

PRICE 20 CENTS

AMERICAN BUILDER

THE WORLD'S GREATEST BUILDING PAPER



This Month
SUMMER HOMES



Colored Aggregate Stucco means better business for you

Stucco offers you great opportunities. More and more bungalows, houses and garages are being built in stucco. And there are always plenty of old houses to remodel in stucco—making them up-to-date, fireproof, better looking and more comfortable.

The new colored aggregate stucco developed by our recent elaborate experiments is further increasing the use of this material.

Using variously colored granite or marble screenings and sands or gravels mixed with Atlas White Cement—in the finish coat, it is possible to secure a color stucco that has warmth and variety of tone and beauty—that is charming and practical—that appeals strongly to people who want beauty, low first cost and low upkeep and no painting.

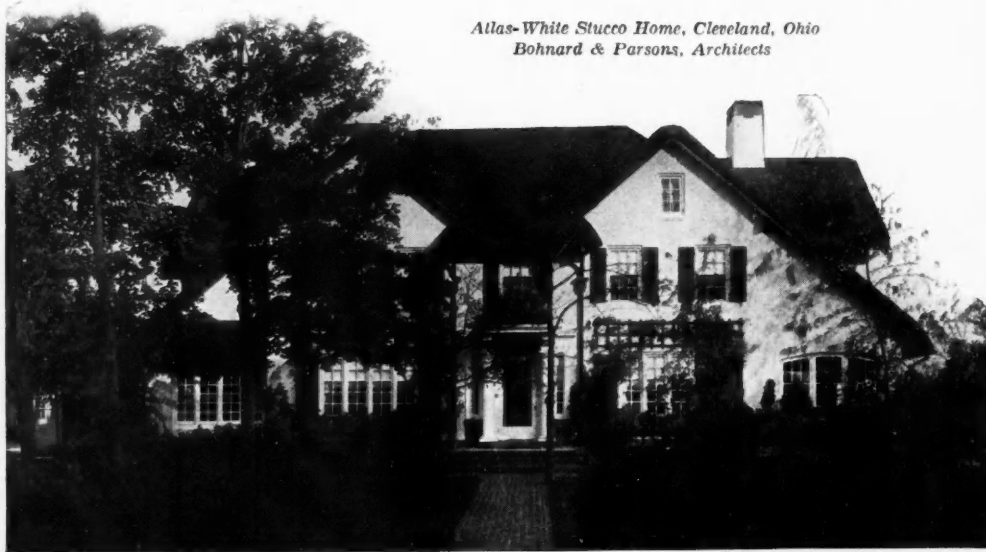
This new color stucco is not expensive and is not hard to apply. It has been made possible by the use of non-staining Atlas-White Portland Cement, which shows the true color values of the aggregate. No artificial coloring is needed.

Our "Guide to Good Stucco" describes our experiments, reproduces experimental panels in full color, and gives a convenient guide to specifications for color stucco. This book is free. Use the coupon below.

The Atlas Portland Cement Company

Members of the Portland Cement Association

New York, Chicago, Phila., Boston, St. Louis, Minneapolis, Des Moines, Dayton, Savannah



*Atlas-White Stucco Home, Cleveland, Ohio
Bohnard & Parsons, Architects*

ATLAS



WHITE

The Atlas Portland Cement Company,
30 Broad Street, New York, or Corn Exchange Bank Building, Chicago

Send me information and specifications on the new color stucco—also the Contractor's Atlas and special information on the subjects checked:

New Stucco Homes

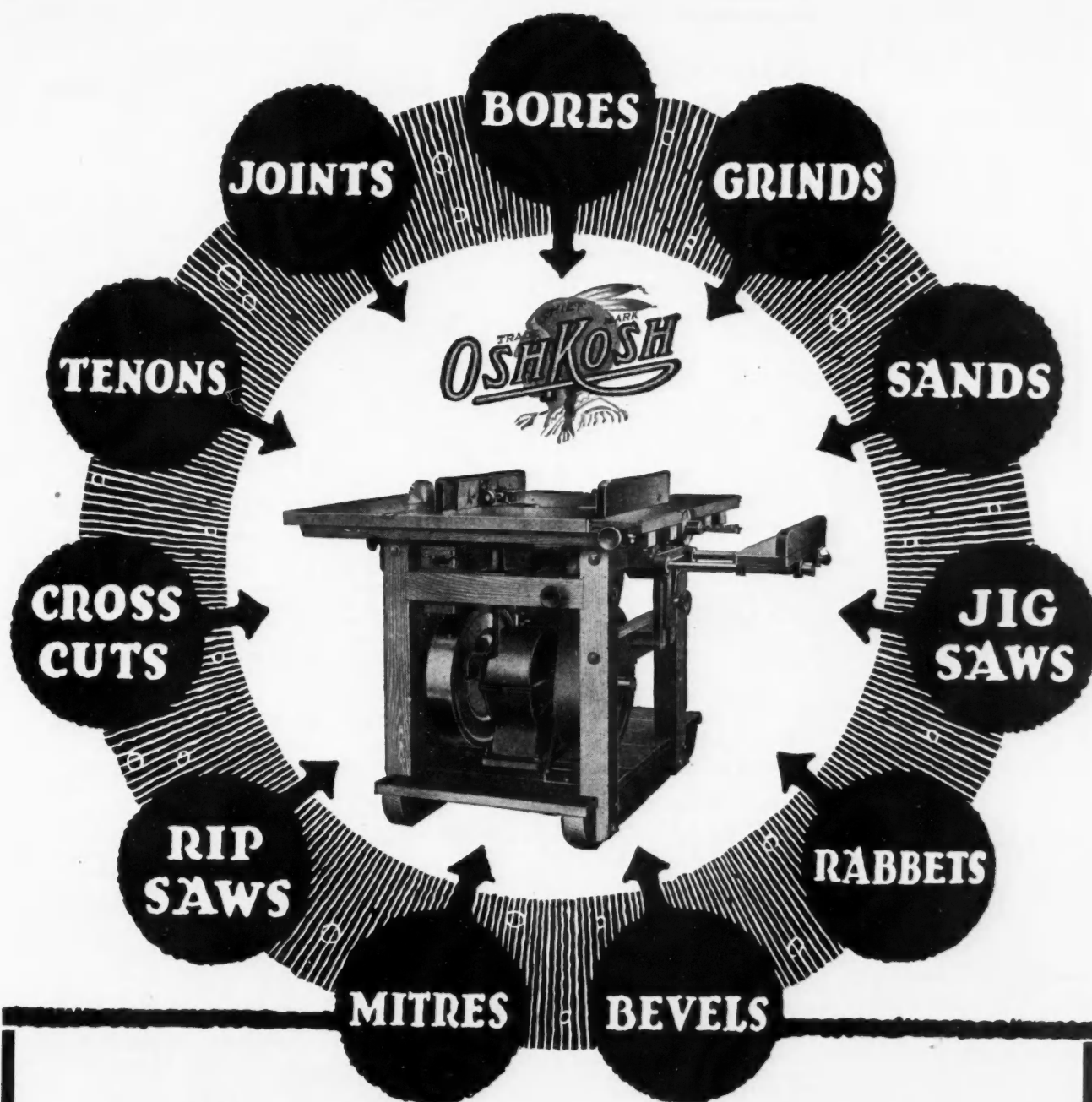
Remodeling in Stucco

Stucco Garages

Stucco Bungalows

NAME..... ADDRESS.....

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER



11 Operations—One Machine

OSHKOSH EVEREADY SAW RIG

Here's the handiest Saw Rig ever built. A planing mill in itself—eleven different operations. Light and compact—easy to handle. Take it right in the building, close to the job and save time. Two men can work on opposite sides of the machine. Makes door and window frames—works up odds and ends into usable lumber. Over 2,000 users—and every one of them glad he owns an Eveready. Get the proof in the "Book of Evidence." Write for this book today.

LIBERTY BONDS accepted at full face value in payment for the Eveready Saw Rig.

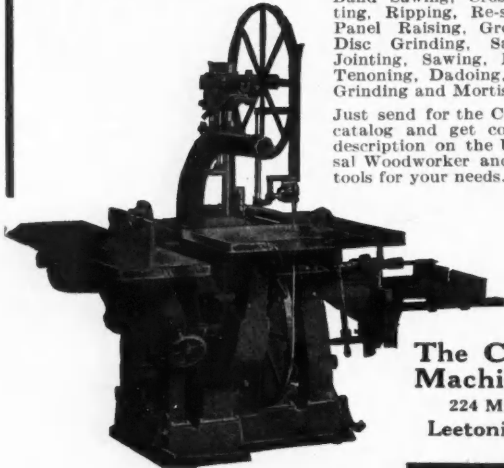
OSHKOSH MFG. COMPANY

73 Amber St., Oshkosh, Wis.

NOW more than ever before--

The industrial world will need machinery more than it ever has, the coming few years. "Manpower" will be bound for the front—"Machine power" must do the work.

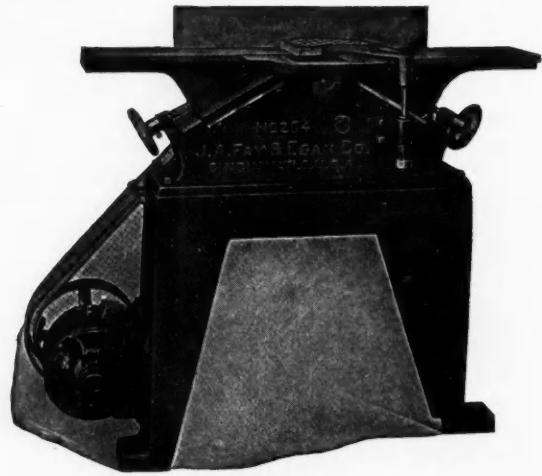
It will be a wise business move for carpenters and builders to equip themselves with a Crescent Universal Woodworker—the Crescent—because it is the machine that boosts the efficiency of the carpenter shop many fold. You will do much more work with fewer men. You will do most of your planing mill work with it.



Here's what it will do:—
Band Sawing, Cross Cutting, Ripping, Re-sawing, Panel Raising, Grooving, Disc Grinding, Sanding, Jointing, Sawing, Boring, Tenoning, Dadoing, Knife Grinding and Mortising.

Just send for the Crescent catalog and get complete description on the Universal Woodworker and other tools for your needs.

The Crescent Machine Co.
224 Main St.
Leetonia, Ohio



—a really practical Carpenter's Hand Planer —bench or pedestal—with or without motor

DON'T buy a toy, get a real machine: 6½-inch safety head, thin air hardened steel knives, adjustable bevel fence, removable steel lips, rabbeting arm, pedestal that gives your feet clearance; easy to keep clean under the machine; a practical time-saver and money-maker. Write for Bulletin H-7.

J. A. Fay & Egan Company
545-565 W. Front St., Cincinnati, O.



SUPERIOR HOLLOW CHISEL ELECTRIC MORTISER and Multiple Speed Boring Machine

Made in three styles, also belt drive. Just the machine for the general jobbing shop, as well as sash and door mills, cabinet and furniture work. For fast work, quick and accurate adjustments and cheapness of power, these machines can't be beat. Address all inquiries to

WARREN W. MORSE
Hopkins, Minn.



COMPLETE OUTFIT Hand and Foot-Power MACHINERY

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

Write for Particulars

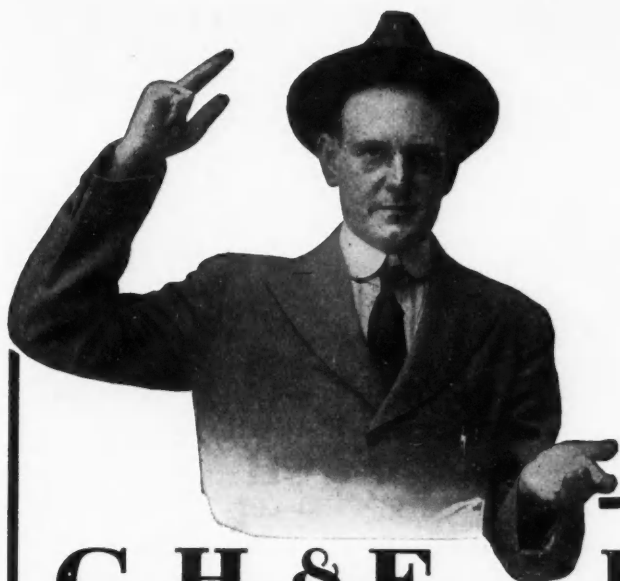
W. F. & Jno. Barnes Co. 74 RUBY ST., Rockford, Ill.

Write for catalogue showing full line of Wood Working Machinery for Carpenters and Builders. Also Bargains in second hand machinery.



CHICAGO MACHINERY EXCHANGE

1215-1223 WASHINGTON BOULEVARD
CHICAGO, ILLINOIS



Uncle Sam says:

When I buy, I buy the best, and when I order, I want the goods quick.

Read this from headquarters:

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

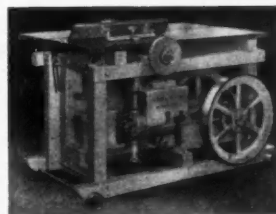
"Your proposal to deliver six of your No. 8 Portable Saw Rigs complete with gasoline engine and attachments, immediate shipment, is hereby accepted."

(Signed) MAJOR HARTMANN.

Ordered Monday, shipped Thursday.

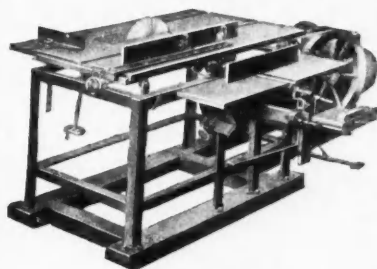
C. H. & E. Portable Saw Rigs

We are the pioneers in the manufacture of Portable Saw Rigs, with power built in and directly under the table. We manufacture six different sizes. We know and Uncle Sam knows that we make the best. Don't be fooled into buying cheap rigs—buy a C.H.&E. rig that is manufactured complete by us—engine, table and all attachments. Immediate shipment.



C. H. & E. Manufacturing Co., Inc.
322 Mineral Street MILWAUKEE, WIS.

Allow the "HERCULES" To Cut Costs



THE Hercules has patented advantages which no other machines possess—Its construction insures the most rigid frame of any woodworker on the market.

Write us for Bulletin "A"

HERCULES MACHINE COMPANY
50 Church Street New York, N. Y.

Stop Looking—and Listen

Cut Out Hard Labor with the

WALLACE BENCH PLANER

(Motor or Belt Driven)

Equipped with Flap and Shutter Guard, it is the safest planer made. Takes the heaviest cuts in hard as well as soft wood. No sanding necessary after finish cut. Has all the adjustments of the costliest machines and does more accurate work in a fraction of the time. Operates from electric light socket. Started in a second.

Send for Circular

J. D. WALLACE & CO.
1405 W. Jackson Blvd., Chicago, Ill.



4-inch Knives
Weight 50 lbs.
Portable

HOISTS

Attention Contractors & Builders



Labor is getting scarcer and more expensive every day. It will be to your advantage to get A RELIABLE ERIE HOIST to do your heavy lifting. Not an expense but a good investment.

Write for booklet.

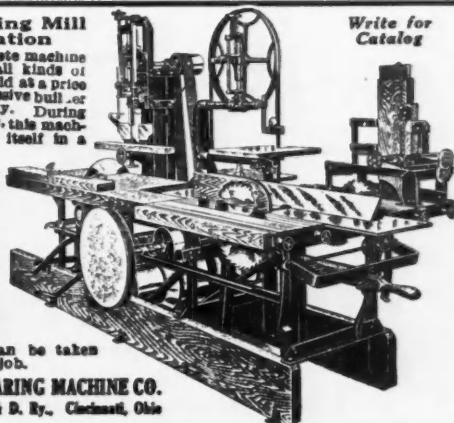
Erie Clutch & Pulley Co.
26th & Holland St., Erie, Penna.

Parks Planing Mill Combination

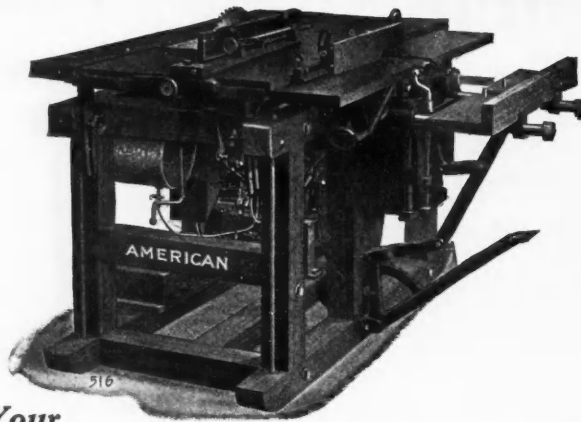
The most complete machine for getting out all kinds of mill work, and sold at a price which any progressive builder can afford to pay. During the slack season, this machine will pay for itself in a couple weeks.

Rip saw, 12" Jointer, 22" Band saw, Swing cut of saw, Shaper, Upright mortiser, Tenoner, Sand disk. All ready for instant use without having to make any changes. Machine can be furnished with long bases with engine mounted in rear so it can be taken right out on the job.

PARKS BALL BEARING MACHINE CO.
Fergus St. & C. H. & D. Ry., Cincinnati, Ohio



Write for Catalog

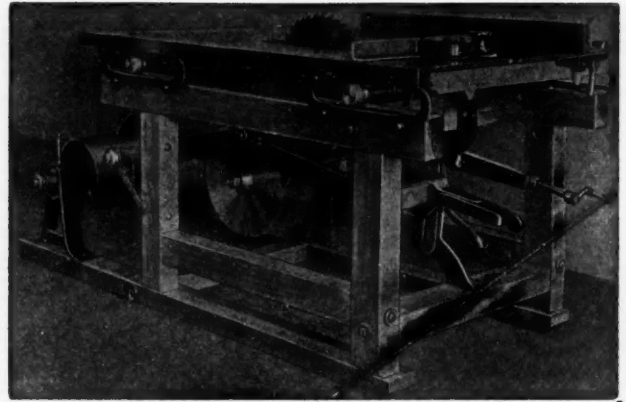


Your
**"AMERICAN"
 WOOD-WORKER**

Will Pay for Itself

You know what your costs are now—for mill work and hand labor. Put an "American" on the next job—and watch your costs. You'll find a difference in favor of the "American" that will quickly wipe out the purchase price—and after that, those savings pile up on the profit side. It might even pay you to scrap an inferior woodworker and substitute an "American." Send today for Bulletin 67.

American Saw Mill Machinery Co.
 1360 Hudson Terminal, New York City

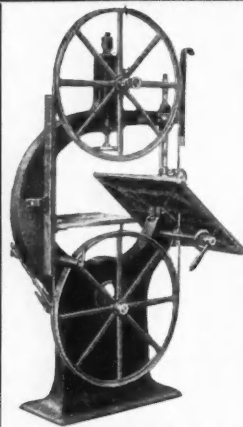
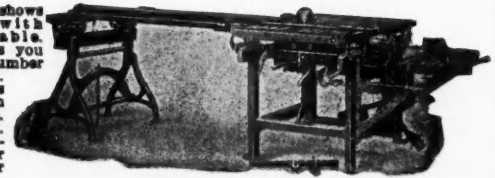


**NOW IS THE TIME TO GET A
 BEACH
 DOUBLE ARBOR RIP AND CUT-OFF MACHINE**

Get this money-maker on the job. This portable woodworker will handle all your fine sawing, as well as your dimension stuff. Either gasoline engine or electric motor drive. Has our patented rolling table, making it the most efficient machine on the market. Don't delay—make this year the most profitable and successful of your career. Write for descriptive catalogue.

BEACH MFG. CO., Montrose, Pa.

This view shows extension with rolling table. This allows you to handle lumber up to 30 ft. and slides easily with 1000 lbs. weight in it. Locks instantly for ripping or beveling.

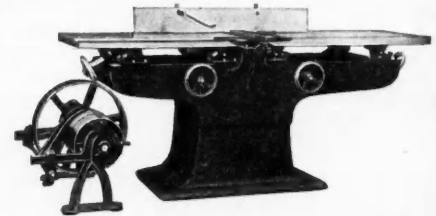


Get Our Attractive Catalog Covering

**The Silver Line of Band Saws, Jointers
 Saw Tables, Swing Saws, Etc.**

The simplicity of design—the light and easy running qualities and the safety in operation of Silver's splendid line of Woodworking Machines appeal to anyone looking for fast, strong, well-made machines for modern woodworking shops. They are reasonably priced for such high quality machines. For full particulars write

The Silver Mfg. Co., Box 345, Salem, Ohio



1853



1917

Fine Beveled Edge
 Shank and Socket

Chisels



**Tang and Socket
 Butt Chisels**

Plain and Beveled Edges

Send for illustrated Catalog

Buck Bros., Millbury, Mass.

**Miller's Lock Mortiser
 TWO MINUTES**

Will cut an opening in a door for a mortise lock
IMPROVED AND UP-TO-DATE

cuts true in any kind of wood for any size lock from 1" to 1 1/2" thick. Easy to operate; durable in construction. Builders use it everywhere.



Sent subject to trial.

A. W. Miller Mfg. Co.
 Riverside, Calif. Cincinnati, Ohio

Our Butt Mortiser and Rule Gauge for 75c., Postpaid



“HATS OFF TO OLD GLORY”

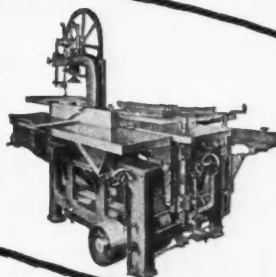
HATS OFF to Her Defenders

HATS OFF to those who serve at home in the shops and on the farms as well as those who are preparing to go to the front. The OUTDOOR worker, the carpenter, farmer and those who live the greater part of their lives IN THE OPEN seem to respond most readily for active service. They are deeply patriotic. This condition makes the situation all the more serious. Labor must be secured or SOMETHING DONE. And that “something” which many builders are now doing is to ORDER ON THE “FAMOUS” WOODWORKER

which they have so long intended to buy, and let it TAKE THE PLACE OF THE MEN WHO HAVE GONE, or who should go.

YOU can serve the flag AT HOME

He who buys a machine that saves the time of one to four men, and thus leaves them free for active service or or more essential work in the



industries, benefits himself, his country and his community. You can serve the flag—at home. Even if you can't go, you can encourage others to go.



We are entering a time of sane SAVING. And people realize that back of CASH savings is economy of time, labor and material. “FAMOUS” woodworking machines are cutting costs by saving time. They release manual effort for more essential service—and do scores of operations four times as fast and much better and at lower cost, BY POWER.

Not only do you SAVE these elements of time, labor and material—for the COUNTRY'S GOOD—but you thereby benefit yourself. Why not write for particulars now?

Mail the coupon—or write—NOW (not on a “tomorrow” that never comes) for catalog. If you are interested in some special machine, please specify.

THE SIDNEY TOOL CO.
SIDNEY, OHIO

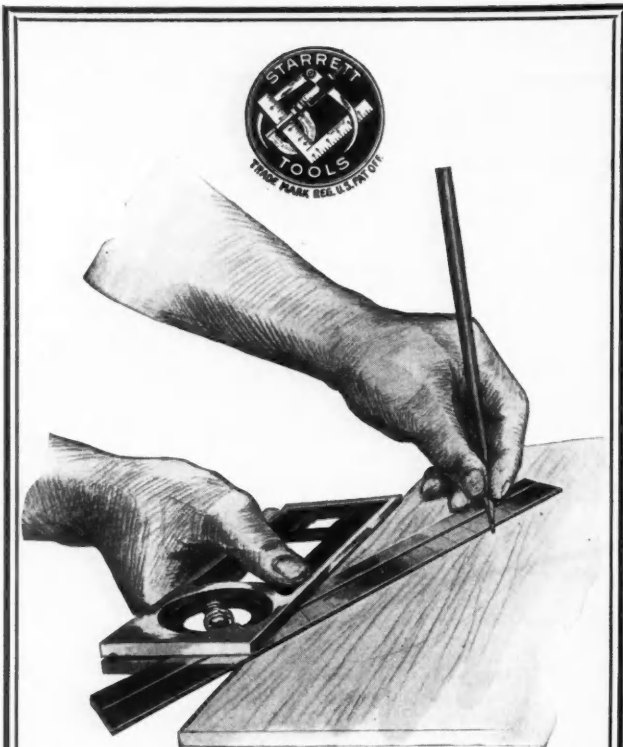
THE SIDNEY TOOL COMPANY
Sidney, Ohio

Gentlemen:

Send me Catalog No. 12, and Bulletins on Woodworking machines. I am interested.

Name.....

Address.....



It's Time That Counts

On many jobs the biggest single cost is the time. It is up to you to use your time to the best possible advantage, and it is right there that you can get real help from

TRADE MARK
Starrett
 REG. U. S. PAT. OFF.
Tools

They are not only accurate—that's taken for granted—but they are of a quality that makes a long life of accuracy certain. But from the standpoint of time saving the most important thing is that Starrett Tools are adapted to your needs. They fit.

Ask for catalog No. 216 describing the full line of 2100 different styles and sizes of fine tools and hack saws.

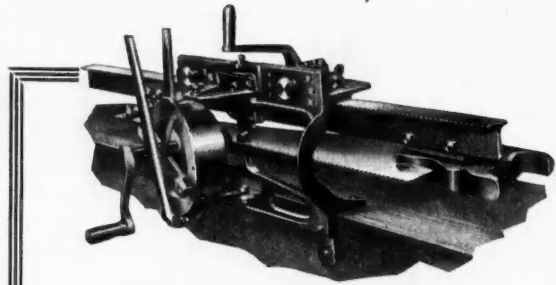


The L. S. Starrett Co.

The World's Greatest Tool Makers

ATHOL, MASS,

42-688



THE KEIL HAND SAW FILING MACHINE is receiving a great deal of attention in the building field now. It is because it is producing such good results. It is sharpening hand-saws so they will cut true and smooth. You can appreciate what this means for work like windows, or door-cases, or any kind of fine trimmings in hard or soft wood.

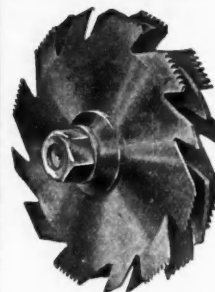
The Keil will file any hand-saw—stiff or limber back—with teeth numbering from 4 to 12 teeth to the inch. It operates in such a manner as to correct all irregularities—all cutting points are set in perfect line, all teeth are made the same length.

The Keil machine requires no special skill to operate. It is fully guaranteed to do first-class work. Try it out.

Return it, get your money refunded if it is not as represented. Our descriptive circular will tell you all about it. Get the details of our "easy payment" terms, too.

A discount will be allowed to the first carpenter in each town who orders one.

Keil-Dedlow Mfg. Co.
 Plainview, Nebr.



Patented Nov. 29, 1892.
 Feb. 18, 1910.

For Your Saw Rig Huther Bros. Dado Head

will cut perfect grooves, any width, with or across grain. It consists of two outside cutters and enough inside cutters to make the desired cut.

The Head comes to you ready to use and guaranteed to do your work satisfactorily.

Ten days' free trial at our expense.

This cutter head can be used on the saw table. Knives are adjusted by headless set screws and are held by dovetailed slides and bolts. Runs like a solid cutter. Any shape knives made to order



Patented Dec. 30, 1913.



Showing position of cutters on mandrel.

Our No. 24 Catalog sent on request. Describes full line of tools for saw rig.

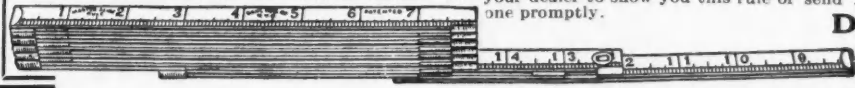


Grooves cut with Huther Dado Head.

HUTHER BROS. SAW MFG. CO.
 1101 University Ave. Rochester, N. Y., U. S. A.

NO GUESSWORK OR MISTAKES WITH THE INTERLOX RULE

Takes all the "hard to get at" inside or outside measurements quickly and accurately without any figuring. You can't make a mistake. The measurements are clearly indicated. Made in all lengths from 2 to 8 ft. of selected boxwood, finished with waterproof lacquer and solid brass trimmings. Ask your dealer to show you this rule or send 20c. per lineal foot and we will ship you one promptly.



DAHL MFG. COMPANY

51 E. 42d St., New York City, N.Y.

HERE IS A GOOD TEN CENTS WORTH



This nail set will hold its edge twice as long as an ordinary nail set. It is made of the best steel—is carefully tempered, accurately cupped and tested on steel. You will always use it. **NO-ROL**—a square-shaped nail set, so made to prevent rolling, sells for 12c. if your dealer can't supply you.

We will mail either of these, postpaid, if your dealer can't supply you.

SYRACUSE, NEW YORK

Sand's Aluminum Levels

Always Tell the Truth

The standard of accuracy. And not only the most accurate—but easiest to read, even in the dark. Never rusts—cannot warp, split or crack—and are easily handled. The lightest levels made—strong and durable because the greatest strength is placed where most needed. Ask your dealer to show you these levels, and also write for our new circulars showing full size levels.

J. SAND & SONS Originators of Aluminum Levels 1023 - 29 Rivard Street, Detroit, Michigan



DIETZGEN SERVICE

OUR organization has been developed to its high efficiency by simply keeping in mind the natural and justly expected demands of the many purchasers of our line; namely, *reasonable prices, service and satisfaction.* As we have built so we shall continue to build—in the interest of our customers, present and prospective.

Buy the best—the Dietzgen product, *our own manufacture*—and be assured of high quality and fair prices. Catalog on request.

EUGENE DIETZGEN CO.

Manufacturers

Drawing Materials, Surveying Instruments, Measuring Tapes

Chicago New York San Francisco New Orleans
Pittsburgh Philadelphia

**"YANKEE"
Push Drill No. 44**

**Saves Time
at Every Turn**

Here you have a rapid fire drill, with adjustable tension, for hard or soft woods and the 8 different size Drill points that are furnished with it.



A turn of the cap does the trick that saves you time, labor and Drill Points. This Drill is about as valuable to the house carpenter as any tool we make.

Built for hard use.

Your Dealer Can Supply

Let us send you a "YANKEE" Tool Book.

North Bros. Mfg. Co.

Dept. A, Philadelphia, Pa.



Portion of Apple Logs in the Disston yards ready to be sawn into boards from which saw handles will be made.

Carload after carload of logs required for
DISSTON
Hand-Saw Handles

Most first grade mechanics are thoroughly familiar with Disston *Quality* but probably very few realize the scale of production the popularity of Disston Saws necessitates. This photograph affords some idea of it. The picture is of a *portion* of the Disston lumber yard and only **one** kind of wood, apple (several others also are used).

These cars are coming in almost constantly. The lumber is sawn into boards in our own saw mill and stacked to season for three years before using.

That's the kind of demand the Disston reputation for quality has developed.

SEND FOR OUR FREE HAND BOOK S



HENRY DISSTON & SONS, Inc.

Philadelphia, U. S. A.



The **IMPROVED**
Rapid Floor Surfacer

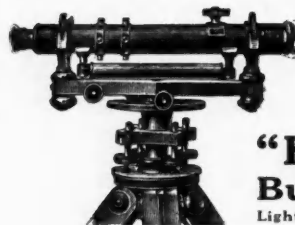
will surface right up to the wall or base-board without the use of Edge Roller. Just the machine you would want for surfacing all kinds of wood floors, whether old or new. Will smooth down rapidly and easily all joints or warped edges. Perfect results guaranteed. More than 20,000 of our machines now in use. Guaranteed against defect in material and workmanship for five years.

Send for our Free Trial Offer. It will interest you.

M. L. Schlueter

225-27 W. Illinois St., Chicago, Ill.

Made in several sizes



As This Level was made to meet your especial requirement, it should be worth investigating.

"KOLESCH"
Builders' Level

Light in weight, built for hard usage and reasonable in price.

The purchase of a "Kolesch" Transit or Level isn't an expense—it's an investment that pays big.

Send for full particulars TODAY

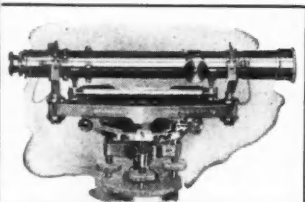


KOLESCH & COMPANY

138 Fulton Street

New York

BUY
YOUR



LEVEL
NOW

Send for Booklet F today and let us show you how you can save money by purchasing your Architects' level now. Excellent instruments at surprising prices. Write at once.

The L. Beckmann Co.
500 Adams St.
Estab. 1874 Toledo, Ohio

BUY A "WHITE"
FOR ACCURACY
AND DURABILITY



The "White" convertible level is noted for its accuracy and durability. When you let a "White" control your lines and levels you can rest assured that your results will be **accurate and dependable**. The strong, sturdy make-up of the "White" level backs up its accuracy and enables it to stand years and years of hard and constant use on the job. Let us send you one for trial—**no obligation**. Circular tells all about it and quotes prices—send for it.

DAVID WHITE CO., Inc.
419 E. Water St., Milwaukee, Wis.

**BANKRUPT
PRICE
\$47.50**

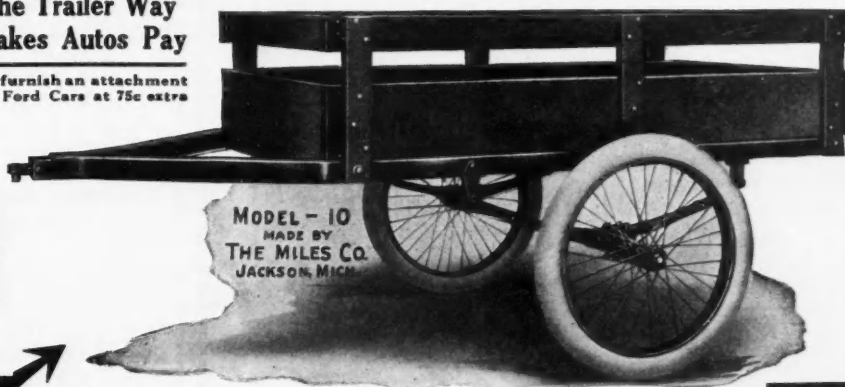
**The Trailer Way
Makes Autos Pay**

We furnish an attachment
for Ford Cars at 75c extra

F. O. B. Jackson, Mich.

OUR MODEL 10 Auto Trailer, with 2" solid rubber tires, steel wheels, ball-bearing axle, automobile channel frame, heavy springs, and shackles, drop forge spring links, our famous all-way coupling, combination rack and delivery body 42"x70"x15" deep. Finished in a handsome Brewster green. Can you beat it? No. And neither could we if we had not bought the material from a large Automobile Company—at bankrupt prices!

THE MILES COMPANY
309 E. Franklin St. Jackson, Mich.

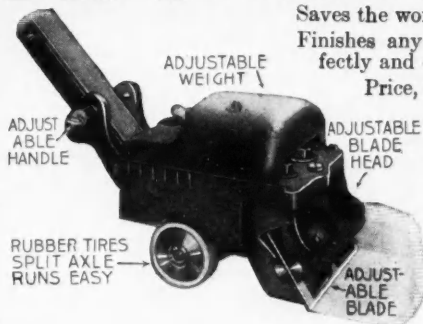


MODEL - 10
MADE BY
THE MILES CO.
JACKSON, MICH.

**DID'S MONEY-BACK-IF-YOU-WANT-IT
FLOOR FINISHER**

Saves the work of three men.
Finishes any wood floor perfectly and quickly.

Price, only \$24.50, cash with order.



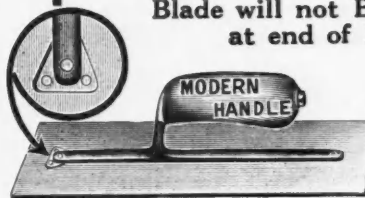
Money back any time it fails to satisfy you.

H. P. DIDRIKSEN
COLUMBUS, OHIO
1826 Summit Street

Nicholls Reinforced End Rivet Trowel

Pat. Appl. For

Blade will not Buckle or Crack at end of Mounting



Flexible Piece under end of Mounting bends with blade, therefore rivets will not pull loose.

Three Rivets to hold instead of one.

Made of Finest Quality Crucible Spring Steel. Fully Guaranteed

Ask your Dealer for these and if he should not have them order direct from us. Price \$2.50

NICHOLLS MFG. CO. Ottumwa, Iowa

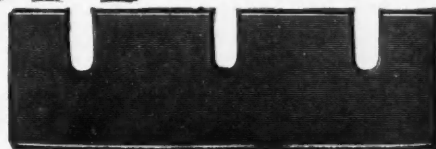
The FOX Floor Scraper Blades



Cut faster, hold their edge longer than any other scraper blade in the world—money back guarantee.

Fox Supply Co.
Dept. A Brooklyn, Wis.

We make blades for any make of scraper



SOLVE YOUR LABOR PROBLEMS

By Surfacing Your Floors

"The American Universal Way"

The American Universal will cut at least FIVE MEN off of your pay roll. Let us tell you all about this wonderful machine and our

FIVE DAYS' TRIAL

American Floor Surfacing Machine Co.
515 S. St. Clair St.
Toledo, Ohio
The Oldest Concern in the Business



**FREE to YOU—For 10 Days
The Triple "A" Spring Driven Floorsmoothen**



To enable you to try our machine out, and learn for yourself its many superior qualities, we will send you one of our BRAND NEW Triple "A" SPRING DRIVEN Floorsmoother for 10 days' free trial, freight prepaid. The Triple "A" is the only floor scraper on the market equipped with a SPRING MOTOR DRIVE—the only convenient motive power. Requires neither fuel nor current—always on tap when wanted. It lessens the work fully two-thirds. Only one motion required—the push forward. This winds the SPRING MOTOR which automatically stops the machine and sends it back on the cutting stroke.

Will save its cost on one job regarding our special trial offer. Write today for full particulars

Triple "A" Machine Co., Room 100, 4125 Ravenswood Ave., Chicago, Ill.

Stop Making "Borderwork"

around your baseboards—which results when you use a narrow edge roll attachment, as its work is uneven and looks different from the rest of the room when finished. Get the same uniform work right up to baseboards that you do throughout the room by using

The Improved Type Automatic Ball-Bearing Electric Floor-Surfacing Machine

The sanding roller is mounted so one end extends just beyond the side of the machine—easily adjustable to either side so that the wall all around the room can be reached. And the Little Automatic Electric Surfacing Machine (shown below) is a wonder for removing old varnish from desk tops, tables, counters, etc., as well as for dressing up new work.



FREE TRIAL OFFER on either of these machines. Write today for full information.



Wayvell Chappell & Company
356-358 W. Madison Street Dept. D Chicago, Illinois
Phone Franklin 4160

ECONOMY

DURABILITY

Cost Less Than
Cords, Pulleys
and Weights

Pullman Unit Sash Balance



PULLMAN MFG. COMPANY
10 Industrial St. Rochester, N. Y.

PULLMAN Unit Sash Balances are made entirely of pressed steel. Are practically noiseless. In use successfully over thirty years. Easy to install—a screw driver does the work.

Specified by hundreds of Architects. Approved by the Fire Underwriters Laboratories and may be used in fire proof buildings.

Write for illustrated catalog with blue print, showing installation in new buildings and learn more about Pullman Sash Balances—the Money Saver.

PULLMAN MFG. COMPANY
10 Industrial St. Rochester, N. Y.

Pullmanize Your Windows

"That's What I Call EASY BORING"

"With a Lebanon Bit I can bore from 40 to 60 per cent farther with the same number of turns than I can with any other I've tried."

LEBANON "Z" TWIST AUGER BITS

can't clog, heat or hold back in any way. They bring every chip out without a murmur and leave clean cut holes even when I go down deep."

Your dealer probably carries Lebanon High Speed Bits. If not, write

Lebanon Machine Company
Lebanon, N. H.

A. Z. BOYD CO. 126 Chambers St. New York 89-21

E. B. STANDART 59 W. Lake St. Chicago



NO FALLING WINDOWS
SMASHING GLASS
POCKET FRAMES
SASH WEIGHTS
RATTLING
BINDING
CORDS with

AUTOMATIC SASH HOLDERS



Automatic Sash Holders
and save labor, lumber and money. Send for trial set (\$1 prepaid) stating approximate weight of sash, or our circular

Hardware Sales Co., Inc.
52 Church St., New York.

SPECIFY USE DEMAND

DUMBWAITER

COMPLETE \$19.50 READY TO INSTALL

Includes all necessary material, not knocked down—machine, machine timbers, bolts, boxes, car, counterweight, ropes, guide ways, etc., all ready to set in hatchway and erection instructions. Length up to 20 feet. All material guaranteed. Money back if not satisfactory. Write for further particulars.

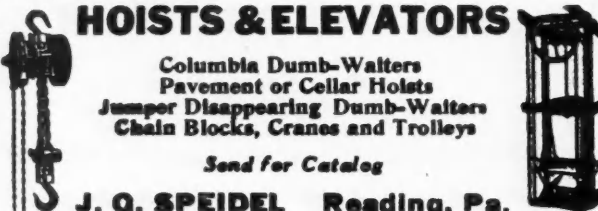
Highwood Dumbwaiter Co., Grand Ave., Leonia, N. J.

HOISTS & ELEVATORS

Columbia Dumb-Waiters
Pavement or Cellar Hoists
Jumper Disappearing Dumb-Waiters
Chain Blocks, Cranes and Trolleys

Send for Catalog

J. Q. SPEIDEL Reading, Pa.



KITCHEN TO CELLAR

CARPENTERS WANTED AS AGENTS
Now is the time to act. Big Money. Ready Seller. **SANITARY AUTOMATIC DUMBWAITER** saves carrying food to and from cellar. Perfectly ventilated; screened openings; finished inside with durable white enamel. Keeps food perfectly. Top lies flush with kitchen floor. You can walk over it. Operates with push button or lever. Also furnished as a Refrigerated dumbwaiter. Assembled complete ready to install. But three hours required to place our waiters in actual operation; old or new homes. Quotations included every needed supply. \$17.46 apiece. Illustrated catalogue.

York Automatic Dumbwaiter Works, 639-645 W. Market St., York, Pa.

SIDNEY ELEVATORS

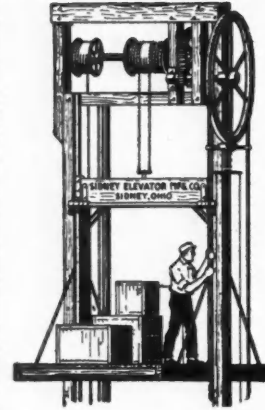
Will reduce your handling expense, and speed up your work.

Our machines are easily installed from our complete plans and instructions which are sent with each elevator.

The Reasonable Cost Will Interest You

Write us today, stating requirements, giving style of machine wanted, size of platform and number of feet travel, and we will quote a money saving price on equipment to serve you well.

SIDNEY ELEVATOR MFG. WORKS
SIDNEY, OHIO



KIMBALL ELEVATORS

PASSENGER AND FREIGHT

We manufacture an improved line of Electric, Hand or Belt Power Elevators, Dumbwaiters, Hatch Gates, etc. Send for full information.

Address **1050 9th Street**
KIMBALL BROS. CO., Council Bluffs, Iowa



Sedgwick Hand-Power Dumbwaiters and Elevators

Manufactured by Specialists and guaranteed. Send for Catalog and information.

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GREYHOUND SUPERIOR SAWS



BISHOP'S BEST

We Offer to Carpenters and Builders the final result of years of experimenting and experience in producing good saws. This superior saw is known as our "GREYHOUND." We have satisfied ourselves that a better saw cannot be made. The GREYHOUND is a saw that will hold its sharpness and set longer than any other good saw. This saw should be in the hands of every mechanic who appreciates a good tool. We are proud of this saw and its easy running quality. Its symmetrical lines, toughness and fine adjustment typify its name "GREYHOUND."

30 DAYS' TRIAL---MONEY BACK IF NOT SATISFIED

We are so confident that this saw will meet with your approval that we offer it on trial for 30 days. If it does not come up to your expectations or fails to satisfy you in any way we will refund your money.

Made in Both Straight and Skew Back also Ship Carpenters Pattern

Length	18	20	22	24	26	28	inches
Each	\$2.85	\$3.00	\$3.15	\$3.30	\$3.50	\$3.85	net

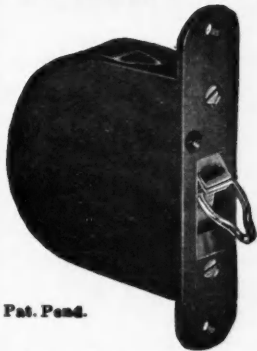
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GEO. H. BISHOP AND COMPANY

Lawrenceburg, Ind.

Caldwell Sash Balances Uniform Mortises



Pat. Pend.

For use in all classes of new work. Box frames unnecessary. Mortises cut at mill reduces cost of installing. Counterbalance sashes perfectly unaffected by atmospheric conditions. Cheapest method for modernizing old window, as alterations in sashes and frames are not necessary. Sashes should be weighed before ordering.

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CALDWELL MFG. CO.
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WHY not use the particular size, shape and grade of pencil or crayon suited to your work? You will find it among

Dixon's Pencils

Send us the name of your dealer from whom you purchase pencils and crayons together with sixteen cents (\$0.16) in stamps and we will send our liberal sample assortment No. 183-J, as illustrated.

Made in Jersey City, N. J.

by the
Joseph Dixon Crucible Co.

LUMBER

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1802

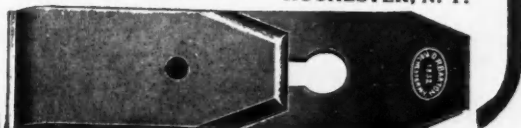
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BARTON TOOLS

The steel capped double plane iron illustrated is one of the celebrated Barton Tools. For many years these tools have been known for their unequalled, keen, hard, smooth-cutting edges. Barton Tools last a lifetime and give satisfaction to the end. Ask your dealer to show you our tools or send direct for catalogs and free story book—True Stories. Specify "Carpenters Catalog."

MACK & COMPANY 100 BROWNS RACE
ROCHESTER, N. Y.



A POPULAR PRICED STEEL TAPE

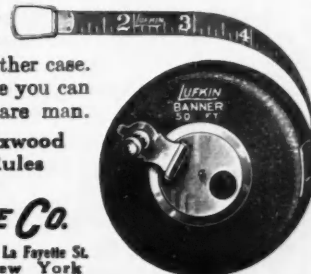
LUFKIN "BANNER"

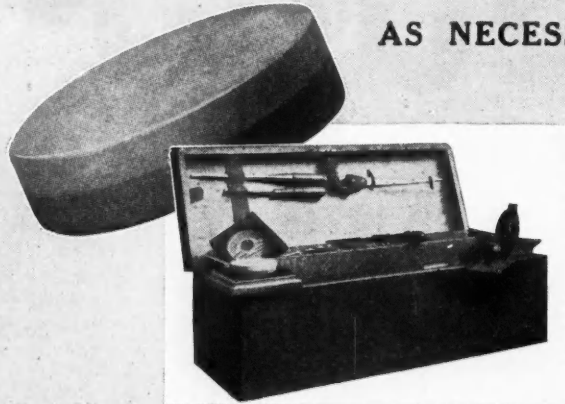
Accurate, standard size steel line 25 to 100 ft., put up in metal lined auto leather case. A tool you need at a price you can afford. Ask your hardware man.

Measuring Tapes, Boxwood and Spring Joint Rules
Send for Catalog

THE LUFKIN RULE CO.

Saginaw, Mich. 106 La Fayette St. New York





AS NECESSARY AS A SAW OR A HAMMER
IN YOUR TOOL KIT

Carborundum Sharpening Stones

Quick, clean-cutting stones, that bring the edge to the tool with just a few strokes. **AND THEY CUT THE EDGE ON THE TOOL—THEY DON'T MERELY RUB IT ON** Every stone positively uniform in grit and hardness, holds its shape, shows long life. The round Carborundum Combination Bench Stones for general tool sharpening, the beveled edge slips for touching up gouges, carving bits, etc.—the extra hard, extra fine Carborundum stones for that finer edge for your finer tools.

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THE CARBORUNDUM COMPANY
NIAGARA FALLS, N. Y.



OUR NEW SHIP CARPENTER'S ADZE

No. 44-B

A little lighter in the eye and shank than our regular style but has the same quality and hang.

If you have never used the **WHITE** Adze you have a pleasant surprise coming. As one of our friends said: "They're sure the stuff."

Better write today for our catalog

THE L. & I. J. WHITE CO.

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Carpenters, Builders, Attention!

You owe it to yourself, as well as to the property owner for whom you are working, to see that his buildings are adequately equipped with proper protection from loss by lightning.

His confidence in your judgment will make it easy for you to secure this additional work.

The Barnett System of Guaranteed Lightning Protection is the easy way to more profits on the same job. Our rods are in big demand and there is a big profit in selling them. They are made of pure copper cable, with attractive fixtures that are easily put on any building.

Why not equip yourself to take advantage of the opportunities for this work which are continuously arising? Let us show you the way to more profits on the same job.

FREE -- Cable Samples, Price List and Catalog. Write for them today.

JOS. L. A. BARNETT & CO.
RIVERSIDE, IOWA



Carpenter's Tool Trunk



Handy—Practical—Economical
Just the thing in which to carry your tools.

It can be carried anywhere—like a suitcase. Keeps your tools in good shape, and lasts a lifetime. Made of basswood, covered with enameled steel. Has a steel binding, and is lined with paper. Locks and bolts are of brass. Contains drawer for small tools and an arrangement for holding steel square, level and three saws. Size 32 inches. Price \$7.00.

If your dealer doesn't handle this "Handy Tool Trunk", we will credit you with 50¢ for giving us his name when you order your chest. Simply send us his name and your check for \$6.50 and we will send you chest at once.

**F. ENDEBROCK
TRUNK CO.**

1417 South 14th, ST. JOSEPH, MO.

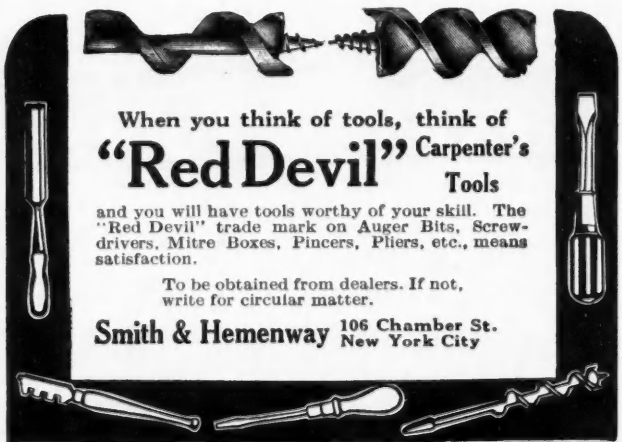


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**"Red Devil" Carpenter's
Tools**

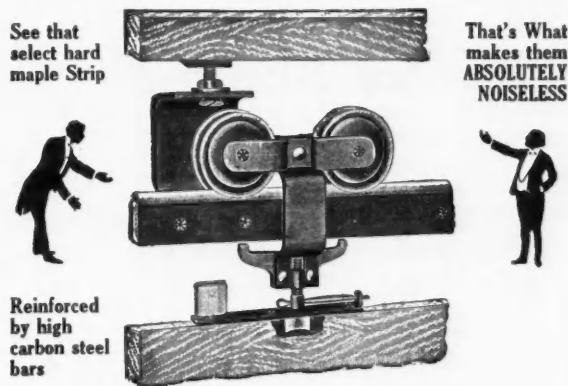
and you will have tools worthy of your skill. The "Red Devil" trade mark on Auger Bits, Screw-drivers, Mitre Boxes, Pincers, Pliers, etc., means satisfaction.

To be obtained from dealers. If not, write for circular matter.

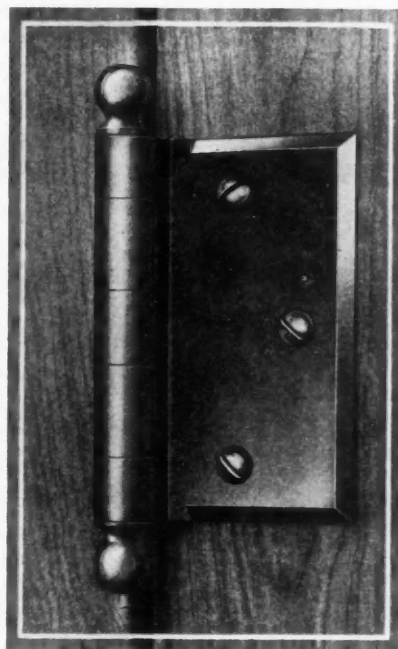
Smith & Hemenway 106 Chamber St.
New York City



Dix Noiseless Door Hanger



DIX MANUFACTURING CO.
BALTIMORE, MD., U. S. A.



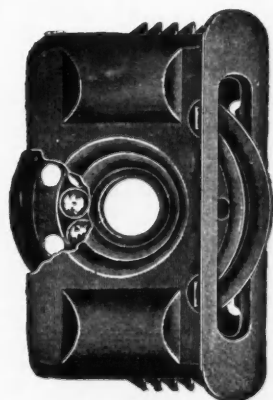
McKinney Wrought Steel Half-Mortise Butts No. 2745

IN hanging doors with these half-mortise butts the jamb only is mortised, as the ornamental beveled-edge leaf of the butt is attached to the surface of the door. This saving in time and labor appeals strongly to every contractor and builder.

The rich finish and beauty of design of this half-mortise butt insures perfect harmony with the finest finishing hardware. It can be made reversible for use on either right or left hand doors by simply unscrewing the slotted tip at the bottom of the butt, reversing the pin and inserting the tip in the opposite end.

When it comes to hanging doors, whether in cottage or skyscraper, you can depend upon McKinney Wrought Steel Butts giving lasting satisfaction. Send now for Builders' Catalog "A-II." Every architect, contractor and builder should have a copy.

McKinney Manufacturing Co.
Pittsburgh, Penna.



"Grand Rapids" Ball Bearing ALL STEEL Sash Pulleys

**Fasten Automatically
No Nails—No Screws
Just Bore Four Holes**

No. 10 Ball Bearing

The automatic saw tooth fastening feature and the simple and easily made mortise will save in labor enough to pay for the pulleys.

The bearing contains eleven 1/4-inch Solid Steel Balls running in lubricant, insuring a noiseless, easy running wheel under any load.

NOISELESS—EVERLASTING
Write for **FREE** Samples

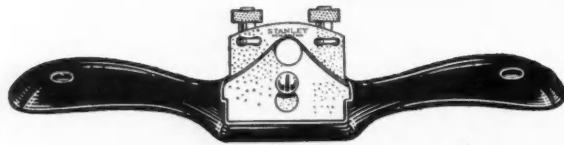
Fifty Different Styles

Grand Rapids Hardware Co.

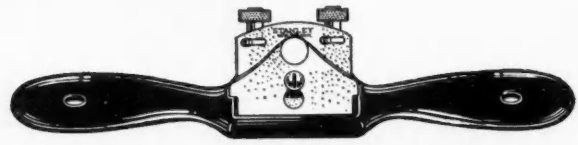
Manufacturers

158 Eleventh Street - Grand Rapids, Mich.

Stanley Tools



No. 151



No. 152

Stanley Adjustable Spoke Shaves

These new and improved Spoke Shaves have a Lever Cap fastening the cutter in such a manner as to bring an even pressure on the cutting edge.

The **important feature** is that the **cutter** can be **quickly adjusted** both **endwise** and **sidewise** by means of the **adjusting screws** which **engage the slots** near the end.

The Cutters are made from a high grade of steel, well tempered and sharpened ready for use.

The handles are japanned and through each a hole is made to enable the owner to hang the tool up out of the way.

Made in two styles—one with raised and the other with straight handles.

For Sale by All Hardware Dealers

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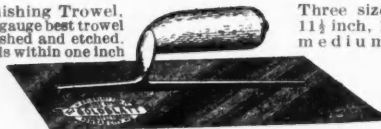
STANLEY RULE & LEVEL CO.
NEW BRITAIN, CONN. U.S.A.

**You take no risk
when you order
Goldblatt Tools**

**All Our
Tools
Guaranteed**

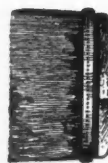
Goldblatt Plasterer's Trowel

No. 1 F — Finishing Trowel, made of 22 or 24 gauge best trowel steel, highly polished and etched. Mounting extends within one inch of each end of blade, and has ten large rivets.



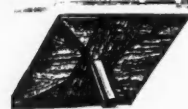
Three sizes — 11 inch, 11½ inch, 12 inch. Low, medium and high mounts.

Price \$2.00



Goldblatt's Plasterer's Brushes

Made of finest quality Russian bristles. Price \$2.00 and up.



Goldblatt's Plasterer's Hawks

Made of selected soft wood; 5 inch dovetail; 6 inch handle; weight about 1½ pounds. Stationary handle — 75c. Patent screw handle \$1.00.



Goldblatt's Tile Markers

Most practical and best plasterer's tile marker made. Price 40c.

Tool Bags—Valise Shape

Made of heavy canvas, hand sewed to hoop steel frame. Has lock, 2 straps, inside pocket, leather trimmed; 5 sizes, \$1.75 to \$2.60. 16 to 24 inches long.



Guaranteed
Plumb
Rules




\$2.40
3.00
5.00

Order direct from the makers. Write for illustrated catalog and save money. Goldblatt Tools always satisfy. Our motto—Better Tools at Lower Prices.

H. GOLDBLATT TOOL CO.
212 E. 15th Street KANSAS CITY, MO.

Largest exclusive tool makers for Plasterers, Masons, Cement Workers and Tile Layers

QUICK ACTING  SELF LOCKING

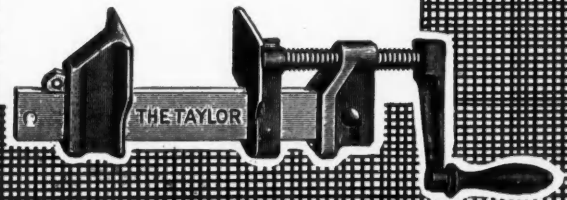
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**An Investment
Not an Expense**

The quickest and strongest clamps made. That's why they're the standard in U. S. Government Works and in such concerns as General Electric Co., Singer Sewing Machine Co., Victor Talking Machine Co., etc.

We can PROVE it in your own shop. Write today.

James L. Taylor Mfg. Co.
Poughkeepsie, N. Y.



Carpenters Double Your Income!

START today towards bigger profits. Don't continue to slave along on a small salary. Many carpenters, just like yourself, are increasing their earnings 100% every day. They are moving houses instead of wrecking them. Give yourself the same chance with a set of

ALL-STEEL GIANT HOUSE-MOVING TRUCKS

and our complete equipment. There is plenty of work—the house-moving contracting business is growing rapidly every day. To prove this we offer the outfit FREE for 30 days. Get it and see for yourself the amount of work in your locality for the man who is prepared. Experience not necessary. Small investment—big profits. We help you start. Write today for special Free Trial and complete information. Ask for catalog "B." E. W. LA PLANT, President, LA PLANT-CHOATE MANUFACTURING CO., 620 Eastlark Court Cedar Rapids, Iowa. FREE—"Successful House-Moving Contractor"—Helpful, practical, interesting magazine on house-moving. Send for it now.



It's a criminal waste to lay a thirty-year shingle with a five-year nail. When the nail starts its rotting work the shingle gets dislodged—result—leaky roof. Then the shingles are ripped off (meaning a dead loss of from 33 to 50 per cent of the natural life of the shingle) and a new roof is laid. All the nail's fault.

The M. I. F. Zinc Coated Nail will outwear the best shingle ever sawed. We can site cases where the M. I. F. nails driven more than 30 years ago are still in as good condition as when first driven. You won't profit on a poor shingle nail. Try these M. I. F.'s. Send for a sample and our booklet "Nail Knowledge."

Malleable Iron Fittings Company
BRANFORD, CONN.

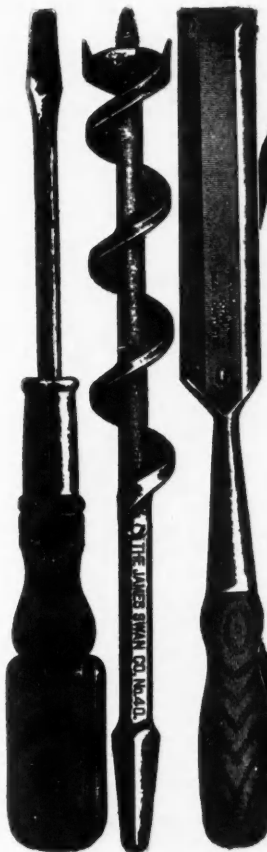
When you want tools of any kind—tools that you can bank on to be just the kind and quality you want them to be, insist on the Swan Trade Mark.



It's a plain guide to all that is best in carpenters' tools and your assurance that you are dealing with an old, reliable firm that makes tools as good and solid as its reputation.

Awarded the Medal of Honor at the Panama-Pacific Exposition, in the Manufacturer's Building.

ASK FOR CATALOG
The JAMES SWAN CO.
Seymour, Conn.



"My old friend Bobby Burns sez that
*'the goud is but the guinea's stamp
a man's a man fer a' that'*

and our forefathers declared that 'all men is created free and equal.'

"BUT they AINT equal, and there IS a hull lot of difference between man an man."

"Jest as there's a helluv a lot of difference between wheelbarrows, tho' they all go by the same name in the index of the catalog."

"Fact is, there's thoro-breds an' scrubs in Barrows jest as there is in men an' hosses."

"No use talkin' bout comparison, cause there hain't no such animal. STERLINGS is built like machines, and the others are just common ordinary wheelbarrows built to sell cheap, but not to last, and with all the shaky ailments imaginable."

"The fellers what make

Sterling

wheelbarrows sure know how to make 'em strong, easy to wheel, and easy to fix when fixin' is necessary.

"The wheels on STERLING wheelbarrows has self-oiling bushings that run easier the longer they wheel. The axles is made of perfectly round, smooth shafting stock keyed at each end to malleable brackets. The hub is extra heavy pipe which can't break."

"The legs is made of channel steel, with braces, and shoes at the bottom, and all these braces and shoes are riveted together. The legs is held to handles with patent clamps which strengthen the handles."

"It's things like these that keeps Sterlings right on the job, like thoro-breds, while the cheap old rattle-traps that started with them is laid up as spavined old cripples, or gone to the boneyard altogether."

—TIM TRUNDLE.

Write for Catalogue No. 19

STERLING WHEELBARROW CO.
MILWAUKEE WISCONSIN

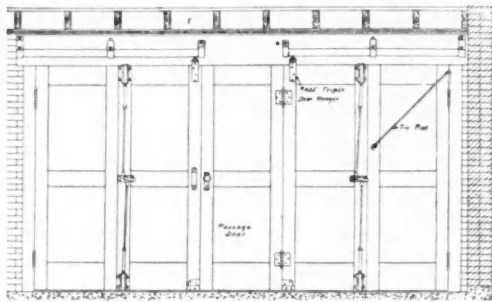


No. 6 "A"
For Concrete, Sand
or Brick

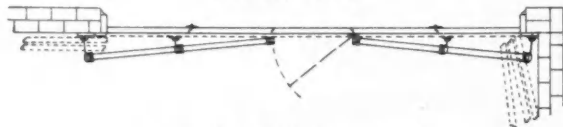
Slidetite

(R-W No. 435—Patented)

The Last Word in Garage Door Hardware



Five-Door Outfit



Floor Plan of Five-Door Outfit



A Slidetite Garage

Doors can't sag nor slam. Slide inside out of the way. Operate in small space. Close tight into casing. Give distinction to your garage.

Sold by the best Hardware trade everywhere

Write for booklet "Distinctive Garage Door Equipment." Sent without obligation.

Richards-Wilcox Manufacturing Co.

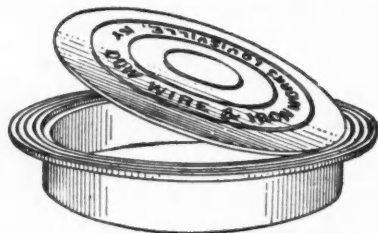
SAN FRANCISCO
LOS ANGELES
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CHICAGO

AURORA, ILLINOIS, U.S.A.

PHILADELPHIA
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Richards-Wilcox Canadian Co. Ltd. London, Ont.

"A hanger for any door that slides"



BUILDERS' IRON WORK

Window Guards, Elevator Enclosures, Elevator Cabs, Hangers, Ornamental Iron, etc., etc., etc.

DOW WIRE & IRON WORKS (Inc.) Louisville, Ky.

Wire Window Guards



Counter Railings
Elevator Enclosures
Tubular Hand Rails
Brass and Bronze Work

DON'T FAIL to get our catalog and full information for your own benefit!

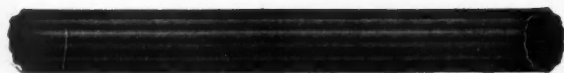
The Cincinnati Mfg. Co., Cincinnati, Ohio

C. G. HUSSEY & CO. Pittsburgh, Penna.

MANUFACTURERS OF **COPPER**

In Sheets, Plates, Rolls

CORRUGATED COPPER CONDUCTOR PIPE



Copper Nails, Copper Rivets, Conductor Pipe, Eaves Troughs, Elbows, Shoes, Mitres, Soldering Coppers, Gaskets, Etc.

Say Shelby "CHIEF"

When You Talk About FLOOR HINGES

"The hinge without woes, As the wise carpenter knows."



Manufactured by The Shelby Spring Hinge Co., Shelby, O. Sold Everywhere

KOEHRING MACHINE COMPANY
Milwaukee, Wis.

Please send me full information about the Big Value Dandie Mixers, and your new Dandie Catalog. Also information about items marked with an X below.

..... Bar Benders. Bar Cutters. Name.....
Address..... City..... State.....

Volume Production—Standardized Quality Gets the Price Down

Make no mistake about this—that the Dandie Mixer is not the cheapest priced mixer, it is the best light mixer ever built, and quality considered it is remarkably low in price. It is the big record-making value in the light mixer field. If there is a chance that you will get a mixer this year, send back the coupon at the top of this page today—without delay.

*—Not Built to Sell Cheap, But
Built to Stand Up to the Job*

Too many light mixers have been built to sell at the bottom price, but this mixer first of all is designed and built to stand the service.

The price is low for the quality only because Dandie Mixers, in 5 and 10 cu. ft. sizes only, are built in great quantities. Every part is standardized, and is made by the most modern of cost-cutting machines. Volume production in the plant of the largest manufacturers of concrete mixers in the world—keeps down the price and keeps quality up.

Remember this—that there is no other light mixer so well built as the Dandie—you can't find equal quality in strength of construction and speed of operation in another light mixer.

Big contractors who need light mixers for general help-out work are using Dandie Mixers in batteries. Small contractors who need extra strong, easily portable mixers are the big buyers of the Dandie.

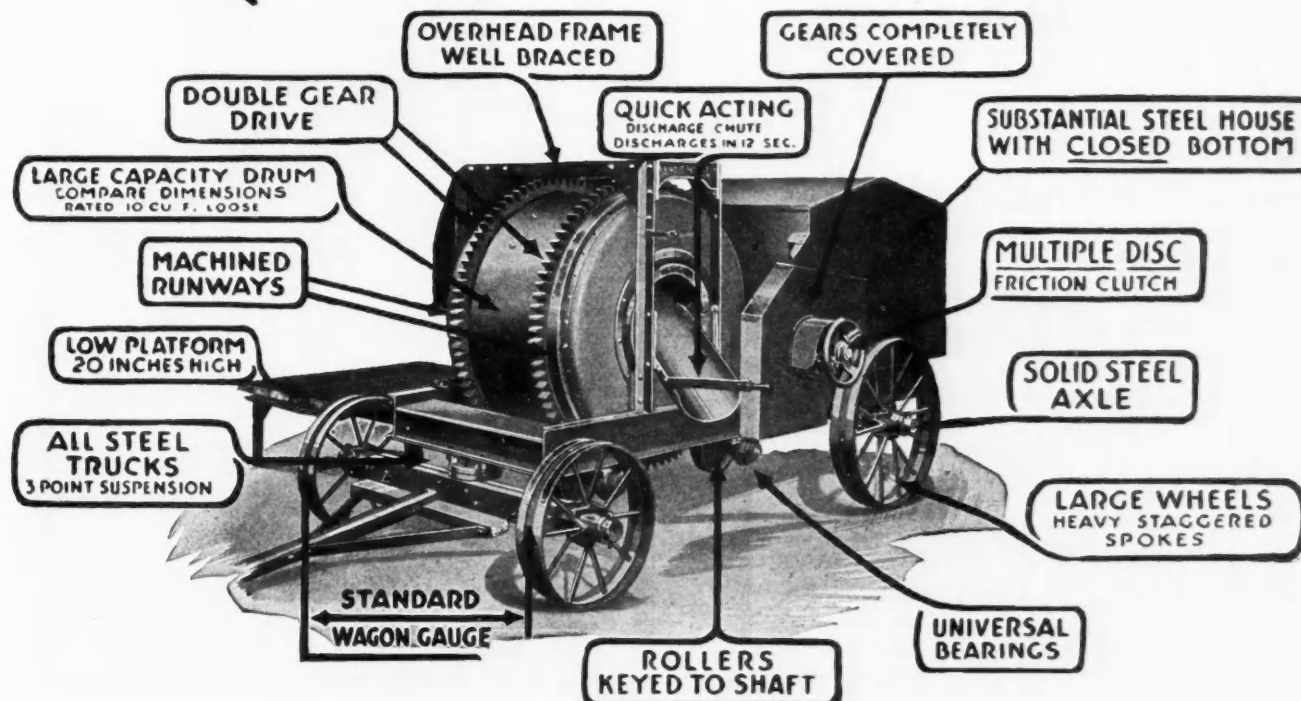
Dandie spells Big Value. Send back the coupon for special Dandie catalog, get the price and judge for yourself.

DANDIE MIXERS

5 and 10 cu. ft. capacities. May be equipped with low charging platform, power loading skip, batch hopper, also automatic water measuring tank, and light duty hoist.

SEND BACK THE COUPON TODAY

Koehring Machine Co.
MILWAUKEE, WIS.



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RANSOME




Registered U. S. Patent Office

Well Mixed Concrete for Permanence—Ransome for better mixing
(Member National Association Mixer Manufacturers)

The Ransome Bantam Mixer line, from the Ransome Bantam Junior to the Ransome Bantam Paver is the most efficient line of mixers ever produced. The Ransome Bantam is practically the American Standard. It means rapidity, efficiency, long life, low original cost, and economic operation. No waste and no time lost. Write for particulars.

RANSOME CONCRETE MACHINERY CO., 115 Broadway, New York City
Agents in every large City

Factories: Dunellen, New Jersey and Reading, Pa.

DUNN CONCRETE MIXERS

Labor Saving the Big Factor

The labor scarcity makes machine mixing imperative. The Dunn offers efficient machine mixing facilities for a small investment.

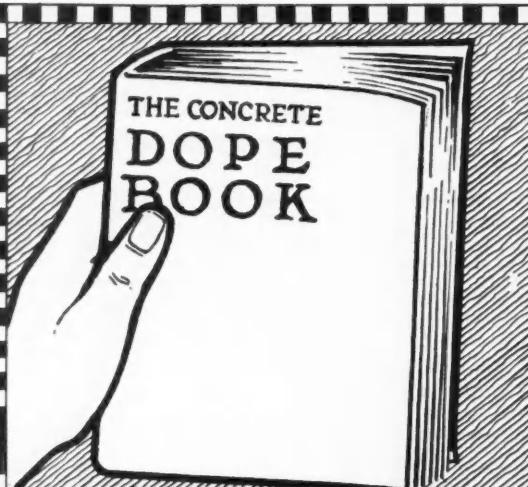
A speedy-to-operate, easy-to-transport mixing unit, with a 5-ft. batch capacity, is the most desirable type for building contractors' requirements.

The Dunn is of that style and size. (Also made with capacity of 3½ ft.) It is the easiest to operate of any, because of its low charging height, correct balance, and hand wheel discharge from either side.

Write for the Mixer Bulletin. **Agents Wanted.**
W. E. Dunn Mfg. Co. 415 24th St., Holland, Mich.



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It's Free!

—This big twenty-four page book with an answer to all your concrete problems—is free.
—The Concrete Dope Book tells you—oh! send for your copy today, then you can see for yourself.

Just say, send me the Dope Book—and we will do the rest.

The Cement Tile Machinery Co.
44 Rath Street Waterloo, Iowa

LANSING No 5



Designed for the Average Builder

This "half sack" batch mixer does the work of an all around contractor, such as sidewalk curbing and foundation work with the least possible expense. The first cost is small, it costs but little to run and is easily moved from job to job. Don't fail to investigate the No. 5 before buying. Send for our catalogue No. 202 Many other sizes.

LANSING
"KEEP YOUR PRODUCT ON WHEELS"

22 Cedar Street, Lansing, Mich.

CHICAGO	167-169 West Lake Street
NEW YORK	288-289 West Street
BOSTON	78 Cambridge (Charlestown District)
PHILADELPHIA	Corner North American and Willow
MINNEAPOLIS	517-519 North Third Street
KANSAS CITY	1413-1415 West Tenth Street
SAN FRANCISCO	338-348 Brannon Street



\$3,000.00 Saved On This Job!

THE builders of the Whitney building of Detroit, found that hardwall plaster mixed in the Blystone Batch Mixer could carry a third more sand and still be fat and that the plasterers could spread 15 per cent more plaster when mixed in a Blystone on account of the perfect mix. They now use the Blystone exclusively.

The Blystone mixes successfully concrete, mortar, hardwall or old fashioned hair plaster. It is just the machine for the all around contractor. Write for our catalog.

Blystone Mfg. Co.
717 Carpenter St.
Cambridge Springs, Pa.



Northwest
BUILDING MATERIAL EXHIBIT

1917

What are you going to build this year?

A Garage? **LOOK**
A Bungalow? **Before You Build**
A House?
Apartments?
A Church? **EVERYTHING**
A Hotel? that enters into building construction, including heat, light, ventilation, decoration
A School? —as well as the materials
A Hospital? that make the structure and
A Factory? the methods of application—
A Skyscraper? for a little job or the biggest building—is on free view at the

Permanent Building Exhibit

whether you are owner, architect, contractor or sub-contractor for all or any part of any building, you can't afford to build without inspection of the world's latest and best as shown in the

200 Exhibits on One Big Floor

It's FREE to See

Northwest Building Material Exhibit
Entire Fourth Floor, First National Soo Line Bldg.
Minneapolis, Minnesota

look before you build

Get a Jaeger BIG-AN-LITTLE and add units as you need them

WHY spend more money for a larger, more cumbersome machine when, with a smaller investment and operating cost, the Big-an-Little will do your average job in a first class manner?

The Jaeger Units will make it fit to do any big work that might turn up.

The cost of the Big-an-Little amounts to but 45c a day for a year. After that the expense is limited to the slight operating cost. No builder can mix by hand at this price.

The machine is the result of years of experience and the value of every part has been tested by time. It is a Quality machine thruout.

No machine could be more simple or easy to operate. A turn of the handle dumps the batch directly into the wheel-barrow without waste.

There is no speedier machine on the market. A mix a minute is our slogan.

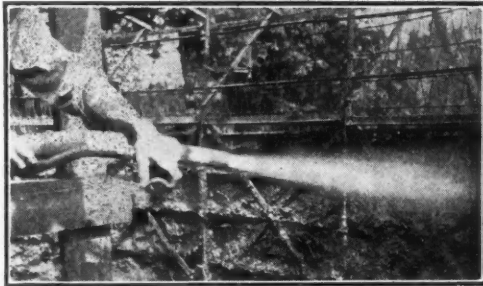
Big-an-Little Specifications

Capacity 5 to 6 ft. per batch. Drum 34-inch diameter, 30 inches deep. Discharge controlled by gears. Trucks all steel. Wheel 18 inch diameter—48 inches over all. Standard gauge trucks with 20-inch by 24-inch wheels if desired. Engine 3 H. P.—Jaeger Engine. Best that can be produced. Weight 1700 lbs.

Don't put off sending for our prices and catalog of Jaeger machinery. Send a postal now.

The Jaeger Machine Co.
318 W. Rich St., Columbus, Ohio

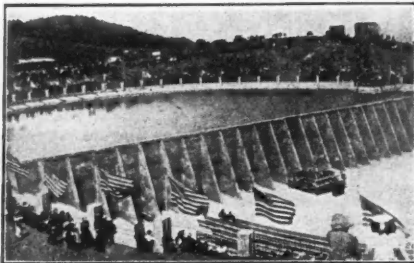




Shooting a "GUNITE" Reservoir at Elmhurst, Ill.

This is Rapidity and Economy in Construction

Engineers and Contractors find many important uses for the Cement Gun and its product "GUNITE" for it has been definitely proven that "GUNITE" is waterproof and bonds perfectly to old or new concrete.



Twin Peaks Reservoir, Cal.

Read this from a Prominent Western Engineer

"When one-half of the reservoir (Twin Peaks Reservoir of the San Francisco Water Supply) was filled with water to the depth of 8 feet, water seeped through this wall. The reservoir was emptied and both sides of the wall plastered with cement plaster (GUNITE) about 1/4-inch thick, applied by means of the Cement Gun. After standing about 5 days, the west half of the reservoir was then filled to a depth of 26 1/2 feet, and kept filled for 5 days. During all of this time, the surface of the wall on the unfilled half of the reservoir showed no sign of dampness, indicating that the cement plaster (GUNITE) was ABSOLUTELY WATER-TIGHT."

