturbed and unaffected. It costs nothing to maintain and relieves the owner from all responsibility.

Dealers can improve their business by selling Amatite and buyers make a good bargain when they buy it. The price of Amatite is less than that of most painted roofings of less weight and durability.

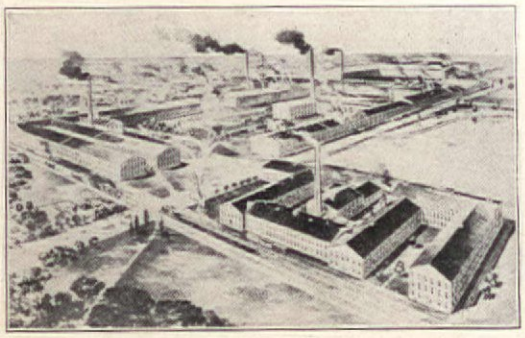
Sample free on request. Address our nearest office.

Barrett Manufacturing Company

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

Mr. Frank H. Milham, *President*, writes us under date of August 15, 1910, as follows: "After going into the Roofing question carefully, we have decided that your **'Burmite' looked the best to us of any Roofing we had seen."**

Durable, Practical, Attractive, Inexpensive, Easily Applied with Superior Fire-Retardative and Storm-Resisting Qualities to meet Extreme Weather Conditions—Sparks, Hail, Sliding Ice, Rain, Snow, etc., do not affect the upper coating of "BURMITE"



Bryant Paper Co.'s Plant KALAMAZOO, MICHIGAN

Birds-Eye View of their present Plant—the new buildings, now being constructed, double present floor space, making it the largest Paper Mill of its kind in the world.

2,500 SQUARES — 5 CARLOADS OF

READY-TO-LAY **Burmite** (Reg. U. S. Pat. Off.) **ROOFING**

Flexible-Cement-Burlap Inserted

Also used as a **SIDING**

Have been Ordered to ROOF THIS PLANT

Burmite Material for Roofing and Siding (PATENT PEND'G)

Proven *The* BEST *By* TEST—GUARANTEED FOR 10 YEARS Without Coating

Used in any Climate; can be applied in cold or hot weather; equally well adapted to uneven, flat or steep surfaces; can be laid over old Shingles or Tin. Lasts longer than Shingles—costs less. Has perfect Fire-Retardative Qualities. The First Cost—The Only Cost.

To make yourself acquainted with this up-to-date Material for Roofing and Siding Plants, Business and Factory Buildings, Residences, Summer Homes, Bungalows, Barns, Garages, Churches, Warehouses, Elevators, Mills, Depots, etc., of CONCRETE, BRICK, STONE, FRAME or other Construction— ***be they NEW or OLD,*** **WRITE TODAY for Samples and Booklet,**

"Burmite Quality Counts"

Illustrated with Buildings, Beautifully Printed in Colors, showing effect of BURMITE MATERIAL applied as a Roofing and Siding. Mailed free of all charges and obligation.

Bermingham & Seaman Co., Roofing Mfrs. **Chicago**

GENERAL OFFICES: 1208-1226 Tribune Building
PLANT: 56th, Armitage and Grand Avenues

CHICAGO CINCINNATI BUFFALO
BIRMINGHAM, ALA. DALLAS, TEXAS
DETROIT, MICHIGAN GRAND RAPIDS, MICH.
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Distributors of BEAVER BOARD

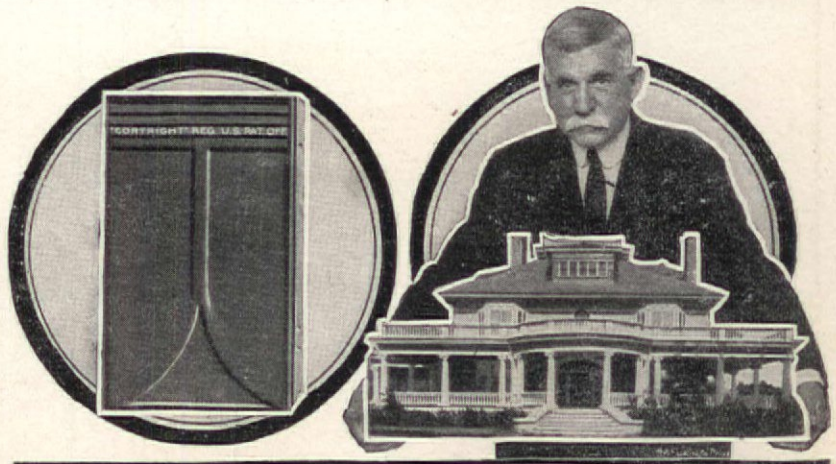
BERMINGHAM & SEAMAN CO., N.B.
1208-26 Tribune Building, Chicago.

Mail to my address, as above, Sample and Booklet. This places me under no obligation.

Name .....

No. & St. .....

Town ..... *State* .....



CORTRIGHT

Selling Talk No. 12

THE HANDSOME ROOF

The most important qualities of any roofing material are that it be tight, fireproof and durable—all of which Cortright Metal Shingles are.

But:—

Cortrights would **still** not be **the ideal roof if** they were not **also more ornamental.**

Different styles of architecture require roofs in harmony, but until the inception of Cortrights this was impossible.

Neither wood nor slate possesses this adaptability to various forms of architecture, so in the past every character of building has of necessity been adorned (?) with the same commonplace roof.

That is the beauty of the Cortrights.

We design them in several styles which make them adaptable to very artistic architectural effects.

Cortrights are therefore **handsome enough for the most elaborate building** and **economical enough for the most unpretentious structure.**

So you could **see** how suitable to any condition Cortrights are and how well they look on all kinds of buildings, we have filled two books with photographs, showing them in actual use under all conditions.

We have two of these books here for **you,** just waiting for you to send your name and address.

Send them now.

Cortright Metal Roofing Co.

Philadelphia and Chicago.

COUPON

Cortright Metal Roofing Co., Philadelphia, Pa.

Gentlemen:—
You may send me the two free books offered by you in the April issue of the National Builder.

Name .....
Street Address .....
City .....
Business .....

PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.

Send us Two or More Names of persons who are interested in or want to buy Hot Water Heating Plants and we will send you this scale. Back inches are divided into 6, 10, 12, 16, 20 and 40 parts. Also free catalog on request. Name this paper when writing.

ANDREWS HEATING CO.
1166 Heating Building
MINNEAPOLIS, MINN.

$1.00 Good For $1.00

TO INTRODUCE
The SELF-SETTING PLANE
(As long as this Ad appears.)

Any dome in this paper is good for one dollar, in payment for a **Self-Setting Plane,** if sent us with the balance of the list price of a Plane from where our Planes are not sold.

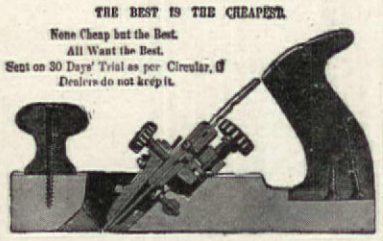
If you want more than one Plane and they are not sold in your town we will allow you dealer's discount.

List price of **Beech Wood Planes:** Smother $3.25, Jack $3.50, Fore $3.75 and Jointer $4.50.

Do not say the price is too high until you try it, then if the Plane is not **worth to you, twice its cost,** return it at **our expense** and the trial won't cost you a nickel.

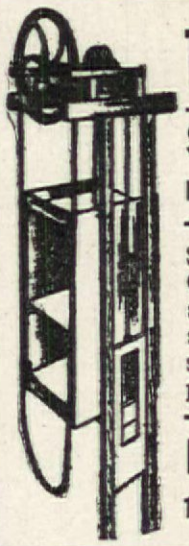
Get one on trial now and let the Plane talk for itself. You run no risk, as this paper guarantees we will do as our advertisement says.

If you don't want a **Self-Setting Plane** now, **send us a dome and the addresses of ten carpenter friends, no matter where they live, and we will send you a hard, tough, carpenter's pencil and circulars.**



Gage Tool Co. VINELAND, NEW JERSEY

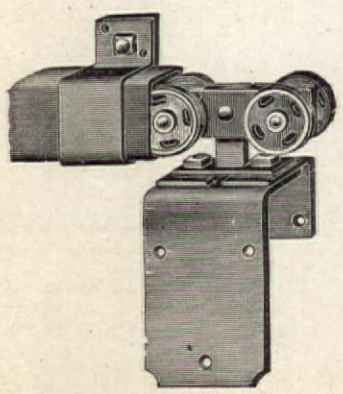
The Excelsior Dumb Waiter



Sent complete to a nail $18.50
Knocked down, ready to erect

Self-Retaining Machine. Hardwood Car. Ropes, Guides, Weight, Lumber and Hardware. No splicing necessary. Explicit working directions sent with every outfit. We sell direct to the consumer, and give an up-to-date Waiter for the price of an inferior one. Send for Descriptive Pamphlet.

