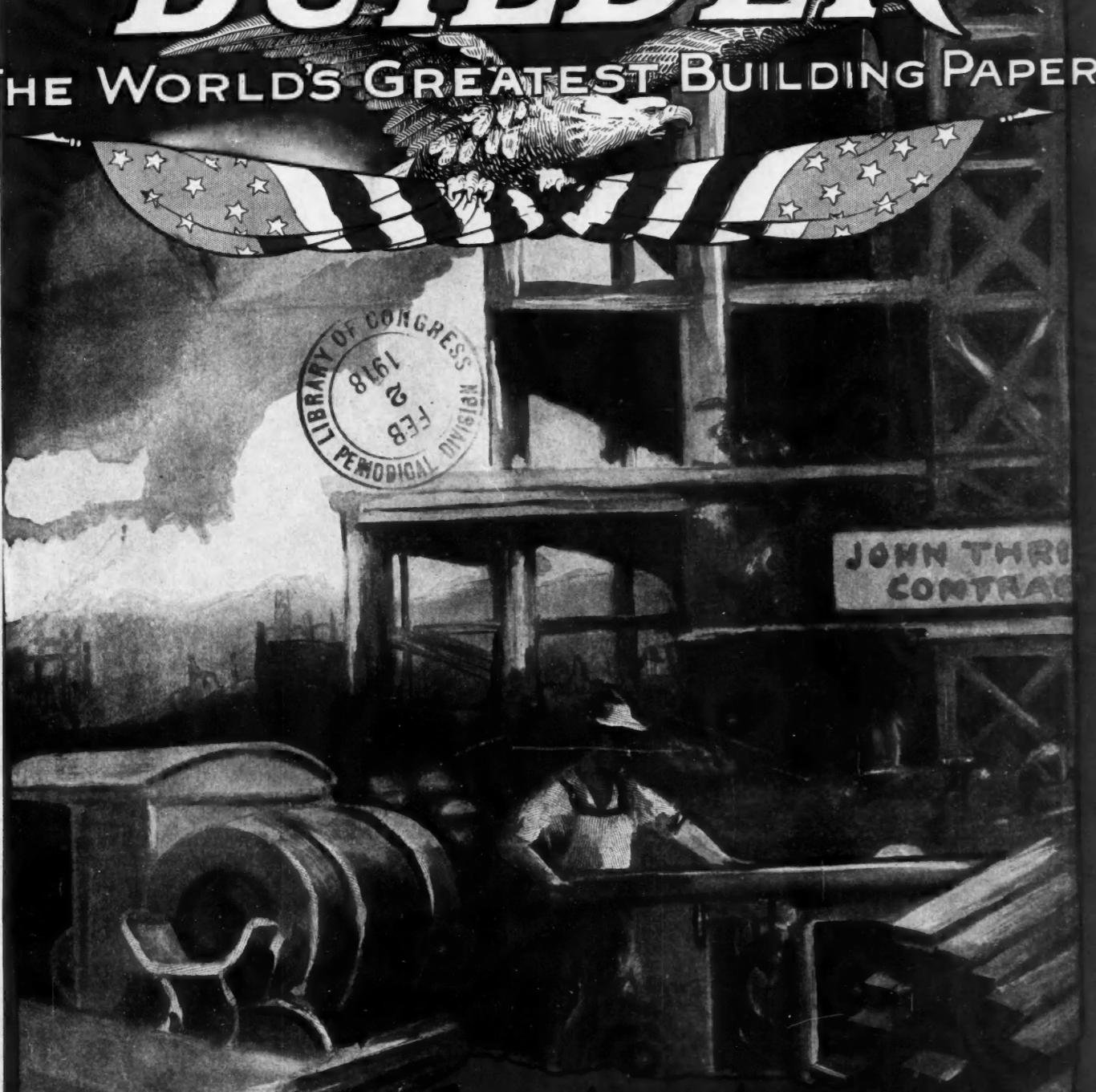


AMERICAN BUILDER

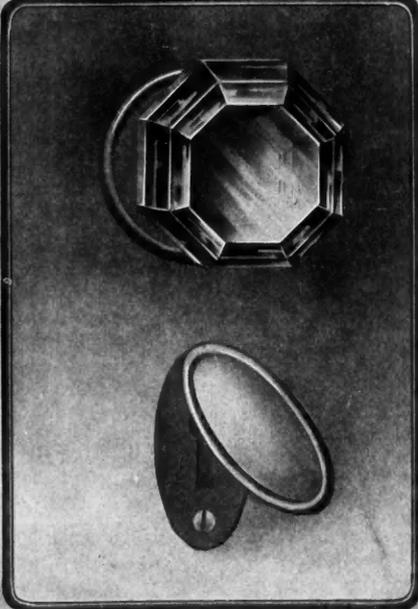
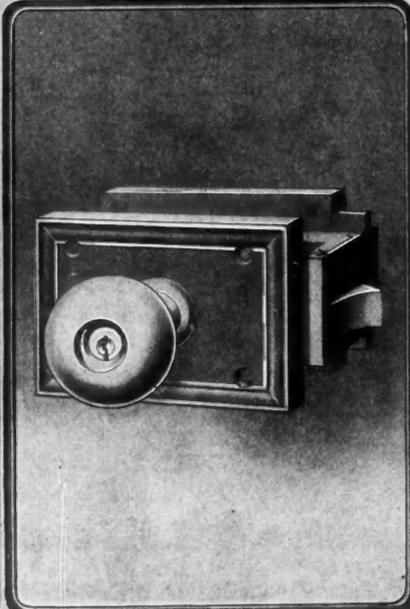
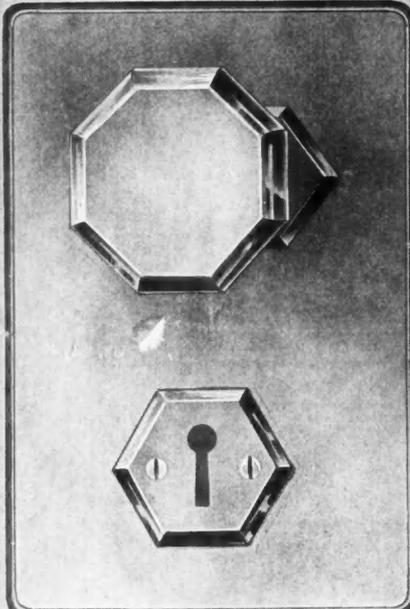
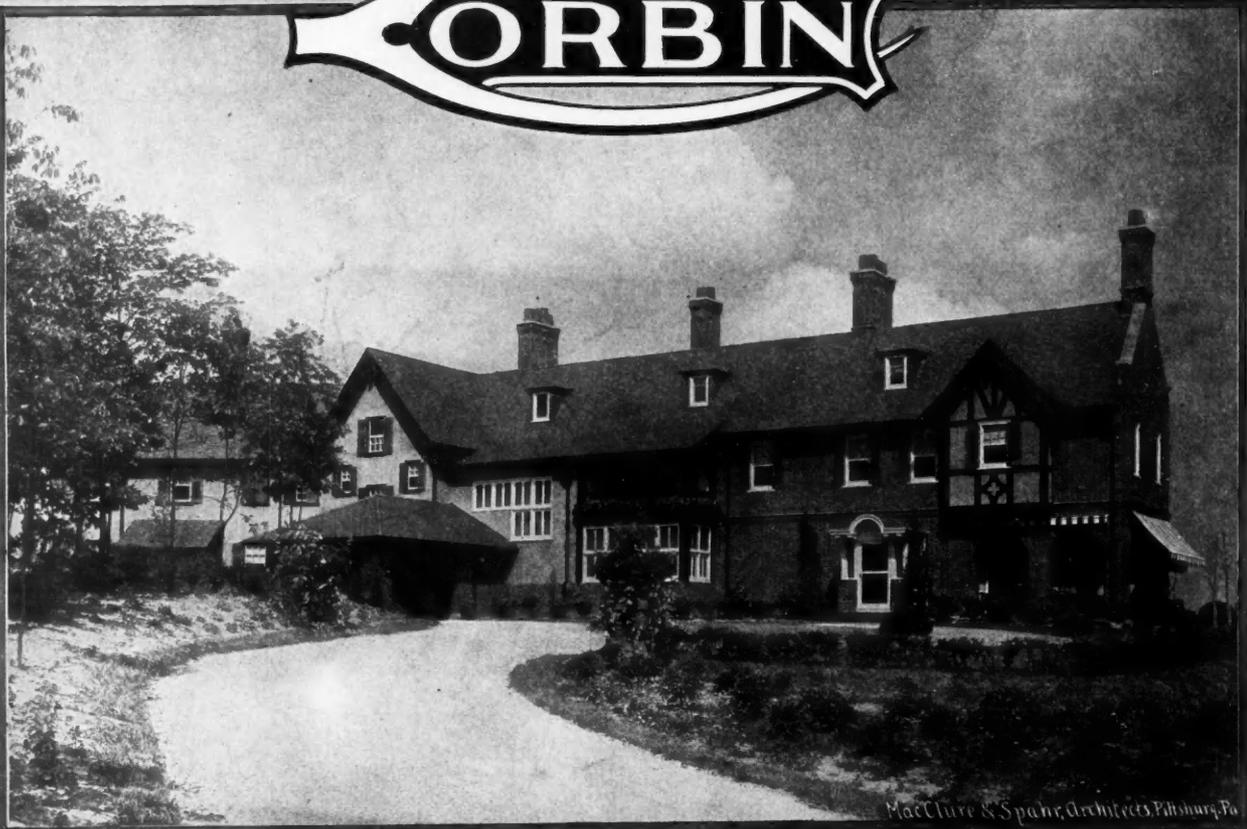
THE WORLD'S GREATEST BUILDING PAPER



Contractors
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Number

Published in Chicago

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THE AMERICAN HARDWARE CORPORATION

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Ransome-Leach Company

*Representing a New Service for
Contractors and Builders*

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A COMBINATION of great importance to contractors and builders, marking a new era in the contractors' equipment field, has been completed in the consolidation of the Ransome Concrete Machinery Co. and the Oshkosh Manufacturing Co.

This new organization, known as the Ransome-Leach Company, through economic advantages in manufacturing and marketing, offers a service that has a far-reaching significance for both contractor and dealer—a service that has hitherto been unapproached in the contractors' equipment world.

Ransome-Leach Company

New York, N. Y.

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S.M. 26/11/19

ARE YOU ACQUAINTED
with the **Universal Variety Woodworker?**

The speed of this wonder-working machine is simply marvelous. Time saved is money saved for you. Thousands of contractors are coining money and establishing a lasting millwork business with their woodworkers.

Where Are You At?

Are you trying to compete with machine labor by hand and losing profits in big labor bills?

These machines have solved the problems of labor shortage of many contractors.

You can use the **Crescent Universal Woodworker** to do your scroll sawing, cross cutting, ripping, resawing, panel, raising, grooving, disc grinding, sanding, jointing, boring, tenoning, dadoing, knife grinding, mortising.

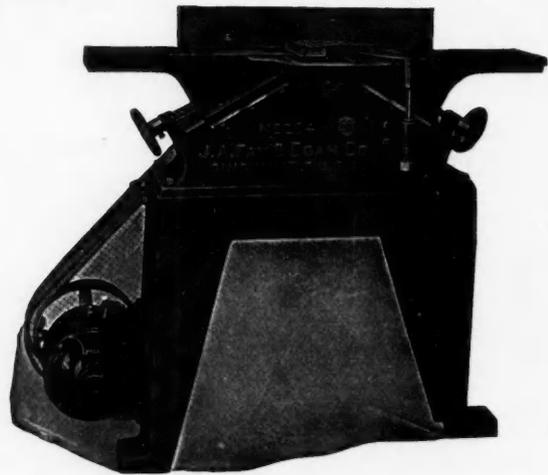
You can make moulding and in fact this one machine will help you turn out a large part of the mill work you have been accustomed to buy.

The Crescent Machine Co.

224 Main St.
Leetonia, Ohio



The Crescent catalog is free to you — ask for

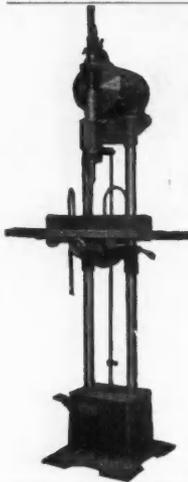


—a really practical
Carpenter's Hand Planer

—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.*

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SUPERIOR
HOLLOW CHISEL MORTISER
and **BORING MACHINE**

SPEED and ACCURACY

account for the rapidly growing popularity of the **SUPERIOR**. This picture shows the **Style C.F.**, also made without motor, with countershaft on base for belt drive. **Style C.V.** has vertical motor direct-connected to bit shaft.

WRITE TODAY FOR
FREE TRIAL

Warren W. Morse, The Low-Priced Mortiser
1308 West Lake St. Minneapolis, 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.



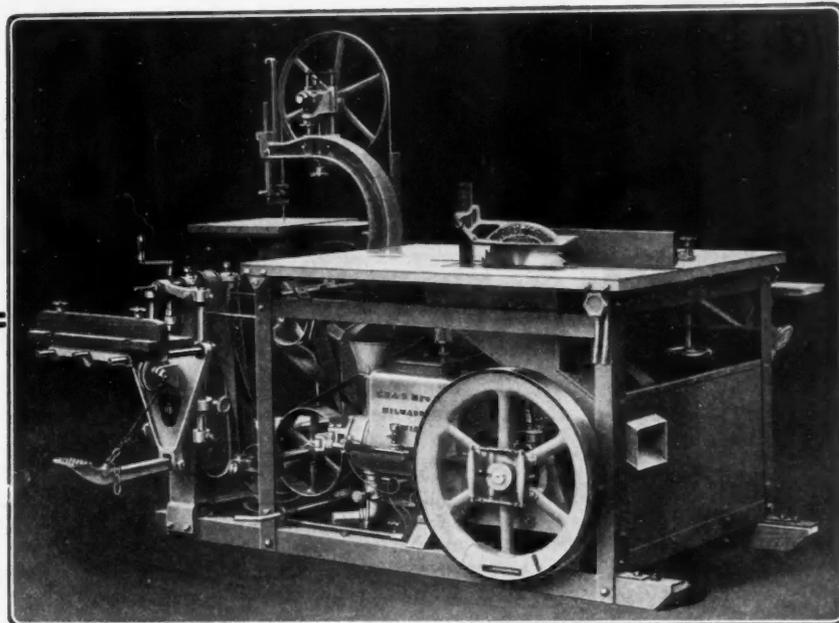
CHICAGO MACHINERY EXCHANGE

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C. H. & E.

Portable SAW RIGS

8 COMPLETE SIZES



THE C. H. & E. No. 6 SAW RIG

**WRITE
FOR
CATALOG**

ALL of the sixteen large national army cantonment camps were built with the aid of CH&E Portable Saw Rigs. Seventy-two Portable Saw Rigs shipped to one camp job alone.

If the United States Government uses our rigs, you should feel assured that the machines are O. K. Let us mail you a special illustrated folder showing views of our machines on these large camp jobs.

DO IT TODAY!

C. H. & E. Manufacturing Co., Inc.
322 MINERAL ST. MILWAUKEE, WIS.

Put Huther Tools on your saw rig!

THEY are guaranteed to do your work satisfactorily and will more than double the output of your saw rig. In order that you may prove to yourself the value of Huther tools, we will ship them to you, on ten days' free trial at our expense.

The Huther Dado Head can be used on any ordinary saw arbor and cuts any width groove from 1/8 to 2 inches or over.

The outside cutters can be used singly, together or in connection with as many inside cutters as the cut requires.

The Huther Cutter Head is a valuable tool for jointing or sticking moldings for sash, stops, etc.

It is made of steel and can be used on any ordinary arbor. Knives adjusted to gauge by headless screws and securely fastened by hexagon bolt head.

If you are interested in making your saw rig more valuable, write for prices and catalog 34

Huther Bros. Saw Mfg. Co.
1101 University Ave. Rochester, N. Y.



Patented Nov. 29, 1892.
Feb. 19, 1910

Cuts perfect grooves of any width either with or across the grain.



Patented Dec. 30, 1913



Grooves cut with Huther Dado Head.

We also manufacture Regular Circular Saws, Band Saws, Hollow Ground Circular Saws, etc.

SEND TODAY FOR CATALOG NO. 34



SILVER'S NEW WOODWORKING MACHINES

SAW TABLES, JOINTERS, SWING SAWS, BAND SAWS—

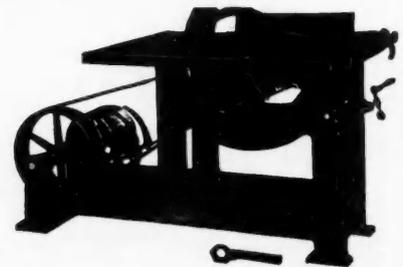
Tools of good honest construction, newest improvements and conveniences; patterns fresh from the designers.

Jointers, 8, 12, 16, 20, 24-in. Band Saws, 20, 26, 32, 36-in.
Swing Saws, 6 1/2, 7, 7 1/2, 8-ft.

Silver's machines are high-pressure machines. They will do your work and do it well, save you money and labor, suit you in size, and in prices, too.

Post up on these Tools. Ask for our printed matter at once.

The Silver Mfg. Co. 345 BROADWAY SALEM, OHIO



Planing by Electricity Ends Hard Labor

Motor or Belt Driven
4 in. Knives, Weight 50 lbs., Portable.

Send for Folder

Use the Wallace Bench Planer



"Our man is so well pleased with your Wallace Bench Planer that he tells us he would now sooner lose his job than lose the planer."—So says W. A. Hart, Lawrence, Mass.

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1405 W. Jackson Blvd., Chicago, Ill.

Miller's Lock Mortiser

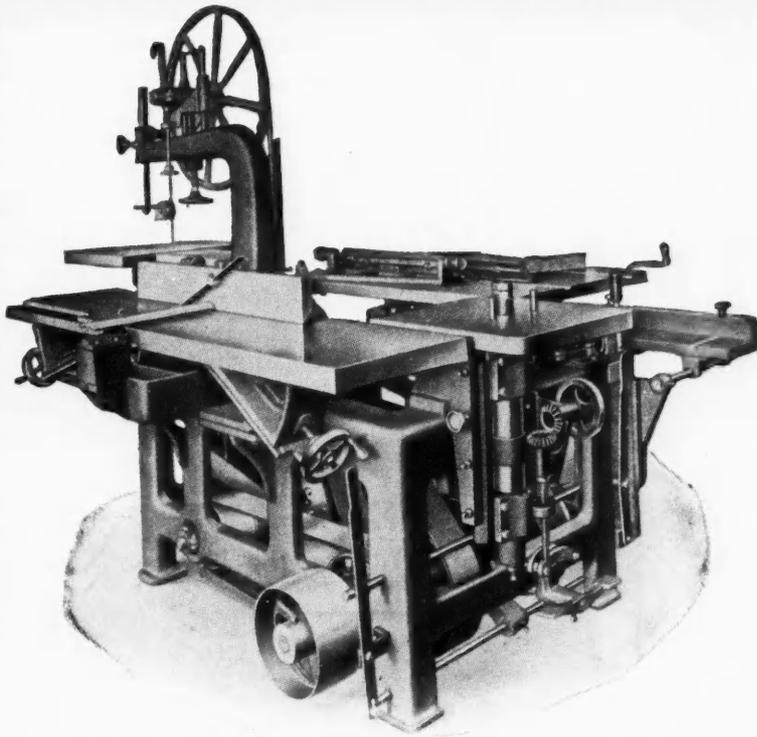
TWO MINUTES

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 Best Mortiser and Rule Gauge for 75c., Postpaid



Aviation Schools Choose No. 31

*They're Making
Sawdust Fly on
Battleships, too!*

The above woodworker (No. 31) has recently been put aboard cars for seven aviation schools (and we have orders from these schools for 17 more!)—and five have just gone to the Navy Department for use on Battleships, with three more nearly ready to ship.

Uncle Sam Has Always Been a Keen Purchasing Agent

Skilled men are in positions of authority on the buying end—they will not take “second best,” particularly now when REAL AMERICAN EFFICIENCY is the key-note of all departments on a war footing.

If You've Owned and Operated a “FAMOUS” Woodworker

you will once more take off your hat to Uncle Sam for his splendid judgment in selecting “FAMOUS” woodworkers—and you'll have to hand a good long credit mark to those aviation schools for their wisdom in buying the best machine to enable them to work up lumber in a speedy and accurate manner.

The “FAMOUS” Has Enlisted to Fight Waste

It saves time—releasing men for other service. It increases accuracy—saves odds and ends of lumber—triples the value of human equation employed on building jobs—and gives good long service. Why not call “31” to YOUR colors?—now?

The Sidney Tool Co.