"Upon attempting to chip the plaster (GUNITE) off from the wall with a cold chisel and hammer, the plaster was found to be THOROUGHLY BONDED to the concrete."

The bulletins of the Cement Gun and its product "GUNITE" will be of great value to all Engineers, Contractors, Builders and Architects who are interested in the BEST, EASIEST and QUICKEST way to WATER-PROOF either old or new concrete.

Let us mail them to you now

Cement-Gun Company, Inc. Allentown, Pa.

Cement-Gun Company, Inc., 30 Church St., New York City.
Byers & Ayers, 1414 Fisher Building, Chicago, Ill.
John A. Traylor, Newhouse Building, Salt Lake City, Utah
Taylor Engineering Co., 538 Central Building, Seattle, Washington
Taylor Engineering Co., Vancouver, B. C.
A. R. Roberts, 727 Traders Bank Building, Toronto, Ont., Canada

THE EXPERT'S CHOICE FILE



Does twice the work of an ordinary file—in half the time. The Expert's Choice increases the value of your time by over 50%. By spending 25 cents you can make it back on your first filing job alone. It's in the Quality—in the cut of the tooth and in the length of the stroke.

Frank Luther, Chicago, says: "The Expert's Choice File files 18 hand saws and is cheaper at a cost of 50c than the ordinary file at any price."

You get your money back if the Expert's Choice does not prove to be the most economical file you have ever used. DELTA SAW FILES are made for fine or coarse teeth—also for that extra hard saw.

Buy your tools of the dealer who sells Delta Files. He is the quality man.

Trial Offer If your dealer cannot supply you, send us 15c, 20c or 25c for trial file, sent prepaid. Do this today—find out what a real file is.

DELTA FILE WORKS
PHILADELPHIA, PA.

"THE HIGHEST GRADE FILE MADE"
DELTA "HAND SAW" FILES

CARPENTER'S SPECIAL	15¢ EACH
MECHANIC'S FAVORITE	20¢ EACH
EXPERT'S CHOICE	25¢ EACH

DOES TWICE THE WORK IN HALF THE TIME
THE FILE YOU WILL EVENTUALLY USE

Look for
This
Sign
at
Your
Hardware
Store

Carpenter—Contractor— Builder and Material Dealer

Write today. Now is the time to take up an agency proposition for the largest and most complete line of Order-Made

WINDOW and DOOR SCREENS

on the market. Turn your idle hours into money. We supply you with a complete agent's outfit consisting of models, contract blanks, advertising matter, etc. We give exclusive agencies to the ones who make good. No regular agencies established in towns less than 10,000 population. We have some excellent territory still open

—ADDRESS—

Standard Screen Company

1856 Hastings Street, CHICAGO, ILL.



Pays for itself on the
First Job

The Pearson Automatic Shingle Nailer

Do your nailing fast—faster than ever before. You can use this Pearson's Nailer on any pitch roof. Wear mittens, gloves, etc. This "Hand Nailer" is the only Nailer—throw nails in by the handful—then start nailing. Nails easily driven through tin or quite heavy sheet iron.

These nailers are made in two sizes—The BLUE Nailer for 3d, common No. 14 gauge wire nails.

The RED Nailer for 3d galvanized No. 13 gauge 1 1/4-in. wire nails. The regular price is \$7.00 but if you order from this ad, we will send it prepaid parcel post for \$5.00. This offer is liable to be withdrawn, so act now.

PEARSON MFG. CO. - ROBBINSDALE, MINN.

REX MIXER

For PERMANENCE
in CONCRETE

Every Contractor Should Own This Rex Model

Capacity—4 cubic feet mixed materials

It is hard to imagine a job where one of the REX Mixers shown here would not work in to advantage. Many contractors use these light, portable models exclusively; others keep a REX for the little jobs that are a part of every big job. The model shown below has a capacity of 7 cu. ft. wet mix. Power loader and automatic water tank with the REX 7-S if desired.

Let us send you our free book showing the complete line of REX Mixers and Pavers. Ask for REX Mixer Catalog No. 71-D

Chain Belt Company Established 1891
730 Park St., Milwaukee, Wis.

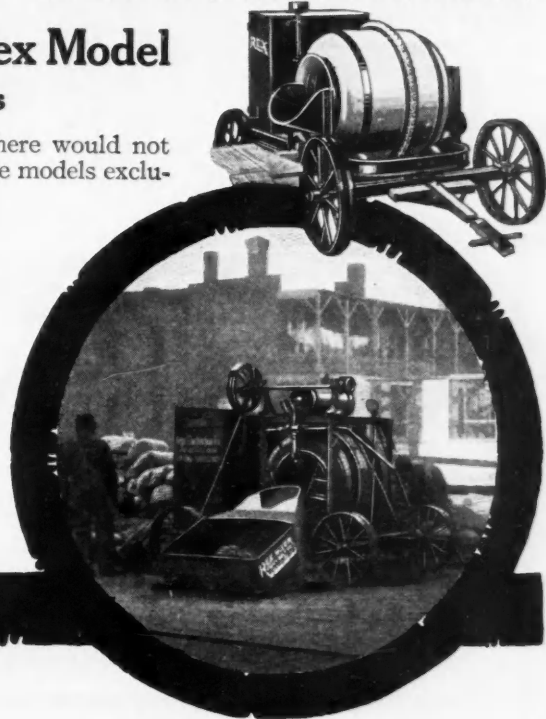
Chain Belt Company, 30 Church St., New York City
W. B. Louer Company, Old Colony Building, Chicago
Edelen and Company, 235 Commercial Trust Bldg., Philadelphia, Pa.



Makers of
Rex Chains for elevating, conveying and transmission
Sprocket Wheels—Gears
Shaft Couplings and Collars

Malleable Elevator Buckets
Rex Paving Mixers
Rex Concrete Mixers
Rex Traveling Water Screens

Write for interesting booklet on any of these



KELLY

ORDER DIRECT
and save
50 to 100
\$\$\$

By dealing direct with the contractor and builder we can sell you the Kelly mixer at a saving of \$50 to \$100 without cheapening the machine in any way.

The Kelly is a first-class machine, complete in every detail. Engine is equipped with a magneto that does away with batteries, wiring, spark coils and plugs. Engine is guaranteed for five years.

Write for Our Illustrated Matter Giving Prices and Trial Proposition.

F. H. CLARKE MFG. CO.
10719 Superior Ave., Cleveland, O.



Are Your Present Methods Efficient?

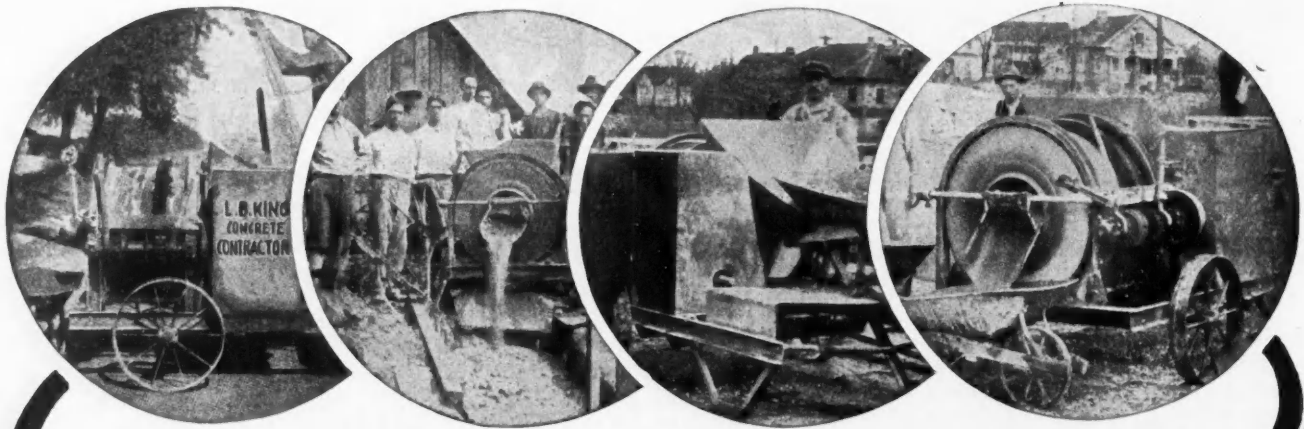
Are you using hand labor or an old-fashioned and inaccurate mixer? You can't afford to continue with either at the present value of time and labor.

The GRAND No. 1

will easily cut the operating cost of hand labor by 50% besides insuring you an absolutely accurate mix, either wet or dry. With the Grand Continuous Mixer your men are always busy. No waiting for a batch to mix. The expensive mistakes of careless labor and inaccurate mixing are eliminated by the Grand Automatic Force Feed device. Built to meet the demands of the big or little job, from sidewalk work to big building construction. Let us send you our catalog with prices and specifications.

Hall-Holmes Mfg. Company
467 Oak Street Jackson, Mich.





Always on the Job--

“Little-Devil” Mixer

A Bigger, Better Mixer for the Same Money

Capacity 7 cubic feet of loose material. Low Charging—End Discharge—May be used for Paving, Grouting Brick Pavements, Foundations, Sidewalks and will mix and place concrete quicker and at less labor cost than any mixer on the market. Write today for catalogue, prices and terms.

Chicago Builders' Specialties Co.

1461 Lumber Exchange Building, 9 South LaSalle Street, Chicago, Ill.

Packard LOW CHARGER

The “Easy to clean,” Patented “High Speed” Mixing and Discharge Action is one of the few that successfully and fast handles

STIFF CONCRETE FOR CURBS, GUTTER AND SIDEWALK WORK

Get our astonishingly low prices on these sturdy, built-of-steel mixers—also our Terms. 6 and 11-ft. sizes—also with Loaders. Quick deliveries from stock carried in all large cities. Write nearest office.

The American Cement Machine Co Inc

Keokuk Iowa
THE 300,000 HP ELECTRIC CITY

BRANCH OFFICES—New York, Philadelphia, Pittsburgh, Baltimore, Richmond, Cambridge, Mass.; Indianapolis, Chicago, New Orleans, Minneapolis, Seattle, Spokane, Los Angeles, San Francisco, Cleveland, St. Louis, Louisville.



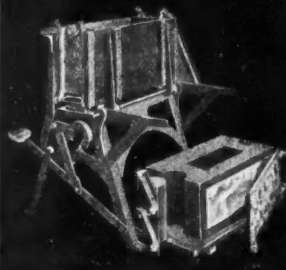
11-Ft. Size
One Full Bag
(No Splitting
Sacks)

Get Big Catalog
8-8-11-15-22
Foot Sizes

PAVERS—GROUTERS—HOISTS—BACK FILLERS

CEMENT BLOCK MACHINE

**SOLD ON
15 DAYS' TRIAL**



All Styles of Building Blocks

With a Dunn outfit you can make blocks with Rock Face effect, Broken Ashler, 45-degree angle, Ornamental Scroll, Bevel Panel, Diamond Panel, Veneer Corner, etc.

Capacity, 150 a day. Easy to operate, and good for a lifetime of service. Small price. Ask for Block Machine Bulletin.

W. E. Dunn Mfg. Co.
415 24th St. Holland, Mich.

Capacity---Economy

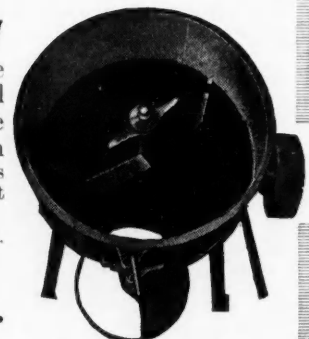
The Frank, low price mixer will produce a full batch a minute. The mixing is always in plain sight and the machine is simple, nothing to get out of order.

Sold in 3, 5 and 7 foot sizes. Every mixer guaranteed.

INVESTIGATE TODAY

Frank Mfg. Co.

241 Century Bldg.
DES MOINES, IOWA



Inside View, Showing
Door for Unloading



Here's a "Man's Size" Mixer At a "Boy's Size" Price---

A CONTRACTOR came into my factory the other day and said he wanted to look over my mixers. Said he'd seen my ads in the Carpenter and Builder (now American Builder) for years, but thought we had only a little hand machine, "not big enough for a man." This spring he landed some good sized jobs and, as labor was scarce, decided to rig up a machine himself—when he met a man who told him about my machines. Result: He came right up to my factory, looked my machines over, and bought one of my No. 6 complete power machines on skids, which he said was just right for his work.

Geo. C. Sheldon says:

"Your paying for a Sheldon Mixer all the time you go without one."
"It costs \$1.20 a cu. yd. to mix concrete by the old, slow, back-breaking hand and shovel method. The Sheldon will do it for less than 70c—a net saving of 50c on every cu. yd. A saving of 2½c a wheelbarrow load or 5c a batch. Doesn't this prove you're paying for a Sheldon all the time you do without one?"

Read This Letter

Gentlemen: The little mixer I bought of you has run night and day in the silo building season. In all has used up 2200 bbls. of cement without a bad mix. It is so much better for country work than the big mixer that I have used it on a county bridge that had 123 cubic yards of concrete in it.
W. J. LOVD,
Scottsboro, Alabama.

Nos. 1 and 2 Sheldon
Ready built as shown. To be run by hand. Power attachment can be supplied any time at small extra cost. Good for the small jobs where speedy work isn't so essential.
No. 1—Wooden Barrel Drum \$24.50
No. 2—Steel Barrel Drum \$31.00



Sheldon Mfg. Co.,
Box 3003X,
Nehawka, Neb.
Send me without any obligation on my part your catalog and special offer. Your No. 1 Mixer would come nearest to filling the bill for my work.
Name.....
Town.....State.....
P. O. Box or St. No.....

Mail Coupon

Now, this little incident opened my eyes. Made me think there might be other contractors who had the same wrong idea about my mixers not being "full man size." If you

are one of them and not in a position to come to my factory to see the machine for yourself, I'll make you this absolutely "open and shut" offer.

Try a Sheldon On Your Next Concreting Job -- Free

Don't send me one cent. Just put the money in your own bank where it is absolutely under your own control, and try the machine for 30 days entirely at my risk. Give it the toughest test you can think of. Keep track of the amount of work it will turn out compared to hand mixing. Note the kind of work it does and compare it with the work of mixers costing ten times as much.

Yes, sir, I want you to give it a test that you yourself will admit is hardly fair to expect of any machine. Then if it doesn't stand up to every single test, if at the end of 30 days you think you can possibly afford to be without a Sheldon as a partner in your business, just crate it up and deliver it to the railroad, take the bill of lading to your banker and get your money back and no questions

will be asked. My machine has simply got to make good for you on your jobs and it will do it if you will only give it the chance. It is doing it right today for hundreds of contractors, carpenters and builders which is proof positive it will do it for you. At any rate, I'll take all the risk. Just send for one of my machines shown and described below and put it to this test. Do it now!

Why Dig Up \$200, \$300 or \$500 for a Mixer?

You can get a genuine Sheldon Batch Mixer for less money than any other of equal merit—yes, even half the price—or less than half. And the Sheldon, any style you buy, will stand right up alongside any other mixer at double the price, do just as much work, do it just as well (or even better) and last just as long.

It's easy to move, easy to handle, easy to transport, easy to run, easy on repairs and easy on your pocket-book—first cost and upkeep both. In fact, you can buy the Sheldon Iron Parts with which is furnished, free blue print plans and build your own mixer, for only \$11.50. Or, you can buy the complete machines shown here at the prices quoted.

The Sheldon has a mixing capacity of 2½ cubic feet (2 wheelbarrow loads) to a batch. Will keep 1 to 6 men busy—depends on number you want to work. Will save the labor of 1 to 3 men. Pays for itself on your first small job. Select one of the outfits shown below and try it on your next job 30 days at my risk. Write for catalog and our special offer. Mail the coupon.

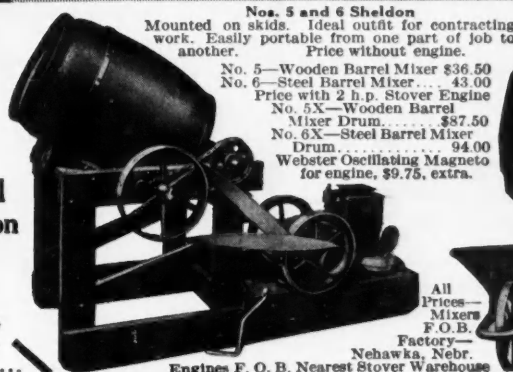
Nos. 3 and 4 Sheldon
Power outfit on wooden frame as shown. A good, strong, durable outfit for any work.
No. 3—Wooden Barrel Mixer Drum...\$34.00
No. 4—Steel Barrel Mixer Drum...\$40.50



Write for Catalog and Special Offer

Make me show you what the Sheldon is like. My catalog will tell you a lot—but nothing like putting a machine to actual work on your next concreting job, so take me up on my offer today. Or, write me sure for my catalog and special offer. Address

GEO. C. SHELDON, President
Sheldon Man'g. Co., Box 3003X, Nehawka, Nebr.

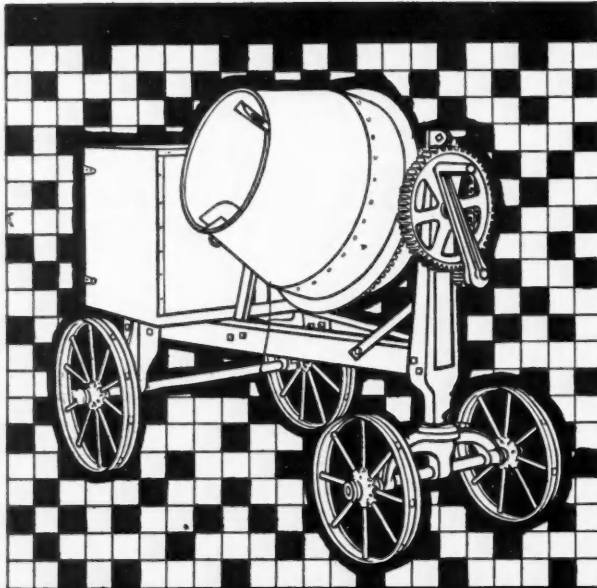


Nos. 5 and 6 Sheldon
Mounted on skids. Ideal outfit for contracting work. Easily portable from one part of job to another. Price without engine.
No. 5—Wooden Barrel Mixer \$36.50
No. 6—Steel Barrel Mixer... 43.00
Price with 2 h. p. Stover Engine
No. 5X—Wooden Barrel Mixer Drum... \$87.50
No. 6X—Steel Barrel Mixer Drum... 94.00
Webster Oscillating Magneto for engine, \$9.75, extra.



Nos. 7 and 8 Sheldon
Mounted on steel wheel trucks. My best outfit. Easily portable. Price without engine.
No. 7—Wooden Barrel...\$47.50
No. 8—Steel Barrel Drum. 54.00
Price with 2 h. p. Stover Engine
No. 7X—Wooden Barrel \$98.50
No. 8X—Steel Barrel... 105.00

All Prices—Mixer F.O.B. Factory—Nehawka, Nebr. Engines F. O. B. Nearest Stover Warehouse



IN the concrete machinery industry, the makers of Winner Mixers have been real trail-makers. They have blazed the way time after time with new ideas, new ways and new methods.

The big WINNER LINE, from the Two to the Nine, shows the effects of experience, efficiency, inventive genius and workmanship.

If you want a concrete mixer that's BUILT on the square from the ground up, a concrete mixer that's sold on a fair square kind of plan, and a mixer that will turn out the biggest, squarest day's work you ever heard of—buy the Winner.

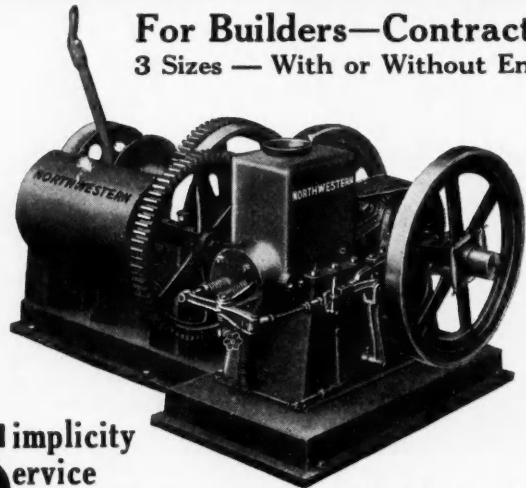
Write for literature and prices, let us tell you WHY Winner Mixers make good.

The Cement Tile Machinery Co.
45 Rath St. Waterloo, Iowa

Write STEWART MFG. CO., 127 Rath Street, Waterloo, Iowa, for a copy of literature describing the STEWART UNI-TRUCK

Economy Hoists and Engines

For Builders—Contractors
3 Sizes — With or Without Engine



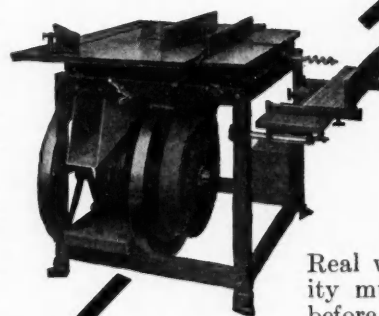
Simplicity
Service
Satisfaction

Write for Bulletin No. 4
for full particulars

Northwestern Steel and Iron Works
"The House of Good Service"
Capital, \$200,000.00 Eau Claire, Wis.

"NORTHWESTERN"

Ask for Bulletin No. 36 on Mixers, Saw Rigs, Tile and Culvert Forms

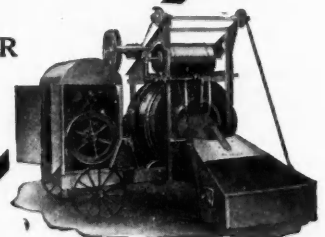


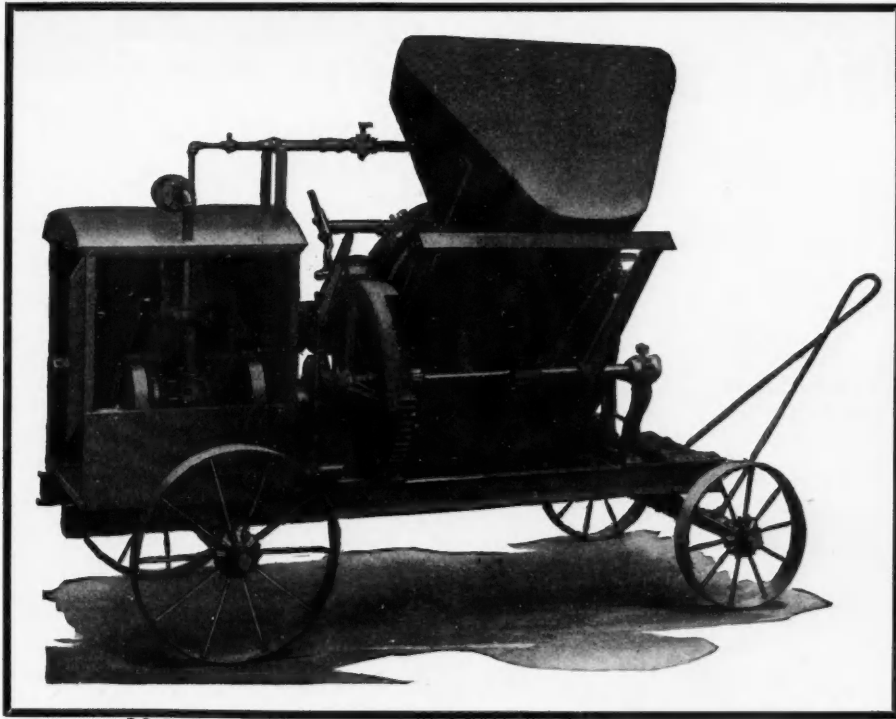
Knickerbocker
Built for
SATISFACTORY
SERVICE
— Gives It

Real worth or quality must be built in before you can get it out. Knickerbocker Quality is famous because it not only shows in construction but in improvements to meet the need of the user, for instance: Instead of a hinged table we have a table that raises and lowers and remains level in any position. Very fine adjustments can be made with no time lost. Our jointer has a bearing on each side—no chattering as on most machines. Operates every modern tool made—dozens of big features shown in catalog—we also manufacture Concrete Mixers and Mortar Mixers.

THE
KNICKERBOCKER
COMPANY

525 Liberty St.,
Jackson,
Mich.





**200
Smith Mixerettes
Sold Before Jan. 1
for 1917 Delivery**

You ask WHY this tremendous advance sale? Because the men who have used the Mixerette are boosting. The Mixerette is selling itself, because of its remarkable performance in the field. It's the same old story of QUALITY,—not price.

The 1917 model is even better than the previous ones. The capacity has been increased to 4 cu. ft. mixed concrete per batch. The drum speed is now 14 R. P. M., and the engine is now 3 H. P. The new design embodies all the quality and refinement of the old design, with the addition of some strictly new and exclusive features.

There are Mixerettes in stock in every large city,—ready for immediate delivery. But the supply is limited, and the demand the greatest in history. Don't wait until it's too late. Fill in the coupon and mail it today.

THE T. L. SMITH CO.
3123-C Hadley St., Milwaukee, Wis.

**P. D. Q.
MAILING COUPON**

Send me catalog checked. No obligation on my part.

- Mixerette Catalog No. 116-C
- Mixerette Low Charger Catalog No. LC-12-C
- Mixerette with Hoist Catalog No. 160-C

Name.....

St. Address.....

City.....

State.....

THE CINCINNATUS NO. 5 BATCH MIXER

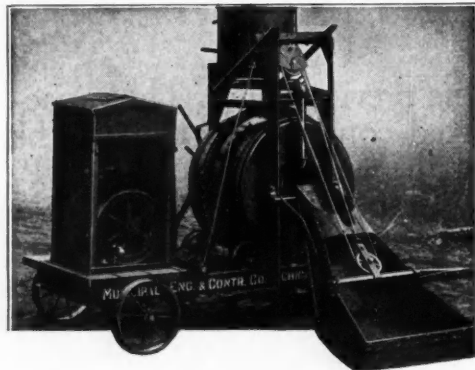
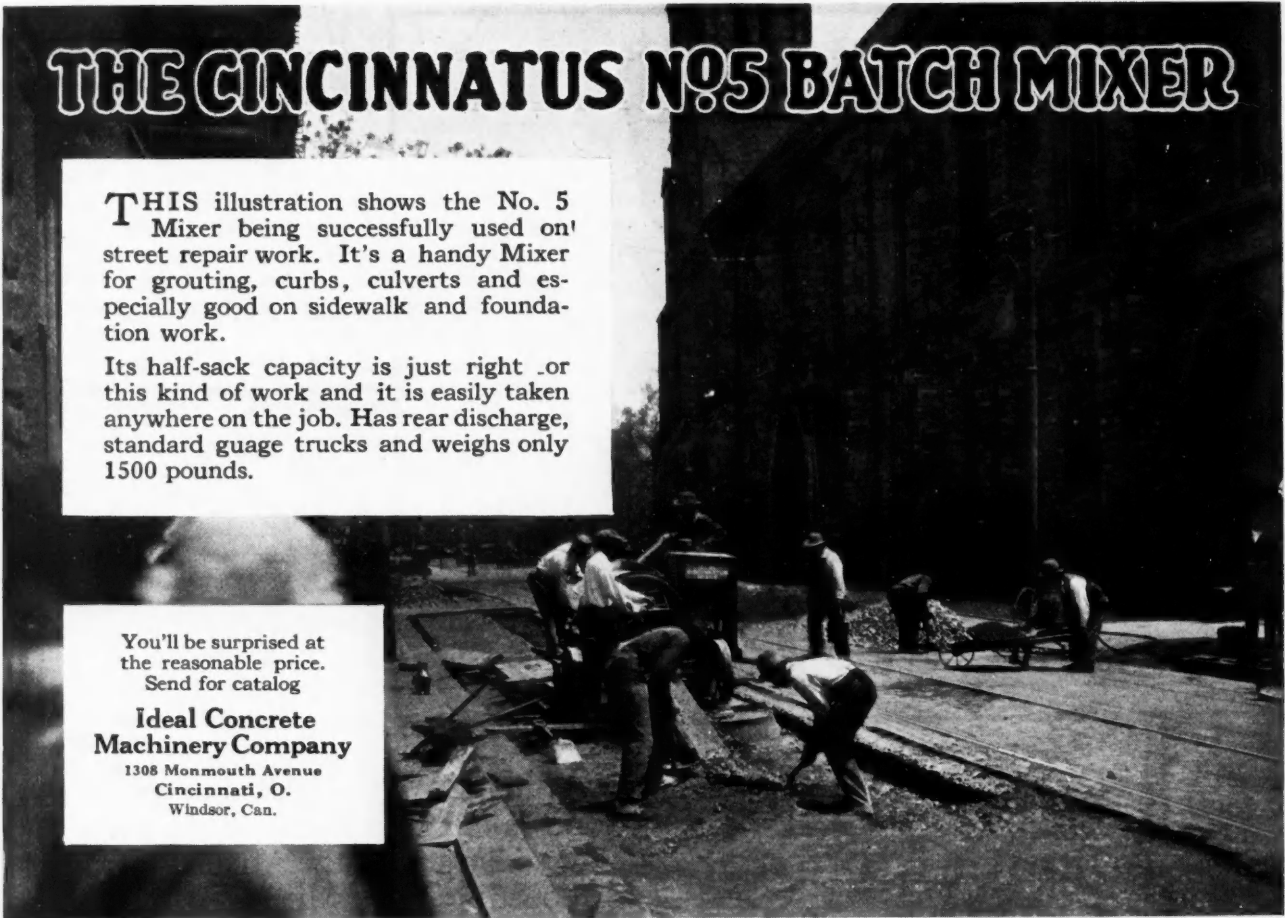
THIS illustration shows the No. 5 Mixer being successfully used on street repair work. It's a handy Mixer for grouting, curbs, culverts and especially good on sidewalk and foundation work.

Its half-sack capacity is just right for this kind of work and it is easily taken anywhere on the job. Has rear discharge, standard gauge trucks and weighs only 1500 pounds.

You'll be surprised at the reasonable price. Send for catalog

Ideal Concrete Machinery Company

1308 Monmouth Avenue
Cincinnati, O.
Windsor, Can.



The Price is Cheap

Nothing Else About the Austin Drum is Cheap

There Couldn't Be—It's Austin Built

Building a small, low price drum mixer offers only one manufacturing opportunity—that is superior construction.

A drum mixer is always a drum mixer—you can't make it individual in any way but one—that is by putting more enduring workmanship and material per dollar of price into it.

This is what Austin has done. An Austin Drum Mixer has all the features of any other drum mixer and it has in addition the maximum of enduring construction per dollar of price.

Write for Bulletin 7-D, which gives full details

Municipal Engineering & Contracting Co.



New York Office: 30 Church Street

Main Office:

Railway Exchange Building, Chicago

QUICK DELIVERIES

ON

BOSS

BUILT OF STEEL

PAVERS

8-11-15 Foot Sizes
(Non-tip High Drum Type)

AND

BUILDING MIXERS

(5-8-11-15-22 Foot Sizes)

Get Our Astonishingly Low Prices

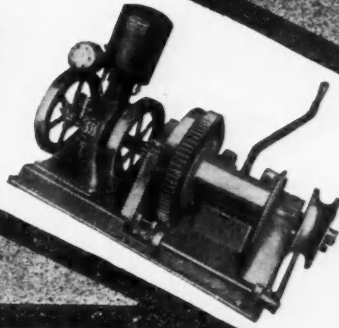
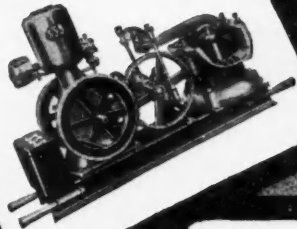
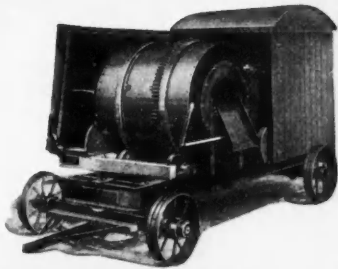
Write nearest Office

The American Cement Machine Co. Inc.

Keokuk Iowa
THE 300,000 HP ELECTRIC CITY

BRANCH OFFICES—New York, Philadelphia, Pittsburgh, Baltimore, Richmond, Cambridge, Mass.; Indianapolis, Chicago, New Orleans, Minneapolis, Seattle, Spokane, Los Angeles, San Francisco, Cleveland, St. Louis, Louisville.

Mixers Pavers Grouters Hoists



“The STANDARD” Low-Charging Concrete Mixer

“The Standard” Mixer might fittingly be called the “handy man” of the contracting business. It does many different things and does each equally well. On every part of a building project from laying the foundations to whitening the finished walls, “The Standard” Mixer can be used to advantage.

Primarily, of course, it's a concrete mixer. That's the field in which it earned its big reputation. But its mixing ability is by no means confined to concrete alone—but includes mortar, cement, plaster, whitening, etc.

Economical in operation—dependable and durable, “The Standard” Low Charging Mixer is as essential to construction work as a building permit. Our catalogue shows the complete line of “The Standard” Mixers. Write to our nearest office today and ask for Catalogue 44-7.

Standardize on “The Standard” Equipment

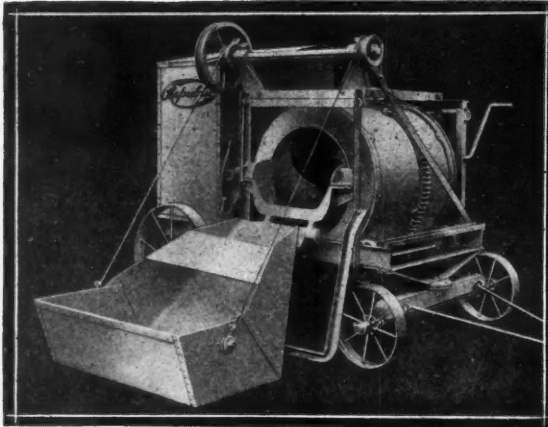
A complete line of high grade equipment—Hoists, Pumps, Engines, Tower Equipment, Elevators, Dump Wagons, Cars, Scrapers, Trucks, Wheelbarrows, Carts, etc. Write for Equipment Catalogue 44E today and mention the equipment wanted.

The Standard Scale & Supply Company
1631 Liberty Ave., Pittsburgh, Pa.

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CHICAGO: 169 N. May St. CLEVELAND: 1547 Columbus Rd.
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“THE STANDARD” CONCRETE MIXERS





Peace Time Prices Immediate Shipments

Sizes—3½, 5, 7 and 10 cu. ft. per batch.

Terms—Cash or Time.

Equipment—Power Loaders, Low-charging Platform, Hoist, Tank, etc.

Get prices on this splendid line of labor-saving machinery before you buy. There's a big saving in it for you—on terms to suit.

REPUBLIC IRON WORKS
Box 445 **TECUMSEH, MICH.**

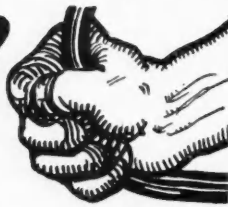
When You Need Men

consult the Opportunity Page of the American Builder. Men—the right kind—are always open for opportunities to advance themselves. Do you want the ambitious kind—the kind that can do things?

An advertisement at 5 cents a word per insertion on the page headed "Opportunities" will put you in touch with such men.

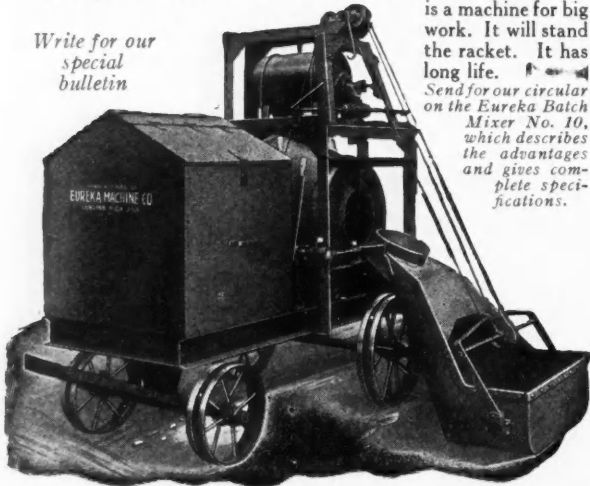
AMERICAN BUILDER, 1827 Prairie Ave., Chicago

Power!



If you are intending to mobilize powerful dependable equipment for your summer drive let us inform you regarding the Eureka No. 10 Batch Mixer. Here is strength—accessibility—simplicity of working parts—reliability. Here is an equipment that will stand continuous rough usage for years to come. Machines of this type have been used on such big contracts as the New York Public Library, the Ford Motor Company's plant, the General Hospital in Cincinnati, Ohio, and the L. & N. Railway Terminal Station at Memphis, Tenn.

Write for our special bulletin



This is a machine for big work. It will stand the racket. It has long life. Send for our circular on the Eureka Batch Mixer No. 10, which describes the advantages and gives complete specifications.

Eureka Machine Company
103 Handy Street **LANSING, MICH.**

CONCRETE PORCHES

ATTRACTIVE
EVERLASTING
INEXPENSIVE
EASY SELLING



Get in This Business

Your investment returned by the profit on two porches: that's how good this proposition is. Get this outfit of Dunn Molds and make blocks for porches, chimneys, posts, piers, etc. Costs little and has a multitude of uses. Full information in the Ornamental Mold bulletin.

W. E. Dunn Mfg. Co.
415 24th St. Holland, Mich.

MOLDS SOLD ON 15 DAYS' TRIAL

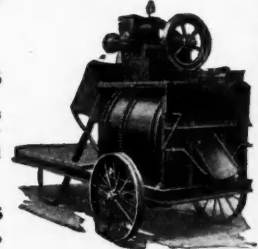
Saves Money — Saves Men — Saves Time

Discharge direct into forms saves wheeler's wage—two wheeled truck, moved by one man saves big moving gangs—15 second discharge and 30 second mix are time savers.

Archer Mixers

The original end-discharge mixers are the most economical for every purpose and by every test. Send for special mid-summer offer.

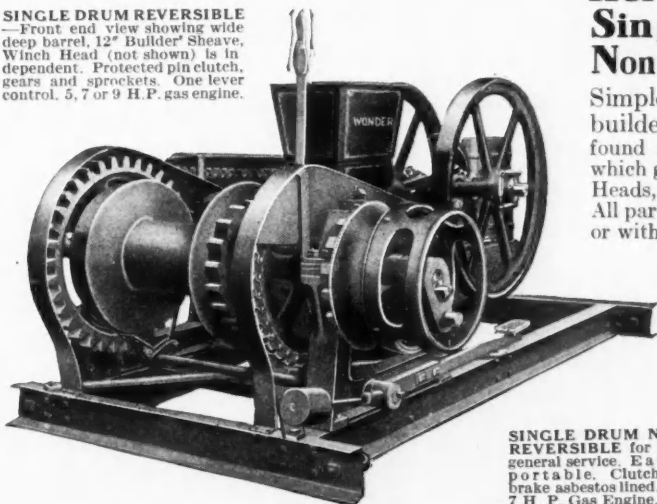
Archer Iron Works
2437 W. 34th Place, Chicago



Take This **WONDER** Advantage

*We're shipping WONDER Equipment in carload lots to our Distributing Points throughout the United States and Canada. We're filling Rush Orders from these stocks by **SHORT HAULS** in the respective districts. **WONDER** co-operation begins the instant you say the word -- the machine starts for your job the same day.*

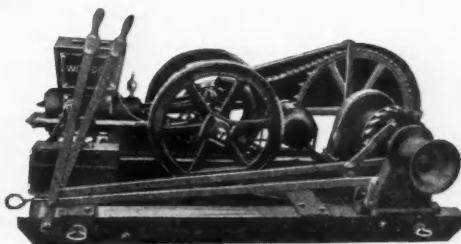
SINGLE DRUM REVERSIBLE
—Front end view showing wide deep barrel, 12" Buller's Sheave, Winch Head (not shown) is independent. Protected pin clutch, gears and sprockets. One lever control. 5, 7 or 9 H.P. gas engine.



Here's Right Priced **WONDER** Single Drum Reversible and Non-Reversible Builders' Hoists

Simple, rugged construction specially designed for builders' use and with valuable features not usually found at the price, such as two interchangeable sprockets, which give two line speeds and load capacities; Ample Winch Heads, Powerful Brakes, heavy wrought iron pawls, etc. All parts fully standardized and interchangeable. Sold with or without power.

SINGLE DRUM NON-REVERSIBLE for light general service. Easily portable. Clutch and brake asbestos lined. 5 or 7 H. P. Gas Engine.



Wonder Mixer with Folding Track Loader is the Most Complete and Efficient Mixing Machine in the World

Loader track folds up for moving about as shown in small cut, or can be extended to load the skip at lower level. Owing to its quick action this loader as compared with old style machines, enables the operator to handle more batches per hour, allowing the same time for mixing, or permits more time for mixing if the same number of batches per hour are handled. The **real** low charging mixer—**standardized** upon by many of the largest contractors in the country. Capacities 5 to 6, 7 to 8 and 10 to 11 cu. ft. per batch. Equipped with water-measuring tank, also rotary pump when desired.

Send for New **WONDER** Catalog

Waterloo Cement Mach'y Corporation
103 Vinton St. Waterloo, Iowa



See perfect balance of machine when the loader track is folded for moving. Note the quick emptying skip.

JOHNS —

An ever-growing market—and your chance to enter it.

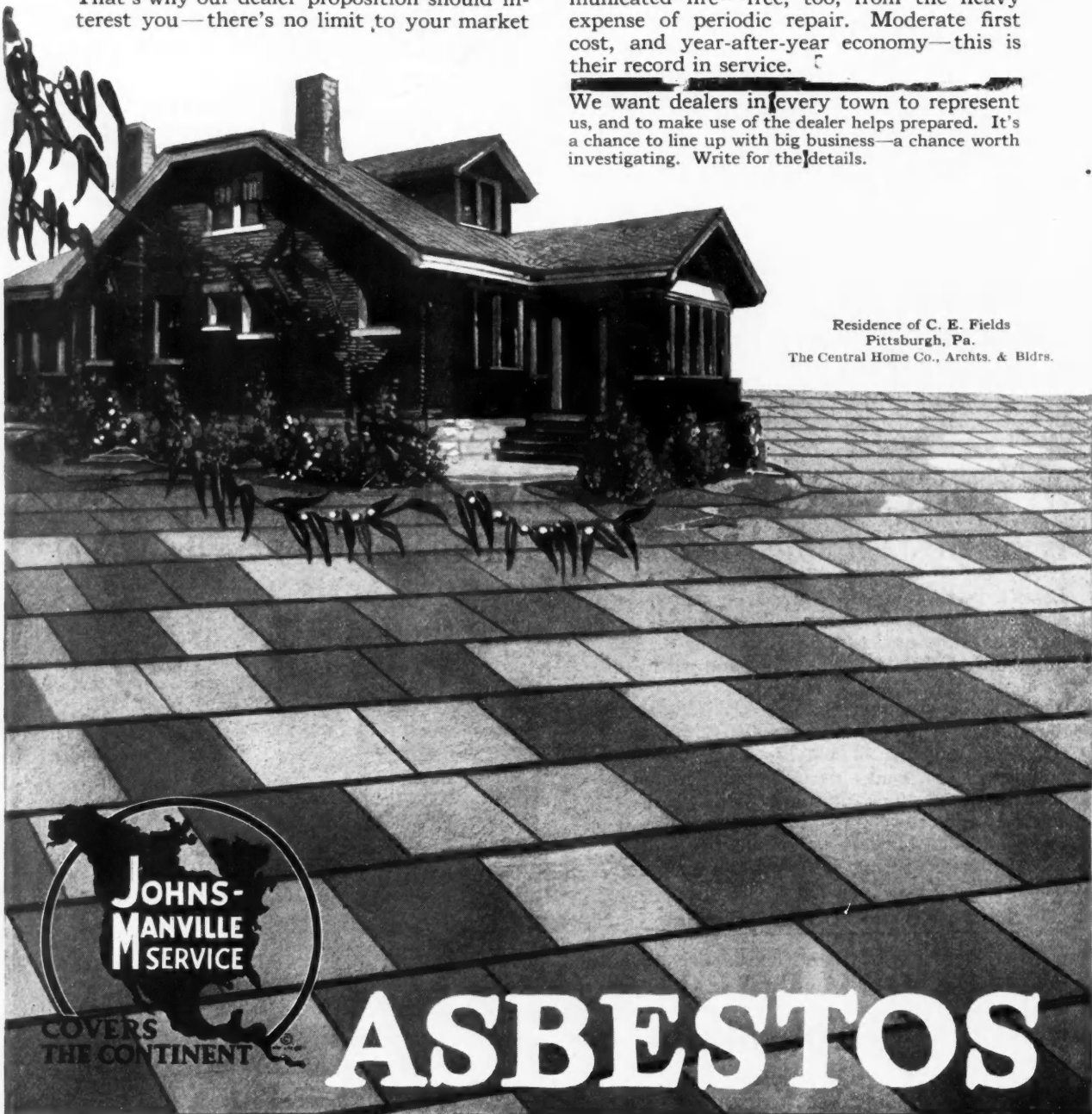
ASBESTOS shingles—the only fire-proof shingles—are steadily gaining acceptance. Our market is growing by leaps and bounds—and it's *your* market, if you're a Johns-Manville dealer.

That's why our dealer proposition should interest you—there's no limit to your market

and the sales field is right at your doors. And the product itself is one that builds business.

In Johns-Manville Transite Asbestos Shingles you can offer your customers a distinctive modern roof, free from the threat of communicated fire—free, too, from the heavy expense of periodic repair. Moderate first cost, and year-after-year economy—this is their record in service.

We want dealers in every town to represent us, and to make use of the dealer helps prepared. It's a chance to line up with big business—a chance worth investigating. Write for the details.



Residence of C. E. Fields
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The Central Home Co., Archts. & Bldrs.



ASBESTOS

MANVILLE

Johns-Manville Heat Insulation means a warmer house next winter —with less coal burned

A PROPOSITION that's sure to interest any house-owner, in these days of soaring coal prices. And it's a proposition, too, that many a dealer can turn to nice profit during the fall season.



Asbestocel — one type of
Johns-Manville
Heat Insulation

Efficient insulation of heaters and heater pipes will turn the trick—will make every shovel of coal count by preventing heat radiation and waste. The only question is—what *kind* of insulation? And with twenty-five years of specialization behind us, we're fully prepared to answer that question in detail.

Johns-Manville Asbestocel Insulation will meet every house-heating need—and meet it efficiently and economically. You and your customers can readily see from its construction why this insulation is more efficient than the usual pipe coverings used. We're ready to help you sell it, too, and show you the best way of applying it.

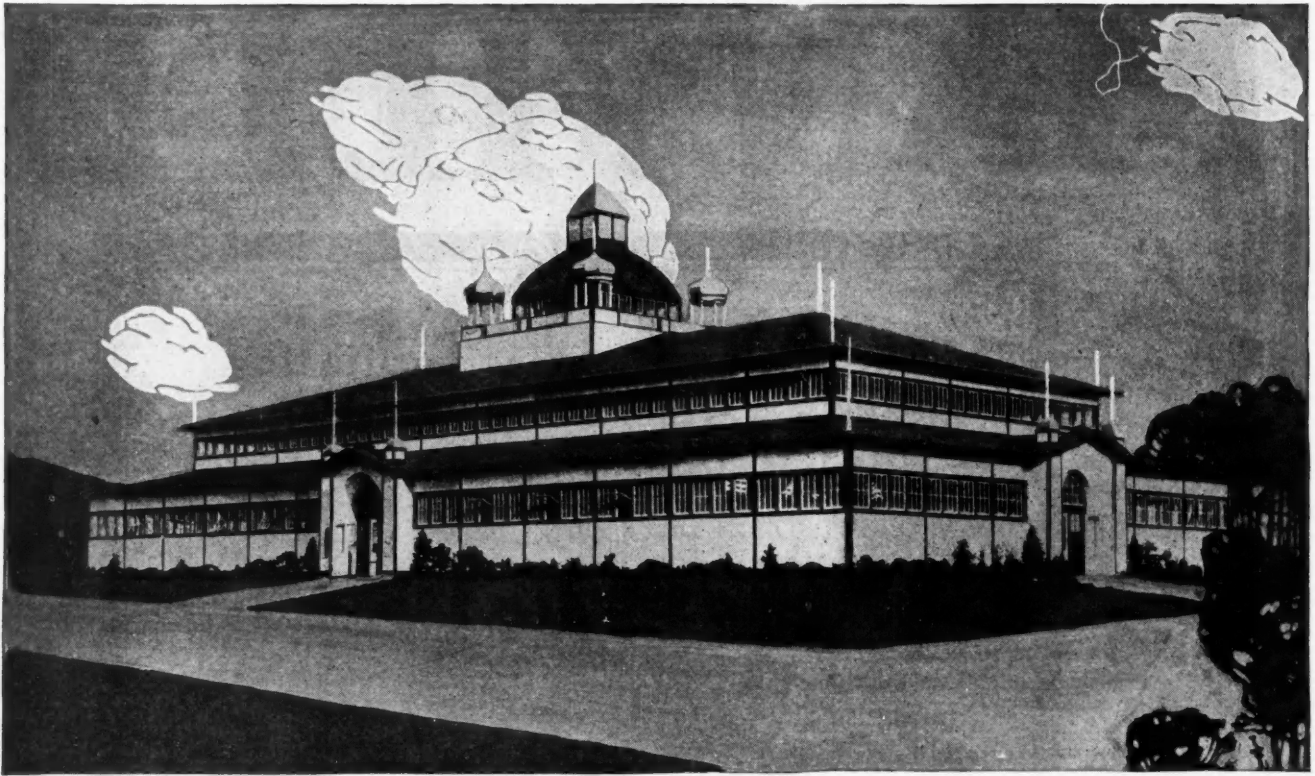
There's an opportunity here that live dealers will be quick to see and profit by. And you can get right in on the ground floor, right now, by writing any Johns-Manville Branch for details. Commence now to make plans for the Fall—and let us help you.

H. W. JOHNS-MANVILLE CO.

NEW YORK CITY

10 Factories - Branches in 55 Large Cities

SHINGLES



Exposition Building, Erie, Pa.

Stucco Finish on Bishopric Board.

Architect, Jos. Lee, Erie, Pa.

NOW the Stucco Building is Preferred

Stucco is admittedly an artistic and attractive exterior finish. And *now* it can be made *lasting* and *economical*. Bishopric Board makes it possible. How? By applying principles that ages of actual use in building construction have proven the most efficient.

First, your stucco mixture *must be right*. This is *important* but easily accomplished if correct instructions are followed—our catalog contains full information about mixing stucco.

Now apply it properly on a *background of Bishopric Board*. Note how it is *anchored* to the background! Those dovetailed joints between the lath *clinch* the stucco—it *can't* let go! And nails through every lath hold the Bishopric Board firmly and securely to the building. There is *no breaking away* and *sagging*, causing the stucco to crack and chip off.

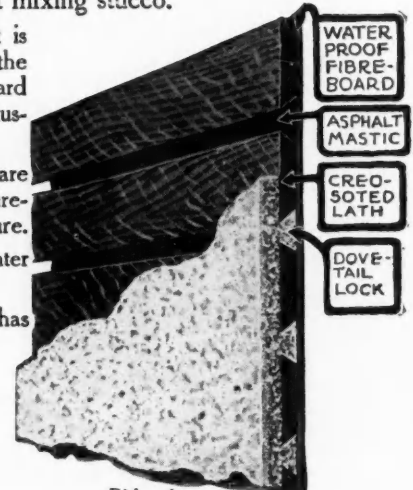
The lath in Bishopric Board are *thoroughly creosoted* to preserve them. They are imbedded in Asphalt Mastic on a background of heavy fibre board, making a fire-resisting combination that is proof against vermin, changes in temperature and moisture. Bishopric Board will add years to the life of a building and make it warmer in winter and cooler in summer.

Finally, Bishopric Board, under the severest scientific tests and in actual use, has *proved* its superiority.

The Bishopric Manufacturing Co.

903 Este Avenue

Cincinnati, Ohio



Bishopric Board clinches the Stucco



Send for free samples and our book "Built on the Wisdom of Ages." It tells all about Bishopric Board and gives some interesting scientific tests. It illustrates homes and other buildings constructed with Bishopric Board and gives letters from builders, architects and users.

Short Talks With Our Subscribers

To Make it Easy for You to Bid or Buy

WHAT THE AMERICAN BUILDER INFORMATION EXCHANGE IS, AND HOW IT CAN ASSIST BUILDING CONTRACTORS

ON page 51 you will find the greatest little chart or information form yet devised to help builders get quickly, and at the expense of merely a 2c stamp, all of the prices, dimensions and other dope they need to figure any job.

The INFORMATION EXCHANGE has been organized by the AMERICAN BUILDER as an extension of the service it renders its subscribers and any other builders who come to it for help.

There is no charge for this service.

If you have the contract to build a schoolhouse, public garage, business block, farm building or residence, and want the latest information on any materials, building specialties, or equipment required for this job, all you will have to do is to fill in the blank appearing on page 51 of this issue. Check off the items that describe its construction, and indicate the specialties needed. Tear out this sheet and mail to this office, and we will see that the most reliable concerns having such goods for sale, send you promptly all the information you will need.

The items on this form include all the principal ones usually required; so if you will use this sheet, merely checking it off, it will give all the information of a long letter, but

more easily grasped. There is no need of writing a long letter about the job. This blank filled in with the size, approximate cost, and date work is to begin, will give all the information in better shape than in a letter.

If you are figuring on the contract for all or any part of a building, the form provides for that, and you can indicate it by simply checking and crossing off in the proper places on the form.

Our INFORMATION EXCHANGE believes it can render a special service in connection with that unusual item needed for your job, and can possibly bring to your attention some novelties or improvements you will want to use, which otherwise you probably would overlook.

We hope that this service will prove to be a real service to our readers. We hope that a good many will make use of it.

This is a busy season, and the lost motion must be cut out. The AMERICAN BUILDER INFORMATION EXCHANGE hates lost motion and guarantees quick action.

Try it out on some contract you are about to begin work on, or some contract you are about to figure.

Turn right now to page 51 and see what this proposition is. See how simple and easy it is to use the blank form or coupon provided. Read thru the items and see if some of them don't call to mind some things you had intended to use, but had overlooked.

Yours sincerely,
EDITOR AMERICAN BUILDER.

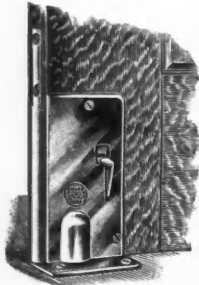
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TRADE
CHICAGO
MARK

**SPRING HINGES
REPUTATION**

Do you specify a spring hinge with distinctive features which will appeal to your client and assure satisfaction to all concerned?



**Chicago "Relax"
Spring Hinges**

are in great demand. They are substantial in construction and readily applied. The EXCLUSIVE FEATURE of spring action release, allowing the door to be placed at any desired position and automatically re-engaging when the door is closed,

is of recognized merit and utility.

Send for Catalogue C32. It fully illustrates and describes the most complete line of Spring Hinges manufactured

Chicago Spring Butt Company,

CHICAGO

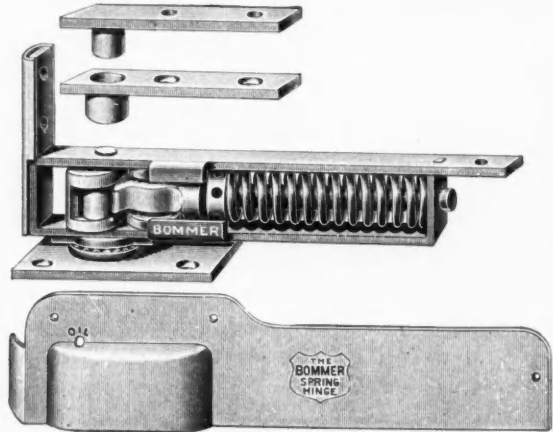


NEW YORK

BOMMER

Floor Surface Spring Hinge

Double or Single Action, Holdback, Ball Bearing. Every moving part of this hinge can be oiled from a single hole on outside of side-plate.



The most durable hinge of its type; holds the door open when swung to 90 degrees at either side

Your Hardware Merchant Can Supply Them

Bommer Bros., Manufacturers, Brooklyn, N.Y.



Rufus D. Wood, Architect, Pittsburg, Pa.

Read what this Architect says about his own house, which is stained with

Cabot's Cresote Stains

"The shingles of the roof and second story are stained with your brown stain and the plaster on the outside columns with your white Waterproof Cement Stain. A number of the shingled houses in my neighborhood have been stained with creosote (?) stains manufactured by local concerns and their colors are very muddy and disagreeable and do not seem to stand the weather, while mine has retained the original nut-brown color which I desire." (Signed) RUFUS D. WOOD.

Cabot's Stains have been the standard for more than twenty-five years, and are specified by nine-tenths of the architects, who know them from experience. Their colors are soft, rich and beautiful, and guaranteed fast. Their vehicle is Creosote, which thoroughly preserves the wood, and they contain no kerosene or other cheapener. Why experiment with unknown stains, when you are sure of Cabot's?

Cabot's Stucco Stains

are the only artistic cement finishes. They give soft, natural coloring effects, without covering the surface with a painty coating. They are also cheaper than coatings and easier to apply, and they cannot crack or peel.

You can get Cabot's goods all over the country. Send for samples and name of nearest agent.

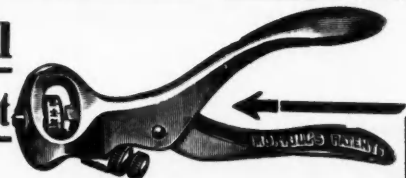
**SAMUEL CABOT, Inc., Mfg. Chemists
BOSTON, MASS.**

1133 Broadway, N. Y. 24 W. Kinzie St., Chicago
Cabot's Conservo Wood Preservative, Stucco Stains, Brick Stains, Damp-proofing.

Worth Much to You

Morrill

Saw Set



All master carpenters are using this Saw Set. In one operation it takes out the wrong set and puts in the right one. Write for FREE booklet "Saw Points". It tells how to properly joint, set and file hand saws.

CHAS. MORRILL

84 Lafayette Street
NEW YORK

BUILDERS' HARDWARE



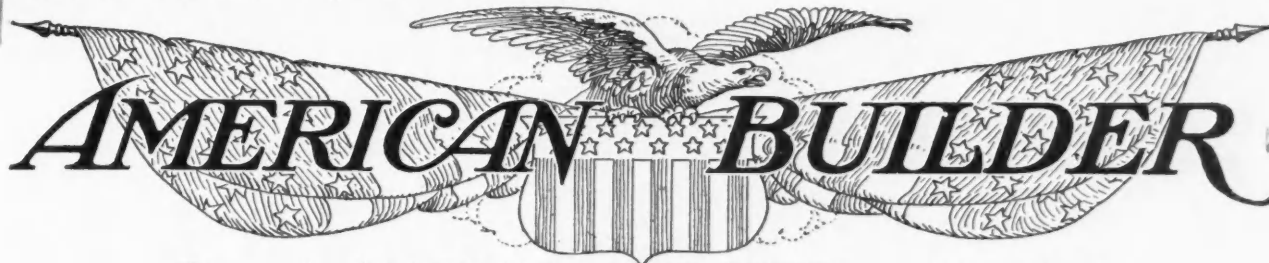
No. 546—1 1/4 in. Ant. Cop. Fin. Spring Hinge. Per set..... \$1.10
Weight per set, 4 lbs.

No. 6—Builders' Hardware Catalog sent free. On account of market conditions, we are unable to issue net price list. Send us your hardware list for quotation.

We do not sell to carpenters or contractors in Cook County, Ill.

Rehm Hardware Company
1501 Blue Island Ave. Chicago, Ill.

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VOL. XXIII

July, 1917

No. 4

Constructive America

A SPEAKER at a recent gathering in Chicago said that there is a science of construction as well as a science of destruction. The United States has gone further than any other country in the science of construction; the world has been benefited more by the constructiveness of America than that of any other country. We practically have neglected the science of destruction. We are essentially a constructive nation. We do not care to expend our energies and our skill and our inventiveness along lines of destruction.

As the great constructive nation of the world, as a nation committed to the science of construction and opposed to the science of destruction, it will be our duty to stop destruction as speedily as we can, and then to rebuild, as far as it is humanly possible to rebuild, what this war has ruined and destroyed. This is our magnificent task, a task worthy of our achievements and of our resources, a task worthy of our destiny. We shall continue to be ardent developers of the science of construction and always just as ardent enemies of the science of destruction.

Are Building Prices High?

AT prices of a year ago, it would have taken 50 bushels of wheat to buy a Liberty Bond; today, one can be bought for 25 bushels.

Last year, a farmer could build a silo for the price

of 800 bushels of corn; today he can build the same one for the price of 400 bushels.

Last year, it cost a community the price of 16,000 bushels of wheat to build a mile of permanent highway; today a mile can be built for 8,000 bushels.

Last year a farmer had to raise a thousand bushels of wheat to buy the tractor with which to till his field; this year he can buy two tractors for the same amount.

Was there ever a more favorable time to build a silo, a two-story granary, a new dairy barn?

Now is the time to exchange farm produce for these necessities.

By doing this, capital will be created and placed in circulation. Prosperity will be stimulated and labor kept employed at good wages.



Keep on Building

ABOUT that improvement you are planning— Why not go ahead with it?

Every reason in the world says you should.

At no period in our history have we been so sure of the future. The eastern world's stomach is feeling the pinch of hunger, and its demands on the products of America's broad acres and American industries are growing with every passing hour. A great market is opening wider and wider. Honest and fair profits in all lines of legitimate effort are certain.

(Continued to page 52.)



Camps & Shacks

The Summer Home As An Investment

THE book that placed Noah Webster in the list of great Americans states that a vacation is a period of leisure or rest. There is an annual period in the lives of a great many people which they are wont to term a "vacation," but which comes a great way from conforming with Webster's definition of the word. During this period the savings of many days or months are spent for the evident purpose of producing headaches and tired feelings which require an additional period, at least equal to the so-called vacation, for their cure. All that remains are the thoughts of a "strenuous time."

Why can't a vacation be a profitable investment?

Those who have given the matter serious thought are agreed that it can be made so. The full value of a vacation is obtained—the vacation is spent in a manner which makes it a profitable investment—when the period is spent in activities which are entirely different from those of the work-a-day life, in activities which will build up the strength of the body and rest the mind. How may this be done?

There is hardly a better way to do this than to spend the vacation period near to Nature, by some stream or lake or in the woods. The fundamental habits of living cannot be changed, however, without discomfort; the average man who spends his vacation

in this way requires some sort of a house to live in, a comfortable bed and a few of the modern conveniences which he is used to the enjoyment of in his home. The basic requirement is the house and when he has provided himself with this, he has made a profitable investment. Profitable, in that it provides the means of obtaining the pleasure which he seeks; profitable, in that the time which he spends under its roof and in its vicinity fits him to attack his work, after the vacation is over, with a new vigor; profitable, in that it represents an estate which is easily turned back into cash, in most cases, if necessity demands.

The summer cottage should be interesting to builders for two reasons: The first is that he is in a position to be able to provide one for himself at the lowest possible cost. The second is that he may find excellent profit in the construction of such buildings for others and the work is almost a vacation in itself.

The type of construction is very simple. Wood seems to carry the



Main Lodge Hall of Chicago Rod and Gun Club at Lake Sheshebogama, Wisconsin. On Each Side are Three Bedrooms Containing Two Beds Each. This Main Room is 20 by 30 Feet, With Smooth Hardwood Floor. Most of the Furniture is Rustic, Made of Native Elm and Birch. Walls are Finished with Wallboard.

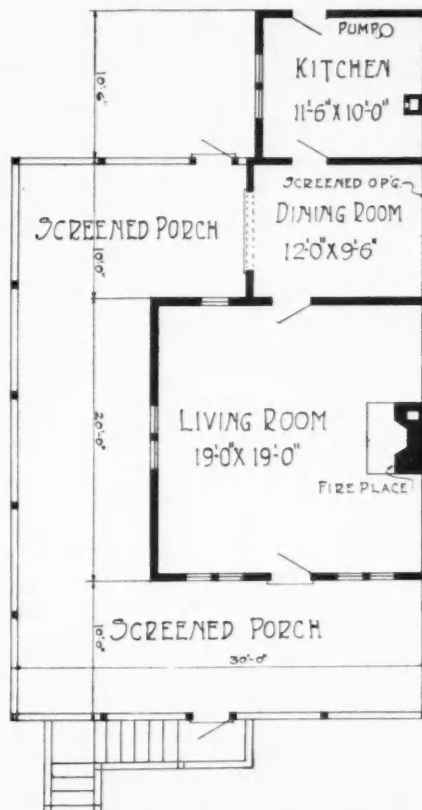
spirit of the vacation better than any other building material and it is usually most easy to obtain at reasonable cost. Wood is, therefore, used as the principal material of construction in the average cottage, it being supplemented with concrete, brick, tile and other materials at places which necessity or peculiar advantages point out. Interiors are unfinished, or if finished, their treatment is inexpensive and designed to produce a rustic, rough-cast appearance. The treatment of the main lodge hall of the Chicago Rod and Gun Club building at Lake Sheshebogama, Wis., a view of which is shown on the preceding page, is typical of the more elaborate methods of finishing cottage interiors, in which wall board is widely used. One of the most desirable of features in the living room of the summer cottage is a large fireplace, a good example of which is shown in the interior view just mentioned. The furniture may be used to effectively carry out the rustic idea, but its real purpose should be to provide comfort.

When cottages are built far from a supply of building materials, where plenty of timber is available, the cheapest and best construction is a type similar to that used in the early log cabins. This type of construction is very

appropriate at any summer cottage location, and it is quite widely used. The cottage shown on this page is a good example. It was built last year at Gilmore Lake, Minong, Wis., by William S. Baggs, who designed the building for Fred T. Jenks and constructed it at a cost of approximately \$1,000. The walls, porch rail, posts, entrance and other parts are built of rough logs, producing a rustic effect which is very interesting.

A feature of the exterior which strikes the eye at once is the large screened porch. The screening is a very necessary item in any cottage and in this case it is extensively carried out, including the porch and all exposed doors and windows. A concrete foundation is built under the living room and kitchen and concrete piers are used under each porch post. Rafter ends are exposed in the roof construction.

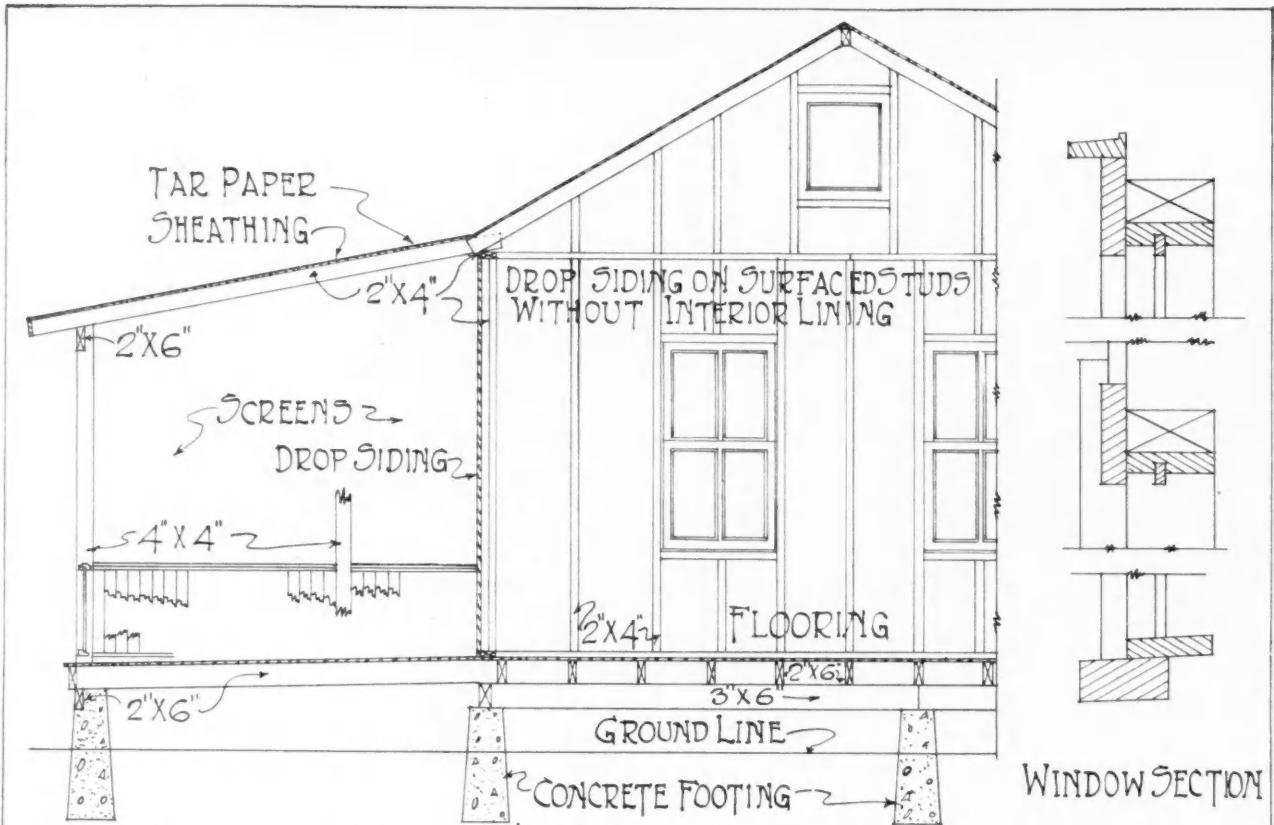
The living room walls are of logs, casing thruout on windows and doors is of slabs and the ceiling has long girders and flat grain fir flooring laid on the top of same, which gives it a massive beam effect. The fireplace is built with a panel of cobblestones and brick mantel, above which the chimney is recessed. The dining room is really an extension of the porch. It may be entered thru a door into the living room or from the porch



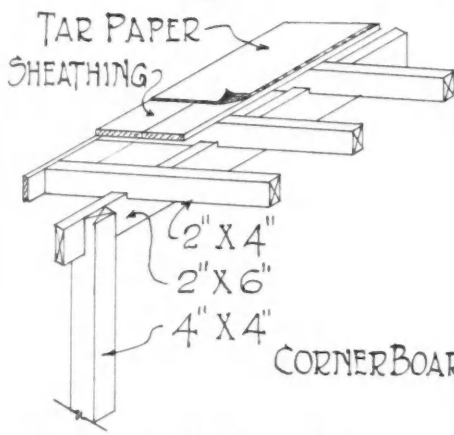
Plan of the Log Cottage Shown Below.



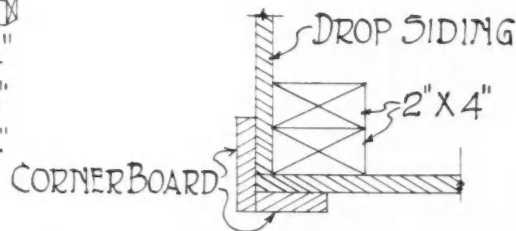
Log Cottage Erected by William S. Baggs, at Gilmore Lake, Minong, Wisconsin, for Fred T. Jenks. All Logs Were Taken From the Timber Land Surrounding the Cottage.



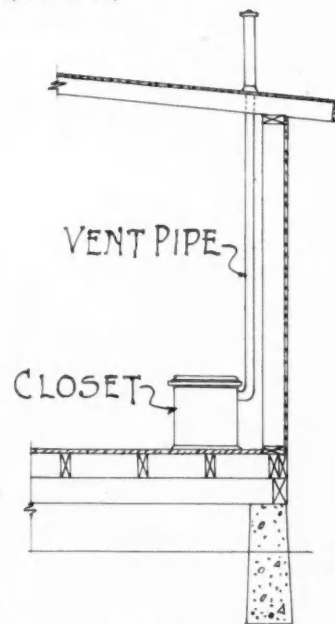
SECTION OF PORCH & PART OF DINING ROOM



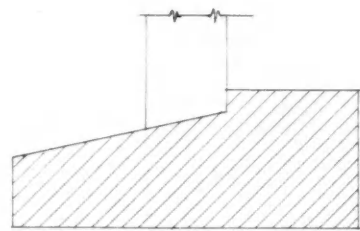
DETAIL OF PORCH ROOF CORNER CONNECTION



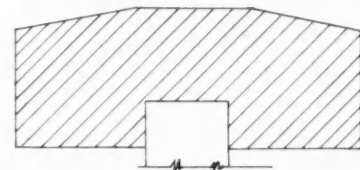
DETAILS FOR SUMMER COTTAGE



CHEMICAL CLOSET



DETAIL OF BOTTOM RAIL



DETAIL OF TOP RAIL



Cottage Built by Edwin L. Bradley Along Fox River Above St. Charles, Illinois. Notice the Large Porch Enclosed with Fine-Mesh Wire Cloth Screens. House Sits on Concrete Piers Placed 8 Feet Apart.

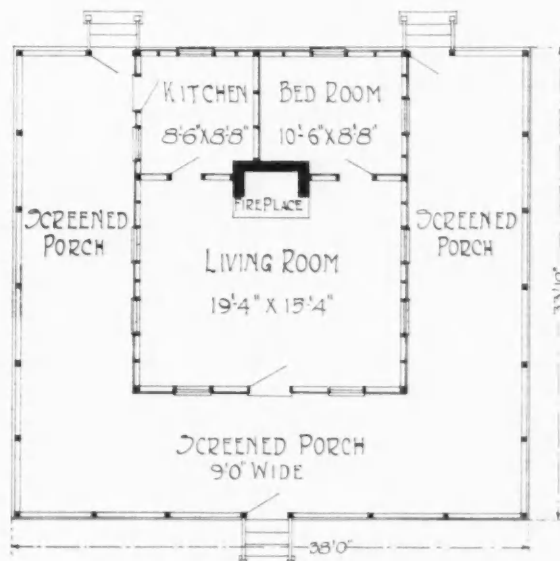
thru a log archway. The large screened opening is built in a manner similar to this archway and both of these openings may be curtained for protection from rain and wind. The kitchen is built similar to the living room. The double windows are high enough so that a work table may be placed beneath them. The kitchen is always cool since the prevailing wind from the lake passes thru from the double to the single window. Spaces between the logs are packed with oakum in all of the exterior walls.

Where finished lumber is easy to get to the building site and the owner does not desire the more picturesque appearance of the log cottage, the construction used is similar to that of the building shown on this page. This summer cottage was built beside the Fox River above St. Charles, Ill., by Edwin L. Bradley. Here, again, the large screened porch is the important feature. The man whose work keeps him indoors a large part of the time needs outdoor air and exercise during the vacation time. The man who is used to outdoor air won't get along without it. The screened porch is necessary in either case and it should be used as the dining room and as the sleeping rooms whenever the weather will permit.

The main part of this cottage is 20 by 25 feet, divided into three rooms. The living room, 20 feet by 15 feet 8 inches, has a fireplace in the center of the inner wall. The other two rooms are 9 by 10 feet and 9 by 12 feet, being used, respectively, as the kitchen and bedroom. The screened porch on three sides of the house is 9 feet wide and has three screen

doors, one on either end and one in front of the living room door.

The full size of the building, including the porch, is 33 feet 10 inches by 38 feet. The studding members are dressed on four sides. The best grade of drop siding was used for sheathing. The roofing is the regular roll roofing with a smooth exterior finish, laid on 6-inch tongue and groove flooring. The floor joists rest on 3 by 6-inch timbers, which have their bearing on concrete piers. These piers are spaced about 8 feet apart. All windows are regular check rail windows, size 12 by 24 inches, 4 light, except those in the gables, which are 20 by 24 inches, single light. Originally



Plan of Cottage Shown Above.



Genuine Log Cabin in Wisconsin Lakes Region, Built During Week End Trips from Timber Growing Near By.

the interior was left in the rough, but later it was finished with beaded ceiling, placed vertically on the walls. The door and window openings are cased in the regular way.

There are several inexpensive methods of finishing the interior of cottages of this sort. Wall board is, perhaps, the best material which would ordinarily be used. Beaded ceiling may be used as wainscoting above which the walls and ceiling may be finished with wall board, heavy paper or burlap, sized and calcimined. All of these ceiling materials require that a paneled effect be used, which is altogether desirable. The floors and wainscoting are stained and finished with wax or flat varnish. In case the interior is left rough, it is usually unpainted.

At various times there have been questions asked the *AMERICAN BUILDER*, thru the Correspondence Department, concerning the method of constructing log cabins. On this page two log cabins are shown with the idea of showing how the corners are con-

structed and the windows and doors framed into the walls. The upper illustration is a good example of the simplest form of log construction. Each log is notched at the ends on diametrically opposite sides, the cuts being made about one-fourth of the average log diameter in depth. The notches are flat on the bottom and both flaring and curved on the sides, the curve being out from the center of the cut, with a radius equal to that of the log section. When the logs are placed horizontally, the ends at the door and window openings are sawed off square and heavy timber casings are put in place, their function being to support the logs, to which they

are spiked or pinned, as well as to form the window or door frame support. When the logs are placed vertically, it is not necessary to use heavy casings except that heavy lintel beams are required above the door and window openings. It is quite often necessary to do extensive hewing of the logs flanking the window frames in order to make standard windows fit between the vertically placed logs. Cement plaster is commonly used to calk between the logs, altho oakum and various other materials may be used if desired.



Her Difficulty

A young lady who lisped very badly was treated by a specialist, and after diligent practice and the expenditure of some money learned to say: "Sister Susie's Sewing Shirts for Soldiers."