R. M. RODGERS & CO.
175 Washington Ave., Brooklyn, N. Y.



RICHARDS-WILCOX TROLLEY HANGERS

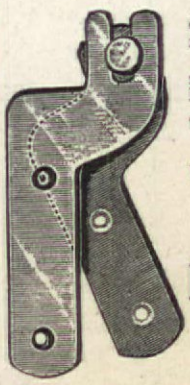
for that garage job. We'll solve your problems in warehouse work, too. Tell us your needs, get catalog and mention name of your hardware dealer.

Richards-Wilcox Mfg. Company
Aurora, Illinois

THE "E-Z-way" SCREEN HANGERS

NEVER ALLOWS SCREEN TO BIND OR STICK WHEN HUNG—
ALWAYS FIT SNUG TO BLIND STOP

Everything Done from the Inside of the Building

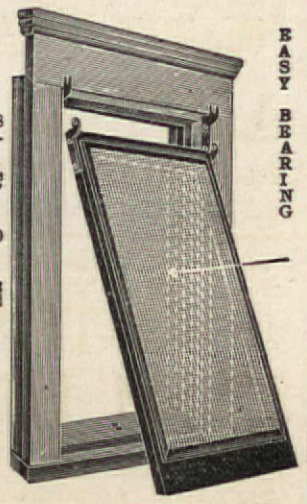


"E-Z-way" Hangers are made of 18 Gage Black Iron and are electro galvanized. THEY WILL NEVER RUST.

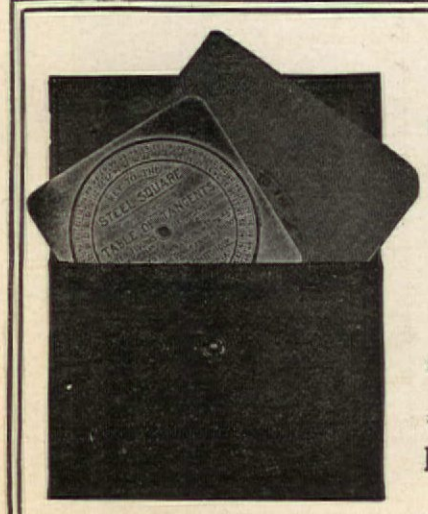
You can hang one-half to two-thirds more screens in a day with "E-Z-way" Hangers than with any others.

TRY TWO DOZEN SETS FOR $1.00—NO PERSONAL CHECKS

Use a No. 1 Hanger on a 1 Inch - Casing
" No. 2 " " 1¼ "Brick Mould
" No. 3 " " 1½ " " "



PETERS & GRANT
Patentees and Manufacturers
2214 East 18th Street
KANSAS CITY, MO.



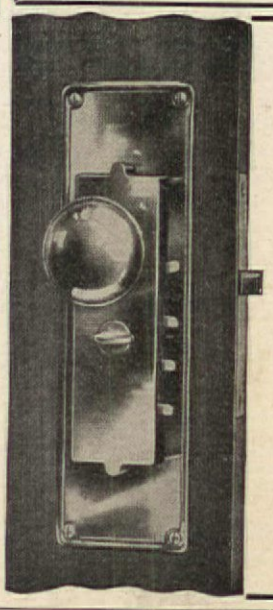
Wood's Key to the Steel Square

Has been tried by thousands of Builders and not found wanting. It is a wonderful instructor as to the uses of the square in obtaining cuts and bevels for all kinds of work.

Made of celluloid and put up in neat leather case of pocket size, so that it can readily be carried on the job. It is a snap at our low price of $1.50.

Send your order at once and it will be shipped prepaid to your address

HODGSON BOOK CO.
358 Dearborn St., Chicago



Dayton Keyless Locks

REMOVE ALL THE KEY NUISANCE

Cannot be picked—Easily and instantly opened in 3 seconds—day or night—by just touching one or more of the sentinels you see here on the side of the lock.

Architects, contractors and carpenters will find them money winners—meeting every want in locking and opening doors, and giving absolute protection.

SALESMEN WANTED

Let us tell you about them—also about our padlock having 38,005 combinations. Write today.

THE DAYTON KEYLESS LOCK CO.
804 U. B. Building, DAYTON, OHIO

THE "EUREKA" SPIRAL SCREWDRIVER

PUSH ON THE **HANDLE and THE SCREW GOES IN**

Will Drive a Screw in Hard or Soft Wood
QUICKER AND EASIER THAN ANY OTHER
THE "EUREKA" SPIRAL SCREWDRIVER
is made in two sizes from the highest class materials—No. 1, 14 in. long opened, 9 in. closed; and No. 2, 19 in. long opened, 12 in. closed. Can be used as an ordinary screwdriver.

GET ONE TODAY FROM YOUR DEALER

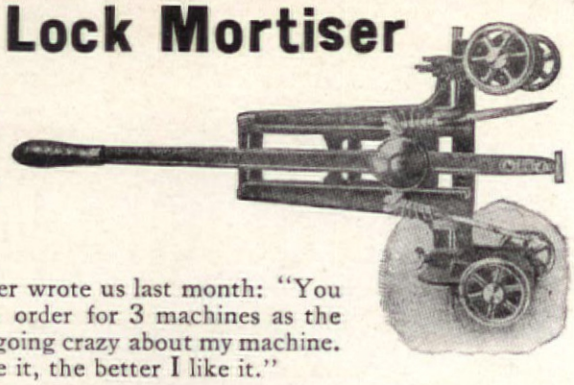
DECATUR COFFIN CO., E. North St., DECATUR, ILL., Manufacturers

OLDEST AND BEST

PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.

Miller's Two Minute Lever Lock Mortiser

Chisels the opening for Locks and is the greatest time and labor saver



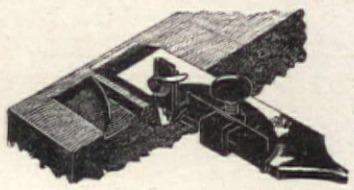
One builder wrote us last month: "You may expect an order for 3 machines as the carpenters are going crazy about my machine. The more I use it, the better I like it."

THINK THIS OVER, MR. CONTRACTOR AND BUILDER

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

MILLER'S TWO MINUTE LOCK MORTISERS

are sent on trial to any reliable contracter and builder. Write for circulars and order now for spring work.



We also make a Butt Mortiser and Rule Gauge which cuts out the seats for butt hinges in soft or hard doors, jambs and similar work—which we will send you postpaid for ***75 cents.***

A. W. MILLER MFG. CO.

Nevada Building, CINCINNATI, OHIO Western Office, RIVERSIDE, CAL.

THIS CHISEL IS RIGHT FROM TIP TO EDGE

P.H.L.Co's. COMO CHISEL

fits the hand just right. No matter what price you pay you can't get a better Chisel than

IT IS THE CHISEL OF SERVICE.

The best that will and skill can produce is in the edge of the

P.H.L.Co's. COMO

Looking at a P.H.L.Co's. COMO chisel in any way it is the best.

P. H. LEARNER CO.
—INC.—
Factory: KOKOMO, IND.
SALES DEPARTMENT
108 W. Lake St., Chicago, U.S.A.

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

THE "AUTOMATIC" SASH HOLDER

is better and cheaper, more convenient, less perplexing, easier to put in, more reliable, more durable, more satisfactory.

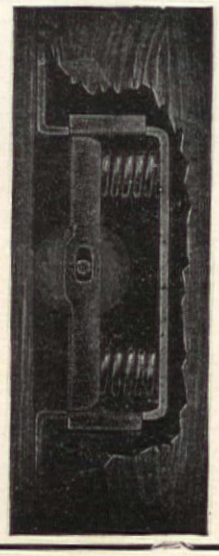
The "Automatic" Sash Holder is the new modern, up-to-date device that dispenses with cumbrous sash weights, kinking cords or ribbons, useless weight pockets, misfit pulleys and reluctant balances, and saves all the time, labor and expense of fitting them in place.

Architects are specifying them, Contractors and Builders are buying them. Sash and Planing Mills are providing for them, Carpenters are putting them into old and new buildings.

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

Sample sent on request

Sold by hardware dealers or direct from us. Correspondence solicited. Representatives and side line travelers wanted all over the world.



AUTOMATIC SASH HOLDER CO.
279 Broadway, New York City.

THE LITHOGRAPH POSTAL WILL INCREASE YOUR BUSINESS

By using Lithograph Postals you convey the natural color effects to the prospective home builder as well as the architectural construction.

This is an entirely new idea for the contractor and builder.

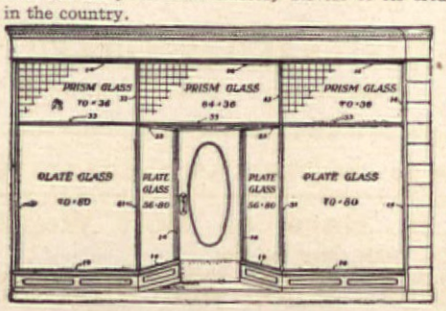
It is a very effective way to advertise and create future business at small cost.