Sidney, Ohio

Mail the Coupon---for Facts

**FAMOUS WASTE-FIGHTING FACTS
ARE FREE**

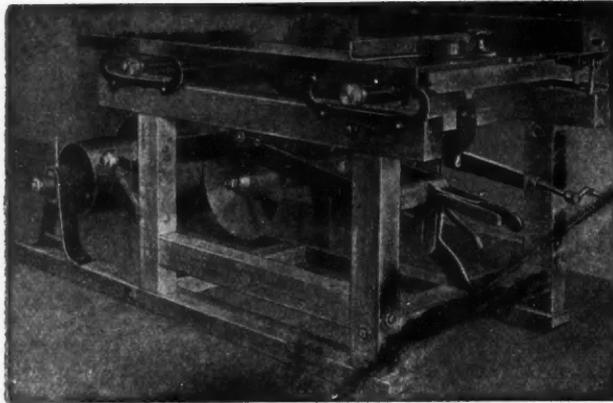
Gentlemen:

Send me Catalog No. 12 and Waste-Fighting Facts.

Yours truly,

Name.....

Address.....

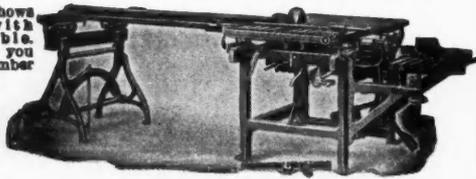


**NOW IS THE TIME TO GET A
BEACH
DOUBLE ARBOR RIP AND CUT-OFF MACHINE**

Get this money-maker on the job. This portable wood-worker 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 bevelling.



QUICK ACTING *The Taylor* SELF LOCKING

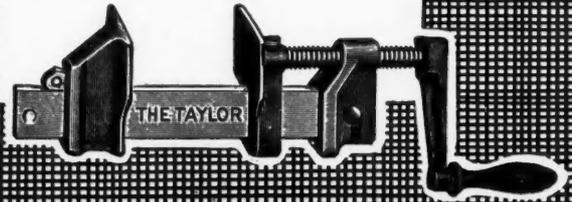
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**An Investment
Not an Expense**

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.



100 Lafayette St.,
NEW YORK

THE JAMES SWAN COMPANY, Seymour, Conn.



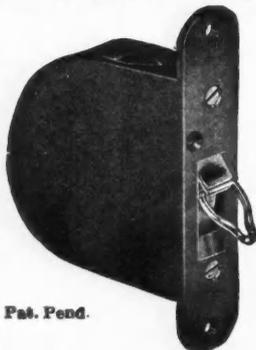
Awarded Medal of Honor on Mechanics' Tools at Panama-Pacific Exposition.

Manufacturers of all kinds of BITS, CHISELS, DRAW KNIVES, GOUGES, GIMLETS, AUGERS, NAIL SETS, SCREW DRIVERS, COUNTER-SINKS, BORING MACHINES and EXPANSIVE BITS.

Buy only Carpenters' Tools bearing the Trade Mark which stands for Quality.



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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2 Jones St. Rochester, N. Y.

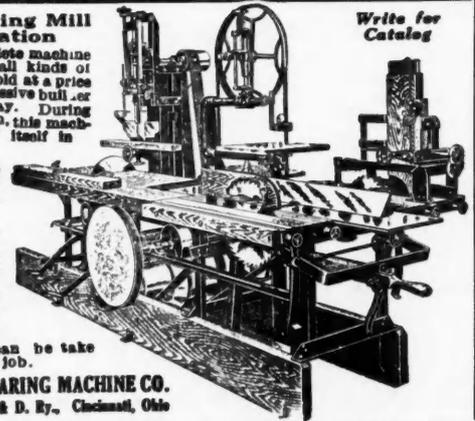
Parks Planing Mill Combination

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 screen season, this machine will pay for itself in couple weeks.

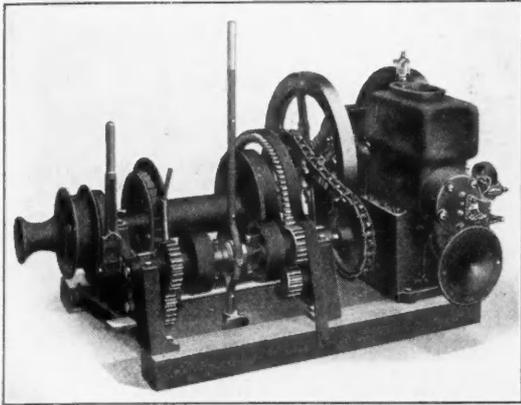
Rip saw, 12" jointer, 22" Band saw, Swing cut off saw, Shaper, Upright mortiser, Tenoner, Sand disk.

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 take right out on the job.

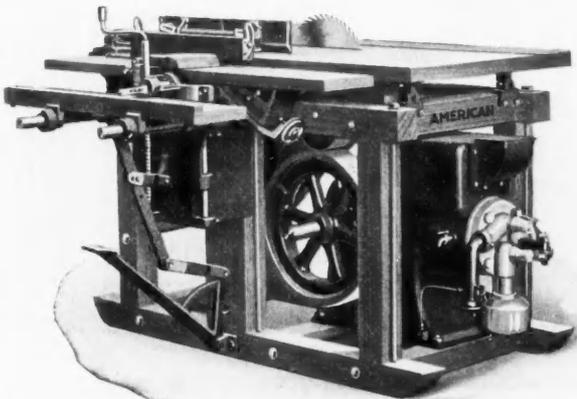
PARKS BALL BEARING MACHINE CO.
Fergus St. & C. H. & D. Ry., Cincinnati, Ohio



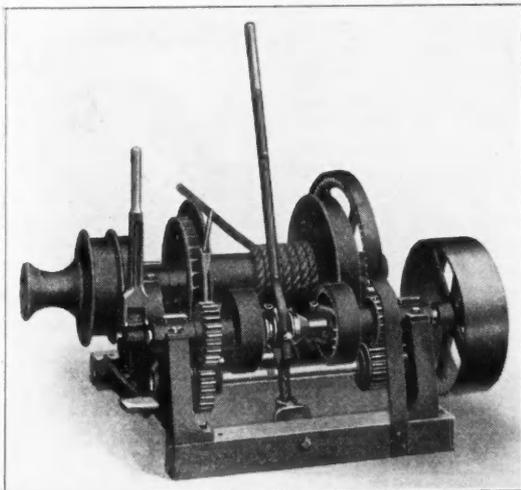
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"American" No. 4 Hoist with Self-Contained Gasoline Engine



"American" Variety Woodworker with Gasoline Engine Built in



"American" No. 4 Hoist Arranged for Belt Drive

"AMERICAN" LABOR SAVERS

That
Save American Labor

Look at the "American" machines pictured here. Each one of them represents many man-power in productive capacity. They're ready to go to work for you—helping you to make good the labor shortage, speed up your work, cut your costs.

The new No. 4 "American" Hoist, shown here in two styles, will fit in on almost any job, setting a pace in handling work and materials that will spell profit. It weighs 645 pounds and handles loads of 1000 pounds at 100 feet per minute. You can have it with gasoline engine, or electric motor, or arranged for belt drive.

The "American" Variety Woodworker pictured here is "the old reliable" "American" brought up to the minute in improvements. It's a 4-man machine, combining within itself the functions of 18 distinct machines. Built for the hardest kind of service, it will set a pace on any job that means real money for its owner. Get it with built-in gasoline engine or electric motor, or belt driven.

You need these two machines—to take the place of the men you can't get. See them at our Exhibit at the Contractors' and Builders' Show, Chicago, Feb. 6 to 13. Drop a postal for prices and particulars.

American Saw Mill Machinery Company
1360 Hudson Terminal **NEW YORK CITY**



This for 12^c

No-Rol
made square to prevent rolling away.
15c Postpaid
Points $\frac{1}{16}$, $\frac{1}{8}$, $\frac{1}{4}$ and $\frac{1}{2}$.

Syracuse Twist Drill Co.
Syracuse, N. Y.

Sent Postpaid
State size wanted



INTERLOX RULE
ACCURACY AND CONVENIENCE

The Interlox Rule is always ready. There is no guesswork or mistakes with this rule. It makes all the "hard to get at" inside or outside measurements quickly and accurately. Measurements are easy to read.

Made in all lengths, from 2 to 8 ft. of selected boxwood, finished with water-proof 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.

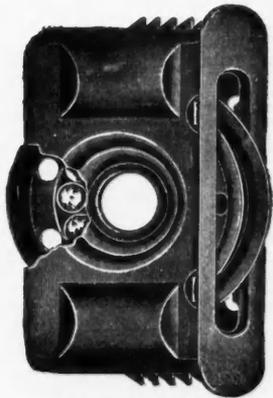
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51 E. 42nd Street New York, N. Y.

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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

"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 $\frac{1}{4}$ -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.



"YANKEE"
Ratchet Driver No. 10
Saves Time
at Every Turn

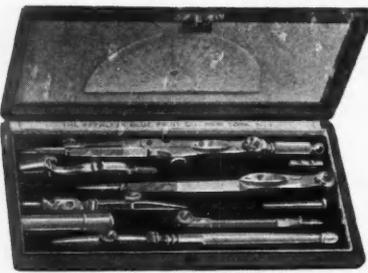
Here you have—an easy working ratchet, right hand, left hand (and rigid), a comfortable handle and withal a strong and serviceable driver.

Made in 8 lengths of blade, from 2 inch for small screws, up to 12 inch suitable for all kinds of high power house carpentering.

Your Dealer Can Supply

Let us send you a "YANKEE" Tool Book.

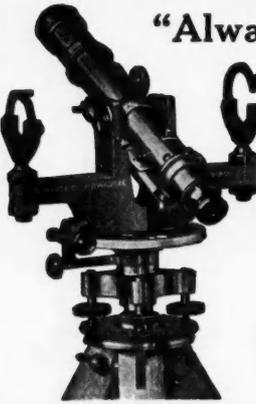
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Special Drawing Set
No. 450
Price \$4.65
Sent parcel post prepaid
Cash with order

We have also a full assortment of large sets of instruments

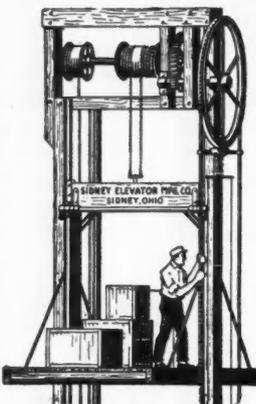
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"Always Ready as Level or Transit"

You are always ready for either lines or levels. Change from level to transit in ten seconds. **No loose parts to become lost or out of adjustment.** Just the instrument for the architect or contractor. **Accurate, durable, moderate-priced.** Let us send you one for free ten days' trial. No obligation. Ask for circular and trial offer.

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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.

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Try It 10 Days at Our Risk

Let us prove to you at our own risk that we can save you money when we sell you as fine an instrument as our No. 416 for the price we ask. A telescope equipped with a device which makes 45 degree tilting possible in either direction. A very fine serviceable instrument at an extraordinary price.

\$75.00

Ask for our complete Catalog No. 6 and for full particulars about our Free Trial Offer.

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Has all the features of a Builder's Transit and Architect's Level. Durable, accurate and economical. You can use the G & B under all conditions. A quality instrument for \$67.50.

Write for circular "B."

TRANSIT LEVELS Geier & Bluhm -:- Troy, N.Y.

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Now is the time to act. Big Money. Ready Seller

Sanitary Automatic Dumbwaiter saves carrying food to and from cellar.

Perfectly ventilated; screened openings; enameled 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 include every needed supply. \$19.11 apiece. Illustrated catalogue.

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

AUTOMATIC SASH HOLDERS

SPECIFY USE DEMAND

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COMPLETE \$22.00 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.

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

Send for Catalog

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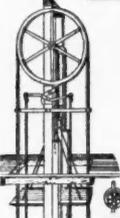



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We manufacture an improved line of Electric, Hand or Belt Power Elevators, Dumbwaiters, Hatch Gates, etc. Send for full information.

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The Atlas Concrete Mixer

Made in 5 sizes and many styles. Prices \$48.00 and up. Send for Circular

"CONCRETE FACTS"

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Sedgwick Hand-Power Dumbwaiters and Elevators

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

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Try This Aloe Level 10 DAYS—FREE

Easy Monthly Payments If You Buy

Prove the superior quality of the Aloe Convertible Level by testing it out for 10 days. Use it on your every day work laying out buildings, locating foundation piers, leveling up foundations, walls and floors, aligning, shafting walls, piers, etc., for getting angles, or levels anywhere and the hundred and one other things for which you would use a level or transit. Then, if you decide to keep it, you may pay for it in easy monthly payments so small that you will scarcely feel them.

Aloe Convertible Level

is more than a mere level. It is a modified transit permitting double the range of work possible with an ordinary architect's level. Its construction is such that sights above or below the horizontal can be taken, making it the finest instrument ever offered at anywhere near the price. For taking vertical sights the instrument is provided with a special convertible bracket rigidly and permanently attached to the cross-bar thus eliminating the extra time that other instruments require for changing the telescope in position to take vertical readings. The telescope which is fitted with a permanent axis, rests in the bracket bearings and owing to our special constructed clips the instrument can be used for leveling while in

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Your Own Time To Pay—No Interest

Remember, you are under no obligation whatever to keep the Aloe Convertible Level. We do not even ask you to promise to buy. But you owe it to yourself to see and try it. If it isn't all you expect you may return it at our expense. If you do keep it, you will find the small monthly payments easier than paying rent for an instrument—and at the end of a few months you will own it—absolutely. There's no red tape about this offer—we ask no embarrassing questions—everything is confidential—we charge no interest. You have practically your own time to pay.

Mail Coupon for Descriptive Circular

It explains the Aloe Convertible Level in detail and shows how easily the man without the training of the engineer or surveyor may secure the same accurate results as the expert. Send your name on coupon or postal for free copy and full particulars of our original, unique and popular selling plan.

A. S. ALOE CO., 621 Olive St., St. Louis, Mo.

Mail Coupon NOW

**A. S. ALOE COMPANY,
621 Olive St., St. Louis, Mo.**

Please send free descriptive circular about the Aloe Convertible Level and complete details of your easy payment plan. This request in no way obligates me.

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Occupation.....

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

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that will give perfect service under all conditions of use are manufactured by

DIETZGEN

—the firm with the quality reputation. Catalog on request.

EUGENE DIETZGEN CO.

Manufacturers

Chicago New York San Francisco
New Orleans Pittsburgh
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By means of the patented axis (our own exclusive feature) this level can be instantly converted into a transit. No screws to adjust; accurate, reliable, durable; moderate in price.

New York
Blue Print Paper Co.
102 Reade St., New York

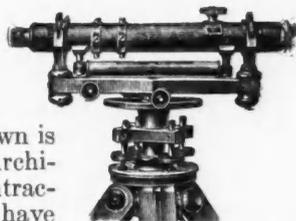


From Level to Transit in a Few Seconds

For
Builders,
Contractors
and
Architects

Write for
Catalog of Convertible Levels,
Drawing Materials, etc.

It pays to be sure



Our Dumpy Level shown is made for the use of Architects, Builders and Contractors. It will pay you to have one and avoid mistakes which may prove costly. It is light in weight—thoroughly up-to-date in its construction—and sold at a reasonable price.

Send for Catalog TODAY

KOLESCH & COMPANY

138 Fulton Street New York



We have some excellent territory still open and a good agency proposition for the largest and most complete line of Order-Made

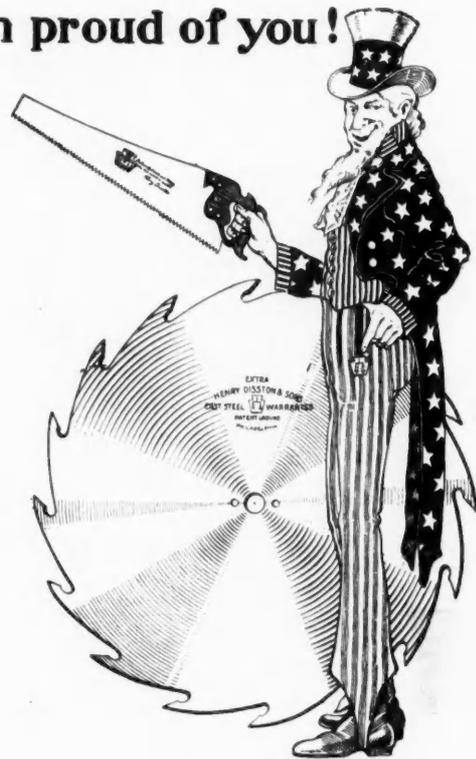
Window and Door Screens

on the market. We supply you with a complete agent's outfit, consisting of models, contract blanks, advertising matter, etc. We give exclusive agencies to ones who make good. No regular agencies established in towns less than 10,000 population. This is a splendid opportunity for Carpenters, Contractors, Builders and Material Dealers. Write Now.

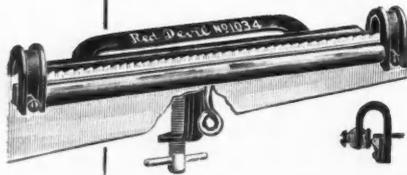
ADDRESS

Standard Screen Company
1858 Hastings Street, Chicago, Ill.

I'm proud of you!



DISSTON SAWS
have done more to upbuild
America and America's
reputation than any other
brand of tools.



"Red Devil" Carpenter's Adjustable Saw Vise
Saves Your Saw—Pays for Itself

Solid steel—noiseless rubber jaw—eccentric lock. Instantly clamped anywhere or folded into tool kit. Files hand or rip saws. Sample \$1.50, Style No. 1034. *Tool literature free.*

SMITH & HEMENWAY CO., Inc.

106 Coit St., Irvington, N. J.



We can offer something **SPECIAL** in the way of **PRICE**. Write for catalog and particulars.

"A Bit of Utility"

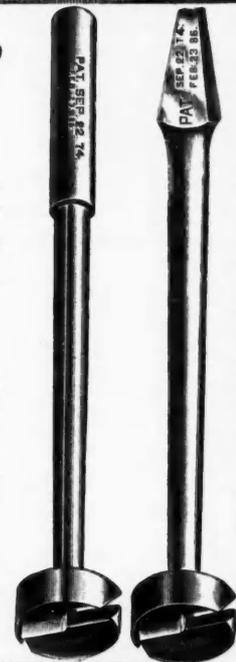
FORSTNER BITS are **DIFFERENT** from all other wood boring tools. Being guided by the outer rim they may be turned in any direction. The work is left smooth and polished.

Unequaled for Delicate Work

Practical for use as gouges or chisels, suitable for scalloping, fancy scrolls, twists, columns, newels, ribbon mouldings, mortising, etc.

Cabinet and pattern workers are enthusiastic over them. They do more work and cost no more than other bits.

The Progressive Mfg. Co.
Torrington, Conn.





We will send you this machine for 10 days' FREE TRIAL. If you don't like it ship it back.

Write for Our Prices and Special Offer

Fox Supply Co.
Brooklyn, Wis.

MAKE MONEY

AND A LOT OF IT BY

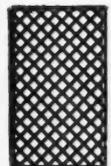
SURFACING FLOORS

The "American Universal Way" you can save big money on your own work and also establish a good paying business of resurfacing old floors. Write for catalog and prices.



American Surfacing Machine Co.
515 So. St. Clair Street
Toledo, Ohio
"The Oldest Concern in the Business"

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

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. Write today for full particulars regarding our special trial offer.

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

The IMPROVED Rapid Floor Surfacer



will surface right up to the wall or baseboard 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

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

1853 **BUCK**  **BROS.** 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.

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 CITY N. J.
K No 997
1802
NPS 410
ERS, 3

From the Raw Steel to the Finished Saw—

Every step in the manufacture is handled by men skilled in their Art. Each process is handled by experts. Every saw is carefully inspected and tested before being forwarded to the next department. When the final test and inspection has been made, Geo. H. Bishop & Co. place their seal of warranty on the saw and you have the Product of the Greatest Saw-Making Organization in the World.

The Greyhound

A saw that will run fast and cut easy. A saw finely adjusted, tough and flexible.

Good Mechanics appreciate good tools. We offer these Saws, confident that they will please you, recommend them to your fellow builders. They are a superior Saw and will serve you long and well.

We refund money if 30-day trial does not prove our guarantee.

Geo. H. Bishop & Co.
Lawrenceburg, Ind.



Prices

*Made in both Straight and Skew Back, also Ship Carpenters Pattern.

Length, 18 in.	\$2.85
Length, 20 in.	3.00
Length, 22 in.	3.15
Length, 24 in.	3.30
Length, 26 in.	3.50
Length, 28 in.	3.85

Packed one in a box.



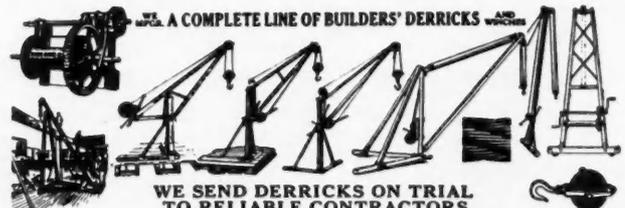
Buy a Good Adze

One that will last you awhile and stay sharp. Cost very little more.