She repeated it to her friends at a private rehearsal, and was congratulated upon her masterly performance.

"Yeth," she said dubiously, "but it ith thuth an ectheedingly difficult remark to work into a converthation—ethpethially when you conthider that I have no thithter Thuthie."



Large Log Cottage with Shingled Upper Story—Tenderfoot Camp Resort, Cisco Lakes, Wisconsin.

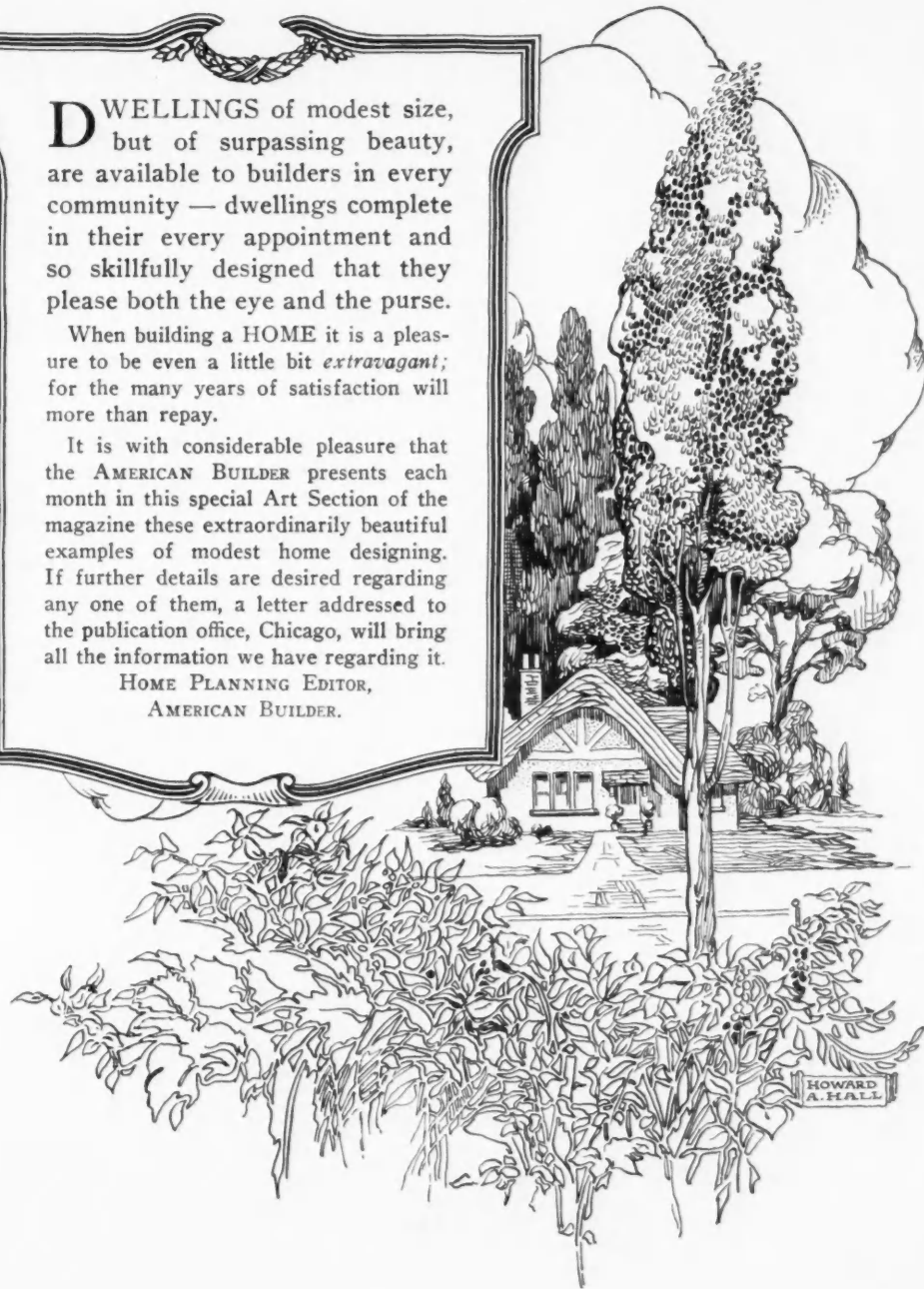
A PORTFOLIO *of* BEAUTIFUL HOMES

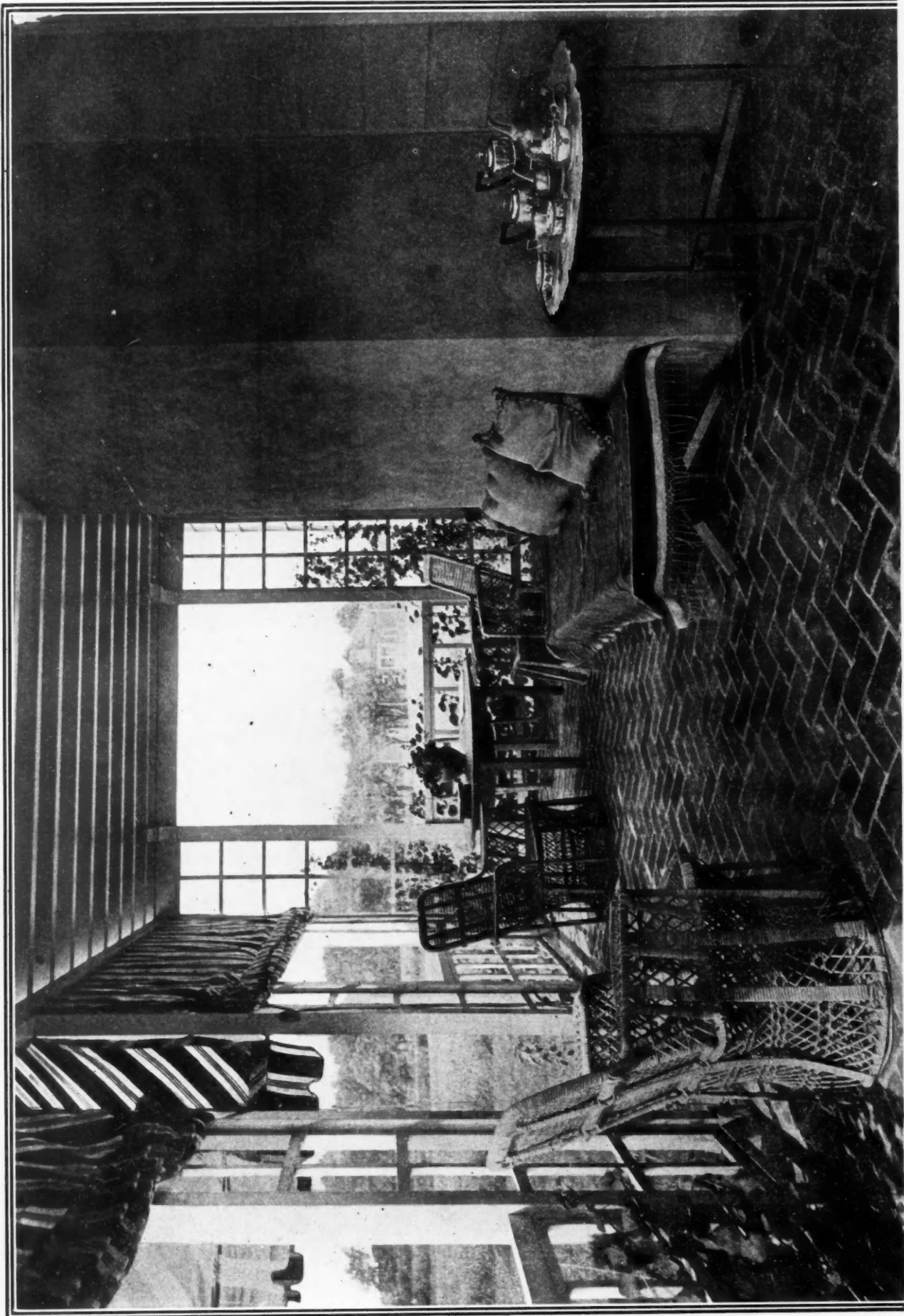
DWELLINGS of modest size, but of surpassing beauty, are available to builders in every community — dwellings complete in their every appointment and so skillfully designed that they please both the eye and the purse.

When building a HOME it is a pleasure to be even a little bit *extravagant*; for the many years of satisfaction will more than repay.

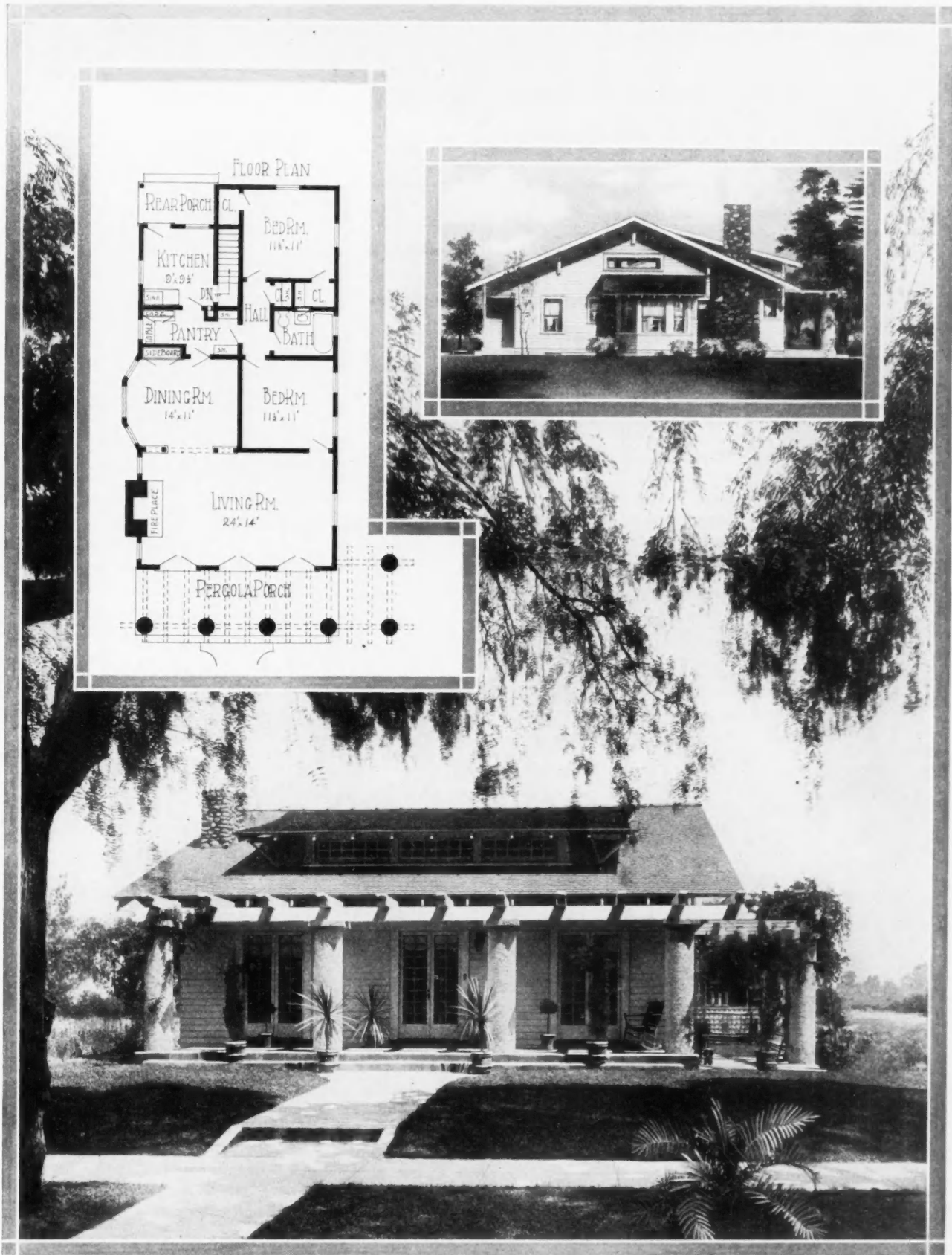
It is with considerable pleasure that the AMERICAN BUILDER presents each month in this special Art Section of the magazine these extraordinarily beautiful examples of modest home designing. If further details are desired regarding any one of them, a letter addressed to the publication office, Chicago, will bring all the information we have regarding it.

HOME PLANNING EDITOR,
AMERICAN BUILDER.



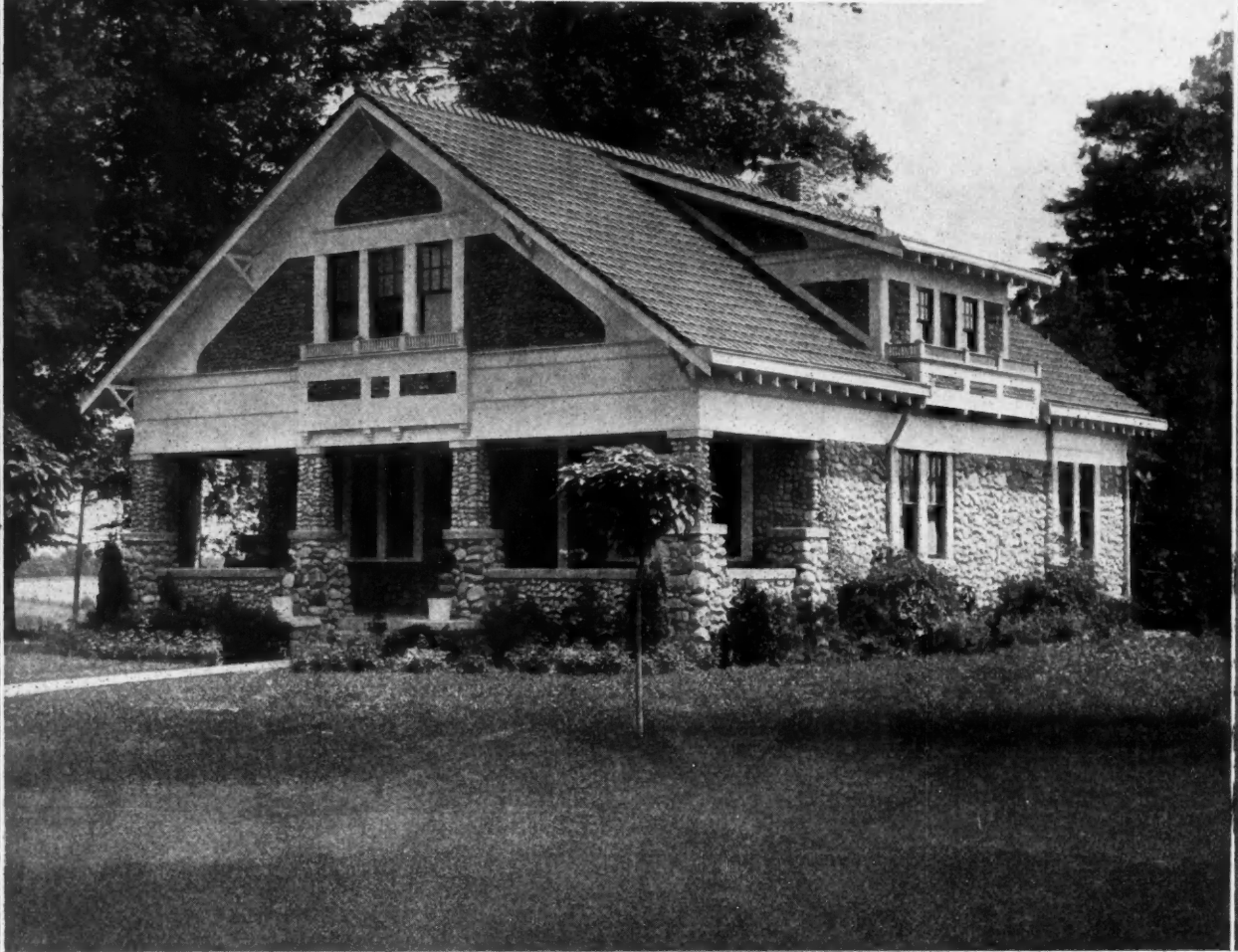
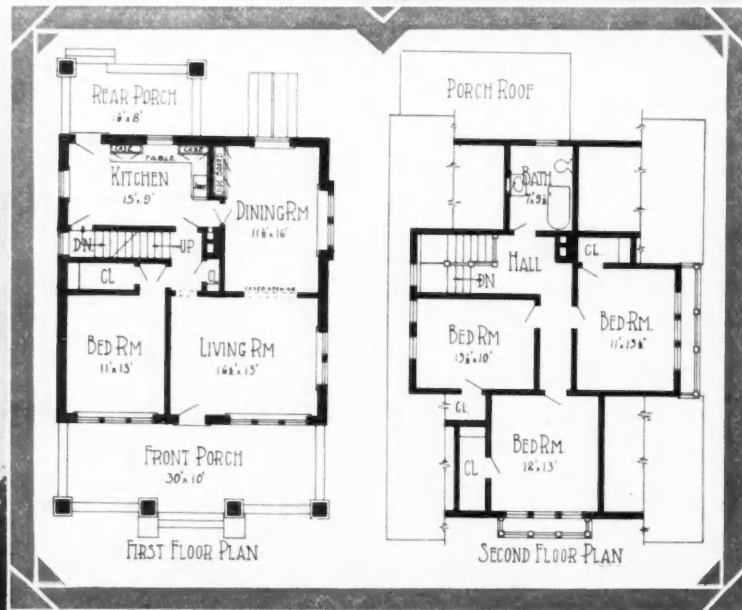


This Porch Extends the Welcome of the Big Out-of-Doors to Those Who Lounge Upon It. Large Enough to Be Useful, Yet Not Too Large to Be Cozy, It Strikes the Observer's Eye as a Place of Comfort at First Glance. The Floor Is of Brick Laid After the Herringbone Pattern, Bordered with a Row of Brick on Edge Around the Entire Surface. The Porch Rail Forms a Trellis Which Is Carried Up to the Roof at the Corners and on both Sides of the Steps. Drop Shades Are Shown Installed to Protect the Porch from the Direct Rays of the Sun During the Warm Part of the Day.

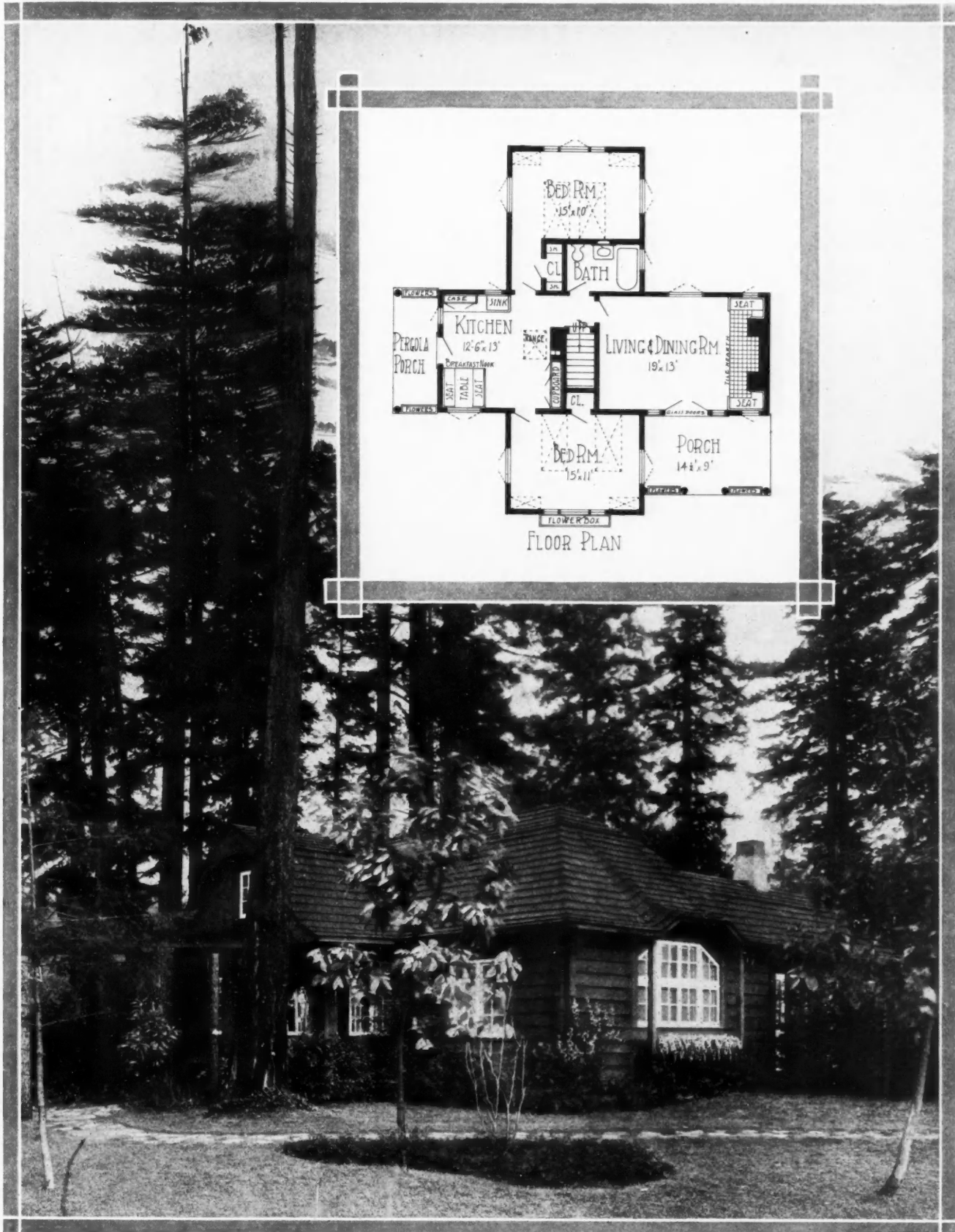


WELL ARRANGED HOUSE WITH PERGOLA PORCH. The artistic value of the pergola porch is well illustrated in this house. When viewed from any angle the porch seems to impress the observer to the extent that his opinion of the entire house is formed upon the effect which the porch produces. There are plenty of excellent features to justify this opinion. Notice the large living room, the excellent bedroom and bath arrangement and the handy pantry. Inset above shows view from side.

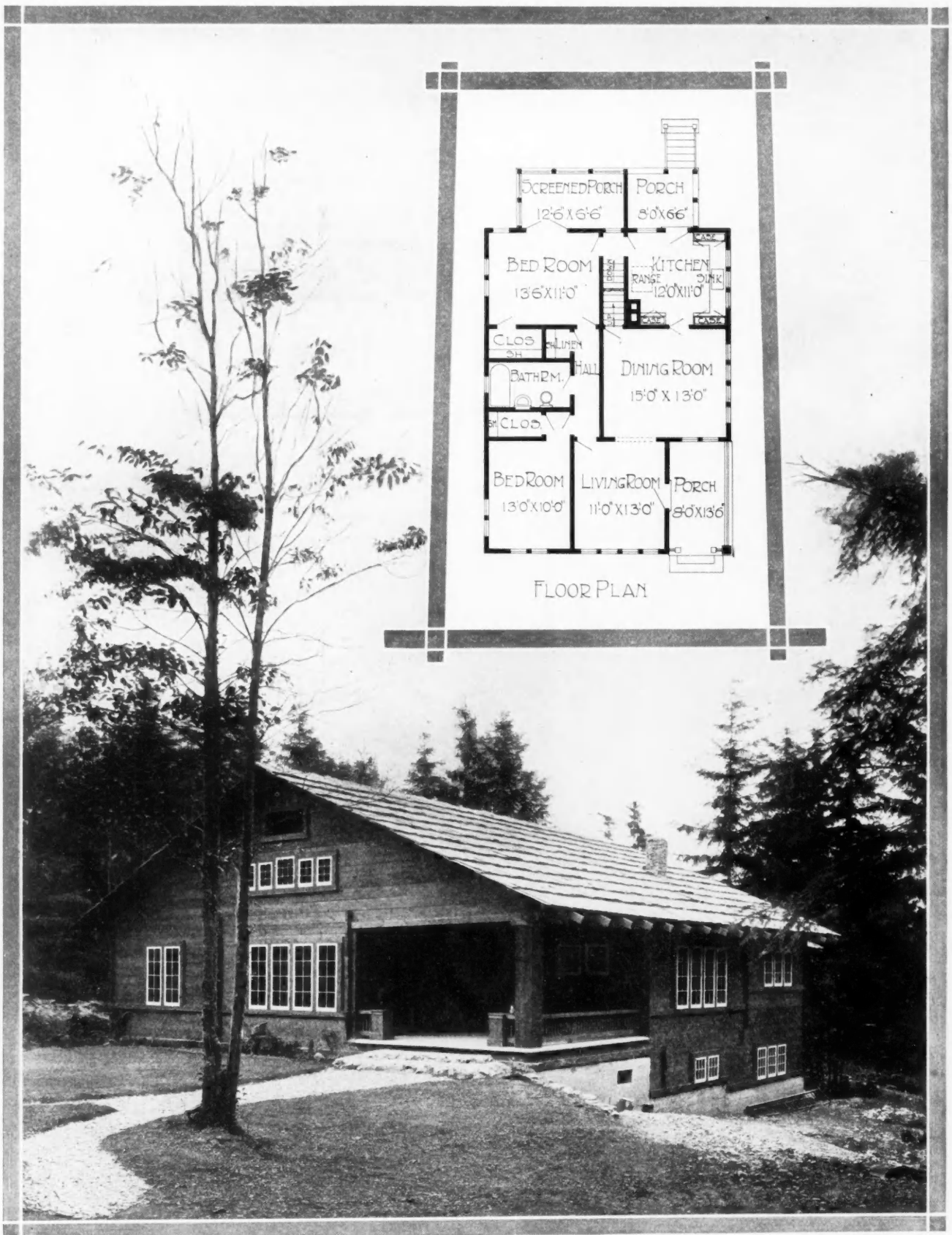
to protect the porch from the direct rays of the sun during the warm part of the day.



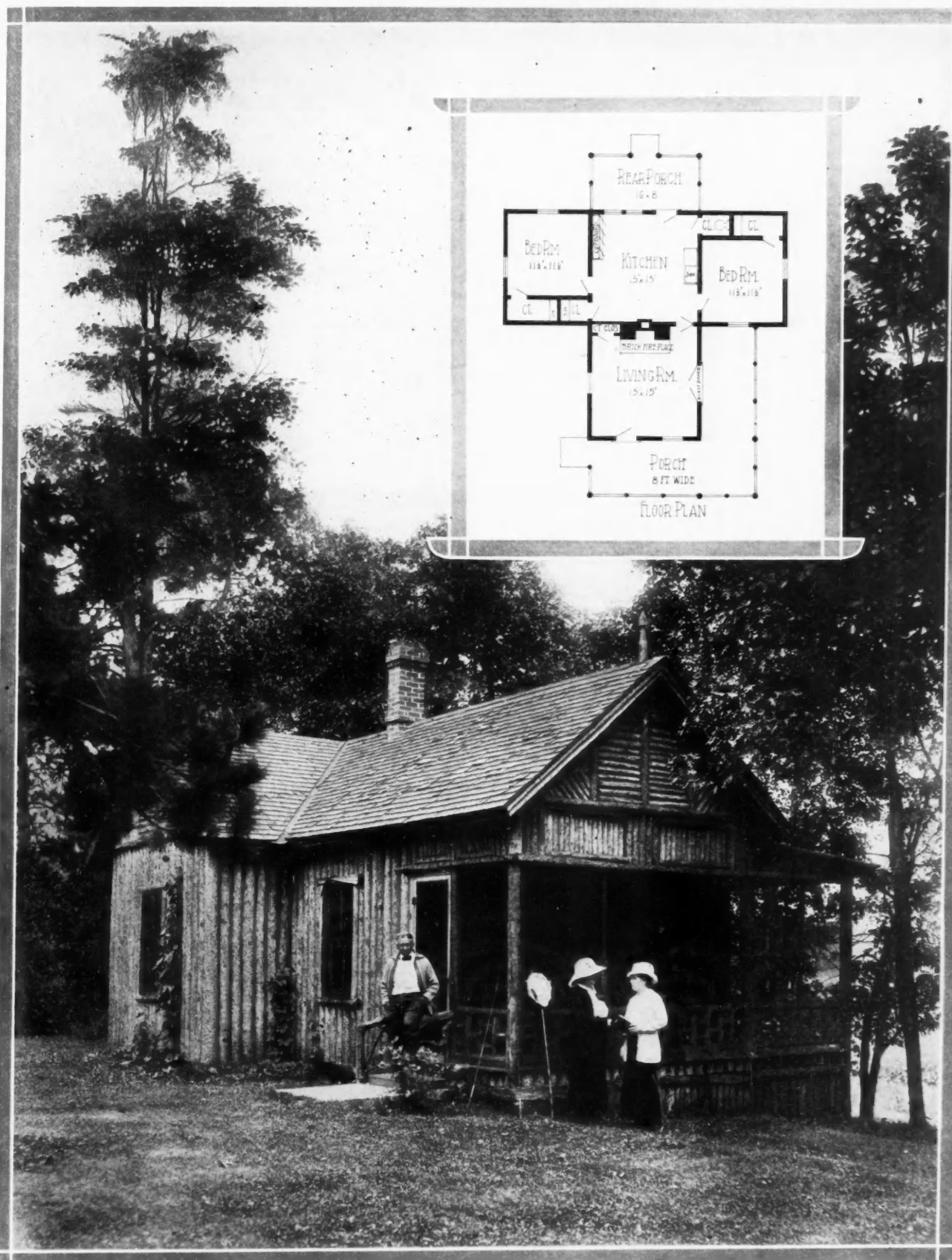
MODERN COBBLE STONE HOUSE. This House Represents a Thorough Modern Adaptation of the Cobble Stone as an Architectural Material. The Structure Is Rustic in appearance, but Bears the Marks of the Latest Ideas in House Design, Making it an Excellent Example of Rural or Summer House Architecture. The Gable Roof and the Sloping Dormer Roofs Are of Tile. The Interior Is Arranged for Convenience with Accommodations for a Maximum Number of People. The Size Is 30 by 32 Feet.



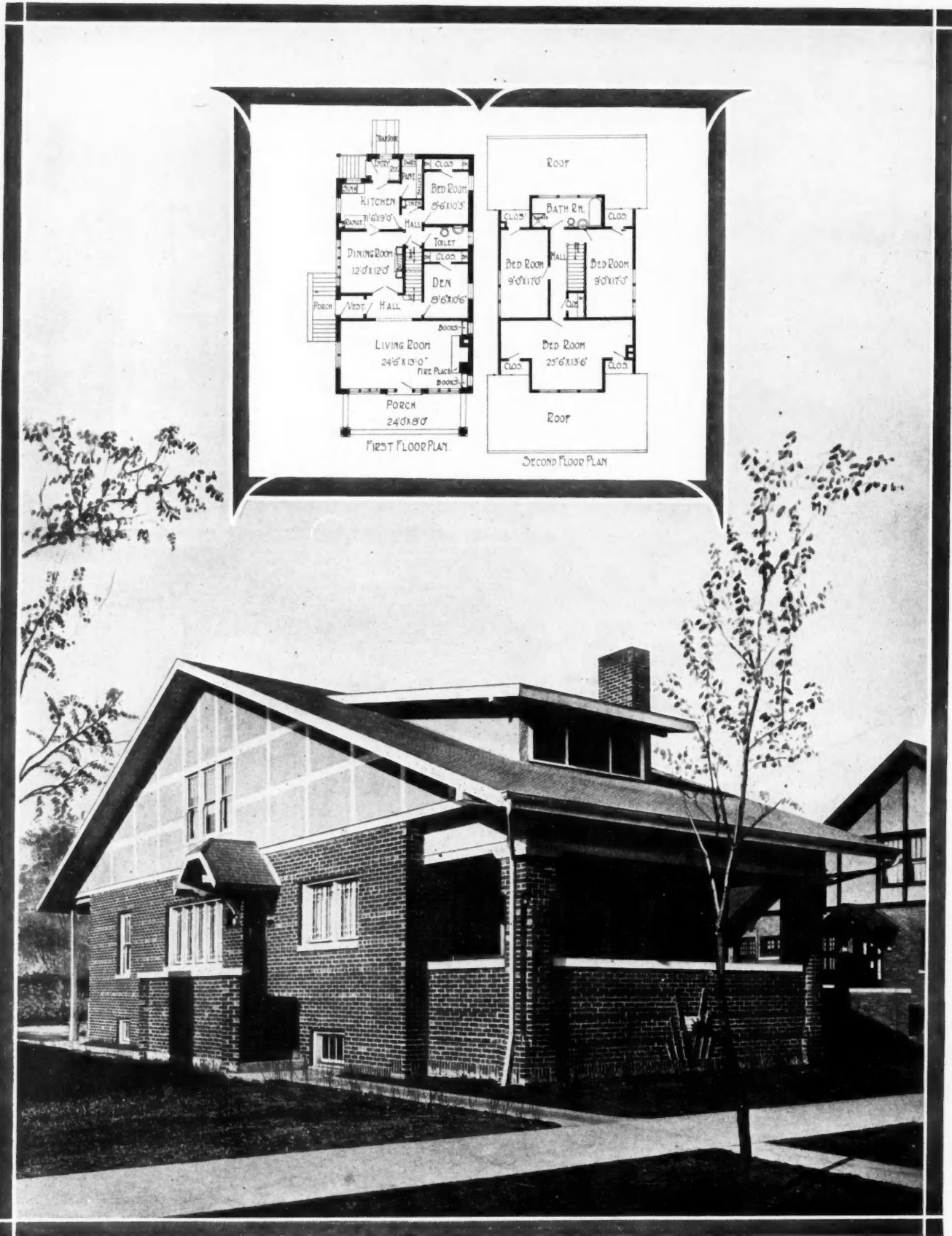
COZY SUMMER HOME, WELL ARRANGED. This Cottage Has the Correct Expression of the Summer Home Idea in Its Exterior Appearance and the Real Value of the Summer Vacation May Be Found in the Comfort of Its Interior. The Breakfast Nook Is a Pleasant Feature of the Kitchen Arrangement. At the End of the Combined Living and Dining Room a Tile Hearth Is Built Before the Fireplace, Having a Seat at Either End. This Feature Is One of Comfort and Safety. The Two Bedrooms Are Designed Especially for Twin Beds and Are Provided with Excellent Ventilation.



ROUGH FINISHED SUMMER CABIN. The Spirit of the Woods and the Open Country Is Typified in the Rough Finished Sides and Roof of This Building. No Attempt Is Made to Produce an Appearance of "Finish," and It Is Desirable if the Wood May Be Treated in Such a Way That Its Natural Color Is Not Destroyed. A Wood Filler and Natural Stain Would Be Appropriate for This Purpose. The Interior Arrangement Conforms with the Idea of Modern House Design. The Size Is 30 by 41 Feet.



LOG CABIN SUMMER COTTAGE. This Cottage Is Built of Vertically Placed Logs, Ornamented with Panels of Vertical, Horizontal and Diagonal Logs Under the Gables and Over the Porch. The Bark Is Left on All of the Exposed Surfaces of the Logs. The Room Arrangement Is Simple. The Living Room Is Fitted with a Large Fireplace and Two Doors Give Easy Access to the Large Porch. The Kitchen Is Also Used as a Dining Room, or the Rear Porch May Be Screened In and Used as a Dining Room. The Two Bedrooms Flank the Kitchen.



BRICK AND HALF-TIMBER STUCCO HOUSE. An Artistic Exterior Finish Has Been Obtained in This House by the Use of Face Brick Laid in White Mortar for the First Floor Walls, with Light Gray Stucco Paneled in the Half-Timber Style for the Second Floor Walls. The Walls of the Two Dormers Are Finished with Stucco in the Ordinary Manner. The First Floor Arrangement Is Interesting. Notice the Large Living Room, the Interior Entrance Porch, Excellent Kitchen and Pantry Arrangement and Den. There Are Four Bedrooms Provided.

The "American Builder" Information Exchange

Will Help You With Your Contract Requirements

OUR Information Exchange believes it can render service and save our readers time and money on many of their contracts. We can tell you where to get that unusual item, can place before you full information concerning both standard goods you will need and improved specialties you may want, and can help you to secure prompt deliveries and right prices. Fill in coupon below, pin same to your business letterhead, and we will send all information we think would help you.

clip or tear off here

We have.....
We are figuring on.....
(cross out one not wanted)

entire contract
heating contract
plumbing contract
lighting contract
painting contract
masonry contract
concrete contract
(cross out those not wanted)

for building checked below and want all data on materials, equipment and specialties we will need.

	SIZE	TO COST ABOUT	Date Work is to Begin or Date Contract is to be Let.
<input type="checkbox"/> Dwelling House (City or Town).....			
<input type="checkbox"/> Farmhouse.....			
<input type="checkbox"/> Apartment House.....			
<input type="checkbox"/> Schoolhouse.....			
<input type="checkbox"/> Church.....			
<input type="checkbox"/> Theatre.....			
<input type="checkbox"/> Library.....			
<input type="checkbox"/> Public Garage.....			
<input type="checkbox"/> Bank Building.....			
<input type="checkbox"/> Hotel.....			
<input type="checkbox"/> Office Building.....			
<input type="checkbox"/> Store Building.....			
<input type="checkbox"/> Factory.....			
<input type="checkbox"/> Warehouse.....			
<input type="checkbox"/> Dairy Barn.....			
<input type="checkbox"/> Hog House.....			
<input type="checkbox"/> Two-Story Granary.....			
<input type="checkbox"/> Other Farm Building (What?).....			
<input type="checkbox"/> Any Other Building (What?).....			

CONSTRUCTION of said building is as checked below:

- | | | | |
|---|--|---|---|
| <p>EXTERIOR WALLS</p> <ul style="list-style-type: none"> <input type="checkbox"/> All Frame <input type="checkbox"/> Stucco <input type="checkbox"/> Brick Veneer <input type="checkbox"/> Brick (Solid) <input type="checkbox"/> Structural Tile <input type="checkbox"/> Concrete Blocks <input type="checkbox"/> Monolithic Concrete <input type="checkbox"/> Stone <input type="checkbox"/> Glass (Store Fronts) <input type="checkbox"/> Ornamental Terra Cotta | <p>ROOFING</p> <ul style="list-style-type: none"> <input type="checkbox"/> Wood Shingles <input type="checkbox"/> Asphalt Shingles <input type="checkbox"/> Asbestos Shingles <input type="checkbox"/> Metal Tile <input type="checkbox"/> Clay Tile <input type="checkbox"/> Slate <input type="checkbox"/> Composition Roll <input type="checkbox"/> Built up Tar and Gravel <input type="checkbox"/> Tin Plate <input type="checkbox"/> Canvas | <p>SUPPORTING FRAME</p> <ul style="list-style-type: none"> <input type="checkbox"/> Stud and Joist <input type="checkbox"/> Heavy Timber Mill <input type="checkbox"/> Structural Steel <input type="checkbox"/> Reinforced Concrete <input type="checkbox"/> Self Supporting Plank <input type="checkbox"/> On Concrete Piles <input type="checkbox"/> Fireproof Floors <input type="checkbox"/> Fireproof Partitions | <p>INTERIOR FINISH</p> <ul style="list-style-type: none"> <input type="checkbox"/> Soft Wood <input type="checkbox"/> Hardwood <input type="checkbox"/> Wallboard <input type="checkbox"/> Marble <input type="checkbox"/> Metal Ceilings and Walls <input type="checkbox"/> Metal Doors <input type="checkbox"/> Metal Windows <input type="checkbox"/> Metal Trim <input type="checkbox"/> Metal Grilles, etc. <input type="checkbox"/> Composition Flooring |
|---|--|---|---|

SPECIALTIES, FIXTURES AND EQUIPMENT NEEDED

- | | | |
|---|--|---|
| <p>HEATING PLANT</p> <ul style="list-style-type: none"> <input type="checkbox"/> Warm Air Furnace <input type="checkbox"/> Pipeless Furnace <input type="checkbox"/> Steam, Direct Radiation <input type="checkbox"/> Steam, Blower System <input type="checkbox"/> Hot Water System <input type="checkbox"/> Vapor System <p>PLUMBING</p> <p>Indicate number of Fixtures needed</p> <ul style="list-style-type: none"> <input type="checkbox"/> Closets, Bathtubs..... <input type="checkbox"/> Shower Baths..... <input type="checkbox"/> Urinals..... <input type="checkbox"/> Lavatories..... <input type="checkbox"/> Kitchen Sinks..... <input type="checkbox"/> Laundry Tubs..... <input type="checkbox"/> Slop Sinks..... <input type="checkbox"/> Drinking Fountains..... <p>WATER SUPPLY—for Country Locations</p> <p>What Capacity Needed?.....</p> <p>LIGHTING AND LIGHTING FIXTURES</p> <p>Municipal Service { electricity <input type="checkbox"/></p> <p style="margin-left: 20px;">gas <input type="checkbox"/></p> <p>Do you desire quotation on Fixtures?.....</p> <p>Private Isolated Plant to be installed, Electricity..... Acetylene.....</p> | <p>ELEVATORS</p> <ul style="list-style-type: none"> <input type="checkbox"/> Passenger..... <input type="checkbox"/> Freight..... <input type="checkbox"/> Dumb Waiters..... <input type="checkbox"/> Ash Lifts..... <p>AUTOMATIC SPRINKLER SYSTEM</p> <p>.....</p> <p>SCHOOL, CHURCH OR THEATRE EQUIPMENT</p> <ul style="list-style-type: none"> <input type="checkbox"/> Seats, Pews or Opera Chairs..... <input type="checkbox"/> Blackboards..... <input type="checkbox"/> Library Shelving..... <input type="checkbox"/> Bank Vaults and Safes..... <input type="checkbox"/> Art Glass..... <p>FARM BUILDING EQUIPMENT</p> <ul style="list-style-type: none"> <input type="checkbox"/> Stanchions for..... cows <input type="checkbox"/> Stock Pens..... <input type="checkbox"/> Stalls for..... horses <input type="checkbox"/> Stock Watering Buckets..... <input type="checkbox"/> Feed and Litter Carriers..... <input type="checkbox"/> Cupola Ventilators..... <input type="checkbox"/> Skylights..... <input type="checkbox"/> Hay Track and Carrier..... <input type="checkbox"/> Barn and Garage Door Hangers..... <input type="checkbox"/> Built-in Cup Elevators for Corn and Grain..... <input type="checkbox"/> Lightning Protection..... | <p>BUILDERS' HARDWARE</p> <ul style="list-style-type: none"> <input type="checkbox"/> Door Checks..... <input type="checkbox"/> Casement Adjusters..... <input type="checkbox"/> Ventilating Sash Operators..... <input type="checkbox"/> Panic Bolts..... <input type="checkbox"/> Weatherstrips..... <input type="checkbox"/> Coal Chutes..... <input type="checkbox"/> Sidewalk Doors..... <input type="checkbox"/> Prism Lights..... <input type="checkbox"/> Refrigerators, Hotel or Market..... <input type="checkbox"/> Refrigerators, Mechanical..... <input type="checkbox"/> Fire Escapes..... <input type="checkbox"/> Fire Shutters..... <p>HOUSEHOLD UTILITIES</p> <ul style="list-style-type: none"> <input type="checkbox"/> Garbage Incinerators..... <input type="checkbox"/> Package Boxes..... <input type="checkbox"/> Disappearing Stairs..... <input type="checkbox"/> Disappearing Beds..... <input type="checkbox"/> Sleeping Porch Sash..... <input type="checkbox"/> Refrigerators, Outside Icing..... <input type="checkbox"/> Vacuum Cleaning System..... <input type="checkbox"/> Clothes Dryer..... |
|---|--|---|

Note Here Any Special Requirements Not Marked Above.

Name.....

Street No. or P. O. Box.....

Town.....

State.....

We { are } acting as Architects as well as Builders on this job.
 { are not }

Mail the above to

"AMERICAN BUILDER" INFORMATION EXCHANGE
 1827 Prairie Avenue, Chicago

Keep on Building

(Continued from page 37.)

There should be no curtailment in building and road construction. Let both public and private useful construction proceed. Production and handling of building materials and public and private construction work are fundamental industries of the country. Any tendency to suspend or postpone building projects is inconsistent with maintaining our prosperity. The country is prosperous. Building investors should not hesitate to go ahead with their plans. Railroads should spare no effort to supply the building industry with the cars needed to transport materials. Government, state, county, and municipal authorities should encourage the continuance of all kinds of building. Road and street improvements in particular should go on unabated. Bad roads and streets are factors of first importance in the present high cost of foodstuffs. Never before was the improvement of highways so essential.

The lumber, brick, cement, lime, sand, gravel, stone, and other building materials industries are basic. Neither government regulations nor railroad restrictions should be imposed unnecessarily to interfere with them. If any action is taken which results in the prostration of so fundamentally important industries, there is real danger of a surplus of unemployed labor, a surplus of railroad cars and a crippling of business

that will seriously embarrass the government in financing the war.

The right thing to do is to keep building.



A Silo for Chickens

THE theory of the silo for chickens so that they may be fed food in winter which will increase their egg-laying is being urged generally by the expert poultrymen who have experimented in silage, and promises to bring about a revolution in the industry. So much interest has been taken that the lumber industry has taken up the problem in an effort to develop a simply built wooden chicken silo which will be as much of a success in the poultry industry as the silo has become in the dairy branch of the agriculture field. The Northern Hemlock and Hardwood Manufacturers' Association which made a special study of the dairy silo is especially interested in the new chicken silo.

An effort by a lumber trade paper to learn just what success has been achieved with chicken silos brought the information from many poultrymen that the silo promises to bring about great and profitable changes. J. G. Halpin, of the agricultural college of the University of Wisconsin says that the only problem in the poultry silo is to make it small enough so that the silage will not spoil as it is being used.

PHOTOS WANTED of Advertised Goods in Use on the Job

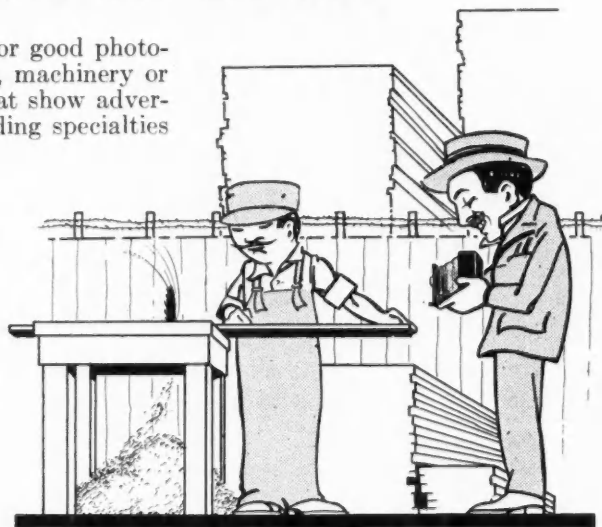
THE EDITOR will pay \$2.00 each for good photographs that show interesting tools, machinery or equipment in use by builders or that show advertised building materials, fixtures, or building specialties being installed on the job.

We want human interest pictures—close-up photos that show the details of the tool, device, machine, or material. We want it posed true to life, just as actually used.

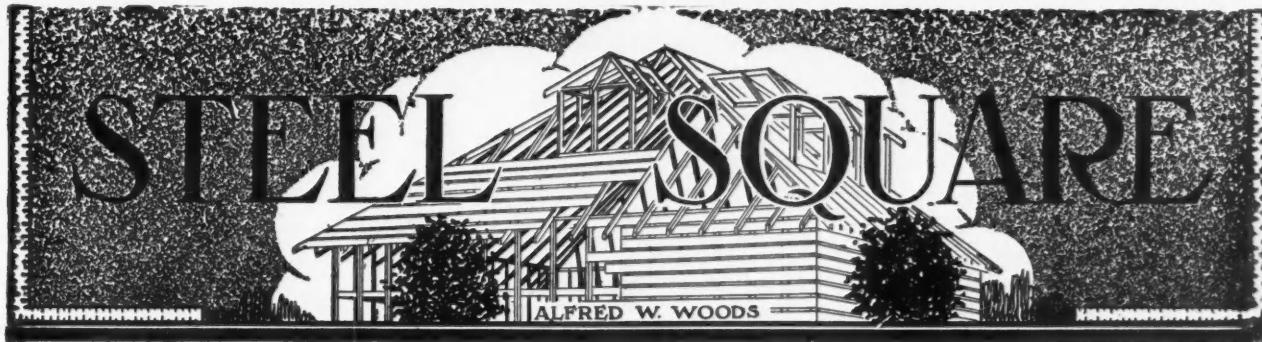
On the back of each photo submitted jot down your name and address, trade name and manufacturer's address of proposition illustrated, and some data regarding the building where photo was taken.

Address Photo Contest Editor

American Builder
1827 Prairie Ave. CHICAGO



"I'll Send this Photo to American Builder and Get \$2.00"



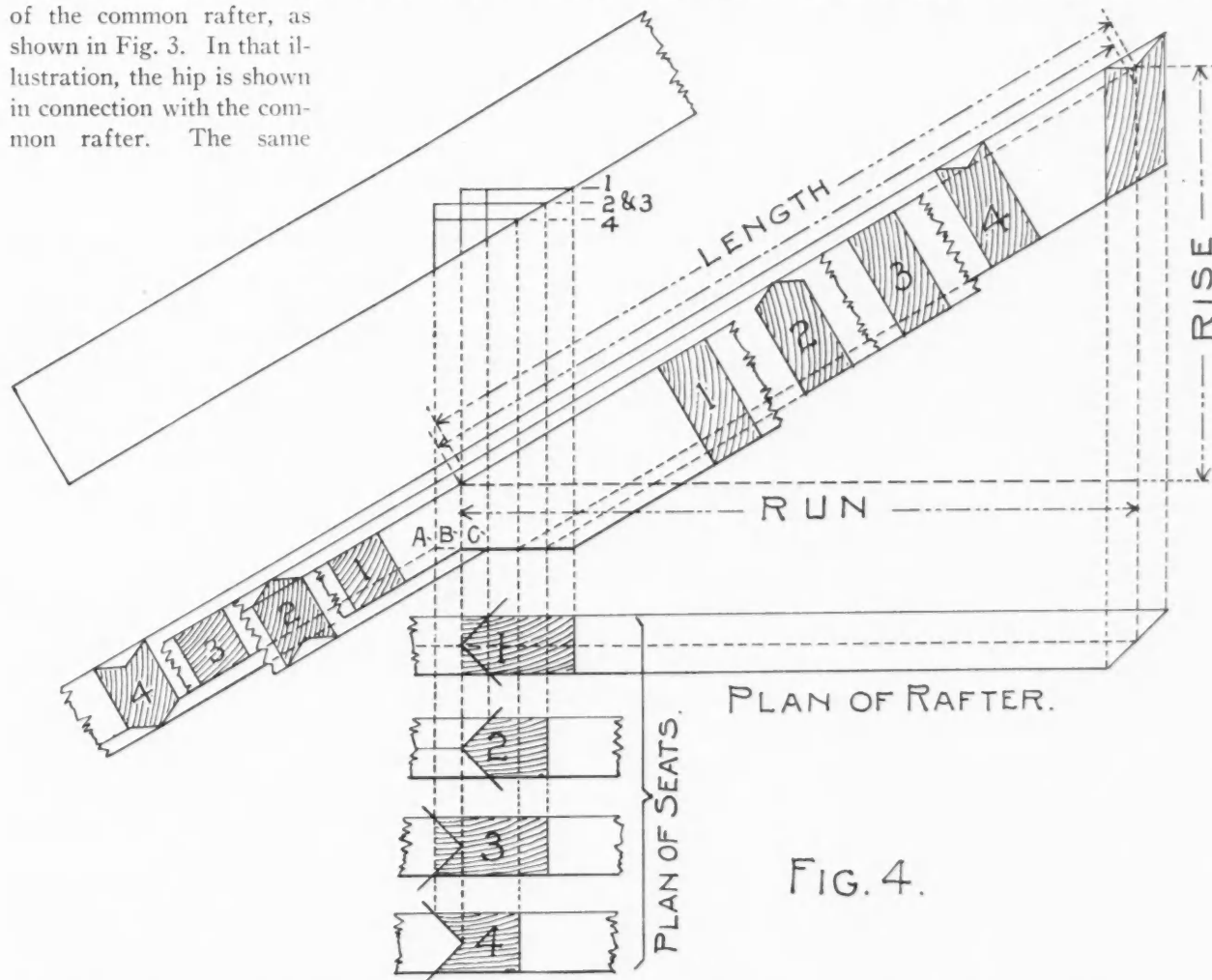
Problems of Roof Framing Solved

SECOND ARTICLE—THE BACKING OF THE HIP AND VALLEY AND THE EFFECT IT HAS IN THE FRAMING UNDER VARIOUS CONDITIONS.

NOTE: This is the Second of a Series by Mr. Woods. The Third will appear in an early issue.

WE COME now to the next step of our work. In the previous illustration, we showed how the lengths of the common and hip rafters are determined by the aid of the common steel square. Of course, there are other ways of getting the lengths with the square, but whatever figures are taken, they must be to the ratio of the full scale for one foot run of the common rafter, as shown in Fig. 3. In that illustration, the hip is shown in connection with the common rafter. The same

into consideration and the length and cuts of the rafter are taken at the proper place. This is a vexing little problem; 'tis true it does not amount to much, there is not one job in a hundred where the carpenter takes the pains to back his hips and valleys. Whether he does or not, allowance should be made in the depth of the seat cut; that is where they get off without his knowing



principle by which its length is determined, also applies to the valley rafter because it rests in the same position relative to the common rafters. Therefore, its length is the same as that of the hip.

Hark! Didn't we hear some one say, that isn't so? But it is so, as will be proven when the backing is taken

it and after they are cut and ready to set up in place, then he finds that something is wrong and they are either blocked or cut down, as the case may be. Now, isn't that so?

Have you not seen blocks or shingles under the seat

(Continued to page 130.)

The Law Holds Contractors Responsible

MATERIALS OR EQUIPMENT ATTRACTIVE TO CHILDREN BUT DANGEROUS TO THEM MUST BE GUARDED—THE LEGAL DOCTRINE OF ATTRACTIVE NUISANCES EXPLAINED.

By George Warner Swain

Of the Chicago Bar.

IN the year 1841 there was decided by the Court of the Queen's Bench in England a case entitled *Lynch v. Nurdin*, which was destined to mark a turning point in the law of negligence. It was the pioneer case of what has now come to be known as the Attractive Nuisance Doctrine. In that case the man who was being sued left a horse and cart standing in the public highway. Two boys came along, about seven years of age, and one of them got in the cart, and the other took the horse's

bridle and started to lead him down the street. The boy in the cart became frightened and attempted to climb out, fell, and was run over, sustaining a fractured leg. Of course, the child was a trespasser; he had no right whatever to climb into the cart, and I suppose should have been punished for having done so; but the Lord Chancellor said the child was merely indulging the natural instinct of a child in amusing himself with the empty cart and deserted horse, and that after the blamable carelessness of the owner in having tempted the child, he ought not to have reproached the child for yielding to the temptation.

This is the foundation for the whole doctrine. A child of tender years is not presumed by the courts to have sufficient discretion and understanding to know when he is in danger, and when an owner of property leaves the property or maintains it in such a condition as to appeal to the curiosity and interest of children, the courts will not hold him free from blame if the child yields to the temptation, and trespasses upon the property, and becomes injured thereby.

The growth of this doctrine is one of the most interesting examples of what has become known as judicial legislation. No legislature or other legislative body has ever enacted any laws relieving a child of the duty to exercise the same care for his own safety as is required of an adult; but the courts by their decisions have firmly established such a rule.

We now come to the application of this doctrine to specific cases in which contractors and builders engaged in the construction of houses or other buildings have been held liable because they did not properly protect the premises upon which they were engaged from the ever present and curious youngster.

First, let us see what the Wisconsin court holds regarding this doctrine:

In the case of *Busse v. Rogers*, 98 Northwestern



Five-Year-Old Lillie Busse Made a Teeter and was Injured—The Builder (Owner of the Lumber Pile) Had to Pay.

Reporter, 219, we have a decision as long ago as 1904. Lillie Busse was a child of about five years of age. On her way home from school one day she came to a place where the defendants had piled some heavy timbers, 14 to 16 feet in length. These timbers were piled up in step-like fashion, so that it was an easy matter for her and the child accompanying her to clamber to the top. On reaching the top they found that the two top timbers could be

swung around into an oblique position so that they could be used as a see-saw. It was not long before one of the top timbers became over-balanced and rolled to the bottom, carrying the little girl with it. Of course the owners contended that they had a right to pile the timbers temporarily on the public street adjacent to their property, and that the child had no right to meddle with them, nor to climb upon them, and that if she became injured thru such meddling they could not be held liable. But the court overruled their contentions, and said:

"The child who lags unwilling on the way to school and chases a bright-winged butterfly, or plays a game of marbles, or climbs a tempting pile of lumber in the highway to play see-saw for a moment, does not thereby become an outlaw, and when injured by another's negligence he cannot be turned aside with the curt remark that he had ceased to travel and become a trespasser, and hence can complain of no one's conduct. His natural habits and instincts must be in some way and degree recognized. The man or woman who would wish to wholly stop the flow of childish spirits while on the highway, and turn the little ones into men and women before their time, must either have had no childhood of his own or must have forgotten the fact. It would not be accurate to say that the streets were made for the children to play in, but it would be equally inaccurate to say that a property owner can totally disregard the fact that children have, and probably always will, play therein.

"It is well known that there is nothing much more attractive to children than a pile of lumber or timber, especially one which affords opportunity for a see-saw. This, according to the findings, was what the defendants placed in the street, so arranged that the heavy timbers would almost immediately fall when the childish amusement commenced. We think there was ample room for the jury to find, as they did, that the act

of leaving the timber in the highway in this condition was negligence, and the result which followed was one which might reasonably have been anticipated by an ordinarily prudent man under the circumstances."

The case of Louisville Railway Company v. Esselman, 93 Southwestern Reporter, 50, was decided by the Court of Appeals of Kentucky, in 1906. There the Railway Company was engaged in erecting an addition to its power house on Logan Street in the city of Louisville. It had secured a permit from the building inspector of Louisville to temporarily stack part of its building material in the street, but was not using more than a third of the street for that purpose. Some of the material consisted of iron girders called I-beams, and were from 3 to 18 feet in length. The edges of these girders presented about a 4-inch flat surface, connected at their centers by solid metal, 1/2 to 3/4 of an inch thick, and 10 or 12 inches wide. These beams when stacked, standing on their edges, made a somewhat top-heavy body. There were a number of children who lived in the neighborhood where this building was going on, and they took the usual interest in everything that was being done about the premises. Henry Esselman was an eleven-year-old boy who was among those in the habit of playing about this neighborhood. One day in August he climbed to the top of this stack of beams, which



Eleven-Year-Old Henry Esselman was Awarded \$750 Damages for Being Hurt on a Pile of Steel I-Beams.

was about 4 feet high, and sat down upon it to watch the other boys playing about the building. When he arose to climb down, one of the beams turned over and caught his leg severely and permanently injuring it. He brought this suit to recover damages from the owners of the premises, and the jury awarded him \$750.00. In upholding this verdict in favor of the boy the court said:

"It is the instinct of children of the age of this boy to play. Building material, stacked as this was, is peculiarly attractive to them. This is a fact known to everyone. In a populous community this instinct is more than likely to find vent in availing itself of such temptations. Warnings are not enough to make the premises reasonably safe. The material should be stacked so, with the knowledge that the premises will be probably so used in spite of warnings and precautions of the lot owner, that the children playing thereabout will not be subjected to the hazards of falling timbers and material insecurely put up. The ordinance allowing the builders to put their property in the public street, did not allow them to set a dead-

fall in the street to catch unwary children, mischievously or prankishly wandering within the forbidden zone. The law is, on the contrary, that the builder must anticipate their presence with a knowledge of their nature, and provide against accident to them as far as may reasonably be within his power. The instinct of humanity fathers this rule of the law."

The court cites from the former case in their own state under a similar set of facts where it was said that children of tender years are presumed to be irresponsible for their acts, and are therefore presumed to be incapable of negligence, for before anyone can be negligent he must appreciate the danger of the situation and know how to avoid it.

In New York, in the case of Earl v. Crouch, 10 New York Supplement, 882, a lumber dealer had piled a large amount of lumber upon the street in front of a lot where a house was being constructed, there not being room inside of the lot for the lumber. A boy about five years old was playing in the street and attempted to climb upon the pile; he pulled it over onto himself, and was killed. The court said that the man who put the lumber where it was was bound to know that young children were likely to be at play in the street, and it was not unreasonable to charge them with the knowledge that a pile of lumber is a very attractive object to children and likely to become the scene of their exploits and sports; and the court upheld a verdict in the suit which was brought by the child's parents to recover damages for his death.

In the case of Spengler v. Williams, 6 Southern Reporter, 613, the Supreme Court of the state of Mississippi had occasion to pass on a somewhat similar case. In that case Spengler was building a house on his property, and piled lumber to be used in its construc-



A Five-Year Boy Overturned a Pile of Lumber Piled in the Street by a Building Site. The Lumber Dealer Had to Pay Damages.



Little Boys Played Around the Spengler Job and a Pile of Lumber Fell On One of Them. The Builder Had to Pay.

(Continued to page 124.)

“Protecting the product of the family, field and factory is as important as the producing”

THE MAN FROM THE LUMBER YARD

It is proper that in this month when we take note of our NATIONAL INDEPENDENCE, that each one study for the greater independence of himself, and his patrons. The Man from the Lumber Yard points out some ways. **THE MAN EDITOR.**

THE reason some of my readers, the man who pushes the saw as well as the man who writes specifications, do not make a larger success, is because they don't think bigger.

That is especially true of the contractor who specializes on farm work.

When Chicago was a struggling municipality, she did such haphazard park and boulevard work as her finances permitted. But of late she has had a plan of consecutive work to be taken up each year.

Because none of her work overlaps and everything is done with system and in order, she comes most nearly getting the worth of every dollar expended.

I know a Philadelphia manufacturer of tools who held out against the protests of some minority stockholders at his buying three times the ground needed for their plant. They cover all this ground today.

He had a vision of their growing business and the “PEP” to act.

Short Sighted Contractors

Some contractors can't see beyond their noses or the present season. They do an injustice to their clients who entrust their building interests in their hands.

Those readers of our February journal who gave special thought to our IDEAL farm lay-out, probably said to themselves, “This is all very beautiful

for some, but I don't have millionaire customers.”

I know a number of farmers who have spent more money in the last five years than is represented in this “Ideal Farm Plan,” and have very little to show for it.

Every farm building contractor should make a special study of farm requirements. That field for the next year or so will be bigger than the “office building” field or the “church” field ever can be.

100 Per cent Barns as Well as 100 Per cent Churches

Statistics can be had (I will secure them for any reader so desiring) as to the increase in productiveness of a properly ventilated cow barn over one of the “dung” atmosphere sort. The hog is a cleanly animal if given a chance. The expert designer of churches has to consider the ventilation and acoustics. When the designer of housings for air-breathing animals appreciates the fact that their lungs are poisoned by bad air and their vitality reduced just the same as the human lungs, they will be making progress. More progress will be made when they get these facts into the minds of the progressive farmer. More belong to this class than is generally credited.

Still more will be obtained when every community has buildings carrying out these ideas.

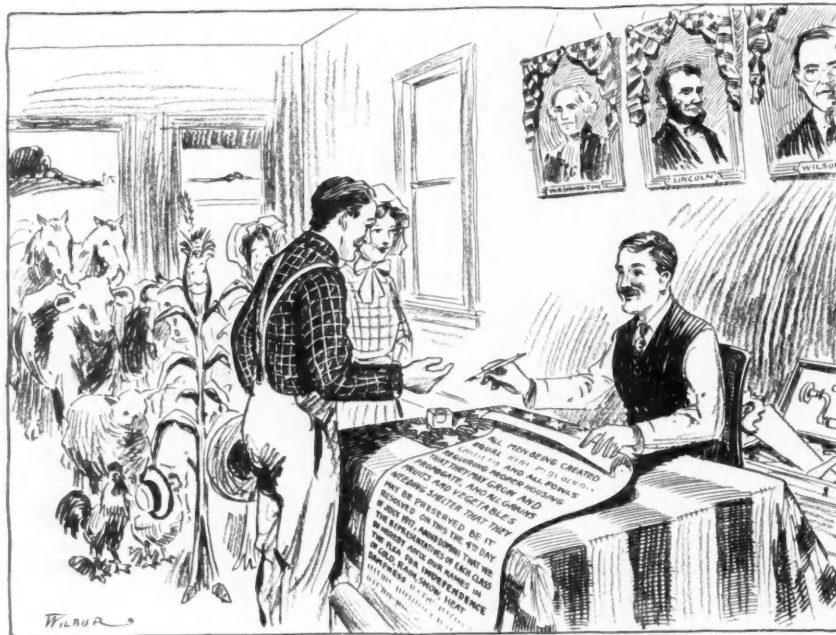
The maximum results will be had when you can induce your farmer clients to keep books, proving to his neighbors the superior productiveness of such buildings.

The Farmer's Incentive to Boost

In canvassing farmer prospects, remember that they should never be antagonistic one to the other. If you are consulting with a druggist prospect you strive to place him in position to combat with the druggist on the other corner, so he will control the soda water trade in place of the other fellow getting it.

Not so with the farmer. If all his neighbors increased their output fifty per cent, there is still the same market for him.

Indeed, it would be better, because there would be more buyers, better transportation facilities, and more accumulated knowledge.



If Farm Crops and Live Stock Had Their Say They Would Declare for Better Housing. The Patriotic Farmer and His Builder Will Provide It THIS Year.

In addition to this is the fact that when one farm increases in value because of superior equipment, it automatically lifts the value of every adjacent farm.

That contractor who can look over a farm and "sense" the ultimate aim and ambition of the owner, and then lay out a group of buildings covering that ambition and conforming to the needs of securing the maximum results, will have all he can take care of in the way of work for the next few years.

The farmer has the money. He must have the equipment to keep pace with the demand. His children and helpers, men and maidens, must be properly housed. It is not expensive to build sleeping porches on the farm, where pure air is needed during the seven or eight hours of sleep, the same as in town. His chickens, corn and cereal, his horses, hogs and kine, all declare that they should be independent from the debilitating effect of the wet, the heat, and the cold.

But this cannot all be done in one year. The wise contractor will lay out a program for the farmers covering a possible period of ten years.

It may be that only one minor building will go up this year. But it will be a complete unit, fitting into the plan with the other units, as the essential buildings are put up year by year, or as rapidly as his finances permit.

Your Reputation

It doesn't take any stretch of imagination to see the position that would be held by a contractor who would **MAKE GOOD** on such a program.

(1) He would have the first chance and the inside track in bidding on such work year by year.

(2) He would soon have a reputation as an expert in that line of work, and be consulted by all contemplating such improvements.

I cannot cover in this letter the many ways in which the **AMERICAN BUILDER** can and will help you.

New Finishes

There is a move on the part of many manufacturers, especially of tools and builders' hardware, to avoid excessive advances, made necessary by the market conditions, on material and labor, by cheaper finishes. A hatchet or hammer can be just as good for service, if the quality is retained, even if some of the high finish or polish is omitted.

Finishes are coming out in builders' hardware that will stand the weather, yet be at a price very little in advance.

Alarmed at Shadows

The trouble with all of us is that we are merely children of larger size, and more or less equipment of hair and teeth. We all shy at shadows, as tho they were realities. You may remember that I mentioned in one of my previous letters how I was scared by the shadow of a cat.

I was working over my father's books one night.



What Is This Terrible Monster?—Only the Office Cat. This Is No Time to Be Scared of Shadows.

While the office of a lumber yard is a very lively place during the day, it is quite ghostly at night.

Those were the days before the electric light.

Hearing a noise, I looked, and was startled to see a fierce animal, such as a lion, ready to spring on me. For a moment I was "frozen stiff."

When I looked matters over, I saw that the frightful thing was merely the shadow of the office cat.

The lesson learned has been of great benefit ever since.

Before I become alarmed at danger, I find out if it may not be only a shadow.

I can say with an old friend of mine, I have had my troubles, most of which never happened. Also, all of us can say, I have been alarmed at many dangers, most of which were merely shadows.

Not a County, But the Country

One reason I feel like giving my best to the **AMERICAN BUILDER** is because it is not only an "ISER," but also a "COMER."

Every issue seems to me to come out with an elastic spring of life, like a sixteen-year-old going into a race.

Incidentally we are only in the entrance of our teens. Some kid!

I couldn't work for an undertaking establishment

(Continued to page 134.)



Noon Hour Talks by the Boss Carpenter

Talk No. 60—Farm Series No. 1, Design of Modern Granary

THE BOSS TELLS HOW TO FIGURE THE SIZES OF TIMBER TO USE IN A TWO-STORY GRAIN STORAGE BUILDING

“SEVERAL of our men,” said the Boss, “have been interested in building farm buildings and have met difficulty in determining the sizes of material to use in those parts of the structure which bear load or pressure. The general details of farm buildings intended for a given purpose are very much alike, but the sizes of studs, posts, beams and girders vary according to the size of the building, the general location of the compartments in the building, and the material contained in the compartments. Some buildings are intended merely as a storage space for articles which need to be kept under cover and exert no pressure on the walls of the building. Others are to be used for the storage of hay, grain, or other material which in addition to bringing weight on the floors may also exert pressure on the outside walls and upon the walls of interior bins or compartments.

“Each of these types is a problem in itself and must be treated in a different manner. Storage buildings of the first type must be designed to hold up the roof with its snow and wind load, and to carry this load to the foundations by the use of studding or posts. If the building is one story in height, the floor beams which are designed to carry a certain load will rest directly on the sills at the foundations. If of two stories, the studs or posts of the first story will have to be large enough to carry the load on the second story in addition to the roof load. The only lateral pressure on the side walls will be that due to the wind and may be provided for by proper bracing at the corners of this structure.

“If the building is of the second class, not only must the studding and posts take care of the stresses due to the downward loads, but must also be designed to withstand bending from the outward pressure of the stored materials. A building of this kind must have thoro bracing to prevent bulging.

“The small grain storage building shown in Fig. 1A is an example of the type of building just described. The size of the building is first determined by estimating the amount of grain or similar material to be stored and by the number of bins needed. Such details may be found from the following table of weights and the knowledge that one bushel contains about $1\frac{1}{4}$ cubic feet:

One bushel =	{	60 pounds of wheat.
		56 pounds of rye.
		56 pounds of corn.
		48 pounds of barley.
		32 pounds of oats.

Or, if the weights of these various materials per cubic foot of space occupied is desired.



Fig. 1A. A Modern Two-Story Corn Crib and Granary.

How to Figure a Two-Story Crib

1 cubic foot = $\left\{ \begin{array}{l} 48 \text{ pounds of wheat.} \\ 45 \text{ pounds of rye.} \\ 45 \text{ pounds of corn.} \\ 39 \text{ pounds of barley.} \\ 26 \text{ pounds of oats.} \\ 35 \text{ pounds of ear corn.} \end{array} \right.$

these bins is $\frac{10 \times 17 \times 11}{1\frac{1}{4}} = 1,500$ bushels.

"For instance, the capacity of each of the corn cribs shown in Figs. 1B and 1C may be found by multiplying the width of a crib, 8 feet; by its length, 40 feet, and then by its average height, 22 feet. This will give a capacity of 7,040 cubic feet. To reduce this capacity to bushels, divide 7,040 by $1\frac{1}{4}$. This gives 5,632 bushels for each of the side cribs.

"Each of the grain bins over the center driveway is 10 feet wide, 17 feet long and 11 feet deep. The capacity of one of

"The ground floor of this building is concrete laid directly on the earth, so it is not necessary to figure the strength of this floor. The floor over the driveway holds the grain in the two large bins placed there and consists of a tight flooring laid on 3 by 14-inch joists spaced 12 inches on centers.

"The size of these joists may be found by finding the vertical pressure on a strip of floor 1 foot wide and 10 feet long across the driveway, and figure that this uniformly distributed load is carried by one of the joists. We will use our beam

formula $\frac{p I}{e} = M = \frac{1}{8} W l$ as a basis.
(Continued to page 138.)

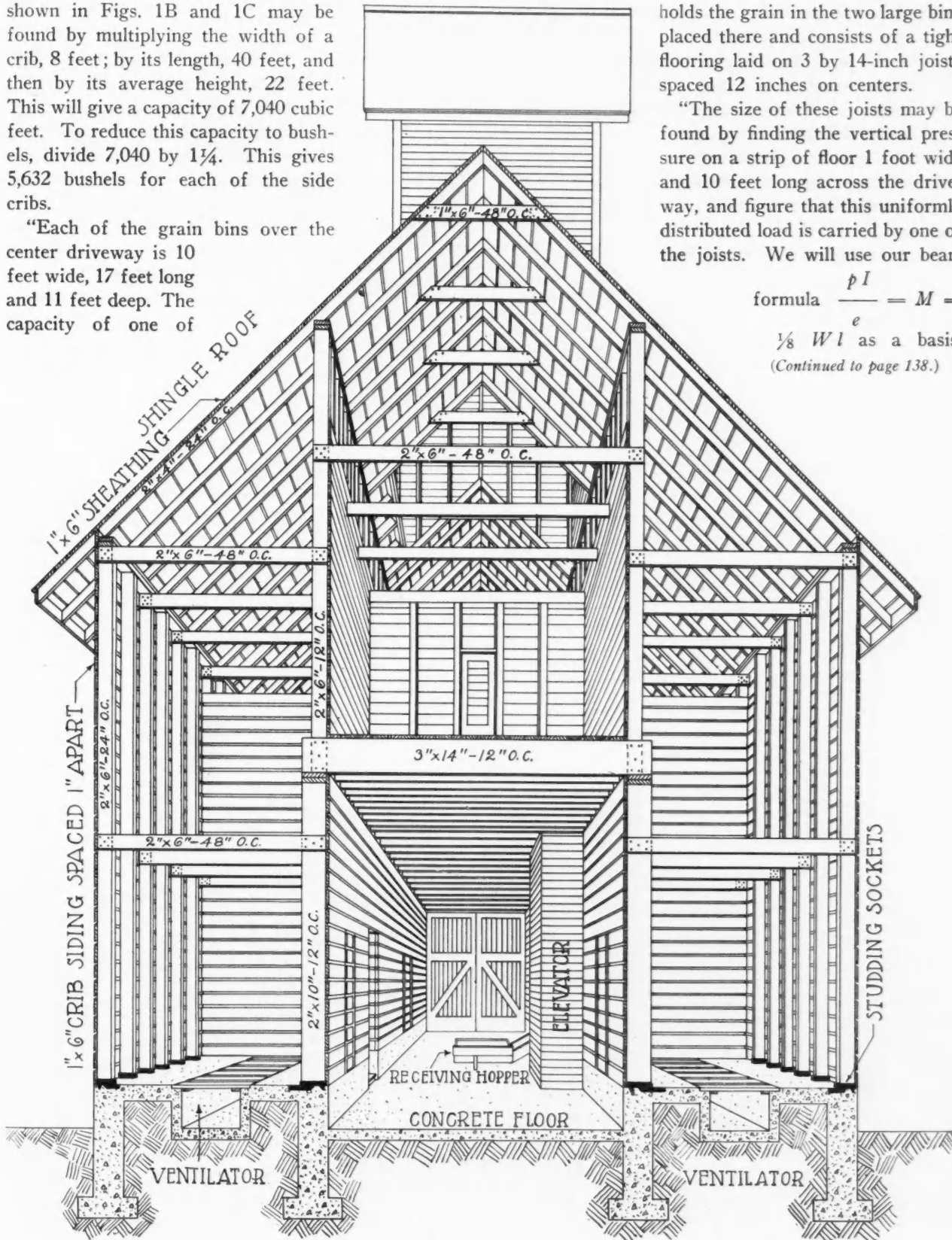


Fig. 1C. Section and Interior Perspective of Grain Storage Building, Showing Details of Framing.



High Barn with Leanto Stable Each Side

HERE IS THE MOST POPULAR BARN STYLE IN THE DAKOTAS

THE large general purpose barn, perspective view of which is shown below and plan and half-section of which are shown on the next page, was built by C. S. Stolp and John Trainor for H. E. Heine, of Ellendale, N. D. Messrs. Stolp and Trainor have built twelve barns of this design and they find it to be a very satisfactory type of barn for the farmers in their vicinity.

The size of the structure illustrated is 72 feet long by 66 feet wide, which gives a space 30 feet wide for the horse stalls on either side of which there is space

18 feet wide for the cows. A feeding alley 3 feet wide is extended the full length of the barn on each side of the center section and a feed bin is situated near the center of each of these alleys. The hay mow above has a capacity of 80 or 90 tons.

The roof of the barn is self-supporting, the weight of the roof at the trussed supports being carried by 6 by 6-inch posts set 8 feet on centers. These posts are 22 feet long in the main barn and a similar set of posts supporting the floor joists along the sides of the driveway is made up of 6 by 6-inch members,



General Purpose Barn Costing About \$4,000 Built by Stolp and Trainor, Ellendale, N. D., for H. E. Heine. This Building Represents a Type of Barn Which These Contractors and Builders Have Found Very Popular in Their Vicinity.