Write for free samples.

AMERICAN VIEW CARD MAKERS
334 Dearborn Street :: :: :: :: CHICAGO

Get a Store Front that Will Stay

Select a bar for the new store front that you will not have to replace in a few years. The Petz Bar has years of satisfactory service to its credit with some of the largest stores in the country.



These concerns found by investigation that the Petz Bar offered the best combination of lightness, strength, ease of installation, safety and beauty. It draws trade because it gives a maximum of light and display space in the window.

Find out about the Petz System by writing at once for our booklet on "Modern Store Front Construction." It contains descriptions, illustrations, prices, and opinions of prominent users.

DETROIT SHOW CASE COMPANY
481 West Fort Street - - DETROIT, MICH.

CUSTOM MADE

FLY SCREENS

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

Our screens are made from kiln dried lumber and have waterproof coped joints and the frames are weather-proofed before the finishing coats are applied.

Best grades of Wire Cloth, Enameled, Galvanized, Genuine Bronze, fastened by most approved methods.

Our new "Ironwood" Screen is the cheapest good Custom Made Screen yet produced

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

Special Terms to Contractors and Builders. Delivered prices will be quoted. Goods laid down at your railway station

A. J. PHILLIPS & CO., Le Roy Street, **Fenton, Mich.**
28 Years Experience. 3½ Acres of Floors

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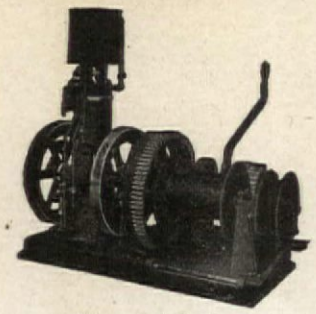

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SIMPLE, STRONG, DURABLE

The most economical method for elevating building material. Two sizes, 4 and 6 horse power.

Contractors send for Bulletin No. 5 and get our proposition.

Also a full line of engines from 1 to 35 horse power.

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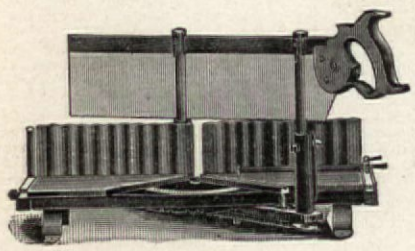
Made of STEEL - Cannot Break

First in Quality and Improvements



Automatic Stops for holding up saw

Corrugated Backs. Graduated Gauge for Duplicate cuts and many other features

If you want the Best you will take no other

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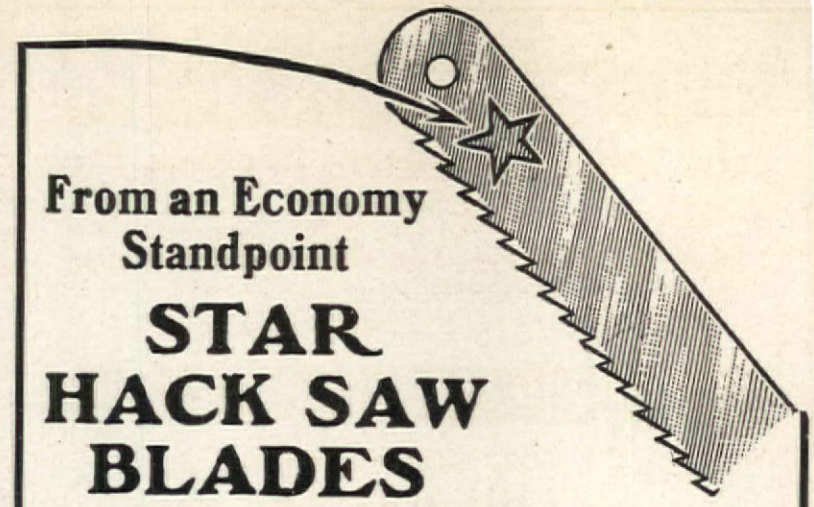
GOODELL MFG. CO., Greenfield, Mass.



From an Economy Standpoint

STAR HACK SAW BLADES

FOR MACHINE USE 12 x 5/8

Surpass all other Blades. Eliminate carrying in stock Blades of varying widths and thicknesses with different numbers of teeth to the inch. They are made of the best material.

POSSESS GREAT STRENGTH AND DURABILITY.

Ask for and insist upon getting the Blade with the ★

ALL DEALERS KEEP THEM.

Write for leaflet.

MILLERS FALLS CO.

28 Warren St., NEW YORK

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Tells all about the different systems of artificial heating for homes and business structures and tells how you can buy the famous Jahant Down Draft Furnace complete all ready to set up, for

$10 Down and $10 Monthly

We ship direct and pay the freight. The Jahant is cheaper to buy and cheaper to operate. We give a written guarantee to return your money after a year's trial if not satisfactory. Write for this big book today, it's free.

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Drawing Tables and Boards

Filing Cabinets and all Drawing Room Requirements

Detail Drawing, Blue, Brown and Black Print Papers

The "UNIQUE" direct BLACK PRINT PAPER requires only one bath. Best on the market. Write for samples.

BEST MAKES OF BUILDERS' TRANSITS AND LEVELS. Complete catalog Vol. 300B sent on request.

KEES BEATRICE

Hanging Screen from inside the building

KEES-GOSSETT DETACHABLE SUSPENSION **HINGES**

Try a pair to hang one of your own window screens.

After that you'll always use and recommend them.

Ask on your letter-head and we'll send a sample set free if you mention your hardware dealer.

F.D. KEES MFG. CO. **BEATRICE, NEB.**

BOX 810

Screen swung out to wash windows

Full Line of Plumbing Supplies

Sold Direct at Wholesale Prices

20 to 40 per cent Saving

Complete bath room outfits—tubs, closets, lavatories, kitchen sinks, etc. Prompt shipment from a complete stock. The only house selling up-to-date, guaranteed goods at wholesale direct. Write for illustrated catalogue and prices.

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Largest and Most Complete Stock of

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In the Country

High Grade Goods and High Grade Service

ESTABLISHED 1872

ORR & LOCKETT HARDWARE CO.

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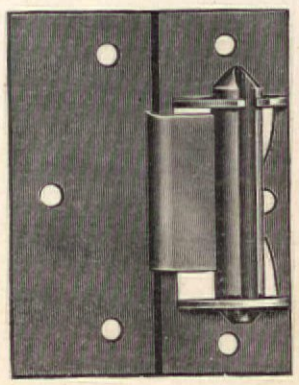
Samson Spot Sash Cord

IS made of extra quality fine yarn, and warranted free from imperfections of braid or finish. It can always be distinguished by our trade mark, the Colored Spot. Carried by all dealers. Send for samples and tests.

Samson Cordage Works

BOSTON, MASS.



Diehl's Separable and Reversible Hinge No. 20

This hinge is designed for storm and screen doors. The door may be swung at right angles and lifted from its bearings without removing the screws, as the shank slides through the small slot in the upper ear so that it makes it very easy to change from storm to screen doors and from screen to storm doors without removing the hinges. Hinge No. 20 is made of open hearth wrought steel, 14 gauge, and finished in black baked japan or oxidized copper.

A Sample Set of Hinges will be sent upon receipt of 25 cents in stamps.

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You Save Half-a-Dozen Profits

Our DIRECT selling plan has solved economy for the man who is going to build. No more exorbitant high prices to pay—Buy Lumber DIRECT from the Timber Country. We have no road-men—no commissions to pay—no retail yards—nor the expense of handling several times. Thus we save YOU the middlemen's profits—several of them. Your money is as good as the big wholesalers' or retailers' if you ship in car lots, and the biggest part of the Lumber sold in your locality comes from this territory. Send for our Lumber Price List.

ESTABLISHED 1894 **SHAW-WELLS CO.** SPOKANE, WASH.

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Don't be afraid of the freight.

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Kansas City	47c	" "
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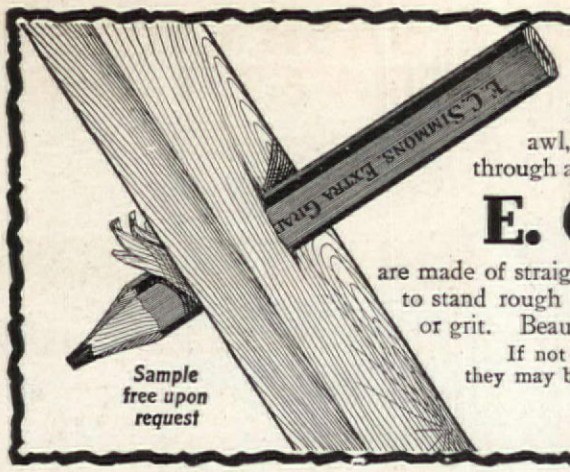


Sample free upon request

A Test of Toughness

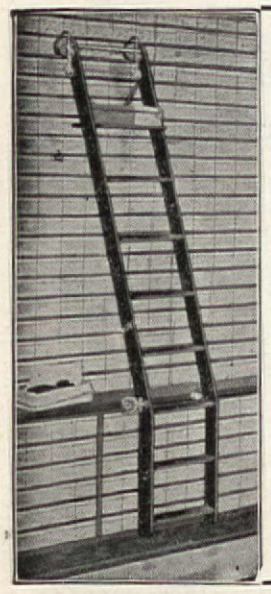
Not that you are expected to use your pencil as a chisel or an awl, but just to prove its toughness, this pencil was *actually driven* through a half inch plank. The illustration was drawn from a photograph.