Tell your dealer you want a White Adze. If he hasn't it, he will get it for you.

Send for our catalog

The L. & I. J. White Co.
10 Columbia St. Buffalo, N. Y.



A COMPLETE LINE OF BUILDERS' DERRICKS

WE SEND DERRICKS ON TRIAL TO RELIABLE CONTRACTORS

Our Motto is SATISFACTION or DERRICK RETURNED

Write for circular No. 2 with illustrations, descriptions and best prices on our complete line. The Sagen Builders' Derricks are built of best Crucible Steel and Malleable Iron Fittings, which makes them light, strong, safe and durable. The derricks will please you and probably more than pay for themselves on the first job. Get one on trial.

SAGEN DERRICK CO., 3101-3125 W. GRAND AVE. CHICAGO, ILL.
NEW YORK OFFICE—GRAND CENTRAL TERMINAL



VAUGHAN'S Vanadium Nail Hammer

Vanadium is a purifier of steel. The best vanadium obtainable is used in making the Vaughan Hammer. Each hammer is tested and tempered individually. The handle is carefully shaped for the hand and has a wax hole in the end for waxing nails to be driven in hardwood. The claw of this hammer grips—it never slips.

If your dealer does not carry the Vaughan Vanadium Hammer we will send it to you prepaid. Let us have the dealer's name, too.

Vaughan & Bushnell Manufacturing Company
2114 Carroll Avenue Chicago, Ill.



The Toughest, Strongest Hammer Made

\$1.50 EACH

WAX HOLE

No. 41 1/2 16 oz. Full Polished No. 42 13 oz. Full polished



Desco
METAL
STORE FRONTS

SIMPLIFIED CONSTRUCTION

SIMPLICITY makes for permanence, for utility and for serviceability. It is an indication of a fully developed product, from which the unnecessary has been eliminated.

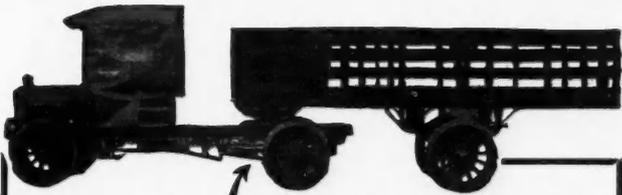
That is the idea back of Desco store front construction. Our long experience has enabled us to develop a construction that is simple in design and installation, is rich in appearance and gives perfect protection to the glass. And the price is such that it is a very profitable line for you to push.

Desco construction covers every need in store front work. If you haven't our latest file, send today.

Detroit Show Case Company
491 Fort Street, West
DETROIT MICHIGAN



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.

\$3,000.00 IN ONE YEAR



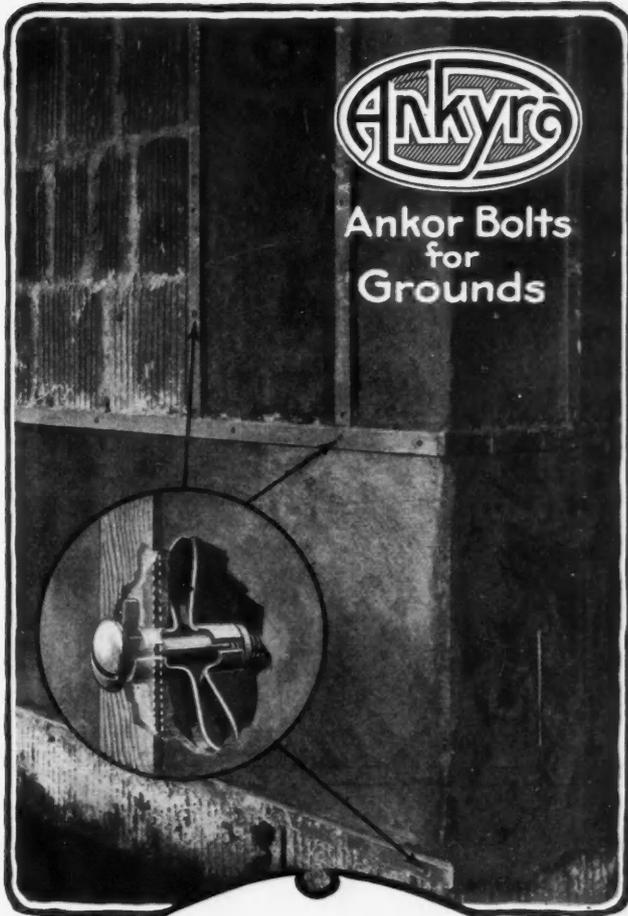
This Bunch of Tires Will Make Several Dollars Profit

Make it repairing automobiles. Punctures and blow-outs are common. Tires need retreading and vulcanizing.

EACH AUTO SOLD MEANS MORE TIRES TO MEND.

Auto tire repair field a hundred times bigger and better than old bicycle days. Johnson, Tex., writes, "I made as high as \$18 profit in one day." Investigate today. Ask for **FREE** catalog.

Haywood Tire & Equipment Co.
680 CAPITOL AVE. INDIANAPOLIS, IND.



Ankor Bolts for Grounds

Speeding up on building work is not just a matter of more energy—it is more often a matter of doing the same work in less time.

Because of the ease with which they may be put in, **Ankyra Ankor Bolts** are the time cost savers for the builder when he is fastening grounds, fixtures, or some of the many other things about a building which are apt to require adjusting or replacing later on.

Not only do **Ankyras** save time in construction, but they save on the up-keep of a completed building. Although they are rivet-tight, never loosen and hold till the wall itself gives way, the fixtures can be removed and replaced at will. It makes no difference what the wall is made of, or whether it is hollow or solid, **Ankyra-ized** fixtures are secure.

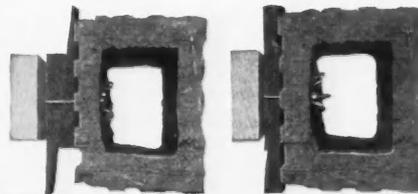
We will send the **Ankyra** booklet and sample bolts without obligation. You have only to write.

Ankyra Manufacturing Co.

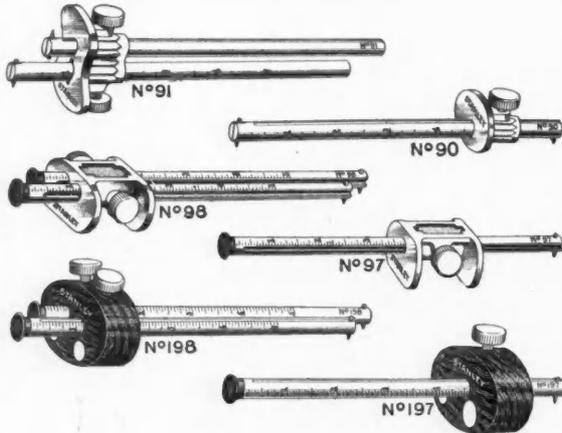
151 Berkley Street

Wayne Junction

PHILADELPHIA



Stanley Tools



Stanley Metal Bar Gauges

The compactness, ease of adjustment, and accuracy of graduation combine to make the metal gauge attractive for all classes of work.

Just a Few Selling Points:

Nos. 90, 97, and 197 are marking Gauges only, having but one bar. Nos. 91, 98 and 198 are Marking and Mortise Gauges having double bars.

The bars in all numbers are six and one-half inches long and graduated in sixteenths of inches for five inches.

The narrow gauging face on the metal heads is very convenient in many instances.

The roller cutters on Nos. 97, 98, 197 and 198 enable the user to scratch a fine line across the grain and over knotty places in the wood without splintering.

The rosewood head on Nos. 197 and 198 make them very attractive to many. Both sides of the head are protected by brass face plates to prevent wear.

The metal parts of all numbers are heavily nickel plated and highly polished.

Send for Catalogue No. 34

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

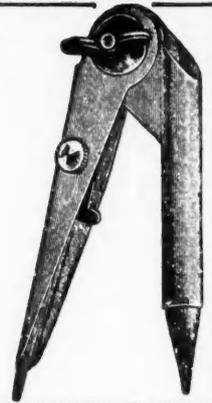
Just The Thing! Low Price

At last we have a Scriber that we want. A good efficient scriber at *lower price.*

The "Acme Scriber"

Every carpenter and joiner needs it. Ask your dealer or send 25c and we will mail postpaid.

Hollander Mfg. Co.
2618 E. 53d St. Cleveland, O.



PEXTO

MECHANICS' HAND TOOLS

Manufactured by

The Peck, Stow & Wilcox Company



Mfrs. Mechanics' Hand Tools,
Tinsmiths' and Sheet Metal
Workers' Tools and Machines,
Builders' and General Hardware



Southington, Conn.

Cleveland, Ohio

Northwest
BUILDING MATERIAL EXHIBIT

Look Before You Build **SERVICE** It's Free to See

COME to this Exhibit when selecting materials for that new building of yours. It will give us pleasure to show you all the best materials to use.

If you cannot visit us, then write us. Our service is free to you.

Send us your plans and specifications and we will gladly secure such figures as you may desire. No obligation.

Many Exhibitors combine their Minneapolis City office with their displays, making this floor your time saver.

NORTHWEST BUILDING MATERIAL EXHIBIT
4th Floor First National Soo-Line Building
MINNEAPOLIS, MINNESOTA

Look before you build

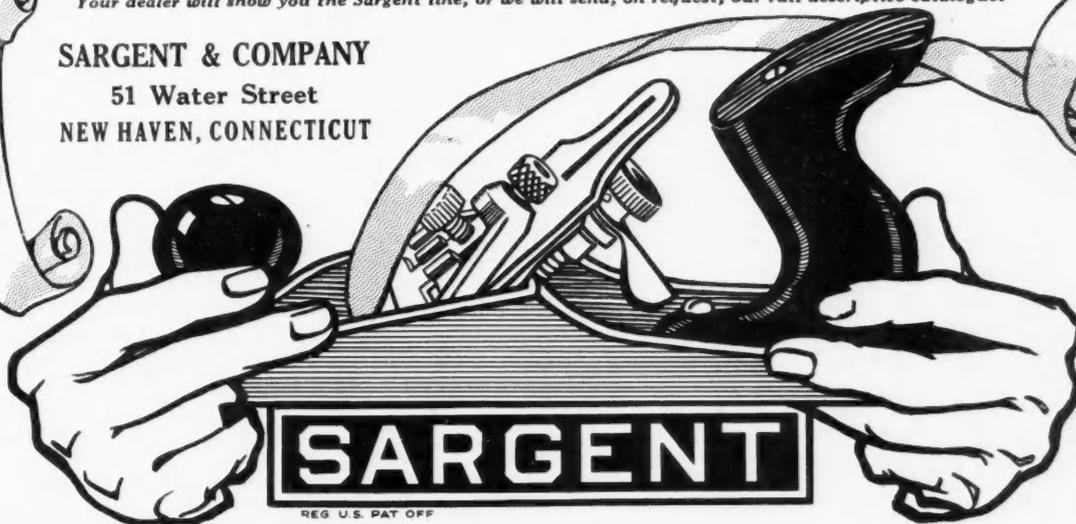
THE SATISFACTION OF OWNING A Sargent Automatic

A good mechanic takes pleasure in his work, and the finer his tools the greater his pleasure and satisfaction.

SARGENT Automatic—Set Bench Planes are designed with scientific skill and care after years of experience in manufacturing high grade planes. All parts are finely machined and the specially designed frog eliminates the possibility of chattering and insures solidity, compactness, and simplicity.

Your dealer will show you the Sargent line, or we will send, on request, our full descriptive catalogue.

SARGENT & COMPANY
51 Water Street
NEW HAVEN, CONNECTICUT



GOODELL PRATT

1500 GOOD TOOLS

Write for Complete Catalog

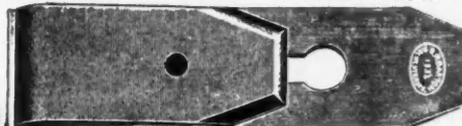
Goodell-Pratt Company *Toolsmiths*
Greenfield, Mass.



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.



Make Your Basements WATER TIGHT

by using Bitu-Mortar Waterproofing Compound. Liquid, for waterproofing cement coatings—powder for waterproofing mass concrete—dampproofing, for interior surfaces of masonry walls. Inexpensive and everlasting. Write for our catalog.

The Bitu-Mortar Waterproofing Co., Inc.

BITU-MORTAR
WATERPROOFING
WATERPROOF PERMANENTLY

Engineers, Contractors and Manufacturers
340-344 East 27th Street New York, N. Y.



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 1/2-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.

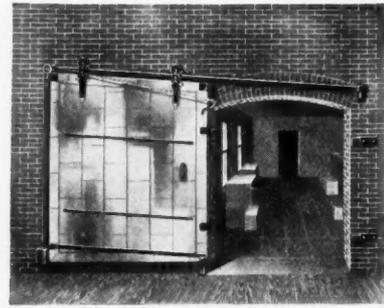


Lost Opportunities of Business

A golden opportunity to increase your profits and prestige slips through your fingers every time a building burns in your community which might have been saved had you installed in it

Richards-Wilcox Automatic Fire Door Hardware

Inspected and labeled under the direction of the Underwriters' Laboratories, Inc.



R-W Sliding Fire Door and Hardware

Garages, machine shops, foundries, boiler works, department stores, mills, office buildings, schools, factories—buildings of any character where dividing walls leave doorway openings, offer you an opportunity to sell Richards-Wilcox Automatic Fire Door Hardware. The R-W line of Fire Door Hardware is the most complete manufactured.



R-W Swing Door and Hardware

Write for illustrated catalog "Richards-Wilcox Fire Door Hardware" Sent without obligation

Richards-Wilcox Manufacturing Co.

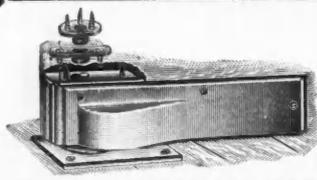
SAN FRANCISCO
LOS ANGELES
NEW YORK
CHICAGO

AURORA, ILLINOIS, U.S.A.

PHILADELPHIA
MINNEAPOLIS
BOSTON
ST. LOUIS

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

"A hanger for any door that slides"



The "Shelby CHIEF" Floor Hinge WITH IMPROVED PIVOT AND SOCKET

The installation of the Shelby Chief greatly simplified. Mortising for pivot and socket entirely eliminated. To install bore a 1 1/2-inch hole 1/8-inch deep in top jamb for rim of pivot and 1/2-inch in top of door for socket. Secure with wood screws, allowing the thickness of metal of socket for clearance between door and top jamb. Insist upon having genuine Shelby Chief Hinges.

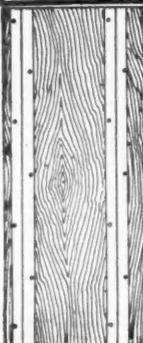
THE SHELBY SPRING HINGE CO.

SHELBY, OHIO

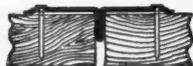
IF YOU DO NOT FIND WHAT YOU WANT

in the AMERICAN BUILDER, write us and we will try to get it for you.

Wind-Proof—Rain-Proof—Rot-Proof Chief Galvanized Iron Barn Bats



Make your buildings tight. Chief Galvanized Steel Strips fill the cracks between boards and make strong, neat, weather-proof joints. Keep out vermin. Cannot rot, warp or split like wooden batten. Always fit. Allow for contraction and expansion of boards without loosening nails. Furnished in 6-7-8-9-10 ft. lengths with interlocking joints. Write for full information.



Shows end view of Chief Batten with joint closed. Sliding expanded. Note position of the batten in the crack.



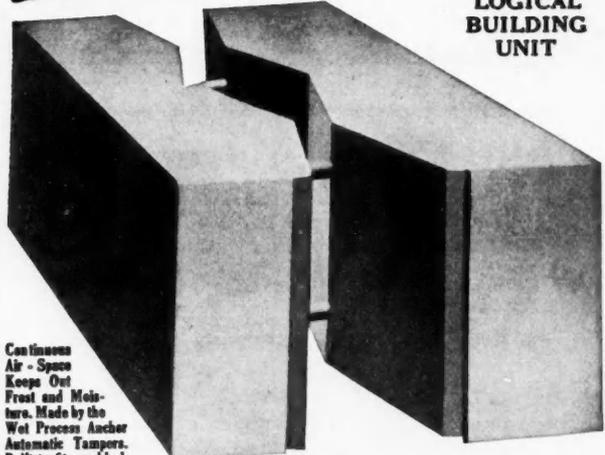
Shows end view of Batten with the joint open and sliding contracted. Chief Battens automatically accommodate expansion and contraction.

SHRAUGER & JOHNSON

430 Walnut St. :: Atlantic, Ia.

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.



Make it easy for the women

"Mother and the girls" in most every automobile-owning family drive the car nowadays—at all times of day and in the evening, to do errands, shop, meet trains or for pleasure purposes.

Make it easy for the women folks to open and shut up the garage by putting in doors equipped with Topping Hangers.

Women like them

Topping Doors open and shut easily—noiselessly—they roll smoothly on the track—automatically lock when open—or closed—they fold back compactly against the garage when open and do not take up needed space inside. The Topping Garage Door Hanger is extremely simple in design—cannot get out of order. It is well made and good for many years of hard service.

Send for Our Catalog for Full Details

Safety Door Hanger Co.

309 Topping Bldg.

Ashland, Ohio

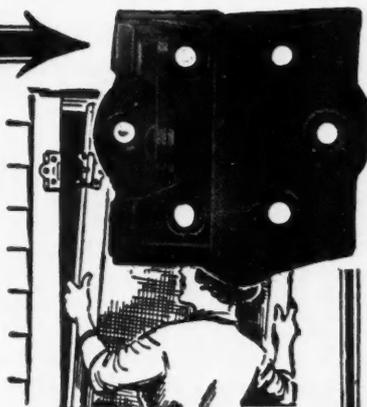
JIFFY!

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.

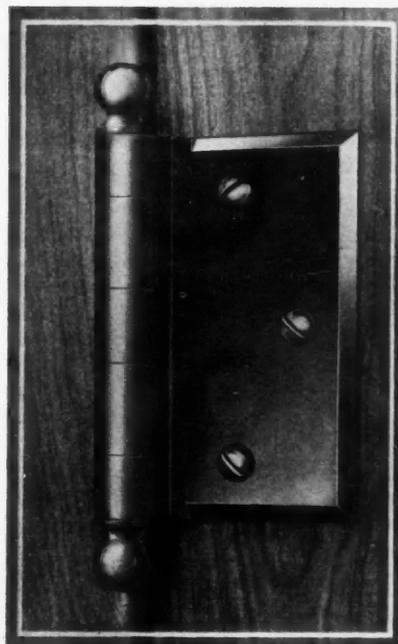


SILVER LAKE A Sash Cord

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



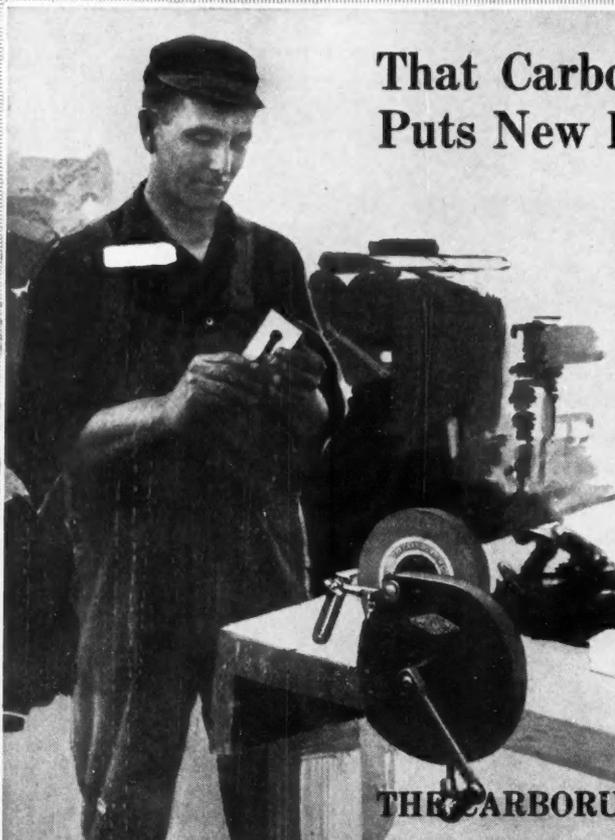
McKinney Wrought Steel Half-Mortise Butts
No. 2745

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-11." Every architect, contractor and builder should have a copy.

McKinney Manufacturing Co.
Pittsburgh, Penna.