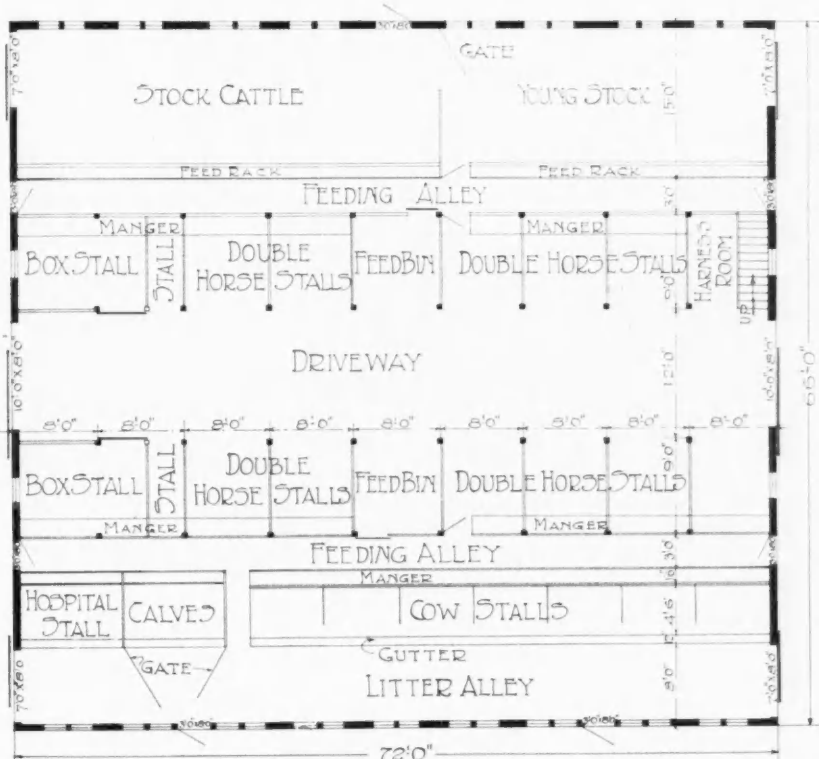
12 feet long. The central driveway is 12 feet wide.

There are eleven double horse stalls, two single horse stalls and two box stalls. A harness room and the hay mow stairs are placed at the end of one of the

Permanent Poultry House

The poultry house shown here is very easy to construct and when once properly built will last indefinitely. What is just as important, the walls of this building are easy to keep clean, since there are no cracks in which dirt and vermin can collect, provided care is taken to fill all of the mortar joints out flush on the inside of the walls.

A simple shed roof is used and the front wall is given over, for the most part, to the large windows



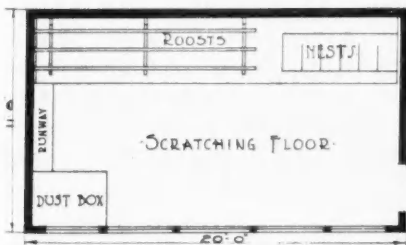
Plan and Half-Section of Barn Shown on Preceding Page. Interior Is Open to Facilitate Lighting. Self-Supporting Roof, 30-Foot Span for Main Part with 18-Foot Leanto Along Each Side.

rows of horse stalls. The cattle and young stock are allowed to stand loose in the space on one side of the horse stable and double cow stalls 7 feet wide, a calf pen and a hospital stall are provided in the space on the opposite side of the horse stable. A wide litter alley and runway is furnished on this side of the barn.

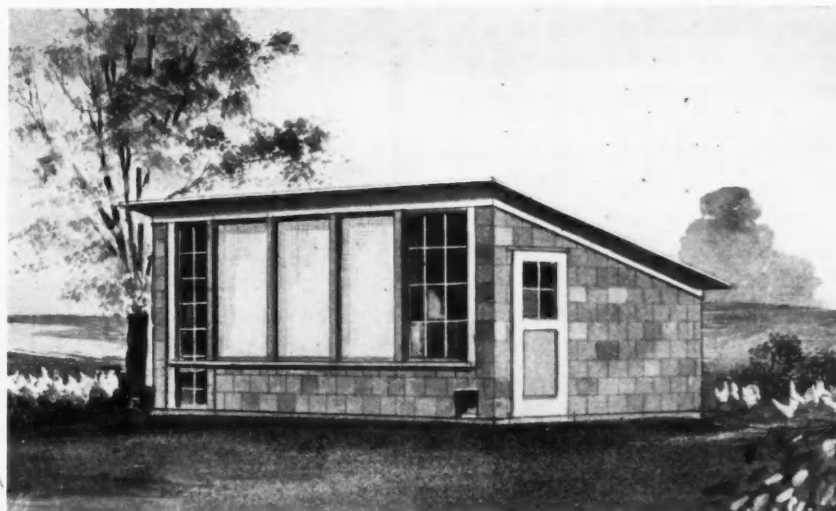
Since a large number of animals will be housed in this structure, it is absolutely necessary that special attention be given the ventilation and lighting. Three large capacity ventilators are mounted on the peak of the roof and suitable air ducts and vents are installed to handle the air. A large number of windows are placed in the outer walls which allow light to enter all parts of the open interior.

and the cheesecloth covered openings. The rafters are supported at the front on a plate mounted above the window frames. A wood plate is mounted on top of the block wall along the back to which the rafters are nailed. The roof of such a poultry house as this is usually covered with prepared roofing.

The principal features which determine the value of a poultry house are the ventilation, lighting and cleanliness. It is evident that each of these features has been given consideration in the design of this house.



Plan of Small Poultry House.



Poultry House of Concrete or Burned Clay Blocks. Plenty of Light and Fresh Air are Admitted to the Interior.

The building is as low as it is possible to make it without interfering with the movements of the attendant, which is a desirable feature.

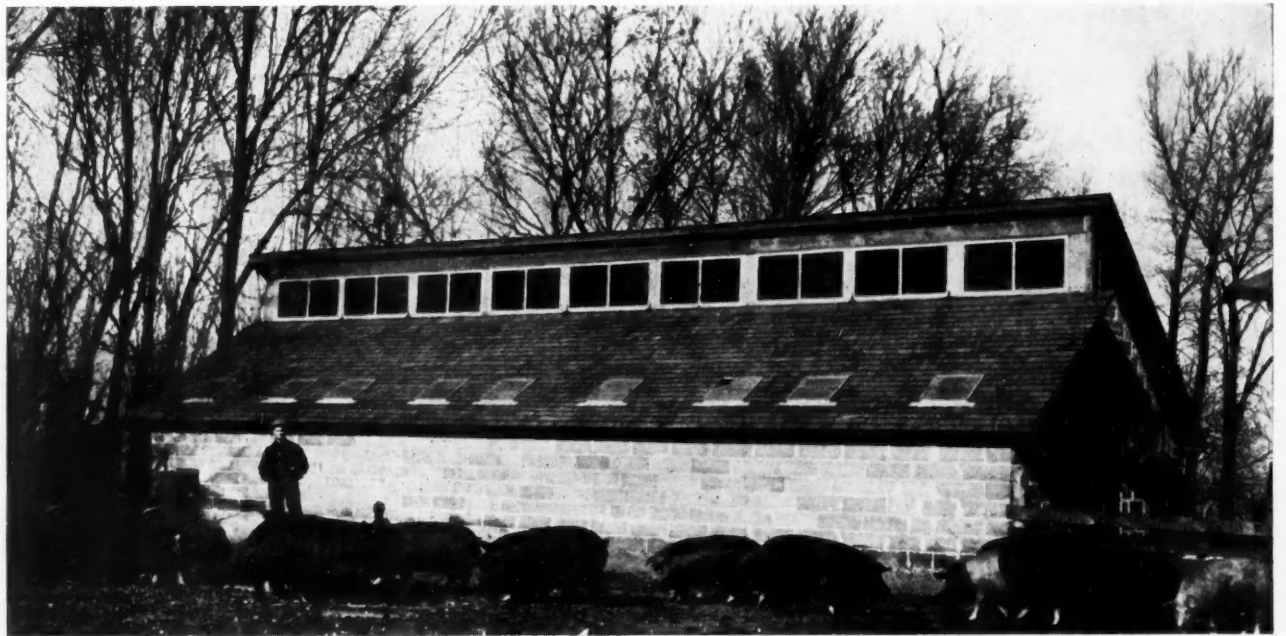


Concrete Block Winter Hog House

The winter hog house shown on this page is a substantially built structure owned by J. Hertsel, of Early, Iowa. This structure is capable of housing about 100 pigs. The pens are 6 by 9 feet in size, a size which has come to be more or less a standard, it being considered best practice to house not more than five or six

hog house is that it is cold and unsuitable as a place for animals to sleep on. Its other advantages, however, are sufficient to make it a necessity, and the difficulty mentioned is overcome by building movable wooden floors about one-half the size of the pens upon which the bedding is placed for the hogs to sleep on. The concrete floor is sloped to the feeding alley and a gutter is formed in it along the edge of the alley from one end of the building to the other.

The roof is supported at the center of the building by two bents, which are also used to define the center

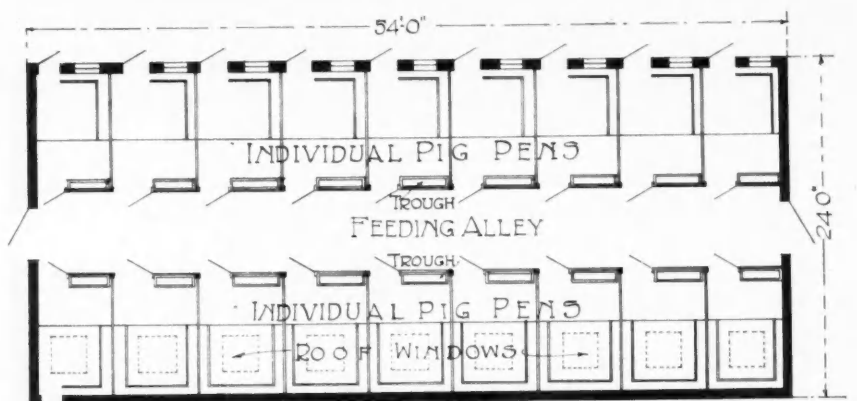


Sawtooth Roof Winter Hog House Built of Concrete Blocks. Building Is set to Face South, Which Admits Sunlight Thru the Two Sets of Windows Shown Here.

animals together in a pen. The pens are fitted with guards and troughs, and a gate is placed in each pen along the central feeding alley, which makes it easy to rearrange the animals at any time.

The roof of the building is of the sawtooth type. Two sets of windows, one in the vertical wall between roofs and the other near the bottom of the lower roof section, admit a flood of sunlight to the most remote corner of the building. These windows take the sunlight from the south, the building being placed on an east and west line. A third set of windows are placed in the north wall, this set being used to add to the effectiveness of the lighting when the light strikes the building diagonally. There will, of course, be no direct sunlight admitted thru windows in the north wall.

The floor is of concrete, which is almost a necessity in order that sanitary conditions may be maintained. The only objection to a concrete floor in a



Plan of Above Hoghouse Providing Eighteen Pig Pens Each Fitted with Troughs and Guards to Protect Small Pigs.

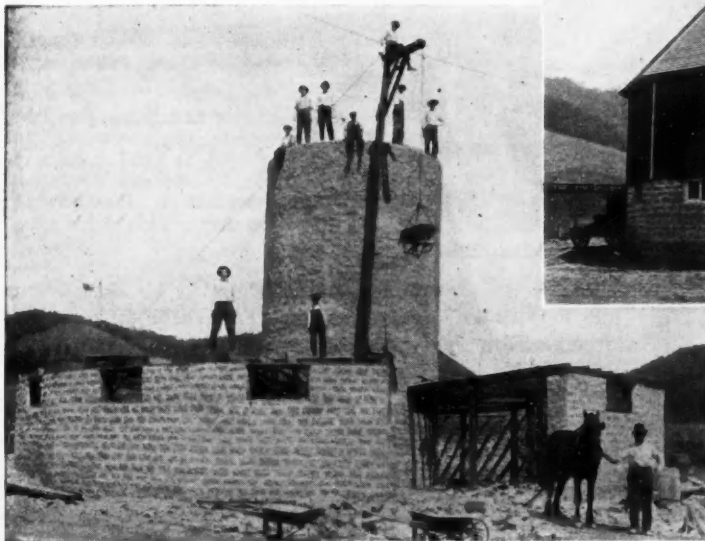
alley, the pen fencing being built in between the vertical posts. The higher bent also forms the vertical wall in which the upper set of south-facing windows is framed. This bent is built in two parts; the lower part is carried up to the elevation of the high end of the rafters in the lower roof section and a plate is mounted on the vertical posts here, upon which the rafters are placed; the upper wall, carrying the windows, is built up from this plate.

Fourteen-Cornered Dairy Barn

A barn which follows the round barn idea in arrangement, but which is somewhat unusual in several respects, is that of William Pfeiffer, Winona County, Minnesota. This barn has a plan outline which is a fourteen-sided polygon having a circular silo at the center of the figure. The basement wall and the silo are built of stone. All footings are of stone and the floor is concrete thruout. The steel cow stalls and stanchions hold the animals in a circle, facing the silo. A wide feeding alley in which a steel feed carrier track is mounted allows plenty of freedom in getting the food to the cows. The litter alley

has the equipment installed which is necessary in order that the work may be handled to the best advantage.

There is 8 feet 6 inches clear headroom in the feeding alley and 9 feet in the litter alley. The hay mow floor is supported at the center of the joists by a 6 by 8-inch girder mounted on 6 by 6-inch posts. The walls are 12 feet 6 inches high framed of 2 by 6-inch studs mounted on a 2 by 10-inch sill and surmounted by a

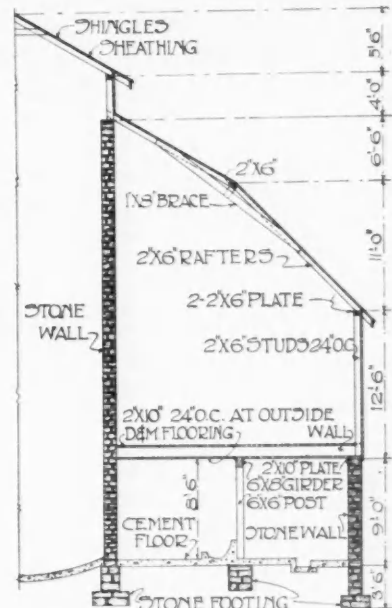
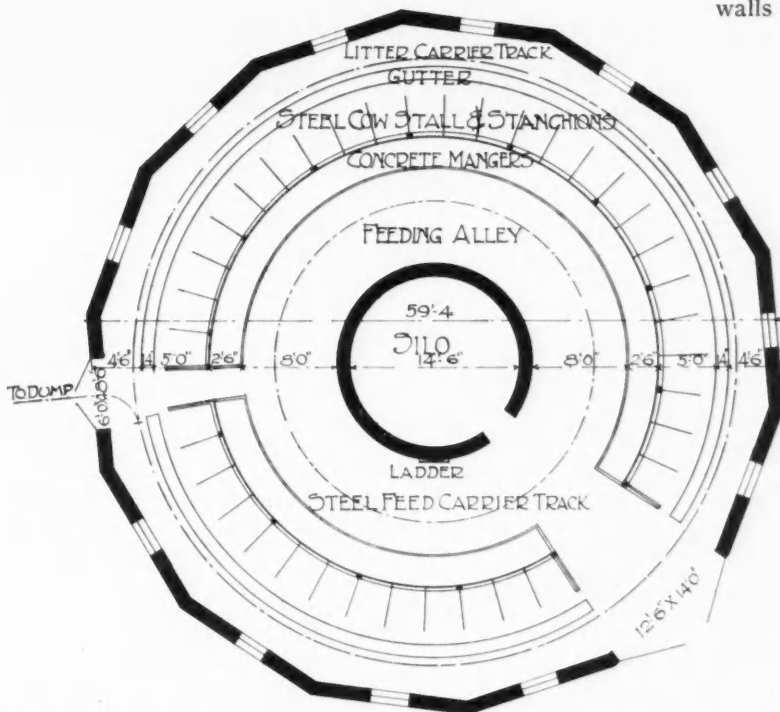


The Basement Wall, Silo and Footings Were Built of Stone. This View Also Shows How the Mow Floor Is Supported.



A Fourteen-Cornered Dairy Barn on the Farm of William Pfeiffer, Winona County, Minnesota.

plate formed of two 2 by 6-inch planks. The rafters are carried on this plate. The roof is self-supporting across the span from the top of the stone silo wall to the plate just mentioned. The rafters are 2 by 6's in two pieces, braced at the joint with a 1 by 8-inch tie with strut. The silo is roofed with a wood frame structure, louver boarding being used in the walls for ventilation.

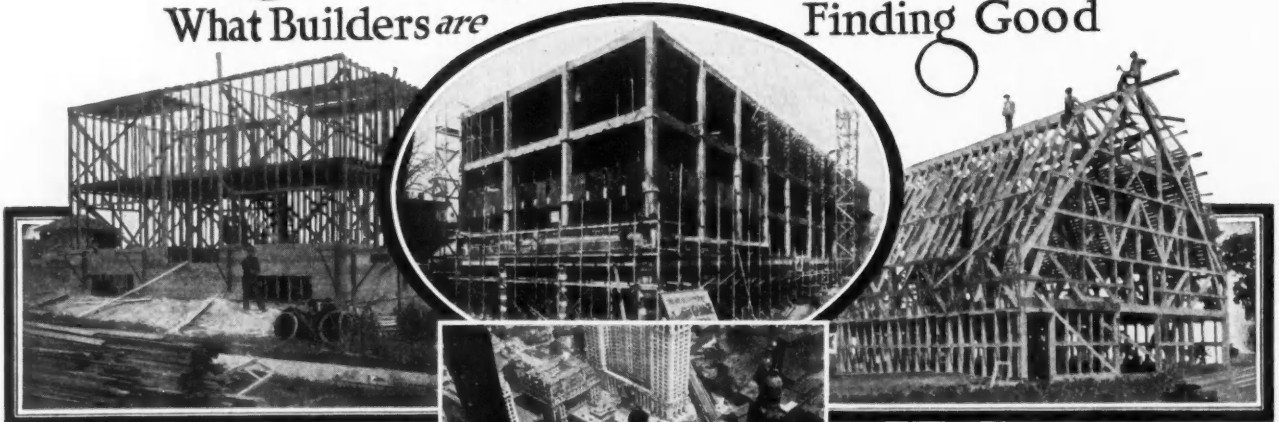


1/2 CROSS SECTION

Plan and Half-Section of the Above Barn. 38 Stalls are Arranged on a Circle with Cows Facing in. Large Feeding Alley is Good Feature.

OUT ON THE JOB

What Builders are Finding Good



EDITOR'S NOTE: The American Builder does not accept payment in any form for what appears in our reading pages. In order to avoid any appearance of doing so, we omit the name of the maker or

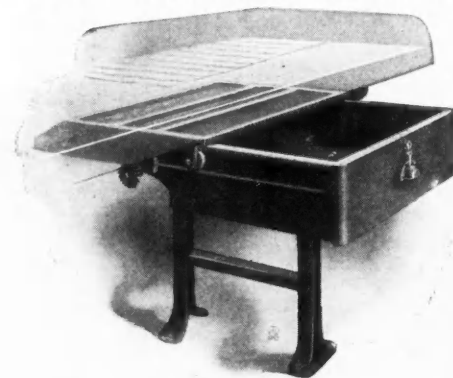
seller of any article we describe. This information is, however, kept on file and will be mailed to anyone interested; address American Builder Information Exchange, 1827 Prairie Ave., Chicago.

Fictionless Bench Drawer

The one outstanding virtue of the old wooden drawer is that it would not of itself damage edged or pointed tools thrown in carelessly. On the other hand, it had the recognized faults that its operation was generally far from smooth, it did not furnish complete exposure of contents without danger of

running off the slides and when heavily loaded it was not strong enough to resist the bending when fully opened.

The drawer illustrated is sold as a unit and is so applied by anyone capable of inserting a few screws. The



Bench Drawer Which Operates with Very Little Friction.

bench is not cut in any way and no assembling is required. The drawer may be moved from one bench to another without loss. In designing this drawer, the wood has been retained for the back, bottom and front. Fine edged or precision tools can therefore be laid in it without injury.

When shut and locked it cannot be entered or removed without breaking. The drawer runs on anti-friction rolls on finished surfaces, giving that smooth movement which prevents shucking disturbance, while cramping and wedging are prevented by a parallel motion mechanism consisting of cross shaft and pinions on racks. The racks are inverted so that dirt will not clog nor wear the pinions. A cylinder lock of good grade is provided with two individual keys. Master keying may be had at a small increase in cost, if desired.



Modern Building Instruments

Modern building construction calls for modern equipment. The contractor who has modern tools and instruments to work with has the edge on the other fellow who is still

mixing concrete by hand and leveling up his foundations with a spirit level and straight edge. Where there is steel to be placed or long buildings to be lined up and leveled off, a convertible level such as is shown in the illustration is a necessity if accuracy and dispatch are at all considered.



A Convertible Level is Coming to Be Considered as a Necessity in the Equipment of the Modern Building Contractor.

The up-to-date contractor and builder who uses instruments of this kind not only improves the standard of his work but he is able to check it up as he goes on and thereby eliminate errors as they occur. The result is the saving of money spent in the correction of errors and the value of good work, the best advertisement which any contractor or builder can have.



Rural Sewage Disposal Plant

Only a few years ago cesspools were the only outlet for the refuse of the house plumbing system, where a city sewage system was not available. Every home owner knows how unsatisfactory a cesspool is—always likely to “back up” and

constantly a menace to drinking water obtained from nearby wells.

Rural sewage disposal may now be taken care of with a septic tank system which eliminates the difficulties found in the old cesspool method. There is a steel septic tank system on the market which has been found to give excellent service. It is connected to the plumbing system by standard fittings. The sewage upon entering the tank is decomposed by bacterial action and changed to a liquid which in turn is automatically syphoned off into a filter bed. The system will work in all climates and in all soils. It requires practically no attention. The system is sold and installed by contractors and builders who find the system very much preferred, by the better class of suburban home owners, to the old cesspool.



Electrically Welded Wire and Felt Sheathing

The accompanying illustrations show a material which has been placed on the market to be used as a background for stucco or plaster and also as a reinforcing for short span slabs in roofs carrying light loads. This material consists of longitudinal and transverse 13-gauge wires on opposite sides of a sheet of tarred felt. The longitudinal wires are spaced 3 inches apart and the transverse wires are spaced 8 inches apart, the two sets of wires being joined at the crossing points by means of the electric welding process. Small holes are punched in the felt previous to the assembly of the wires, so that wires may be welded together thru these holes.

In applying the welded sheathing to studs, joists or other wooden supports, the material is securely stapled along each

support with 1/4-inch No. 14 galvanized wire staples, stapling being started at the center of the sheet and worked out toward the ends. Where stay wires fall directly over studs or joists, at least every third carrying wire is stapled thereto, but every carrying wire is stapled at the free ends of all sheets or in cases where supports come intermediate between stay wires. The material is given a side lap of at least 1 1/2 inches, while end laps are always made over a support and with the wires of both sheets securely stapled thereto.

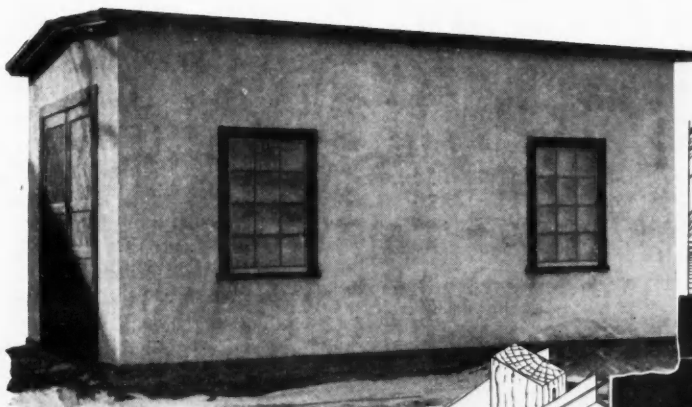
In concrete roof and floor construction the welded sheathing eliminates the use of forms as the material may be stapled directly to the joists and merely screened over with 1 to 1 1/4 inches of concrete or cement mortar. For light loads and short spans, welded sheathing provides both forms and galvanized wire reinforcement combined in one material.

In a recent test of two concrete slabs, one having a span of 24 inches and the other, 36 inches, center to center of supports, this construction carried a load of 300 pounds per square foot, uniformly distributed, at the age of about 60 days.

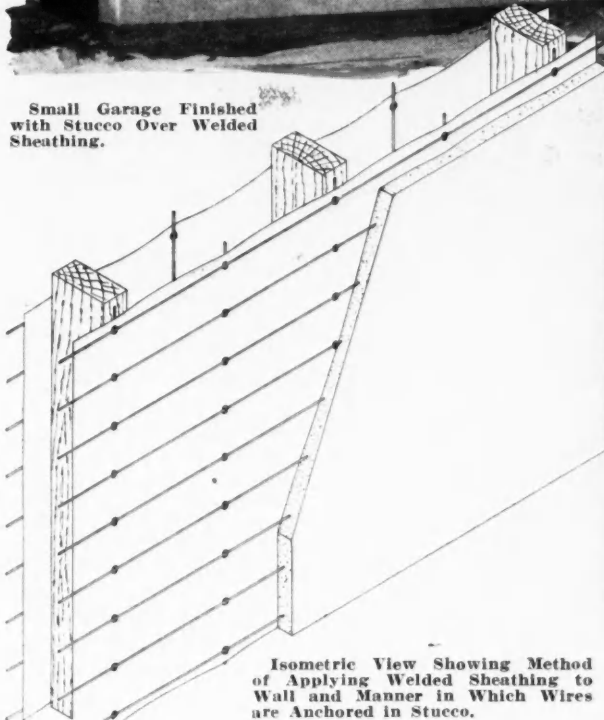


Automatic Window Sash Lock

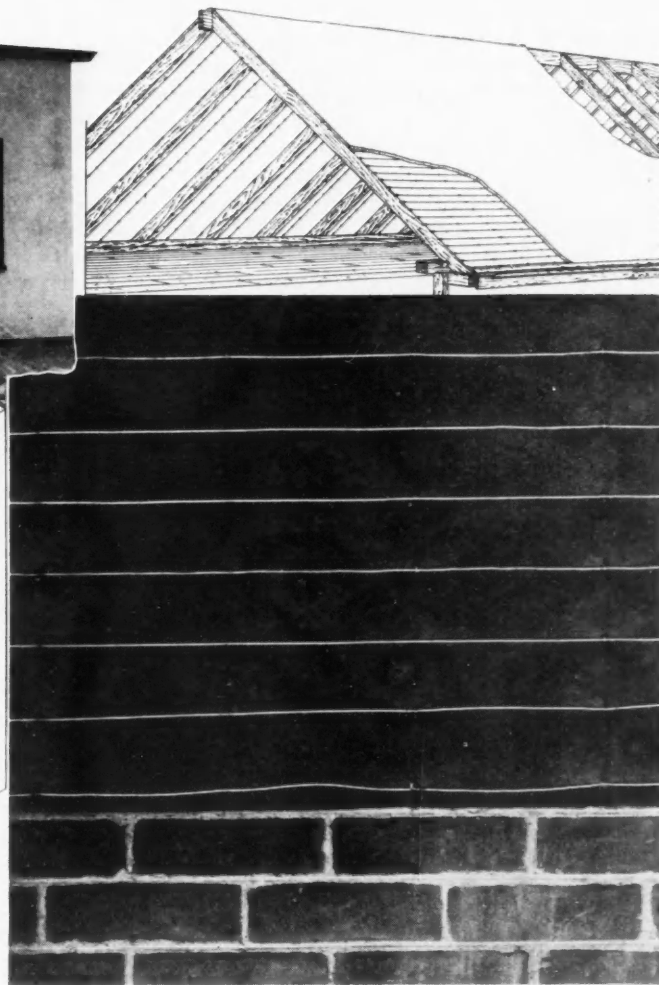
A window sash lock which is a departure from the old-fashioned type of lock is being manufactured by an Ohio firm. The illustration shows this lock and the method of its application to the window. By the nature of its construction and application, the device is automatic and self-locking; the window is always locked whether opened or closed. This feature forms the basis for several unique qualities which the device possesses.



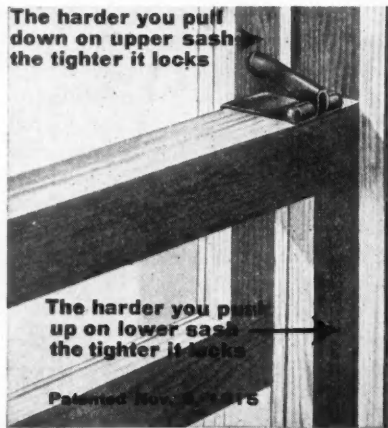
Small Garage Finished with Stucco Over Welded Sheathing.



Isometric View Showing Method of Applying Welded Sheathing to Wall and Manner in Which Wires are Anchored in Stucco.



Above—Welded Sheathing Used in Concrete Roof Slabs. Below—Appearance of Sheathing When Applied to the Wall Above Brick Foundation. Staples Hold Sheathing to Studs.



This Window Lock Works Automatically and Holds the Sash in Any Position.

is closed or opened. The harder the upper sash is pulled down or the lower sash raised up, the tighter it locks. This feature makes the window as nearly burglar-proof as it is possible to build it. The window may be left open for ventilation with perfect safety, and the annoyance of rattling is absolutely eliminated. The lock is also used on the bottom of doors to keep them open.



Farm Lighting Systems and Permanent Construction

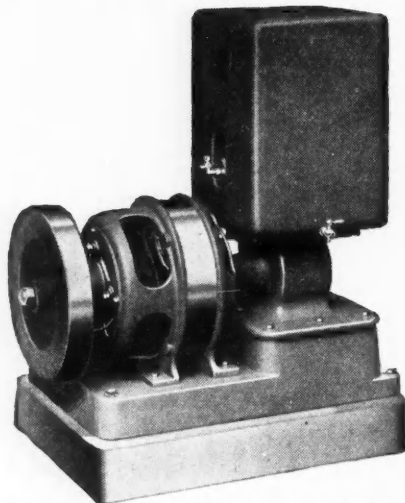
The idea of permanence in farm construction should embody, first, the construction of well-designed, long-lived buildings, but this should be supplemented with the installation of equipment which will permit the farmer to obtain the largest possible profit from his labors and the greatest possible pleasure from life.

The farmer long ago learned that when he builds his barn, every labor-saving device which will increase his net profit in handling his crop should be included. As a rule, he cannot afford to do by hand what can be done better and more quickly by machinery. He is only now learning that the same rule will apply in his home. Electricity, the great servant of the busy city housewife, should be allowed to lighten the burdens of the busy farm housewife.

Central power station electric and water service are not practical for the farmer, in most cases, but the individual plant will give him all this service. Washing, ironing, churning,

separating, running water, vacuum sweeping, by electricity are as practical on the farm as in the city.

From the standpoint of permanence, the electric system which the farmer installs must be carefully built, from high grade materials and following a design drawn up by experienced men who understand the requirements of permanence in lighting

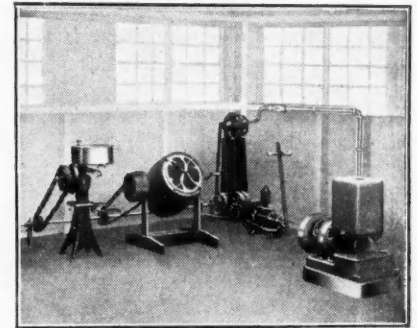


Electric Lighting Unit Consisting of Engine and Generator Mounted Together.

systems. A make-shift electric system has no place on the

farm built up on a basis of permanence. Regarding this point, there is one thing which should be carefully observed: On systems which require a storage battery, the success or the failure of the plant is largely determined by the quality of the battery equipment. A permanent battery can be had and will be furnished if insisted upon.

The position of the builder with respect to the relation between electric lighting plants and permanent construction is that his influence should be used to incorporate the electrification of farms in the building specifications.



Electric Power Will Cut Down Labor in the Dairy House.

✦

Ball Bearings for Floor Surfacers

In a self-contained power driven machine such as the floor surfacer shown in the illustration, there are several reasons why every effort should be made to reduce bearing friction to a minimum. Fundamentally, friction in the bearings of such a machine stands for the transformation of energy in

a useful form into energy in a non-useful and even harmful form. It costs money to produce this non-useful (heat) energy, just as it costs money for the energy which does the useful work for which the machine is designed. Furthermore, friction means rapid wearing out of parts, involving high maintenance expense. Excessive friction in this portable power driven machine, then, has several disadvantages which, when all summed up,

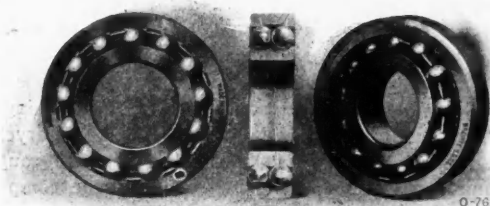


A Modern Floor Surfacer Which is Equipped with Ball Bearings of the Type Shown on the Following Page.

show up as an excessive cost per square foot of floor finished.

Practical tests have demonstrated that ball bearings will eliminate from 35 to 50 per cent of the friction which would exist in a plane bearing of equal capacity. There are several types of ball bearings on the market, but experience has pointed out to the manufacturers of the machine shown that the type illustrated here has advantages not found in any other.

This bearing is self-aligning and will absolutely adjust itself with the sanding drum shaft, no matter how uneven the

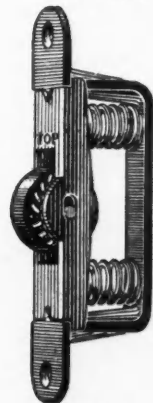


A Ball Bearing Which is so Designed That It Compensates for Uneven Floors When Used in the Surfacers Drum Bearings.

floor might be. Every builder will recognize the fact that the sanding drum must be so mounted as to be free to adjust itself to the boards, regardless of how the machine itself sits. The entire inner portion of the ball bearing used in this machine is made to act in the outer casing like a ball and socket joint, leaving it free to move in any direction.

Automatic Sash Holder

A sash holder which makes the use of sash weights, cords and pulleys unnecessary is shown in the accompanying illustration. Four of these holders are used on a double-hung window, one on each side of each sash. To install, the side of the sash or frame is mortised and the holder is inserted. Solid window frames are used for the labor and material cost of the pockets for weight-balanced sash is saved.



Sash Holder Which Eliminates Weights, Cords and Pulleys.

The holder is made of metal, reinforced where the strain occurs, and the springs are of special piano drawn wire, galvanized. The holder is invisible when installed. Three sizes are made, to accommodate a sash weight up to 35 pounds. For heavier sash, four holders are used to each sash. This type of holder is especially adaptable to old windows that have no weight pockets or other means of holding the window

in position. In any window, the use of these holders eliminates rattling.

Concrete Mixer with Hoist on Silo Work

The two illustrations show the efficient manner in which Harold B. Janke, of Fredonia, Wis., who is one of the largest silo builders in this state, handles concrete on his silo jobs. The machine which he uses is a combined mixer and hoist. He has three of these outfits in operation, two of which have now given over three years' service without trouble of any kind. The machines are very rigidly constructed and are also exceptionally simple to operate. The mixing capacity is from 5 to 6 cubic feet per batch.



These Views Show How Handy the Hoist is When Used in Silo Construction.

The hoist is mounted on the countershaft of the mixer and is operated by one lever; that is, both the hoisting and the brake device are operated by a single lever, in this way eliminating all possibility of confusion or mistakes that might result in accidents. The hoist has a capacity of about 600 to 800 pounds and can be made to hoist material at the rate of 75 to 90 feet per minute. An outfit of this sort could be used to advantage on a number of concrete building operations.

Garage Door Holder for Hinged Doors

The garage door holder shown in the accompanying illustration prevents the damage and inconvenience caused by swinging doors.

It holds the doors securely against the action of the wind or other agents causing the door to swing shut unexpectedly. By simply swinging the doors open in the usual manner to the angle at which the holder is set, the holder is engaged. A light pull on the chain and the lock is tripped. The door may then be closed in the usual manner.



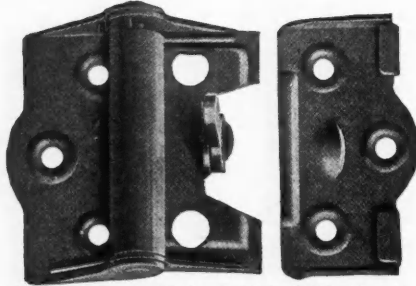
A Simple and Strong Holder for Hinged Doors.

The device is very simple and is strong enough to hold the heaviest garage door. It is made of wrought iron finished with japan or galvanized. Since it is placed high up on the door, it is entirely out of the way. When closed, the holder lies in against the door and would hardly be noticed. It is designed to work either right or left hand, as the case may be.

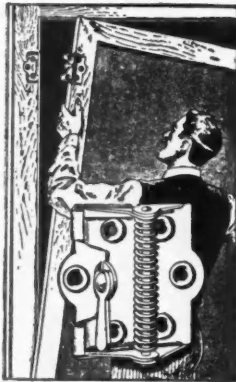


Quick Detachable Screen and Storm Door Hinge

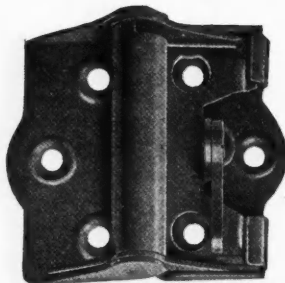
A semi-annual nuisance which has caused many a home owner to lose his temper is the search for the screw driver, screws or hinge pins which occurs when screen doors fitted with old style hinges are hung or taken down. It takes no argument at all to convince the home owner that detachable



The Two Parts of Quick Detachable Screen Door Hinge with Enclosed Spring.



No Tools are Required to Hang the Door. Inset Shows Hinge without Spring Casing.



Detachable Hinge Assembled on Door.

hinges having no loose parts are the proper thing for his screen doors. Builders may make friends by recommending or installing hinges of this type.

The illustration shows a quick detachable screen and storm door hinge which when once installed, requires no tools for subsequent placing or removal of the door and which has no loose parts which might be lost. It is a spring hinge made in several styles with and without covered spring. In hanging the door it is simply necessary to swing the lever into a horizontal position, slide the hinge together and swing the lever up into the vertical position.



New Wood Finish Has Many Qualities

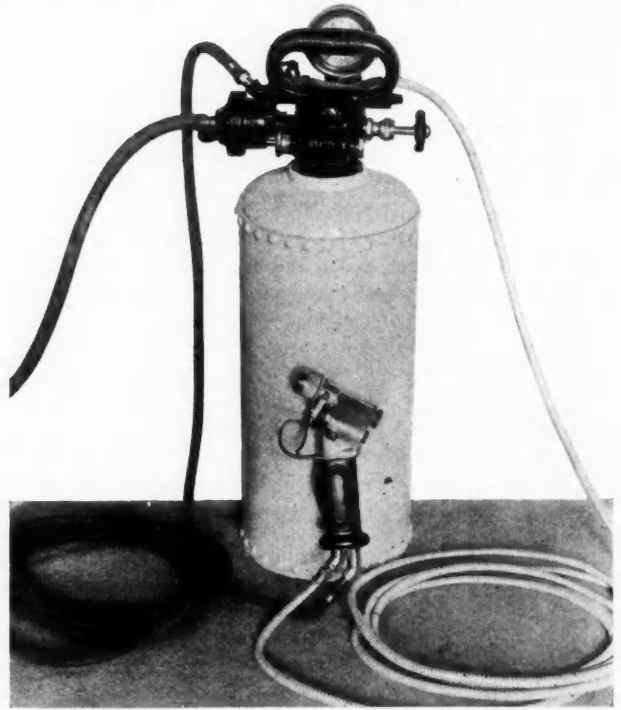
A wood finish has recently been placed on the market which is said to possess the good qualities of shellac, lacquer and varnish and which may be used to advantage in place of any of these. This finish is not affected by water, acid, alcohol, ammonia or heat in quantities or strengths such as might ordinarily come in contact with it. A coat of the new finish will dry in two hours. A fresh coat can be applied and sanded each day. Three coats are equivalent to one coat of shellac and two of varnish. A satin finish may be obtained by rubbing with pumice and water or oil on the fourth day.

The advancing prices of varnish and shellac have caused builders and painters to show considerable interest in this new finish.

Paint Gun Which Applies All Grades of Paint

A paint gun which may be adjusted for spraying all grades of material from light varnishes and lacquers to heavy asphaltum and structural paints has been developed at Boston, Mass. The equipment consists of the paint gun proper, connected by flexible tubing to a portable unit combining in a compact, rugged form, the material container, air dryer and strainer, pressure control attachment and pressure gauge.

The unit is connected by a single hose to the compressed air supply, which should be from 35 to 75 pounds per square inch, depending upon the nature of the material used and the sort of finish required. The gun has two adjustments: The



Complete Paint Gun Outfit Which, When Connected to a Suitable Compressed Air Supply by Heavy Tube Leading Off at Left, Will Spray Any Grade of Paint.

round cap at the nose, which screws out or in, regulating the amount of material, and the knurled stem which screws out or in to control the amount of air. The control trigger acts on both air and material, regulating the amount sprayed from nothing to the full amount for which the adjustments are made.

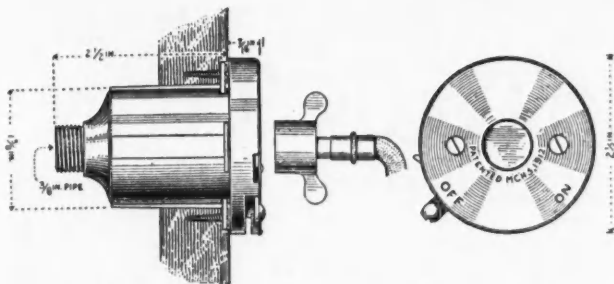
The control head includes a pressure gauge showing the air pressure on the main supply line and also on the material in the pressure tank. An adjustable reducing valve is provided by which pressure on the material may be varied at will. This valve also permits the use of the gun with relatively low pressure on a high pressure supply line.



Safe Connection for Portable Gas Appliances

The principal objection to portable gas appliances, in the past, has been centered in the unsightly and unsafe tubing and connections which were used with them. Investigation has proved that the use of properly installed and regulated gas appliances in a room has no harmful effect upon the air in the room. What is more, the ventilation of a room is benefitted by the use of such fixtures and appliances.

The device shown in the accompanying illustrations forms the basis of a universal and interchangeable system for connecting portable gas appliances, which combines appearance,



Baseboard, Wall or Floor Connection Plate and Union Which Forms the Basis of a Safe System of Connecting Portable Gas Appliances.

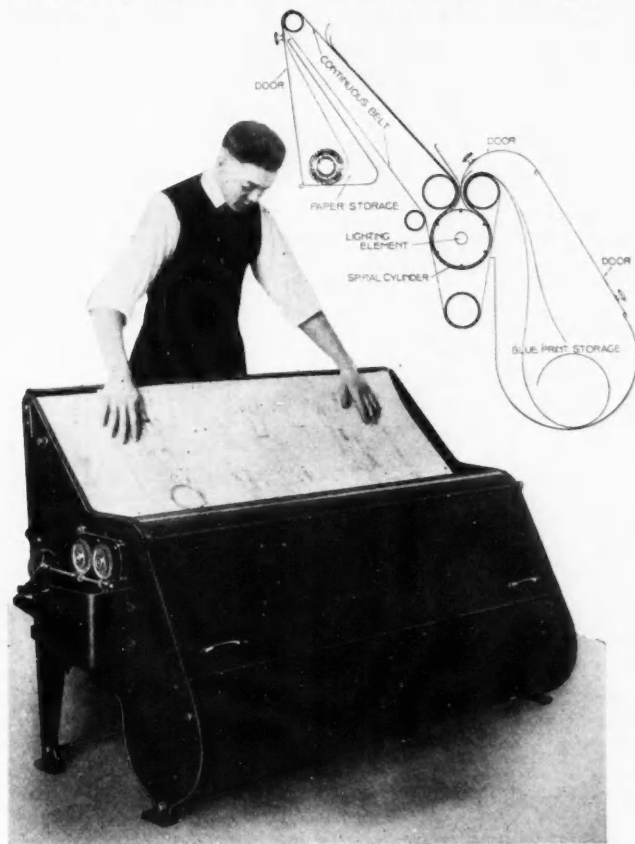
safety and convenience. The fixture or "plate" is a gas outlet or connection designed for baseboard, wall or floor. The union which is a part of every outlet fixture will also connect to any ordinary gas cock or fixture by means of special adaptor fittings. The system may be installed in any part of any room in houses already built or under construction.

The fixture fits as gracefully into the most elegantly furnished rooms as into those of the more modest homes. The metallic union or hose coupling takes the place of the unsafe rubber slip-end. The tubing used is gas proof and practically as safe as iron pipe; it will permit the gas to stand in the tubing without leaking. The gas cannot be turned on at the plate unless the tubing is attached. Neither can the tubing be accidentally detached or pulled off while the gas is on.



Electrically Operated Blue Print Machine

The electrically operated blue printing machine shown in the accompanying illustrations has been designed by a Michigan firm especially to give economical and effective service. The drawing shows how the machine will print either con-



An Electrically Operated Blueprint Machine Which Will Print Either Separate Sheets or Continuous Rolls. Its Simple Operation is Shown in the Drawing.

tinuous rolls or separate sheets, the paper traveling with the feeding belt on an incline with the tracing, which is carried to the feed roller and around the printing cylinder, in which is mounted the lighting element. The paper is then delivered to the light-tight storage compartment and the tracing comes back to the operator. Any desired length of blue print can be made in any width from 2 to 48 inches.

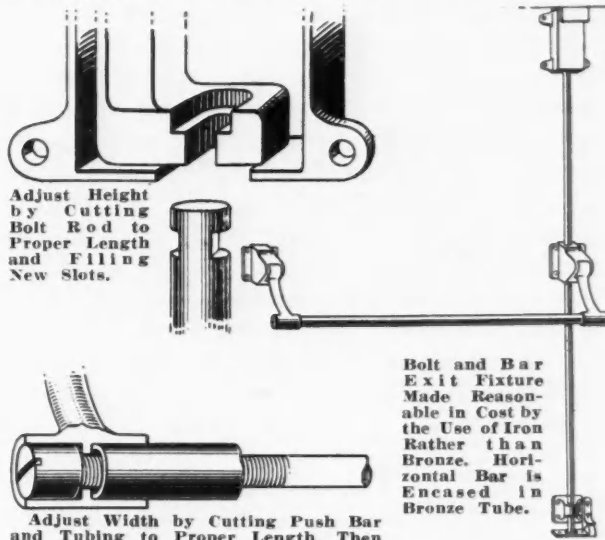
The total current consumption of the machine, including the lighting element and the motor at 110 volts, is only 5 amperes. The light is obtained from a mercury vapor lamp, which is no harder to maintain and operate than an ordinary incandescent lamp. By centering this lamp in the printing cylinder, the light is always 2 inches from the paper during the printing process, which results in assured uniformity of exposure and maximum lighting efficiency.

The printing cylinder which surrounds the lighting element is composed of longitudinal and spirally disposed wires, woven right handed at one side of the center of the machine and left handed at the other side. The action of this cylinder in operation is to iron or spread the tracing out, giving a perfect contact between the tracing and the paper. The machine does not require a darkened room because the light-tight compartments do away with this necessity.



New Bolt and Bar Exit Fixture

A new anti-panic exit fixture which is made to provide a fixture of this type at a reasonable cost is shown in the illustrations. It is made of iron, with bronze tubing covering



Adjust Height by Cutting Bolt Rod to Proper Length and Filling New Slots.

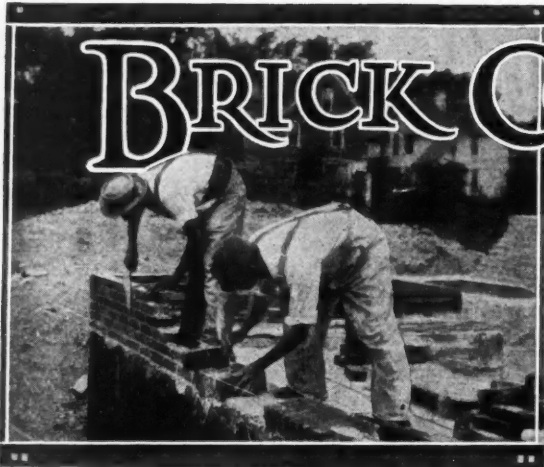
Bolt and Bar Exit Fixture Made Reasonable in Cost by the Use of Iron Rather than Bronze. Horizontal Bar is Encased in Bronze Tube.

Adjust Width by Cutting Push Bar and Tubing to Proper Length, Then Reassemble.

the horizontal bar and is light, quick acting, simple in design and easy to attach. The bolt regularly supplied is for doors 8 feet 6 inches high by 3 feet wide. The illustrations show how it is possible in applying the devices to fit them to narrower or shorter doors by shortening the bolt rod or push bar.

When the bar is depressed, withdrawing the bolt heads, they are held in a retracted position until the door is again closed, contact with the strike releasing the bolts and projecting them into the strikes. This provision prevents the bolt coming in contact with the floor or sill. The fixture is especially useful for country school houses or small auditoriums where the law requires free exit and bronze metal fixtures would be too expensive. The small cost makes it possible to adopt them in places where panic is not possible, but where the lock-out function coupled with a ready exit are required, as on doors to store rooms, laboratories and other such rooms.

The American Builder Information Exchange will be pleased to furnish on request the name and address of the parties responsible for any of the interesting novelties or improvements described in these columns.



BRICK CONSTRUCTION

for Modern
Carpenters
and Builders



How Do You Figure What Your Buildings Cost?

By Matt. L. King

DO you figure first or last cost—or do you figure what your buildings cost per year? The latter is the right way. You should add the first cost, divided by the length of time the building will last, to the annual cost of paint, repairs, taxes and insurance. This will give the actual cost per year.

Of course you know there are some things insurance cannot cover, even tho you collect enough from the insurance company to replace the buildings—the inconvenience of rebuilding, upsetting your plans for the season, and “getting along” until the new buildings are ready. A FIRE IS ALWAYS A LOSS TO YOU.

Break away from the habit of building as your father was forced to build. In his day, wood was cheap and clay blocks had not come into general use and brick were more expensive than today. This condition made burnable material logical. My father drove a yoke of oxen and built his barns of wood. He used the best he could get. Farming has progressed—you should keep posted on the latest you can get, building with permanent materials.

The original cost of a permanent clay building is little if any more than a burnable structure, and the upkeep is much less. Even if the total cost of the permanent building were more—one could borrow the money and by paying on the loan what you would otherwise have to pay for paint and repairs, return the loan with interest in a short time.



Number of Bricks per Square Foot of Wall Surface

By N. M. Stineman
Assoc. Mem. Am. Soc. C. E.

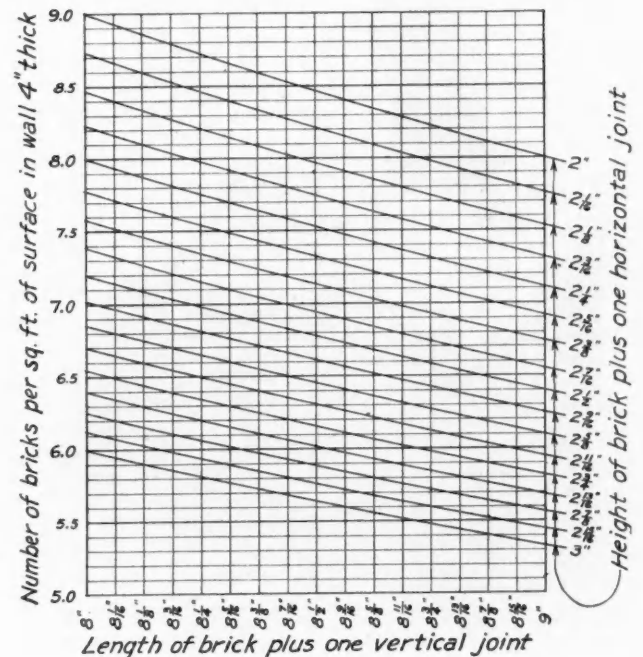
THE accompanying diagram for determining the number of bricks per square foot of wall surface does away with the necessity of juggling around with awkward common fractions, and with the consequent mistakes that are almost sure to result.

The diagram, if carried around in a note-book or tacked up near one's desk, is a convenient, accurate,

and time-saving device. It is applicable to any ordinary size of brick, and any thickness of joint, this being possible from the fact that the space occupied by one brick in a wall is equivalent to the area of the face of the brick, plus one horizontal joint, plus one vertical joint. Thus the length occupied by a brick in a wall is equal to the actual length of the brick plus one vertical joint, and the height occupied is equal to the actual height of the brick plus one horizontal joint.

With these total dimensions in mind, it is necessary only to enter the diagram at the bottom at the proper point, follow a vertical line to the proper diagonal, and extend horizontally from this point to the left of the diagram, where the answer is read. The range of the diagram covers a scope wide enough to apply to any ordinary sizes of bricks and thicknesses of joints.

Example to illustrate use: Assume a brick $8\frac{3}{8}$ in. long and $2\frac{1}{4}$ in. high, vertical and horizontal joints



BRICK-COMPUTING DIAGRAM



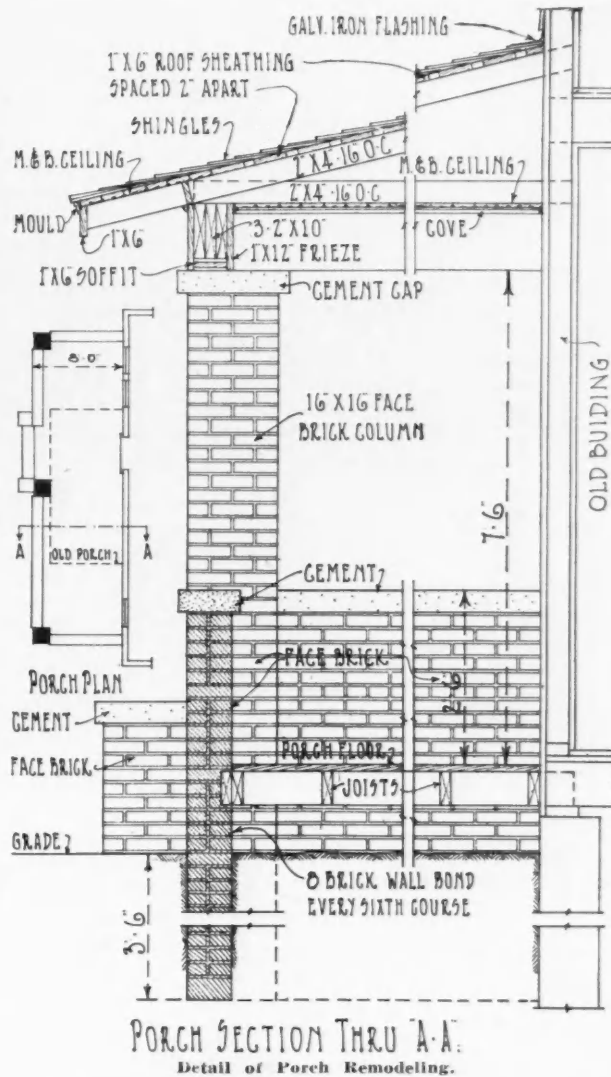
This House is Good for Many Years to Come, but It Needs a New Porch and Needs It Badly.

5/16 in. and 1/4 in. thick, respectively. The length of brick plus one vertical joint is 8 11/16 in., and the height of brick plus one horizontal joint is 2 1/2 in. Enter the diagram at the bottom, at the line marked 8 11/16, extend vertically to the diagonal line marked 2 1/2, and from this point extend horizontally to the left of the diagram, where the answer is found to be 6.63 bricks per sq. ft. in wall 4 in. thick.



Puts a New Face on the Matter

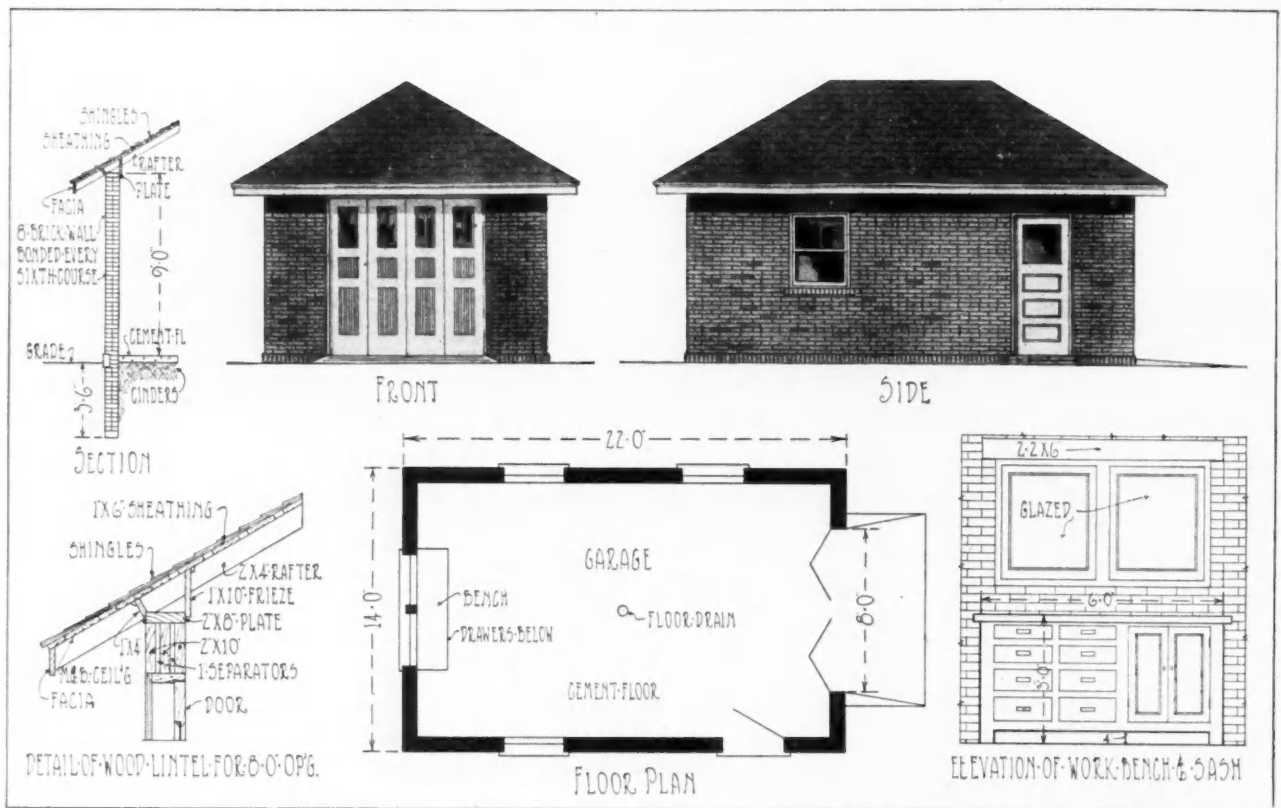
MR. B. T. COLE, of Thomson, Ill., has been feeling for some time that the floor, posts and roof tied to the front of the house shown in the upper left-hand corner of this page could hardly be called a porch. His feelings on this matter prompted him to call on the Architectural Department of AMERICAN BUILDER. The view below seems to put an entirely new face on the matter.



After Mr. Cole Has Built of Face Brick, Concrete, Mortar and Wood What the Artist Has Pictured Here, This House Will Need No Apologies, Even When Winter Strips the Curtain of Leaves From the Trees in the Front Yard.



BEAUTIFUL BRICK FIRE ENGINE HOUSE. This fire engine house is distinctive, both because of its architectural design and because of the novel method of building up its face brick walls. It is situated at Richmond, California. Two kinds of face brick are used, the darker in color being laid in the lower walls with the lighter colored wall above. The color contrast between the header and stretcher brick in the upper wall is very effective.



ONE-CAR BRICK GARAGE. This one-car garage is an easily-built structure which will fully meet the requirements of permanence, is reasonably fireproof and will cost practically nothing to maintain. The walls are of face brick laid in common bond above the header course at grade. A simple hip type roof is used, which may be covered with any desired roofing material. A work bench and cabinet is shown as a suggestion for convenience.



Beautiful Brick Veneer Home. Size, 28 feet by 31 feet. Contains Five Rooms, Bath, Pantry and Four Large Closets.

A Substantial House of Brick Veneer

The builder is ever on the lookout for things which will enable him to satisfy the disposition of his various clients. This design will appeal to the builder in more than one way.

The framing of the house is constructed in the usual way with 2 by 4-inch studs. The sheathing is of 7/8-inch lumber. The inside is lathed and plastered in the customary manner.

Brick veneering is used over the sheathing in place of weatherboards. For this veneering beautiful face brick are used. The brick veneer is held fast against the studding by metal ties. These are short metal strips which are fastened to the studding and extend out into the mortar joints. There is one of these metal ties at ever fourth course of the brick in height and the other way they are the same distance apart as the studding.

The house is not only attractive because of the particular architectural design embodied in it, but further than this it has a neat and well-balanced appearance brought out by the face brick veneer.

The living room is large and the front door enters directly into it. This is popular today, especially where the living room is so exceptionally large as in this instance.

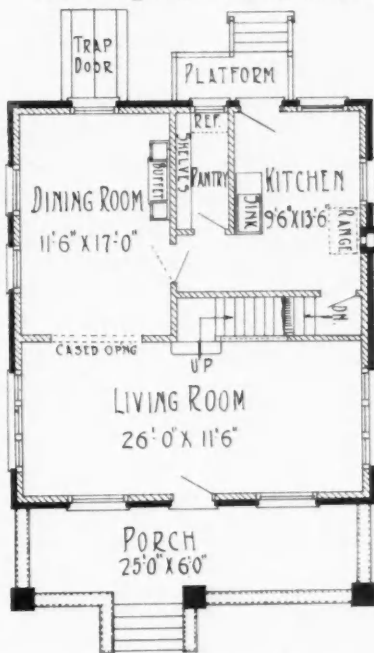
The stairway to the second floor is built back in the wall of the living room which separates this room from the

kitchen. The arrangement, besides giving a neat appearance to the large living room also makes an excellent place for the stairway going down to the cellar. Other arrangements would make it necessary to take space for the cellar stairs from either the kitchen or the living room. The groups of three windows on either side of the living room make it light and cheerful, a thing appreciated by everyone.

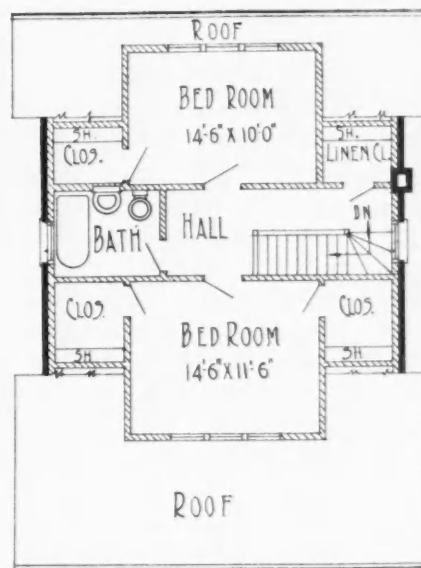
The dining room with a buffet built

on the side wall has the advantage of a direct connection with the kitchen, at the same time the rooms have been arranged so that there is a nice large pantry between the rooms which can be reached as easily from either.

The second floor, tho simple, is very conveniently arranged. Both of the chambers have a group of three windows, are large and have very large closets, things which should never be neglected in any well designed house.



First Floor Plan.



Second Floor Plan.

Arrangement of House. Size 28 feet by 31 feet.



Quality and Grades of Material

WHERE SOFT BLOCKS MAY BE USED AND WHERE THEY SHOULD NOT BE USED—TWO SIMPLE TESTS FOR ABSORPTION

By Matt L. King

THE discussion of quality should be started with a frank understanding that all manufacturers of any and every material make two kinds of stuff. One is good and the other is poor. One of the important matters and one which is pretty well taken care of by clay manufacturers is to send the poor material to the scrap heap.

Among the good blocks we find some that are good for any purpose and some that are good only for certain purposes. Some are attractive for face material. Other grades, while a little off in color, are entirely suitable to meet the most rigid requirements as to strength and permanence.

In practically every kiln of material there will be found still another grade, that is medium or soft burned. This ordinarily does not materially affect the strength of the material. But such material will absorb more or less moisture and therefore is not fit to be placed near the grade line, or where it will, while wet, be subjected to a daily freezing and thawing which occurs in the spring and fall.

Color is not a very reliable indication of hardness or absorption. Of course, if you are comparing different qualities of material made at the same plant, then color becomes quite an important item.

There are, however, a few general specifications that should be observed in the purchase of clay material for various purposes. The questions of color and character of surface are questions of personal taste that must be handled separately by the purchaser. The question of strength for ordinary purposes will take

care of itself in that any sound block is strong enough.

The principal question to be considered is that of absorption and it is of importance only as above stated, where the block is subjected to daily freezes and thaws while damp. It is customary to specify for brick to be placed under trying conditions that its absorption shall not be greater than 12 per cent.

There is perhaps occasion for slightly more rigid specifications with building tile, and for years it has been my custom to specify that blocks exposed to the weather should absorb 10 per cent or even less of moisture. Ordinarily it is only necessary to specify to the dealer that material of a certain absorption is desired or that it is to be used for external walls.

If, however, it is desired for any reason to conduct an absorption test, it is a comparatively simple matter and no special apparatus is necessary. If there are no more convenient means for conducting the test it may be done as follows:

Place the block to be tested in an oven in which the temperature can be kept higher than the boiling point of water. The fire should be kept up for at least 48 hours.

When the block is thoroly dried by this process, it should be weighed. It is not necessary to have expensive or unusual apparatus for this purpose. Use a spring balance or family scale, in fact anything that will weigh to an ounce. After weighing and making note of this weight, place the block in water.

At the end of 24 hours wipe it and weigh it. Put it back in the water and weigh it at the end of another

24 hours. At this time it will have absorbed practically all that it will absorb, but can be put back into the water for as many periods as desired or until it will not increase further in weight. Wipe it and weigh it again.

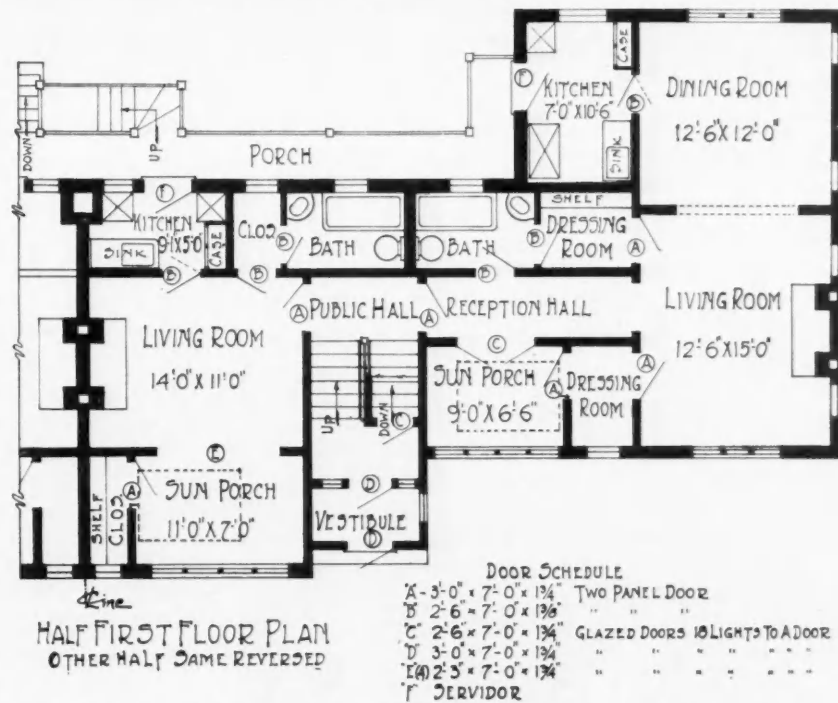
Take the difference in the dry and wet weight and divide the dry weight into this difference. The result will be the percentage of absorption. Any other blocks in the same shipment can be judged as to their absorption simply by their color and general appearance.

If you happen to be near the factory the block taken directly from the kiln will of course be absolutely dry and will save the first part of this job as described above.

After a man has experience in these materials he will break off a piece of dry block, touch it to his tongue, and get a pretty fair idea as to absorption. A vitrified material will feel to the tongue like glass or other non-absorbent material, while a soft material will cling to the tongue slightly. A little practice will give a very fair idea in this way.

High Grade Apartment Building in Small City

THE fact that apartment buildings are being found a profitable investment in small cities is becoming more and more evident every day. High grade apartment buildings are being constructed in these cities and their advent is enthusiastically welcomed

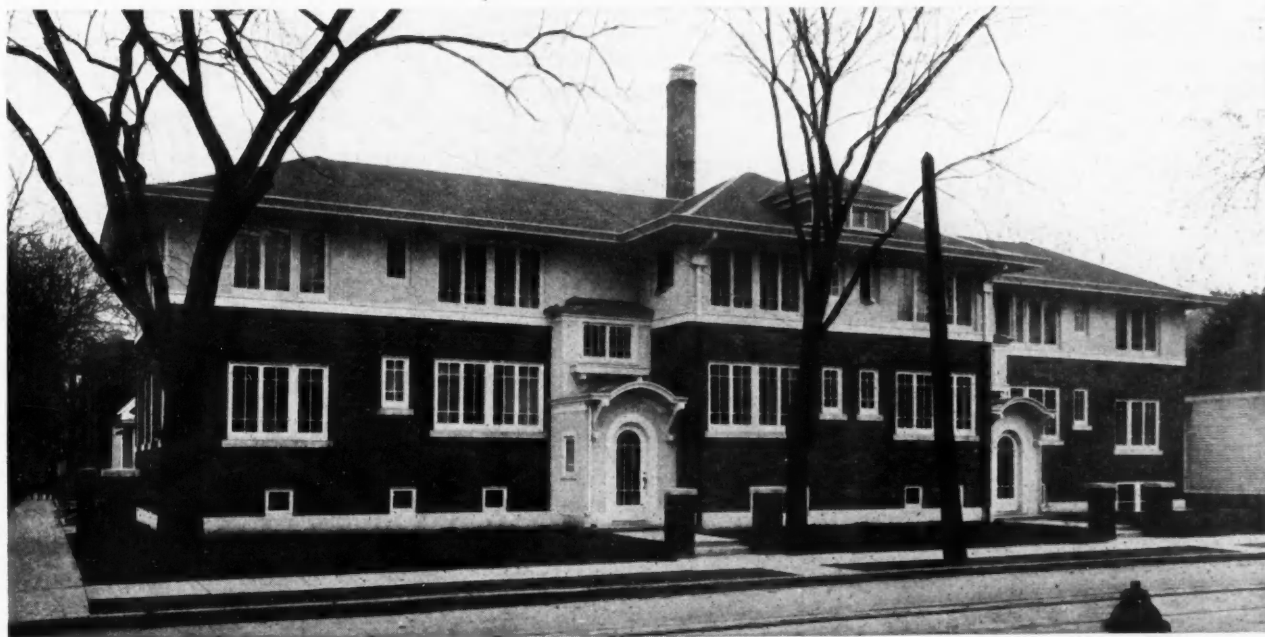


Half First Floor Plan of Olmsted Apartments at Green Bay, Wisconsin, Which Represents Modern Small Apartment Arrangement.

by everyone concerned.

The building illustrated below is an excellent example of the high grade type of construction used. This apartment building is the property of Dr. A. O. Olmsted, of Green Bay, Wis. It was designed by Carr & Walsh, architects, and the structural tile used in the construction of the exterior walls and the central dividing wall was furnished by F. Hurlbut Company.

The walls are built of tile having a fine matt surface on the first story and the second story walls are scored face tile plastered with stucco on the exterior.



Beautiful Apartment Building Owned by Dr. A. O. Olmsted at Green Bay, Wisconsin. Walls are of Fine Matt Face Tile Below and Stucco on Tile Above.

Securing Trim to Hollow Tile

IT'S AN EASY THING TO DO AND HERE IS HOW IT IS DONE

By J. J. Cosgrove

"I WOULD sooner fasten trim to a building of hollow tile than to a building of any other form of construction—if—and herein lies the nub of the entire situation, if the building is properly constructed for the purpose."

It was a building contractor just completing a dairy depot who spoke, and he was filled with his subject, for the building had to be fitted with shelving and hooks and brackets, as well as with trim, and he would have had a bothersome job had it not been



Milk Depot at Greenville, N. J., Constructed of Hollow Tile.

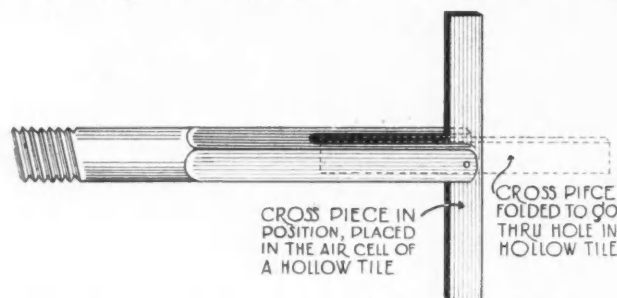
for his knowledge and forethought when building the walls.

"All you need to do is put in a little time and study planning the work," he continued, "and this brings us to something not generally known and not always taken advantage of by builders.

"To the ordinary layman, and to many who ought to know better, hollow tile is hollow tile. In appearance, 'tis true, the different grades look very much alike, but there is a vast difference in their properties. Just look at these spalls," and he handed some fragments of hollow tile around to the crowd which had gathered to listen.

"As you will observe, they are of different densities. One is known as a *dense* tile, another as *porous* tile, and the remaining one as *semi-porous* tile. Each grade has its own particular and peculiar field of usefulness, according to the properties it possesses.

"Dense tile has a very dense texture and possesses a low degree of absorption. It is not materially



Fixture Which is Inserted Thru Hole in Tile After Which Cross Arm is Swung Around, Preventing Its Withdrawal.

affected by exposure to the elements, and as it possesses great crushing strength makes a good material where heavy loads must be carried, as, for instance, the bearing walls of buildings.

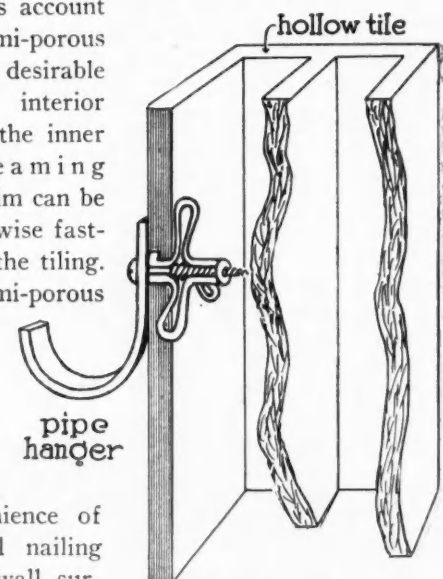
"Now notice how porous this piece of tile is. This is made by mixing sawdust with the plastic clay. In the intense heat of the kiln the sawdust is burned away leaving the tile full of little cells like those of a sponge.

"Semi-porous tile, the one you are holding, is made by mixing finely ground coal instead of sawdust with the plastic clay. The coal burns out during the process of firing, leaving the tile of a porous texture.

"Porous and semi-porous tile have a wide range of usefulness. Owing to the cells they contain they will absorb a large amount of water, so are not so suitable as dense tile for exposed places in cold climates where alternate wetting and freezing might soon destroy the material. When used in the interior of a building, on the other hand, they are at their best. Owing to their porous textures nails and screws can be driven into them, and what is equally important, the nails or screws will hold as well as tho driven in

wood. On this account porous and semi-porous tile are very desirable materials for interior partitions and the inner courses of beaming walls, as the trim can be nailed or otherwise fastened direct to the tiling. Porous and semi-porous tile are easily worked, too, as they can be cut with a saw or other edge tool.

"The convenience of having a good nailing material or a wall surface which will readily take a screw or nail at any point, and hold it with the grip of a vise, will be appreciated by every contractor who has had shelving to put up, or hanging racks of any kind. There is no hunting for studding only to find there are none where you want to secure brackets or cleats. For ordinary work you simply put up the bracket or cleat where it properly belongs, and nail or screw it to the wall with full confidence that the nail or screw will find something to bed in, and that it will hold with the grip of a bulldog.



Pipe Hangers May be Secured to Hollow Tile by a Screw Fitting of This Sort.



Five-Room Cottage Built of Self-Facing Structural Tile. Cost, \$1,000.00

"Suppose you need a firmer and better hold on the wall than you can get by simply driving in a nail or sending home a screw. Take, for instance, this milk depot. In it I had strong hooks to put up to hold heavy milk cans. There were also pipe racks to be secured to the walls on which to carry steam pipes and refrigeration pipes. Brackets had to be put up for shelving, and an unusually large number of fixtures had to be fastened to the walls.

"But that is a condition common to many kinds of buildings as no doubt you have already found out. All industrial and commercial buildings, in fact, require numerous fittings secured to the walls, so what I say about this milk depot will apply equally to all.

"Expansion bolts you are familiar with I know, for you have all used them in your practice, so I need not dwell upon them now. Every one who has used an expansion bolt knows its worth, and the way it will

(Continued to page 126.)



Plan of Tile Cottage. Size, 25 Feet 10 Inches by 30 Feet 6 Inches, Exclusive of Porches.

Two Attractive Tile Cottages

THE two small houses illustrated on this page are built of a type of structural tile which is self-facing and so designed that moisture does not penetrate thru the joints between blocks. They represent a type of small house construction which is economical because of its high quality. The painting bills are negligible and the depreciation is very low.