E. C. S. Carpenter Pencils

are made of straight-grained, seasoned cedar and first quality graphite, toughened to stand rough usage. It is soft, smooth and uniform in use—no hard spots or grit. Beautifully finished in lustrous paint and silver leaf.

If not at your dealer's, write to us for free sample and we will tell you where they may be had. Address Div. No. N. B.,

SIMMONS HARDWARE COMPANY (Incorporated)
ST. LOUIS and NEW YORK, U. S. A.



Mr. Carpenter and Builder

Why Not Make Some Extra Money

by inducing your local merchants to modernize their stores? By doing so you will not only make money on selling them the **rolling ladders** that they may require, but also on the shelving that it may be necessary for them to extend to ceiling or rearrange.

It is only necessary to send us the measurements and we will do the rest. Ship you the ladders complete and ready for use and guarantee them in every respect to be satisfactory.

Write for Catalogue

MILBRADT MANUFACTURING COMPANY
1442 N. Eighth St., ST. LOUIS, MO.

LET US SEND YOU THIS BOOK FOR

FIVE DAYS FREE TRIAL

Send no money—just mail to us your name and address. Your book will reach you by return mail. Keep it 5 days—use it—then either send One Dollar or return the book.

Standard Handbook of

ESTIMATING DATA

Every Man in the Building Trade needs it.

READ WHAT OTHERS SAY:

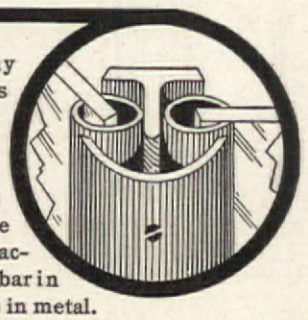
Your Standard Handbook is the best book of its kind ever written. For all the **30** years I have spent in estimating and building I would not be without it for twice the cost.

Name .....

Address .....

THE BUILDERS' AUXILIARY COMPANY, 325 Old South Bldg., Boston, Mass.

the VOLTZ UNIVERSAL SASH BAR

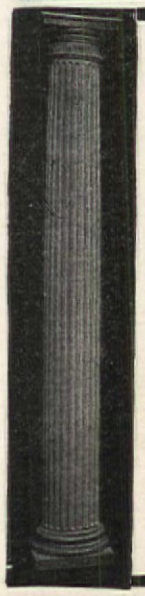


Makes any angle, allows for settling of building—keeps windows from frosting. The most beautiful, practical and durable bar in the world. Made in metal.

"Holds with a grip of iron, yet with a touch of velvet." Glass set from the outside. **More good features explained in our catalog—it's fine—send for a copy before you build or repair.** Write today.

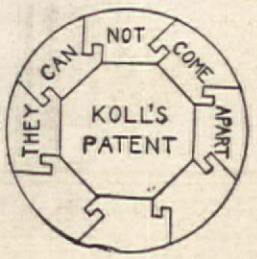
VOLTZ MFG. CO.

1101-1103 S. 8th Street, :: St. Joseph, Mo.



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.



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A new and very complete catalogue of COLUMNS will be sent on request. Ask for T-40.

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Sole manufacturers of
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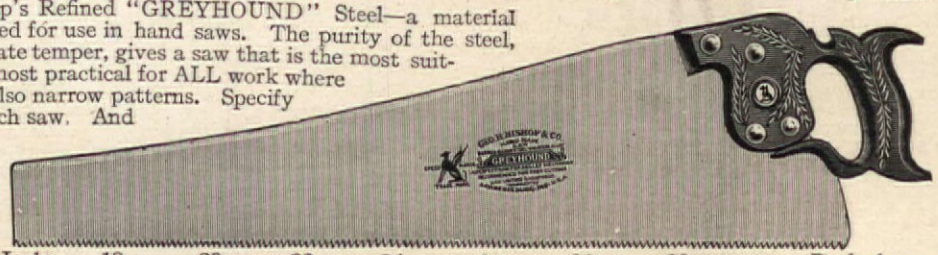
The best columns for porches, pergolas or interior use.

GREYHOUND HAND SAWS

The more you know about hand saws the more you can appreciate "GREYHOUND" hand-made hand saws, with their easy-running and rapid cutting qualities and wonderful durability. This saw will be imitated by others—but not equalled.

They are made from Bishop's Refined "GREYHOUND" Steel—a material which leads everything yet produced for use in hand saws. The purity of the steel, the toughness, the even and accurate temper, gives a saw that is the most suitable for particular work, and the most practical for ALL work where a hand saw is used. Made in both straight and skewback, also narrow patterns. Specify which you desire. Remember our warranty accompanies each saw. And the warranty means that if 30 days' trial does not convince you that the "GREYHOUND" saw is the **best** for your use, you get your money back.

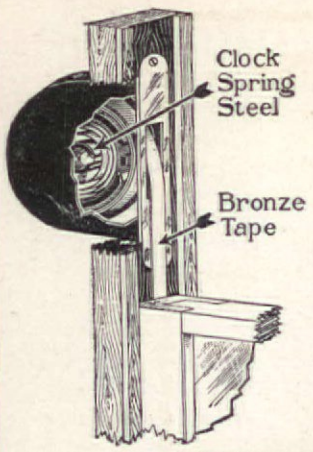


Order one today and let us take all the risk. If you want literature first, write us.

GEO. H. BISHOP & CO., Makers
Lawrenceburg, Indiana

Inches,	18	20	22	24	26	28	30	Net.	Packed one in a Box
Each,	$2.35	$2.50	$2.65	$2.80	$3.00	$3.30	$3.65		

PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.



5,000,000 Pullman Sash Balances

In daily use and less than 100 repairs on all of them in a year. Do you know of anything that is used at all that wears as well? No more expensive than cords and weights, far more modern, neat and smooth working. Can be installed anywhere. Carry any weight window.

Sold by Dealers Everywhere
Send for Circular

PULLMAN MFG. COMPANY
10 Allen Street :: :: :: :: ROCHESTER, N. Y.

WHEN YOU GET TO **SASH CORD** USE
SILVER LAKE

And insist upon getting it from your dealer. To insure you against substitution, we stamp our name on every foot of our cord. Carried by all dealers.

SILVER LAKE BRAIDED SASH CORD

Was originated by us, and for forty years has been recognized as—

THE STANDARD

Established 1869

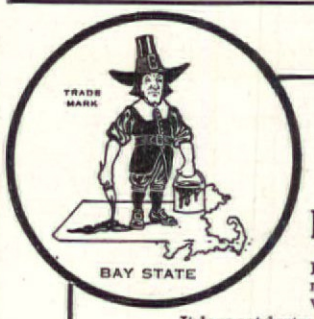
Last a Lifetime and Give Satisfaction to the End!

The Famous Barton Planes and Edge Tools for Carpenters and other workers in wood

Unequaled by any other make for keen, smooth, lasting edges. If your hardware dealer does not handle these **Famous Barton Tools** and is unwilling to order for you, send direct for catalogue. Be sure to specify **Carpenter's Catalogue.** A postal will bring it, together with our story book "True Stories," which will be found very interesting and instructive to those who are satisfied with the best tools only.

D. R. BARTON, 1832, ROCHESTER, N.Y.

MACK & CO., Sole Makers
Brown's Race Rochester, N. Y.



BAY STATE

Brick and Cement Coating

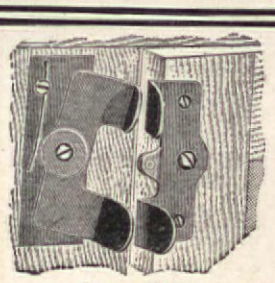
Is a sure protection to concrete against dampness. It also can be used on stucco and brick where tints are desired.

It does not destroy the desirable texture of either concrete or stucco and is weather proof and has great resisting qualities to acid.

Architects, contractors and engineers everywhere are specifying it.

Address for a book which gives full particulars and shows the class of construction on which it is used, Dept. 12.

Wadsworth, Howland & Co. Inc.
Paint and Varnish Makers and Lead Corroders
82-84 Washington Street Boston, Mass.



Screen Door

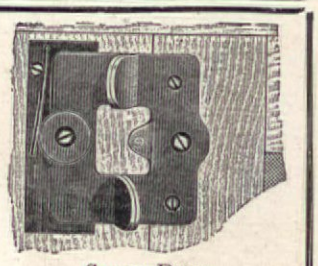
THE SENSIBLE SCREEN DOOR CATCH

A New Idea

The Sensible is the Catch that catches securely but quietly—prevents the door from warping, keeps out the flies, and reduces the noise of slamming to the minimum. Note the simple adjustment. Illustrations in this advertisement show catch one-third of actual size. Write for prices. Sample set mailed upon receipt of 25 cents.