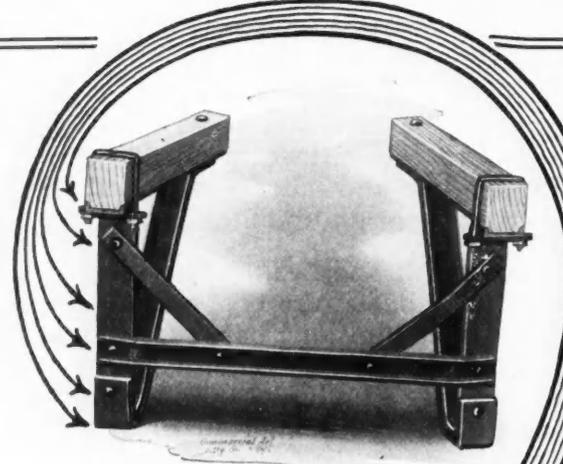


That Carborundum Niagara Grinder Puts New Life Into Any Edge Tools—

MY plane bit for instance was way off—needed grinding. On one corner of my work bench is the ever handy Carborundum Niagara Grinder. A few turns and the bit is sharp—you never saw a wheel that cuts so clean and quick as that Carborundum Wheel. Every Niagara Grinder has one. ¶ Then a couple of rubs on a Carborundum sharpening stone and my plane bit has a keen, smooth edge that will stand up on the job. ¶ That Carborundum Niagara Grinder is a dandy tool. Easy and smooth running—well made—durable—every one of you fellows should have one.

Ask your hardware dealer. Send for the Carborundum catalog.

THE CARBORUNDUM COMPANY, NIAGARA FALLS, N. Y.



Sterling

Superior Leg Construction

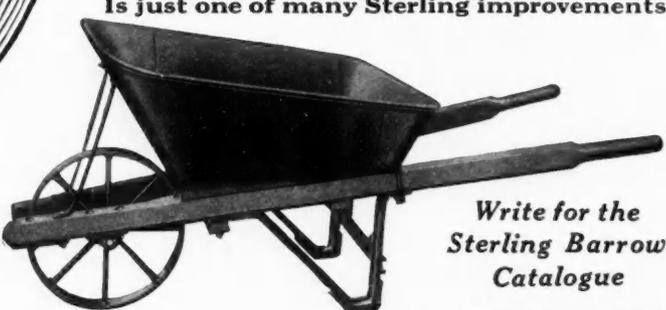
The leg is the most important part of any barrow. On it depends the rigidity of the entire construction.

The Sterling leg gear always remains rigid, because all of the braces are riveted, and it is constructed of channel which snugly fits the handle.

The foot-rest is bent into a broad square bearing surface and is equipped with steel shoes.

THE RIVETED LEG

Is just one of many Sterling improvements



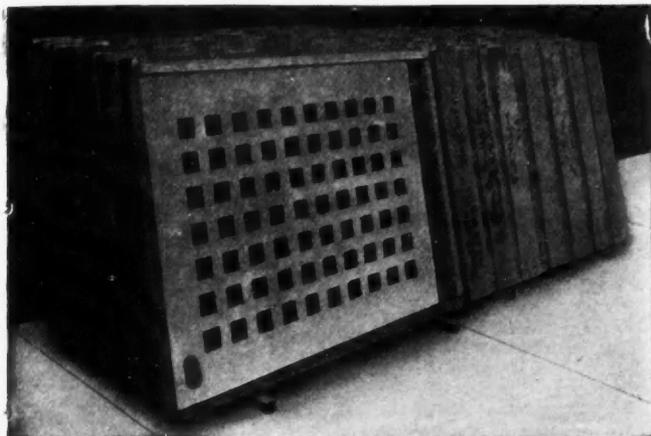
Write for the Sterling Barrow Catalogue

What Makes Sterling Barrows Last Longer

Warehouses:
NEW YORK
CLEVELAND

Sterling Wheelbarrow Co.
MILWAUKEE, WISCONSIN

Warehouses:
CHICAGO
DETROIT



Labor is Scarce!

Make quick work of your sidewalk light installation by using American 3-Way factory finished SLABS

FORMS, staging, high-priced cement finishers and the attendant muss and trouble is eliminated when

American 3-Way Factory Finished Sidewalk Light Slabs are used. You merely take the slab out of the crate, slip it into its seat in the sidewalk and caulk the joint. ¶ All our lenses are made of specially annealed LAZALITE GLASS with plastic malleable coating on side walls to take care of expansion. ¶ We have several shapes and sizes based on the 3-Way principle.

ASK FOR CATALOGUE 16-L

American 3-Way Prism Company

Manufacturers of Prism Products, Sidewalk Doors, Coal Hole Covers

Main Office and Factory: LA PORTE, IND.

Branch Office and Factory: Spring and Wooster Sts., New York, N. Y.



Berger's Metal Lumber in Roof Construction. Mercy Hospital, Kansas City, Mo.

Berger's Metal Lumber

Meets all the tests of winter with its fires from over-worked furnaces and its "whistling" winds that cause flimsy structures to shudder and creak.

Light Strong Fireproof

Berger's Metal Lumber braces and strengthens the structure; yet, because of its light weight, it permits great savings in foundations, columns and girders.

In an official test Berger's Metal Lumber stood up under fire conditions much more severe than could possibly occur in actual use.

See Sweet's, pages 244-50, write for Bulletin No. 12-A and send us a rough sketch of your next job for layout and estimate.

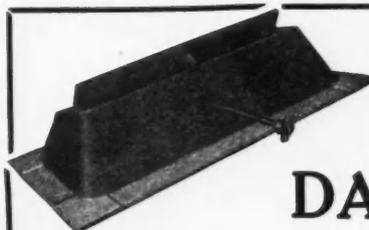


The Berger Mfg. Co., Canton, Ohio

Branches: Boston New York Philadelphia Chicago

St. Louis Minneapolis San Francisco

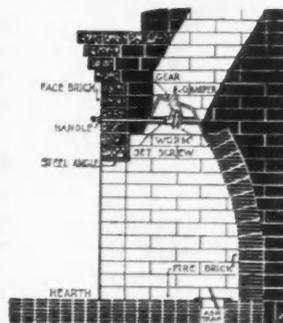
Export Dept.: Berger Bldg., New York City, U. S. A.



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.

Stover Mfg. & Engine Co.

725 East Street

Freeport, Illinois

STOVER MFG. & ENGINE CO., 725 East St., Freeport, Ill.

Send us Catalog 1590-X.

NAME.....
 BUSINESS.....
 CITY..... STATE.....



The KENT MORTAR MIXER

A first-rate machine for the big building contractor. One laborer and the Kent will keep from 30 to 65 masons busy.

The Kent is speedy and thorough. It does not get out of order. It is built especially for mortar mixing and does its work well. In bidding on work, the Kent owner has a marked advantage over the contractor still mixing mortar by the labor wasting hand method. We can ship the day order is received.

Write for descriptive circular and prices.

THE KENT MACHINE CO.
KENT, OHIO



Tile-Makers Are Getting Ready for Spring Business

Spring is the big buying season for drain tile; this year it will be two or three times bigger than usual. At present there are not nearly enough tile plants to take care of business. This opens up valuable opportunities for building contractors to develop a big, profitable business in connection with or in addition to, their regular line.

To secure a big spring business *early action is necessary*. Equipment must be selected and installed, manufacturing perfected, and a stock made up ready for immediate sale. *Right now you should enlist our cooperation.*

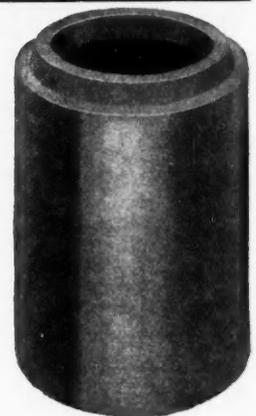
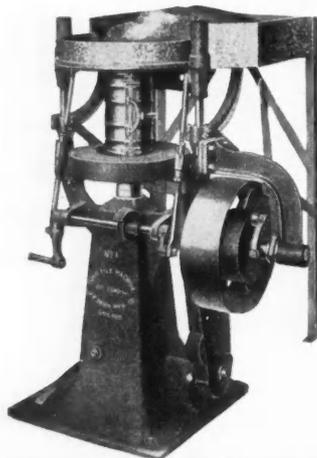
Success depends on the quality of product manufactured, which in turn depends on the machine. The "DUNN" is the time-tested and standard Tile Machine sold on a strict guarantee to satisfy, and on **15 days' trial**. Triple-duty packer head, waist-high table, 1, 2 and 3-man operation, high speed production, and completely housed working parts, adaptability to make varying sized tile,—all are distinctively Dunn features.

Investigate the tile business and Dunn Machines by requesting the book "Cement Drain Tile". Sent free.

Make Sewer Pipe

For the larger sizes of drain tile, and sewer pipe up to 36 inches diameter, Dunn Pipe Molds are practical, efficient and economical. No tamping or other difficult work; simply pour a wet mixture into the molds, and leave until set. Ample provision for reinforcing when desired. All sizes from 6 to 36 inches diameter. Complete descriptions in Bulletin No. 7.

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



War Department Places Record Orders For

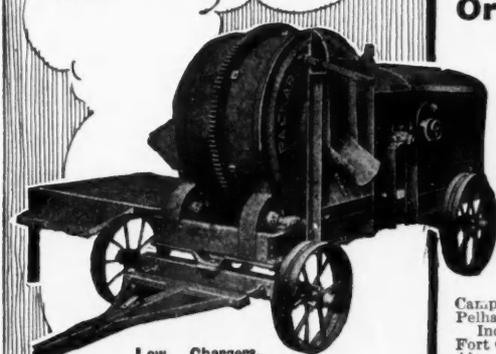
BOSS

HIGH SPEED

Equipment



Building Mixers with Automatic Power Loader and Measuring Water Tank.



Low Chargers, Half-Bag, One-Bag and Two-Bag Sizes.



"Lincoln Highway" Type Pavers, High Drum Non-Tip, One and Two-Bag Sizes

OVER 100

"HIGH SPEED" "HEAVY DUTY"

"BOSS"

CONTRACTORS' HOISTS
Ordered for USE IN FRANCE—

OVER 100

Boss "High Speed" Mixers Bought for Cantonments and Fortifications. Used at—

Fort Sill, Okla., by Selden Breck Constr. Co., St. Louis.
Camp Pike, Ark., by Jas. Stewart & Co., Chicago.
Mineola Aviation Field, N. Y., by Clough-Bourne Corp., N. Y.
Camp Mills, N. Y., by Clough-Bourne Corp., N. Y.
Pelham Big Naval Camp, N. Y., by Henry Steers, Inc., N. Y.
Fort Oglethorpe, Ga., by Snare & Triest Co., N. Y.
Also on harbor fortifications New Orleans, Cleveland, Boston, Charleston.

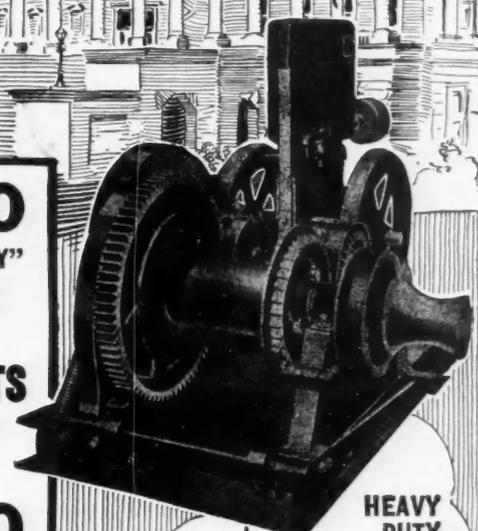
"BUILT OF STEEL"

Equipment for Contractors—With Hyatt Self-Oiling Roller Bearings and Proven Most Successful in Years

For All Jobs. All improvements. High Speed Mixers in all used sizes, 4 to 22-ft. capacities. Gas, Steam or Electric Power. Patented High Speed Mixing and Discharge Action. Side or End Discharge. Mix Mortar and Plaster as well as Concrete. More than 4,000 in use. Sold on "Money Back" Guarantee—Cash or Easy Payments.

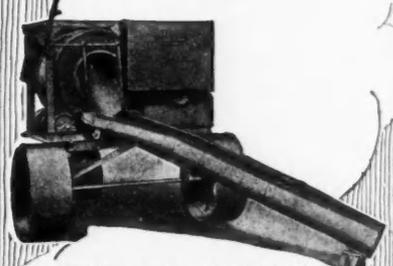
Write, Wire or 'Phone Nearest Branch

New York, N. Y.; Cambridge, Mass.; Richmond, Va.; Pittsburg, Pa.; Cleveland, O.; Indianapolis, Ind.; Louisville, Ky.; Chattanooga, Tenn.; St. Louis, Mo.; New Orleans, La.; Chicago, Ill.; Minneapolis, Minn.; Denver, Colo.; El Paso, Tex.; San Francisco, Calif.; Seattle, Wash.; Spokane, Wash.



HEAVY DUTY

Contractors' Hoists, Single or Double Drum, Gas or Electric. Also Back Fillers.



Lightweight Grouter, Special Chute, Double Gear Drive.



Easiest Running Concrete Cart Built.

FASTEST SELLING LINE

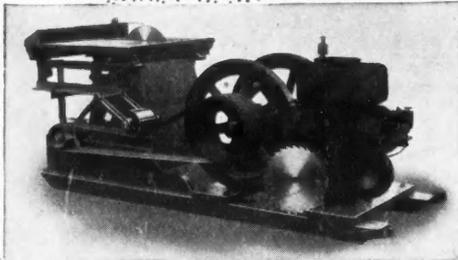
of Equipment on the Market Today
Safest to Buy Easiest to Sell

THE AMERICAN CEMENT MACHINE CO., Inc., Keokuk, Iowa

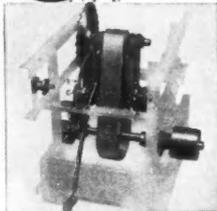
Connectina
this
Universal
Tool Unit
By Four Bolts



to
our



Combination Swing Cut off
and Ripping Machine

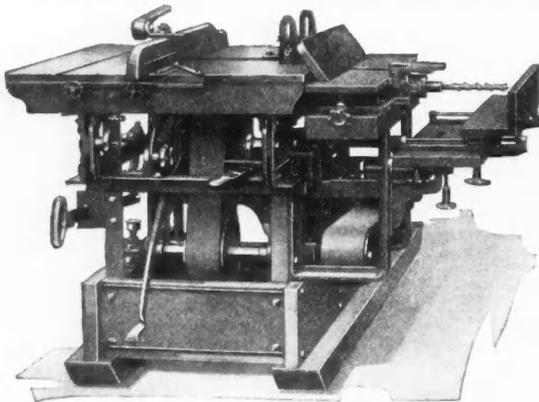


SWING UNIT

The swing frame of which operates by means of a foot lever for cross cutting, leaving the operator's hands free—Permits the use of saws up to 20 inches.

The swing frame may be locked in stationery position for ripping, grooving, rabbetting or grinding. The table is adjustable for any depth required. Our Universal Tool Unit may be added to the Swing Unit at any time—by doing this

You have the Knickerbocker
Multiple Unit Woodworker



The Knickerbocker Company

Woodworkers, Concrete Mixers,
Mortar Mixers, Hoists and Pumps

525 Liberty St.

Jackson, Michigan

Archer Mixers

Mean Economy and Saving

While any mixer will mix concrete, more or less well, the **ARCHER** will mix and deliver it direct into the forms. This rapid mixing and instant delivery mean a great saving in time—no wheelers are needed. An **ARCHER** on your work will cut your pay-roll a third.

Original End-Discharge

Because of the success of the end-discharge Archer other makers are attempting to imitate—but they are still experimenting with the things we have discarded as impractical. **ARCHER MIXERS** are successful—they are constant money savers.

Write for Catalog

Let us tell you how much more profitable it is for you to have one or two small **ARCHERS** than to try to do your work with one big expensive machine. *Write today.*

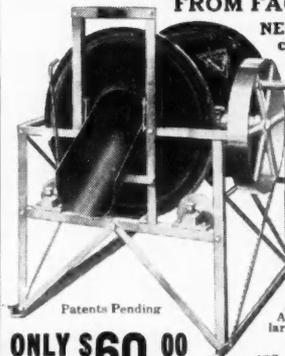
ARCHER IRON WORKS

2431 W. 34th Place

CHICAGO

ONE MAN CAN RUN IT

FROM FACTORY TO YOU—SAVE 40%



NEW 1918 MODEL Little Whirlwind Concrete Mixer. Only real, practical small mixer producing same perfect work as most expensive big machine. Complete with hand and power drive. A bonanza for the Contractor or Cement Worker. All steel and iron. Just like the big \$500 Mixers, only simpler. Just the size you need at a price you'd like to pay. Does your work in one-fifth time.

The Whirlwind Way Makes Mixing Pay

Saves its cost on one job. Capacity about 3 cubic ft. Mixes a batch a minute. Does perfect work, wet or dry, empties clean. Discharges direct to forms, cuts out the wheeling and backache. Satisfaction guaranteed or your money back. Reference: Any La Crosse bank or Dun Agency. Write for circular or order direct from this adv. and avoid delays.

The Little Whirlwind Mixer Co.
432 Gould Street La Crosse, Wisconsin

Patents Pending
ONLY \$60.00

8 MEN CAN'T STICK IT

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.

Koehring Machine Company, Milwaukee, Wisconsin

Gentleman—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 sometimes in batteries. Small contractor who need extra strong, easily portable mixers are the big buyers of the Dandie.

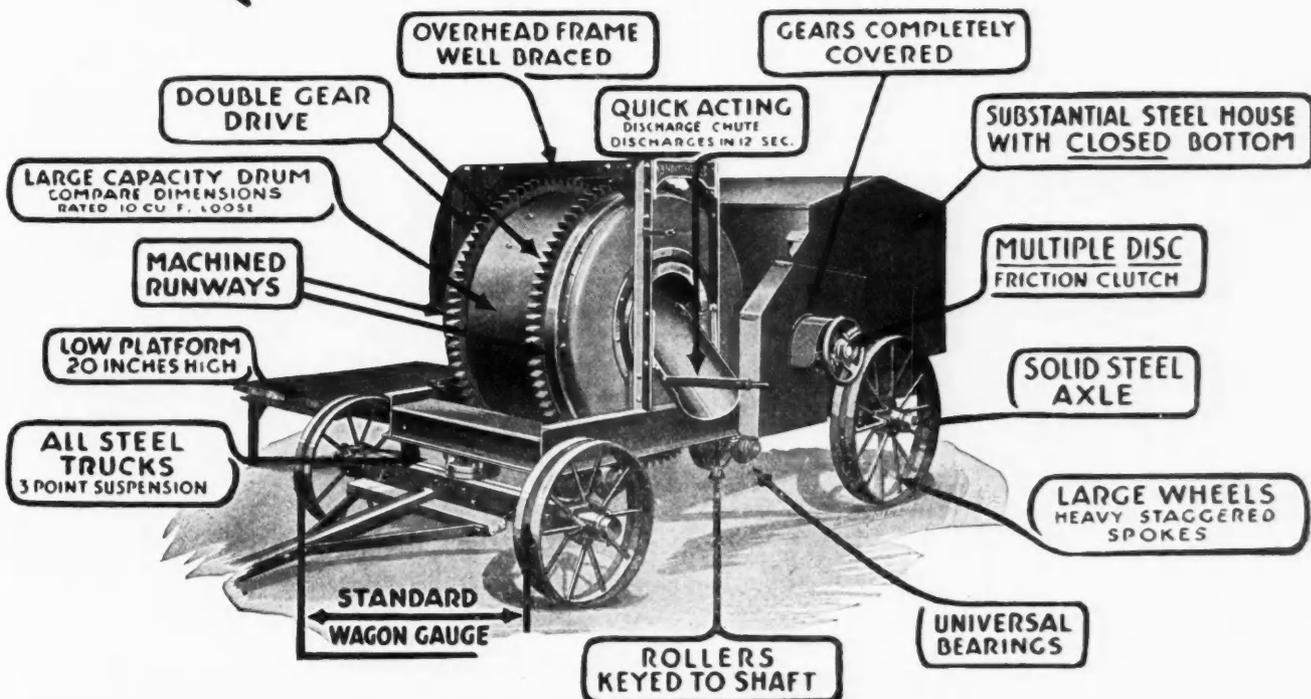
Dandie spells Big Value. Send back the coupon for special Dandie catalog, get the price and judge for yourself.

Dandie Mixers

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

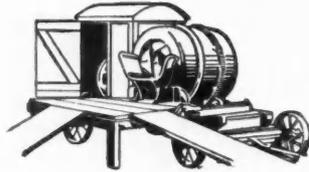
Send back the coupon today

Koehring Machine Company Milwaukee, Wisconsin



"THE STANDARD" Low-Charging Concrete Mixer

Cuts Costs—Increases Production



Contractors all over the country have found that "The Standard" Low-Charging Mixer actually reduces concrete costs one-third.

Our latest catalogue (just off the press) is full of interesting pictures and data. Write to our nearest office today for your copy.

Ask for Catalogue No. 44

Complete line of Contractors' Equipment, Hoists, Pumps, Engines, etc.

The Standard Scale & Supply Co.