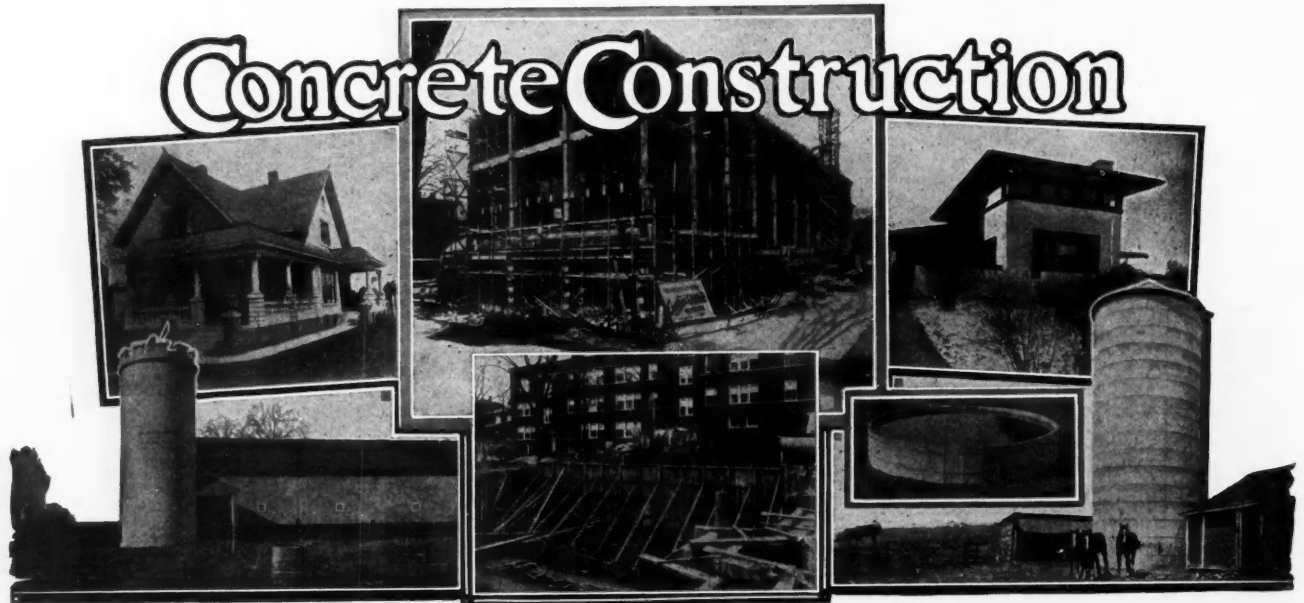
The cost of this type of construction is not excessive. The house shown above has been built for \$1,000, while the one shown below cost \$1,350, not including heating and plumbing costs. While there is little effort made to ornament these buildings, their appearance is pleasing, giving the impression that they represent serviceable, sensible construction rather than the "thin-plated" kind that looks good only when it is new.



Plan of Small Tile House. Size, 30 Feet by 32 Feet 5 Inches, Exclusive of Rear Porch.



Small House of Structural Tile Which is Neat in Appearance and Especially Well Arranged. Cost, \$1,350.00.



The Use of Hydrated Lime in Concrete and Cement Products

By Bela Nagy

Chief Engineer, Hydrated Lime Bureau of
the National Lime Manufacturers' Association.

ALL who have followed with attention the development of engineering and building construction could not help but notice the extensive and ever-increasing use of hydrated lime in concrete and other portland cement products. This growth in the use of hydrated lime is not the result of artificial stimulation, but is due to the experience and observation of many prominent engineers, contractors and manufacturers who had ample opportunity and facilities to observe the improvement wrought by the addition of a small percentage of hydrated lime to concrete and other products dependent on the use of portland cement.

Before discussing the use and advantages of hydrated lime it is proper that I say a few words of the material itself.

To define the product we may state that hydrated lime is a dry flocculent powder produced by the slacking of quicklime under standardized factory conditions and expert supervision. Its principal advantages over other forms of lime are: that it leaves the factory completely slacked and ready for instant use; it may be stored without danger of fire or deterioration and it is furnished in convenient packages of uniform size which permits easy handling and exact proportioning.

It is not a specialty but a staple material of construction obtainable all over the country from practically all dealers in builders' supplies.

The earliest uses of hydrated lime in concrete were for the purpose of making concrete water-tight and from the accounts published some of those who read them assumed that water-tightness is the only benefit that may be derived from its use. We know and have positive proofs that hydrated lime will make concrete

water-tight, but we believe that this is incidental to the beneficial effects of hydrated lime by way of improving the plastic properties of concrete.

It has been stated that hydrated lime waterproofs concrete by acting as an inert void filler. No doubt this is true to a certain extent, but we believe that its



O. P. Decker, Kooskia, Idaho, writes regarding this concrete house: "We consider it ideal for all kinds of weather. It is very easy to heat and is very cool in the hottest weather. It is a veneered house."

main effect in making concrete water-tight is in furnishing an internal and external lubricant that permits easy movement of the particles so that it will flow into place easily, fill the forms thoroly and settle in place without voids and pockets, forming a dense and homogeneous mass with less work. This increased plasticity and the fact that there is less temptation to ruin the concrete with an excess of water, which would cause segregation, are important properties which alone are sufficient reason for the use of hydrated lime; and it does make concrete water-tight.

There are many points in connection with concrete on which experts disagree, but all recent discussions of the subject show that they are unanimous in their opinion that excess of mixing water is the cause of more poor concrete than anything else, provided the materials are properly selected.

This excess of water is used to facilitate spouting, handling and placing, which items form considerable part of the cost of concrete labor. While it accomplishes the results sought for in part only it surely produces inferior concrete.

A concrete containing an excess of water is far more porous and much weaker than a dense concrete mixed with the proper amount of water. This is only natural if we consider that the excess of water takes up space and after the hardening of the concrete evaporates and leaves voids. The investigations of the U. S. Bureau of Standards and other investigators have conclusively proven that concrete mixed with an excess of water may be several hundred per cent weaker than one mixed with the proper amount of water.

Then there are other evils of an excess of water. It is quite natural that in a wet concrete the paste or matrix is not firm enough to keep the aggregates in suspension and therefore the sand and stone will segregate and settle in layers according to their respective sizes and so neither ingredient will perform the true function for which it is intended. On the top of the various materials is found at the end of a day's work, a layer of laitance without binding power, which is a source of weakness wherever found.

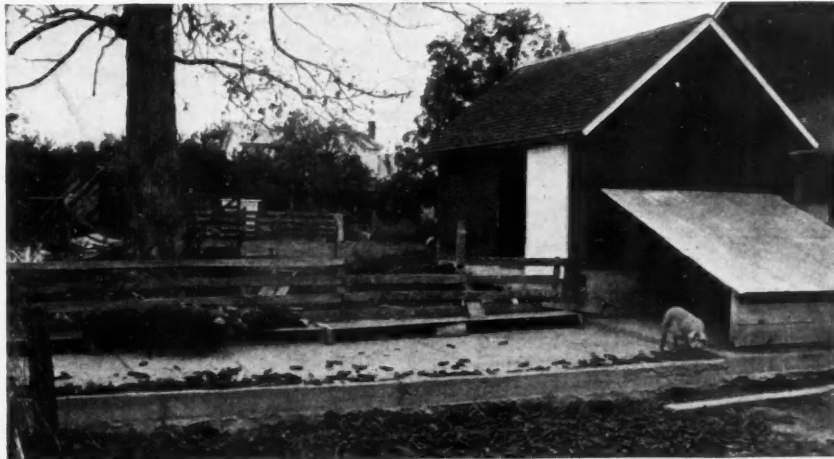
Then there are the stone pockets and honeycombs which are the result of the improper use of water.

As I have stated, the excess of water is used to

make the concrete flow and work easier, but the results are uniformly unsatisfactory, whether concrete is spouted or distributed in carts or wheelbarrows.

Now, let us see how the use of hydrated lime eliminates these evils.

I made the statement that one of the most important properties of hydrated lime is its extreme plas-



A Concrete Feeding Floor for the Hogs is One of the Best Uses of Cement Around the Farm.

ticity.

The addition of a small percentage of hydrated lime permits concrete to be mixed with the right amount of water and produces a concrete which may be spouted, handled and placed much more readily than one without its use. This is due to the fact that it acts as a lubricant, so to say, and with its aid concrete becomes mobile.

But while a concrete in which hydrated lime has been used flows easier, the paste or matrix is firm enough to keep the aggregates in suspension and uniformly distributed thruout the mass, producing a concrete that is homogeneous. Furthermore, this lubrication of the particles permits of their sliding in their proper place so as to produce a dense concrete.

(Continued to page 144.)



Attractive Bungalow with Poured Concrete Walls, Stuccoed Over for Finishing Coat. The Face Brick Veneer Course is an Interesting Detail.

Individualism in the Community Wash Room

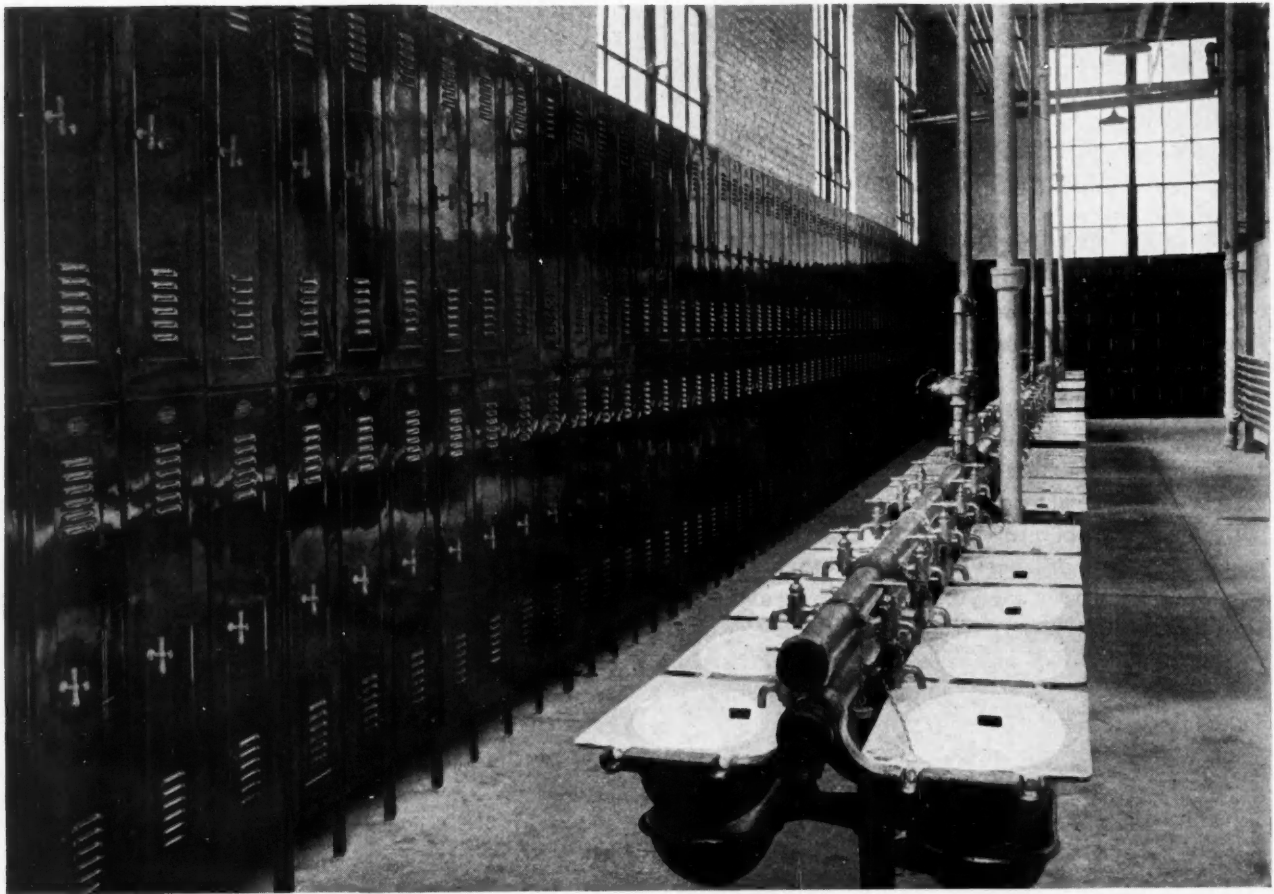
A WASH ROOM for sixty men, each of whom has a separate wash bowl is shown in the accompanying photograph. Each bowl may be lifted from its place and thoroly scoured. A 3-inch hot water main, and a similar cold water main, form the center line of the arrangement down the middle of the room, which has a cement floor and opens off a main corridor between shops. Each pipe is tapped by a self-closing spigot for each bowl. The bowl has a plug and a slot in the side which prevents overflow. Plug-hole and slot both open above a long trough running along

A Living Room Alcove

Designed by Ralph W. Ermeling, Architect

THIS month we illustrate the homelike, retiring part of a living room. In fact any house which does not boast of a library will be more desirable and attractive with this feature developed. The actual space in plan is 7 feet by 14½ ft. There is a fireplace at one end, a bookcase at the other, and the side is used for a built-in seat. At the ends of the seat are two small corner cabinets with an open space above for books, magazines or the usual mantel ornaments.

The seat is of simple vigorous construction, heavy square legs supporting the seat proper and the apron



This Wash Room Accommodates Sixty Men, Each Having His Own Locker and Wash Bowl. Wash Bowls are Detachable for Scouring.

underneath all the bowls on one side, both troughs emptying into a waste pipe at the end.

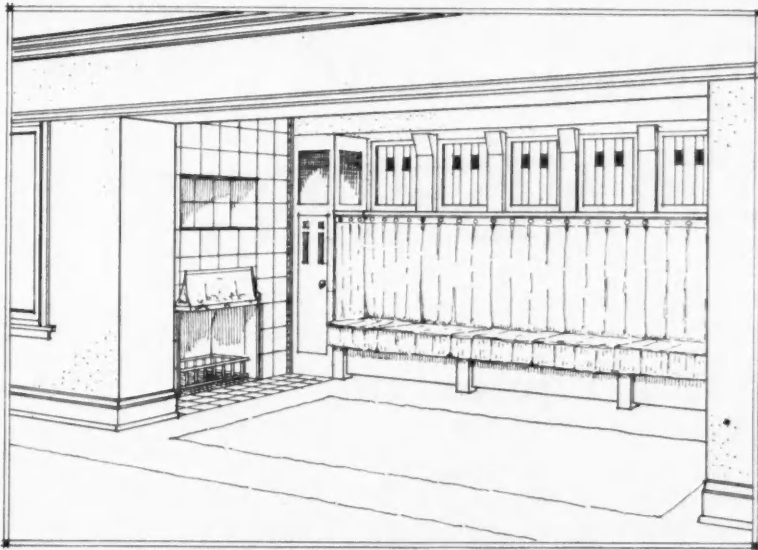
It is found that the neatness of the whole, and the fact that each man has a bowl of his own, has a tendency to do away with fooling and playing. This tendency is soon completed by the fact that every man has a locker whose contents would not be helped by wet, so that altho everybody is in a hurry, a few are always willing to stop long enough to give to a splasher or practical joker a little corrective "rough-house." Nevertheless, a grated catch basin is put into the floor, and the cement slopes toward it. The floor is sluiced over with water every day or so.

PETER F. O'SHEA.

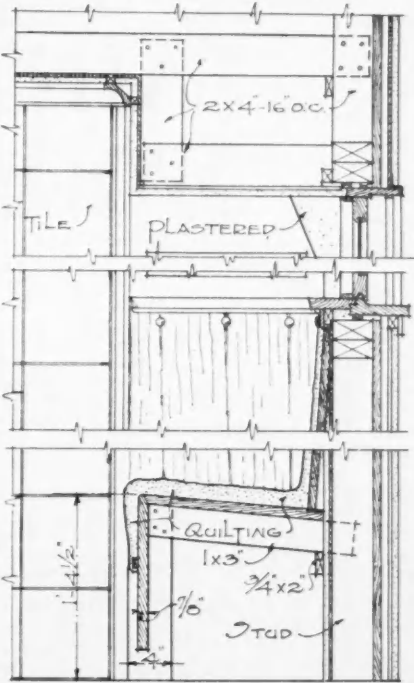
across the front. A simple rail at the top finishes the backing which is a 3-inch V beaded stock. This may be covered as shown, with a quilting of denim.

The bookcases have single glass panel doors with art glass at the top. Small drawers at the bottom are useful. The doors of the corner cases are of plain veneered stock and flush with the case around them. A simple and perhaps unusual ornamentation on each door is shown in the detail. A workman handy with the chisel can perform this operation.

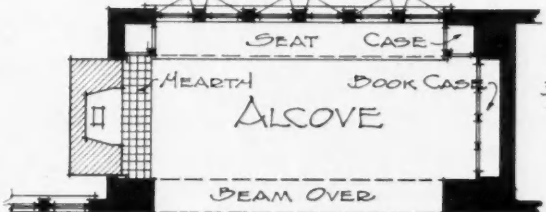
The sash over the seat are casements and art glass is used. The mullions between the windows are not cased in in the ordinary fashion, but are plastered and formed to give a structural appearance.



PERSPECTIVE

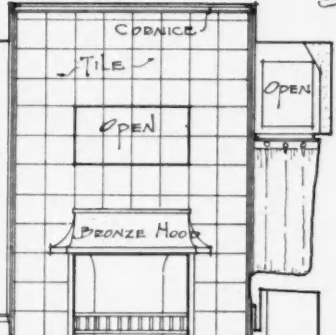


SECTION THRU SEAT

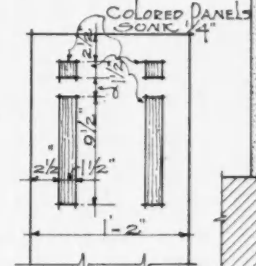


PLAN OF ALCOVE

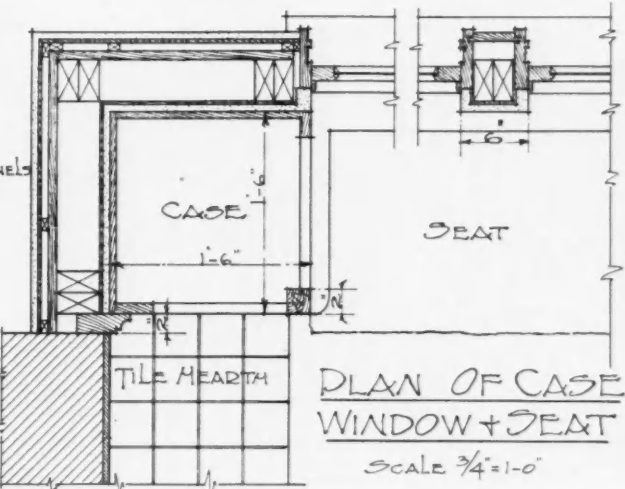
SCALE OF DETAILS = 3/4" TO 1'-0"



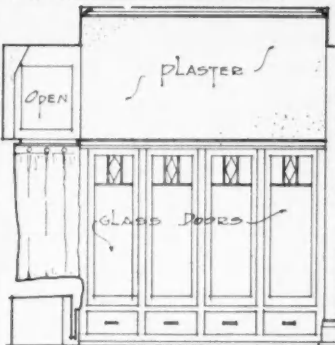
END ELEVATION



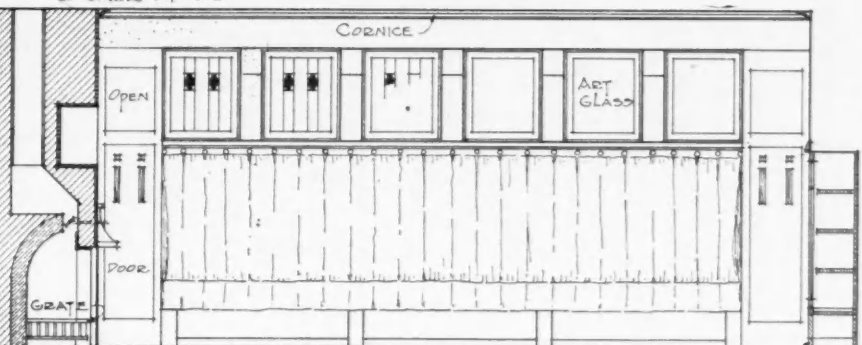
DETAIL OF CASE DOOR SCALE 3/4"=1'-0"



PLAN OF CASE, WINDOW + SEAT SCALE 3/4"=1'-0"



END ELEVATION



ELEVATION

'A LIVING ROOM ALCOVE'

Architect's Sketch Showing Details of Living Room Alcove, Including Comfortable Upholstered Seat with Art Glass Windows Above, Bookcases and Fireplace in Tile with Bronze Hood. Designed by Ralph W. Ermeling, Architect.



Painting Equipment

HOW BUILDING CONTRACTORS ARE GETTING INTO THE PAINTING BUSINESS—
EQUIPMENT NEEDED AND ITS CARE

By **Ralph G. Waring**

Specification Engineer

NOTE: This is the second of a series of articles by Mr. Waring. The third will appear in an early issue.

THERE is an increasing tendency among contractors to do their own painting; some have even gone so far in this direction as to maintain their own painting gang. For the benefit of the contractor who is just entering this field, a few pertinent suggestions will probably be acceptable.

The Contractor's Paint Gang

With competent labor so scarce at the present time, I believe the safest proposition will be to get hold of a good master painter, even if the contractor has to go to some neighboring city and take the time to watch his work. If he is really good, can handle men with reasonable success and knows the fundamentals of the painting business, it will be worth the contractor's time and expenses to pay the man his price and move him to his home town. Give him a gang of fairly young but green men and you will find that he can lick such material into shape faster, with less to unlearn, and in the end have less poor work than to give the same master painter a gang of mediocre painters with their preconceived notions and methods.

The contractor himself can better control and get results from the "green gang" under a good master painter than by any other method. Best of all, the "green gang" will have but to learn the way the contractor wants his work done and has little if anything to unlearn. Give the master painter the entire control of the gang and never go over his head to "bawl a man out" or to countermand his orders openly before the gang. I find that this is a point where many contractors lose out with their master painters. Give the master painter any orders to be given to the men, give him all the responsibility and make him assume it. You have given him the job, now make him live up to it.

Ladders—How to Select and Care for Them

The next important proposition to consider is the equipment. In the name of all that is just and reasonable do not "cut costs" at this stage of the game.

Cheap equipment is not only expensive to maintain because of breakage, but is positively dangerous. A good ladder may save a man's life in a pinch, a poor or weak ladder may and probably will maim or kill some of your men or yourself. It is not the most cheerful thing in the world to work on a 20-foot swing 50 or 60 feet from the ground and have a suspicion that the swing has a cracked ladder.

Safety First in the name of all that is human.

Buy the best ladders the market affords, inspect them carefully for cross grain and knots and if either are in evidence, condemn the ladder. Choose the equipment with the most simple and positive sliding hook on your extension ladders. Avoid any complicated hooks. Too often they fail to work and when they do fail, may mean a crushed hand or foot.

The best method of preventing the feet of ladders from slipping while being erected or after erection consists of bolting pieces of soft steel to the feet of the ladders so as to act as spikes. These may be made from an old one and a half-inch tire steel by any blacksmith. They should be drawn out to a strong but slender point 6 inches in length. Two holes for bolts should be left in the end fastened to the front of the ladder. The length of the steel overall should be 18 inches. With spikes on all ladders, the men will have greater confidence in their "staying put" and will find that a long heavy ladder may be erected with ease when one spike is jabbed into the sod.

When you get good ladders, give them a coat of raw linseed oil with a little japan drier. When this has hardened, give them two coats of lead and oil with 25 per cent zinc, tinted to a medium gray with drop or ivory black in oil. Stencil your name in ivory or dark green on the side of the ladders and the job is done with a good advertisement to prove the class of work you believe in.

Rope for Swinging Scaffolds

When you buy your slings for your swing scaffold, get the best manilla rope you can buy. For most

all-around swing work, it will require about 200 feet of $\frac{3}{4}$ or $\frac{7}{8}$ -inch rope on each end of the swing. Before using this rope it should be taken from the bale and soaked in boiling raw linseed containing a small amount of drier and a little white pine tar which can be had in any drug store. Be careful not to turn the oil or rope while soaking and let the hemp absorb all the oil possible. This treatment is necessary to prevent dry rot and will insure the rope lasting twice its ordinary life.

Buy good equipment; prepare it carefully and see that it is taken care of. In buying the pulley blocks, do not get a block with a patent rope catch. Such things chew a rope to pieces very quickly and are not to be relied on. In raising or lowering the swing a half hitch may be easily thrown beneath the tackle and be perfectly safe with freedom from chafing. In order to hold the swing away from the face of the building, take two pieces of 2 by 2-inch which have wooden wheels in one end to run against the siding and lash them beneath the swing made from a 20-foot ladder section and covered with a plank.

This last item is one where some bad mistakes are most frequently made in purchasing equipment. Do *not* buy hemlock planks for swings or spanners. Hemlock is too cross grained and knotty to play safe.

Buy 2 by 2-inch basswood in 8, 10, 12 and 16-foot lengths, dressed and then painted as for the ladder. Basswood is light to handle, will stand much overloading and has no knots. I have seen some bad falls from hemlock planks and have come to condemn such material as responsible for a large number of accidents occurring to painters.

Brushes are Very Important

Good work is impossible with poor or cheap brushes. Buy high grade Whiting or Adams brushes and expect to pay a good stiff price; but remember this—a fair man with perfect brushes can do more and better work than a master painter with cheap and poorly filled brushes. A good brush, well taken care of, improves with use and age; for on many classes of work a new brush is worthless.

Make one man responsible for the brush record and the daily care of the brushes on the job. Bore a $\frac{1}{4}$ -inch hole thru each brush handle, and when the work for the day is done have each brush washed in gasoline until perfectly clean and then run on a wire so as to suspend the brush in turps over night. Be very sure that the bristles clear the bottom of the brush can by an inch or more, else the bristles will become distorted and will not brush out the paint

(Continued to page 128.)



Pure Colonial as It Has Been Built in New England for Ten Generations. The Present Widespread Popularity of the Colonial Style Gives Careful Painting Added Importance.



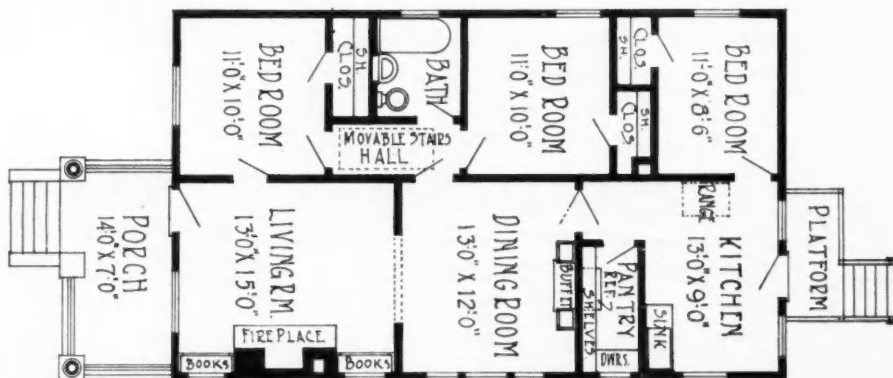
Model Home Designs

Interesting Cement Plaster Bungalow

This bungalow has its exterior walls finished with cement plaster on the first floor with shingles under the gables. Its design calls for the use of simple, sensible construction in every part, resulting in the production of a house which is neat and trim in appearance.

The room arrangement is based upon a division of the house into two parts, one of which contains the sleeping rooms and bath and the other being divided into kitchen, pantry, dining room and living room. The living room and dining room are well proportioned and well lighted rooms. A fireplace with book cases on either side is a pleas-

ant feature of the living room. A buffet is placed in the dining room against the wall opposite the living room. The kitchen and pantry are conveniently arranged with respect to the dining room. The attic is reached by means of a movable stair in the hall, which swings up into a ceiling panel when not in use.



Floor Plan of the Cement Plaster Bungalow.



The Trim Appearance of This Little House, Which is Due to the Use of Simple Construction and Harmonizing Materials, is Interesting. The House is 25 Feet 6 Inches by 42 Feet 6 Inches in Size.



The Beautiful Residence of S. W. Huddleston, Auditor for the Alamo Lumber Company, at Cuero, Texas. This House is a Good Example of a Well Balanced One-Story Gable Roof Residence.

Attractive Texas Residence

The beautiful residence shown above was built at Cuero, Texas, by S. W. Huddleston, auditor for the Alamo Lumber Company. It is an example of a very attractive type of one-story house and its plan may be studied as one which embodies many interesting details making for comfort and convenience.

The exterior of the house is finished with beveled siding, painted pure white thruout. Basement walls and porch walls and piers are built of face brick laid up in white mortar. Contrasting with the white of the walls and the mortar joints are the dark screen frames and the roof. The resulting appearance is very pleasing. The gable type roof has been very effectively employed with ornamental brackets and exposed rafter ends. The design of window sash and doors has given the house a further decorative effect which is noticeably attractive.

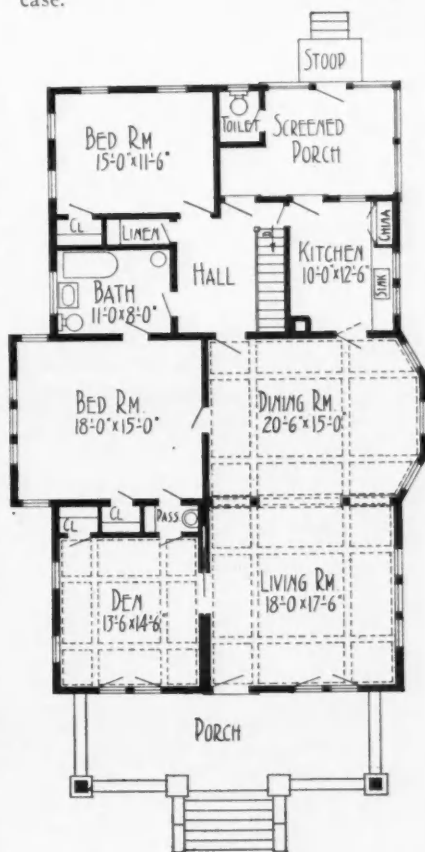
The porch is handled in a simple but artistic manner. Two tapered square columns support the porch roof. Square balusters are used in the rail. The cambered effect carried out in the beams is sufficient to prevent the appearance of squatness. A double set of French doors in addition to the central door break up the wall surface at the front of the house and assist in making the forward rooms light and pleasant.

Referring to the plan, it will be noticed that six rooms, a bath and screened porch have been provided. The first forward division, defines the living room and the den. The central division, providing the larger of the two bedrooms and the dining room is closely connected with the first division. The living room and dining room may almost be considered as one

large room, the separation being effected with a colonnade only. A passage, which is in reality a lavatory, connects the den and the bedroom mentioned. This arrangement is, indeed, a commendable feature of the plan. The den, living room and dining room conform to a harmonious plan as regards interior trim. The ceilings in each of these rooms are finished with false beams arranged in a similar manner in each case.

The rear division consists of the bath, bedroom, screened porch and kitchen arranged around a central hall. The location given the bath places it between the two bedrooms, and a door is placed in the wall adjoining one of the bedrooms, the other bedroom connecting with the bath by means of the hall. A linen closet is provided in the hall, handy to both of the bedrooms. The screened porch is open on two sides, but it is so designed that it is in reality a room rather than a porch. The porch connects with the hall and the kitchen and may be used for a variety of purposes, including the addition of space to the kitchen, open air sleeping quarters and out-of-doors living room. A small toilet is built into one corner of the porch. The kitchen is of such a size that few steps are wasted in the preparation and serving of meals. At the same time, this room is very easily ventilated and is far from being "close" or "stuffy." There are two windows in the outside wall above the sink and a window in the wall between the kitchen and the screened porch lets in additional air and light. A china case is built into the corner of the room at the end of the sink.

In general, the arrangement suggests several good ideas relative to the application of basic principles in one-story house planning. In the first place, divisions must be made which will group rooms to realize a maximum of useful floor space. Balanced against this is the necessity of making certain of the rooms independent of one another. A hall is almost an absolute necessity in such a house. The rear division in the house illustrated contains all of the rooms grouped together which should be independent of one another, and this feature is accomplished with practically no space wasted.



Plan of the Above House, Which is 34 by 58 Feet in Size, Exclusive of the Front Porch.

CORRESPONDENCE



Questions Answered and Ideas Exchanged.

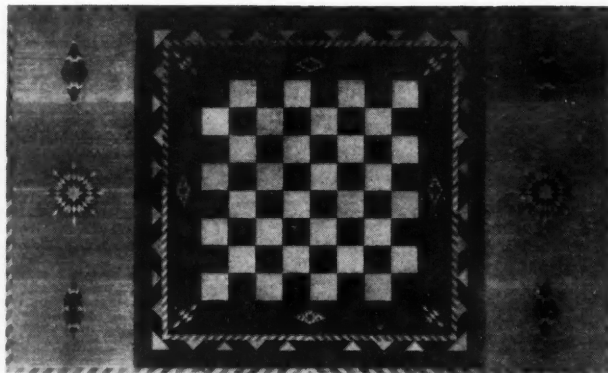
Our Readers are Requested and Urged to Make Free Use of These Columns for the Discussion of all Questions of Interest to Carpenters and Builders

Who Can Make a Better Inlaid Table?

To the Editor:

Seymour, Ind.

I am sending you, under separate cover, photos of a table I made. I make several different kinds of styles; have one



The Inlaid Checker Board in the Top of The Table Built by John Hagel, of Seymour, Ind.

with 7,867 pieces and made of twelve different kinds of wood. I do this work in the winter when work is slack.

JOHN HAGEL.

Does It Pay to Read the Trade Paper?

To the Editor:

Naugatuck, Conn.

I have always contended that it does, but you will still find some mechanics and even foremen who will laugh at a man who reads the trade paper.

I had an instance of this kind in my own experience a short time ago. I took a position in a shop, and in speaking of my trade paper to the foreman one day, he sneered at the idea. A few days later this foreman had a problem come to him which was too much for him, and so at the noon hour he had a bunch of his best men around him talking it over, and as I came up he asked me if I could solve the problem. I said, "Yes, but if you will look in the last issue of a certain trade paper you will find this very problem worked out for you." He still sneered at me, so that night I worked it out as shown in the issue of your paper referred to, and the next day showed him. But while he saw the proof, he did not want to

give the source the credit, nevertheless was glad to use the article this time.

While many of us may know these things, if we do not constantly use them we forget, and the trade paper keeps us awake. None of us is too wise or too old to learn.

Every man depending on his labor for a living owes it to himself and his family to read the trade paper in his line. It is a life insurance where both he and his family draw the benefits. He doesn't have to die to win, but he must be *alive to live*.

F. L. T.



Moisture Collects on Ceiling

To the Editor:

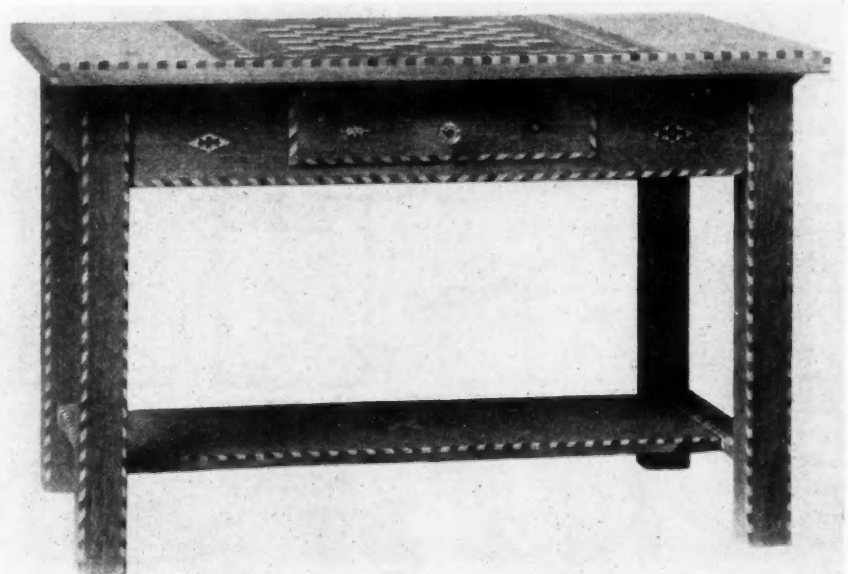
Rittman, Ohio.

Some four years ago I purchased your Cyclopedia of Construction and I find it a grand work. I would be very thankful to you for your advice on how to remedy the following:

A few years ago I remodeled an old dwelling. The kitchen part is one story, 18 by 20 feet, with 9-foot ceiling. There is a slate roof on the house. The owner uses natural gas for fuel and light and in winter time the moisture in the kitchen condenses on the ceiling and is constantly dropping; the doors expand so much that they will not close at all. I have planed them off at different times, but this does not remedy it satisfactorily. Is there any way to ventilate thru ceiling and roof or any other way to remedy it? This moisture should be gotten rid of some way if possible.

W. W. BAUMAN.

(Continued to page 88.)



Inlaid Table Built by John Hagel, of Seymour, Ind. Size is 28 by 46 Inches, Made of Quarter-Sawed Oak and Inlaid with 2824 Pieces of Eight Different Kinds of Wood.

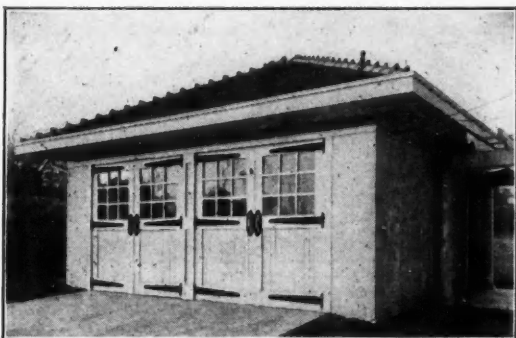
Four Garage-Door Problems Solved by Stanley Garage Hardware



No. 1

Problem Number One

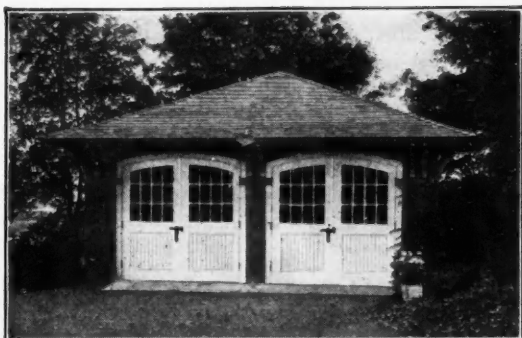
The architect of this garage wanted doors that would open and close easily, lock securely and close weather-tight. His problem was solved by swinging the doors on Stanley Garage Hinges No. 1457, equipping them with Garage Bolts No. 1055 and No. 1056, and securing them against slamming with Stanley Door Holders No. 1774.



No. 2

Problem Number Two

This concrete garage has doors that are extra heavy. Therefore they were hung on 36-inch Stanley Garage Hinges No. 1458, which will support the heaviest garage doors made, swinging them smoothly and without sagging.



No. 3

Problem Number Three

The owner preferred curved-top doors, with windows so placed that strap hinges could not be applied. So the doors were hung with ball-bearing Stanley Garage Butts No. 252, three butts to a door. They are also equipped with Latches No. 1264 and Door Holders No. 1774.



No. 4

Problem Number Four

When planning this garage, the owner wanted to be able to open all three doorways at once. And, since the garage might at times be crowded, the doors must take up no inside space. Accordingly, the doors were swung out on Stanley Garage Hinges No. 1457. Door Holders No. 1774 keep them from slamming.

Stanley Garage Hardware meets every requirement of the most exacting garage builder. It is carried in stock by your hardware dealer. See Sweets or send for a Stanley Garage Hardware Catalog.

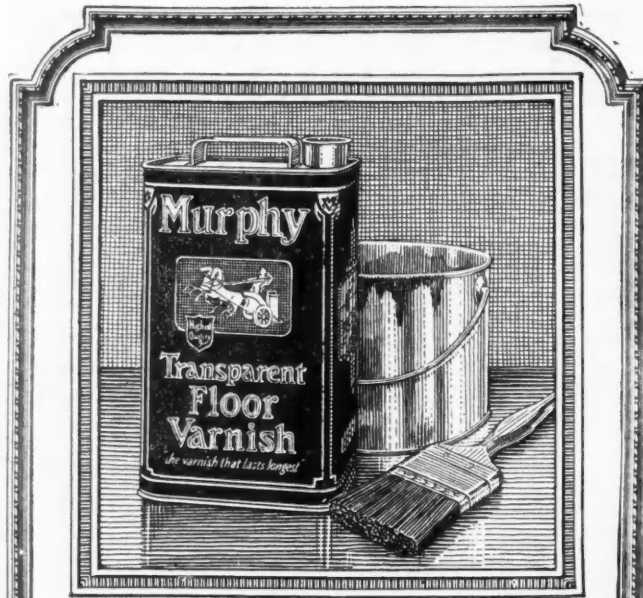
The Stanley Works

New Britain

Conn., U.S.A.

New York: 100 Lafayette St.

Chicago: 73 E. Lake St.



The new Murphy Can

For your own house

You wouldn't think of using anything but the best of varnish for your own house. You know that only the best is worth the cost of putting on. Don't you think your customers would also appreciate the best varnish?

Murphy Varnish

"the varnish that lasts longest"

produces a finish that brings out every good point of the wood and keeps your work looking well for years. It is exceptionally durable.

This extra durability, this extra value you give your trade, costs nothing, because Murphy Varnish flows more easily, covers more surface — and therefore costs no more — than varnish which doesn't last. And our advertising in the magazines is teaching your customers to appreciate this extra value and to look for it.

May we send you further information about our house-finishing products?

Murphy Varnish Company

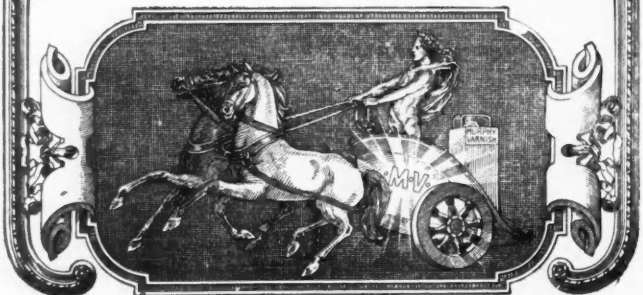
Franklin Murphy, jr., President

Newark New Jersey

Chicago Illinois

Dougall Varnish Company, Ltd., Montreal, Canadian Associate

A N A



(Continued from page 86.)

Answer—In case the walls and floor of this kitchen are tight enough to prevent the entrance of moisture from the outside, it seems probable that the greatest part of the condensate which collects on the ceiling originates on the range or gas stove. As it is carried up from the stove in the form of vapor, it would probably be advisable to build a sheet metal hood over the stove which will collect this vapor and expel it thru a ventilating tube and ventilator.

The ventilator should be placed high enough above the roof so that a good draft will be obtained. If possible, the ventilating tube should be placed without bends.

EDITOR.



Cooperation in Utah

To the Editor:

Fountain Green, Utah.

I am sending you pictures of two houses I have built for Thomas H. Cook and Lester Cook, of Fountain Green, Utah.



House of Light Buff Pressed Brick, Built at Fountain Green, Utah, for Thomas H. Cook, by J. E. Sorensen.

Photo No. 1 shows house of Thomas H. Cook, which is built of light buff pressed brick. It has a kitchen, living room, bedroom, pantry and bathroom on first floor, and three bedrooms and a children's playroom on second floor. There is a clothes closet for each bedroom. There is also a basement.

Photo No. 2 shows house of Lester Cook, which is built of red pressed brick. It has a kitchen, dining room, parlor and two bedrooms with clothes closets, bathroom, pantry and basement.

I have had shop work all winter, and am still busy. I have two houses to build as soon as spring opens up, and my friend and competitor also has two houses, and there are other



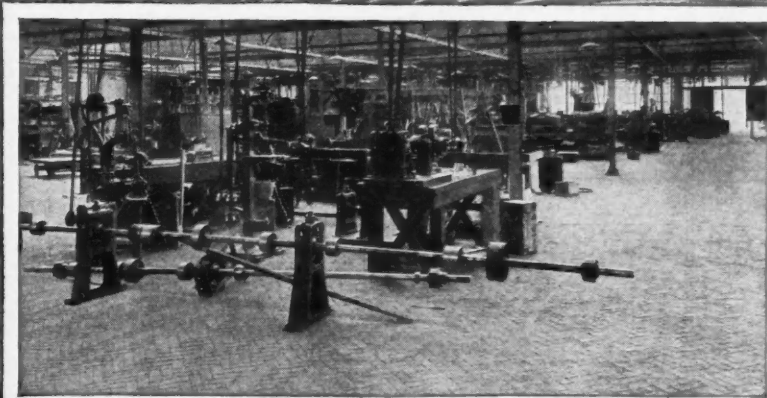
Another House Built by Mr. Sorensen. This One of Red Pressed Brick, for Lester Cook, at Fountain Green, Utah.

houses and garages in prospect. My competitor and I are trying to following the advice of the Man from the Lumber Yard, that is, "be brotherly." We feel there is room for both of us to live.

J. E. SORENSEN,

Dealer in Lumber, Lath and Shingles.

(Correspondence Dept. Continued to page 90)



Machine Shops of the Hess-Bright Mfg. Co., Philadelphia, which have floors of wood blocks 2½ inches in depth.

MODERN HEAVY-SERVICE FLOORS

For Factories, Foundries, Machine Shops, Mills, Freight Houses, Warehouses, Docks and Bridges—where exceptionally heavy usage demands supreme endurance—are

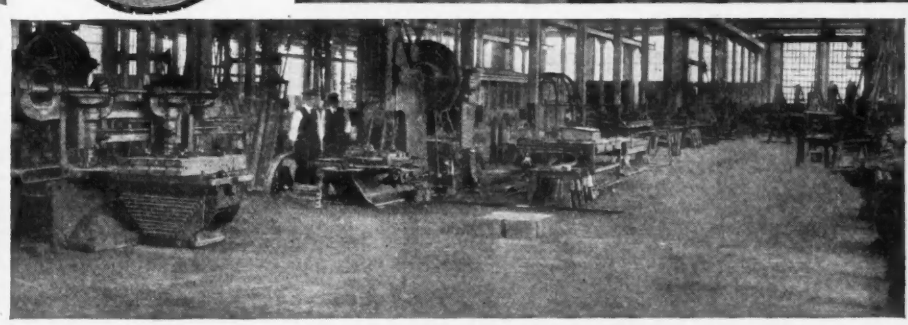
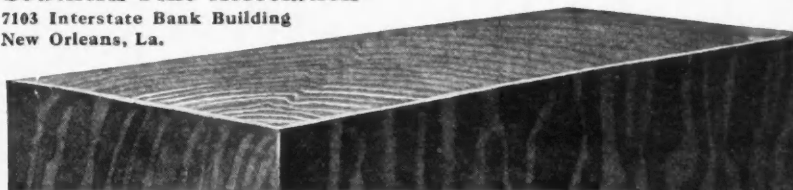
SOUTHERN PINE CREOSOTED WOOD BLOCKS

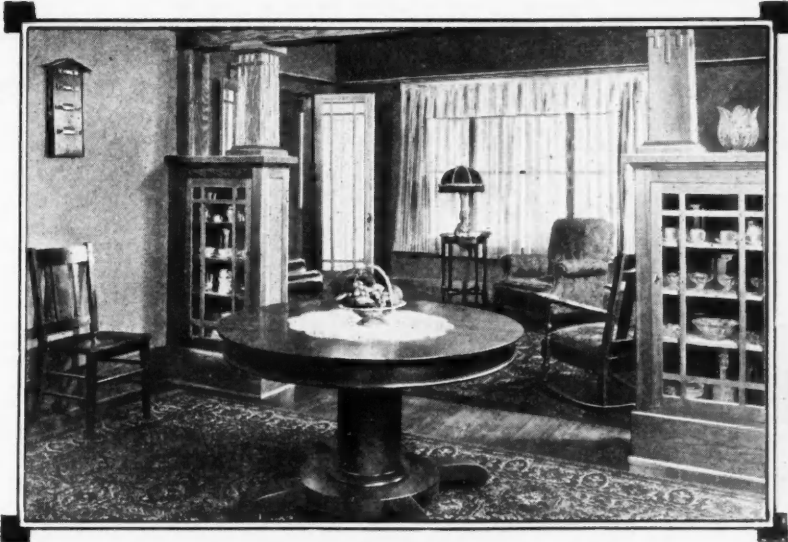
The points of superior merit that have made Southern Pine Creosoted Wood Blocks the unqualified first choice of those who know include Unequaled Durability, Negligible Maintenance Cost, Smoothness, Cleanliness, Silence, Imperviousness to Heat and Cold, Resilience, Safety. And in considering the Economy factor, it is well to remember that Southern Pine Blocks not more than 2½ inches in thickness are capable of withstanding extremely heavy indoor service.

The handsome FREE booklet, "Floors of Service," gives the Facts about Southern Pine Creosoted Wood Blocks, backed by the enthusiastic indorsements of the foremost manufacturing and transportation companies. Send for Your copy TODAY.

Southern Pine Association

7103 Interstate Bank Building
New Orleans, La.





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| Doors | Stairways | Ceiling Beams |
| Windows | Newels | Mouldings |
| Window & Door | Sideboards | Porch Columns |
| Frames | Colonnades | Porch Rail |
| Storm Doors & | Bookcases | Porch Balusters |
| Windows | Mantels | Everything in |
| Screen Doors & | Window Seats | Woodwork |
| Windows | Wall Panels | |



Are you standing by the Curtis Dealer?

The Curtis dealer can help you. He is in a position to help you with your customer's plans. He will work with you on material lists and estimates.

He can arrange for the On-Time Delivery of CURTIS Woodwork—on the day you want it.

By selling CURTIS Woodwork he is doing his share towards building better homes in the community. He is also standing by you when he sells

1866

CURTIS

WOODWORK

"The Permanent Furniture for Your Home"



Why do we know this? Because you can cut down your finishing costs, you can cut out your delay losses, you can add volume, profit, and satisfaction to your contracts, by using CURTIS Woodwork.

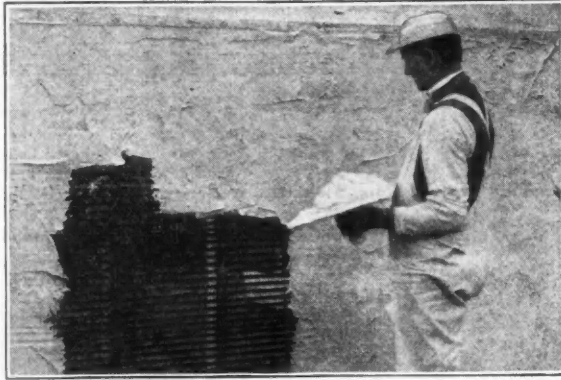
Stand by the Curtis dealer. All you need do is to say "Curtis" when anyone asks you about woodwork. More sales for the dealer and more work for you, are the results of standing together.

If you do not know a Curtis dealer, write to us. If possible we will put you in touch with one. If there is none near you, you and we together may secure one to our mutual benefit.

The Curtis Companies, Service Bureau
1637-1737 S. Second Street, Clinton, Iowa

Manufacturing and Distributing Plants at
Clinton, Iowa—Lincoln, Neb.—Minneapolis—Wausau, Wis.—Chicago
—Oklahoma City—Sioux City, Iowa—Detroit—Topeka, Kan.

Eastern Offices at Pittsburgh and Washington
The makers of CURTIS Woodwork guarantee complete satisfaction to its users. "We're not satisfied unless you are."



*Plastering Rib Lath
Note heavy scratch coat, due entirely to stiffness of Rib Lath*

No More Cracked and Streaked Plaster

Contractors everywhere are finding that the use of Hy-Rib and Rib Lath products prevents cracked and streaked plaster. Wood lath absorbs moisture, expands and causes the plaster to crack and streak. Our metal lath does away with this trouble.

Use **Hy-Rib and Rib Lath**—and you save forms, stiffening channels and labor. Two coats of plaster can be used instead of three. This metal lath is so stiff and rigid that supports may be placed a greater distance apart, saving in the cost of supports and labor of installation. Moreover, it provides a **permanent, fireproof** construction.



Hy-Rib furnished in four depths of ribs and various gauges

HY-RIB

A steel sheathing, stiffened by rigid deep ribs. Manufactured from a single sheet of steel. Its use is decidedly simple. The easily handled sheets are fastened to the supports and the plaster or concrete applied. No forms, stiffening channels nor wiring required.

Begin now to build with Hy-Rib and Rib Lath. The line is complete, including Diamond Lath, Channels, Studs, Corner Beads, Base Screeds, etc.

Write today for free copy of Hy-Rib Handbook, containing specifications, tables, illustrations, etc. Address Dept. H-44.

RIB LATH

A superior metal lath with beaded ribs that span between the studs, making it exceptionally stiff and rigid and permitting the wider spacing of studs. Provides a perfect clinch for plaster and prevents cracking or streaking of plaster. Saves time, labor and material in erection.

Trussed Concrete Steel Co.
YOUNGSTOWN, OHIO
Representatives in Principal Cities



(Continued from page 90.)

- | | |
|-------------------------------------|-------------------------------|
| B- 1 Laying joists | C- 3 Laying floor—hardwood |
| B- 2 Sub-floors | C- 4 Dressing floors—pine |
| B- 3 Framing walls and partitions | C- 5 Dressing floors—hardwood |
| B- 4 Second floor joists | C- 6 Weights and sash cord |
| B- 5 Boxing walls | D- 1 Setting jambs |
| B- 6 Siding | D- 2 Casing jambs |
| B- 7 Cornice | D- 3 Casing windows |
| B- 8 Roof sheathing | D- 4 Base and shoe |
| B- 9 Shingling | D- 5 Hanging screens |
| B-10 Setting window and door frames | D- 7 Setting cabinets |
| B-11 Porch—front | D- 8 Kitchen |
| B-12 Porch—rear | D- 9 Linen closet |
| B-13 Framing and placing rafters | D-10 Buffet |
| B-14 Steps—wooden | D-11 Seats |
| C- 1 Fitting windows | D-13 Plate rail |
| C- 2 Laying floor—pine | D-14 Panels |
| | E- 1 Hanging doors |
| | E- 2 Door and window locks |

We have been using this system some months now and find it quite successful and thought it might possibly be of some interest to your readers.

THE G. H. BROWN MANUFACTURING & LBR. CO.,
John Y. Brown.

Good Line of Work

To the Editor: Madelia, Minn.
With pleasure I enclose \$2.00 to have my subscription extended one year. Enclosed you will also find two photos

(Continued to page 94.)



Repairing the Damage Done by Lightning. Work Being Done by P. C. Paulson, of Madelia, Minn.

"Signed Lumber is Safe Lumber."

It's a pretty good idea (now that the lumber mills in the Southern Cypress Mfrs. Assn. are IDENTIFYING EVERY CYPRESS BOARD THEY SAW) to MENTION TO YOUR LUMBER DEALER, CONTRACTOR or CARPENTER—and to ASK YOUR ARCHITECT to SPECIFY—that YOUR CYPRESS MUST BE

"TIDEWATER" CYPRESS IDENTIFIED BY THIS TRADE-MARK

Stamped in the End of Every Piece or APPLIED TO EVERY BUNDLE



When a manufacturer places his imprint indelibly upon his product it evidences to the consumer two factors of value which, together, are the sum total of all any buyer wants; these factors are integrity of purpose and complete responsibility on the part of the maker of the desired commodity.

The above legally registered "Tidewater Cypress" trade-mark is now *YOUR INSURANCE POLICY of LUMBER QUALITY.*

It appears stamped mechanically into the end of EVERY board and timber of

CYPRESS "THE WOOD ETERNAL."

Thoroughly dependable Cypress Flooring, Siding, Moulding and Shingles, etc., which come in bundles, bear the same mark on EVERY BUNDLE.

The legal right to apply this epoch-making symbol of STRICT RESPONSIBILITY IN LUMBER MAKING AND SELLING is restricted to those Cypress mills which, by their membership in the Southern Cypress Manufacturers' Association, attest their devotion to its Principles of SERVICE to the CONSUMER. Only mills cutting "Tidewater" Cypress are eligible for membership. (Cypress which grows too far inland is not equally noted for the "Eternal," or decay-resisting, quality.) Only mills which subscribe to the Association's standard of scrupulous care in Methods of MANUFACTURE, INTEGRITY OF GRADING and ACCURACY OF COUNT can belong to the Association. These-responsible mills the Association now licenses to CERTIFY THEIR CYPRESS by applying the registered trade-mark with their identifying number inserted.



BY THIS MARK YOU KNOW THAT IT'S CYPRESS, "THE WOOD ETERNAL," AND WORTHY OF YOUR FAITH. IT IS WELL TO INSIST ON SEEING THIS TRADE-MARK ON EVERY BOARD OFFERED AS "CYPRESS."



Let our BUILDERS' HELPS DEPARTMENT help YOU MORE. Our entire resources are at your service with Reliable Counsel.

Southern Cypress Manufacturers' Association

1216 HIBERNIA BANK BUILDING, NEW ORLEANS, LA., or 1216 HEARD NATIONAL BANK BUILDING, JACKSONVILLE, FLA.

INSIST ON TRADE-MARKED CYPRESS AT YOUR LOCAL LUMBER DEALER'S. IF HE HASN'T IT, LET US KNOW

(Continued from page 92.)

of some of our work. The first shows the start of a \$6,000 house. It will be stucco outside slap-dash finish with white cement. Roof will be asphalt shingles. I am on the scaffold at the corner.

The other photo shows us repairing a church steeple damaged by lightning.



Framing of a \$6000 White Stucco Residence in Progress by P. C. Paulson, of Madella, Minn.

I am surely greatly pleased with your paper and can't see how I would get along without it. We have a lot of work and are doing well.

P. C. PAULSON,

Contractor and Builder.



To Remove Nails From Casing

To the Editor:

Lemoynne, Pa.

In the April number of the AMERICAN BUILDER, Mr. Black-

ledge suggests extracting a nail from a piece of old casing by using a piece of scantling and holding it on the head of the nail. This method might be all right where there is a plain surface on the casing, or where there are not many nails to remove.

My experience teaches me that the best method of removing finish nails is with a pair of good pinchers; in place of driving the nail back, just take a firm grip of it and pull it clear thru the piece. In this way the face of the material is not marred in the least, and can be used again, and it can hardly be detected that it ever was torn off. A pair of 10-in. pinchers is large enough.

F. E. KENNEDY.



Two Ancient Questions

To the Editor:

Yates City, Ill.

I would like answers to some questions not answered in your Practical Carpenter Department.

First: How would you go about it to make a practical "Pin Horse" for making pins for heavy framing of barns? Also what shape would you make the pins?

Second: How would you go about it to frame a rafter where there is more wood at one end than at the other?

W. R. B.

Answer—It is like turning the kaleidoscope of time back about a half century and taking a peep at what is in it when we ponder on these questions. We presume the first question has reference to the old-fashioned shaving horse to be found in most every farmer's back yard a long time ago. In those days, the farmer put in much of his time between fall and spring work in improving his place by smoothing clapboards which, as we remember, were thin boards split from blocks of oak about thirty inches in length by means of a long straight bladed instrument called a frow. By setting the block up on end and placing the frow back from its edge

(Continued to page 96.)

Durability— **KEYSTONE** — *Satisfaction*

COPPER STEEL

The high standard of excellence for Keystone Copper Steel Sheet and Tin Mill Products assures architects and builders greater durability from Galvanized Sheets, Metal Roofing Products, and all exposed sheet metal work. Superiority in service explains the remarkable demand for Keystone products:

1911 ■ 5,311 Tons

1913 ■ 74,495 Tons

1914 ■ 105,072 Tons

1915 ■ 158,487 Tons

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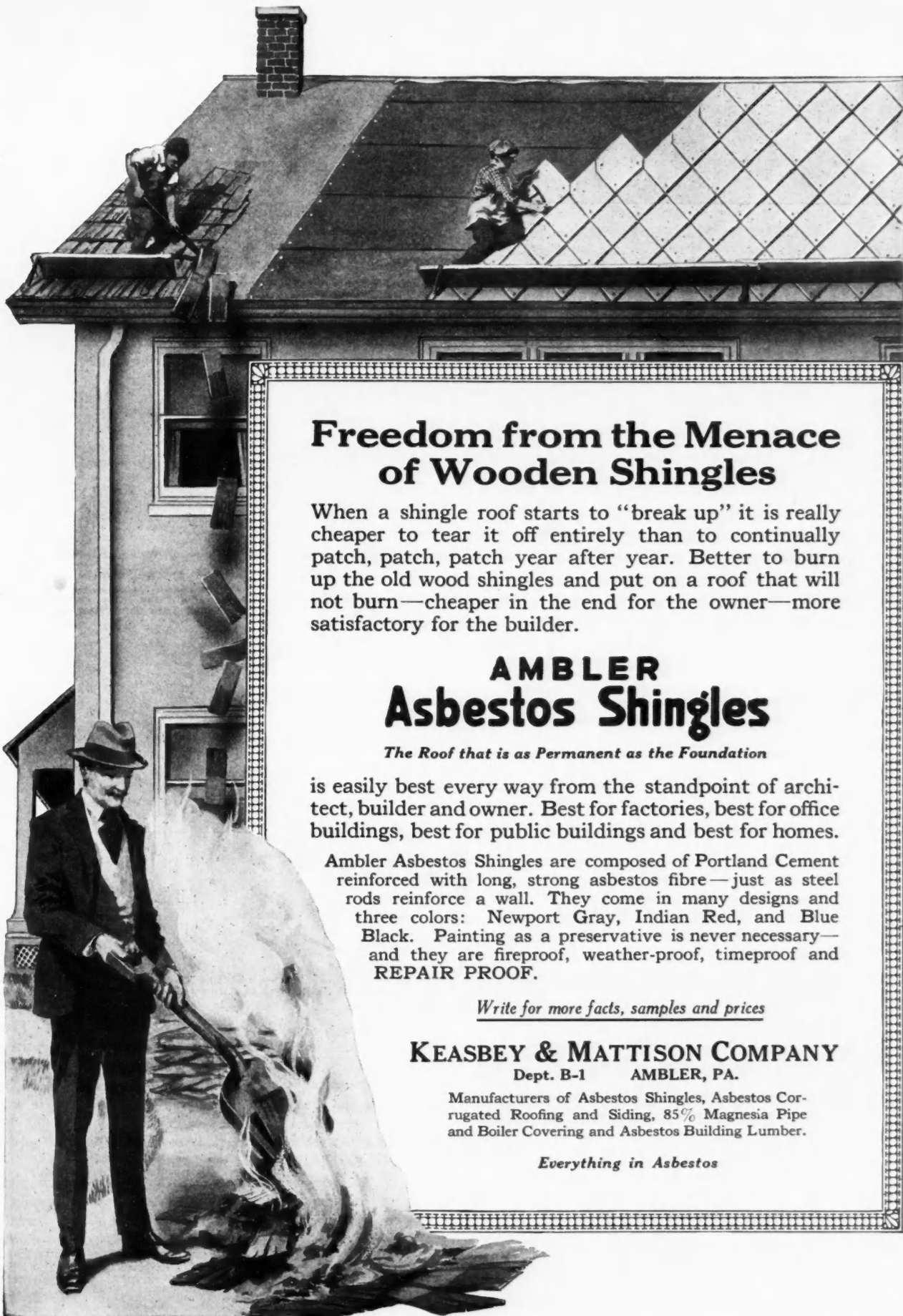
Send for our latest Keystone Booklets describing actual service tests.

American Sheet and Tin Plate Company

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Freedom from the Menace of Wooden Shingles

When a shingle roof starts to "break up" it is really cheaper to tear it off entirely than to continually patch, patch, patch year after year. Better to burn up the old wood shingles and put on a roof that will not burn—cheaper in the end for the owner—more satisfactory for the builder.

AMBLER Asbestos Shingles

The Roof that is as Permanent as the Foundation

is easily best every way from the standpoint of architect, builder and owner. Best for factories, best for office buildings, best for public buildings and best for homes.

Amble Asbestos Shingles are composed of Portland Cement reinforced with long, strong asbestos fibre—just as steel rods reinforce a wall. They come in many designs and three colors: Newport Gray, Indian Red, and Blue Black. Painting as a preservative is never necessary—and they are fireproof, weather-proof, timeproof and **REPAIR PROOF.**

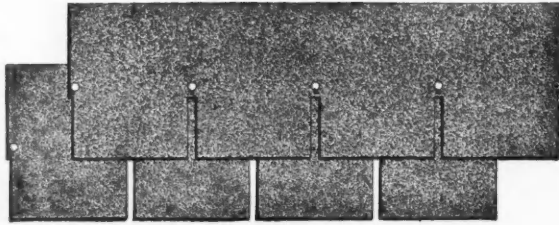
Write for more facts, samples and prices

KEASBEY & MATTISON COMPANY

Dept. B-1 AMBLER, PA.

Manufacturers of Asbestos Shingles, Asbestos Corrugated Roofing and Siding, 85% Magnesia Pipe and Boiler Covering and Asbestos Building Lumber.

Everything in Asbestos



THE FAMOUS REX STRIP SHINGLE

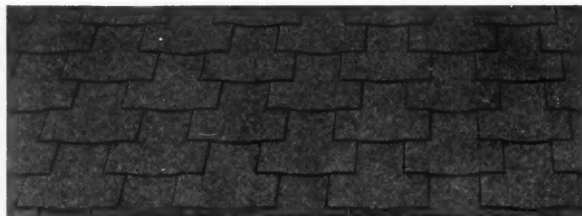
BIGGER SALES BETTER PROFITS

DEALERS who are not stocking asphalt shingles—not getting good business from them—are overlooking a very important source of profit, because asphalt shingles are enjoying probably a greater sale than any other type of prepared roof covering.

Dealers who carry Rex Strip Shingles are fortunate in having an item which they buy at a consistently uniform price. They are able to protect their profit margins.

The Flintkote line is very interesting. It includes many quickly saleable specialties—all of them thoroughly practical.

We have a proposition to submit. It is just as interesting to the user as to the dealer. Let us send our General Catalog No. 20 which describes and illustrates twenty-three Rex Products. It also gives valuable information about all kinds of roofing materials. It states clearly and completely our sales policy. It will be sent free on request.



REX WIDE SPACE SHINGLES

Flintkote Manufacturing Co.

INCORPORATED

90 Pearl Street, Boston, Mass.

New York

Chicago

New Orleans

(Continued from page 94.)

the desired thickness of the board and then driving it down thru the block with a wooden maul, riving, as it was called, a board at a time. The writer has seen great ricks of these boards preparatory for dressing down with a draw-shave by the aid of the shaving horse, not only for shingles but for the old-fashioned pailings used for the yarden fence. Even lath were made in this way. Think of doing that kind of work now, boys. But this is not answering the question.

The shaving horse was usually made from a slab, or left over piece that would not work up into boards at the local saw mill. It was made from a piece about seven or eight feet long, supported on four round legs, driven into large auger holes bored at the proper angle to furnish the staying qualities of the horse to stay where put. At one end of this slab bench, another piece was set up at an angle and anchored to the former with wooden pins; and thru this piece and the bench a long narrow slot was cut to allow the clamp piece to pass thru, which was made from a piece of wood dressed to pass thru the slot and with a clumsy looking head

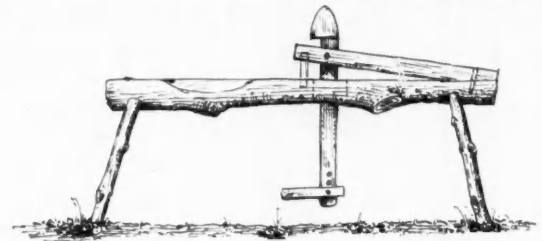


FIG. 1.

Old-Time Shaving Horse Used to Hold the Stick Which Elbow Grease and a "Drawer Knife" Shaped into Tool Handles, Heavy Framing Pins and Suchlike.

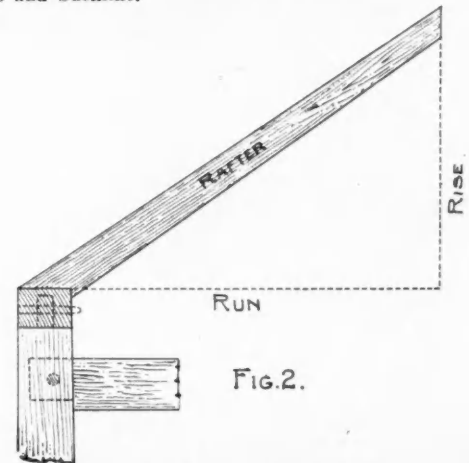


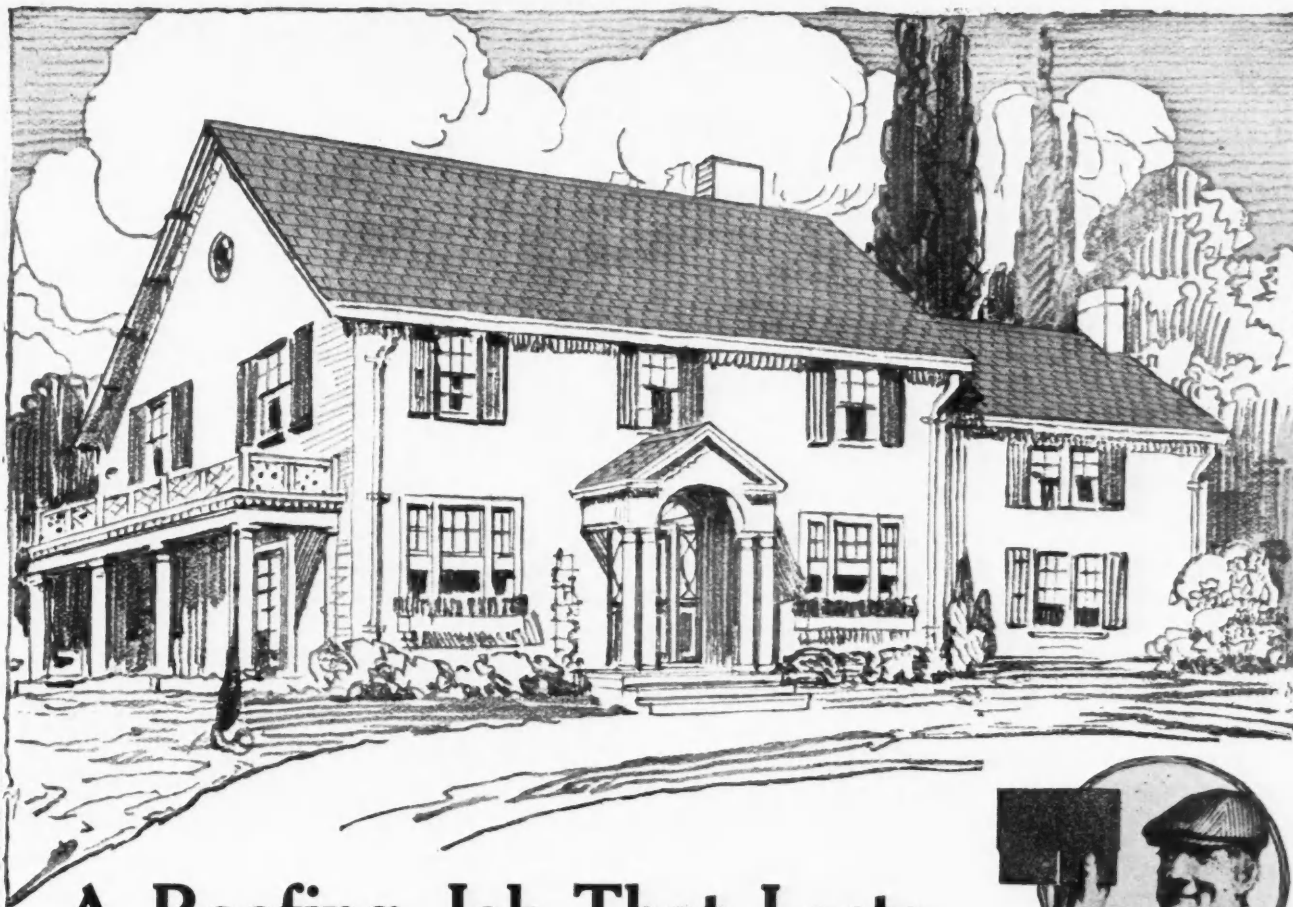
FIG. 2.

Heavy-Ended Rafter Which Was Considered Necessary in the Old Days Because It Was Thought That the Foot of the Rafter Carried More Weight Than the Upper End.

at the top and an adjustable foot board at the bottom. This completed this piece, which was made to swing on an iron pin passing thru the upper piece of the bench and the clamp piece. It contained several holes, so that the head could be adjusted to suit the work at hand; and the shaving horse was ready for use, save a little dressing down of the edges of the bench to avoid too much friction for comfort by the operator's legs coming in contact with same.

Here, Mr. Jack-of-all-trades sat astride the bench and, with one foot on the pedal, shaped ax handles, hoe handles, and all of the other handles required about the place by simply pressing on the hard pedal, which caused the head to clamp the piece that was being shaped with the draw-knife or drawer knife, as it was then called. Oh, yes! The pins for the heavy framing work had the finishing touches put on

(Continued to page 98.)



A Roofing Job That Lasts

A roof of Neponset Twin Shingles gives an old house a new lease on beauty and usefulness. But Neponset Twin Shingles have more than outward beauty to recommend them.

These famous shingles are made of such wear-resisting materials—tough, fibrous felt; layer upon layer of everlasting asphalt; crushed stone and slate that permanence is of greater importance.

A roof of Neponset red or green shingles on any house, old or new, is a "drawing card" for any contractor, carpenter or builder. It is a demonstration of his good judgment as regards beauty and durability.



NEPONSET TWIN SHINGLES

(Patent Applied for)

Neponset Twins are self-spacing. Their twin shape halves the cost of laying and requires 25% fewer nails. They cannot warp, dry out, pull off, curl or blow away. And they are approved by the National Board of Underwriters.

You can get your share of the roofing contracts in your section by mentioning Neponset Twin Shingles. Millions of people already know about "this roofing development of the twentieth century" by reading our advertisements in the national magazines.

Let us submit some interesting facts and figures about Neponset Twin Shingles. We'll send them merely for the asking, and without any obligation.



Look for this trademark on all Shingles, Roll Roofings, Wall Boards and Building Papers. There is one meeting every requirement and purse—all guaranteed by us.

BIRD & SON, (Established 1795) Dept. C, East Walpole, Mass.
 New York Chicago Washington Canadian Office and Plant: Hamilton, Ontario

(Continued from page 96.)

them by the aid of the shaving horse, and tho to be driven in a round hole, were purposely shaped octagonal.

The second question is also a relic of old times. Many of the old time builders contended that as the foot of the rafter had to carry more weight than the upper end, it should have more wood to do the toting; and so they cut the side of the rafters wedge shape but left the top edge the same thickness. A few years ago we were present at the tearing down of an old residence in the state of Missouri, to make room for a new building; and of all the people that gathered around to witness the removal of the old land mark, none seemed to know just how long it had been built; but the evidence spoke louder than words. Great hewn timbers revealed the skill in handling the broad-axe of long ago, cut from native trees the like of which had long since disappeared before the hand of man and the place where they grew turned to farm land. These timbers, protected from the elements, were still sound, and in fact seemed in a fair way to last forever. To us, it was a powerful lesson in destruction and progress that is far reaching—but we will not go further.

Coming back to the rafters of uneven width, this house had them. They were sawed out of the solid timber, but the markings were not that of the familiar markings of the circular saw, but were diagonal across and somewhat uneven.

An old gentleman present explained that it was done by means of the rip saw operated by two men by placing the log up on a high trestle and while one man worked from below the other stood up on top of the log and they worked the saw up and down in like manner to two men using the common cross-cut saw. This undoubtedly was a slow process but they got there just the same; but we have not said a word yet about the framing of the ended rafter and really there

is not much to say. The fact that it has a big end makes no difference in the framing of the rafter, for the working line is at the top edge as will be seen by referring to the illustration. In those days rafters did not have tails, but as far as the operation of framing them is concerned, it would not have been different from the modern rafter of today.

A. W. WOODS.



A \$10,000 Residence

To the Editor:

Truro, N. S., Can.

I am sending you a photo of a \$10,000 house which is owned by Mr. J. F. Ryan of Truro, N. S., Canada, and of which I prepared the blueprints and specifications. GEO. J. MOSHER.

(Correspondence Dept. Continued to page 102)



Residence of J. F. Ryan, Truro, N. S., Canada, Plans and Specifications of Which Were Prepared by George J. Mosher.

BEAVER BOARD

FOR BETTER WALLS & CEILINGS

At Your Fingers' Ends



You can't expect Beaver Board results unless this trade-mark is on the back of the board you buy.



In every locality are homes, stores, factories, offices, churches, and clubs with walls and ceilings in need of repair. New buildings are being constructed. That means work for the Beaver Board man.

As soon as people see one Beaver Board job well done, other jobs are sure to follow—

—Because Beaver Board is the modern, cleanly, sanitary material. Better than lath and plaster, more easily put up, more durable.

Be the Beaver Board Man in Your Town

If you are ambitious to succeed, if you want to keep busy twelve months of the year with no lay-offs, write for full information about our free design and decoration service.