MANUFACTURED BY

R. G. Winter Manufacturing Co.
2104 Vliet Street, : : MILWAUKEE, WIS.



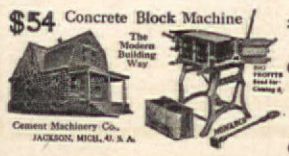
Screen Door

CONCRETE MACHINERY

The greatest mixer made All kinds of styles of the latest cement block and brick machines and molders from $5 and up; in fact **WE MAKE EVERYTHING IN CONCRETE MACHINERY** (low prices but high grade) **GET CATALOG N. FREE.**

SYSTEMATIC CONCRETE MIXER
28 ADVANTAGES

$54 Concrete Block Machine



CEMENT IS CHEAP—BIG PROFITS

making concrete products and building sidewalks Get a mixer. Get started. Prospects brighter than ever; things are going to boom in the cement industry. Get free Catalog "N."

CEMENT MACHINERY CO., Jackson, Michigan

LOW FREIGHT RATES

On Machinery and Household Effects

That's what we can offer SHIPPERS from points east of the Mississippi River destined to Interior and Pacific Coast Points by our plan of shipping in CARLOAD LOTS. Latest maps of any principal western state free on application by addressing Forwarding Department of the

TRANS-CONTINENTAL FREIGHT CO.
215 DEARBORN STREET, CHICAGO

29 Broadway, New York
625 3rd Street, San Francisco
322 West Sixth Street, Los Angeles
305 Main Street, Seattle

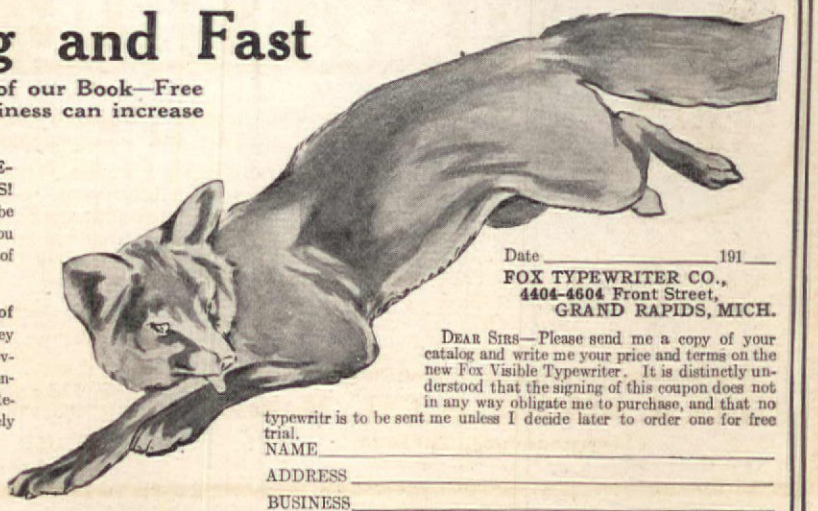
The Fox Is Light Running and Fast

We want every Architect, Contractor and Builder to send for a copy of our Book—Free—Showing how anyone in the Building Business can increase their Business by means of a Typewriter.

THE FOX—"THE ONE PERFECT VISIBLE TYPEWRITER"—LIGHT-RUNNING, FAST AND NOISELESS! Sent on FREE TRIAL to anyone—anywhere—at our expense—to be returned if not better than the best of other makes. If purchased, you can pay us a little down—after trial—and the balance at the rate of 20 cents per day—no payments on Sundays and Holidays.

The Fox is visible—you do not have to look under a lot of moving typebars to see what is written! It has a Back Space Key Tabulator, Two Color Ribbon with Automatic Movement and Removable Spools, Interchangeable Carriages and Platens, Card Holder, Stencil Cutting Device, Variable Line Spacer and Line Lock with Key Release. Its Speed is fast enough for the speediest operator or slow enough for the beginner. It is extremely Durable and Noiseless.

SEND FOR OUR CATALOG, ANYWAY



Date _____ 191___
FOX TYPEWRITER CO.,
4404-4604 Front Street,
GRAND RAPIDS, MICH.

DEAR SIRS—Please send me a copy of your catalog and write me your price and terms on the new Fox Visible Typewriter. It is distinctly understood that the signing of this coupon does not in any way obligate me to purchase, and that no typewritr is to be sent me unless I decide later to order one for free trial.

NAME _____
ADDRESS _____
BUSINESS _____

PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.

U. S. Standard Cement Mixers and Block Machines

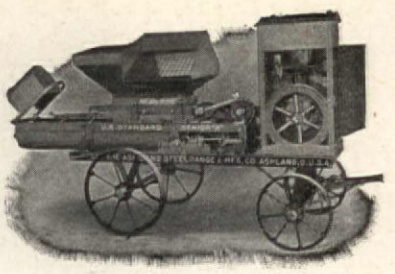
ARE THE STRONGEST LONGEST AND EASIEST WORKERS ON THE JOB

"U. S. Standard Junior Block Machine.

OUR **U. S. Standard** Junior and Senior Block Machines are both built upon the same basic principles, the former building a 16″, the latter a 24″ long block and all fractional lengths thereof. Both of these machines build hollow blocks 6″, 8″, 10″ and 12″ thick and veneer blocks 3″, 4″, 5″ and 6″ thick. The equipment also provides plates for circular blocks, angle blocks of any desired angles, porch pier blocks, chimney blocks, etc. These machines are capable of producing a greater variety of styles and sizes of blocks without additional investment than any other machine made, and for simplicity, speed, completeness, strength and beauty of blocks cannot be equalled.

THE **U. S. Standard** are continuous mixers. The measuring and proportioning of the cement, sand, gravel or crushed stone is done automatically. With the **U. S. Standard** measuring is positive, and does not vary with coarse or fine, wet or dry ingredients.

SPECIAL FEATURES—Accuracy in measuring, correctness in proportioning and thoroughness in mixing the ingredients. All these operations are automatic and absolutely reliable. Detailed information will be furnished upon application for our Catalog No. B.



Senior No. A

THE ASHLAND STEEL RANGE & MFG. CO. ASHLAND, OHIO

AT LAST

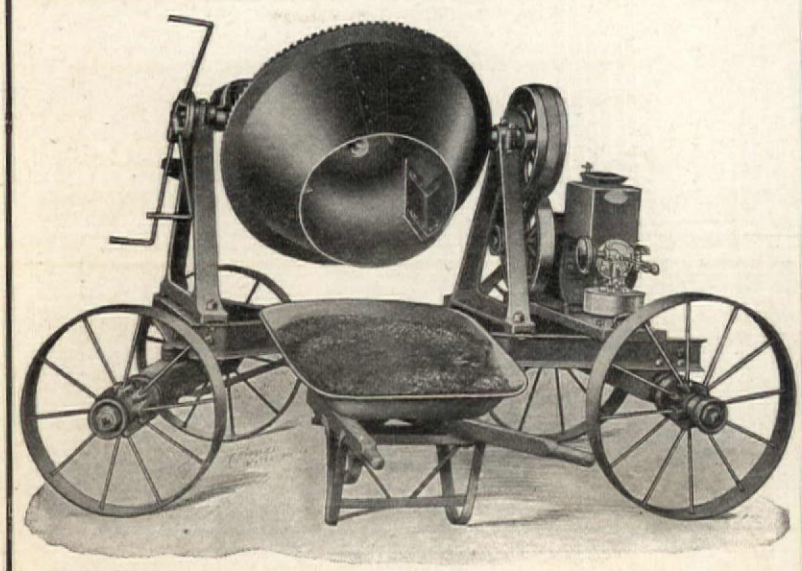
A TILTING BATCH MIXER

FOR LESS THAN THE COST OF A CONTINUOUS

THE LITTLE WONDER

Capacity, three to four feet. Turns out a better quality of concrete than can possibly be obtained by hand mixing and at one-twentieth of the labor cost.

Just the mixer for sidewalk or small foundation work, floors, etc.



Simplest mixer built. No sharp corners in drum to catch concrete. Convenient side dump. Low charge. Charges or discharges while running at full speed. Mixes wet or dry material equally well. Can be set over sidewalk forms, eliminating wheeling. Equipped with one horse power gasoline engine will turn out more concrete than machines costing twice or three times as much. Can be operated by hand.

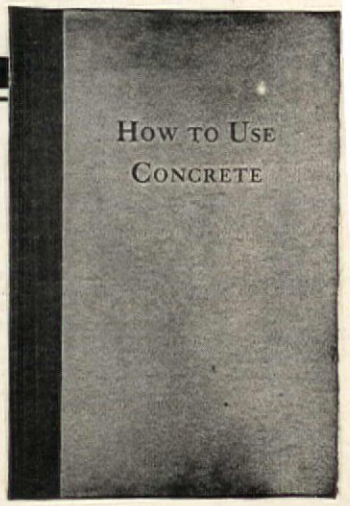
Furnished on skids or on trucks with or without power. Write for descriptive literature. Made by the manufacturers of THE GREAT POLYGON LINE.