PITTSBURGH
1631 Liberty Avenue
CHICAGO
163 N. May Street

NEW YORK
145 Chambers Street
CLEVELAND
1547 Columbus Road

PHILADELPHIA
523 Arch Street
BALTIMORE
409 N. Gay Street

An Ordinary Day's Work With A Northfield Mixer

Over 30 cubic yards of finished concrete foundation wall to a ten-hour day was what this crew of four men (the fifth man did nothing but build forms), averaged on this job with NORTHFIELD Hand Mixer. Concrete was dumped directly into the forms and the Mixer moved to a new position as quickly as one section of wall was completed. This average was maintained easily—the crew stating that they could have put the wall in a good deal faster if the teams had gotten sand and gravel to them as fast as they needed it.



The above is just a good, fair showing of what the NORTHFIELD Hand Mixer will do—not an unusual or record performance by any means. It turns out a 4 ft. batch of perfectly mixed concrete every minute and will mix 30 to 40 yards of slush concrete a day under any ordinary working conditions.

The Northfield is light in weight and light running. Two men carry it and three can load it for transportation easily. Two men on the handles while mixing have the easiest job of anybody in the crew. It actually weighs only a little more than one-third as much and costs only a little more than one-half as much as any other satisfactory hand mixer.

A Northfield Mixer will make you money. Saves you not less than 50c. a yard over cost of mixing by hand—usually more. Good for any job, any time, any place. Strong, efficient and durable in service. Thousands of satisfied users. Write at once for Low Factory Prices.

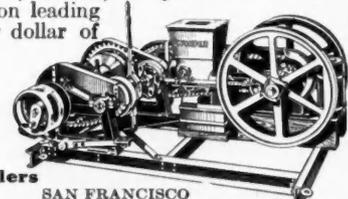
Northfield Iron Company, 402 Nico Building, Northfield, Minn.

WONDER MIXERS and HOISTS



WONDER JUNIOR Mixer is our Special for Builders—has all the profitable features of the larger sizes with particular adaptations to your needs and at price you can afford. 3 to 4 cu. ft. per batch. Fast, thorough mix, dependable power, durable, easily cleaned. Get the real facts of WONDER superiority—the big reason leading contractors standardize upon it, viz., greatest value per dollar of investment—before deciding on any mixer.

WONDER BUILDERS' HOIST—Ruggedly built, specially adapted for single or double elevators. Reversible drum and elevator sheave. Two line speeds and load capacities. 5-7-9 H. P. Remarkably efficient, moderate priced. Send for catalog.



Waterloo Cement Machinery Corporation, 103 Vinton Street, Waterloo, Iowa

Mixers
NEW YORK

Pavers
PHILADELPHIA

Hoists
CHICAGO

Pumps
KANSAS CITY

Backfillers
SAN FRANCISCO

Always on the Job—

LITTLE "DEVIL" MIXER

A Bigger, Better Mixer for the Same Money

Capacity 8 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 Bldg., 9 So. LaSalle St. Chicago, Ill.

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.

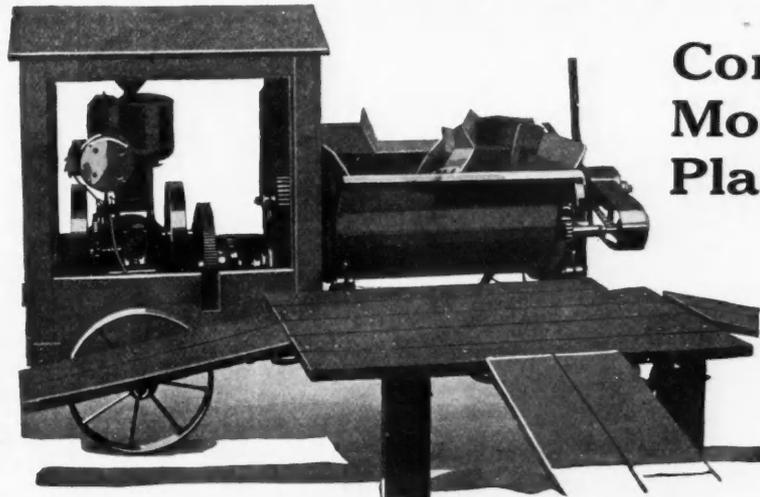
241 Century Bldg.
DES MOINES, IOWA



Inside View, Showing Door for Unloading



Don't Tie Up Your Money in a Mixer That Mixes Only Concrete—Get Three Mixers in One



**Concrete
Mortar
Plaster**

**Made in
3-5-7-9-14
Cu. Ft.
Capacities**

Blystone Batch Mixer

What Others Say

Concrete

We own and operate a line of grain elevators in Nebraska and Kansas and do our own building and repairing in which we use considerable concrete, consequently our need of a good concrete mixer. No matter whether the aggregates are fine or coarse, or the mixture rich or poor, wet or dry we get a thorough mix in an incredibly short time. No matter what the requirements are "the six iron men" do the business with no trouble and very little power behind them.

DUFF GRAIN COMPANY,
Nebraska City, Neb.

Mortar

We have used the Blystone mixer for three years or more and we have found it one of the best mixers we have ever used for the purposes for which it can be used. As a mortar mixer it is hard to beat.

THE CLEMMER & JOHNSON CO.,
General Contractors,
Hicksville, Ohio.

Plaster

We purchased our first Blystone mixer three years ago and have purchased three since then. We use them eight hours every day.

We have never had any repairing to do since we got these mixers. This is the most important feature. We have heard plaster contractors say that they would not be bothered with mixers. These same two concerns are now using Blystone mixers today, just through our recommendation.

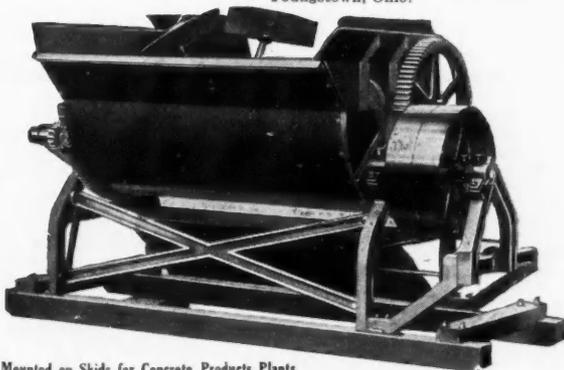
DOUGHERTY & BRENNAN,
Plaster Contractors,
Youngstown, Ohio.

You jump from economy right into extravagance when you mix concrete by machine, and mortar and plaster by hand. Get a Blystone and mix them all by machine. You will get a better mix—save a lot of money on the mixing and have a mixer that you can keep busy nearly all the time.

Bear in Mind These Mechanical Advantages of the Blystone

The drum is wide open so you can be sure the mix is right and so you can clean the mixer as easily as a pail. The Blystone is filled while in motion—and discharged while in motion. The most thorough mixing possible—material is shoveled, stirred and troweled 44 times a minute from one end of the drum to the other. The Blystone is simplicity itself—no unnecessary parts to cost you worry, labor and repairs. Blystone simplicity, efficiency, durability and flexibility means greater satisfaction, better work and more profit.

Let us send you the latest Blystone Catalog showing the complete line of mixers for the contractor who does concrete, mortar and plaster work.



Mounted on Skids for Concrete Products Plants

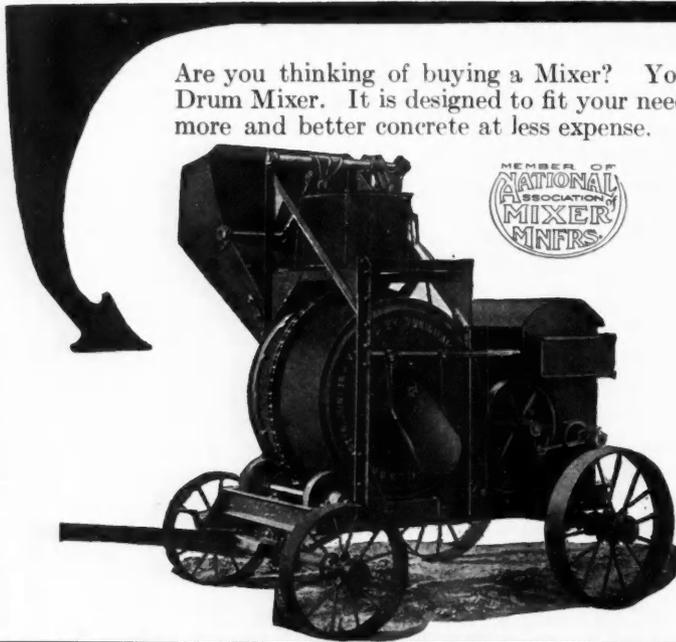
**Blystone
Manufacturing Co.**

1017 Carpenter St.,
Cambridge Springs, Pa.



Enlist the Austin Drum Mixer into your service

Are you thinking of buying a Mixer? Your best move is to investigate the Austin Drum Mixer. It is designed to fit your needs. The AUSTIN DRUM MIXER means more and better concrete at less expense.



"BUILT BY MEN WHO KNOW HOW"

Four Big Features

1. **Wide loader and opening** into drum permit fast charging without clogging.
2. Design for mixing blades is such that the mix is carried over on discharging chute, allowing very rapid discharge, either entire batch or part.
3. **4-H P. hopper cooled gasoline engine**, or steam or electric power. Twenty gallon steel water tank and steel engine housing.
4. **One position control.** Capacity 60 to 80 cubic yards per day.

Write for catalog 7-D

F. C. Austin Co., Inc.

formerly

Municipal Eng. & Cont. Co.

Main Office: Railway Exchange Bldg., Chicago

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 Ontario A. A. Scully, Stair Bldg., Toronto
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 (Howard Cooper Corp'n. Portland
 H. Cooper Seattle

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

Registered U. S. Patent Office

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.

This Light Weight Republic
Has Larger Capacity
Power Loaders or Low Platform

Most mixers have an excess of weight that serves no other purpose than to increase the cost. New improvements and inventions enable us to make this sack size Republic lighter with more capacity and at a greatly reduced price.

Republic Mixers are of high quality, dependable construction, and good design—built in 3½, 5, 7 and 10 cu. ft. capacity. Get our Catalogs, prices and terms. State size.

REPUBLIC IRON WORKS, Box 445, Tecumseh, Mich.

ROAD BUILDERS' EQUIPMENT

Write for Engineering Bulletin No. 36. Steel Forms for Culverts, Tiles and Sewers. Engines, Hoists, Concrete Mixers and Pavers.

NORTHWESTERN STEEL & IRON WORKS
 Eau Claire, Wis.
 Engine Builders and Manufacturers.

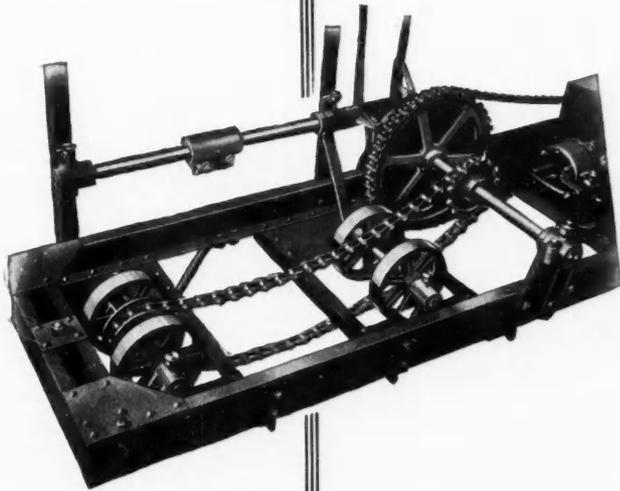
NORTHWESTERN MIRACLE TREE-FORMS

CULVERT FORM

SOMETHING NEW

THE

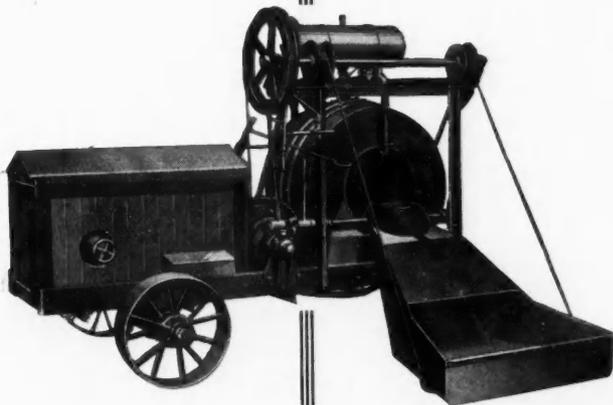
SMITH UNDER-SLUNG CHAIN DRIVE



Right now, when price "boosting" is an everyday occurrence, it will be refreshing to read about a "LOWER" price.

What is more to the point is this: this "lower" price is for a NEW type of mixer—the 7-S Smith-Chicago Mixer, equipped with the **Smith Under-Slung Chain Drive**.

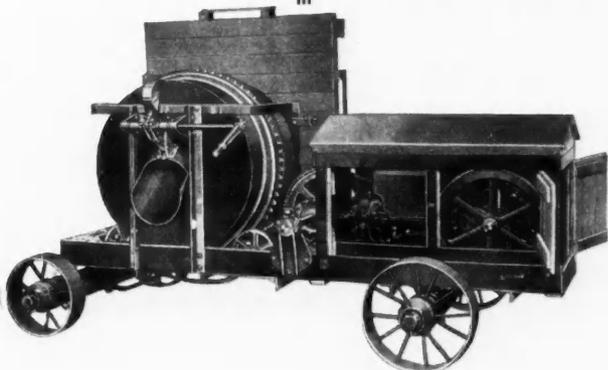
Do you get the full significance of the **Smith Under-Slung Chain Drive**? Instead of the chain passing around the drum, it goes **under** it.



The S-7 Smith-Chicago Mixer with the **Smith Under-Slung Chain Drive** is peculiarly adapted to highway work. Its use means Dollars in your pocket when building bridges, culverts, approaches, etc. **MAIL THE COUPON.**

THE T. L. SMITH CO.

3123-J Hadley St., MILWAUKEE, WISCONSIN



MAILING COUPON

Send me, without obligation on my part, copy of your

FOLDER NO. 164-J

describing your new 7-S Smith-Chicago Mixer with the **UNDER-SLUNG CHAIN DRIVE**.

Name

St. No.

City

State

Bid on the Whole Job—Make Extra Money on Foundations

Why be satisfied with part of the job? There's a lot of extra profits in foundations, walks, floors, etc., to be made by any carpenter-builder equipped with a Sheldon Batch Mixer. It's small, compact, easy to move, sturdy and efficient — will work one man or six. Does little jobs cheaply and makes a profit where no other will. Mixes mortar and plaster, too, if you wish. Here's the biggest little helper to extra profits you ever saw and at a price that any carpenter can afford to pay!

Sheldon Concrete Mixer \$25⁵⁰
BIG WORKER—LITTLE PRICE UP

Sheldon machines are rapidly supplanting big, costly-to-buy and expensive-to-run all-steel machines, because they do the work of a \$200 or \$300 mixer and cost only a fraction as much to buy and use.

Or Build One Yourself For As Low As \$11.50
Catalog, Plans and Instructions FREE

Get into this game at once if you're not in it now. Get still bigger profits if you're already in it. You can do either if you have one of these efficient helpers.

We have a wide assortment of sizes and styles up to a No. 8-X Power Machine on Trucks at \$110, including 2 horsepower engine.

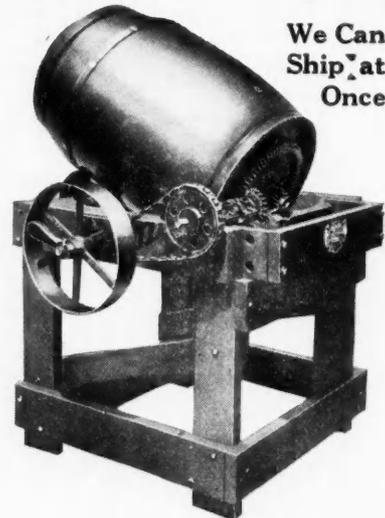
But you can get a real Sheldon Mixer for as low as \$11.50, by buying all the iron parts of us and using your own drum (an oak barrel is fine) and making your own frame of 2x6 lumber from our free blue print plans and full instructions.

These plans show in minute detail just how to cut and bore every piece of lumber for the frame, thus assuring a smoothly running machine.

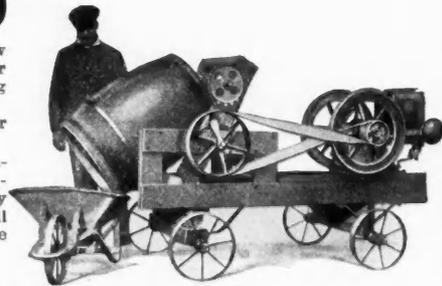
Or, we'll sell you the iron parts and our ready-cut frame lumber at \$16.50 up.

Send to-day for our Catalog, fully illustrated in colors, showing every possible combination and quoting prices to fit every purse. It's free. Write to-day and you'll have time to get your machine for the SPRING work.

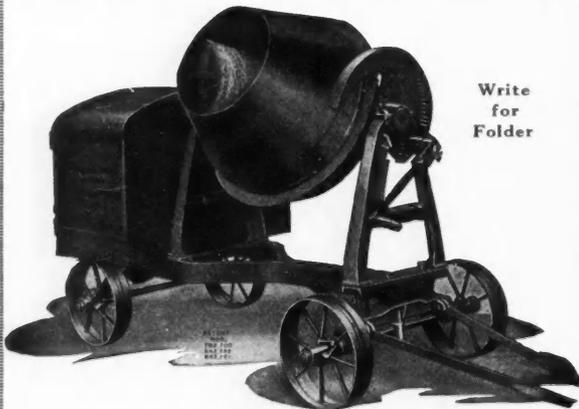
SHELDON MFG. CO., Box 2003 Nehawka, Neb.



We Can Ship at Once



A Faithful Friend



Write for Folder

JAEGER Mixers mean a lot to any contractor who demands constant regular performance the same day in and day out without trouble or break-downs.

The success of JAEGER Mixers lies in their faithfulness and strength.

Repair costs are low; and do not forget they save the labor of four men.

Write for folder and information.

Jaeger Machine Company
318 West Rich Street COLUMBUS, OHIO



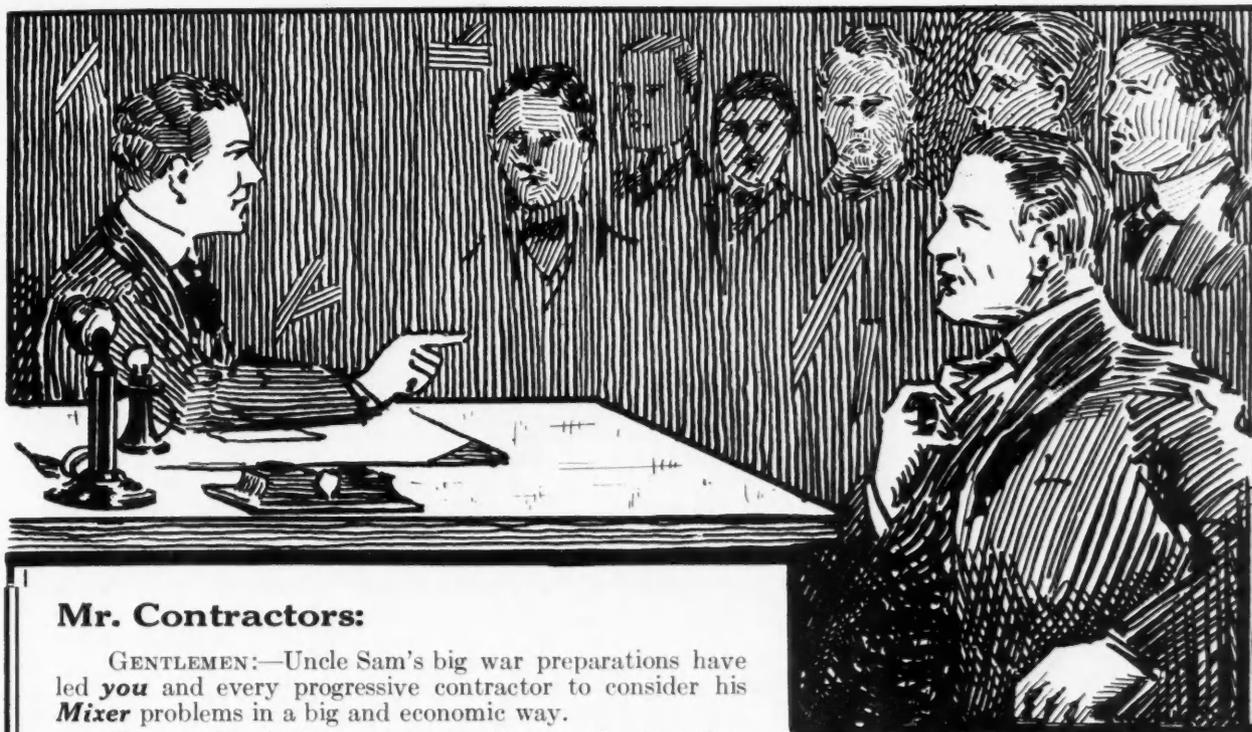
ARTISTIC HOMES

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.