THE BEAVER BOARD COMPANIES
137 Beaver Road Buffalo, N. Y.

Branches in Boston, New York, Baltimore, Cleveland, Detroit, Chicago, Minneapolis, Kansas City, San Francisco.

Manufacturers of Beaver Greenboard and Beaver Blackboard



FLEX-A-TILE Reversible Slab Laid in American Shingle Style

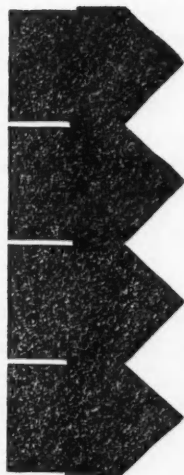
2 Styles in 1

Lay Either End to the Weather

GENUINE FLEX-A-TILE Asphalt Shingles in another, unique style—a slab of four FLEX-A-TILES in one, made so that either end can be exposed, to suit the taste of the builder. Diamond style at one end and square American Shingle style at the other. First—decide on FLEX-A-TILE Asphalt Shingles for their permanent beauty, durability, ease-of-laying and time-weather- and fire-resisting qualities. Then—place your order for

FLEX-A-TILE

Reversible Slab Asphalt Shingles



immediately. There is no need to select the style of shingle until later; then, whichever style is chosen by the builder—diamond or square American shingle—you will be prepared with FLEX-A-TILE Reversible Slabs. Besides these two standard styles, many ornamental effects may be obtained by alternating the positions of the shingles.

This new slab style of FLEX-A-TILES saves 50% in time and labor of laying; 35% in freight; and 38% in nails. Comes in either rich red or deep green, fadeless, natural-stone surfacing. Can be used equally well on new work or over old shingles. Write now for samples and prices.

The HEPPEES-NELSON ROOFING CO.

Factories: Minneapolis, Chicago and in New Jersey
Dept. B 1010 Kilbourne Avenue Chicago

FLEX-A-TILE Slab Shingles, No-Tar Asphalt Paint, Other Guaranteed Heppes-Nelson Products

DEALERS: A few territories are open for live dealers. Write us for proposition.



FLEX-A-TILE Reversible Slab Laid in American Diamond Style

WHO WE ARE — AND

The sole object of the Society is to assist all Architects, Building Contractors and Lumber and Building Material Dealers in designing and erecting **PERMANENT, FIRE-RESISTIVE** buildings of the latest approved type and **AT LESS EXPENSE THAN TEMPORARY BURNABLE CONSTRUCTION** and through them assure to the owner long-lived dependable usefulness.

PERMANENT, FIRE-RESISTIVE construction costs no more than frame and we believe that our friends, the Architect, Contractor and Dealer, will welcome practical literature and personal help which show the more economic use of **PERMANENT, FIRE-RESISTIVE** building materials.

AMERICA LOSES 500 MILLION DOLLARS ANNUALLY THROUGH USELESS FIRES AND DEPRECIATION

This startling sum is absolutely wasted each year because we erect 89% of all of our buildings (the fire-restricted districts of the larger cities not included) of materials which burn and depreciate, to make no mention of the millions of dollars "invested" in fire fighting apparatus and salaries necessary for men to maintain it. This loss is a constant drain on every tax payer in the country and can never be eliminated until Architects, Contractors and Dealers take the matter seriously in hand and "quit building to burn"—we believe the time has come when you are not only ready but willing to join in this important task of helping America to avoid all useless loss, particularly at a time when it is so seriously needed.

WE WANT YOU TO HELP SAVE THIS NEEDLESS LOSS—AMERICA NEEDS IT NOW MORE THAN EVER

The question of this National waste rests more upon **your** shoulders than upon any other group of men in America. The building public has always accepted your advice in the matter of building materials but **YOU** have always felt that **PERMANENT, FIRE-RESISTIVE** construction was "too expensive"—largely because you are not as familiar with the details of its use as you are with frame. This same "building public" will continue to build to burn regardless of the efforts of all Civic Organizations until **YOU** show them how to build of **PERMANENT, FIRE-RESISTIVE** materials. The Permanent Buildings Society can give you valuable assistance in this direction and all without cost or obligation of any sort. With the Country facing the most gigantic struggle in its history and needing most of its available structural lumber for military use, it is your patriotic duty to now use **PERMANENT, FIRE-RESISTIVE** materials which are not only better but will attack at its very base our enormous annual loss in fires and depreciation and eventually, "Make America Fireproof."

IT'S ABSOLUTELY IN YOUR POWER TO DO IT

If you are planning new buildings of any kind and want **PERMANENT, FIRE-RESISTIVE** construction at reasonable cost, write us at once. We will show you how you can now use **PERMANENT** materials, where you have before used frame, and at favorable costs. Be the first man in your community to spread the gospel of Permanent Construction—it will help your business.

WILL YOU "DO YOUR BIT" NOW?

For two years we have been helping Architects, Contractors and Dealers in the use of **PERMANENT, FIRE-RESISTIVE** building materials with such splendid results to them that we are now in a position to extend the same service to these friends in every part of America. Do you want our co-operation in this important work?

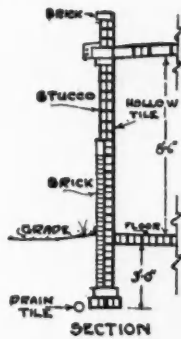
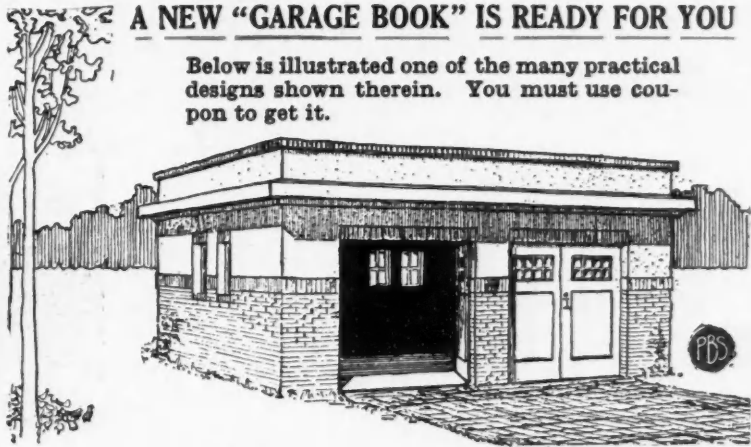
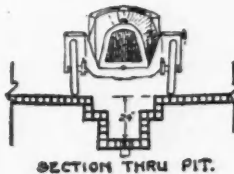
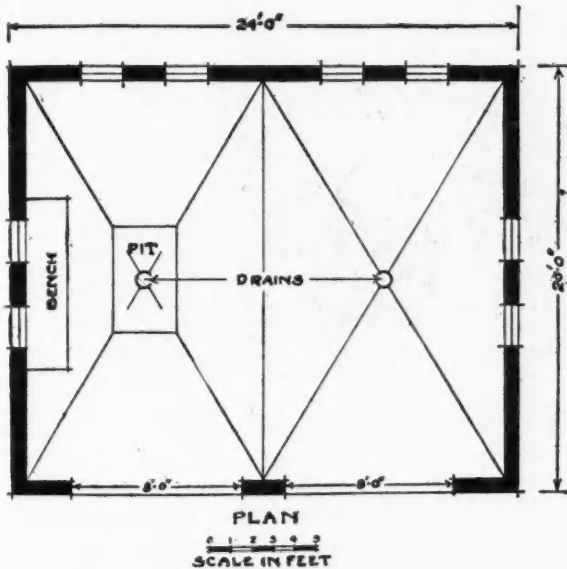
IF SO, FILL IN THE COUPON AT THE RIGHT

If you would like the help of our Society, and without fee or obligation of any sort, we want you to fill in the coupon at the right and send it to us at once. **ALSO WRITE US A LETTER AND TELL US WHETHER OR NOT YOU BELIEVE IN THE IMPORTANT WORK WE HAVE UNDERTAKEN, AND WHAT WE CAN DO FOR YOU PERSONALLY THAT WILL BE OF BENEFIT TO YOU IN YOUR WORK**

WHAT WE STAND FOR

A NEW "GARAGE BOOK" IS READY FOR YOU

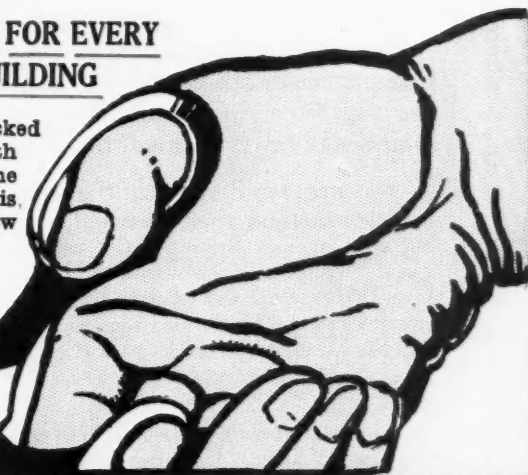
Below is illustrated one of the many practical designs shown therein. You must use coupon to get it.



WE HAVE HUNDREDS OF PRACTICAL DESIGNS FOR EVERY KIND OF A PERMANENT FIRE-RESISTIVE BUILDING

No. 5—Here is an excellent garage in brick and stucco, backed up with hollow tile. The doors and windows are trimmed with brick, also the top of the wall, making a fine contrast with the white stucco. The plan shows a pit in the floor, which is covered when not in use. The floor and roof are of hollow tile. The rain water is carried to the rear.

Material—8x5x12 hollow building tile. Foundation, 468 tile and 1,008 brick; Walls, 1,200 tile and 2,520 brick; Floor, 612 tile; Roof, 672 tile.



MAIL THIS IMPORTANT COUPON TODAY

The Permanent Buildings Society
Des Moines, Iowa

(Your town, state and date)

Gentlemen: We are interested in PERMANENT CONSTRUCTION and will be more than glad to have you furnish us all the literature you possibly can in order that we may use it among our prospective builders. We are planning to build the following (give size and number of stories):

Our dealer's name is _____

They do not carry a full line of permanent building materials, and we would like samples and prices on _____

We are especially interested in obtaining the following information _____

Do you want a copy of our new "Garage Book" just off the press? _____

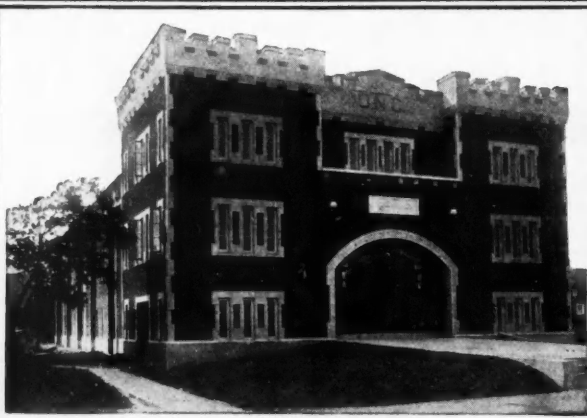
(Your name)

(Your business)

(Your town)

(Your state)

If you want the "Garage Book" make X here (), otherwise it will not be sent.



Uncle Sam believes in using BRICK

THIS is the Ohio National Guard Armory at Defiance, Ohio. It is built of 75,000 Claycraft Light Brown Velour Brick, with trim of Claycraft Smooth Gray.

If you are planning new construction work, some of it surely must be permanent construction. If you appreciate the dignity, stability, and time-resisting qualities of brick, you will build with IT.

If you are familiar with the characteristic thoroughness, promptness and high standing of Claycraft Service—the uniformity in quality, color, and serviceability of Claycraft Face Brick—you will want us to quote you or to send you the Claycraft Face Brick catalogue and the Mantelpiece Brick catalogue.

READ THEM OVER.

Here are our various styles: Golden and Green Raglans, Velours, Corduroys, Buff, Golden Matts, Dry Press, Golden Flash Smooth Ivory, Buff, and Gray Impervious. Do they suggest something to you?

The Claycraft Brick Company

Hartman Building
Columbus, Ohio



(Correspondence Dept. Continued from page 98)

A Fireproof Residence of Stone, Tile and Concrete

To the Editor:

Indiana, Pa.

I am a charter member of the AMERICAN BUILDER and have always found it O. K.

I am enclosing herewith two photos of the residence of M.



Work in Progress on the Residence Designed and Built by Ralph C. Bennett, Indiana, Pa. Carpenter Work Done by Morris A Wolf.

Bennett & Sons, the well known general contractors of Indiana, Pa. This residence was designed and built by Ralph C. Bennett, one of the firm, and I did nearly all the carpenter work on it from start to completion. This house is almost fireproof. It is of yellow sandstone body and trimmed with brown sandstone backed up with hollow tile. All the floors are reinforced concrete with sleepers imbedded and finished



The Above Residence Completed. The Use of Stone, Tile and Concrete Makes It Practically Fireproof.

with a wooden floor. The roof is reinforced concrete and finished with green tile. The reception hall, parlor and dining room are finished on the interior with African mahogany, the living room in quarter-sawed oak, and bedrooms white enameled with inlaid mahogany doors.

MORRIS A. WOLF.

Wants Millwrighting Articles

To the Editor:

Bend, Ore.

Would suggest that you publish a department on millwrighting, as that is all I can see that the BUILDER lacks.

BYRON MARKHAM.

(Correspondence Dept. Continued to page 104)



Hy-tex Store Front, Saint Louis

A good store front, with ample space for window display, is a merchant's best and cheapest advertising. Brick not only makes a beautiful and attractive store front, but has the added advantage of durability, fire-safety and real economy.

Hy-tex

The Standard of Quality in Brick

The American Builder is showing you how to work with brick; and any Hy-tex office is ready to co-operate with you.

Hydraulic-Press Brick Company

Saint Louis

Branch Offices: Baltimore, Chicago, Cleveland, Davenport, DuBois, Pa., Indianapolis, Kansas City, Minneapolis, Omaha, Philadelphia, Roseville, Ohio, Toledo, Washington

Largest Manufacturers of Face Brick in the World

Send for these Booklets

"Hy-tex Brick" tell you the many advantages in building with brick, and something about the completeness of the Hy-tex line and the benefits you can derive from Hy-tex Service.

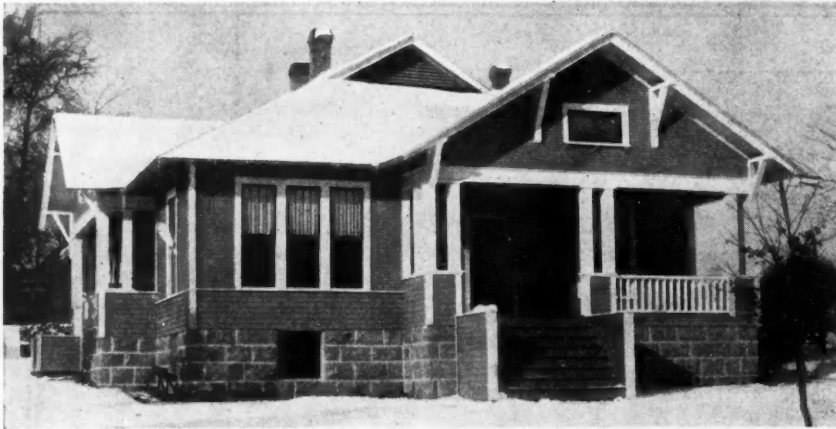
"Suggestions for Small Hy-tex Homes"—shows the possibilities of brick in small homes. It is illustrated with perspectives and floor plans of small brick houses.

Mail the Coupon NOW

Hydraulic-Press Brick Co.
St. Louis, Missouri

Send me "Hy-tex Brick" and "Suggestions for Small Hy-tex Homes."

.....
 Name.....
 Street.....
 City..... State.....



Bungalow Built for J. L. Paul, at Mountain Home, Ark., by B. S. Halbert. Plans were Prepared by Rudolph Brown, of Kingsville, Texas.



Plan of the Bungalow Built by B. S. Halbert

Seven-Room Arkansas Bungalow

To the Editor: Mountain Home, Ark.
 I am sending under separate cover the picture and floor plan of a seven-room bungalow that I have just completed for Mr. J. L. Paul of this place. This bungalow is situated on a beautiful three-acre plot of ground covered with Bermuda grass and a number of hard maple trees for shade. Mr. Rudolph Brown of Kingsville, Texas, prepared the plans for this dwelling.

B. S. HALBERT, Contractor & Builder.

Repairing "Frost Bitten" Sidewalk

To the Editor: Columbiana, Ohio.
 Late last fall I laid a cement walk. The freezing weather spoiled the troweled surface. The thickness of a knife blade

scaled off of the entire walk. Tell me how I can put a 1/2 or 3/4-inch top coat on this walk so as to satisfy the owner.

GLENN BERTOLETTE.

Answer—The disintegrated layer of concrete should be thoroly removed with a hammer and cold chisel, leaving the aggregate exposed. The surface should be thoroly washed with clean water from a hose at sufficient pressure to remove all loose material. Allow the water to soak into the concrete until no more will enter.

Set up forms for the top dressing. The mortar should be proportioned about 1 : 3 and should be mixed in such quantities

(Continued to page 106.)



Build With Belden Brick

—On the basis that brick houses make for a higher standard of construction and therefore more good work and more profit to you.
 —With the knowledge that once you are familiar with brick construction that you can make more money building brick houses than any other kind.
 —With the absolute conviction that "Belden Brick" represent the biggest value you can buy and that we are prepared to give you the kind of service you want.
 We appeal to you to investigate carefully brick house construction.

Direct from the Manufacturer

We have dealers in hundreds of cities and towns in the United States and Canada at the present time. We ask you to write for samples and prices and the name of our nearest dealer. Belden Brick are made in five modern factories and come in all colors, shapes and sizes, and in most textures, rough and smooth. We have the very brick you are looking for, be it house, bungalow, garage, theater, store, bank, church, school, library or office building.

THE BELDEN BRICK CO. Est. 1886 Canton, Ohio

Five Plants at Canton, Somerset, Uhrichsville, Fort Washington

-----USE THIS COUPON NOW-----

Belden Brick Company, Cantor, Ohio
 Gentlemen:—We are favorable to the use of brick for many purposes and would like to know more about your product. We are figuring on building (use this line if anything definite).....

We buy thru (give name of dealer).....
 Name..... Address.....



Drop us a line and tell us what you are figuring on building this Spring

HUNDREDS of progressive contractors are finding that brick construction is as easily handled as frame; and it has many advantages — the principal one is, that it gives your client a more permanent home and relieves him of the continual expense of painting and upkeep.

Then we will tell you how "Artfashioned" Brick can be used to advantage

Artfashioned Brick are made in a wide range of colors and textures. There is a Nuvoque Brick for every style of architecture — from the modest bungalow to the best building in town.

You can get "Artfashioned" Brick from your Local Dealer

We have hundreds of lumber dealers in the Middle West now handling "Artfashioned" brick. If your local dealer does not carry our brick ask him to write us. We prefer to furnish it through his yard.

BOONE BRICK TILE & PAVING CO., Manufacturers of Artfashioned Brick, Boone, Iowa
 Sales Offices all through the Middle West

MADE IN IOWA!



A New Era Home

THERE is no question as to the beauty and utility of brick construction. Every architect and builder is alive to the beauty of the "picturesque" in brick architecture. But they also have recognized the limited variety of effects obtainable, both artistically and mechanically, simply because the brick maker for centuries has been unable to produce more than two or three comparatively small building units. Most of these limitations are done away with in

NATCO TEXTILE

These new, modern tile have the general form and artistic appeal of texture brick, but are made in larger unit size and are hollow.

Artistically, the more adaptable size and vari-colored, rough texture of the tile give to the homes and larger buildings in which they have been used an atmosphere of distinction and refinement that you instantly will appreciate.

In building, the larger units save greatly in labor and mortar. And the confined air spaces in the tile make a finished wall that is fire-proof, sanitary and vermin-proof, and insulated against sound and extremes of heat and cold. As you know, all these are qualities highly essential to modern building construction.

Mail coupon *today* for our booklet NATCO TEXTILE. It's free upon request.

Ask Your Local Building-Material Dealer about "TEXTILE"

NATIONAL FIRE PROOFING COMPANY

566 Federal Street, Pittsburgh, Pa.

Other Offices: New York, Chicago, Philadelphia, Washington, Boston, Detroit, Syracuse
23 Factories in the United States

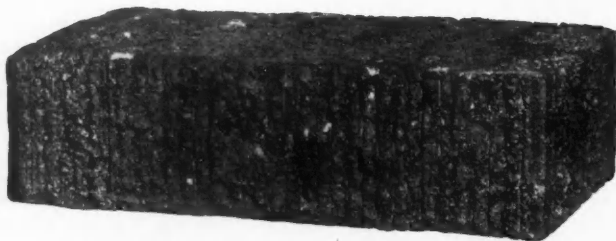
National Fire Proofing Company of Canada, Ltd.
Office at Toronto and Factory at Hamilton, Ontario, Canada

National Fire Proofing Co., 566 Federal St., Pittsburgh, Pa.
Send me, free, NATCO TEXTILE booklet.

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

only \$100 more
than frame!

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER



ALLIANCE MULTI-COLOR RUFF BRICK

EXCEL ALL OTHER BRICK as to beauty of coloring. The chromatic scale of colors runs through the beautiful rough-texture faces, most of the individual brick showing on the face of each brick three or four or more of the seven primary colors or their shades—gun-metals, wines, chocolates, browns, ox-blood reds, blue tones and multi-colors.

Mr. Dealer: If you want the best seller among the many brick made today ask for the agency for Alliance Multi-Color Ruff Brick—beautiful rough-texture and all the colors of the rainbow. Samples and prices on request.

The ALLIANCE BRICK CO., 25 South Linden Ave., Alliance, Ohio

Shackelford Brick and Hollow Tile

Made of Iowa's Best Shale

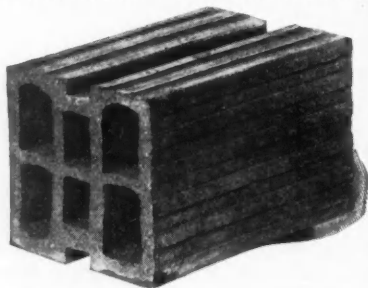
Shackelford common brick and hollow tile are made of Iowa's best shale, and always give entire satisfaction. They are in wide demand throughout the Central West. We would be glad to have your inquiry.

Our Lumberman's Special is a brick that hundreds of lumber dealers are carrying to decided advantage. If you carry chimney and foundation brick get in touch with us at once—we have something of interest for you.

SHACKELFORD BRICK CO., Des Moines, Ia.

"HEAVY DUTY" INTERLOCKING TILE

The **STRENGTH** of BRICK and the **DRYNESS** of TILE are combined in Vigo American Heavy Duty Interlocking Tile to make a **BETTER** wall than solid brick and at two-thirds the cost.



We also manufacture Fire-proofing, Building, Arch, Partition and Drain Tile, Hollow Brick and other shale products. Send for our literature.

VIGO-AMERICAN CLAY COMPANY
7th and Ohio Sts., TERRE HAUTE, IND.

"Practical Homes"

A Plan Book Containing Thirty Plans and Elevations of Houses

Built During Past Three Years

This selection includes all prize-winning and mention designs from National Building Show, New York, Competition **\$100** Postpaid

S-A-F-E, 356 Leader-News Bldg., Cleveland, O.

(Continued from page 104.)

that it will all be used up within thirty minutes after time of mixing. Proceed as follows: Slush thoroly over the wet surface, a wash made from cement and water, fairly thin, enough surface being covered so that the 1:3 top dressing may be placed before the cement wash has had time to dry. If there are joints in the base, mark their location on the forms and finish with a joint in the top dressing directly above the joint in the slab. Carry the cement wash just in advance of the top dressing thruout the work. Do not trowel the surface excessively since this flushes a thin coat of cement to the top which invariably cracks upon setting. EDITOR.



A Good Starter

To the Editor:

Fairmont, Minn.

I am sending you herewith pictures of a barn built by



Construction View of Plank Frame Barn Built on Farm of Frank Lowe, Near Fairmont, Minn., by George Hengel.



The Finished Barn, Which is the First, But Probably Not the Last Plank Frame Barn in the Vicinity of Fairmont, Minn.

myself on the farm of Frank Lowe, near Fairmont. This is the first plank frame in this part of the country.

GEORGE HENGEL.



The Fly is the Tie That Binds the Unhealthy to the Healthy

To the Editor:

New York City.

The fly has no equal as a germ "carrier"; as many as five hundred million germs have been found in and on the body of a single fly.

It is definitely known that the fly is the "carrier" of the germs of typhoid fever; it is widely believed that it is also the "carrier" of other diseases, including possibly infantile paralysis.

The very presence of a fly is a signal and notification that a housekeeper is uncleanly and inefficient.

(Continued to page 108.)

Famous Users

These famous business organizations, the most critical buyers in the world, have investigated and approved Denison Interlocking Tile for their own building walls. Isn't it worth your while to find out why?

DENISON INTERLOCKING TILE

(TRADE MARK)

NORTHERN PACIFIC
BUFFALO DETROIT CLEVELAND

ERIE
The Austin Co

W&L
Stone & Webster

Santa Fe
RED CROWN STANDARD OIL COMPANY

JAP-A-LAC
HOUSEHOLD FINISHES

UNITED FRUIT CO

OTIS ELEVATOR
WINCHESTER

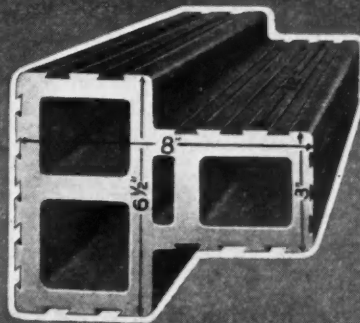
THE CHICAGO MILWAUKEE AND ST. PAUL RAILWAY
W.C.K. Manning-Bowman
WESTINGHOUSE CHURCH KERR & CO.

Jiffy-Jell
Coca-Cola

The May Co
FRISCO LINES
FLORISSANT'S YEAST
AirlinE HONEY
California's Sunkist
Skookum

Richard TWIN-6
Phillips
Studebaker
Buick
Ford

Denison Interlocking Tile Corp'n.
508 Guardian Bldg., Cleveland, O.



This unit builds all desirable thicknesses of wall. See drawing below.

Partitions always directly over each other — giving greatest possible supporting strength.

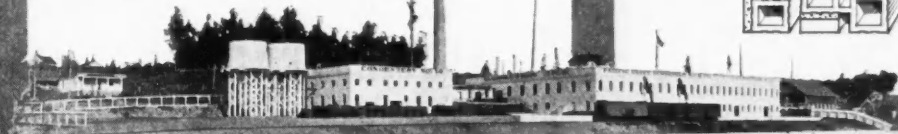
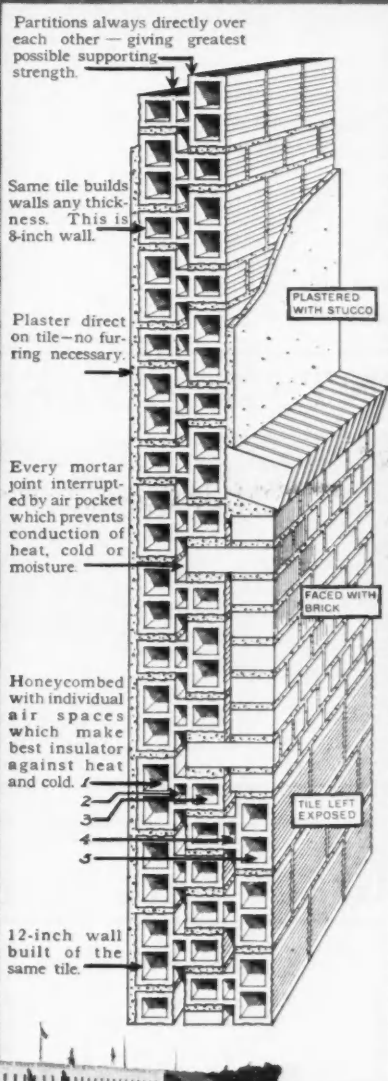
Same tile builds walls any thickness. This is 8-inch wall.

Plaster direct on tile — no furring necessary.

Every mortar joint interrupted by air pocket which prevents conduction of heat, cold or moisture.

Honeycombed with individual air spaces which make best insulator against heat and cold.

12-inch wall built of the same tile.



Carnation Milk
Egan, Stanwood, Wash.
W. N. MacBris, Engineer
One of their seven
Interlocking Tile Factories

Do not wait until the insects begin to pester; anticipate the annoyance.

The farming and suburban districts provide ideal breeding places, and the new born flies do not remain at their birth place but migrate, using railroads and other means of transportation, to towns and cities.

Kill flies and save lives!

EDWARD HATCH, JR., Chairman
 JOHN Y. CUYLER,
 DANIEL D. JACKSON,
 DR. ALBERT VANDER VEER,

Committee, Representing the Merchants' Assn. of N. Y

Saved \$500 per Month Handling Crushed Stone

An example of the earning power of a motor truck when worked to full capacity is furnished by the records of the Cleveland Macadam Company, which show that their 5-ton White dump truck, hauling crushed stone, earned \$500 per month during a period of four and one-half months when it was possible to keep it moving all the time. The truck was loaded by a chute and dumped by the power of the engine. The average tonnage capacity was greatly increased by cutting out idle minutes at the yard and at delivery points.

No Disappointment Here

A New York lawyer tells of a man who had been convicted of stealing by a certain "Down East" Judge, well known for his tender heartedness. "Have you ever been sentenced to imprisonment?" asked the Judge, not unkindly. "Never," exclaimed the prisoner, suddenly bursting into tears. "Well, well, don't cry, my man," said His Honor, consolingly, "you're going to be now."

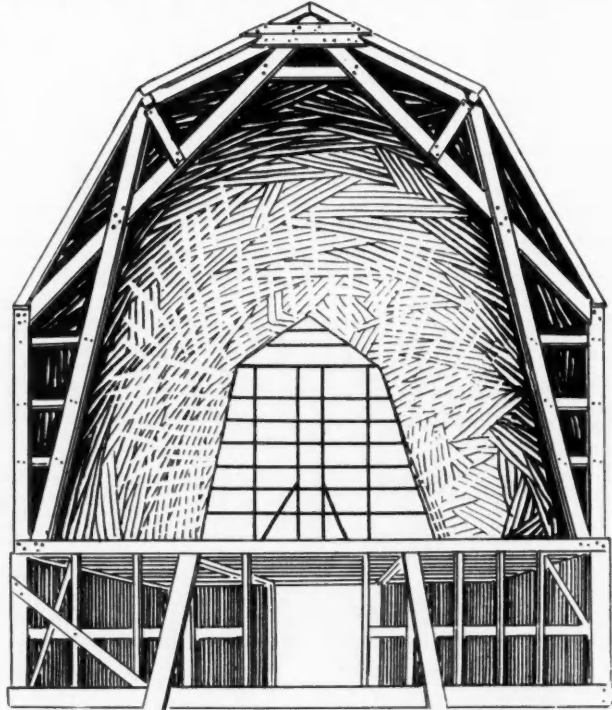
Plank Frame Barn Question

To the Editor:

Ashby, Minn.

I wish you, or some of the readers, would give me information on how to put up the purlin and plank supports for barns, as shown in drawing enclosed.

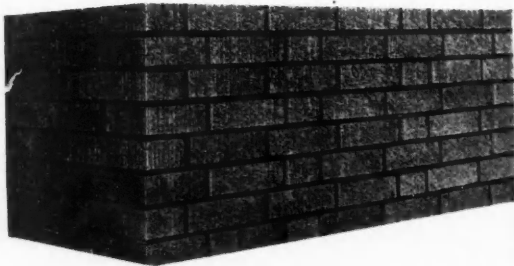
C. KOLKIND.



Sectional View of Barn Showing Method of Framing Plank Supporting Members.

AGENTS WANTED

VINE
 WOVE



PERSIAN
 TEX

ACME BRICK CO., Cayuga, Ind.

Factory Sales Offices in all Principal Cities
 We want local lumber dealers to carry the Acme line--Write us

WITHOUT OUR ESTIMATE YOU HAVE NO COMPETITION

The
Whitacre-Greer Fireproofing Co.

Manufacturers of
**HOLLOW TILE FIREPROOFING
 and BUILDING BLOCK**

Waynesburg, Ohio

Chicago Office:
 538 South Dearborn St.

Pittsburgh, Office:
 7138 Jenkins Building

FIREPROOFING MADE OF PURE FIRE CLAY

High Grade Face Brick

Afghan Matt—Afghan Vertical Ruff

Mr. Contractor: We have an interesting set of pictures of houses, bungalows and public buildings, built of these beautiful brick, we would like to send you free. Please tell us what you are planning to build this spring.

Mr. Dealer: Hundreds of good dealers now carry our line. We want more of them. Write us for our dealers' special plan.

CRAWFORDSVILLE SHALE BRICK CO.

Factory Sales Offices in all Principal Cities of Middle West
CRAWFORDSVILLE, IND.

TILE BAK

(Hollow Clay Tile)

Covered with STUCCO or
HOMESTEAD FACE BRICK

Makes ideal construction for Residences, Schools, Churches, Banks, Garages, Theatres, etc. *It's Fire-Proof*
 Send for Descriptive Pamphlets

The Barkwill-Farr Company Nine Modern Plants Cleveland, O.

Denison Load-Bearing Tile

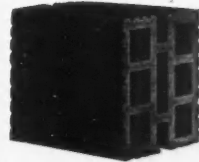


Costs No More Than Good Frame Construction

CARRIES the entire load—it is easy to lay—absolutely fireproof—requires no painting—smallest upkeep cost—most perfect insulation of any building material known—cool in summer—warm in winter—coal bills cut in two—insurance rates cut in two—and everlasting.

There is a good profit in it for you and an assured satisfied owner. The finish exterior can be of brick facing or cement stucco applied directly to the tile, which is grooved to provide a proper clinching surface. The inside wall does not require any furring for plaster.

Note the three vertical sections of dead air spaces which provide the best known insulation against heat and cold. Observe also the broken mortar joint which absolutely prevents frost or moisture from penetrating and condensing on the inside walls. The four vertical bearing webs are in continuous alignment and sustain the load to the best possible advantage.



Sold through all lumber dealers. Send for prices at nearest shipping point.

Denison Fireproofing Co., Mason City, Iowa

FACE HAWK-TEX BRICK

WRITE FOR SAMPLES AND PRICES NOW!

The Capital Clay Line is a Contractor-Dealer output—we always protect the Contractor-Dealer. If you want to be sure of protection you should get in touch with us. We will send a special representative at any time to help you figure any job you think could be built with brick and tile—and that means every job. There is not a single building be it large or small in which these permanent fire-resistive materials cannot be used to mutual advantage and they are much more economical in the end.

FACE HAWK-TEX BRICK BUCKSKIN HOLLOW TILE

HAWK-I-TEX Face Brick and Buckskin Hollow Blocks are made of Iowa's famous shale in vitrified, hard or medium burned grades. Their superiority is evidenced by an official laboratory test which we will gladly mail you upon request. HAWK-I-TEX Face Brick are made in various textures and in attractively beautiful color combinations.

OF SPECIAL INTEREST TO LUMBER AND BUILDING MATERIAL DEALERS

We want local dealers in every city, town or hamlet in the Middle West to stock the Capital Clay Line. Good territory is still open under a Special Dealer's Plan which will interest you. Get in touch with us at once.

CAPITAL CLAY CO.

Factory Sales Offices in All Principal Cities of Middle West

DES MOINES, IA.

BUCKSKIN HOLLOW BLOCK



Build with Beaver Brick

Beauty and permanence of construction can be obtained with this brick at a cost but slightly greater than for frame.

Well burned face brick is universally recognized as the most beautiful and durable building material in existence, and the advantages of brick construction are many.

¶ Brick homes are practically indestructible. Insurance rates are low and the cost of upkeep such as painting and repairs are reduced to a minimum.

¶ Houses of brick maintain an even temperature at all times. Cool in summer and warm in winter.

Beaver Brick is made in a variety of colors and textures. Beaver Clay, Turkestan Vertex and Volcanic Extreme Rough Texture represent the best in facing brick. Our catalog shows them in their natural colors.

Write Today

BEAVER CLAY MNFG. CO., NEW GALILEE, PA.
SALES OFFICES IN ALL CITIES

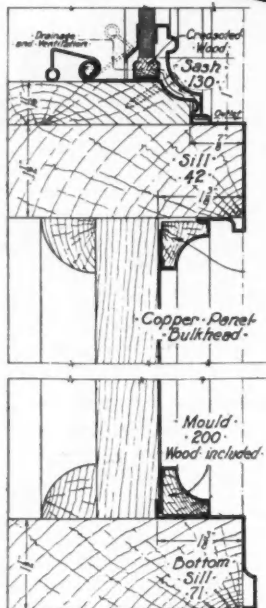


Make More Money

Make more money by using Brasco Store Fronts. Get the quality — and reap the profits. Better store fronts — for less money. Make a good profit on your store front work.

Remember the name

Brasco



Vertical Section thru Store Front

COUPON

Dept. A-7:

Send me, without charge or obligation, a Brasco Detail Folio of the Hester System and information regarding an agency in

.....

.....

.....

Look at the section — only one-fourth actual size — it speaks for itself and to think that after all it costs less.

Send in the coupon for a complete set of details.

Dealer's Notice

We have a few select territories still open and we will be glad to hear from you, letting us know the vicinity in which you would like to handle our construction.

Brasco Manufacturing Co.
1451-5 Michigan Ave.
Chicago, Ill.



Curious Answers

The following is a set of answers taken from public school examination papers. They are declared to be genuine:

The chamois is valuable for its feathers, the whale for its kerosene oil.

Hardships suffered by the southerners after the Civil War: The wives of the aristocrats and of gentle birth patiently made their husbands' trousers out of their own.

The feminine gender of friar is toastress.

The feminine vender of bull is Mrs. Bull.

There were no Christians among the early Gauls. They were mostly lawyers.

Climate is caused by the emotion of the earth around the sun.

Four animals belonging to the cat family are the father cat, the mother cat, and the two little kittens.

Geometry teaches us how to bisect angels.

The purpose of the skeleton: Something to hitch meat to.

The skeleton is what is left after the insides have been taken out, and the outsides have been taken off.

A blizzard is the inside of a hen.

A vacuum is a large empty space where the pope lives.

A circle is a round straight line with a hole in the middle.

When Cicero delivered his oration he was a prefix.

George Washington married Martha Custis and in due time became the father of his country.

Sixty gallons make one hedgehog.

The stomach is just south of the ribs.

The alimentary canal is located in the northern part of Indiana.

The rosetta stone was a missionary to Turkey.

The government of England is a limited mockery.

Georgia was founded by people who had been executed.

A mountain pass is a pass given by the railroad to its employees so that they can spend their vacation in the mountains.

A mountain range is a large cook stove.

The qualifications of a voter at a school meeting are that he must be the father of a child for eight weeks.

Achilles was dipped in the River Styx to make him immortal.

Gender shows whether a man is feminine, masculine or neuter.

Gravitation is that if there were none we should fly away.

The function of the stomach is to hold up the petticoats.

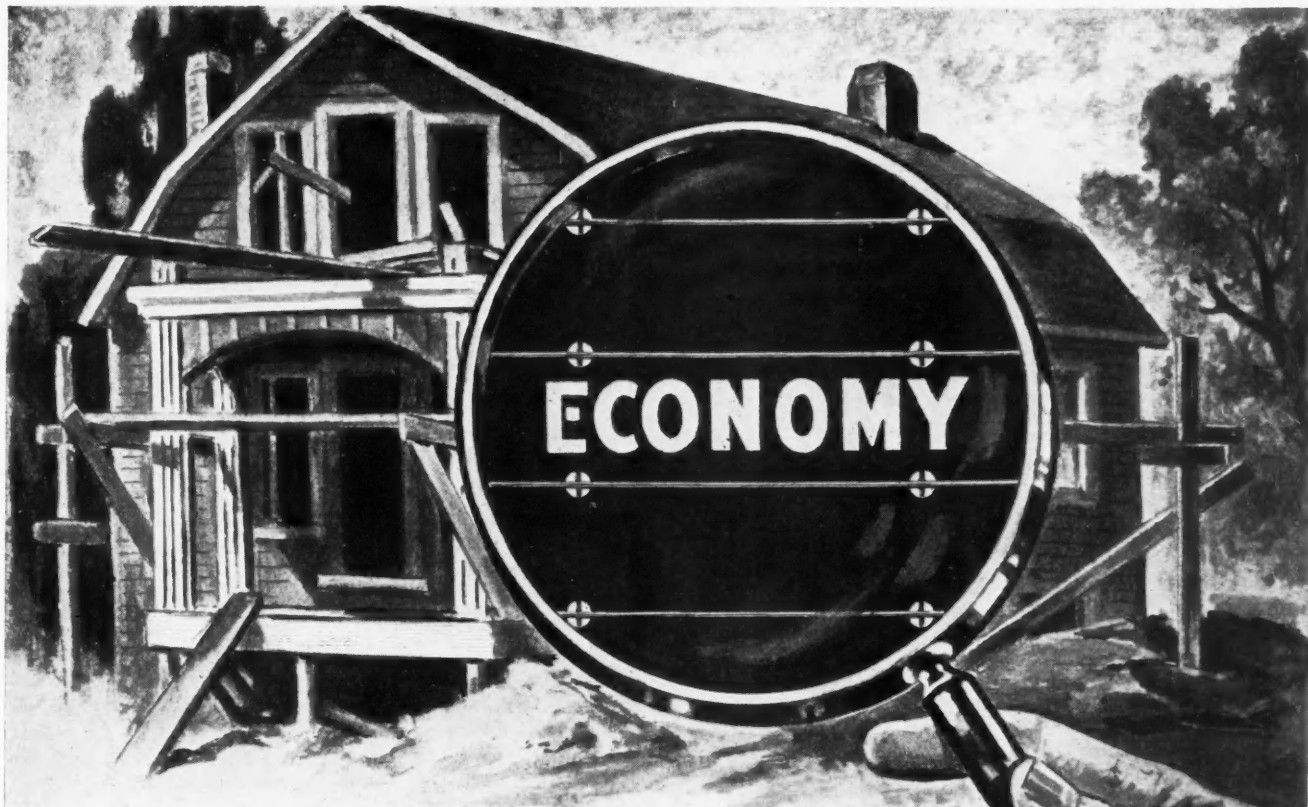


Oats Versus Gasoline Again

"If motor trucks and tractors were entrusted with the work now being done by horses, one great stroke in the desired conservation of food would be accomplished," said H. P. Branstetter of the Kissel Kar.

"Eighteen quarts of oats is the average daily consumption

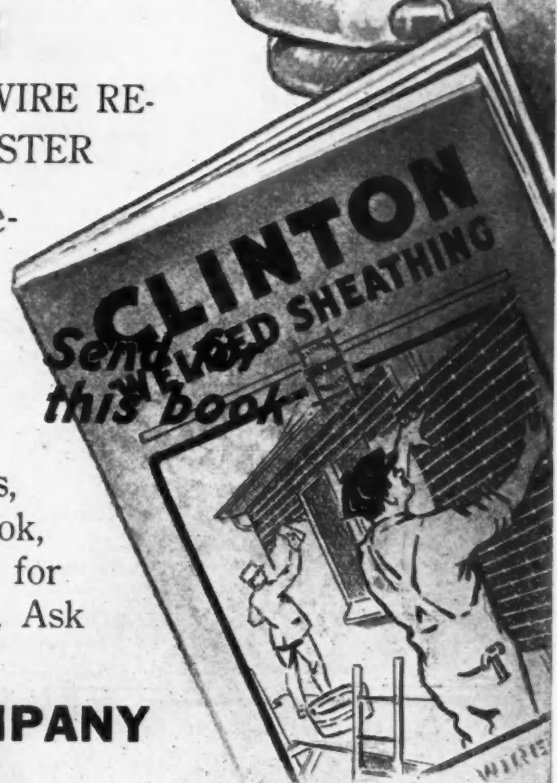
(Continued to page 112.)



CLINTON WELDED SHEATHING

MORE THAN A MERE SUPPORT. A WIRE RE-
INFORCEMENT FOR STUCCO OR PLASTER

This most remarkable lathing material is radically different from all other types of woven or expanded metal lathing and effects such a saving in material and labor as to be almost unbelievable. Actual tests, which are described fully in our 100-page book, conclusively prove every claim we make for economy, durability and general superiority. Ask us to send this book to you.



CLINTON WIRE CLOTH COMPANY
CLINTON, MASS.

BOSTON

NEW YORK

CHICAGO

FIRST WEAVERS OF WIRE BY POWER IN THE WORLD



For Every House in Town

there is a suitable KOHLER bath tub, lavatory and sink. You are sure to add to the attractiveness of the house or apartment you are building by selecting

KOHLER WARE

always of one quality—the highest

The beauty of the enamel, the hygienic designs and the excellence of construction are notable features of the plumbing ware produced by KOHLER OF KOHLER.

Be sure to investigate the merits of the "Viceroy," America's foremost built-in bath.

It is of genuine one-piece construction, easily installed and suitable in price for all classes of houses and apartments.

It is fully illustrated in our free book, "KOHLER OF KOHLER."

KOHLER CO. Founded 1873 **Kohler, Wis.**

Boston New York Philadelphia Pittsburgh Detroit
Indianapolis Chicago St. Paul St. Louis Houston
San Francisco Los Angeles Seattle London

★ The star indicates the location of the KOHLER permanent trade-mark in faint blue.

"Viceroy Bath"—Plate V-12
(Patent Applied For and Name Registered U. S. Patent Office)



(Continued from page 110.)

of a work horse during the open season. At least seventeen million of the twenty-five million horses in this country come under that classification. During the winter six quarts a day is sufficient for each. This means one hundred and thirty-six bushels of oats per horse per year, or a total of two billion two hundred ninety-two million bushels. This, without taking into account the eight million horse population not included in the work horse class.

"There is no more nourishing food for human beings than oatmeal, so, if this country should unfortunately come to the necessity of regulated rations, what a boon it would be if a few million horses should be replaced by motor trucks."

(But between a shortage of oats and a shortage of gas, we say spare the gas.—Editor.)



Gasoline From Shale

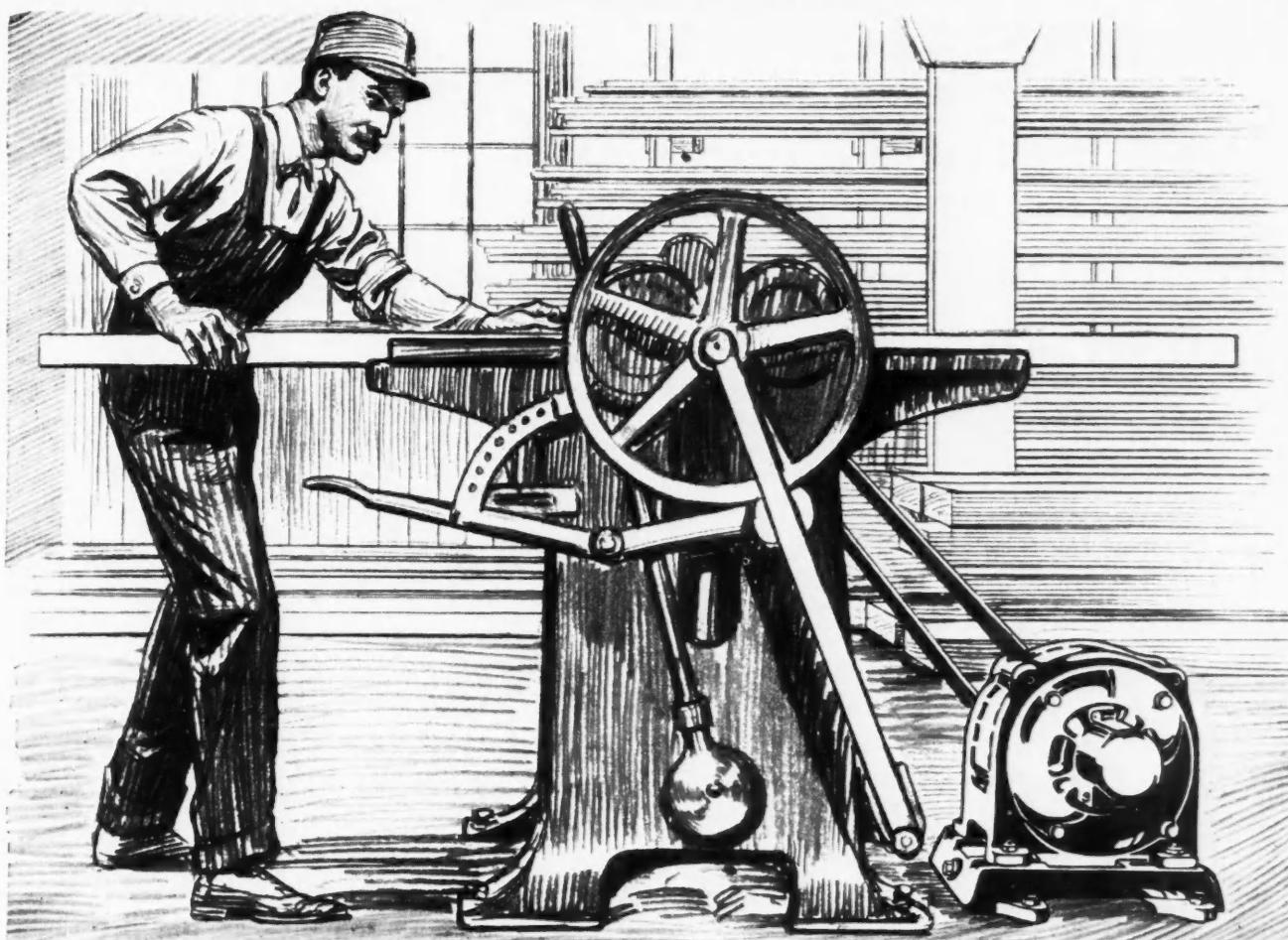
In view of the ever-increasing demand for gasoline and the increase in price of crude oil, from which it is obtained, it is important to know that an almost inexhaustible supply of oil may be obtained from the shale of northwestern Colorado, northeastern Utah, and southwestern Wyoming. This shale contains materials which, when heated, may be converted into crude oil, gas, and ammonia. The high cost of distilling oil from shale as compared to the cost of producing oil from wells has thus far prevented the development in this country of such an industry and may continue to prevent it for some time, but sooner or later this great source of supply will be utilized to supplement the decreasing production from the regular oil fields.

The oil derived from the shale is similar to that which is being produced from wells in the United States at the rate of more than 250,000,000 barrels a year. When refined by ordinary methods the shale oil yields an average of about 10 per cent gasoline, 35 per cent kerosene, and a large amount of paraffin. The yield of gasoline from the shale may probably be largely increased by the use of refining methods especially designed for that purpose. The gas, which is a very good illuminating gas, will perhaps be sufficient to furnish all the heat required to distill the crude oil from the shale.

The ammonia is a most valuable byproduct of the distillation and may be utilized in the manufacture of commercial fertilizer or other nitrogen compounds, as the market demands. The United States Geological Survey has examined large areas of the shale in Colorado, Utah, and Wyoming, and has made many distillation tests. Some beds of shale that are several feet thick will yield more than a barrel of oil to the ton of shale should therefore yield nearly 10 gallons of gasoline by the present commercial methods of gasoline extraction, and larger yields may be made possible by new methods.

Little attention has been paid to this shale because the quantity of petroleum produced from wells in the United States has been sufficient to satisfy all demands, but for more than 50 years the oil shale industry of Scotland has been a very important one. In a recent year more than 8,000 men were employed in the industry in that country, yet the average yield of oil per ton of shale was much less than that which appears possible from the shale of Colorado and Utah. It is estimated that in Colorado alone there is sufficient shale, in beds 3 feet or more thick and richer than the shale being mined in Scotland, to yield twenty billion barrels of crude oil, from which at least two billion barrels of gasoline may be extracted by ordinary refining processes.

As was stated in the recent reply of Secretary Lane to a Senate resolution on the subject of gasoline: "The development of this enormous reserve simply awaits the time when the price of gasoline or the demand for other distillation products warrants the utilization of this substitute source. This may happen in the future. At all events these shales are likely to be drawn upon long before the exhaustion of oil fields."



Steady Power Makes the Smooth Job

In the old days, the carpenter with the powerful and steady stroke turned out the best job. Now that machines have displaced manual labor, electricity provides the power that turns out the best and quickest work.

G-E motor drive has a certainty, smoothness and sustained speed meaning immediate dollars saved—less wastage—greater safety to operatives—reduction of power loss through belts and shaft, and negligible fire risk. Construction work will progress quickly and the finished job will be done right. Ask your lighting company or the nearest G-E Motor Agency about G-E motors and control.

General Electric Company

General Office,
Schenectady, N. Y.



Sales Offices in
All Large Cities

6967

Kissel ALL-YEAR Cab With New Kissel Trucks



All-Year Protection and Comfort for Truck Drivers

NO longer will truck drivers in the building industry have to drive all winter in unprotected cars.

The Kissel ALL-YEAR Cab — weather-proof, rain-proof, cold-proof—gives drivers a warm, dry, comfortable housing in the winter.

In summer it is quickly and easily changed into an open cab by removing the winter attachments (windshield, side, door and rear windows.)

The ALL-YEAR Cab, exclusive with Kissel Trucks, insures to carpenters and builders increased results and high efficiency from their drivers.

In its open form without the winter attachments (\$50.00 extra) it is standard equipment on four new Kissel Trucks.

Announcing the Five New Models of KISSEL TRUCKS

A Truck for Every Purpose

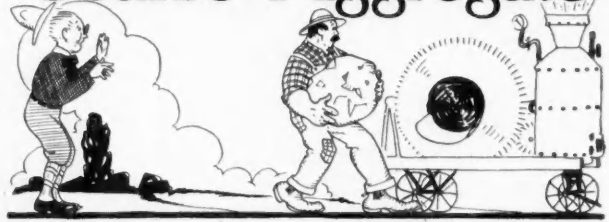
Never before has there been offered to carpenters and builders so much truck quality at the price. Chassis prices, \$1085 to \$3750.



Kissel Motor Car Company
HARTFORD, WIS., U. S. A.

Agencies in all Principal Cities and Towns

Coarse Aggregate



Salesmanship

Wild-eyed Customer—Gimme a quarter's worth of carbolic acid, quick!

Enterprising Clerk—Sorry sir, this is a hardware store, but—er—we have a very fine line of rope, razors and revolvers!



Mother Wanted

The Visitor—What's that awful screaming?

Little Lucy Cittikid—That's our baby paging mama.—Chicago Daily News.



Indignant Customer—Barber, why did you drop that towel on my face?

Barber—Because it was hot, sir.—Boston Globe.



A Changed Man

"Aren't you the same man I gave a mince pie to?" said the Kansas housewife, sharply.

"No, ma'am, I'm not, and wot's more, the doctor says I never will be," answered the weary one.



Getting Older Every Day

"Aren't you the boy who was here a week ago looking for a position?"

"Yes, sir."

"I thought so. And didn't I tell you then that I wanted an older boy?"

"Yes, sir; that's why I'm here now."



Usually

"There's one good thing about buying an encyclopedia on the installment plan."

"And what is that?"

"No matter how long it takes, you are pretty sure to have it paid for before you have read it thru."



Meant Well, Anyhow

Mike Gilligan entered a police office and intimated that some abominable thief had stolen his watch. It was a valuable watch, but, more than that, it had been given to Michael by his father back in County Clare. He told a very stirring story about his loss. The officer at the desk was very much impressed.

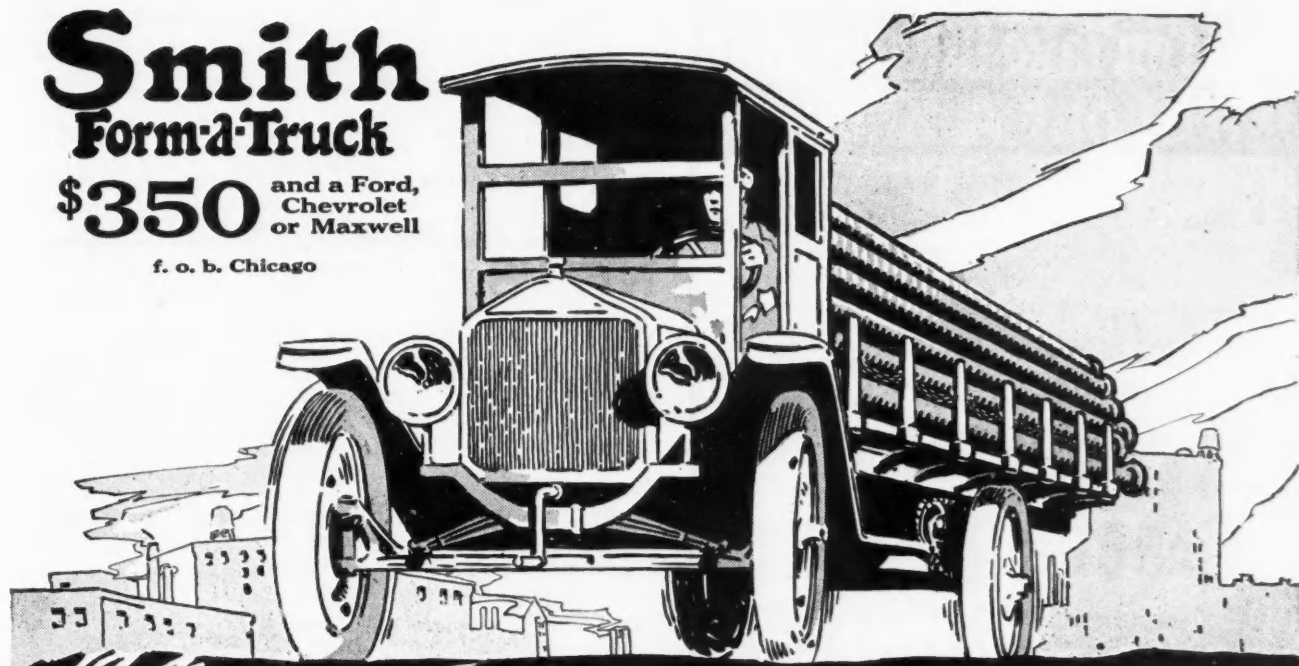
"We'll leave no stone unturned to find your watch, Mr. Gilligan," he said.

"Thank ye, sir," said Mike. "It was a fine watch." And Mr. Gilligan went home and then found his watch. It had slipped from beneath the pillow and in some way landed beneath the sheets. He hurried back to the police office to report the fact and save the police further trouble. On the way he came across a gang of laborers tearing up the road for sewer purposes. "Hi, boys," called Mike, "leave them stones alone, don't turn any more, I've found my watch."—Pittsburgh Chronicle-Telegraph.

Smith Form-a-Truck

\$350 and a Ford,
Chevrolet
or Maxwell

f. o. b. Chicago



Treble Your Hauling Efficiency

IF you now operate horse drawn hauling service you are wasting up to 74% cash. You are delaying deliveries. You are covering a minimum territory.

With Smith Form-a-Truck other building supply and lumber concerns are hauling the same loads formerly hauled by four teams—under the same conditions—over the same roads.

The Lowest Hauling Cost in the World

The wonderful speed of Smith Form-a-Truck—12 to 15 miles an hour under load—will enable you to make quick deliveries—frequent loads—keep loaders busy—save extra drivers' wages—cut insurance cost and your investment in equipment.

Big—Strong—Dependable

Smith Form-a-Truck will haul loads as heavy as trucks costing several times its price. Over the same roads—just as far—and for at least two-thirds its cost.

Smith Form-a-Truck combined with Ford, Dodge Bros., Maxwell, Chevrolet, Buick or Overland power plant makes a fully guaranteed one ton truck. Not an ounce of weight is carried by the Ford rear axle. It merely acts as a jack shaft. 90% of the load is carried by the Smith Form-a-Truck special strong rear axle. The Smith Form-a-Truck frame telescopes the chassis frame, making a double construction. This is the strongest construction principle known to engineers.

Smith Motor Truck Corp.

Manufacturers of Smith Form-a-Trucks

Executive Offices and Salesroom—
Smith Form-a-Truck Building

Michigan Avenue at 16th Street
CHICAGO

Lowest Maintenance Known

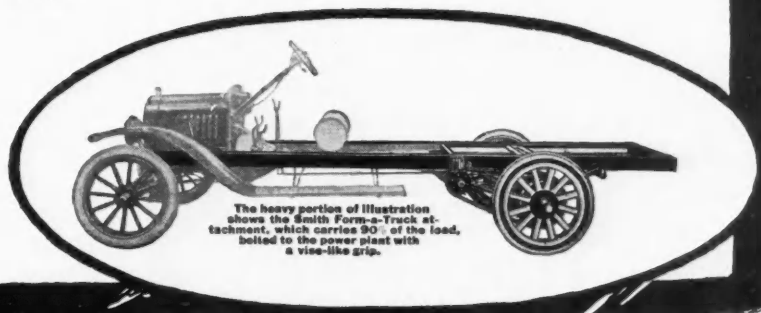
Figure your yearly horse drawn delivery cost. Then compare it with these amazing Smith Form-a-Truck figures:

Less than 8c per ton mile, exclusive of drivers' wages—6,000 to 8,000 miles per set of tires—12 to 18 miles per gallon of gasoline—continuous speed of 12 to 15 miles per hour—and repair expense so low it is trivial. Economies impossible with any other one ton truck.

This is the amazing delivery service you must secure to take the expense out of hauling. Smith Form-a-Truck low hauling cost has revolutionized delivery service.

Get Experts' Figures

Write now. Our transportation engineers know your hauling problems. Let them tell you what a Smith Form-a-Truck will save you in actual cash.



The heavy portion of illustration shows the Smith Form-a-Truck attachment, which carries 90% of the load, bolted to the power plant with a vise-like grip.

You Can Take Hills On High Without A Knock

IF you will keep your motor free from carbon. That knocking in your engine—the difficulty you have climbing hills—poor pick-up—lack of power—noisy motor—pre-ignition—in fact 80% of engine trouble is caused by carbon. Clean it out

with

JOHNSON'S CARBON REMOVER

and your engine will run like it did the first 500 miles, quietly and full of "pep". And your gasoline consumption will drop from 12% to 20%.

You Can Do It Yourself

For 25c—five minutes' time—and with no labor you, yourself, can remove all carbon deposits. Simply pour an ounce of Johnson's Carbon Remover into each cylinder—allow it to remain from two to twelve hours and then drive your car 10 or 15 miles. You will be surprised at the wonderful improvement.

How It Works

Johnson's Carbon Remover does not eat the carbon, but releases it from the metal and softens it into a jelly-like, inflammable mass. Then, as the engine is operated, the mass burns, pulverizes and is blown out with the exhaust in powder form.

Use It Every 1,000 Miles

If you will use Johnson's Carbon Remover at regular intervals, giving carbon no chance to accumulate, you will automatically eliminate most valve trouble and your engine will always be at its highest efficiency.

If your dealer cannot supply you with Johnson's Carbon Remover use attached coupon.

S. C. JOHNSON & SON, Dept. A B 7 Racine, Wis.
I enclose \$1.00 for which please send me by prepaid express enough Johnson's Guaranteed Carbon Remover to thoroughly clean an ordinary four-cylinder motor 4 times.

NAME _____
ADDRESS _____
CITY & STATE _____
MY DEALER IS _____

Made and Guaranteed by
S. C. JOHNSON & SON
Racine, Wisconsin, U.S.A.



NEWS OF THE FIELD

Idaho Registers Architects

"An act to provide for the licensing of architects, and regulate the practice of architecture in the state of Idaho," which is the title of a law recently passed, places Idaho twelfth in the list of states having enacted a registration law.



Registration Law Proposed for Pennsylvania Architects

A bill was introduced on April 2, 1917, in the Pennsylvania legislature which, if passed, will place this state among those having a law for the regulation of the practice of architecture.



New Officers of Sargent & Co.

At the annual meeting of Sargent & Co., New Haven, Conn., held on May 17th, Wilfred Lewis and Ziegler Sargent were elected as directors of the company, and the following members of the board of directors were re-elected: Henry S. Sargent, Edward R. Sargent, Joseph D. Sargent, C. Lewis Sargent, John Sargent, Bruce Fenn and George F. Wiepert.

The new officers of the company are as follows: President, Henry B. Sargent, vice-president, C. Lewis Sargent; secretary, Murray Sargent; treasurer, Ziegler Sargent.



Progress in Metrics

There are striking signs these days of the advance the Metric system of weights and measures is making toward the goal of general international use. The most significant of these is an organized opposition in the United States, an effort by the antimetric forces to stem the tide of advancement.

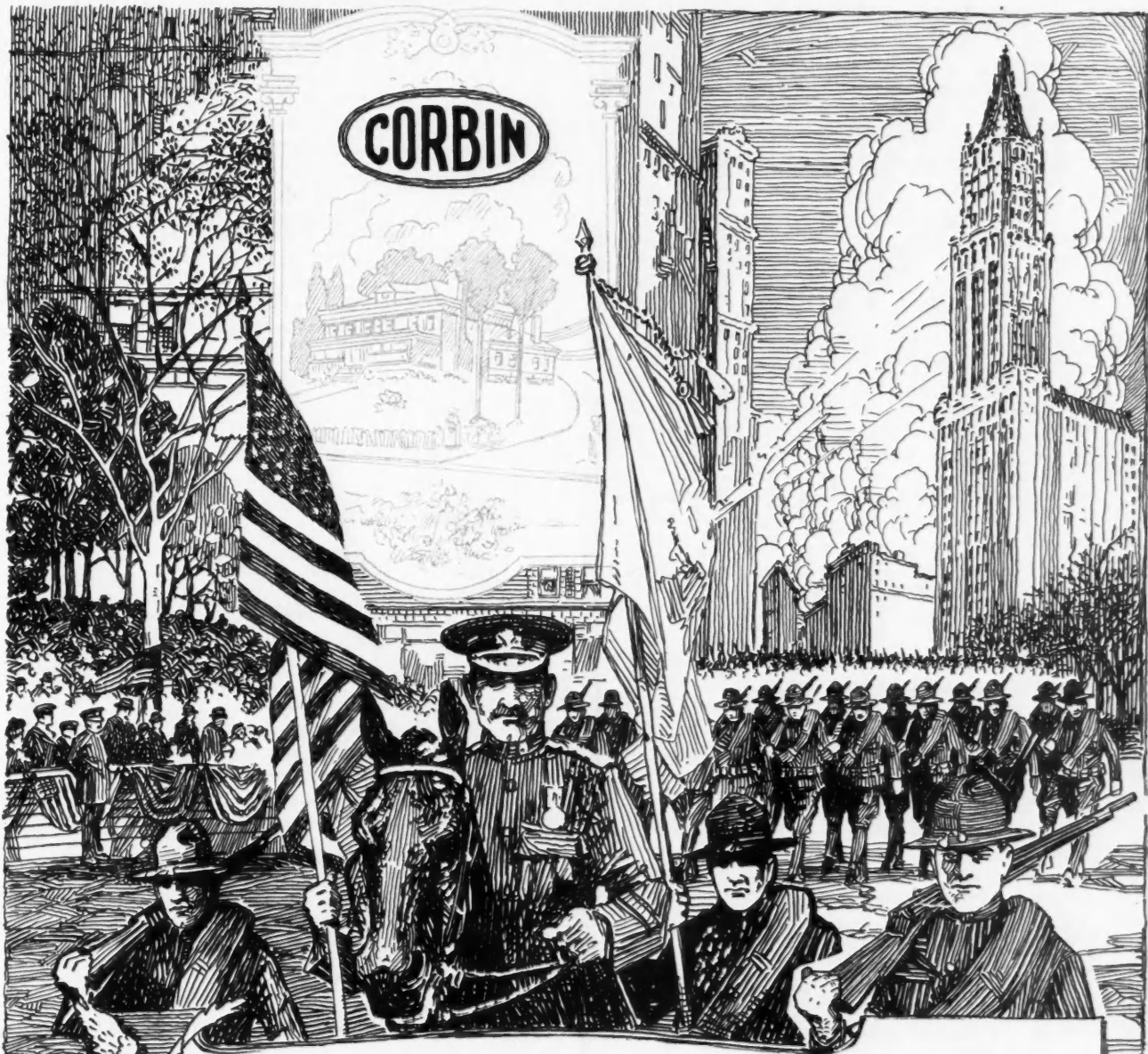
In the line of progress we have the announcement by the Goodyear Tire & Rubber Co., that it has decided to adopt the Metric system as far as possible in all its work. The company is a member of the American Metric Association, of which Dr. George F. Kunz, president of the New York Academy of Science, is president.

Next we have the action of the Association of the Chambers of Commerce of Great Britain in adopting formal resolutions asking the British government to take up with the United States and with Russia (the three countries representing practically the only nations not now in the metric column), the question of a general adoption of the Metric system.

Also in line with this march forward we have the proposal of a bill to be introduced in the British parliament for the introduction of decimal currency in Great Britain. The executive council of the Chamber of Commerce considers that this should be a step preceding action on the Metric system.

The war itself is one of the most powerful factors making for this distinct advance. That the three large nations not now recognizing the Metric system as an international standard and making its use preferable (we believe that the adoption of the system should come without compulsion), are now closely allied in a war that is trying all their resources and bringing them into closer relations than ever before, is

(Continued to page 118.)



WHEN THE THOUGHT TURNS BACK

to the loved ones left behind, there is comfort in the knowledge that they are safe from harm. The Home Guard can never be too faithful or too reliable—and the trustiest guardian of the home ever devised is the Corbin Ball-Bearing Cylinder, attached to a high-grade Corbin residence lock. Ask your hardware dealer for information—or write to

P. & F. CORBIN

The American Hardware Corporation, Successor

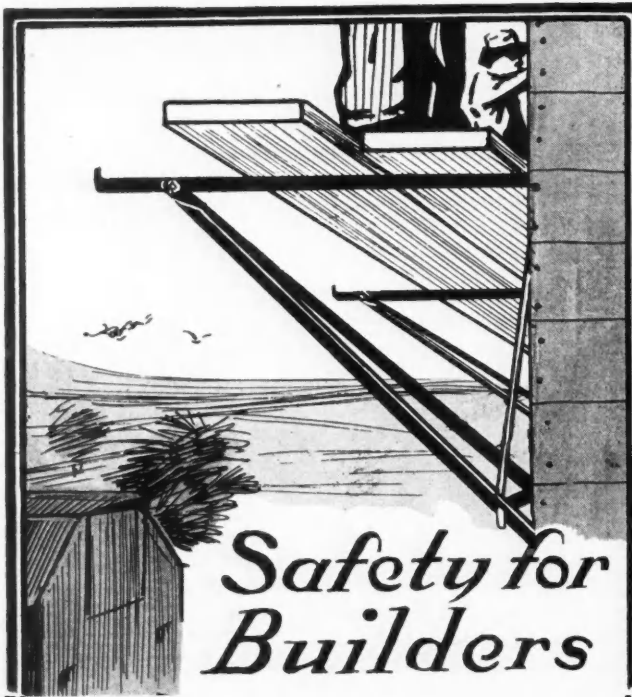
NEW BRITAIN, CONN.

NEW YORK

CHICAGO

PHILADELPHIA





Safety for Builders

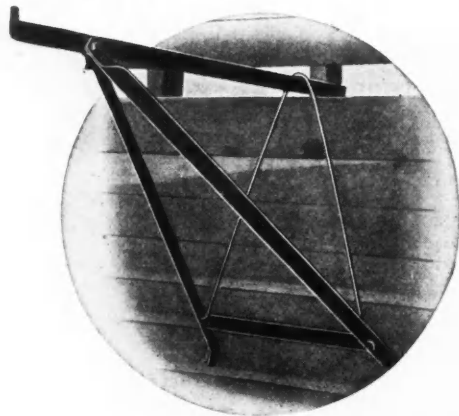
The two points that sell "Trouble Savers" to carpenters and builders quickest is their safety and the quickness with which they are set up. The men can work freely, having full confidence in the reliability of the scaffolding. They're perfectly rigid—no wobbling or side motion. They will support almost any weight.

Then they are easily and quickly applied—no nails—no bolts—no screws—no nuts to bother with. No cumbersome wooden horses to "dray" around. "Trouble Savers" are easily stored, easily transported.

Just read this letter as a sample of "Trouble Saver" enthusiasm:

"Dear Sirs:—'Your Trouble-Savers' are correctly labeled, true to name. I never was on so complete a Bracket. As soon as I unfolded one I was convinced of its merits. There are none in our town that I've seen and I am glad to be the first here. I note that you have other styles that would be fine as a full equipment. Kindly add my testimonial to your already numerous list."

We will ship to you or through your dealer—as you prefer.



The Steel Scaffolding Co.
Evansville, Indiana

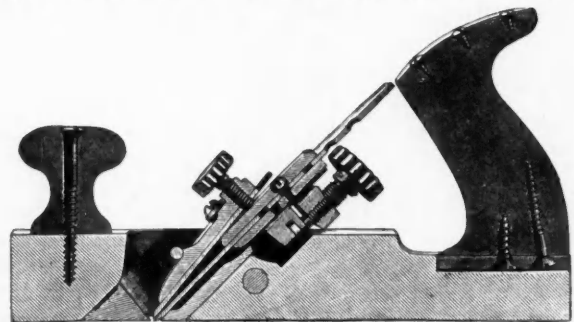
(Continued from page 116.)

likely to have a marked effect in the adoption of means and methods that will make intercourse between them both during and after the war easier. And one of the first of these means is the adoption of some one readily understood and generally applicable system of trading. The adoption of the Metric system and decimal currency would be a long stride in this direction.



Old Mr. Gage Lets Go

On April 17, 1917, John P. Gage, who was for many years proprietor of the Gage Tool Co., Vineland, N. J., sold out his interests to Philip J. Leavens, of Jersey-vise fame. Mr. Leavens has been in the tool business for the past thirty years and is particularly well known as a most capable and congenial salesman, as well as a very successful inventor,



designer and manufacturer of new tools. His friends and the men who really knew him, nick-named him "Honest Phil Leavens," and he has a very large acquaintance under that title. Mr. Leavens' reputation and knowledge of the tool business are a guarantee that the quality of the Gage planes will be maintained and improved. The title of the Gage Tool Co. has been changed to the Gage Tool Co., Inc., and Mr. Gage is no longer connected with the company in any capacity.

The Gage Tool Co., Inc., will continue to make all styles of Gage self-setting planes. A new price list was made May 14, 1917, superseding all previous lists, for both planes and repairs.



New Service Stations

The "New Way" Motor Company, of Lansing, Mich., have added to the list of service stations the following: Hubbard & Floyd, New York City; T. T. Buchfield, Philadelphia, Pa.; French & Allan, Chicago, Ill. Hundreds of "New Way" engines scattered in principal cities of the United States make it necessary for the "New Way" Motor Company to develop a service policy to such an extent that all "New Way" owners will be properly taken care of, and fully satisfied. The service station people will be pleased to see any owners and operators, and assist them in every way possible.



Course in Concrete at Columbia Summer School

Arrangements have been made whereby the School of Practical Arts, Teachers' College, of Columbia University, in cooperation with the Extension Division of the Portland Cement Association, will offer a course in concrete for industrial arts and vocational teachers during the summer session, July 9 to July 28.

The work will consist of a thoro and interesting treatment of the practical as well as the theoretical phases of the subject. The office of the secretary, Columbia University, New York, has literature describing this as well as the other courses offered in the summer school, which may be taken in connection with the concrete course.

Get in Line for Permanent Roofs

By using nails that will last as long as
the shingles you lay—*get*

Zinclad

SHINGLE NAILS

For every shingle roof--these nails will last a generation and are really the cheapest when measured by the years of service they give on the roof.

Zinclad Shingle Nails are sold by dealers in 32 states. If not sold in your city write us direct for samples and prices.

W. H. Maze Company
Peru, Illinois

Johns-Manville Moves to Larger Quarters in Pittsburgh

The splendid increase in business and the need for greater floor space and facilities for displaying Johns-Manville products, necessitated a change in location of the H. W. Johns-Manville Company at Pittsburgh, on May 20th.

On this date, new and larger Johns-Manville showrooms and sales offices were opened on the ground floor of the Westinghouse Building, corner of Ninth St. and Pennsylvania Ave.

These new quarters provide ample space to accommodate the increasing business, and are located in the heart of Pittsburgh's business district, within a few minutes' walk from the Union Station.



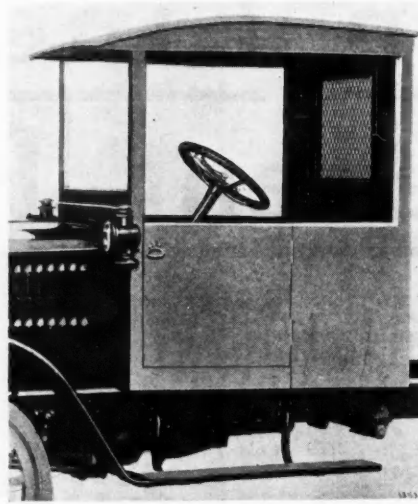
Universal Cement Company Officers Re-elected

B. F. Affleck was re-elected president, and T. J. Hyman, secretary and treasurer, both of Chicago, at the annual meeting of the Universal Portland Cement Co., held at Gary, Ind., June 13, 1917.

The company is a subsidiary of the United States Steel Corporation and has offices in Chicago, Pittsburgh, Minneapolis and Duluth; and plants at Buffington, Ind., Universal, Pa., and Steelton, Minn.