WATERLOO CEMENT MACHINERY CORPORATION

111 VINTON STREET WATERLOO, IOWA

HOW TO USE CONCRETE

Price $1.00



Every carpenter, builder and contractor should have this book. Over 240 pages telling how to make concrete steps, walks, balusters, laundry tubs, vases, porch columns, wainscoting, blocks, tile, brick, etc. Full instructions for making molds, proportioning mixtures and placing the concrete.

WRITTEN IN PLAIN ENGLISH

This is a book for the man who works with his hands. The instructions are clearly given and illustrated with a hundred diagrams and pictures. The book is printed in large clear type on fine paper. Bound in cement-colored cloth.

One Dollar per copy. *We pay the express.*

CONCRETE PUBLISHING CO.

501 Owen Bldg. DETROIT, MICH.

MIRACLE CONCRETE

MIRACLE MOLDS

have revolutionized pipe making. Cement pipe can be made for one-third the cost of clay.

24″ concrete pipe costs 35c per foot to make.

24″ clay pipe sells for $1.25 per foot.

An outfit for making 24″ cement pipe costs $50.00, other sizes in proportion.

Every size profitable.

ORNAMENTAL CONCRETE

Molds for Lawn Vases porch columns and balusters — also fence decorations, make up a part of the equipment of every concrete worker.

$1.50 is the cost of a concrete Lawn Vase that sells for $10.00, easily meeting the competition of iron vases of $20.00 and $25.00.

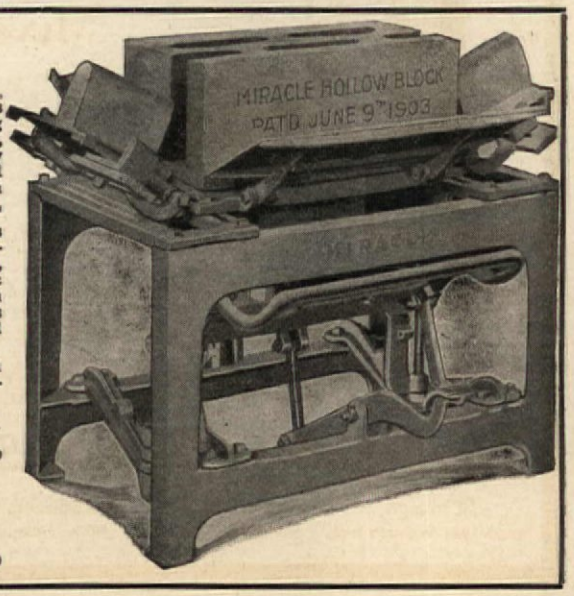
Special ornamental mold circular enclosed in every catalog.

MIRACLE BLOCK

Its distinctive feature is the two overlapping rows of air spaces, which make it the only one piece frost and moisture proof block on the market.

Handsome residences and garages, substantial factories, barns, stores, and public buildings erected with it. Block Machine is automatic, rapid and adjustable.

Exclusive protection given with each machine.



Big 128 page illustrated catalog free to those interested in the cement business.

MARSH COMPANY

974 Old Colony Bldg., CHICAGO

PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.

$25 FOR ONE SET OF MOLDS MAKES 21 SIZES OF CONCRETE BLOCKS

You'll always have the right size mold for any work that you have on hand.

And you know there are times when you need a special size to make concrete blocks for porch piers, porch foundations and various other kinds of work.

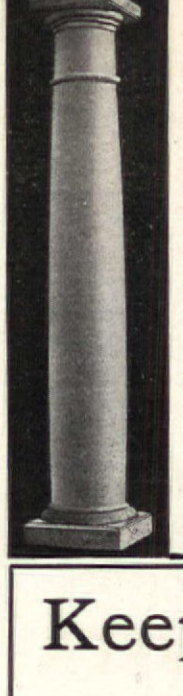
It's the interchangeable features of the plates of these molds which enables you to make so many different sizes of blocks.

Every Size from 8x8 to 20x20 Inches

Send for a Catalogue. This and several other combinations are illustrated and described. You ought to know about them because you have work which needs some of these molds. Send at once for this catalogue. Don't forget or don't put it off. Send tonight.

W. E. DUNN MFG. CO.

4135 Fillmore St. **CHICAGO, ILL.**



MAKE THESE

Beautiful Porch Columns

Of Cement

¶ Takes TWO BUCKETS of cement, FIVE BUCKETS of sand and one hour's time. **Total cost** 50 cts. to one dollar each. Sell for $3.50 to $6.00. Big money in it for you. If made of white sand and white cement they look like cut stone or marble. Thousands in use.

THE HOOSIER COLUMN MOLD

makes them in one solid piece ready to set up. No sections or joints to fit up. Just what you Lumber Dealers and House Builders have been looking for.

Send for Catalogue B

HOOSIER MFG. CO.
GOSHEN, IND.

HOW ARE YOU?

Are you making any money in your Concrete business, or do you have trouble from want of information on best methods? If you need any advice on any Concrete job, write me, tell me what you are up against, as I have been working in concrete since 1873 and should know something about the business by this time, and most likely can help you. If I cannot, I will tell you so. My charges for water-proofing formula are $2.00, or for other information, unless for large work that requires more attention. Reasonable charges for large operations. Special information on constructing dams, water works wells, method of sinking large wells and foundations in soft earth or water, Iron reinforced Concrete construction, Terazzo floors and engineering difficulties, working concrete in freezing weather, under cut work, elastic moulds for making statuary, making moulds for garden vases and getting up the patterns.

I conduct a correspondence course in Concrete by mail for a limited number of pupils for $20.00, which includes my water-proofing formulas, coloring and compound for making blocks harder after made. Get your information from one who has done the actual WORK. You will save the price of a course on your first job. Address

G. O. SANDERS, CONCRETE ENGINEER AND CONTRACTOR
89 Gainsboro Street, BOSTON, MASS.

Keep Out Dampness

Paint Your Concrete Buildings with

R. I. W. PAINT

"REMEMBER IT'S WATERPROOF"

Sold in barrels, $1.25 per gallon; 5-gallon cans at $1.35 per gallon; 2-gallon can, $1.50 per gallon, all F. O. B., Chicago

Proof Against Water, Acid, Fumes or Alkali
Special Elastic Compound for Each Specific Purpose

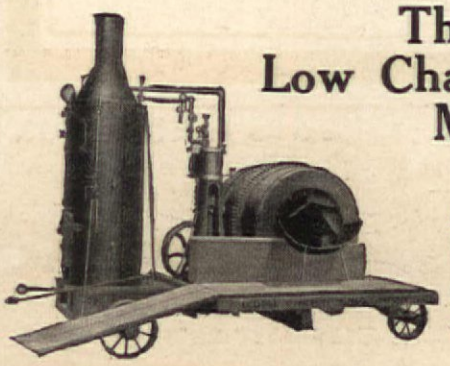
The Garden City Sand Co.
709-711 Chamber of Commerce, Chicago

Talk As You May About Mixers

You Cannot Get Away From This Fact

That no high-charging mixer is complete without a charging hopper and elevator; that fully one-third of the power is required to operate the loading device; that one-third of the attention is required to operate it; that charging skips get out of order quickly, and that you save all of this needless expense in the low-charging, direct from barrows,

Eclipse Concrete Mixer



The Only Low Charging Batch Mixer

It is charged two feet from the ground and both platforms and approaches are **portable with** the mixer.

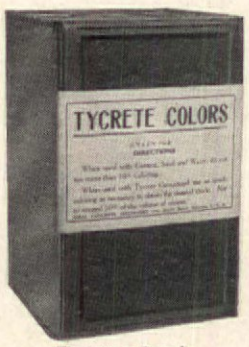
And don't forget we mean exactly what we say and can supply the proof that it saves one-third of the cost—one third of the first cost and one-third of the operative cost.

Better investigate the cost-saving of the Eclipse Mixer Catalog No. 32 by first mail if you say so.

The Standard Scale & Supply Co.

Chicago	Pittsburgh	Philadelphia	New York
1345-1347 Wabash Ave.	243-245 Water St.	35 S. Fourth St.	136 W. Broadway

Ideal Concrete Machinery Plus Tycrete Products



Tycrete colors in 25-lb. Cans

Provide You an Unequaled Business Opportunity

Where can we get Tycrete Products?

THIS question was voiced by thousands of visitors at the Ideal Exhibit, during the recent Cement Shows.

"WE want to specify it," said leading architects; "We are ready to use it at once," said big contractors; "We want to handle it," said building supply men; "We want to use it in the home we are planning," said prospective builders. **Where can we get it?**

A WONDERFUL opportunity exists for progressive men **everywhere** to **fill** the tremendous, ever-growing demand for **Tycrete,** this water-proof stone of strength, density, and incomparable artistic beauty.