Mr. Contractors:

GENTLEMEN:—Uncle Sam's big war preparations have led **you** and every progressive contractor to consider his **Mixer** problems in a big and economic way.

You are keenly interested and alive to the fact that **High Wages and the Scarcity of Labor Simply Compels Up-to-the-Minute Methods.**

We have been making happy contractors for 35 years. We are proud of this record and we want **you** added to our list.

Do you come home at night with a smile?

If you are using old-fashioned methods, how can you? If you haven't any mixer at all, **your** condition is even worse.

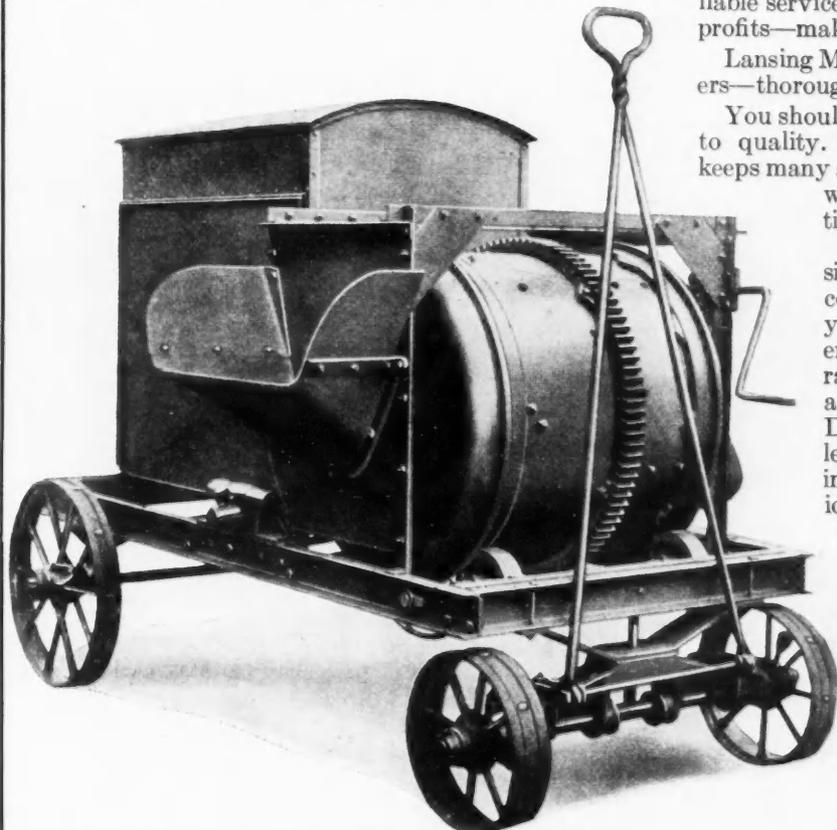
Look everywhere and you will find Lansing Mixers and products—right on the job—giving reliable services—plugging away—piling up profits—making contractors happy.

Lansing Mixers are good, high-grade mixers—thoroughly reliable and money makers.

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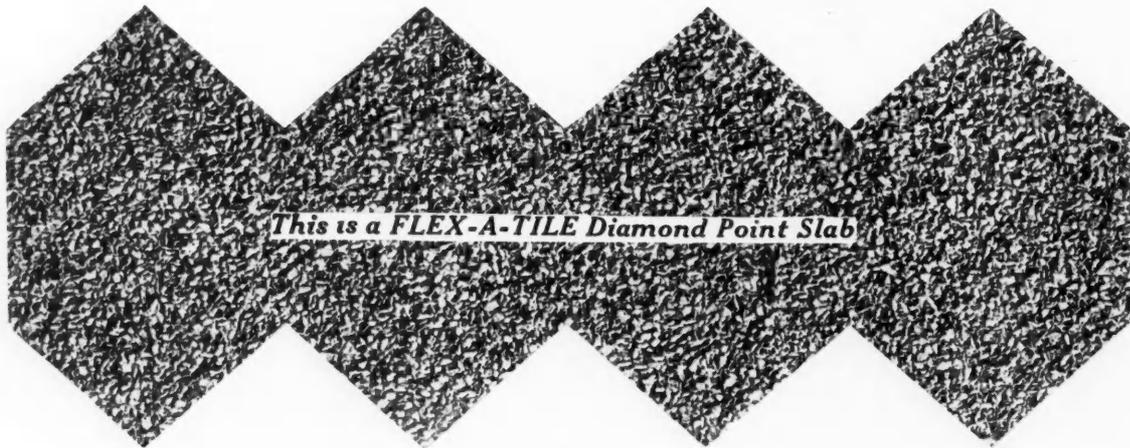
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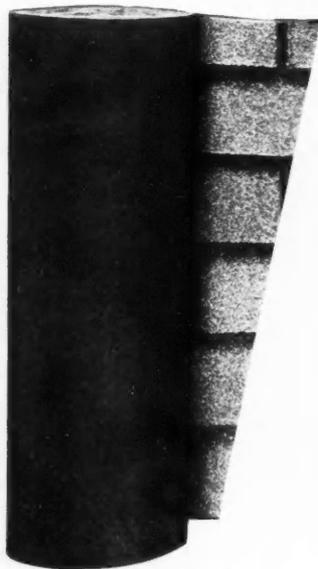
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Short Talks With Our Subscribers

Will Class no Industry as Non-essential

DR. Harry A. Garfield, the Fuel Administrator, spoke on Dec. 12 to the War Service Conference of the Chamber of Commerce of the United States, which had assembled in Washington. He referred to the so-called less-essential industries. The thought had been presented to him, he said, that it might be necessary to cut off fuel to some industries. A list had been presented to him of between 500 and 600 industries, in one of which \$1,000,000,000 was represented, and which was called a "non-essential" industry.

Dr. Garfield said that he had refused to accept the responsibility for calling that or any other industry non-essential, and said that no such list would ever be published.

Let's Build While We Fight

AMERICANS have a habit of quitting work and crowding around when an accident occurs. The case in point is the world's "accident" in Europe.

We are in danger of losing our heads and stopping work while the conflict is on. This would be a serious happening but, happily, every American can help to prevent it without adding to the noise and confusion of going to war.

The only thing necessary is to go quietly on in attending to our own business.

While our naval and military forces are hastening to the front to destroy agencies and obstacles that seek to impede our growth, it is essential that we double our constructive efforts at home.

We can create and continue to build while we fight and we ought to seize upon this advantage as the greatest opportunity created by the war.

Let useful building construction, both public and private, 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 food-stuffs. Never before was the improvement of highways so essential.

Let us build while we fight!

EDITOR AMERICAN BUILDER.

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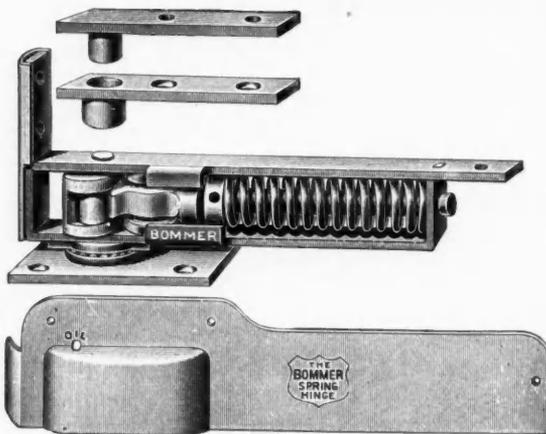


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VOL. XXIV

January, 1918

No. 4

GOVERNMENT URGES FARM BUILDING AS WAR MEASURE

THE AMERICAN BUILDER AND ITS READERS ARE ENLISTED IN NATION-WIDE EFFORT TO FURNISH BETTER HOUSING FOR FOOD CROPS AND LIVE STOCK

By **Bernard L. Johnson**

EDITOR AMERICAN BUILDER

HOW does the National Government regard building activity?

To what extent is it *necessary* business—essential to the winning of the war?

From personal investigations at Washington, we find that the Administration considers some building projects unnecessary and can well be postponed; building activity of another sort is not only approved, but is strongly urged by the Government as a war measure.

You of the building industry have no doubt noticed newspaper reports regarding the Government's attitude toward building operations, and have been concerned over the effect this will have on your business. You have wondered just how much truth there is in these newspaper reports and rumors.

A Special Trip to Washington

We realized that the AMERICAN BUILDER should have reliable, first-hand information covering these points. Accordingly, I went to Washington the last

week in November, and was able to obtain data of the utmost importance. It is no easy matter to get the attention at this time of the President or his administrative advisers. However, going to Washington with high credentials, and with personal acquaintance with some of the government officials, I was able to secure some very satisfactory interviews and obtain the information desired.

The Council of National Defense, the Food Administration and the U. S. Department of Agriculture, all urge *farm building activity*. They hold that farm buildings encourage the production of live stock, lessen the waste of food crops, and if arranged and equipped in the modern way, make up for the shortage of labor by enabling one man practically to do the work of two. While the above pertains particularly to dairy barns, stock barns, granaries and crop storage buildings generally, farm house improvements are also looked upon with favor as making the farming population more contented and efficient.

The American Builder Asked to Assist

The Administration has asked us to urge building activity in the rural field. A number of big manufacturing organizations whose business has formerly been centered largely in the cities, are already turning to the country field and propose to cultivate it aggressively along the lines approved by the Federal Government.

The Administration classifies farm buildings as *necessary* buildings, because of their importance in the production and conservation of the nation's food. Moreover, such building work is handled by local labor, using mostly local materials which means that this building activity does not draw on the nation's mobile labor supply, and does not use freight car space. The bulky supplies for farm building work, such as lumber, clay tile, cement, brick, roofing, etc., are all carried in stock at the local lumber yard. Sand and gravel are hauled from the nearby neighborhood pit, and the few specialties that have to be brought in from outside take up comparatively little transportation space.

For these reasons, the Food Administration proposes to encourage farm building activity, and the Director of the Council of National Defense assures us that if it becomes necessary to issue any recommendations calculated to regulate the building industry, he will be careful to differentiate clearly between farm building, which they count as necessary, and city building projects, which are unnecessary and which require large labor force and much freight car space.

Homebuilding and Industrial Housing

Another type of building activity to which the Administration is giving preference at this time is the housing of workmen adjacent to factories handling war orders of various kinds. The director in charge of the construction and supply branch of the War Department pointed out that this housing shortage is very widely distributed. We naturally hear most about the very large factories employing thousands of men and of their urgent need of housing. There are thousands of smaller plants, he pointed out, scattered all over the country, many of them in the smaller cities and towns, which are producing supplies of various kinds required by the Government, and there is need of home building activity in the neighborhood of most of these factories.

The Administration wants to encourage building activity of this kind, realizing, however, that it must be left to private individual initiative to handle this proposition, since it is so widely distributed.

All Can Help

I found the sentiment in Washington, without a single exception, to favor building activity in the country and small town field. At the request of the Administration, the AMERICAN BUILDER is undertaking a campaign to reach every influential local builder and every retail lumber dealer, and enlist these men in the work of pushing forward farm building improvements and homebuilding or industrial housing wherever needed. We are urging the remodeling and repair of

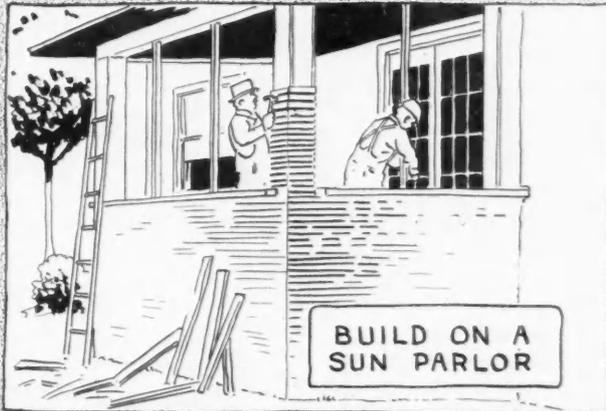
These Building Improvements will Help Win the War



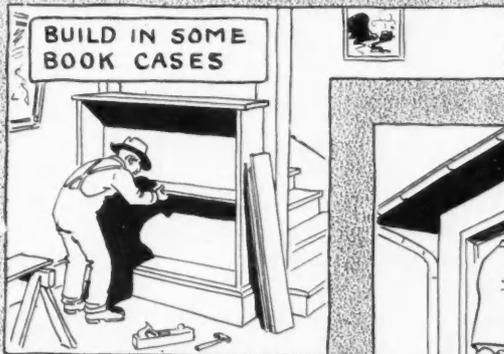
One Million Little Jobs Are Just As Good As One Thousand Big Ones



CONCRETE THE CELLAR



BUILD ON A SUN PARLOR



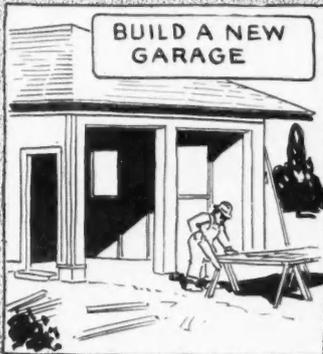
BUILD IN SOME BOOK CASES



OVERCOAT THE OLD HOUSE WITH STUCCO



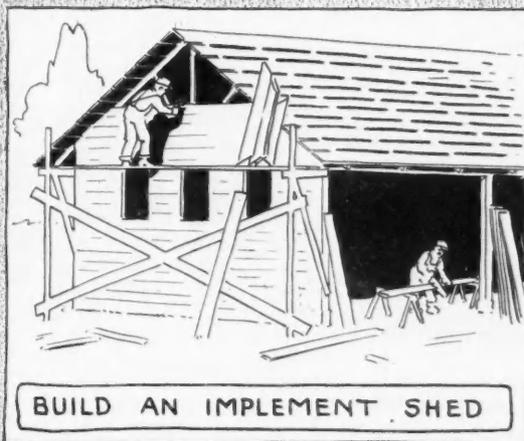
BUILD A NEW CORN CRIB



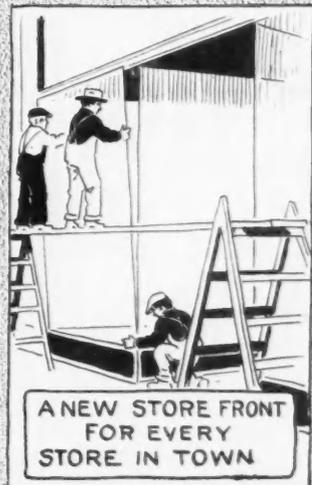
BUILD A NEW GARAGE



INSTALL A CHEMICAL CLOSET



BUILD AN IMPLEMENT SHED



A NEW STORE FRONT FOR EVERY STORE IN TOWN

Did It Ever Occur to You How Much Money There Is in the Drib Trade? Now Is the Time to Go After It. Repair, Remodel, Build New. Do It Now.

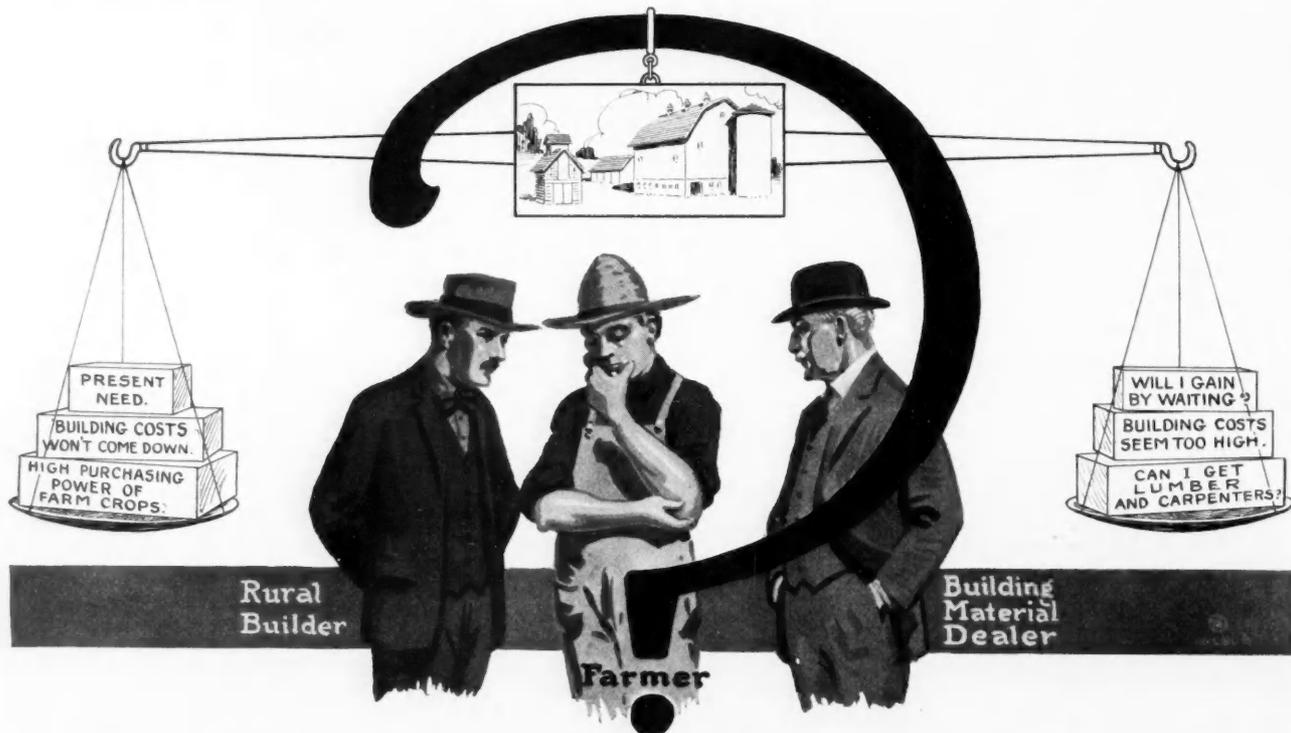
existing structures to preserve them and increase their utility.

We know how influential these local builders and building supply men are in determining what building projects are undertaken. Their advice is always sought by the farmer, prospective home builder, or real estate man, and they are in a position to put it up to these that *now* is the time to build, and that it is *patriotic* for them to build at this time.

The local builder knows that he can furnish the

labor, and the supply man knows what materials are available, and he knows that the current prices are not so high as has been generally supposed.

As I have already mentioned, a number of prominent concerns in the building industry have already turned to the country field. More will follow, and so get in line with what the Administration wants by going after this farm building and industrial housing work. Every campaign that can be directed to this field will help the situation.



Is The Farmer Justified in Building Now?

NO MATTER HOW YOU MAY HAVE IT DOPED OUT, READ THIS KEEN ANALYSIS OF THE SITUATION

By L. W. Chase

Head of Dept. of Agricultural Engineering of the University of Nebraska

TWO years ago the price of dimension lumber ranged from about \$25 to \$27.50 per thousand. It now ranges from \$35 to \$40 per thousand. Brick at the former time were being sold at \$9 per thousand; they are now about \$11 per thousand, while hollow brick were sold then at \$5 per thousand, but at present are sold at \$7. In 1915 and 1916 cement was from 55 to 60 cents per sack and is now from 70 to 75 cents. At the earlier time considered here masons were getting from 70 to 75 cents an hour, while they are now getting from 80 to 85 cents; carpenters were in those days getting 50 to 55 cents, while they are now getting 65 to 75 cents. Likewise, farm labor has increased. Two years ago it was from \$25 to \$35 per month, and probably ranges now from \$35 to \$45 per month. These figures indicate quite clearly that the farmer may expect to pay fully 25 per cent more for a building than he would have paid two years ago.

With this great increase in the cost of building material, is the farmer of Nebraska warranted in going

ahead and building new buildings on his land?

In answering this question, there are three points to be given consideration: The relative value of the farmer's produce now and two years ago, the relative value of the farmer's land and his labor for the periods considered, and whether the farmers will continue to receive the present prices for their output.

Along with the increase in the cost of building materials and labor there has been about the following increase in the price of farm products:

Corn, two years ago, was selling from 50 to 60 cents a bushel; it now ranges in price from \$1 to \$1.50. Wheat, during the earlier period, sold for 90 cents to \$1.20; it now sells for \$2. Hogs, at that time, brought from 8 to 10 cents; they have increased to about 15 cents, while butterfat has increased from 25 to 32 cents to, at the present time, from 45 to 50 cents per pound.

While it is seen that the cost of building has in-

(Continued to page 126.)



Hard to get Help? Use more Machinery

IN these days of labor shortage, contractors must use more machinery.

Uncle Sam has already called more than a million men into his fighting forces, and he is going to call many more. Other millions are being enlisted in special war work—such as the manufacture of guns, aeroplanes, trench masks, army boots, etc.—the work of equipping and supplying the boys who fight. Besides this, there is the immense shipbuilding program.