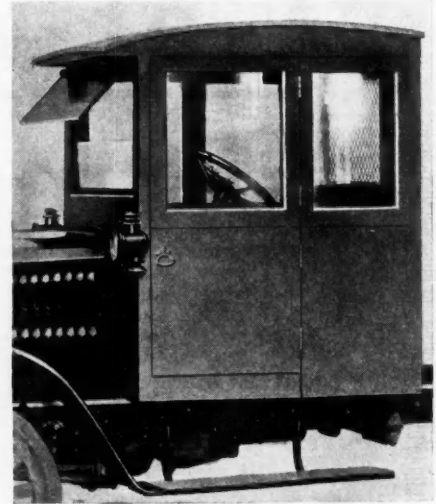
All-Year Cab for Trucks

An innovation that is destined to have a marked effect on the efficiency and comfort of motor truck drivers and one that will give increased results to truck owners is that of the All Year Cab, which the Kissel Motor Car Company,



ALL-YEAR CAB IN SUMMER.

In this open form it is standard equipment on all the new Kissel truck models excepting "The Flyer" Light Delivery Car.



ALL-YEAR CAB IN WINTER.

Showing the winter enclosures, consisting of windshield, side, door and rear windows that are easily attached to open cab.

Hartford, Wis., are just putting out. This is a new adaptation of Kissel's original convertible idea, giving to truck drivers, a closed, warm cab in winter, and which can be easily and quickly changed into the Kissel standard open cab in summer.

For ANY Home

FOR any home, from a bungalow to a mansion—in fact, for any building, there is no exterior building material so adaptable, so economically durable as time-defying, beautiful, complaint-proof

KELLASTONE
IMPERISHABLE STUCCO

In every climate, on buildings of every type, in factories, schools, hospitals and U. S. Government buildings Kellastone has demonstrated its ability to overcome the defects of other stuccos and the drawbacks of other exterior building material.

Let us send you our illustrated book, "The Story of Kellastone," which will show you why Kellastone does not crack, check or fall off, how it resists fire, water and weather and the results of changes in temperature. It will be to your profit to know about it.

The National Kellastone Co.
1315 Mallery Bldg. Chicago, Ill.

THE MORE YOU KNOW ABOUT

BOGALUSA



EXTRA DENSE LONG-LEAF PINE



THE MORE YOU'LL REALIZE THE VALUE TO YOU OF RECOMMENDING IT.

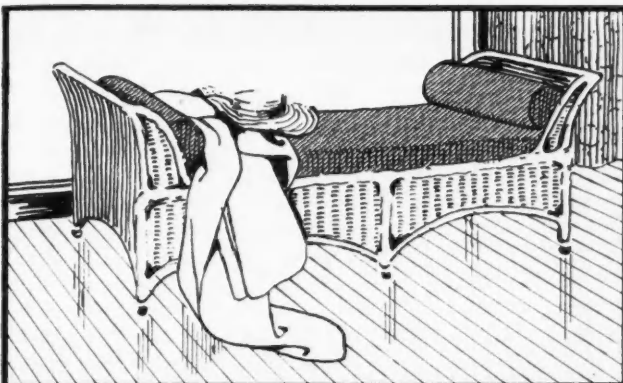
"BOGALUSA" is the name *BY WHICH TO BUY* the BEST LONG-LEAF PINE THAT GROWS.

FOR ALL STRUCTURAL USES, SPECIFY "BOGALUSA"—that is your guaranty. And if you don't see "Bogalusa" stamped on EVERY PIECE or bundle you'll refuse it as "not per order."

WRITE US. (Cutting 1,000,000 feet a day still leaves us time to take an interest in YOU.) There's a real value for you in the *Bogalusa Book*. (Free.)

GREAT SOUTHERN LUMBER COMPANY,
MEMBER SOUTHERN PINE ASSOCIATION
1600 Fourth Avenue Bogalusa, La.

BOGALUSA



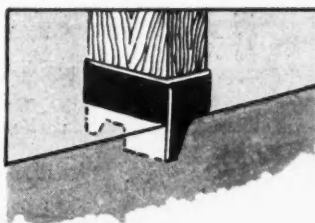
Refinement in Floors

You can use Trokal Liquid Floor Finish on your "most particular" job with the assurance that it will give the most-hoped-for results.

You won't find a floor finish more durable, more sanitary or finer in appearance than Trokal. It dries hard but retains its elasticity. Positively will not crack, chip or mark white. It will give you a fine gloss finish—it is unaffected by water, dampness, or atmospheric conditions.

Write for further information and prices if your dealer can't provide you.

EUGENE E. NICE
PHILADELPHIA, PA.



There's none better than the "Best."

The "BEST" STUDDING SOCKETS are made in three styles—Standard, Partition, and Corner (one size each).

It is rapidly gaining in popularity among builders because it is so simple in design, effective, and so easily and quickly set.

It is placed in the floor after the concrete is laid—before it starts to set. A hole at the inner end allows for attaching a bolt rod or wire for reinforcing. Builders are using "Best" sockets for barns, granaries, elevators, houses, garages—all buildings where concrete floors are used. They far surpass timber plates.

Let us send you our descriptive folder and prices on "Best" Studding Sockets

STERLING FOUNDRY CO., 8 Avenue A, Sterling, Ill.



Wilder Steel-Latch Cattle Stanchions

have special, patented features every contractor and stock owner should know about. All hardwood construction except for our Steel Latch. They're smooth—rustless—easy to adjust. Automatically rigid when open—swing freely when closed. *Cheaper and more efficient than steel. Write for full information.*

WILDER-STRONG IMPL'T CO.
Box H, Monroe, Mich.



War Time Means Repair Jobs

We show you how to get the money-making re-flooring jobs and explain how to lay Asbestone, the wonderful flooring material that looks and wears like tile, yet costs less than half as much, and still yields you a handsome profit.

Get after these jobs at once. No experience necessary. Hundreds of floor jobs ready to get when you show the samples of Asbestone we supply free. Write for full particulars. Also ask about our Magnesium Stucco.



Franklyn R. Muller & Co.
774 Madison St. Waukegan, Ill.



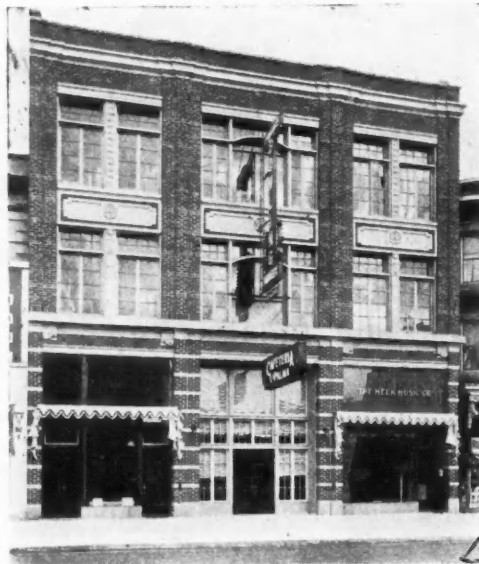
ARTISTIC HOMES

A book of 280 (8 x 11 inch) pages showing perspective views and floor plans of 250 artistic modern homes. A large variety of designs are given so as to meet the taste of the majority of home builders. There are artistic houses for people of moderate means and others for the more wealthy, but in every case the design is made with reference to comfort and economy.

Every design shown has been made by best architects in the world, who have made a study of home architecture and that alone.

Price \$1.00 Postpaid

American Builder
1827 to 1833 Prairie Avenue, Chicago, Ill.



Fronts that always
look clean and
attractive are
built with

MIDLAND TERRA COTTA

MIDLAND
TERRA COTTA
COMPANY

1515 Lumber Exchange
Chicago



(News Notes Continued from page 120)

Fire Retarding Shingle Paint Stands 3-Year Test

A small roof section covered with shingles painted with a zinc borate paint has just been tested as to its fire-resistant properties, after having been exposed to the weather on the roof of the Forest Products Laboratory for nearly three years. Other shingles freshly painted with the same paint were tested in comparison. The results show that the paint had resisted the action of the weather without losing its fire-retarding properties to any marked extent. A close examination of the exposed portion of the shingles showed that the paint was in first class condition. It was concluded, therefore, that a zinc borate paint has excellent lasting qualities and that it retains its fire-retardent properties for at least three years.



New Chevrolet Assembling Plant

The reinforced concrete structure shown in the accompanying illustration is the new assembling plant of the Chevrolet Motor Company erected at an approximate cost of \$600,000, at Flint, Michigan. The Chevrolet organization has been developed in a few years into an \$80,000,000 industrial corporation,



New Reinforced Concrete Structure Which Houses the Flint, Mich., Assembling Plant of the Chevrolet Motor Company.

operating nine factories in various parts of the United States and Canada. The new assembling plant was designed and erected by W. E. Wood Company, Detroit, Michigan, requiring eight months in construction.



Willy-Overland Administration Building

The Administration Building of the Willy's-Overland Company recently erected at Toledo, Ohio, is an excellent example of modern office building architecture. The architects were Mills, Rhines, Bellman and Nordhoff of Toledo, and the contractor was H. J. Specker. The building was in course of construction approximately 18 months.



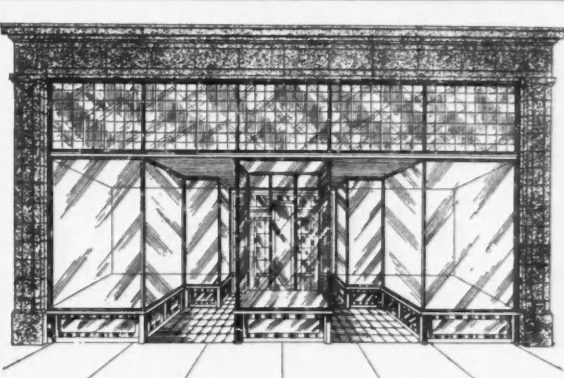
An Exceedingly Fine Example of Modern Office Building Construction Built for Permanence—The New Administration Building of the Willy's-Overland Company at Toledo, Ohio.

Desco
METAL
STORE FRONTS

You've Always Wanted a Simple Store Front Construction

Here it is — "Desco." Easy to order and any mechanic can properly install it. Just as simple, safe and strong as the old-fashioned wood-stop, but thoroughly modern in appearance and efficiency. It's made of heavy copper, provides for ventilation and drainage, and the glass rests against creosote-dipped cypress blocks—a cushion. And "Desco" is lower in price than you've been paying. There's a splendid profit installing modern "Desco" Store Fronts—there's a big opportunity for you and we help you. We sell direct to you. "Desco" is the result of 28 years of experience. Ask for details and prices.

Detroit Show Case Co.
491 Fort St. West
Detroit, Michigan
See Sweet's catalog for details
Sash No. 280

The Easiest Way

to make money is to save it.
ZOURI Construction and Service has done this for other contractors and can do it for you.

Send for Catalog Today

Zouri Drawn Metals Co.
1803 East End Ave., CHICAGO HEIGHTS, ILL.

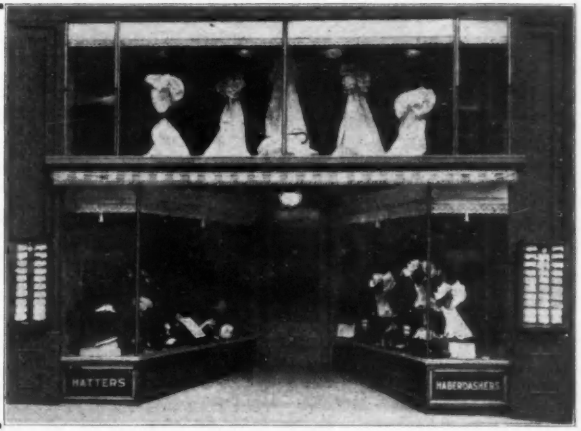
Learn More About Coulson Store Fronts



Send us drawings of both plans and elevation of the front, or a pencil sketch will do, also correct measurements and we will send you some information on **Coulson Store Front Construction** that may surprise you. We furnish everything complete ready to install. Many new exclusive features — patented for your protection and ours. Catalogue and blue prints sent without obligation. Write today.

J. W. COULSON & COMPANY
107 W. Spring St. Columbus, Ohio

Coulson Ventilating and Drainage Sill



Beautiful Oak Floors — Everywhere WHY??


BECAUSE—

- Oak Flooring by right of superior merit and conquest is "America's Best Flooring".
- Women prefer Oak Flooring for the reason it is rich and cheerful in color, and offers unlimited possibilities to give the home that coveted touch of elegance.
- Oak Flooring is Distinctive, Beautiful and Substantial, three very vital reasons why so much Oak Flooring is in use today.
- Service and satisfaction are assured if Oak Floors are used.
- Of all the hardwood flooring in use today, Oak stands pre-eminent for color, texture and durability.
- Keeps the "For Rent" and "For Sale" signs off of the property. Landlords know what is best in flooring.

See our Page 758—1916 Sweet's Catalog. Write for Booklet—"America's Best Flooring."



Oak Flooring Service Bureau, 1603 Union Trust Building CINCINNATI, OHIO



**CATALOGS
BULLETINS & BOOKS
RECEIVED**

The following literature, dealing with subjects of interest to builders, has recently been sent in.

The Use of "Corr-Mesh" for quick, economical fireproof construction of floors, roofs, ceilings, walls and partitions is discussed in a 56-page booklet, 6 by 9 inches, published by the Corrugated Bar Company, Buffalo, New York. Photographs, drawings and tables add to the usefulness of the book.

The American Universal Floor Surfacers for all kinds of wood floors is illustrated and described in a 8-page pamphlet, 6 by 9 inches, recently issued by the American Floor Surfacing Machine Company, Toledo, Ohio.

Proceedings of the Twelfth Annual Convention and National Highways Day of the Mid-West Cement Users' Association are recorded in a book of 84 pages, 6 by 9 inches, published by the association at Omaha, Neb.

Reforestation on the National Forests, by C. R. Tillotson, Forest Examiner, is the subject of Bulletin No. 475 of the United States Department of Agriculture, Washington, D. C. This bulletin contains 64 pages, 6 by 9 inches, liberally illustrated.

Old Homes of Newburyport, Massachusetts, are presented in Volume III, No. 3, of the White Pine Series of Architectural Monographs, which is a bi-monthly publication of the White Pine Bureau, Saint Paul, Minnesota. There are 16 pages, 8½ by 11 inches, beautifully illustrated.

Tile Floors and Walls for Hospitals is the title given a book of 40 pages, 8½ by 11 inches, elaborately illustrated, published by the Associated Tile Manufacturers, Beaver Falls, Pennsylvania.

ROOFING SLATE SINCE 1869

Miners, Makers and Shippers of all Styles and Colors of Roofing Slate. Write for Prices.

RISING & NELSON SLATE CO.

Main Office: West Pawlet, Vt.

Branch Offices:

1055 Marbridge Bldg., New York City. 4 Post Office Sq., Boston, Mass.
Office and Yard, 2554 W. Harrison St., Chicago, Ill.

ROOF SLATE

Of every kind. Black—also the varying delicate shadings and rich tones of Red, Green and Purple—clear and in mottled effects.

Structural Slate — Slate Blackboards

E. J. JOHNSON, Inc.

Quarriers of Slate

West 44th Street, NEW YORK

The Crystal Refrigerators, manufactured by Crystal Refrigerator Company, Fremont, Nebraska, are described and pictured in an envelope of sheets recently prepared for distribution.

Concrete Mixers of the Lansing Company, Lansing, Michigan, are well presented in a beautiful new catalog of 48 pages, 7¼ by 10¼ inches, liberally illustrated and arranged in a very comprehensive manner.

Details of Store Front Construction, shown in excellent manner and to generous scale, are contained in a folio of the Brasco Manufacturing Company, 1451 Michigan Ave., Chicago, Illinois, manufacturers of the Brasco and Hester store fronts, brass and copper products.

Underwriters' Hollow Metal Windows and Fireproof Doors of Herrmann & Grace Company, 671 Bergen St., Brooklyn, N. Y., are illustrated and described in their catalog, 16 pages, 8½ by 11 inches.

"The Garage Book," 16 pages, 6 by 9 inches, is a well illustrated booklet issued by Permanent Buildings Society, Clapp Block, Des Moines, Iowa.

"Protecting Concrete Work Done in Warm Weather" is an illustrated pamphlet of 8 pages, 6 by 9 inches, published by Portland Cement Association, 111 W. Washington St., Chicago, Ill.



The Low Holds Contractor Responsible

(Continued from page 55.)

tion where it would be handy for the carpenters. The Williams boy, a child of seven years of age, with a number of other children living in the neighborhood, was accustomed to play in and about the property where the lumber was piled. One day in October, while the children were playing round the lumber, part of it tumbled and fell on the Williams boy, inflicting injuries which resulted in his death. In the suit which was brought to recover damages, a verdict was given in favor of the child's parents, but the owner appealed from the verdict on the ground that there had been no evidence to show that he knew that piling the lumber in the way he did would attract children, or that it was calculated to entice them to play around it. But the court would not listen to this plea, and said:

"All persons are supposed to know the curiosity of

(Continued to page 126.)

THE U. S. GOVERNMENT

ordered Hudson Asphalt Shingles for use on buildings in the Panama Canal Zone, where the heat is very severe. The Government specifications are very rigid and Hudson Shingles met the test.



Send for Samples to
Asphalt Ready Roofing Co.

Dept. 53 9 Church St. New York, N. Y.

SLATE WE HAVE WHAT YOU WANT

In Roofing Slate, Slate Blackboards

Structural and Plumbers' Slate

SATISFACTION GUARANTEED in QUALITY and PRICE

Ask for Delivered Prices

J. K. HOWER Station C Danielsville, Pa.

R. J. KICHLINE, Sales Agent

**UNFADING
ROOFING SLATE**
and Slate Blackboards

*Best to be had and made in
Slatington — Buy from us*

Slatington-Bangor Slate Syndicate, Inc.
Slatington, Penna.



ROOFING SLATE

—“they
were represented
to be as good as G F T
slate but after we used them
we know POSITIVELY that they
were NOT AS REPRESENTED.” Hereaf-
ter we will use G F T slate. We are
done with “Just as Good” brands.”
This is the experience of all who buy
UNKNOWN brands of roofing. Insist
on G F T slate. They are the best and
cheapest in the end. Price List
and Catalogue on request.

Sole Manufacturers
Slatington Slate Co.
Slatington, Pa.



The Roof of Eternal Youth

SHELDON'S
RED, GREEN, PURPLE, BLACK

SLATES

Custom made to “fit” your Roof. A wide
choice of distinctive Color Combinations.
Quality, Price and Service unequalled.

F. C. Sheldon Slate Co., Granville, New York

To The Standard Paint Co., New York.
The Impervite Stucco work is the best job in the County,
not a hair-crack in the whole building.
Carbon Cement Block Company.

To The Standard Paint Co., Chicago.
We tried everything to overcome water seeping through the
cellar wall. Are now using the room for pianos and there is
no sign of dampness. *Bell Brothers Music Company.*

To The Standard Paint Co., New York.
The pit goes twenty-five feet below water level. It was
originally waterproofed with ten layers of tar and felt, which
failed. The **Impervite** system was decided on and a $\frac{1}{4}$ " inside
facing was applied in 1912 and has been absolutely successful.
Isaac Hopper Sons, Inc.

To The Standard Paint Co., Boston.
We ordered 5000 lbs. of **Impervite** for plastering several reservoirs.
We have had no leaks, we have had no cracks and it has held on a
stone wall where we very often had trouble in being able to hold the
cement plaster. *Frederick & Bradenbaugh.*

No. 1
Genuine Bangor Slate Roofing
(with Certificate)

A blue-black slate of durable and uniform color, and
great tensile strength. (See U. S. Geological Survey
Bulletin No. 586).

The slate roof is the safe roof, an incomparable pro-
tection against conflagration hazards, takes the low-
est insurance rate, is architecturally beautiful, stands
the test of time as does no other roof.

Costs of all building materials have advanced largely.
The advance in slate has been less than any other
roofing material. You conserve your client's best
interest in service and in cost when you specify
Genuine Bangor No. 1 Slate (with Certificate).

NORTH BANGOR SLATE COMPANY
BANGOR, PENNSYLVANIA

At Last! A Practical Home-Study Course for
CARPENTERS
FOREMEN—SUPERINTENDENTS—CONTRACTORS
and all other men in the Building Lines

**Plan Reading, Estimating,
Architectural Drawing, Contracting, etc.**

This is a course for practical men. We send you actual blue print plans of build-
ings now being built or recently completed. Practical training, not book
knowledge, is what you want—it's what we give. When you think of the
opportunities this training offers, you will take time—right now—to mail the
coupon for full information.

To Succeed in any branch of the building business you must have a
complete knowledge of plans and specifications. You
must be able to estimate closely the cost of material and labor. Guessing won't
do—you must know. This knowledge is what makes successful foremen, superin-
tendents and general contractors. This knowledge means money—thousands of
dollars—to any builder—to you!

Your Spare Time is Enough
**You Can Master These Subjects in Your Own
Home by This New, Easy, Quick Method**

Study at Home

Hundreds of men are in daily attendance at this old-established
college. In your own home you can do the same work these
men are doing. The same experts that teach them will guide
you toward the big job. They will prepare your instruction
matter. Your work is examined and approved by them. These
men know exactly the practical training you need, because they
are in constant charge of big work. No books to sell.

For FREE information, Builders' Course Architectural Drawing
Mark and Mail this Plan Reading General Contracting
Coupon. Estimating Building Superintendence

Name

Address

Town State

College or Home-Study Course

Chicago Technical College
1017 Lake View Building, Chicago, Ill.

What Solves the Roof Problem
Best for Cost, Utility, Beauty—



Asphalt Shingles
Red and Green

STOWELL MFG. CO., Asphalt Prepared Roofings
42 Culver Ave., Jersey City, N. J.



**FREE
OVR CATALOG H**

YOU may know one or two prospects who are thinking of modernizing their store fronts at this time. Very well—why don't you write for our Catalog "H," which contains all necessary sectional details for the proper installation of an up-to-date Kawneer Store Front. This catalog will surely be of great help to you in your store-front work.

**Kawneer
STORE FRONTS**

are found everywhere and everyone is giving maximum service and satisfaction; 56,000 retail merchants, scattered all over the United States, are today conducting profitable business behind a Kawneer Store Front.

An efficient sales organization is maintained by us to assist everyone interested in our products. We will analyze your client's merchandizing problem and will suggest and help you in all matters pertaining to your store-front work.

At our Home Office we are maintaining an efficient Engineering Department, which at all times is at your service.

Let us co-operate.

Kawneer Mfg. Co. - Niles, Mich.

COUPON

Please send me a copy of Catalog "H."

.....

(Continued from page 124.)

children, and their disposition to play around and about objects of unusual appearance. No court would permit a verdict to stand which rested upon the denial of such instincts in children, or excused the negligence of the owner of the property because of the want of specific evidence that he possessed that common knowledge which all men are assumed to have."

These cases are enough to give builders an idea of the necessity for taking proper precautions in protecting the premises where they are engaged from the explorations of children. The builder should always try to keep such premises in as safe a condition as possible, and should attempt to safeguard the children who may come upon the premises, so far as lies within his power. The courts are not unreasonable in enforcing this doctrine, and when it appears that the owner or builder has done all in his power to render the premises safe, and to prevent children from playing about parts of premises which cannot be made safe for them, such an owner or builder will not be held liable for injuries to a child which he could not prevent. The courts also show a decided tendency to limit the application of this doctrine to children of very immature years. It is impossible to set a definite age, but the great majority of the cases in which the doctrine has been applied are those involving children under the age of ten years. But it is always better, and in the end very much cheaper, to go out of one's way to establish every safeguard possible.



Securing Trim to Hollow Tile

(Continued from page 77.)

hold when properly used. The bolts seldom or never fail. When failures occur it is the material of the wall which has given way.

"But for heavy weights, as, for instance, racks or hooks in a meat shop or abbatoir from which to suspend beef or hogs, something more reliable than the expansion joint must be used; and owing to the air cells in hollow tile, special T or cross-head bolts can be used, which not only distribute the load over a large area of wall surface, but are constructed in such a way that the shell of the hollow tile would have to pull apart before the hook or bracket secured by the bolt could give way.

"Look at this simple little locking device! (See page 77.) As the screw or bolt is driven home it draws up in the form of loops, four strips of metal which lock the bolts on the inside of the wall.

"Then there are many forms of this device obtainable on the market. It is nothing more or less than a bolt with a loose cross-piece for a head. The cross-piece is fastened with a rivet in such a way that it can be straightened out so as to be a prolongation of the bolt; then being riveted a little one side of the center of its length, when the cross-piece is pushed thru a

(Continued to page 128.)



Roofed
Throughout
with Bayonne
Roof and
Deck Cloth

Gedney Farm Hotel, White Plains, N. Y.
Kenneth M. Murchison, Architect

—and you know it will retain its water-and-weather-proof quality for years and years of service. You know Bayonne can never crack, peel or rot, that it "stands up" better than ordinary canvas, and is better all-around than metal roofing. All builders know that

BAYONNE Roof and Deck Cloth

is value clear through. They know that it costs less in the first place—and in the long run. They know that its special process of manufacture means long service even with hard usage.

When you use Bayonne you don't have to worry about the high cost of paint. Bayonne isn't laid in paint. It's laid on DRY BOARDS—and only requires a light coat of paint afterwards. That means no bubbles—no buckling—less labor.

Bayonne is the standard for roofs and decks of sun parlors, sleeping-porches, piazzas—on all places receiving hard wear. Send for Price Book N and examine the close weave of the samples.

JOHN BOYLE & CO., Inc.
112-114 Duane St., 70-72 Reade St., New York City
St. Louis Branch: 202-4 Market Street



Architects, Whitmyer & Chaffee, Peoria, Ill., for Dr. T. C. Coggeshall, Henry, Ill. 24-inch "Dixie White" "CREO-DIPT" Stained Shingles on side walls. 16-inch moss green "CREO-DIPT" Stained Shingles on roof.

"The Most Beautiful Material in America"

is the remark of many builders who use "CREO-DIPT" Stained Shingles. Some refer to the lasting stains and pleasing colors; others to the quality of shingles. We take pride in producing

"CREO-DIPT" STAINED SHINGLES

17 Grades 16, 18, 24-Inch 30 Colors

There are many combinations of browns, greens and grays for roofs and side walls.

Write for sample colors on wood and Book of "CREO-DIPT" Houses. Ask for book on "Thatch Roofs" and 24-inch "Dixie White" Side Walls.

CREO-DIPT COMPANY, Inc.
STANDARD STAINED SHINGLE COMPANY
1028 Oliver Street No. Tonawanda, N. Y.
Factory in Chicago for West

GF Waterproofing Service

GF Waterproofing Products and Technical Paints effectively and economically waterproof, damp-proof and harden concrete and all forms of masonry both above and below grade—preserve decorative effects—protect finished surfaces, whether wood, plaster, concrete or metal, against water, wear and stains. Write for Booklet.

The General Fireproofing Co., Youngstown, Ohio



THE patented interlocked FENESTRA joint retains 30% more metal than any other joint, and allows the bars to run continuously from head to sill and from jamb to jamb, giving utmost strength. Outward contour of vertical bar makes the joint self-weathering.

Detroit Steel Products Company
2716 East Grand Boulevard
Detroit, Mich.

Fenestra
SOLID STEEL WINDOWS



CON-SER-TEX
CANVAS
ROOFING

When properly laid, Con-ser-tex affords a neat, smooth, hard service which will remain so under the most severe wear.

INDESTRUCTIBLE

Con-ser-tex is a specially treated cotton fabric which is not subject to the deteriorating effects of oil in Paint—Dry rot nor mildew. It is not affected by rain, snow, sun, wind, heat nor cold. It is ideal as a roof or floor covering.

NOISELESS and SATISFACTORY

It is sound-proof—deadening the noise of wind and rain and is a non-conductor of heat and cold. It reduces the heating bill in Winter and helps to keep the house cool in Summer.

Con-ser-tex Floor and Roof covering is praised by thousands of users. It is the best material to use wherever wear and tear is the hardest. Sun Parlors, Porches, Halls, Bathrooms, Kitchens, Roofs, etc.

Easy to lay—saves labor costs and eliminates the necessity of the expensive roof and floor lumber. Make lower bids by using Con-ser-tex for roofs and floors. Send for New Booklet "Roofing Facts and Figures"

William L. Barrell Company, 8 Thomas Street, New York City
CHICAGO DISTRIBUTOR—Geo. B. Carpenter Co., 430-40 Wells St.
CALIFORNIA DISTRIBUTORS—Waterhouse & Price Co., Los Angeles.
The Pacific Building Material Co., San Francisco.

(Continued from page 126.)

hole in the front shell of a hollow tile into the air cell the long legs drop down, thereby bringing the cross-piece at right angles to the bolt. This gives a grip on the inside of the hollow tile that nothing but the crushing of the tile, or the breaking of the bolt will shake loose. It is a fastening that will hold any reasonable weight, prove simple to install, effective in use and economical withal.

"Those are the reasons I like better to attach trim to hollow-tile walls than to any other kind I find in my practice. I know how to get the best results when working with this material, and one likes, I suppose, to work with the material he is the most familiar with, can use the most economically and get the best results."



Painting Equipment

(Continued to page 83.)

properly. Do not let the brush man simply lay the brushes away in oil each night. This will soon ruin the shape of the brushes, cause the heels to get filled with mealy paint material and will certainly cause a lot of bad humor among the men in a mighty short time. Brushes well taken care of will do good work for years; if the brush man is slack, does not wash out his brushes carefully; is careless in suspending them in the turps pail at night, the item of brushes

will soon count up to be a big overhead and altogether needless expense. Get good wall brushes, good ovals, rubberset varnish brushes, good chisels and sash tools; and when bought take care of them. Keep paint brushes and varnish brushes in separate turps pails.

Making Gasoline Torches Last Longer

A few gasoline torches of quart capacity will be needed. Choose one well made of heavy material and as few operating parts as possible. One very important item in the care of a gasoline torch lies in the small but vital matter of loosening the valve system after the flame has been extinguished and before the burner cools. If this is not done the bronze burner will shrink down on the steel valve needle as it cools and the soft material soon becomes distorted and ruined. At best a torch is short lived; but by watching this one little item and being sure that nothing but clean gas is used, it will lengthen the life of the torch appreciably. Never send a man for gas and give him a can that has ever held varnish. Such gas will not burn and very soon your needle valve is plugged with baked varnish in case you try to heat the burner and get the torch going when charged with such material.

Each man should be supplied with a 4-inch round duster and a narrow and wide putty knife. With the above equipment and a competent master painter, the gang should soon be doing creditable work, especially if the contractor "watches the corners."



**WATERPROOF
PLASTERGON
WALL-BOARD**

(See how this 10-foot panel stands straight without bending. Send for actual photo.)

Warp Proof

Most all materials are subject to expansion and contraction unless controlled in some way. With **WATERPROOF PLASTERGON WALL BOARD** this is controlled by first "curing" or drying the board thoroughly to take out the excess moisture and then impregnating the fibres with oils that seal the pores and prevent them taking up moisture from any source.

Atmospheric Changes nor Damp Studding Affect Waterproof Plastergon Wall Board.

By insulating the dry fibre with protective oils **PLASTERGON WALL BOARD** is so thoroughly waterproofed that atmospheric changes and damp studding which affect most boards have no effect on it.

Beware of Boards Waterproofed and Sized with Paraffin or Other Greasy Substances.

Your Safeguard in Buying (No. 13)

"I have specified and used Plastergon Wall Board over a year and have never had a case of warping or twisting. * * * My clients are pleased with it and I will use it at every opportunity."

G. E. WINSLOW, Otisfield, Me.

Samples and our "Contractors' Practical Working Guide" sent free. Send the name of your Lumber or Builders' Supply Dealer. Write today.

Plastergon Wall Board Co.
1 Philadelphia Ave., Buffalo, N. Y.



"You can see by this plan how Linofelt is put on"

ANYBODY can put Linofelt on—*it goes on easy*—and if you will ask your architect or builder whether it *ought* to go on to your house—new or old—he will quickly say—*by all means.*

LINOFELT

"Between You and the Weather"
(Copyright 1914, Union Fibre Co., Winona, Minn.)

is a tough, woolly flax fibre house-lining "blanket" stitched in between heavy sheets of Kraft paper. Catches and imprisons drafts. Saves 30% in fuel bills.

Every Architect and Builder should have our Linofelt Book. It shows why Linofelt is a good thing to specify.

Write us now—today.

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Just the Thing for Emergency Jobs

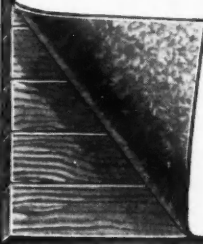
PARTITIONS are needed quick—an attic or basement must be lined in a day—shelving put up over night—a store or window display background or booth completed in a few hours—a theatre remodeled or a whole house lined in a few days.

"Hurry-up" jobs like these usually pay good profits. You can "deliver" by using



It's the only wall board with the wood core—can be worked quick and easy. It saws straight and smooth, is light in weight, but very strong and durable. It is not affected by dampness or other weather conditions—does not warp or shrink.

Be sure you get the genuine—with the wood core—sold by dealers in strips 4 feet wide by one to 18 feet long.



Write for sample and interesting booklet.

The Compo-Board Co.,
5777 Lyndale Ave. N.,
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NO INTERRUPTION to BUSINESS WHILE REMODELING!

CARPENTERS installing partitions, new windows or backgrounds can do a profitable job—in many ways more pleasing to store owners—if they suggest

CAREY

Ceil-Board

SUPERSEDES PLASTER FOR WALLS AND CEILINGS

No dirt, no damage to floors or goods, no delay on account of plasterers; business goes forward as usual. You erect a simple frame and cover it with Ceil-board furnished in Golden Oak, Mission or Circassian Walnut. (Also furnished in plain finishes for tinting.) One satisfactory job brings another. Write us for samples and particulars.

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1021 Wayne Ave., Lockland Cincinnati, Ohio

USE

Cornell-Wood-Board

for Walls, Ceilings, Partitions

This superior wallboard is the ideal material for walls and ceilings of HOMES, STORES, OFFICES, SCHOOLS, CHURCHES, THEATRES, GARAGES, FARM BUILDINGS, REPAIRS AND ALTERATIONS and for a HUNDRED DIFFERENT EMERGENCY USES. Write for a large sample and complete information.

CORNELL WOOD PRODUCTS CO.

C. O. FRISBIE, Pres.

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Fiberlic

Wall Board

Fiberlic

Wood Grain Panels

The material from which it is made, the fact that the pulp is chemically cleansed and that the fibre lengths give the finished product that natural reinforcement that is lacking in ground wood boards, is in itself a guarantee of the superiority of Fiberlic from strong, permanent, economical and sanitary construction.

MacAndrews & Forbes Company

200 Fifth Avenue, New York City

Factory: Camden, N. J.



Your Reputation Demands

UPSON PROCESSED BOARD

---the Most Dependable Wall Board

Made in America

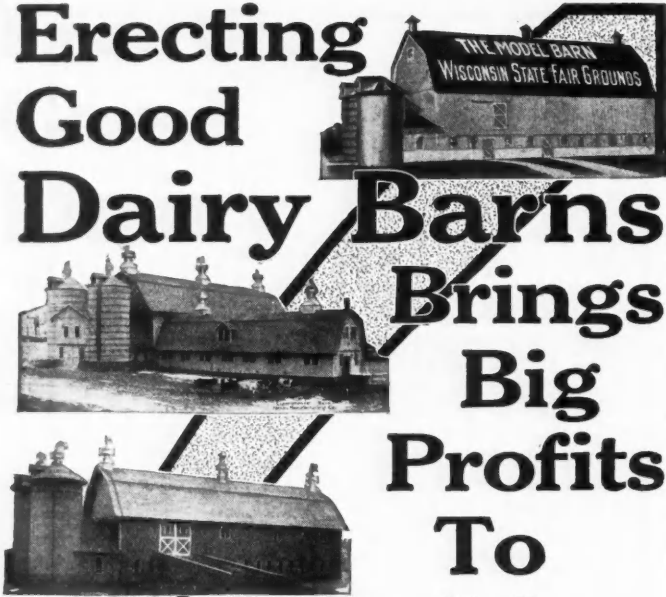
Contains no dirty, black materials or cheap, punky "jack pine" fibers.

Write for Samples and Information

THE UPSON CO. Fiber Board 16 Upson Point, Lockport, N. Y.

LOOK FOR THE FAMOUS BLUE CENTER

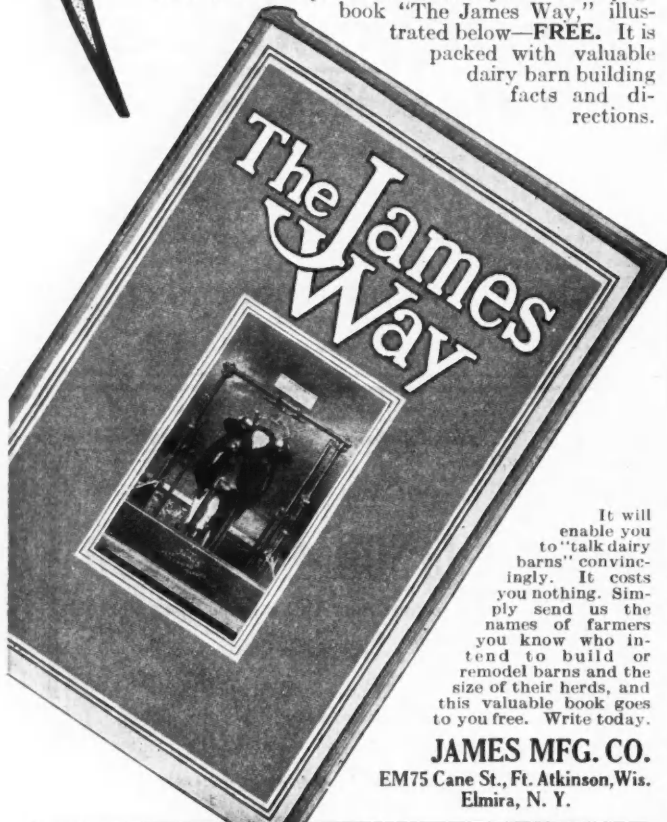
Erecting Good Dairy Barns Brings Big Profits To Builders



Dairy barns so built and equipped that they make for more milk, better milk, cleaner milk—and less work for the dairyman, are in big demand. Dairymen all through the land are either erecting new and better barns or are remodeling their old ones.

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JAMES MFG. CO.
EM75 Cane St., Ft. Atkinson, Wis.
Elmira, N. Y.

How to Use the Steel Square

(Continued from page 53.)

cut to raise the rafter up in plane with that of the common rafter? Where they happen to be too high, the roof is lost because they were cut down by the rule o' thumb!

Now, Mr. Carpenter, haven't you done that very thing yourself?

The trouble lies in not knowing just where to place the square on the side of the rafter, so as to make the measurement come right on the measurement line along the center of its back. If there was no pitch at all, then the whole surface would be one plane or a common level; but as the roof begins to rise the different sides are represented by their portion of the roof in a plane of its own. The dividing lines are at the center of the backs of the hips and valleys, which when strictly adhered to requires the edges of the hip to be beveled off and the back of the valley to be beveled into the center, making its back a V-shape; thus the measurement line, when the valley rafter is to be backed, is actually in the wood, making the problem all the more complicated to arrive at

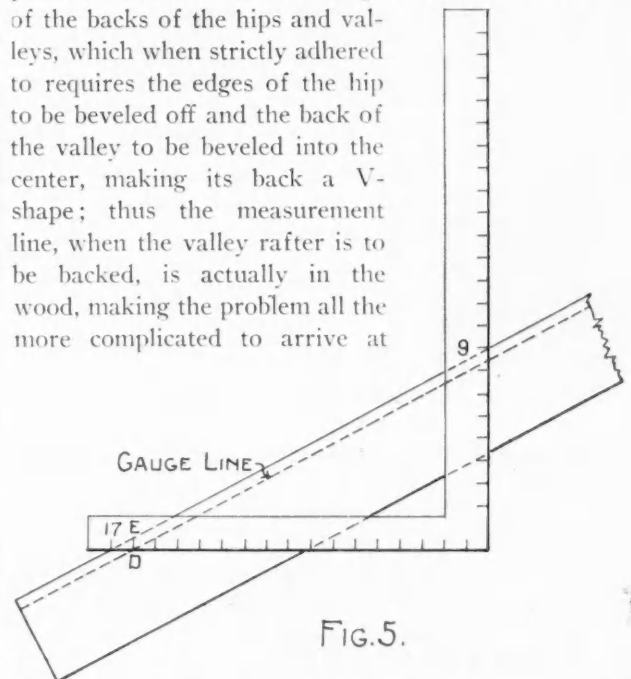


FIG. 5.

from the outer surface of the rafter. The steeper the roof the greater or more pronounced the backing will be; and consequently the error if not understood by the framer, in making the proper allowance.

Fig. 4 shows how the cuts should be under different conditions.

Beginning with the plan of the rafter, the V lines represent the corner for either a hip or valley to rest on.

The vertical dotted line at B represents the corner in either case, the measurement point being directly above that point. The sections 1-2-3-4 represent the position of the rafters under the following conditions:

No. 1, the hip when not backed; No. 2, the hip when backed; No. 3, the valley when not backed; No. 4, the valley when backed.

From this it will be seen that No. 1 sits lower than the others. By tracing the bottom line of the sections down to the seat thence up to the second elevation, you will see just how deep the seat-cut should be for each

(Continued to page 132.)

You wouldn't build a house without windows. Fresh air is nearly as essential as light. Why build a Barn, Residence, Garage, Store or Office Building without providing some means of furnishing the occupants with Fresh Air?

"GLOBE" VENTILATORS

are easy to install, simple, silent, storm-proof and always efficient. They last a life time and can't get out of order.

They have given perfect satisfaction for over 35 years on all classes of buildings where perfect ventilation is required.

You'll be better pleased with every building you erect, and your customers will be better pleased if you provide perfect ventilation the year 'round, without drafts, by the use of "GLOBE" Ventilators. Send for information.

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Department F
TROY, NEW YORK



Not only for Efficiency



but for their good appearance, Royal Ventilators are being specified by the best architects and builders.

Proportion and superiority of detail are carefully considered and the Royal can be used on the residence or public building as well as barns without detracting from their appearance. Royal ventilators assure a strong steady pull at all times; double and non-rusting pointed bottom cones, tapered deflectors and radiating ribs.

Write for our prices and booklet on Ventilation.
ROYAL VENTILATOR CO.
417 Locust St. Philadelphia, Pa

CHIEF ALL-STEEL CUPOLA

New-improved, scientifically designed ventilating cupola for all buildings. Up-to-date in design, material and construction. Used and approved on hundreds of farms. Made of heavily galvanized steel with base strongly braced. Can't rust, rot, or blow off. Absolutely storm-proof and bird's-nest proof.

Easy to Install—Sure to Please Your Customers

Chief Cupola saves time and labor installing—base bolts directly to roof and cupola bolts to the base. Only six bolts needed. Meets all requirements—insures adequate ventilation—satisfies all users. Write for full description, prices, etc.

Shrauger & Johnson Co.
430 Walnut Street, Atlantic, Iowa



GET ALL THE PROFIT

Shipped Ready to Install

Easy to Erect



Your reputation and future orders depend upon the equipment you recommend. Don't take a chance. Get the present and future profit by recommending and equipping the barns you build with

O-K Cupolas

Every one you erect adds to your reputation. They solve the barn ventilation problem and sell themselves. O-K Cupolas are neat in appearance. Bird, storm, rust and rot proof. Made of heavy galvanized steel. Cost no more than the ordinary kind.

Special Prices to Contractors and Builders where we are not represented

Write for full particulars on this and other money-making specialties

Phillip Bernard Co.
2400 Floyd Ave. Sioux City, Iowa

MONITOR CUPOLAS

ARE: Made in all sizes and for all purposes. Reliable at all times and in all weather. Storm and bird proof, will not rust nor become dilapidated. Made only from the best grades of materials and are furnished with pure gold leafed weather vanes. Shipped with base all put together in the factory, which makes them easy to erect, and they always go up straight and true.

The best Cupola for the OWNER, for the AGENT or for the CONTRACTOR, and the price is right.

We are making a special proposition to contractor agents in territory where we are not already represented. Write for particulars and catalog.

Lichty Metal Products Co.
Station A, Waterloo, Iowa



PERFECT LIGHT AND VENTILATION

Are two things that every contractor and builder likes to guarantee his clients. And he can do this by specifying Willis Skylights and Ventilators. They are made of the very best sheet metal obtainable, combined with honest skilled workmanship.

YOU WILL RECOGNIZE THESE AS VALUABLE FEATURES

The skylights have the greatest glass area—give perfect light. Any carpenter with a hammer and screwdriver can erect them. No putty, nor solder required.

The ventilators are storm and bird proof. Neat and sturdy in construction and give an abundance of fresh air.

The Willis line of sheet metal building products is complete. Our large catalog is interesting. Sit down and write us.

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Are You About to Build a Garage?

LET us send you our illustrated catalog and pamphlets showing the superior appearance and convenience of garages equipped with Topping hardware.

The unsightly and bunglesome swinging door is a thing of the past and the Builder will find it easy to sell and install Topping Hardware at a nice profit. Applied with great ease and certainty.

Your Clients Will Appreciate the Fol- lowing Advantages:

Topping Doors are easily opened or closed at all times. A slight pull allows the door to slide freely on the track. Automatically locks when closed.

Simply and strongly built these hangers stand rough usage and long service without failing to operate.

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Topping doors are weather tight when closed and can be left open without danger of swinging or blowing shut with damage to the car.

Topping doors fold back neatly against the garage when open, whereas the old style doors either occupied valuable room in the garage or extend beyond the side on an unsightly track.

Every Builder should have our catalog on hand and we will promptly mail you one on request.

If your dealer will not supply you with these goods send order direct to factory

Safety Door Hanger Co.
307 Topping Bldg. ASHLAND, OHIO



WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

(Continued from page 130.)

rafter. No. 1 cuts into the C vertical line from the plan, which would make it stand at the right height above the edge of the plate; but in order to make the seat-cut clear the corner of the plate, it is necessary to cut into the vertical lines as at B. No. 2 cuts into the same points as No. 1, but owing to its being backed, the seat cut drops accordingly.

No. 3 cuts into the vertical line at B and in order to clear the edges of the plate, must cut out at the sides to the A vertical line.

No. 4 cuts in the same as the latter, but as much lower than No. 3 as No. 2 is below No. 1.

The distance apart of the outer vertical lines A and C from the plan represents the width of the rafter. Therefore, if the rafter be 2 inches thick, the lines A-B-C would be 1 inch apart and 1 inch set off along the seat cut or a line parallel with it will give the gauge point on the side of the rafter. To make this clearer, see Fig. 5; 17 and 9 give the seat-cut. Now measure back along this line 1 inch from the edge of the rafter which will represent one-half the hip's thickness; this will locate the gauge point for the line from which to remove the wood back to the center line of the hip. The distance E-D shows how far apart the parallel or seat lines should be under the above conditions. This applies to any pitch given the roof, so long as the pitches are regular.

The backing of the hip can be reckoned from the miter of the corner on which the hip rests, because it partakes of the same portion as used on the steel square for obtaining the miter and is as follows:

For the square corner, 12 and 12 give the miter, which everybody knows. Now let one of the twelfths represent one-half of the thickness of the hip and set off a like amount along the seat cut line, as before described in Fig. 5.

For the octagon 5 and 12 give the miter; then set off $5/12$ of half its thickness.

Seven and 12 give the hexagon miter (approximate) and $7/12$ will be the amount to set off. These figures remain the same regardless of the pitch given the roof, provided it is regular.

Going back to the square cornered roof, let us illustrate this point another way. Suppose the seat-cut is a square cut, then the hip would stand straight up like a corner post, yet the figures as given above would be the proper amount to set off to make the backing conform to the angle of the corner on which the post rests. It is the swing of the seat cut towards the upper edge of the rafter that governs the gauge line on the side of the rafter; and as the pitch is lowered, the nearer the seat line approaches the back or edge of the rafter; and finally when the rafter is clear down, the seat line has disappeared. There are other ways of arriving at the above results, but it matters not what figures or diagrams are used, they are all based on circular measurement, or the divisions of the circle.





What Did the Contractor Forget?

He forgot to make that **extra Profit**, by equipping the barn he had just built with **Lightning protection**.

Some other man will come along and get that job, and make that **Profit**—because the owner will not long trust a fine new barn, filled with valuable stock and feed, to the chances of **Lightning**.

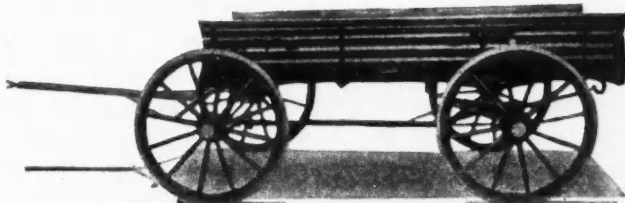
We help you get the business and show you how to handle it.

Shinn Mfg. Company
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 General Offices: 1635 Monadnock Bldg.
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 Factories: Niles, Mich.; Windsor, Ontario
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Hurry it up!
Order!

WE CAN assure you prompt delivery on a Miami Trailer if we get your order in good season. This Miami Trailer was designed and built for *Contractors and Builders*. Body of Ohio Oak, steel lined, double end gate dropping to floor level which permits the hauling of material up to twenty feet in length. Special shock absorbing draw bar which protects your machine from all sudden shocks and vibration. Special constructed chassis that insures perfect trail with car. **The busy season is here** and we are in position to make immediate shipments. Ask for prices and complete description of fourteen different models.

Miami Trailer Company Troy, Ohio



Paint
DEVOE
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Guarantee formula on every can



DEVOE & RAYNOLDS CO., Inc.
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For the outer covering of a building no other wood gives such long and satisfactory service as

WHITE PINE

Penetim
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Safeguard your buildings for for years to come against injury by fire.

Two coats of Penetim will be the best insurance you can provide.

The life of your buildings will be lengthened moreover, as Penetim repels insects and boring worms, and prevents mold, scale and fungus formations.

Write today for full information on Penetim

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Was \$100
Now \$49

NEW OLIVER NINE FOR HALF PRICE

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But dealing direct with the people—cutting out all middlemen. The old plan cost the buyer a needless \$51 per machine. We now save that and give it to you. So the new price for standard \$100 Oliver is \$49.

The Oliver Nine—our latest model—direct from the factory to you. It is the finest, the costliest, the greatest typewriter ever built. Used by the leading concerns.

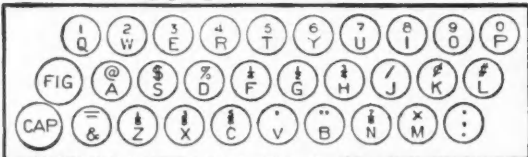
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Over 600,000 Sold

And remember, carbon copies of everything written, for your records.

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FREE BOOK

Just send for our amazing disclosure entitled "The High Cost of Typewriters—The Reason and the Remedy." Then ask for a trial. You are not put under the slightest obligation. It is our new-day way of selling. It saves money for both of us. You act as your own salesman—the Oliver itself must convince you. You pocket the \$51.

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Mail me your book and further information—all free and without obligation to me.

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STARTLING FACTS

Contractors' Special!

For contractors, our Special Oliver Nine is unbeatable. Besides being the best for ordinary correspondence, none can equal it for figure work. It has the characters you need, as shown on the keyboard herewith.

The Man from the Lumber Yard

Talks on Patriotism and Preparedness for Builders

(Continued from page 57.)

or a house-wrecking concern. I'm not built that way.

I am delighted to talk to people who build, who have to do with protecting that which is produced.

Protecting the product of the family, field and factory is as important as the producing.

Glad He Is Old Enough to Be Bald-Headed

The young chap who has come into active life in the last few years misses a great deal, because he can't have the extended viewpoint to the rear.

One can't know what hunger is by reading a book or looking at pictures, nor can one know the condition of the farming community twenty years since by reading statistics.

I can remember when the farmer had to bring in a mighty big load of corn to be able to haul out a small load of lumber. Now a small load of corn buys a big load of lumber.

There is some compensation in being so old that the hair has worn off the top of my head, in that I can remember the "what was" against the "what is."

In those days nails and boards were out of the question with many farmers, and they would spend days in fixing up a wind-break with branches of trees and straw. Their cattle came out of the winter in miserable condition, and it was well into the summer before their bones were properly covered. A cow can't produce as much butter fat per week when she has to lay on meat, and zero weather discourages the activity of the hen.

But then in those days it took eight (8) pounds of butter to buy a gallon of good paint, and twelve (12) dozen eggs to buy a good paint brush. Better paint can be bought now for half the butter.

Not Fitted for an Undertaker

The trouble with most of us is that we think in a too narrow way. When some people have the jaundice they think the whole world is yellow.


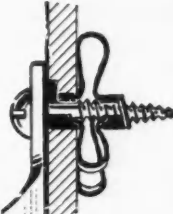
We must not think of only the county in which we live, but the whole country.

Do you know that the government estimate of the value this year of the four staple crops, i. e., cotton, corn, wheat and oats, is \$7,082,025,000—almost as much as the ENTIRE value of all products in former years.

Add to above the value of this year's products in live stock, wool clip, poultry, eggs, butter, vegetables and fruit, and you have a figure that staggers one.

The man who does not properly house his hog or hen, or permits a single grain of cereal to spoil, is not a patriot. It is due humanity that he protect every ounce of food.

(Continued to page 136.)

**Self-Riveting
But Adjustable**

EVERYONE who lives in a house, but most particularly the builder himself, should know something about the materials that are used in the construction of that house. That is especially true of the fixtures, which are always the most vulnerable parts of a building.

When fastened in the ordinary way, fixtures are prone to loosen readily, or if they have to be removed for any reason, it is difficult to put them back in the same place and have them stay *tight* permanently—unless you use

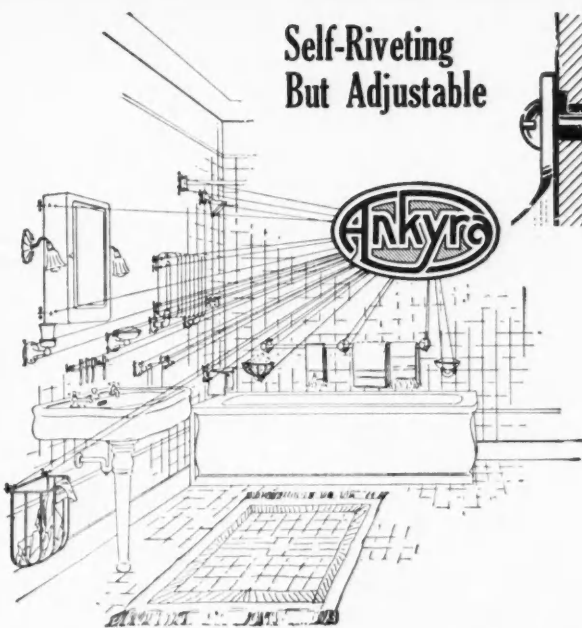
Ankyra Ankor Bolts

They are self-riveting but so adjustable that the fixtures may be removed and replaced at will with the assurance that it will remain tight until deliberately removed.

But the big point for the builder in addition to the flexibility of Ankyras is the speed with which they can be installed anywhere and in any wall.

Have your dealer show you some, or if he has none, write us and we will send you sample Ankyras and full details, without obligating you.

ANKYRA MANUFACTURING CO.
151 Berkley Street, Wayne Junction
PHILADELPHIA, PA.



Ankyra Ankor Bolts



**Uncle Si's
Saw**

At your dealer's, or sent prepaid for \$2.50

Simonds Saws

Uncle Si Says: "You can't own a Simonds and be dissatisfied. I've used this saw for over twenty years. It has the right 'hang' and the right 'feel' and goes through a board fast and true and the teeth stay sharp the longest of any I've ever seen. Take it altogether you can't buy a better saw and you don't want a cheaper one."



Our "Carpenter's Guide-Book" will be sent free to you upon receipt of your address. 26-inch Hand Saw \$2.50 delivered.

Simonds Mfg. Co.

Established 1832
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HAND FORGED,
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GERMANTOWN
MASTER BUILDER

Broad Hatchets, like all other "Master Builder" tools, are absolutely right in design, quality of material and workmanship. They are made for the man who wants a tool that he can depend upon in any emergency. Every one of them, before leaving our factory, is subjected to a special test many times as severe as the tool will ever undergo in actual service. Perfectly balanced; second growth hickory handle; the thin bit with swell bevel throws a chip and prevents wedging. "The Best That Money Can Buy." \$1.50 and \$2.00 each.

Germantown Tool Works, Philadelphia, Pa.

Branch: 62 East Lake Street, Chicago

(Continued from page 134.)

May the man who allows one fowl to shiver with the cold, not be able to sleep for the chatter of his teeth, and the one who allows one unnecessary potato to rot, never get the taste of rotten potatoes out of his mouth!

But YOU, sir—the man who reads this—have the duty and obligation resting on you to show MR. FARMER (1) the need, (2) the way, to secure proper housings.

Form An Alliance

It may be that some who read this are dead from the neck up, or are paralyzed because of their inertia, but the live one can do. Initiative is all that is necessary.

If you don't know how to proceed, how to start and how to follow up, write me.

I don't know everything by a jugful, but I do know people who do know. When some problems of my readers are put up to me, I consult a specialty physician; on others, the banker; others, the manufacturer.

If you find that in carrying out a building program for a number of clients, your money and theirs will not stretch sufficient, go to your banker. If he is half way right, he will show you how to solve the problem.

I know you will be met by the statement from the

farmer that prices are too high.

I showed you above that, measured in the farmer's bushel, prices are low.

Form an alliance with the mercantile and financial interests of your locality, and start the agitation against waste of foodstuff.

During and After The War

There is no discussion as to the holding of prices during the war. Some say there will be a drop after peace.

Do you know that practically every copper cooking utensil and every church bell in the central kingdoms have gone into the making of munitions? Do you know that Uncle Sam has obligated himself to build over a thousand miles of railroad for France and supply three hundred engines? Count the machines, the tools, the plows, that will have to be produced more for peace than for war when peace comes. Study these facts and you will be able to convince any procrastinator that his postponing will mean his paying higher prices.

If Mr. Farmer will not build from patriotic motives, let him build from the selfish reason of saving money.

If he can defer building for ten years, he may possibly find lower prices then.

Some men in the building field can see more frightful things than a man with the D. T.'s.

(Continued to page 138.)



REG. U. S. PAT. OFF

Plane catalog, with full description of these and other Sargent Planes, sent free on request.



You'll Be Proud of Your New Automatic

Judging from the enthusiastic letters we have received from Proud Tool users. They all agree that their **Sargent Automatic-Set Bench Plane** is "The Best Plane Yet Out." Made in six sizes, the Superior Features to be appreciated by tool users are:

AUTOMATIC SET—The clamp, when replaced after removal, will always return to its original position until reset. This feature is a great time saver. The clamp may be easily adjusted, by means of a regulating screw, close to the cutting edge when a fine cut is required, away from the cutting edge when a coarse cut is desired and may be set in as many intermediate positions as may be needed.

RIGIDITY—The Frog is very rigid and the Frog and Bed at the mouth are in alignment so that the cutter has an even bearing down to the bevel of the cutter. The Plane combines solidity, compactness and simplicity. The meeting surfaces

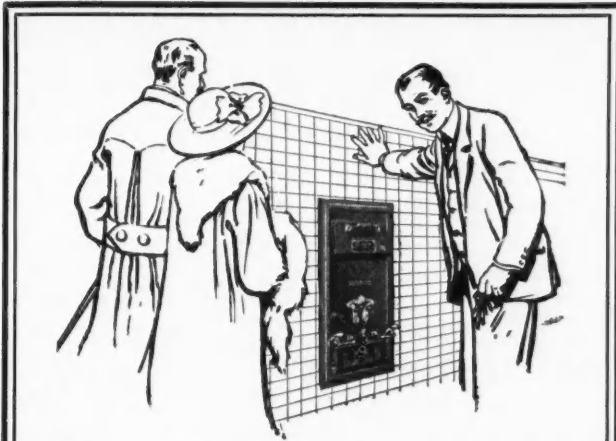
of the Frog and Bed are all machined so that the fit is absolute.

EASE OF ADJUSTMENT—The lateral adjustment may be secured without removing the hand from the handle and the vertical adjustment, obtained through a direct acting thumb screw at the back of cutter, is positive and rapid.

SINGLE BIT—These Planes have a thin Cutter (No. 14 gauge), but the support for the Cutter is so solid below and the clamp so firm above, that there is no tendency to chatter, hence it is possible to use the thin Cutter and so get the slight advantage of the quicker grinding. The Cutter requires no cap as the clamp acts as a breaker for the chip.

PURPOSE—These Planes are intended for both heavy and very fine cuts. They are especially adapted for working against the grain on cross-grained hard wood where the absolute rigidity of the cutter avoids any tendency to chatter.

Sargent & Company, Manufacturers, 51 Water St., New Haven, Conn.



Flies, Germs, Garbage Cans

do not enhance the value of your building, bring higher rentals, or promote tenant comfort. These drawbacks are eliminated and greater sanitation fostered by



—the original gas-fired incinerator. Now in daily use in thousands of homes, apartments, hospitals, institutions. Destroys all waste matter by incineration, burning artificial, natural or gasoline gas. Low cost.

Write for booklet, "The Invisible Garbage Man," picturing various models, installations, etc. Blue prints showing installations of Wall Type Incinerite on request.

E. C. STEARNS & CO.

112 Oneida Street

SYRACUSE, N. Y.

In every summer cottage you build

—you can install, at a profit, a

Ro-San Indoor Closet

Every building —home, cottage, store or office—that has no sewer connection needs this modern sanitary indoor closet. Absolutely odorless. Act as our agent—this fixture sells easily to your customers—good Profit. Hundreds of carpenters represent us. We also distribute through builders the

Ro-San Washstand
Provides Running Water, Hot or Cold, Without Plumbing. Every housewife wants one. Convenient, sanitary. Sells readily with little effort. Carry this work along with your regular business. Ask for terms to agents.

Rowe Sanitary Mfg. Co., 701 Sixth St., Detroit, Mich.

Absolutely Odorless

1/3 SAVED BUY DIRECT GET FREE BOOK

INSTALL YOUR OWN PLUMBING AT LOW COST

Get our Handy Man Book. Every builder and contractor needs it. Shows new home improvements and everything in guaranteed plumbing and heating supplies exclusively at wholesale prices. Any handy man can install with our free, easy installing plans and instructions with the help of our Service.

CUT TO FIT HEATING PLANTS
Our 40 years' experience enables us to furnish heating plants, CUT TO FIT, bathroom outfits, etc. with new, original, easy installing features, combining quality, economy, simplicity and ease of installation. Our \$500,000.00 plants behind our guarantee. WRITE TODAY.

THE HARDIN-LAVIN CO. 40 years at 4532-42 Cottage Grove Ave. Chicago

Look to the future of your roof

Will your roof come to an early end—attended by leaks and repair bills? Or, will it give you many long years of service? YOU answer these questions when you buy the roofing.

RU-BER-OID, the long life roofing lasts for years and years and saves repair bills because it contains nothing that can crack, warp, rot, run, rust or leak.

The "Ru-ber-oid Man" is on every roll of REAL RU-BER-OID.

THE STANDARD PAINT CO.
587 Woolworth Building, New York
BOSTON CHICAGO

Also makers of Ru-ber-oid Shingles and Impervite Waterproofing for Concrete



Pronounced "RU" as in RUBY

RU-BER-OID ROOFING

COSTS MORE - WEARS LONGER

MADE BY THE STANDARD PAINT COMPANY, NEW YORK BOSTON CHICAGO

Look for the "Ru-ber-oid Man" on every roll of genuine Ru-ber-oid

Comfort Indoor Closet
Odorless Sanitary Germ-Proof

No Sewer, No Waterworks, No Plumbing Needed
This modern home necessity is fast taking the place of the unsightly, unhealthy, inconvenient out-house in the back yard. Thousands now in use and all giving complete satisfaction. Can be put wherever convenient in the house. No odor whatever. Gives city convenience in the country or town.

Cost Less Than Out-House
Anybody can afford one. Saves those cold night trips out-of-doors. Impossible to get same amount of comfort for the money another way. Sold on 30 days' trial and under sworn guarantee to refund all money if not entirely satisfactory. Send for description and prices today. Be fair to your family.

AGENTS MAKE BIG MONEY EASILY
Comfort Indoor Closets sell themselves as fast as people understand about them. Contractors and carpenters are making big money by merely suggesting this closet. Write for details of this exclusive agency offer. Send postal now before somebody else gets your territory.

Comfort Chemical Closet Co., 307 Factories Bldg., Toledo, Ohio

One-Ton with Three-Ton Efficiency

The Martin Fifth Wheel

makes possible this combination of a 1-ton Packard and a 3-ton Fruehauf trailer.

Write for further information

MARTIN ROCKING FIFTH WHEEL CO. SPRINGFIELD, MASS.

(Continued from page 136.)

They have more symptoms than the old ladies of the Umpty sewing circle. They expect awful things to happen, and according to the poet, they do happen:

"A crowd of troubles passed him by
As he with courage waited;
He said, 'Where do you troubles fly
When you are thus belated?'
'We go,' they said, 'to those who mope,
Who look on life dejected;
Who weakly say good-bye to hope—
We go where we're expected.'"

Such people beget pessimism.

If it should be my lot to stand in the trenches on the battlefield, or the field of business, I pray to be delivered from having near, men of the yellow streak.

This is the day for real men, not spineless imitations, to step to the front.

Be patriotic.

Before snow flies, it is your patriotic duty to provide shelter, that not one grain of corn or cereal be uncovered, or food-animal of fur, feather, wool or hair, be unprotected from the elements.

And above all, if you leave undone one effort to secure the best of housing for one of Uncle Sam's children, you are not worthy of the REAL MEN who affixed their names to that immortal declaration a hundred and forty-one years ago.

Yours Patriotically,

THE MAN FROM THE LUMBER YARD.

Noon Hour Talks by the Boss Carpenter

Hour to Figure a Two-Story Corn Crib and Granary

(Continued from page 59.)

You will remember that this formula has been explained several times in our past talks.

"The vertical pressure in grain bins is due to the weight of the grain, but this weight felt by the floor is lightened up by the friction of the grain particles on their neighbors and on the side walls of the bin. This vertical pressure is seldom greater than 6 pounds per square inch of floor, even in very deep bins. This would correspond to a floor load of 864 pounds per square foot of floor covered. The vertical pressure at a depth of 20 feet is about 4 pounds per square inch of floor area, and that at a depth of 10 feet is about one-half this amount. Moving grain exerts a little greater pressure than when still, but an allowance of 10 per cent will cover this difference.

"The lateral pressure on sidewalls of corn cribs filled with ear corn is stated to be about 1,500 pounds as the total pressure on a strip of wall 1 foot long and 20 feet high, while for a depth of bin of 10 feet, this total pressure will be about 400 pounds. It is probable that 20 feet is as high as will be needed on the ordinary farm.

(Continued to page 140.)

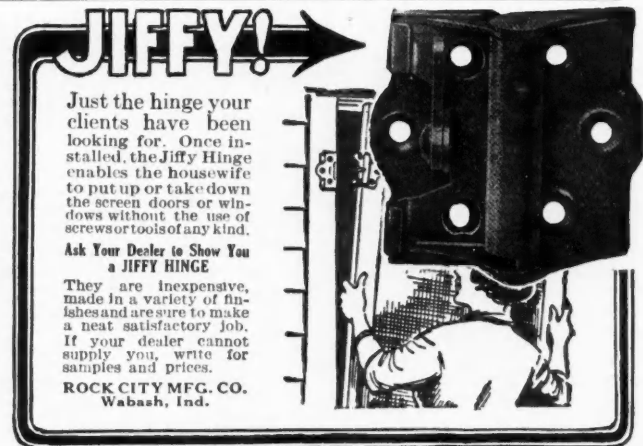


SILVER LAKE A Sash Cord

The guaranteed sash cord (since 1869 the standard) not only outwears common cords, but outwears chains and ribbons. The name Silver Lake A is printed on every foot of the genuine. Guaranteed full lengths.

Silver Lake Co.
Newtonville, Mass.

The Practical Workman is Sure to know the Reason Why



JIFFY!

Just the hinge your clients have been looking for. Once installed, the Jiffy Hinge enables the housewife to put up or take down the screen doors or windows without the use of screws or tools of any kind.

Ask Your Dealer to Show You a JIFFY HINGE

They are inexpensive, made in a variety of finishes and are sure to make a neat satisfactory job. If your dealer cannot supply you, write for samples and prices.

ROCK CITY MFG. CO.
Wabash, Ind.

Worth \$.50 to Every American Builder Reader

The King of Hand Saws **"VANADIUM"**

20-in.	\$2.00	26-in.	\$2.50
22-in.	\$2.15	28-in.	\$2.75
24-in.	\$2.30	30-in.	\$3.00

Current quotations for Hand Saw Steel:
CRUCIBLE 8½ cents per pound
VANADIUM 35

This difference in price tells the story why Vanadium Steel Saws stand up better than any others.

Our Guarantee—If the Vanadium Steel Saw does not give better service than any other saw you have ever used, return it and your money will be refunded.

Our Offer—In order to get at least one Pennsylvania Vanadium Steel Saw into the hands of every reader of the American Builder, we offer a reduction of \$.50 from prices shown above on every saw ordered from manufacturers on coupon attached.

Manufacturers **PENNSYLVANIA SAW CO., Frackville, Pa.**



PENNSYLVANIA SAW CO., Frackville, Pa.

I enclose \$..... for a trial saw Length..... inches.

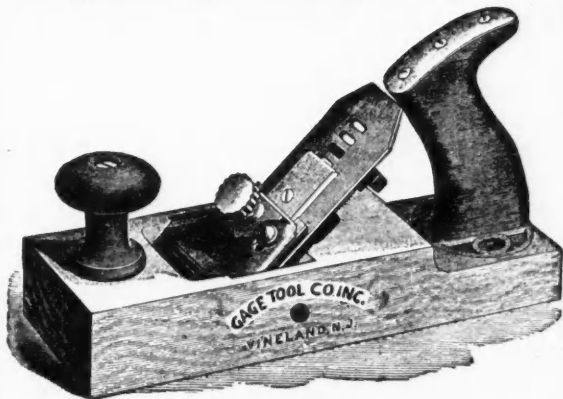
Teeth..... pts. Narrow or Wide Blade.....

Straight or Screw Back..... Prepaid.....

Name.....

Address.....

Gage Self-Setting Planes



Announcing Change of Ownership

On April 17, 1917, John P. Gage, proprietor of the Gage Tool Co., sold out all his interests in the company to Philip J. Leavens. The quality of the Gage planes will be maintained and improved. A new list, dated May 14, 1917, has been made, superceding all previous lists for both planes and repairs.

Write us today for full information on Gage Self-Setting planes and ask for our new price list.

GAGE TOOL CO., Inc.
VINELAND, N. J.

IVES PATENT WINDOW STOP ADJUSTER

Prevents Drafts, Dust and Window Rattling



The only stop adjuster made from one piece of metal with solid side and heavy bed that will not cup or turn in tightening the screw
Descriptive circular mailed on application

THE H. B. IVES CO.

Manufacturers of Builders' Hardware
NEW HAVEN 1-4 GREENFIELD 1-4 CONN. U. S. A.

GOODELL PRATT



1500 GOOD TOOLS

Write for Complete Catalog

Goodell-Pratt Company
Greenfield, Mass. *Toolsmiths*



"You Get The Job"

"We've been watching you, young man. We know you're made of the stuff that wins. The man that cares enough about his future to study an I. C. S. course in his spare time is the kind we want in this firm's responsible positions. You're getting your promotion on what you know, and I wish we had more like you."

The boss can't take chances. When he has a responsible job to fill he picks a man *trained to hold it*. He's watching *you* now, hoping you'll be ready when the opportunity comes.

The thing for you to do is to start today and train yourself to do some one thing better than others. You can do it in spare time through the International Correspondence Schools. Over 5000 men reported advancement last year as a result of their I. C. S. training.

The first step these men took was to mark and mail this coupon. Make your start the same way—and make it right now.

I. C. S., Box 8144 Scranton, Pa.

INTERNATIONAL CORRESPONDENCE SCHOOLS

Box 8144 SCRANTON, PA.

Explain, without obligating me, how I can qualify for the position, or in the subject, before which I mark X.

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| <input type="checkbox"/> Architectural Draftsman | <input type="checkbox"/> BUSINESS (Complete) |
| <input type="checkbox"/> Contractor and Builder | <input type="checkbox"/> BOOKKEEPER |
| <input type="checkbox"/> Building Foreman | <input type="checkbox"/> Stenographer and Typist |
| <input type="checkbox"/> Concrete Builder | <input type="checkbox"/> Higher Accounting |
| <input type="checkbox"/> Plumber and Steam Fitter | <input type="checkbox"/> GOOD ENGLISH |
| <input type="checkbox"/> Heating and Ventilation | <input type="checkbox"/> Common School Subjects |
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| <input type="checkbox"/> Foreman Plumber | <input type="checkbox"/> SALESMANSHIP |
| <input type="checkbox"/> CIVIL ENGINEER | <input type="checkbox"/> ADVERTISING MAN |
| <input type="checkbox"/> Surveying and Mapping | <input type="checkbox"/> Window Trimmer |
| <input type="checkbox"/> Structural Engineer | <input type="checkbox"/> Show Card Writer |
| <input type="checkbox"/> Structural Draftsman | <input type="checkbox"/> CIVIL SERVICE |
| <input type="checkbox"/> ELECTRICAL ENGINEER | <input type="checkbox"/> Railway Mail Clerk |
| <input type="checkbox"/> Electric Lighting | <input type="checkbox"/> AGRICULTURE |
| <input type="checkbox"/> Electric Wiring | <input type="checkbox"/> Poultry Raising |
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| <input type="checkbox"/> Shop Practice | <input type="checkbox"/> Gas Engineer <input type="checkbox"/> German |
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Occupation & Employer _____
Street and No. _____
City _____ State _____

If name of Course you want is not in this list, write it below.

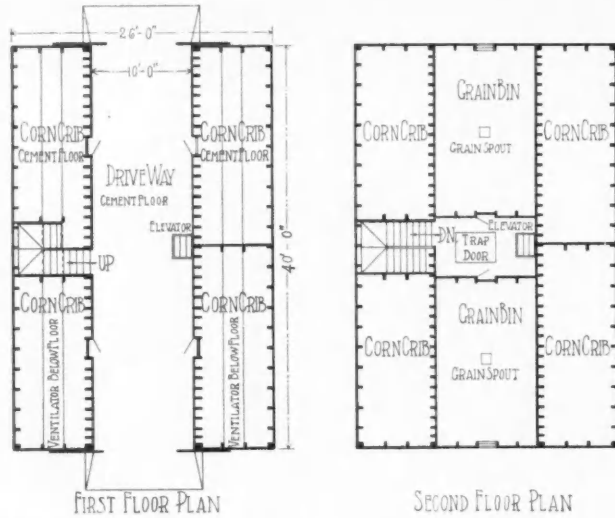


Fig. 1B. Floor Plans of Two-Story Granary Which the Boss Carpenter is Figuring.

(Continued from page 138.)

“Experiment and experience has shown that the side pressure on a grain bin wall varies from 3/10 to 6/10 of the vertical pressure at a given depth. In case of doubt or if extreme safety is desired, the vertical pressure can be taken as the weight of the grain on one square foot of floor area at a given depth. In our design, the depth of grain bin is about 11 feet and an allowance of 3 pounds per square inch for vertical pressure should be ample.

“If we assume that these bins are to hold wheat and that the depth is 11 feet, then each square foot of the floor will carry a load of $3 \times 144 = 432$ pounds. Then each floor beam will carry a uniformly distributed load of 4,320 pounds. Using $p = 1,000$ pounds per square inch as the strength of No. 1 common yellow pine and assuming that the thickness is to be 3 inches, we will have for our equation,

$$1,000 \times \frac{1}{12} \times 3 \times h^3 = \frac{1}{8} \times 4,320 \times 10 \times 12$$

$$\frac{h}{2}$$

$$h^2 = 130$$

$$h = 11.4 \text{ inches}$$

While 3 by 12-inch joists would be strong enough to support this floor, it is advisable to use 3 by 14-inch stock to obtain stiffness.

“The bin floor may be made of 1-inch boards laid so as to make a tight floor to prevent leakage of grain.

“The side walls of the grain bin will have to support a part of the roof load and at the same time withstand the lateral pressure of the grain in the bin. If the cribs on the outside are full, a part of the pressure from the inside will be balanced, but this should not be counted on in the design since at times the grain bin may be full and the outside cribs empty.

“If in our bin we assume that the vertical pressure at the 11-foot depth is 432 pounds per square foot of

(Continued to page 142.)

Our Free Plans Will Help You—

Meadows
TRADE MARK REGISTERED

Don't figure on any crib or granary without consulting our Free Plans. They will show you how to get greatest capacity at least expense by installing Meadows Inside Stationary Cup Elevators.