Concentrated Tycrete Compound in 100-lb Drums

WRITE us in regard to securing exclusive right to purchase Tycrete Concentrated Compound and Tycrete Colors, thus entrenching yourself impregnably as a leader in the concrete industry.

WE are the largest manufacturers of Concrete Machinery in the world—now in our tenth year. Our Ideal Line is the largest and most improved. It embraces the most effective and time-saving concrete machinery that has been evolved. Ideal Equipments are in every state, territory and possession of the U. S. and in 28 foreign lands.

You can start in with one Ideal machine and gradually develop a large and comprehensive plant, without sacrificing any of your equipment to the scrap heap.

Let us "answer" the questions that are in your mind. It is a pleasure for us to answer letters and furnish information concerning the Ideal line.

Ideal Concrete Machinery Company

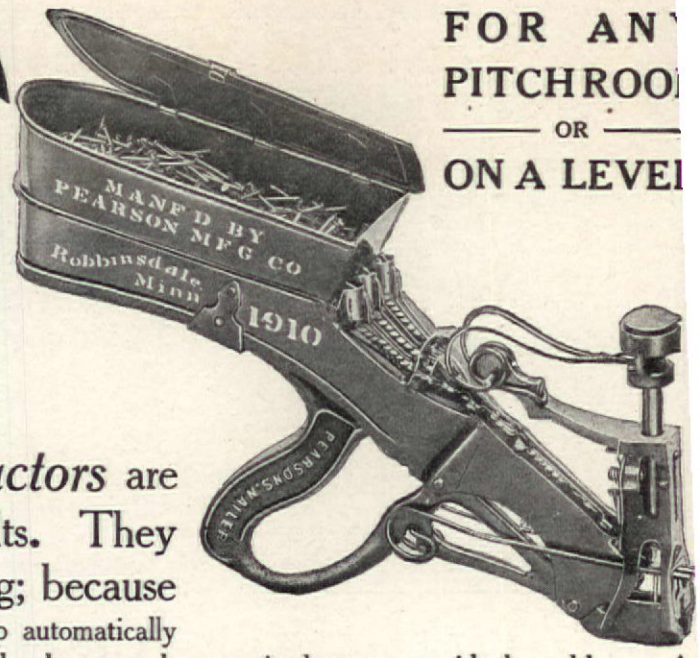
Chicago Office,	421 Emerick Street,	New York Office,
1075 Old Colony Bldg.	SOUTH BEND, INDIANA	1958 Hudson Terminal Building
London, Ont., Canada		

PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.

Carry the Nails in

A PEARSON NAILER

And Do Your Shingling Easier and Quicker than in the old way



FOR AN PITCHROO
— OR —
ON A LEVE

Thousands of Carpenters and Contractors are now using this Nailer with most satisfactory results. They like Pearson's Nailer because it is light and strong; because the nails can be dumped into it any old way, and they will always drop automatically into place, ready to be driven in with the hammer; because it does away with that old, unsanitary way of carrying the nails in the mouth; because more nails can be driven with it in a shorter time; because the operator can wear gloves or mittens when shingling, and because a Pearson Nailer will pay for itself on one fair sized job.

Pearson's Nailers are made in two sizes, the Blue Nailer is for common 3d No. 14 wire nails and the Red Nailer is for Galvanized 3d No. 13, 1¼ in. wire nails.

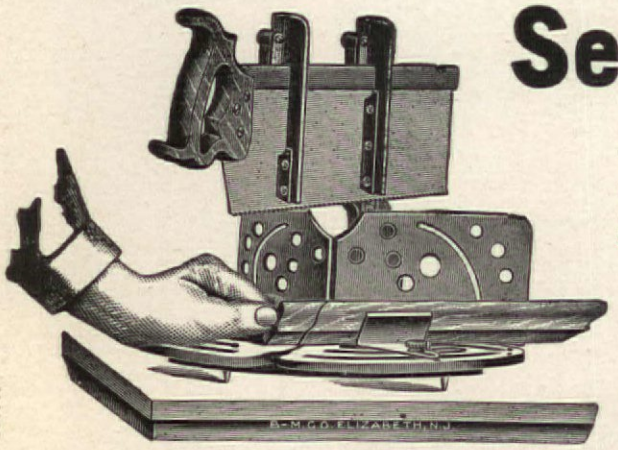
Order one now, stating Nailer wanted. You are taking no risk, for we refund your money if not satisfied after a trial. Price **$5.00** each, and **we will pay express charges if ordered now,** before our big spring rush sets in.

Write for circular "N" and use a Nailer on your next job of shingling.

Pearson Manufacturing Co., Robbinsdale, Minn.

DORN'S REVOLVING MITRE BOX

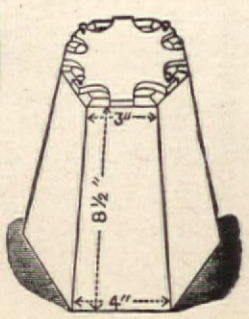
A MITRE BOX FOR A LIFE-TIME



Sent on 10 Days Trial

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

Price of Mitre Box without saw $10.75 F. O. B. at Elizabeth, N. J.



Compound Mitre.

Send for Booklet Called "Tools That Last"

OUR "CHISEL" GUARANTEE

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

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

SPECIAL OFFER

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

BEVELED EDGE BUTT CHISEL

SOCKET BUTT CHISEL

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

PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.

COMPETITION

in Industrial and Commercial life demands the utmost care in your expenditures. We are acknowledged as the GREATEST MONEY SAVING CENTER in the world today.

An inquiry will confirm this statement. Each item listed below is a bargain and deserves your careful consideration. Write today.

LUMBER
ROOFING
HARDWARE

OUR STOCK includes practically everything under the sun. Millions of dollars worth of brand new high grade merchandise bought by us at various sales is offered to the public at prices usually less than the original cost of production. We offer an exceptional opportunity to those who buy now, so send us a trial order. This will convince you.

SAVE 30 TO 50% Get our prices on Lumber, Roofing, Tanks, Pipes, Plumbing and Heating Goods. Our catalog shows over 50,000 bargains, in almost everything you use or buy daily. You need this catalog.

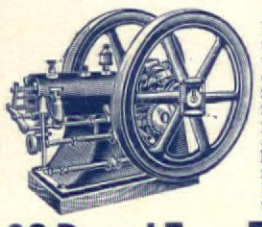
PLUMBING
HEATING
WATER SYSTEM

GASOLINE ENGINES

Equip Your Carpenter Shop with the Most Economical Power Known to Modern Science

The latest and most modern types ever placed before the buying public. Economical both in *price* and *consumption* of fuel. Will produce more *horse power* for *every gallon of gasoline used* than any other Engines in the market today. Brand new direct from factory.

Price Wrecking Bargain 8 and 12 H. P. ENGINE. **only $200 AND UP**



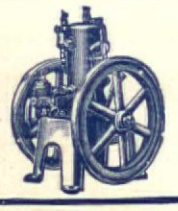
We are willing to have our Superior Heavy Duty Gasoline Engines compared with any on the market no matter what the price. Built with the greatest care and every mechanical detail is carefully provided for. Best Engine for all around work on the farm and in the factory. Most popular Engine we handle, powerful and reliable, made for heavy work and continuous service. The 8 horse power is large enough for the ordinary work on the farm. also for elevators, factories, etc. The 12 horse power we recommend for small threshers, silo fodder cutters, etc.

30 Days' Free Trial AT OUR EXPENSE | **OUR GUARANTEE PROTECTS YOU**

Our two horse power "Superior" Engine is designed to meet the demand for a low priced Engine to take the place of Wind Mills, Hand, Foot or small Tread Power. The four horse power is designed for general farm or machine shop work.

The simplicity of construction makes them the most serviceable, easy to operate and Practical Gasoline Engine ever produced. We can recommend them with the utmost confidence to our patrons to give entire satisfaction.

They are just as convenient as any Electric Motor or Windmill would be for pumping water, running cream separator, washing machine or other labor saving devices in the house. It does not require any more practice or experience to run or keep these Engines in order than the Motor or Windmill.



2 H. P. $36.00 **4 H. P. $64.00**

PLUMBING AND HEATING

Complete Bathroom Outfit
As Illustrated Only **$37.50**

GUARANTEED

Price Wrecking Opportunities

To obtain high grade, brand new Plumbing Material at prices that mean a Positive Saving of at least One-half. We can equip the Home, Factory or any Public Building throughout with a Plumbing and Water System that we will guarantee to be as good as you can purchase anywhere in the land. Send for our "Plumbing Catalog," filled with valuable information, and authority on perfect sanitation, FREE UPON REQUEST.