Yes, your Uncle Samuel can make good use of

every man he can get. In view of which, it is real patriotism for builders to conserve man power in every way possible.

The productive business of the nation must be kept going. There is no thought of stopping regular industry. But every pound of human energy must be made the most of, so that the nation's business can be kept going, and at the same time these tremendous war tasks, which call for millions of men, can be put forward with our full force.

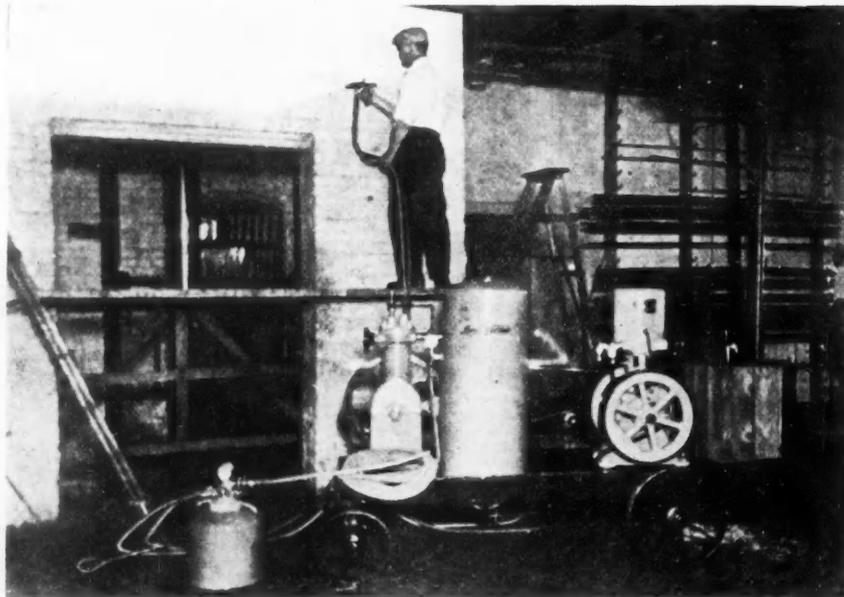
This means to conserve man power by using more machinery.

We Americans are already famous for our use of labor-saving machinery. In our shops and factories, ingenious, automatic machinery is turning out by the thousand, goods which in the old country they con-



The Cement Stone Co., of Rocky Ford, Colo., have been making cement brick on this press since 1909. This past summer they added a power attachment in order to save labor, as well as increase production necessary to turn out 1,000,000 brick required for a large local high school job. The local production of brick takes on new interest, now that freight shipments are uncertain. This power attachment has increased the daily capacity of the Cement Stone Co. plant fifty per cent, with no increase in labor.

The building to the right is the Carnegie Library at Rocky Ford, constructed of cement bricks and blocks produced by this company.

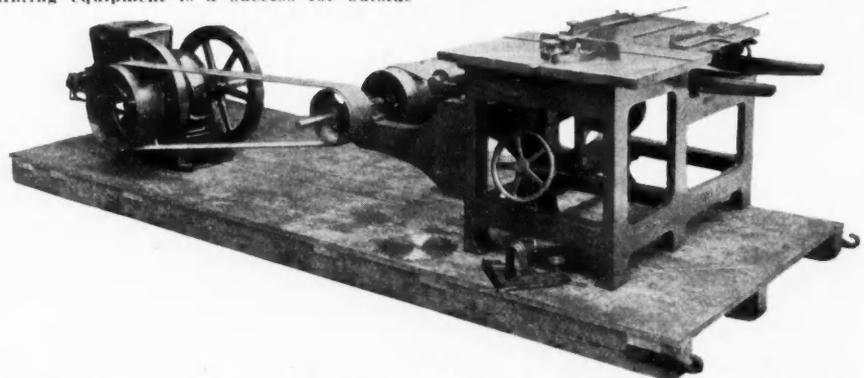


Here is labor-saving efficiency for painters. By means of this portable air pressure equipment, one man does the work of five. Photo shows factory interior being painted white. One coat completely covers the dirty wall and ceiling surfaces. An average of 1,000 sq. ft. per hour was put on. This painting equipment is a success for outside painting also.

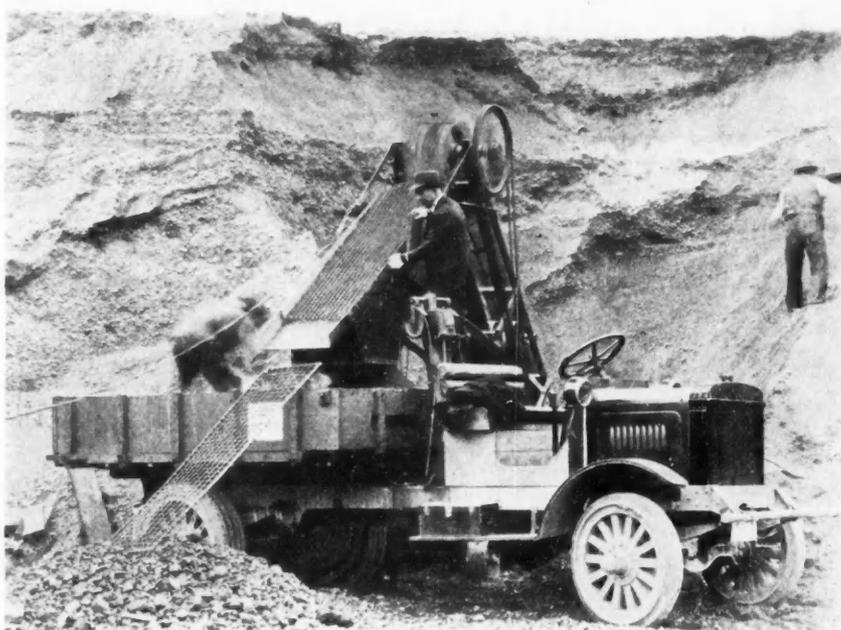
time to make one at a time by hand. The machine does the work faster and better.

This same principle must now be carried over more than ever before into the building construction field. Labor-saving tools and power equipment must be used more generously than ever before.

The building trades have been drawn upon for war workers perhaps more than any other line of



Ten outfits like this speeded up the camp construction work for Uncle Sam at Ft. Sill, Okla. It is a universal saw table and a 6 h.p. gasoline engine mounted on a heavy wooden platform, and provided with strap iron hooks for moving around to different locations on the job. This proved a great success and labor-saver.



Sand and gravel can no longer be shipped in open cars. The contractors' answer to this rule of the Priority Board is to make more use of the neighborhood gravel pit. Here is a power loader and screen, loading a motor truck with torpedo sand. Materials from the local pit are OK, if cleaned and graded.

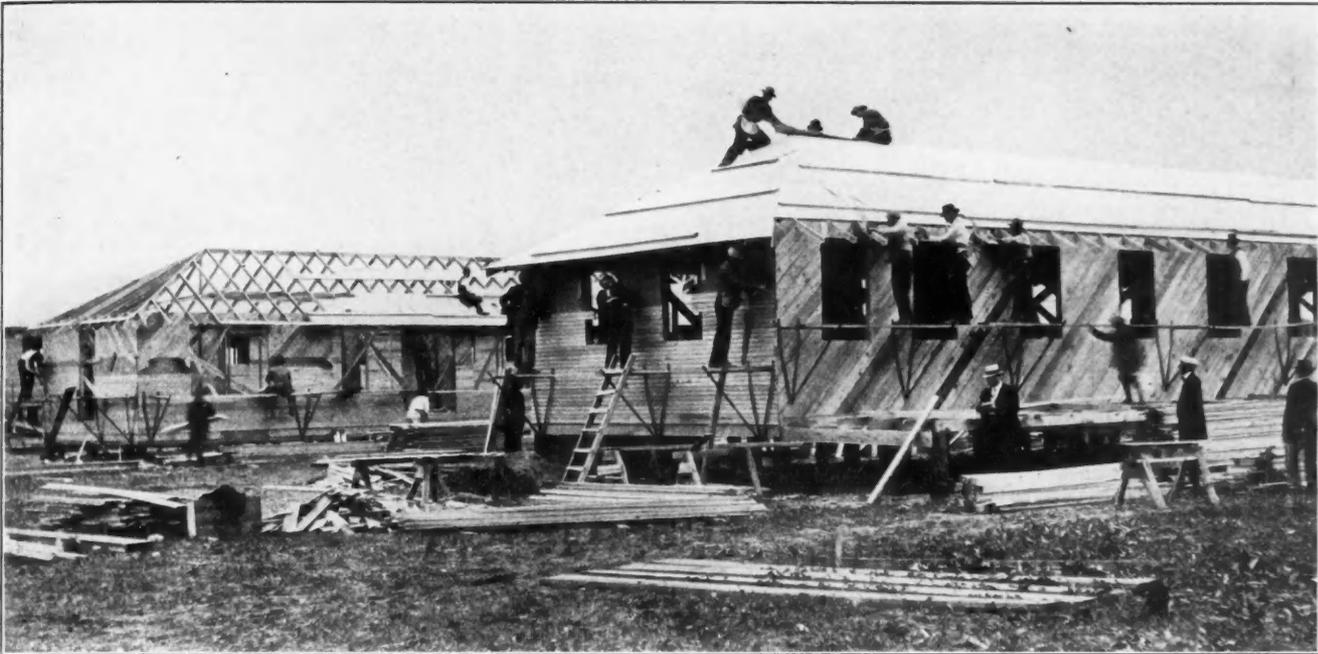
industry. During the summer it was almost impossible to get carpenters or plumbers, because they were all away working on the cantonment jobs. Ten thousand building mechanics have been shipped to France to construct the ordinance base depot. The shipbuilding program was launched, and when they went to get the ship carpenters, they found that all had died off about a generation ago. So building mechanics have had to turn ship carpenters, and they are flocking to the ship yards by the thousand. Building mechanics are handy men, adapting themselves easily to almost any work. The high wages paid by the ammunition factories have lured many away from the building field. And lastly,

the soldier boys themselves have been recruited to an extent that no one realizes, from the younger carpenters, masons, cement workers, and other building mechanics.

The result is a decided shortage in the labor market; also wages have gone up. Labor is higher priced than ever before.

The entire situation urges a greater use of power machinery on the job, of labor-saving tools and other contractors' equipment.

Luckily, power equipment for builders has been so improved and perfected that there is a size and a style suited to every possible requirement. The builder who employs only two or three men, can find a small concrete mixer of just the handy size to do his work. The power rig saw has paid out big on the smaller class of work, as



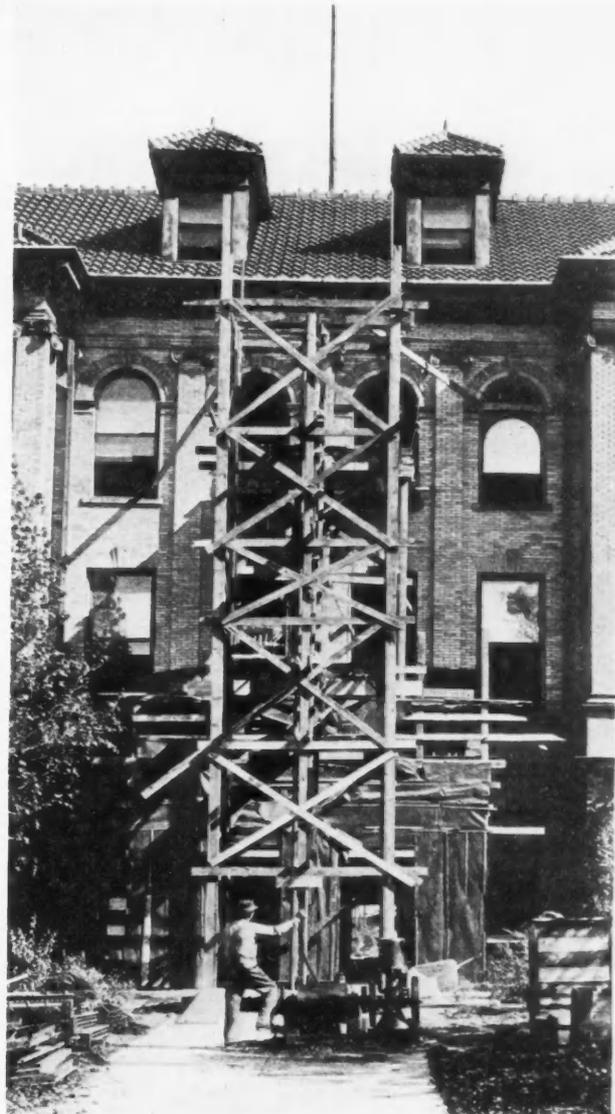
Folding scaffold brackets saved the Government \$4,300 in the construction of the Aviation Cantonment at Dayton, Ohio. Wooden staging would have cost \$5,500, whereas the net cost of the steel brackets was only \$1,140. For time-saving, labor-saving, material-saving and money-saving, the Government contractors use scaffold brackets.



The Bell Construction Co., putting in a 7-foot storm sewer at Lexington, Ky., found a great saving by moving their special light mixer with end discharge right up to the forms. They much prefer this to wheeling the wet concrete.



Concrete mixers have been perfected for builders' use. Note how convenient this loading platform is for charging the mixer by wheelbarrow. The mixer is often placed to discharge directly into the forms.



Reversible Hoist Operated by Hobson & Son, General Contractors, on the Harvey High School, Harvey, Ill.



Rapid work building swimming pools for the Chicago West Park Commissioners. Materials for the concrete were delivered in motor trucks to the most convenient locations surrounding the pools. Mixing was done by one-third cubic yard mixer, whose portability permitted it to be moved along easily as the work progressed, thus reducing the wheeling of materials and mixed concrete to the minimum.



H. V. Demarest, Nyack, N. Y., saves time and labor, and makes money, using an electric power floor surfacer. One man and this machine surfaced a set of floors at a total cost of \$43.30, that would have cost for hand scraping at least \$475.00. Figure the gain yourself.

well as the large. Derricks and hoists, trench pumps, scaffold brackets, mortising machines, motor trucks, automobile trailers—all have their special utility in the present situation.

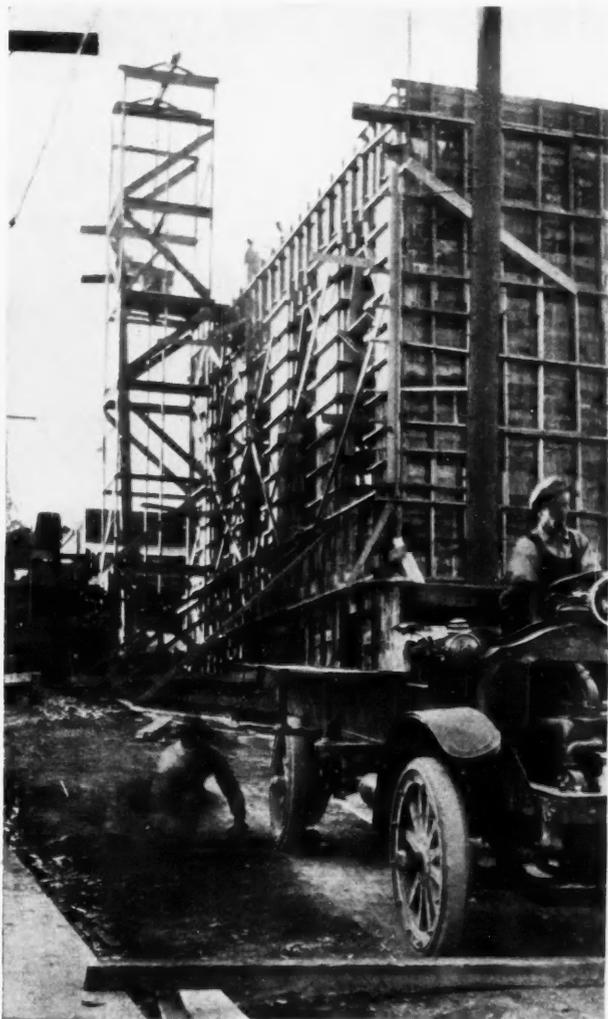
The machines do the work faster and better. They are dependable; they don't quit the job to get bigger wages. They make a builder or contractor more independent, and also they advertise his business.

The building that is wanted this year is wanted in a hurry. Equip for it. You will find it hard to get help, so use more machinery.

Incidentally it is interesting to learn how many carpenters have



H. E. Bowers, Buffalo, N. Y., loads his ladders, staging and tools into his trailer; puts his men into his light car, and loses no time in getting onto the job.



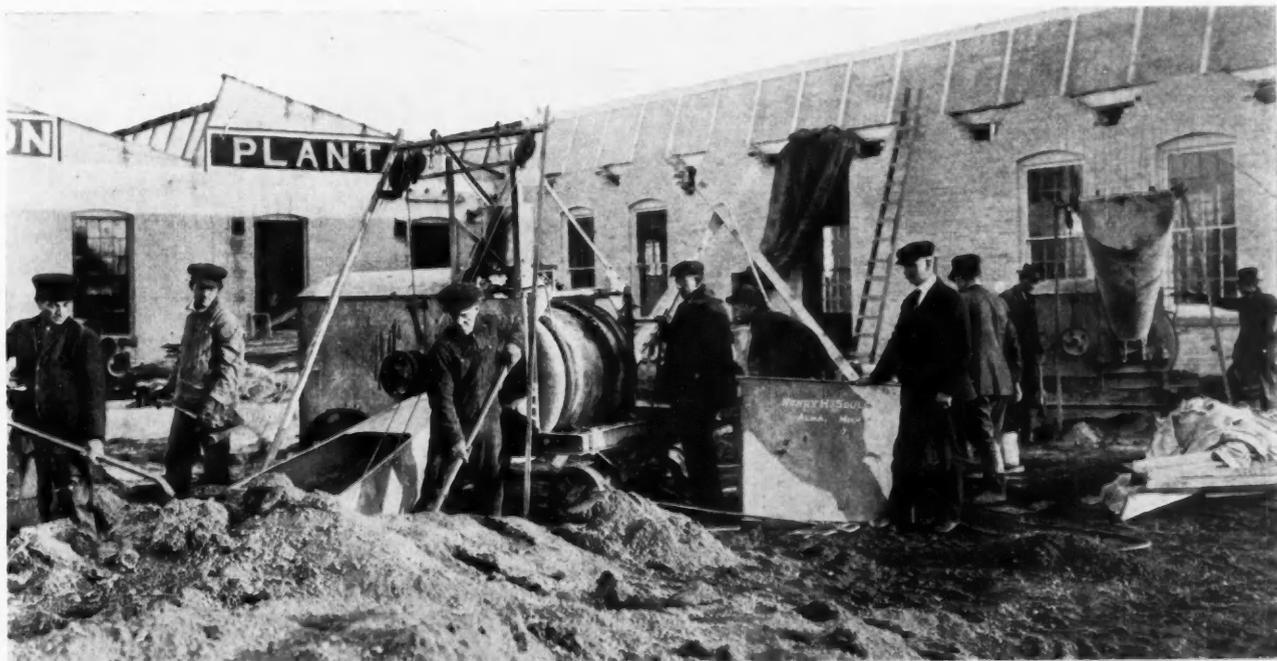
An emergency hoist to save labor. The motor truck has the hoisting cable tied to its rear axle. Quarter ton loads of concrete were successfully hoisted about 35 feet in the erection of this bank building at Grass Valley, Calif. The nearest hoisting engine was 175 miles away, at Oakland. The motor truck did the work at a fraction of the expense of shipping the hoist in.



Reversible hoist used to great advantage by Contractor G. L. Smith, Waterloo, Ia., in constructing large brick chimney.

risen from the ranks as the direct result of investing in a small concrete mixer or power woodworker. Business comes to the man who is prepared to handle it. Most successful general contractors and builders started as carpenters and worked up. The generous use of labor-saving equipment has been the big factor in their success.

Now is the time more than ever before, to equip in every way that will save labor.



This Concrete Mixer Was in Continuous Operation for Three Weeks, Day and Night, for Contractor Henry H. Soule, of Alma, Mich., On New Plant for Motor Truck Concern.

Industrial Housing Problems—(PART I)

By Leslie H. Allen

Of the Aberthaw Construction Co.



One Hundred Homes, Cozy and Practical, Have Been Built at Killingly, Conn., for the Goodyear Mills, Inc.

IT is reported from Bucyrus, Ohio, that one manufacturing concern recently brought 150 employes to the city by great effort; after a few days thirty remained, the other 120 left, having failed to secure comfortable homes.

In Derby, Conn., one company was compelled to sub-let to out-of-town concerns over \$800,000 of work, which could easily have been done in the city if it had been possible to bring more mechanics to the city and house them.

Six cement companies, who recently analyzed their labor turnover for a period of three years, report an average of 103 per cent per annum. A prominent public service corporation near Philadelphia confessed recently to a labor turnover of 1100 per cent, and, altho this is exceptional, a turnover per annum of 400 per cent is not uncommon.