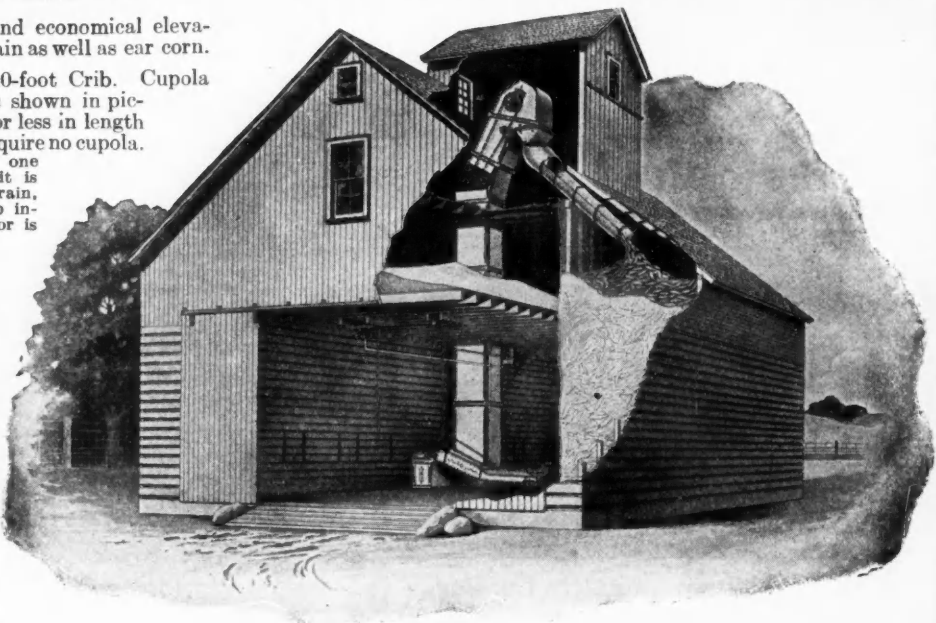
The most convenient and economical elevators, carrying small grain as well as ear corn.

The picture shows a 40-foot Crib. Cupola need not be as large as shown in picture; the cribs 36 feet or less in length with half-pitch roofs require no cupola.

Elevator is confined to one side of driveway. No pit is necessary for dumping grain, just a hole 16 inches deep into which boot of elevator is set. The wagon jack is entirely overhead, fastened to the joists.

But write in today for our free Crib and Granary plans, catalogs and large posters telling all about our outfits and their application. Valuable information for the builder, and writing for it obligates you in no way.

**Meadows
Mfg. Co.**
Pontiac, Illinois





Strength, Simplicity and Good Appearance

are the principal features of the Caldwell Tubular Tower.

Thousands of them have been in use for years, many of them having survived cyclones and tornadoes.

Any mechanic can erect a Caldwell Tubular or we will do so anywhere. Appearance is pleasing as shown by illustration.

Send for Catalogue

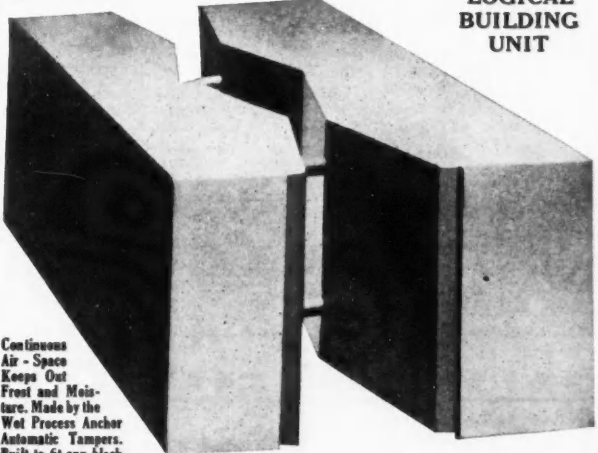
W. E. CALDWELL CO.
(INCORPORATED)
1990 Brook Street
LOUISVILLE, KY.

Caldwell
TANKS AND TOWERS

HARBOR BEACH, MICH.
WATER WORKS

ANCHOR BLOCKS

YOUR LOGICAL BUILDING UNIT



Continuous Air - Space Keeps Out Frost and Moisture. Made by the Wet Process Anchor Automatic Tampers. Built to fit any block machine. Write for Big Catalog and Special Offer to Contractors & Lumber Dealers

ANCHOR CONCRETE STONE CO.
ROCK RAPIDS, IA.

Get FREE Plans of this Modern Crib with the Famous National Giant Inside Elevator



Used With or Without Cupola

The Latest, Best and Most Sensible Inside Machine Ever Invented

Carpenter-Contractors drop us a postal, please, and we'll be glad to tell you how to make big extra profits by recommending and installing our **National Giant Bucket Elevators** in your crib jobs.

The "National Giant" has more desirable features for you to base your recommendation upon and more sensible features for the FARMER than can be found on any other make of inside grain elevator. Why? Because on cribs 28x38 ft. or less, with half pitch roof, it is not necessary to have a cupola. Saves the farmer money. When cupola is necessary, we can save the farmer from \$15 to \$30 with the National Giant. Ask us why, please. We also save the farmer the cost of digging a pit, and on the length of elevator required. The "National Giant" leaves the corn on the cob, where it belongs; more money in the farmer's pocket.

Get Full Details of Proposition to Carpenter-Contractors

Ours is a good proposition for you and the farmer. It will pay you to look into it. It will bring in more business, greater profits for you. One satisfied customer will bring you many more crib jobs. Write us today—we will give you full details and assist you in any way with plans, specifications, etc. Write now for full details.

Portable Elevator Mfg. Co., 854 East Grove St. BLOOMINGTON, ILL.

No Ice Needed—in Winter Filled From the Outside in Summer

The Herrick Outside Icing Refrigerators

Most Popular for Modern Homes

Saves more ice, gives more space in the kitchen and does away with the tracking of floors.

This refrigerator requires no ice in the winter. It is cooled by cold air. The Herrick is so constructed that a compartment may be opened from the outside of the house. Cold air thus enters the opening, forces circulation and keeps the contents of the refrigerator cold and pure.

And we furnish FREE PLANS showing how the Herrick saves a great deal of kitchen space by being built into the wall so that only the front is visible. The housewife will appreciate this saving just as much as the ice-saving feature. And here is another point equally important: The Herrick does away with the annoyances of the iceman's visits to the kitchen and the soiling of the floors by his always muddy feet and dripping ice. Any woman who takes pride in a tidy kitchen will not only be interested in—but will demand the Herrick.

No progressive builder can afford to be without information on this modern convenience. Suggest it to your customers before they suggest it to you. It will add to your reputation as a conscientious, up to the minute builder and will get you more jobs. Write for our free plans and our complete catalog.



HERRICK DRY AIR SYSTEM REFRIGERATOR

The Herrick is Approved by Good House Keeping and New York Tribune Institutes

Herrick Refrigerator Company, Waterloo, Iowa

(Continued from page 140.)

floor, and that this pressure decreases uniformly upwards along the side of the bin, we will have a triangle of pressure with its center of gravity or point of resultant pressure, at a distance of one-third the height from the bottom of the bin. The total pressure on a strip of wall 1 foot long and 11 feet high will be about $(11 \times 1) \times (5/10 \times 432) \times 1/2 = 1,188$ pounds, where the ratio of lateral pressure to vertical pressure is taken as 5/10 and the factor of 1/2 takes care of the variation caused by the triangular distribution of the load.

"The studs which hold the boards on the side walls of the bin are 14 feet in length and are supported by a roof plate and a plate just over the driveway. These studs are of 2 by 6-inch stock spaced 12 inches on centers, and are tied by 2 by 6-inch ties spaced 4 feet apart, as shown in Fig. 1C. While it is practically impossible to figure the effect of these ties in preventing the walls from bulging, they add largely to the strength and stiffness of the building.

"We can figure the approximate size of the grain bin studding by locating our lateral pressure of 1,188 (call it 1,200) pounds at a height of 4 feet from the bin floor and then finding the maximum bending moment in one of the studs. Since they are spaced 12 inches apart, the pressure carried by one stud is the same as that on 1 foot of length of wall.

"As explained in a recent talk, we first find the

amount of the total pressure of 1,200 pounds carried by each of the plates at the end of these studs and then approximate the maximum bending moment. Taking moments about the lower plate we find that

the upper plate holds $\frac{1,200 \times 4}{14} = 343$ pounds. This

leaves $(1,200 - 343) = 857$ pounds as the lateral pressure felt by the plate over the driveway. As previously explained, this would make the greatest bending moment in a stud without the 2 by 6-inch ties come at a point about 3 feet up from the floor. Approximating the value of this bending moment by assuming that the pressure of 432 pounds per square foot is constant over this height of 3 feet, we will have

$$M = (857 \times 3) - (432 \times 3 \times 1\frac{1}{2}) = 627 \text{ foot pounds, or } 7,524 \text{ inch pounds.}$$

"Again using No. 1 common yellow pine having a bending strength of 1,000 pounds per square inch, and filling in our bending formula, we have for studs 2 inches thick;

$$\frac{1,000 \times 1/12 \times 2 \times h^3}{h} = 7,524$$

$$\frac{h^2}{2}$$

$$h^2 = 22$$

$$h = 4.7 \text{ inches}$$

"The nearest commercial size will be 6-inch stock, so our 2 by 6-inch joists are amply strong to hold the

(Continued to page 144.)

CLEAN-AIR ONE REGISTER SYSTEM

A Pipeless One Register Furnace that heats and ventilates with the greatest economy and efficiency.

SAVES ONE-HALF OF FUEL USED IN OTHER HEATING SYSTEMS

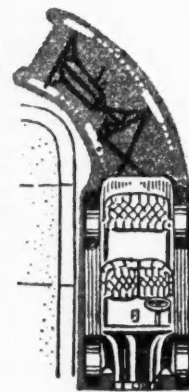
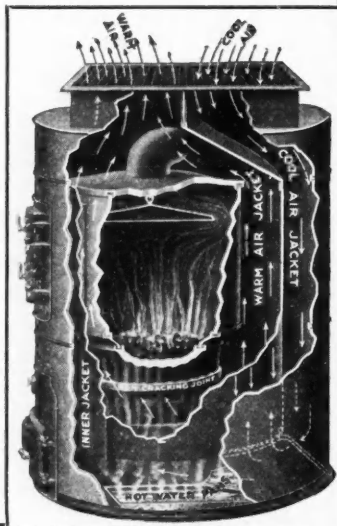
No heat in the basement, but all heat in the living rooms—just where you want it.

ONE MAN CAN INSTALL IN ONE DAY.

We furnish you with free building sketch blank, specifications and advice on heating.

BUY HEATING AT MANUFACTURERS' PRICES.

Standard School Heater Co. CHICAGO



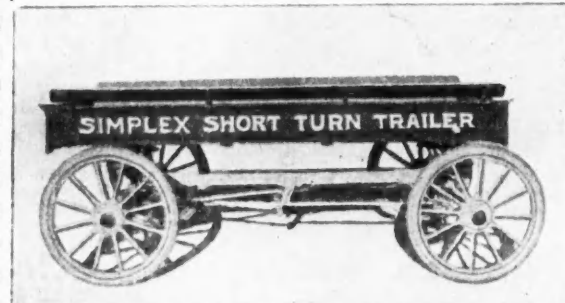
--a trailer that "trails"

Simplex Trailer

It follows the "trail" of the automobile so positively that both vehicles can turn in a twelve-foot circle. It isn't necessary, with a Simplex to take to the middle of the street to avoid bumping into curbs or swinging the trailer into everybody's way.

The Simplex is ideal for the contractor who wants to get the most out of his automobile. He can preserve the appearance of his car for pleasure; and at the same time put it to work. Any automobile that will average 20 miles will carry the Simplex along at the rate of 19 miles. Write for our catalog.

Simplex Short-Turn Trailer Co. AUBURN, IND.





Majestic

Duplex Heating System

IT will be well worth while for you to investigate thoroughly the Majestic Duplex Heating System before you decide what heating system to put in that new house or store.

The Duplex draws the cold air from the floor through the cold air duct while pure warm air is discharged from the main face of the register. And the register itself makes an excellent bench or table.

The Majestic Duplex furnishes more heat, uniformly distributed and at two-thirds the cost of the old-fashioned methods. Easily installed in new or old home. Write today and get the facts about this modern, efficient heating system.

The Majestic Co., 703 Erie St., Huntington, Ind.

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ENGINES and OUTFITS
Over 75 different kinds of power outfits, each the handiest, most economical source of power known. Write for our book "Reliable Power"

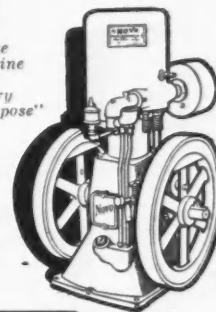
"The Engine for Every Purpose"

It tells you the advantages of standardizing power with Novo Engines. You'll find it worth reading.

NOVO ENGINE CO.

Clarence E. Bement, Sec. & Gen. Mgr.
704 Willow St., Lansing, Mich.

Furnished to operate on gasoline, kerosene, alcohol or distillate; 1-15 H. P.

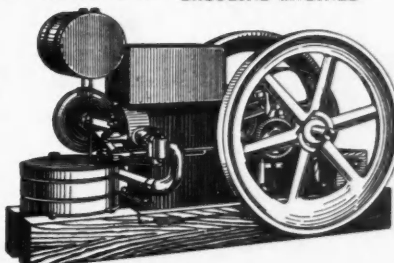


NO LANK
NO FAN
NO FREEZING
TROUBLE

HEAVY DUTI KEROSENE AND GASOLINE ENGINES

SAVE MONEY BUY NOW

HEAVY DUTI KEROSENE ENGINES save You Money They are safer to operate than gasoline engines and you can operate them at half the cost of gasoline. Kerosene costs about 10 to 12 cents, gasoline over twice that. HEAVY DUTI ENGINES work as well on Gasoline as on Kerosene, use whichever fuel you prefer, you are not bound to use Kerosene if you don't want to, as the HEAVY DUTI works better on Gasoline than any other Gasoline engine, but it also works on Kerosene which a Gasoline engine will not do. Save money, get more power and better results. Buy the HEAVY DUTI Kerosene engine. We have not as yet made an advance in price but there will be an advance about May 1st. Buy now, save the extra cost. SPECIAL PRICE IF YOU ARE THE FIRST BUYER IN YOUR LOCALITY. CATALOG FREE.



A. CONSOLIDATED GASOLINE ENGINE CO., 202 Fulton Street, New York City

Typewriter Sensation

GREATEST TYPEWRITER BARGAIN EVER OFFERED

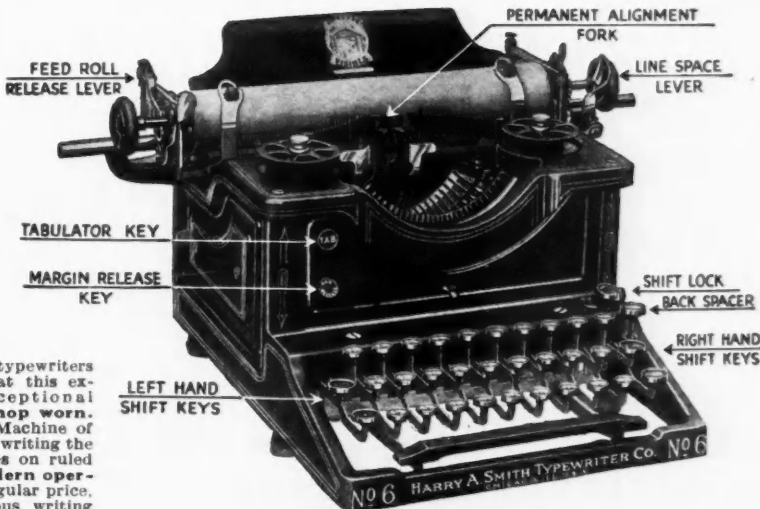
Only \$2.00 a month until the bargain price of \$34.15 is paid and the machine is yours. This startling offer has astounded the typewriter world. Absolutely the greatest typewriter bargain ever offered. For a short time only I offer a limited number of these standard reconstructed

VISIBLE WRITING MODEL No. 6 typewriters at this exceptional price. Perfect machines, not damaged or shop worn. Complete outfit, cover, tools, instructions, etc. Machine of standard size, keyboard of standard arrangement writing the full 84 characters, tabulator, back spacer, writes on ruled lines; in fact, every late style feature and modern operating convenience, at less than a third of the regular price, and each letter visible as printed and all previous writing completely visible at all times.

FREE TRIAL NO RISK You Take My brand new Model No. 6 offer for but \$34.15—and only \$2 per month. I won't let you buy this typewriter before you see it. I want you to be absolutely convinced that this is the greatest typewriter bargain ever offered. If you have the slightest use for a typewriter you should accept this amazing offer. You cannot equal this wonderful value anywhere. When the typewriter arrives deposit with the express agent \$6.15 and take the machine for five days' trial. If you are convinced that it is the best typewriter you ever saw, keep it and send me \$2.00 a month until my bargain price is paid. If you don't want it, return to the express agent, receive your \$6.15 and he returns the machine to me. I will pay the return express charges. This machine is guaranteed just as if you paid \$100.00 for it.

ONLY 100 TYPEWRITERS At This Price There is no time to lose. Fill in the coupon and mail it today sure. The typewriter will be shipped promptly. There is no red tape—no solicitors—no collectors—no chattel mortgage. It is simply understood that I retain title to the machine until the full \$34.15 is paid. You cannot lose. It is the greatest typewriter opportunity you will ever have.

HARRY A. SMITH 300-231 N. Fifth Ave. CHICAGO, ILL.



TEAR OUT—MAIL TODAY

HARRY A. SMITH
300-231 N. Fifth Ave., Chicago, Ill.

Ship me your Model No. 6 F. O. B. Chicago, as described in this advertisement. I will pay you the \$28.00 balance of the SPECIAL \$34.15 purchase price at the rate of \$2.00 a month. The title to remain in you until fully paid for. It is understood that I have five days in which to examine and try the typewriter. If I choose not to keep it I will carefully repack it and return it to the express agent. It is understood that you give the standard guarantee for one year.

NAME
ADDRESS

MUELLER PIPELESS FURNACE

Will Make Big Money for You

YOU can make big money for yourself and insure complete satisfaction to your customers by installing the **Mueller Pipeless Furnace** in new and old houses. The big demand for the **Mueller Pipeless Furnace** has opened a new field of profits for contractors, builders and furnace men. Thousands of dwellers in stove heated homes are having it installed. It is also a practical, efficient and decidedly economical method of heating modern homes of medium size. You can install it in one day.

The **Mueller Pipeless Furnace** is dominating the "single register" heating field because it possesses the unequalled heating efficiency and fuel economy of the nationally known **Mueller Warm Air, Hot Water, Steam and Vapor Systems**, and has behind it the sixty years' reputation of the **L. J. Mueller Furnace Company**. It is a **real** furnace, of exactly the same construction as the old reliable **Mueller** line, but without pipes or flues. It heats the whole house comfortably, cleanly, economically and dependably from one register. Burns hard or soft coal, coke or wood. Saves 35% in fuel.

Extensive advertising has made the **Mueller Pipeless** well known. Contractors, builders and furnace men everywhere are profiting by the big demand. Get in on this now and get your share. Write at once for our proposition.

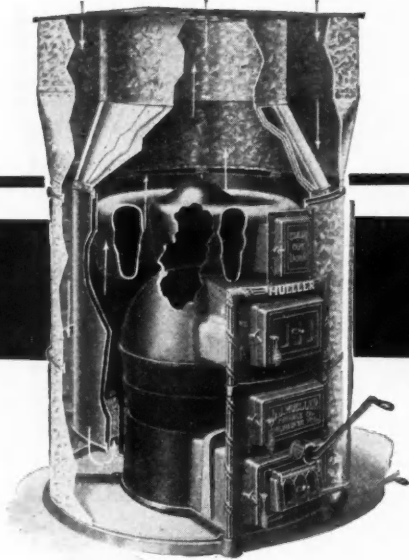
L. J. Mueller Furnace Co.

218 Reed Street, Milwaukee, Wis.

Makers of Heating Systems of all kinds since 1857

Consult, free, our expert service bureau on all your heating requirements—get our estimate on all your heating installations

Cold Air Hot Air Cold Air



(Continued from page 142.)

bin pressures and have sufficient additional strength to hold the small part of the roof load that comes on the roof plate.

"In our next talk," said the Boss, "we will figure the corn cribs and other parts of our building."



Waste Tanbark Now Used to Make Roofing

A method for using waste hemlock tanbark to partially replace expensive rag stock in the manufacture of felt roofing has been developed at the Forest Products Laboratory and is now being used commercially by co-operating mills, according to an announcement made by the Forest Service. It is stated that, in these mills, from 20 to 30 per cent of the rags is being replaced by waste bark and that the quality of the finished product is equal to that manufactured solely from rags.



Use of Hydrated Lime in Concrete and Cement Products

(Continued from page 97.)

A dense, homogeneous concrete, of course, means a stronger, more dependable concrete, and in that respect hydrated lime may be considered as a factor of safety added in the field. A concrete such as produced by the addition of hydrated lime surrounds the reinforcing steel more perfectly and so adds to its protection against corrosion due to atmospheric or other influences.

As to the exterior surfaces, they conform to the finest details of the forms and are smooth and uniformly dense, rarely requiring any patching. Such dense concrete besides being more economical and slightly will resist the elements much better and is less subject to the surface disintegration due to frost or due to expansion and contraction, caused by alternate wetting and drying.

This expansion and contraction has been found to be considerable and is recognized as a patent factor in causing checks, cracks or other defects. Most of these advantages may be easily seen by observing the behavior of concrete during mixing, placing and after the removal of the forms, but there is a process going on in the interior of concrete in which hydrated lime has been used which is of the greatest importance.

Hydrated lime as it is distributed thruout the concrete is in the form of finely distributed colloidal paste and in this state holds a certain amount of water mechanically. After the portland cement has used up the water originally mixed with it, it drains on the water held by the hydrated lime and uses it for further hydration, or, as it is commonly called, curing, which is recognized as very important for the full development of the strength and toughness of concrete and portland cement products.

The facts related led many engineers and architects to include hydrated lime in their concrete specifications, among them departments of the United States government, state highway engineers, county and city engineers of some of our largest cities.

(Continued to page 146.)



HOLLAND FURNACES

Make Warm Friends
Ask Any Owner

Ask any owner of a Holland Furnace. Hear what he has to say about how warm it keeps his whole house—how warm it keeps the floors—what perfect ventilation it provides—how much fuel it saves. Investigate the merits of the Holland Furnace and you will understand why more than thirty thousand owners declare it to be the best and most economical heating plant that can be installed in a home—why it makes friends everywhere.

Be a Holland "Booster"

You can conscientiously recommend the Holland Warm Air Furnace. You know, because you have given the subject of heating plants close study, that warm, moist air, such as is supplied by a Holland Furnace, is the most healthful heat that can be had. You know that it costs less to install a warm air furnace than any other kind of a heating plant, and is most economical to operate.

Our Holland Service Home Comfort Insurance-Bond is the strongest guarantee ever given with any heating plant.

Your recommendation of Holland Furnaces will make friends for you. Not only does a Holland Furnace insure an abundant supply of heat in the coldest weather at the smallest possible cost, but it invariably enhances the value of the house in which it is installed.

Special Proposition To Contractors and Builders

Free heating plans. Send your floor plans. Holland Furnaces are not installed by dealers. We have our own special representatives who have made a study of the Holland Furnace, and who make a regular business of installing

it. We have a very special proposition which we would like to submit to you. Let us submit this proposition in detail. Mail the coupon for full particulars. This places you under no obligation whatsoever. Just sign and mail the coupon today.

HOLLAND FURNACE COMPANY
World's Largest Installers of Furnaces Dept. 16 HOLLAND, MICH. Two Factories 128 Branches

HOLLAND FURNACE CO.,
Dept. 16 Holland, Mich.

Gentlemen:
I am interested in your Special Proposition to Contractors and Builders. Without obligation to me please send me full particulars.

Name.....

Address.....

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

BERGER'S Raydiant

System of Sidewalk Lights

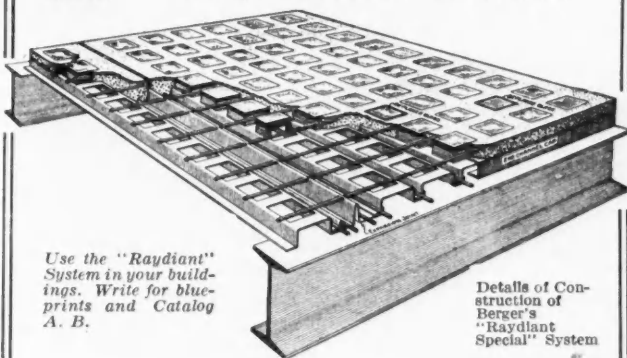
THIS is the only system reinforced by permanent steel forms and having replaceable glass in all styles.

The heavy galvanized steel forms are laid directly onto the bearing, after which the glass is inserted into the holes; the reinforcing rods are then laid and concrete poured. Rods, forms and glass are permanently bonded together by this application of concrete. (See construction detail below.) Bearings are required on two sides only and no centering is needed, making installation simple and speedy.

When glass is broken, it can be readily knocked out and a replace glass inserted—quickly, economically and watertight.

Simplicity, strength, large light area, ease and speed in construction, and durability are the reasons for the extensive use of the "Raydiant" system.

The Berger Mfg. Co., Canton, Ohio
Branches: Boston, New York, Philadelphia, Chicago, St. Louis, Minneapolis, San Francisco, Los Angeles
Export Dept.: Berger Bldg., New York City, U. S. A.

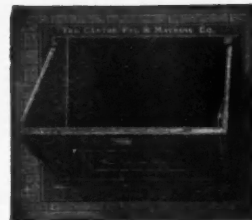


Use the "Raydiant" System in your buildings. Write for blueprints and Catalog A. B.

Details of Construction of Berger's "Raydiant Special" System

CANTON

COAL CHUTES



The sale of
one CANTON
means many more sales.

Put a Canton on your next job. They look well on any building. They are a practical and sensible chute of durable, all metal construction. They are burglar proof, locking automatically on closing and equipped with an independent outside lock. The large hopper is adequate protection for the lawn. Our catalog B-4 gives prices and complete information on our line of builders hardware. It will be sent promptly on request.

**Canton Foundry & Mach. Co.,
Canton, Ohio**

(Continued from page 144.)

Some of the most prominent concrete contractors are using it and find its addition an economy instead of an expense.

Hydrated lime has been used so far in about a dozen states in concrete road construction in stretches ranging from one-half to sixteen miles. This is perhaps the most severe service to which concrete may be subjected. It is placed in a horizontal sheet exposed to the action of the elements and the continuous abrasion due to traffic. The results were found uniformly satisfactory.

Cement products are, of course, manufactured mostly by different processes and under different conditions than concrete structures, but the fundamental principles apply to them as well.

The internal lubrication produced by the use of hydrated lime permits easier working of the mixture and this in connection with the void filling properties of hydrated lime results in a dense and more impermeable product of more pleasing and smoother exterior which resists the action of the elements better than products made without its use.

As to the quantity of hydrated lime to be used, that depends on the purpose for which the structure is to be used and the nature of the aggregates, especially of the sand. The following quantities were found to produce a water-tight concrete:

1:2:4 concrete, 10 pounds hydrated lime for each sack of portland cement used.

1:2½:5 concrete, 12 pounds.

1:3:6 concrete, 15 pounds.

In factory made products of semi-wet or dry mixtures every plant can best determine their own proportion according to the materials available and the purpose the products are to serve. The usual practice varies between 5 and 10 pounds hydrated lime per sack of cement, altho one of the most successful manufacturers of wet cast artificial stone uses as much as 15 pounds.

The addition of hydrated lime in the field is very simple, and is added just like all other materials. As it weighs about 40 pounds per cubic foot, one 8-quart pailful weighs approximately 10 pounds.

No hard and fast rules can be laid down for the method to be used in cement products plants, as that will depend entirely on the layout and the equipment and methods used in each individual plant.

In closing, I may be permitted to mention the rapid growth of the use of hydrated lime. This may be judged from the latest government reports, which show that 120,000 tons more of this commodity were used in 1916 than during the previous year. The meaning of this will be appreciated if we consider that ten years ago one whole year's total output was barely as much as the increase of last year's.

make the next one a HERO

Don't Experiment Further with Your Heating and Ventilating Problems.

Hero Pipeless Furnaces are easily and quickly installed and our agency Proposition gives the Builder a good commission on each sale.

The **Hero Furnace** employs the simplest and most direct method known for the heating and ventilating of homes, stores, halls, etc. There are no pipes to waste heat and room in the basement and a constant flow of warm, fresh air is maintained throughout the house.

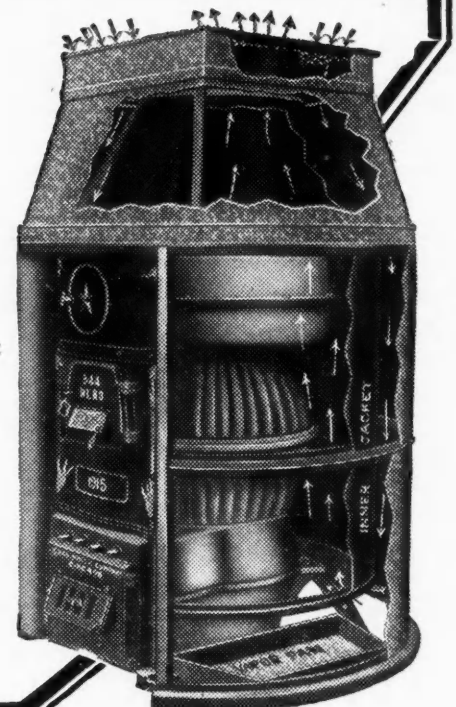
Hero Furnaces are Economical, both as to the original price and the cost of installation, and are giving the best of satisfaction to their many users.

Write us today for details of our agency Proposition and Dealers Prices

CHAS. SMITH COMPANY

180 No. Dearborn St. - Chicago

Northwestern Distributors
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TAKE OFF YOUR HAT TO THE

MYERS

PUMPS FOR EVERY PURPOSE

HAY TOOLS & DOOR HANGERS

WE BUILD Hand and Power Pumps for Every Purpose with capacities up to 7,200 gallons per hour and adapted for pumping service on farms or ranches, in manufacturing plants, mills, mines, dairies and creameries, laundries, hotels, sanitariums, etc.

What are your requirements in this line? We are ready to mail you a copy of our large Catalog showing complete line of Myers Hand and Power Water Lifters, if you are interested in better water facilities.

Address communications to our Service Department when asking for information concerning Water Problems of any kind.

F. E. MYERS & BRO., Ashland, Ohio
ASHLAND PUMP AND HAY TOOL WORKS

COLUMBIA WINDOW COAL CHUTES Patented

Seven Distinct Advantages not possessed by other makes are: (1) Opened from first floor or basement. (2) Protect foundation and lawn. (3) Affords one-third larger opening than ordinary coal chutes. (4) Door locks automatically and positively. (5) Hopper rests at top of chute when not in use and does not obstruct light. (6) Will not rust out. (7) Window can be used for other purpose.

Columbia Window Coal Chutes are artistic in design, mechanically perfect and will last as long as the building.

Ask your dealer or write for catalog and prices on Foundation Coal Chutes, Grade Line Coal Chutes, Side Walk Doors, Panle Bolts and Light Ornamental Iron Work.

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Learn to Estimate and Draw Your Own Plans

Carpenters, Bricklayers, Contractors, etc., a few hours of your spare time daily will soon make you a capable draftsman and architect.

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Our catalog gives full details of the courses covering the subjects. Write for it today. Take a step in the right direction, and turn your spare time to a valuable purpose.

Columbia Correspondence School, Dept. C, Philadelphia, Pa.

Does the work of a Hundred Hands

THE "New-Way" ENGINE

GOES AND GOES RIGHT

Use "New-Way" power wherever possible. The saving in labor on almost any job will pay for the engine and leave a handsome margin to be added to your profit.

A Reliable Non-Stop Engine

The engine that is constantly stopping on account of needed repairs or attention not only cuts your profits but may mean a positive loss. You can't afford to have any but a reliable, non-stop "New-Way" engine.

A Few Reasons Why it is Better

Direct cooled—no water to freeze in winter or boil away in summer, throttle governed, high grade carburetor, high tension, built-in magneto, splash oil system. Built throughout with the same care and precision as the finest automobile motor. The "New-Way" engine is economical in the consumption of fuel and a pleasure to run.

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Made in all sizes 1 to 12 H. P.—
VERTICAL and HORIZONTAL.
Send for Catalogue No. 35.

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Then go after prospective builders. Explain to them the desirability and the downright necessity from the standpoint of home and farm health and sanitation of ample supplies of running water. Tell them of the dependable action and the simplicity of

DEMING Water Supply Systems

Make the installation yourself or work in conjunction with your plumber. The Deming Handbook tells how. It shows the proper capacity for meeting the different demands of home, farm and suburban estate. Write now for our proposition and make an installation on the next job. Use the coupon.

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System No. 2010
A popular model for farm use.



The Great Bell

-original Pipeless Furnace

Father of Them All

We have thousands in use. Sizes, styles and prices to suit all. \$38.00 to \$94.00. Made for the building where a furnace is needed, but where the cost has been prohibited. The GREAT BELL PIPELESS FURNACE will heat any one or two-story building in the most efficient manner with the least effort and the lowest relative cost. While **Cost** is secondary to **Service** in this furnace, our methods of production and sales have reduced the cost so low that no builder can afford to overlook our proposition. And we guarantee our furnaces to be and do all we claim for them in both catalog and correspondence. Write for our catalogs, describing the various styles, prices and specifications of the Great Bell Furnaces.

American Bell & Foundry Co.
27 Cody Street, Northville, Mich.




The Superior Heating Boiler for Hot Water Vapor or Steam

The Modern Method of heating your residence. Insures comfort in every corner of the house in the coldest zero weather. It Will Pay You to investigate this Boiler before buying.

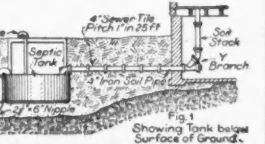
Our Estimates and Plans are Free
"A Complete Line of Plumbing and Heating Material"

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Sewage Disposal Without Sewer or Cesspool

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The Only Modern, Sanitary STEEL Medicine Cabinet


or locker, finished in snow-white, baked everlasting enamel, inside and out. Beautiful beveled mirror door. Nickel plate brass trimmings. Steel or glass shelves.

Costs Less Than Wood

Never warps, shrinks nor swells. Dust and vermin proof. Easily cleaned. Should be in Every Bath Room. Four styles—four sizes. To recess in wall or to hang outside. Send for illustrated circular.

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The Recessed Steel Medicine Cabinet Makers of Steel Furnaces Free Booklet

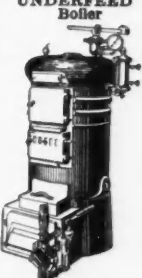
Cut Coal Cost
 $\frac{1}{2}$ to $\frac{2}{3}$ **Guaranteed**



Yes, absolutely guaranteed. Over 40,000 Williamson UNDERFEED Furnace and Boiler users are enjoying UNDERFEED saving and comfort season after season.

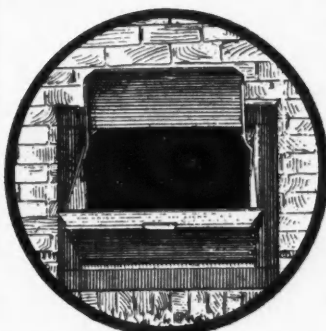
Free Book Tells How
 A postal brings it to any carpenter, builder or contractor. Book pictures and explains it all. Write for it NOW and learn how you can guarantee this great saving to your customers.

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KEWANEE MFG. CO.
 KEWANEE, ILL.

BOVEE'S PIPELESS CENTRAL HEATING SYSTEM AND OTHER FURNACES

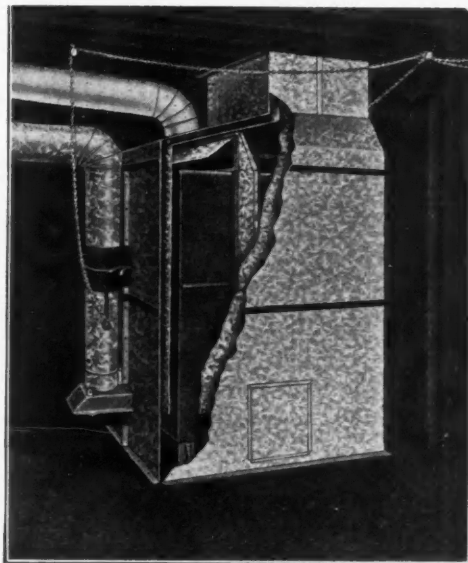


Every home can now have a first-class high-grade heating system in an old house as well as new. Heats as much as three large stoves. Costs but little more than a good stove.

We furnish either our UPRIGHT FURNACE for burning hard coal, soft coal or wood; or our HORIZONTAL FURNACE with large doors 16x16 inches for burning 4-foot wood or soft coal. Either style furnace furnished in any size necessary to heat the house.

UNUSUAL SYSTEM WITH PIPING TO EACH ROOM FURNISHED WHEN DESIRED. Write for our three color catalogue, free.

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 210 Eighth St. Waterloo, Iowa



The Hess Welded Steel Pipeless Furnace

is efficient, economical, and in every way satisfactory for heating cottages, bungalows and single large rooms, such as churches, schools, stores, etc. We do not consider it the best type for heating houses where there are a number of detached rooms to be heated separately. For such houses we recommend our regular pipe furnace. *We have improved the pipeless method*, however, so that it is perfectly adapted to heat the "pipeless" way, and also to heat one or two detached rooms by means of an extension of the heat chamber and separate pipes for such detachable rooms. This improvement is indicated in the cut, and a patent has been allowed upon it. It is entirely satisfactory and places the *Hess Pipeless Furnace* in a class by itself.

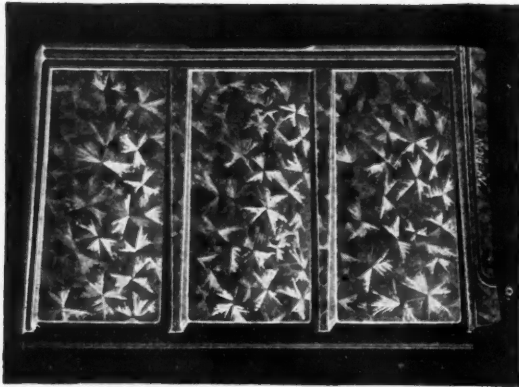
Write us for a solution of your heating problems, and our estimate for your work. We make special terms to contractors, and enjoy the patronage of very many in all sections of the United States, whose repeated orders indicate the satisfaction they receive from Hess Furnaces.

Hess Warming & Ventilating Company
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P.S.—The furnace supply this year will be below normal. Material is scarce, railroad service is slow, mechanics are joining the army and this combination of circumstances leads us to urge our friends to anticipate their furnace wants and orders early.

AMERICAN Metal Shingle

Fire—Water—Lightning Proof



The Last Word in Metal Shingles

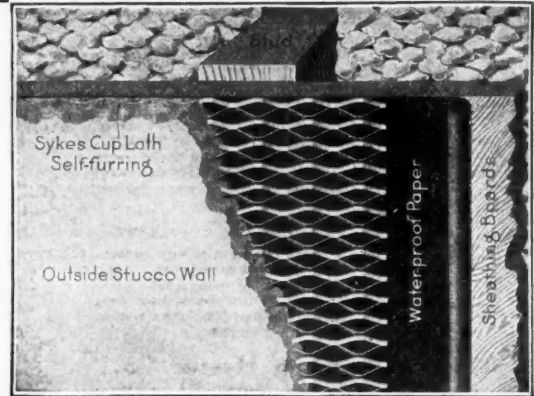
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Effective in Appearance

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The Sykes Cup holds the stucco tight. It saves in construction cost because it makes furring strips unnecessary. It gives added strength and rigidity.

SYKES Expanded Cup Metal Lath

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is heavier than other metal laths of same gauge because Sykes is cut with wider strands.

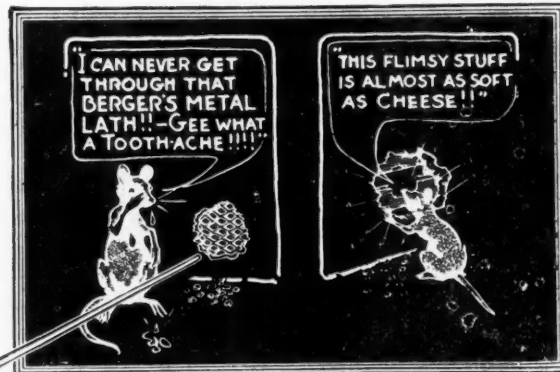
Sykes is best for interior as well as for overcoating and stucco work. Approved by U. S. Government for Post Office work; indorsed by architects and contractors. Free booklet on Stucco Specifications. Write to

Sykes Metal Lath & Roofing Co.
504 River Road Warren, Ohio

*Blackboard talks
by the professor*



No. 4—
“Metal Lath
Is Vermin
Proof”



WITH wood lath construction, there is always danger of rats and mice gnawing holes thru the walls and making passageways for themselves to all parts of a building.

These vermin not only are destructive to property, but are positively dangerous to the health of the occupants, as they are carriers of disease. But

Berger's Expanded Metal Lath

partitions and walls will not harbor these pests, as there is no possibility of them being able to gnaw through the construction.

"This feature will appeal to every building owner, as the positive elimination of troublesome vermin from a building cannot be overlooked.

"Then, remember the other advantages of Berger's Expanded Metal Lath: It adds strength and rigidity to a building, saves maintenance expense, is fire-resisting, prevents plaster from cracking and falling, permits immediate decorating, muffles sound, is easily and quickly applied.

"Use Berger's Expanded Metal Lath in your next building."

Send for Booklet F. A. B.

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Makes Foundations Impervious to Moisture

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A PPLIED with a brush direct to foundation walls, concrete construction, masonry, or stucco surfaces, Percoproof forms an unbroken, elastic facing that fills every pore and crack and prevents all seepage and moisture from penetrating. Unlike ordinary waterproofing materials, Percoproof contains no oil and requires no thinning. It comes ready for use and is equally satisfactory in all climates and at all seasons. *Write for our damp-proofing booklet.*

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THE use of Ceresit in cement stucco is insurance against hair cracking, discoloration and disintegration. The cost is slight, and it's easy to use. Every contractor and builder can make his work better, and get better work by using Ceresit. Not only Ceresit, but every one of the seven C. W. Co. Products—they're all reputation makers for the contractor. There's a C. W. Co. Product for every kind of water-proofing, damp-proofing and concrete floor work. It's easy to learn all about them without obligation—simply write for literature.

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—back numbers will be sent you, too.*

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METAL COLUMNS

"The Ones That Last a Lifetime"

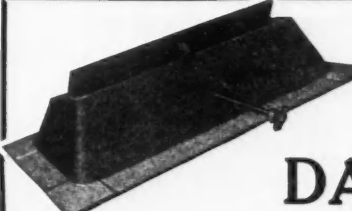
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The shafts are galvanized open hearth steel and will not split, check, rot, warp or open up at the joints. Union Metal Columns are architecturally correct and have been used on thousands of representative buildings.

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THE UNION METAL MFG. CO.
CANTON, OHIO





Improved Fireplace DAMPERS

Stover Dampers make the building of fireplaces easy. The labor saved by their use reduces the cost considerably.

Catalog 1590-X describes these and other new style dampers in detail, gives valuable suggestions as to fireplace construction and shows a large assortment of other fireplace fixtures.



If you build fireplaces, send for this catalog. *It's free.* We manufacture builders' and household hardware, windmills, feed mills, gasoline engines.

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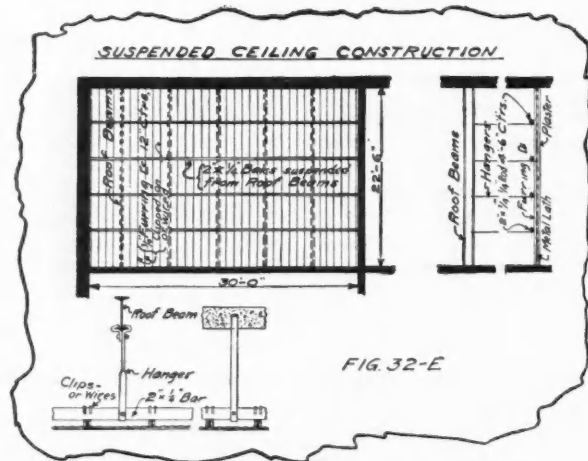
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A Suggestion for "Kno-Burn" in Suspended Ceilings



Hotel Olmsted, Cleveland, O.
Designers and Builders
H. L. STEVENS CO.
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All partitions and ceilings in this new, modern fire-resisting building are plastered over Kno-Burn Expanded Metal Lath.

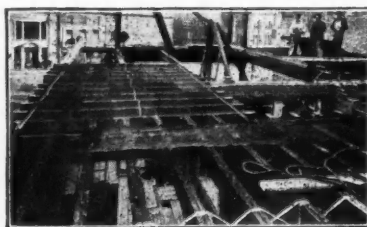
The above drawing suggests a simple and practical method of suspended ceiling construction.

North Western Expanded Metal Co.
Members of the Associated Metal Lath Manufacturers
903 Old Colony Building Chicago, Ill.

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(Patented)

Eliminates Maintenance Costs



BERGER'S Metal Lumber will enable you to erect your buildings for positive strength, safety and permanency. It eliminates maintenance costs due to depreciation and lowers insurance rates. It is proof against fire, rodents, dampness and sound — also prevents cracking in plastered walls and ceilings and cemented floors.

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All members are cut to size to fit your plans, making erection easy and saving considerable money in time and labor.

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Branches: Boston New York Philadelphia Chicago
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I-Joist

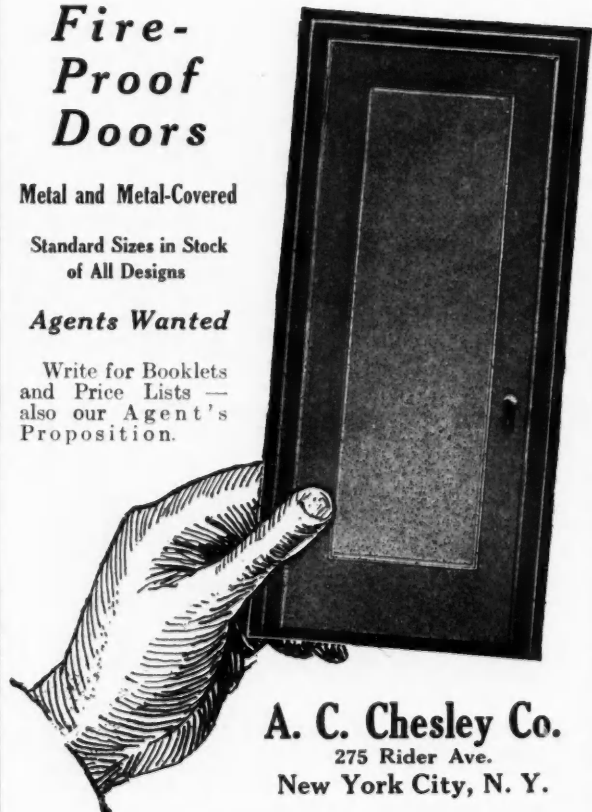
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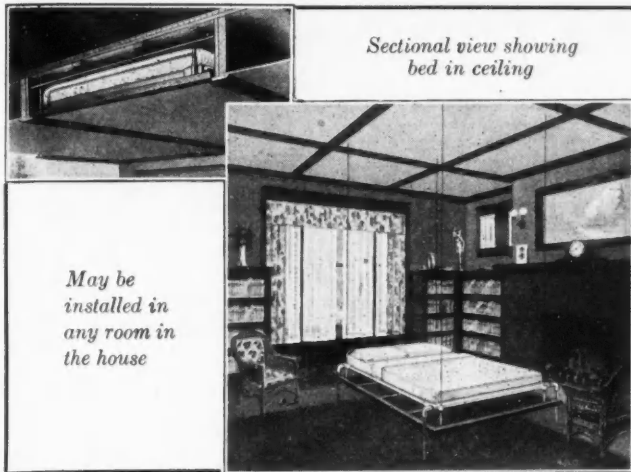
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Members Knoxville Builders' Exchange

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The salability of any house is doubled when you show the purchaser the beauty and comfort of

Hornet Mantels

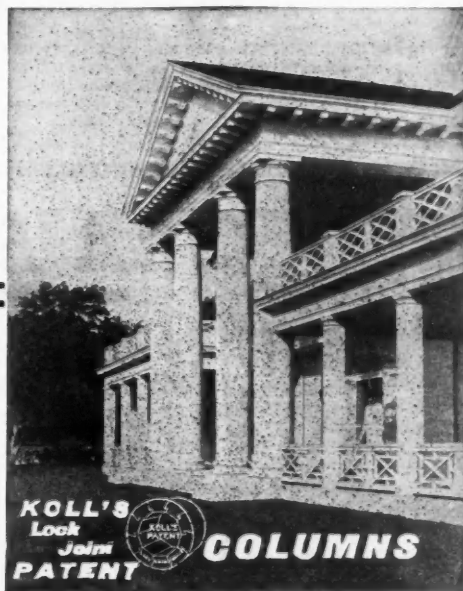
They add 100% to any interior. The model shown here gives an idea of our line and prices. It is offered in selected Oak or Birch, Mahogany finish, Piano Polish. Stands 7 feet high. Note beveled mirror, enameled tile and grate.

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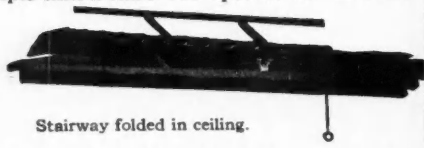


This cut shows Stairway half way up to ceiling. Spring barrels and counter balance do the work. You merely direct it.

a chain brings it down when stairs are easily rolled down the panel on to the floor. When not in use it is swung up into the ceiling out of the way.

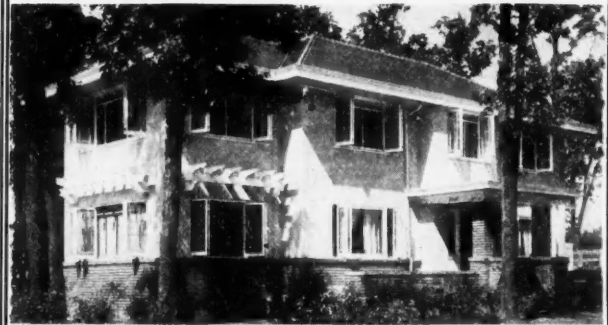
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So easy and simple that a child can operate it. It costs less than a stationary stairway—bear that in mind. And just think of the space it saves in the valuable lower rooms. Architects, contractors and home builders are invited to get in touch with



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Makes Trouble-Proof Casements

—casement windows that build profits and reputation for you—that always open easily and quietly, do not interfere with screens, open outward, out of the way; can be easily moved to any point in the opening, permitting an unobstructed view; are self-adjusting, affording perfect control of ventilation; and weather-proof when closed.

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MINNEAPOLIS, MINN.



This shows sliding pivot hinge in position on top edge of sash.



This shows sliding pivot hinge and water-proof metal track in position at bottom edge of sash.



the metallic coating from which the genuine PEARL derives its rust-resisting qualities is a secret process, exclusive with The Gilbert & Bennett Mfg. Co. Consumers everywhere are keeping on the safe side by insisting on seeing the two copper wires in the selvage and the Round Tag on the roll which identifies the real article.

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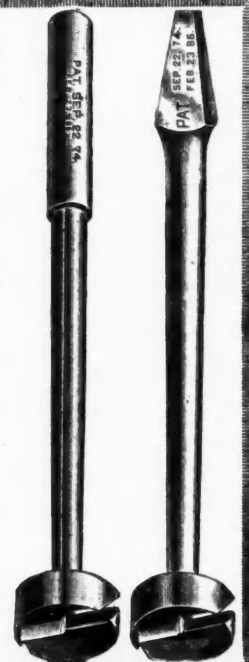
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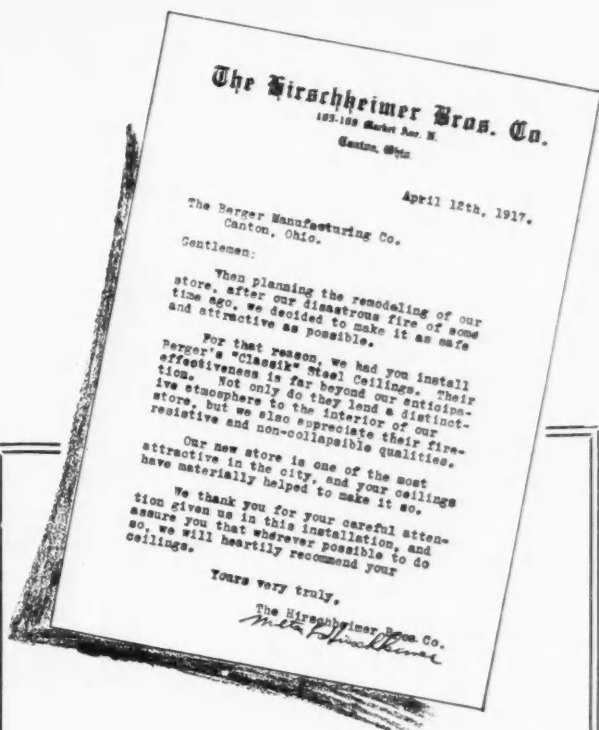
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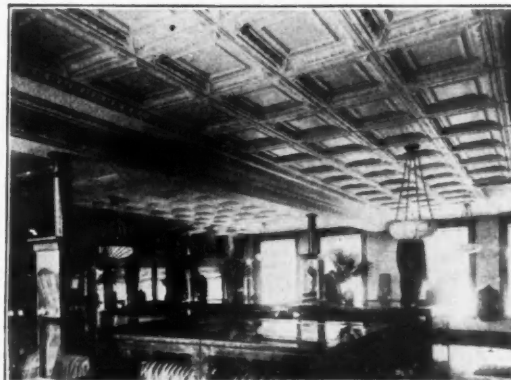
Install them in your interiors.

Send for "Classik" Book D.A.E.

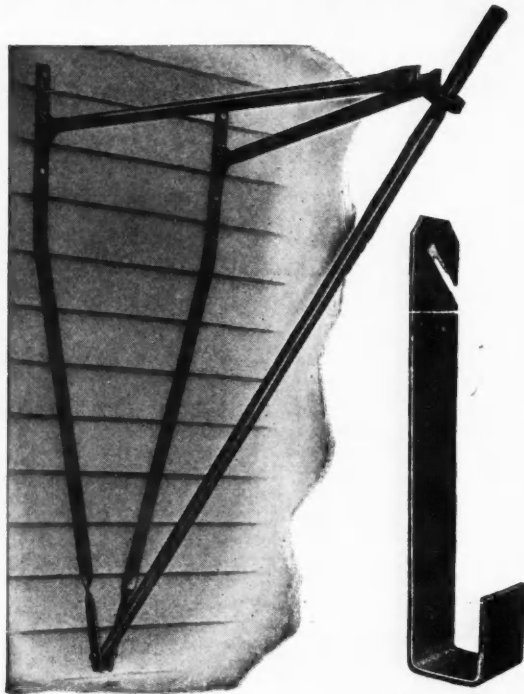
The Berger Mfg. Co., Canton, Ohio



Branches: New York, Boston, Philadelphia, Chicago, St. Louis, Minneapolis, San Francisco, Los Angeles
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The Hirschheimer Bros. Co. Store, Canton, Ohio



Pat. Oct. 4, 1910

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Pat. Applied for

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TAKE note of its superior construction and the quick, easy way in which it is put up and taken down. Reliable brackets have individual features that make them the ideal scaffolding for the carpenter, painter or brick mason.

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¶ The Reliable folds compactly when not in use, is always ready, is far cheaper than the old wooden scaffold and is much safer and more convenient than ladders. They can be used everywhere, on the roof, for building chimneys, on the corners or in the gables.

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Will not roll



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Every Nail Set Guaranteed
Ask your dealer for V & B No. 100.....Price 15c each

Patented All Steel Wood Chisel

Will not break or take a set—can be used with a hammer.
Use it for prying and ripping. Save your
Wooden Handle Chisel. It cuts, too.



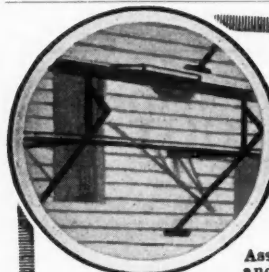
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Equipped with tool shelf. Folds up flat for storing.

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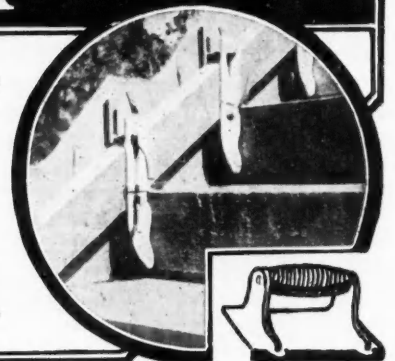
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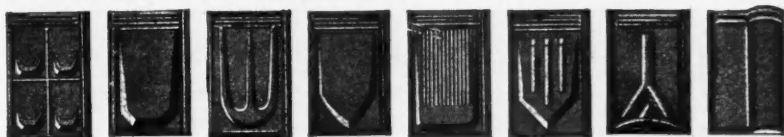
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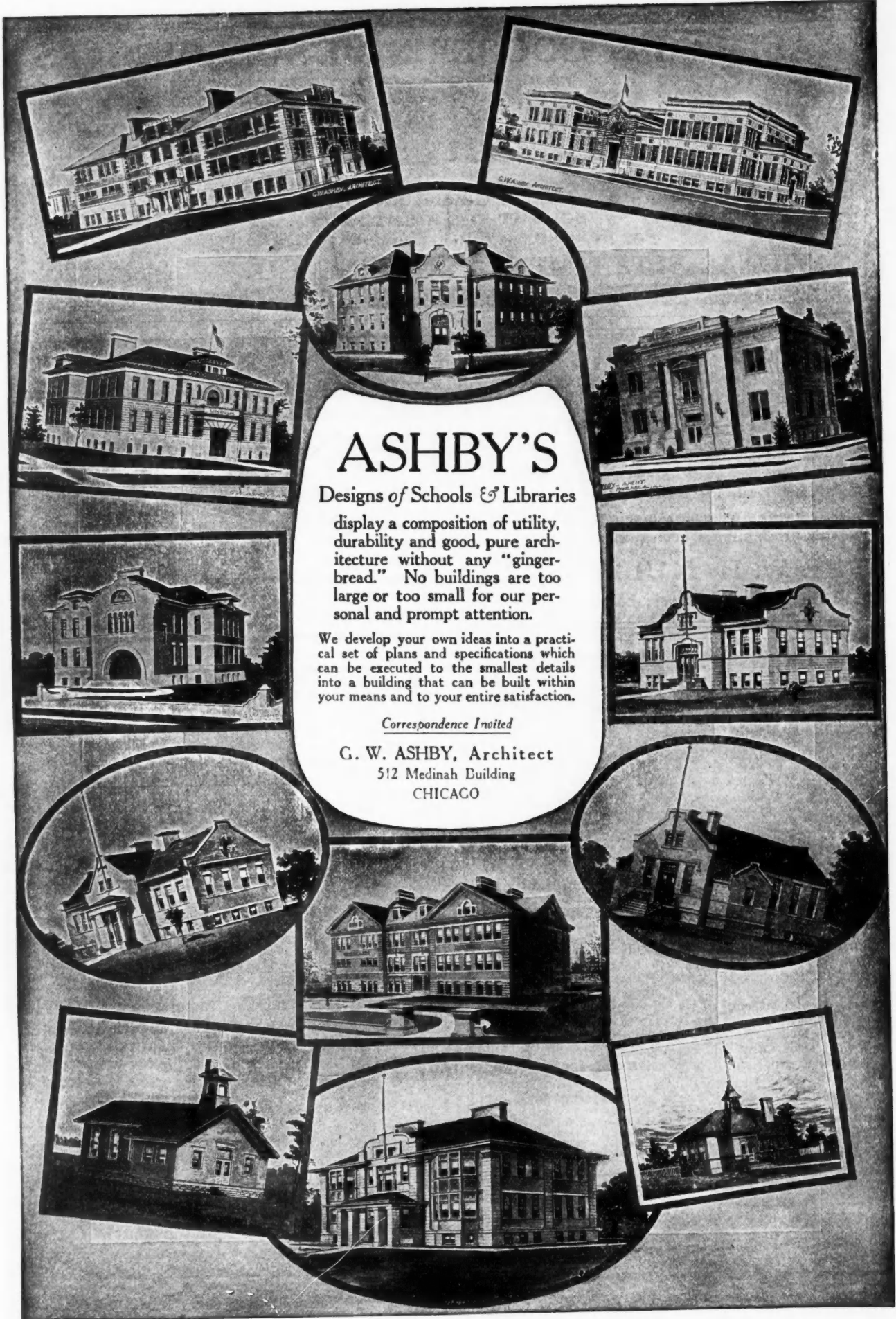
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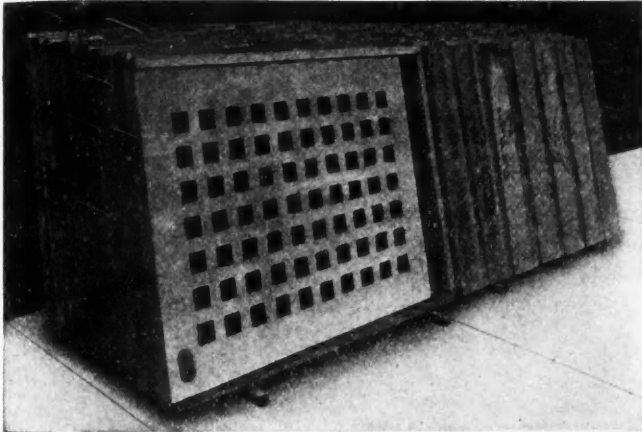
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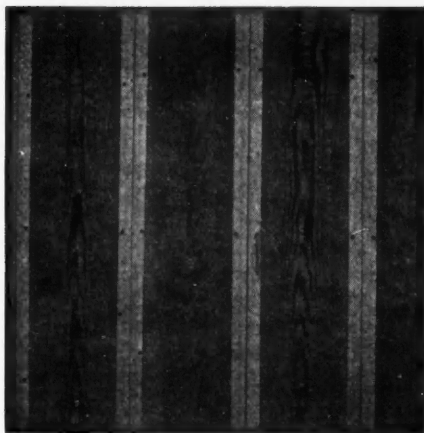
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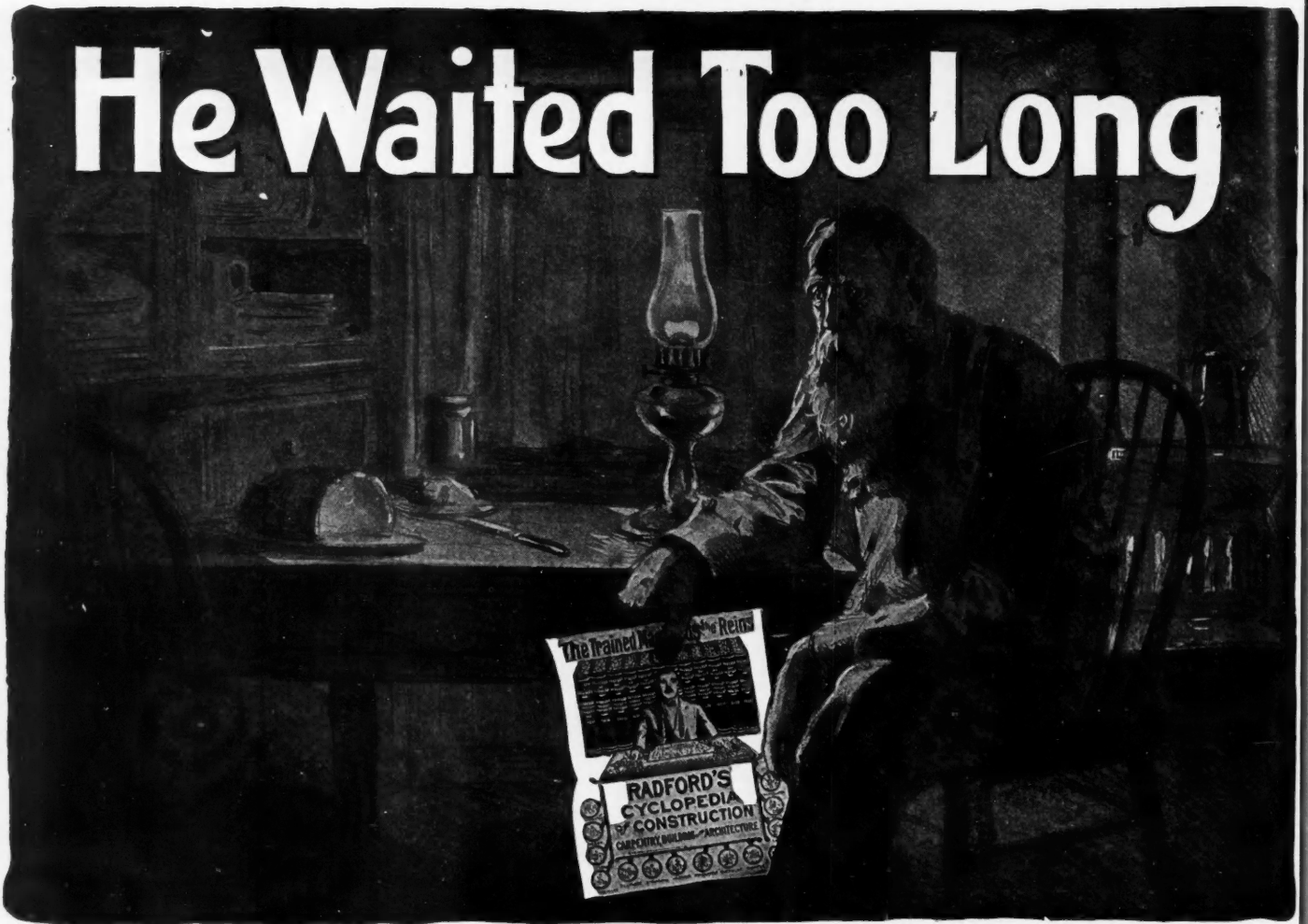
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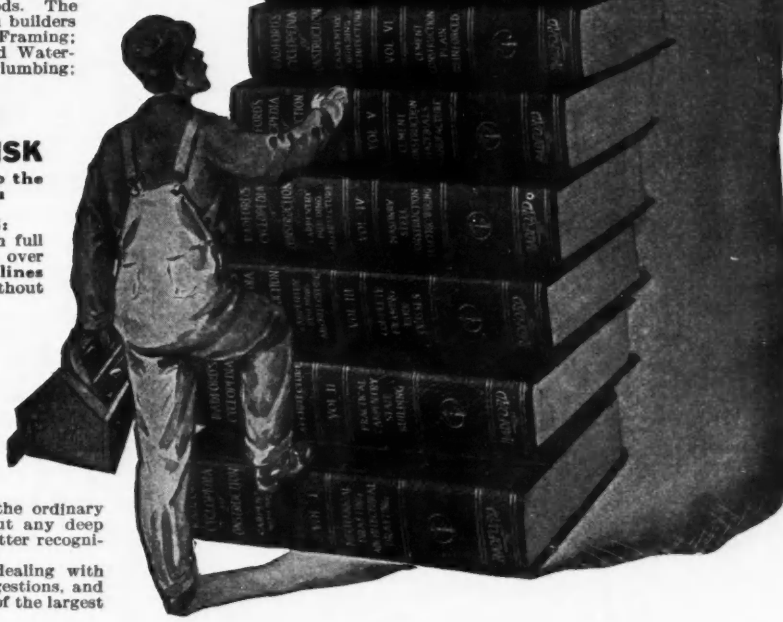
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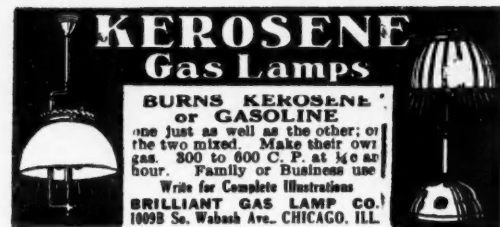
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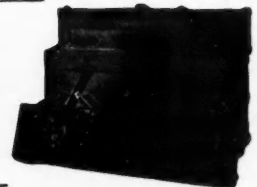


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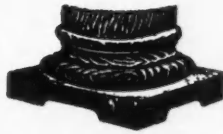
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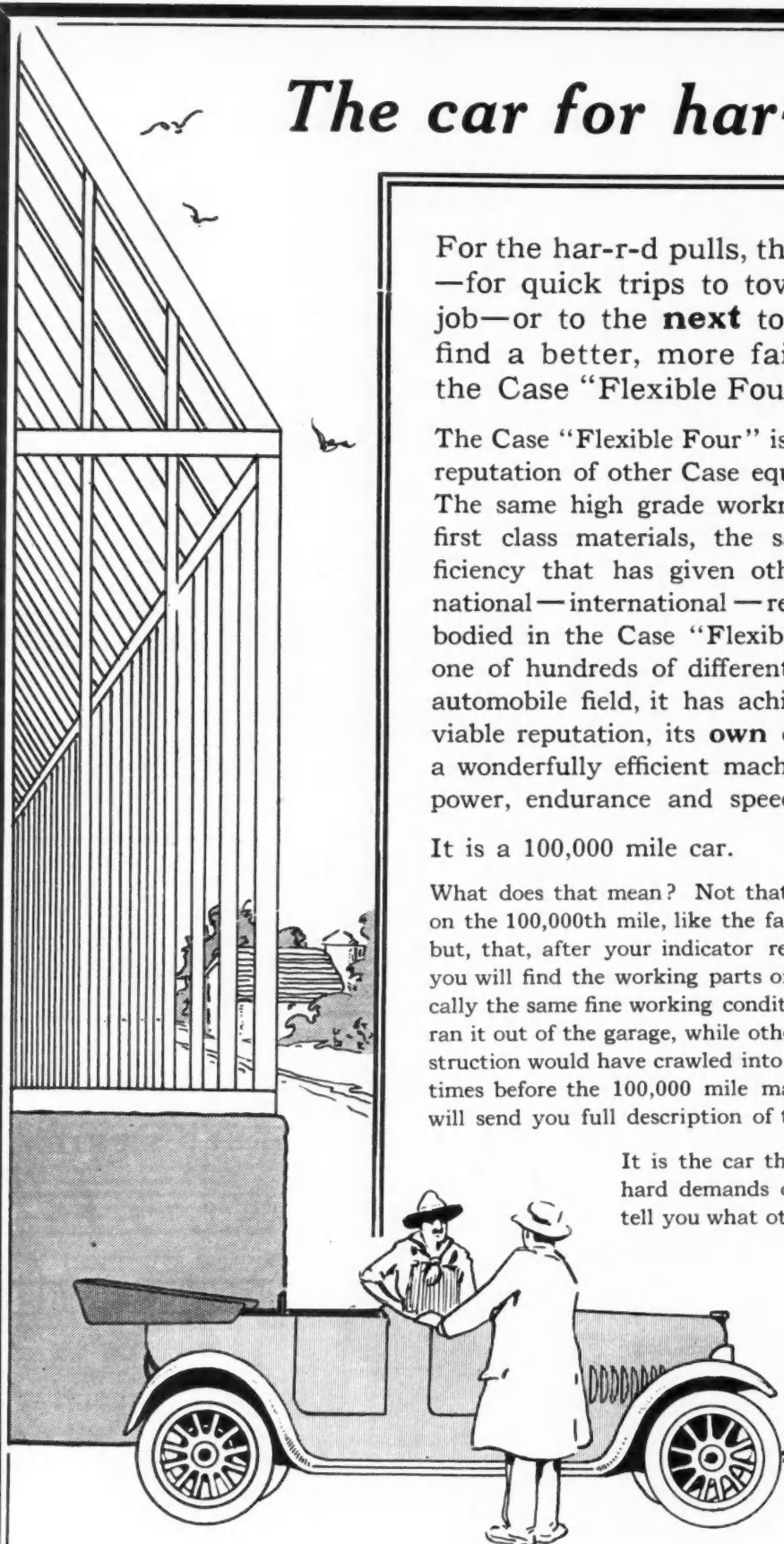
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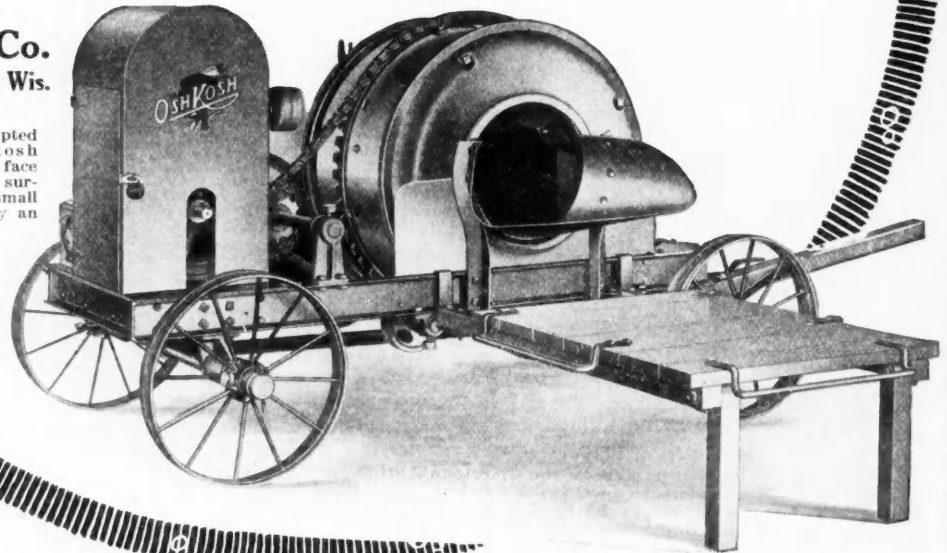
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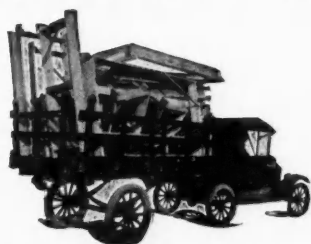
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1 1/2 ton King Semi-Trailer used with Ford Roadster without change of tires, wheels, axles or frame



King Semi-Trailers of 3 and 5 ton capacity for Heavy Duty Hauling

King Semi-Trailers are built in 1 1/2, 3 and 5 ton capacities. Of these, the 1 1/2 ton is best for builders and contractors. It requires no change in the "tractor," as the car bears but 1/4 the load weight—the semi-trailer, 3/4. All King Semi-trailers are equipped with new, patented Universal Motion, Shock Absorbing Fifth Wheel—the only semi-trailer connection on the market with these features. Universal Motion permits rocking in any direction. Insures absolute stability of the load. All jolts and jars of the road, as well as the jerk and strain of starting and stopping are taken up by the shock-absorbing feature. Without these essentials the usefulness of the semi-trailer is limited.

Enthusiastic owners have named the King Trailer "The Trailer King." This is a tribute to King design, material, and construction. The King has proven itself to be the best, lightest running and most economical trailer on the market. King superiority is indicated by King specifications and proven by King performance. King Trailers stand up under the most trying conditions. The first King Trailer ever built is still "delivering the goods" to and for its owner. King Trailers for service with pleasure cars are built three capacities—1/2 to 1 ton—to following specifications: Solid rubber truck-type tires, guaranteed 7,000 miles. Artillery wheels. Auto-pattern springs. Ball-bearing axles. Hardwood body and frame. Adjustable oak draw-bar. King patent Universal Motion. Shock-absorbing coupler.

Mail The Coupon Today

Hauling and delivery problems need no longer be a bugbear if you'll only let us show you how the King Line fits your particular needs. No matter what hauling equipment you now use, we can and will show you how to cut your ton-mile cost to bed-rock—how to save time, money, labor and upkeep. The attached coupon is for your convenience. Send a letter or postal card if you prefer. But get in touch with us at once. Every day of delay means loss to you. Don't be "money out"—be MONEY IN.

King Trailer Co.

613 Main St., Ann Arbor, Mich.

KING TRAILER CO.,
613 Main St., Ann Arbor, Mich.

Gentlemen: Please send at once, without cost to me, full information and descriptive literature regarding King Trailers, Semi-Trailers and Fifth Wheels, together with prices and name of nearest King dealer. Also information relative to the solution of my hauling problems.

NAME

ADDRESS

BUSINESS



Another good job done!

It's a great satisfaction to feel that one's work is well done—that it will bear the most critical inspection and that it will reflect credit to you.

The garage door set is an important part of any garage construction. From the standpoint of use it is the *most* important part.

The No. 800 Garage Door Set will find a ready sale with contractors and builders who are after a high class door set at a moderate price. The No. 800 costs much less than hanger-and-rail equipment and in most cases is fully as satisfactory. The garage doors will work easily and stay firmly in place when open or shut.

These No. 800 sets have a loose pin reversible "T" hinge—they are used as a surface hinge or the "T" part can be reversed and mortised in the jamb for brick work. The hinge pin can be riveted slightly to prevent removal, if desired.

The No. 800, packed in a strong box, consists of—

3 pr. 8" Reversible "T" Hinges	1 No. 820 Chain Bolt
1 No. 830 Foot Bolt	1 No. 5 Door Pull

1 No. 29 Door Latch

Finishes: Japan, Dead Black Japan, or Sherardized.

Our No. 801 is the same except No. 27 All Steel Latch instead of No. 29. We are prepared to make prompt shipment on these goods. If your dealer does not have them in stock send us his name.

National Manufacturing Co.

Sterling, Illinois