MODERN HEATING SYSTEMS

In offering to the public our **"PERFECTION BOILER AND HEATING SYSTEM"**

We are confident that we have reached the ACME OF PERFECTION and have solved the question of Heating your Home or Factory for all time to come. Our Heating Systems are the result of tests, experiments and scientific research conducted by expert Heating Engineers and we guarantee them to

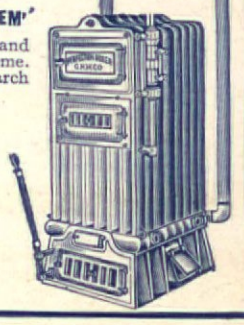
HEAT YOUR BUILDING

That is what you want and are paying for.

We operate our own factory and are thus able to save you the retailer's profit and quote prices that mean an enormous saving to you.

Send us a plan or diagram of your building and let us make you an estimate.

Fill out the Coupon below and send for our Heating Book; it will give you valuable information and SAVE YOU MONEY.



RAWHIDE RUBBER ROOFING

The Greatest Bargain in the world. Fire, rain and weather proof. Not affected by heat or cold. Used in any climate. Made from pure asphalt. A strictly high-grade, lasting covering. **Recommended** by fire underwriters. **108 sq. ft. to a roll,** with large headed nails and cement for laps. Requires no coating. Sample free.

Send for Roofing Booklet

1 ply guar. 6 yrs., $1.22 per roll
2 " " 9 " 1.49 " "
3 " " 12 " 1.71 " "

At above prices, freight prepaid to Ill., Ind., Ia., Ohio, Wis. and Mich. Write for prices prepaid to other states.

STEEL ROOFING, PER 100 FEET, $1.60

100,000 squares of New Steel Roofing which we are selling at the following prices, freight prepaid:

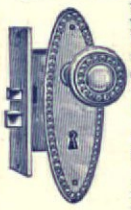
Flat **$1.60**
Corrugated, V Crimped or Standing Seam **$1.85**

At these prices we prepay freight to all points east of Colorado except Oklahoma and Texas. Quotations to these points on application. Our high grade **Galvanized Rust Proof Roofing** at priceer anging from $3.00 per square up. Write today for free sample and Great Book on Roofing.

CEMENT BUILDING BLOCK MACHINE

$13.85 For a first-class, practical cement building block machine. Blocks 8x8x16 in. You can make whole, half and quarter blocks. Turns out 100 blocks a day. We can supply you complete equipment for making cement blocks and other concrete products. Write us.

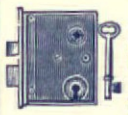
SAVE 30 PER CENT IN NEW HARDWARE



Wilmette Design Inside Door Lock Sets; Lot No. 4-A-1608. 2000 sets as illustrated. Wrought steel, antique copper finish, plated front mortise locks 3¾x3¼, one plated key, one pair knobs two escutcheons, packed complete with screws. **Per set** **$0.47**
Per dozen **$5.20**

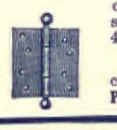
Lot No. 4-A-1604. Wilmette Wrought Steel, Copper Finish Front Door Sets.
Complete, per set **$1.40**

Lot No. 4-A-699. Upright Rim Knob Locks, japanned, complete as illustrated and shown. **Each** ..... **$0.10** **Per dozen** **$1.10**



Lot No. 4-A-706. Mortise Door Locks. Japanned, complete as shown. Each **$0.25**
Per dozen **2.75**

Lot No. 4-A-719. Wrought Steel, ball tipped, loose pin butts, copper finish, complete with screws, 3x3, 16c, 3½x3½, 17c. 4x4, 21c per pair.



Lot No. 4-A-753. Sash Locks, copper finish. **Each** **$0.05**
Per dozen ..... **.48**

STRUCTURAL STEEL BARGAINS

Over 10,000 tons of plain and fabricated steel and Builders' Iron Work in stock for immediate delivery. We save you 20 to 40 per cent on Structural Steel work of every description, also Builders' Iron Work. Write for copy of our Great Book, "Structural Steel News." Send us a list of your wants for prices.

STRUCTURAL STEEL SHAPES

STEEL "I" BEAMS

Illustration shows "I" Beams which are made in standard sizes ranging from 3 to 24 inches high.

STEEL ANGLES

Illustration shows Angle Steel, made with equal and unequal legs, ranging from ¾x¾ to 8x8 inches.

STEEL CHANNELS

Cut shows Steel Channels which are made in standard sizes, ranging 3 to 15 in. high.

STEEL TEES

Cut shows Steel Tees made with equal and unequal legs, ranging from 1x1 to 1x4 inches.

NOTE—When writing for prices on Structural Steel Shapes, please state quantity, pattern, sizes and lengths We can furnish all shapes cut to any length desired.

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Chicago House Wrecking Co., Chicago:

I saw your advertisement in Feb., 1911, National Builder. I am interested in the following items: 833

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MAIL COUPON AND MARK BOOKS YOU NEED

"PRICE WRECKING" CATALOG

A Book containing 1000 pages, profusely illustrated, of over **50,000 Bargains,** in almost everything needed for the farm, factory, field or office. A demonstration of what the Chicago House Wrecking Co. stands for as a bargain center. It's such a book as every buyer of merchandise must have in his or her possession. Cost $1.00 to produce but sent free upon receipt of coupon shown elsewhere on this page.

OUR BOOK OF PLANS

This is the handsomest **illustrated book of designs of over 100 Bungalows, Houses and Barns** ever produced. It contains the productions of Photos and is true to life in every way. Also a very **valuable book for carpenters, contractors or builders.** Sent to you absolutely free. Fill out coupon shown at the left.

ROOFING BOOK

The greatest book on roofing ever printed. Tells you how to lay all styles of roofing, quotes you money saving prices so that you can buy roofing and save 30 to 70 per cent. Write for copy today.

COLD WEATHER COMFORT

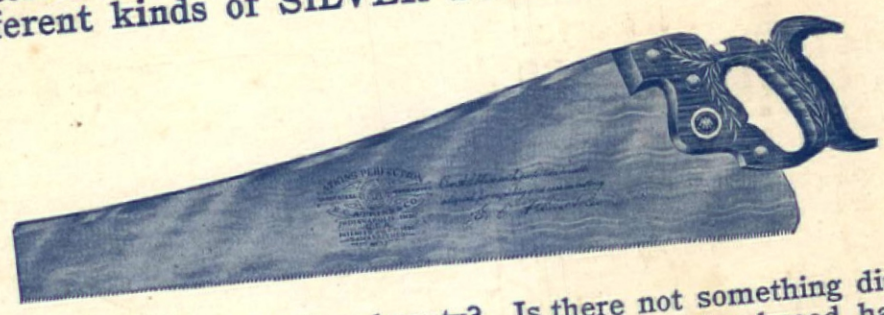
A practical treatise on Plumbing and Heating. Explains in detail how you can buy a complete Plumbing or Heating plant from us and easily save 50 per cent. Also quotes Greenhouse Heating plants at extremely low prices. Do not fail to send for copy at once.

CHICAGO HOUSE WRECKING COMPANY 35TH & IRON STS. CHICAGO

PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.

ATKINS SILVER STEEL SAWS

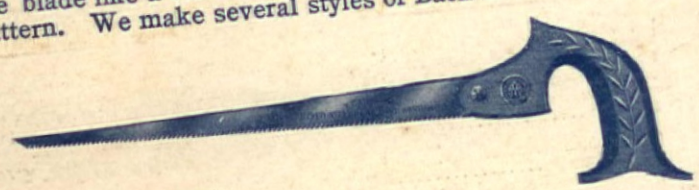
WE HAVE said a great deal about ATKINS SILVER STEEL HAND SAWS. We have told you how they are made and what splendid service they are giving others and what they will do for you. Now, we want to show you a few pictures taken from photographs of the Saws themselves, because we know you will be interested.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



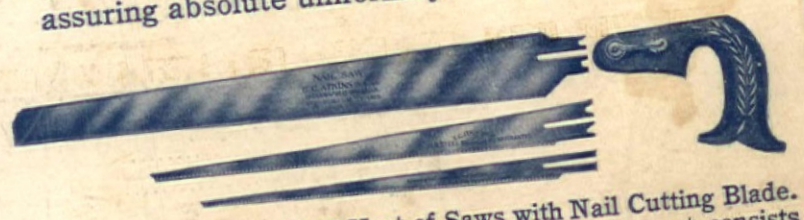
But look at this Hand Saw. Ain't she a beauty? Is there not something distinctive and individual about it? Look at its graceful lines and the finish and the perfection hardwood handle. Does it not look like a Saw that would give results? This is our No. 53 and it comes in all sizes and points. There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

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

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



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



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

ATKINS ALWAYS AHEAD

HOW TO BUY THEM

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

OUR FREE OFFER We are still compiling our list of carpenters and if you will send us ten cents to pay postage, we will forward with our compliments, a fine strong nail apron, together with our Saw Sense Book or Carpenter's Catalog, our monthly time book with scale of wages and some mighty interesting information in regard to High Grade Saws. Write to-day and secure this valuable package

E. C. ATKINS & CO., Inc. The Silver Steel Saw People **Indianapolis, Ind.**