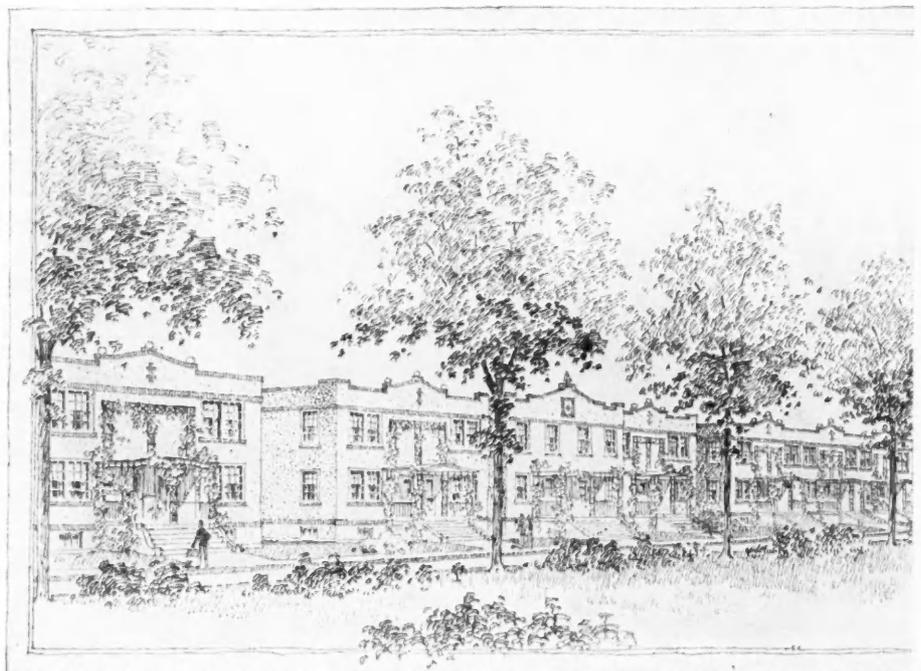
These cases are typical of widespread conditions. During the past two or three years employers of labor in all of our big industrial centers have experienced such great difficulty in getting and keeping employes that much attention has been focused upon the employment situation. The results of many investigations have shown that one of the prime causes for the shifting population and large labor turnover of many industrial plants is the utterly inadequate housing accommodations available for the industrial worker.

In years gone by, wages were low and the cost of turnover was hardly considered, for there was always a long line of new men waiting for a job, and, because of this excess of supply of men

over demand, a man was not so ready to throw up his job and seek another. He would put up with poor housing conditions for the sake of having any job at all. But in the present labor situation, with demand far exceeding the supply, the workman will no longer be content with the disgraceful housing conditions he has had to put up with. He rightly objects to sleeping six or eight in a room big enough for two; turning out of his bed in the morning just in time for the night-shift man to take his place; and as fast as manufacturers bid for his services by putting up decent houses (as many are now doing), he is going to leave the old insanitary over-crowded centers to go to the new villages where he can live decently and comfortably with his wife and family.

The Effect of Present Crisis

Very little is being done at the present time to



Instead of Detached Houses, Each with Its Small Yard, Snug Homes are Built in Rows and Cared for Out of

remedy this state of affairs owing to the fact that the present abnormal prices of labor and building materials have shut off the supply of houses. Heretofore the demand for houses has been supplied by the speculative builder and the real estate operator. But at the present time he can no longer afford to build—in many cities he cannot get construction loans, and even if he does he cannot hope to sell in the open market at present prices and cannot be sure of any return on his money by renting, having in mind a possible trade depression during the reconstruction period which will come at the end of the war, so that, while the demand for better houses continues, the supply is getting less and less. In view of the probability that the labor situation will not change for four or five years after the close of the war, the manufacturer is faced with the very serious problem of how best to compete in the labor market for his needs, with the knowledge that housing is an important factor in which he will get no help from local investors as in former years.

He has long felt that the housing problem is one to which he ought to give serious attention. He has disliked doing so, and for good reason, but the present crisis is forcing upon him the conviction that he has got to tackle it, and that in the future he ought to control it.

The Effect of Bad Housing on Industry

Apart from any consideration of this subject from the humanitarian or sentimental side, the industrial employer is beginning to realize the tremendous importance of these conditions in their relation to production.

He is finding out that men who are housed in

unhygienic and unsanitary dwellings are not so healthy, not so efficient, lose more time thru sickness and are more stupid and troublesome in the plant.

Statistics computed in Chicago and elsewhere have proved conclusively that the areas having maximum density of population coincide with those having the highest percentage of tuberculosis and other contagious diseases, crime and social evil.

The output of a plant is seriously affected by the prevalence of sickness which is so often caused by the unsanitary surroundings of the workman's house and the overcrowding inside. With open privies or cess-pools in the back yards, and wells within twenty feet, typhoid is an ever imminent danger; with overcrowding and lack of opportunity for personal cleanliness, tuberculosis and other diseases flourish; these reduce the regularity of the men's attendance at work and the production of the plant.

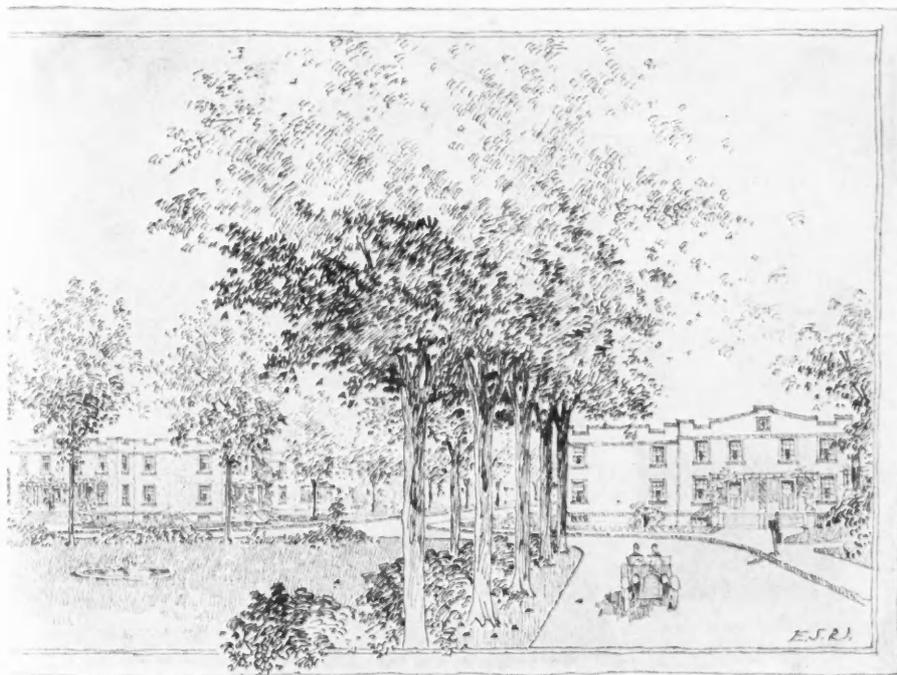
We are at last beginning to realize that people who live in pig-sties are likely to be and to act like pigs. If we want respectable and intelligent men and women to work for us in our plants, we must see that they have decent, healthy and comfortable homes.

The interest of the employer in the health of the employe is being shown in better sanitary accommodations in the factory, the provision of drinking water fountains, shower baths, rest rooms and hospitals, and in recreation parks and club rooms, athletic associations, etc., and in some cases in the sale of wholesome food for the workers to eat during their dinner hour. And in so doing he has recognized the importance to his plant of happy, healthy employes. The provision of decent houses for them is but a short step further.

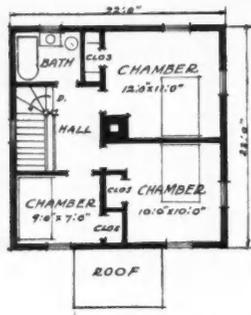
The human tool is not unlike the machine tool in this respect—that the better it is housed and cared for the greater will be its efficiency and its output.

And so it is that we find in city after city and in many rural communities industrial plants are putting out large sums of money in building model villages or model homes for their working people. It is being recognized that in order to secure good workmen and hold them it is necessary not only to provide work for them to do, but to provide good houses for them to live in. It is no longer safe or good policy to leave this matter to chance or to the irresponsible real estate speculator.

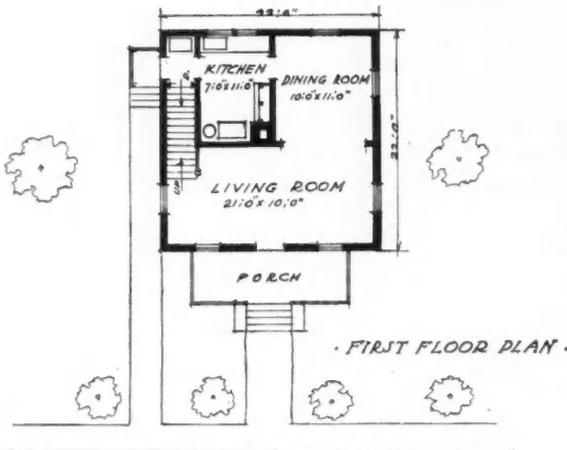
In February last the writer was discussing this matter with



the Vacant Space is All Brought Together Into a General Play Ground or Park, Kept Up and a Common Fund.



SECOND FLOOR PLAN



FIRST FLOOR PLAN



FRONT ELEVATION
TYPICAL SIX ROOM HOUSE

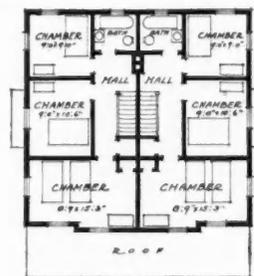
a textile manufacturer who said there might be some point in what was said, but he did not feel it was important enough in his plant, as the supply of houses took care of the demand. In September the writer saw him again. Fifteen per cent of his machinery was idle because his help would not stay. He stated that the cost of the houses he should have built in the spring would all have been returned to him in the profits on the output of his idle machinery.

The Employer's Responsibility

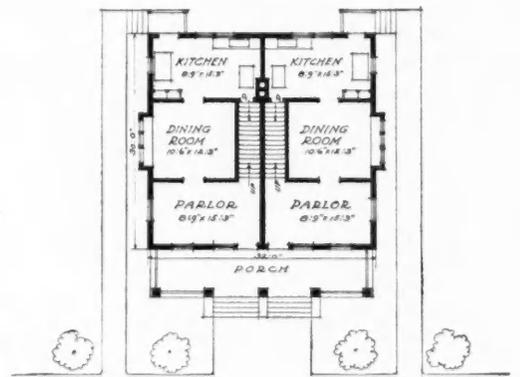
Many experts think that it is undesirable for the manufacturing corporation itself to own houses and sell or rent them to the worker, if this can be properly taken care of by other parties. In spite of this, many corporations have been doing this successfully and maintaining harmonious relations with their work people. At the present time, with prices of building work at their present level, the employer is being forced into this field. No longer can a manufacturer

build a large plant and find houses springing up all around it without any effort of his. The workers are the motive power of any factory plant, and the employer who builds a new plant today without building houses near by finds himself like a locomotive without fuel. Even in large cities such as Bridgeport, Akron, and many others, the manufacturers themselves have had to combine to raise the necessary capital to take care of and remedy the housing situation.

It is not absolutely necessary that the manufacturer or corporation should conduct real estate and building operations in their own name. It is easy to organize a separate corporation with a separate board of directors to carry out such work. Sometimes, when civic spirit runs high, other citizens or financiers in the town or village can be interested to a certain extent. But at the present time, when houses do not appear to be a remunerative investment, it is not likely that they can be induced to share the risk of such an investment. The employer, however, has got to build to hold his men, and if he cannot do so at a fair profit it is wise to write off a portion of the sum invested as a charge against operating expenses, the amount written off



SECOND FLOOR PLAN



FIRST FLOOR PLAN



FRONT ELEVATION
TYPICAL SIX ROOM SEMI-DETACHED HOUSE

being considered as a part of the cost of securing the men needed to operate the plant.

The question may arise as to whether it is best to pay a low wage and bear part of the employer's housing expense as is usually done in rural communities or pay a high wage and let the employe pay the full cost of his housing, but the answer to this problem does not fall within the scope of this article and cannot be discussed here.

The manufacturer locating a new plant is faced with the fact that the factors which reduce the price of land must be paid for by increased expenditure in other directions, one important item of expense being the cost of attracting help from distant labor markets. In many cases the amount sunk in housing without financial return may properly be charged against the low price of the land.

Mr. C. L. Close, manager of the Safety, Relief, Sanitation and Welfare Department of the United States Steel Corporation, has said in a recent article:

"The housing of employes requires the expenditure of large sums of money. That money must be taken out of the business. As part of the capital of the enterprise it must yield returns to those who have invested it. But money invested on building houses for employes will not bring any such return as money employed in the manufacture and sale of products of industry. Therefore a board of directors is compelled seriously to consider how far it can properly withdraw capital for the construction of industrial houses and villages. It is easy to say that the diminished returns on this capital are made up by larger returns on the remainder of their capital, due to better work done by more contented workmen. We firmly believe this, but it is not a thing which can be demonstrated by the books of account. When doctrines of discontent are being preached to the workmen in so many ways, it is to be expected that employers must sometimes have misgivings as to their returns from endeavors to make their men healthier, happier and more contented.

"Behind all housing problems lies the most important one of all. An industrial enterprise must be so conducted that it shall earn enough to provide

proper working conditions for its employes, to pay fair wages, and to return a reasonable profit to those who have invested their money in it."

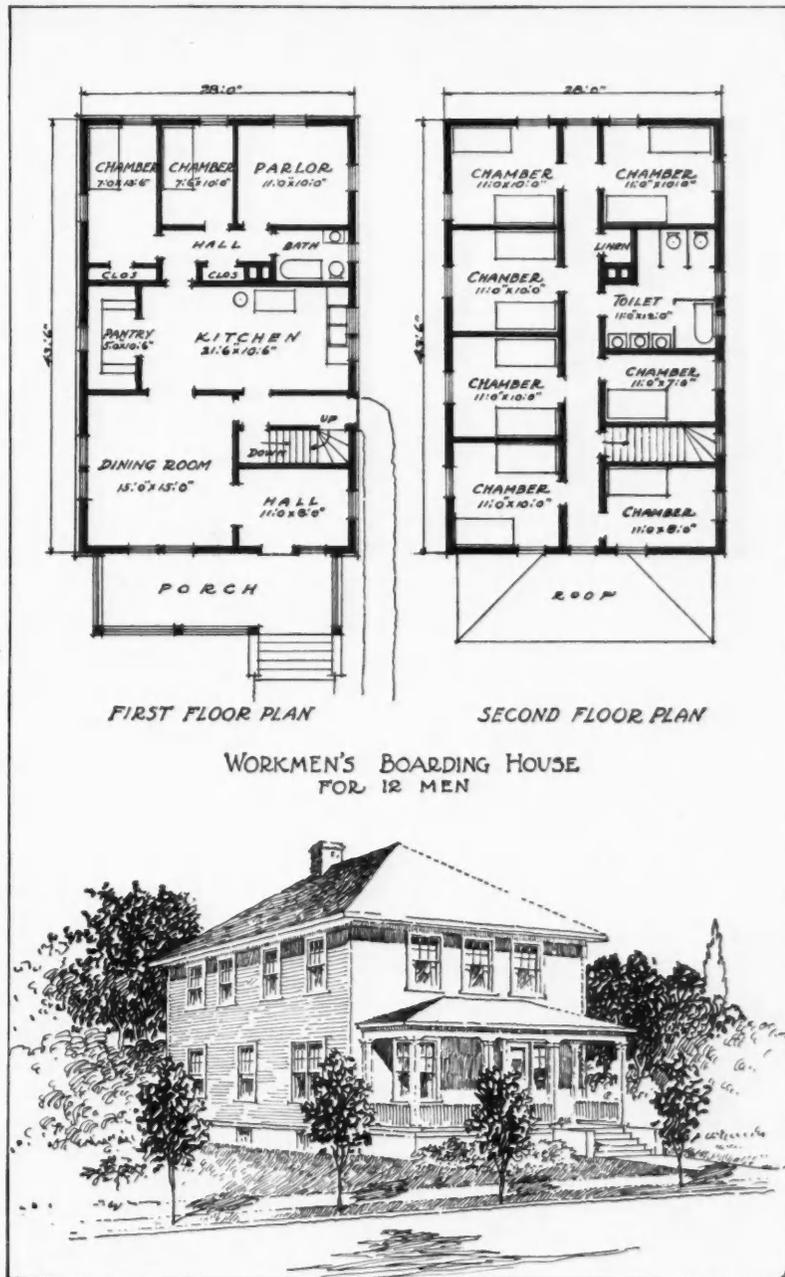
We all agree on the last necessity. We are coming to see that the importance of the other two is almost equally great.

The Building Problem

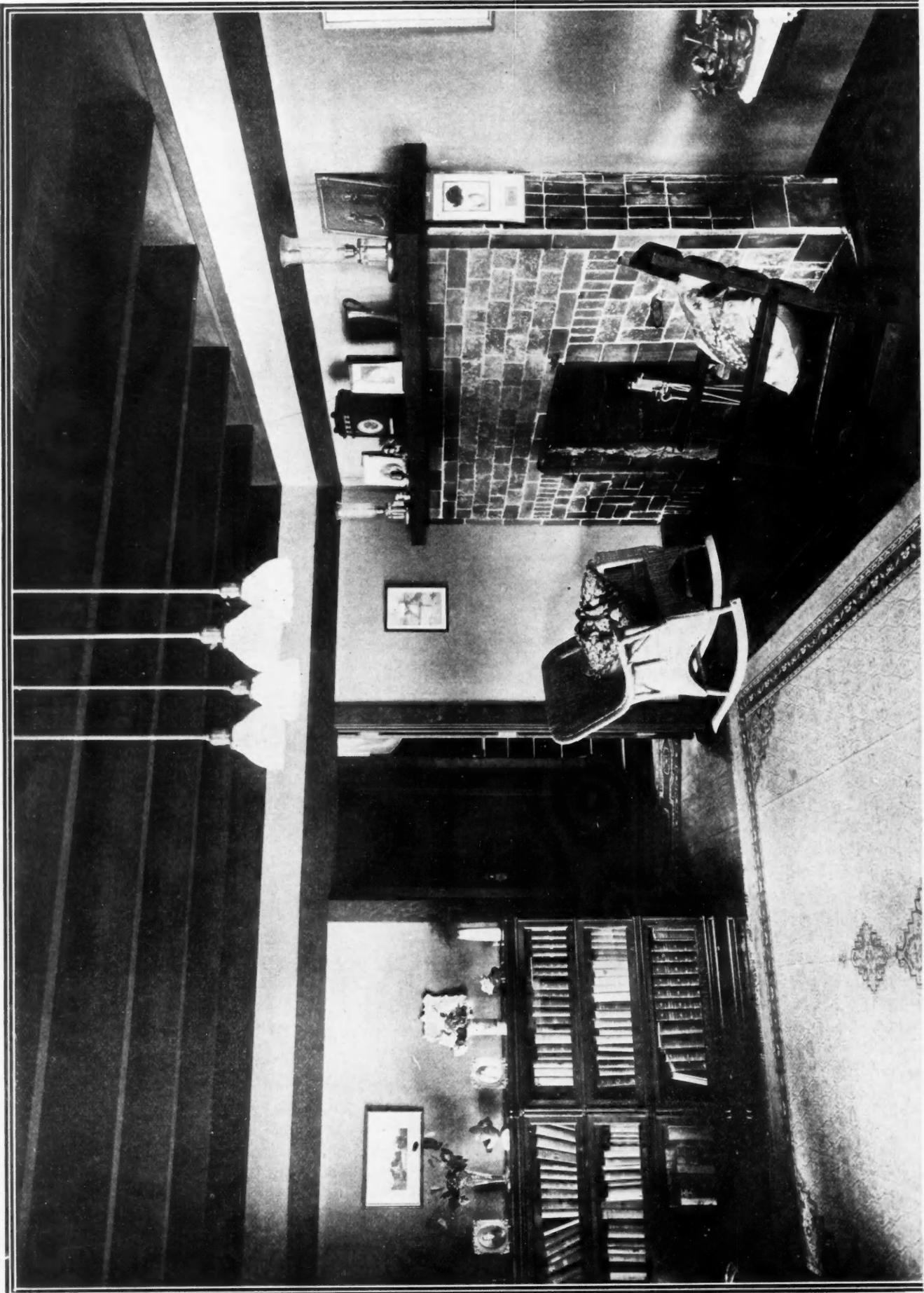
When the manufacturer has decided to build, he is faced with the problem of selecting the type of house he shall build, its size, number of rooms, materials of construction, amount of land per house, and so on. On these subjects there are as many differences of opinion as there are experts studying them.

The sentimentalist clamors for six-room houses and six thousand square feet of land, public parks and

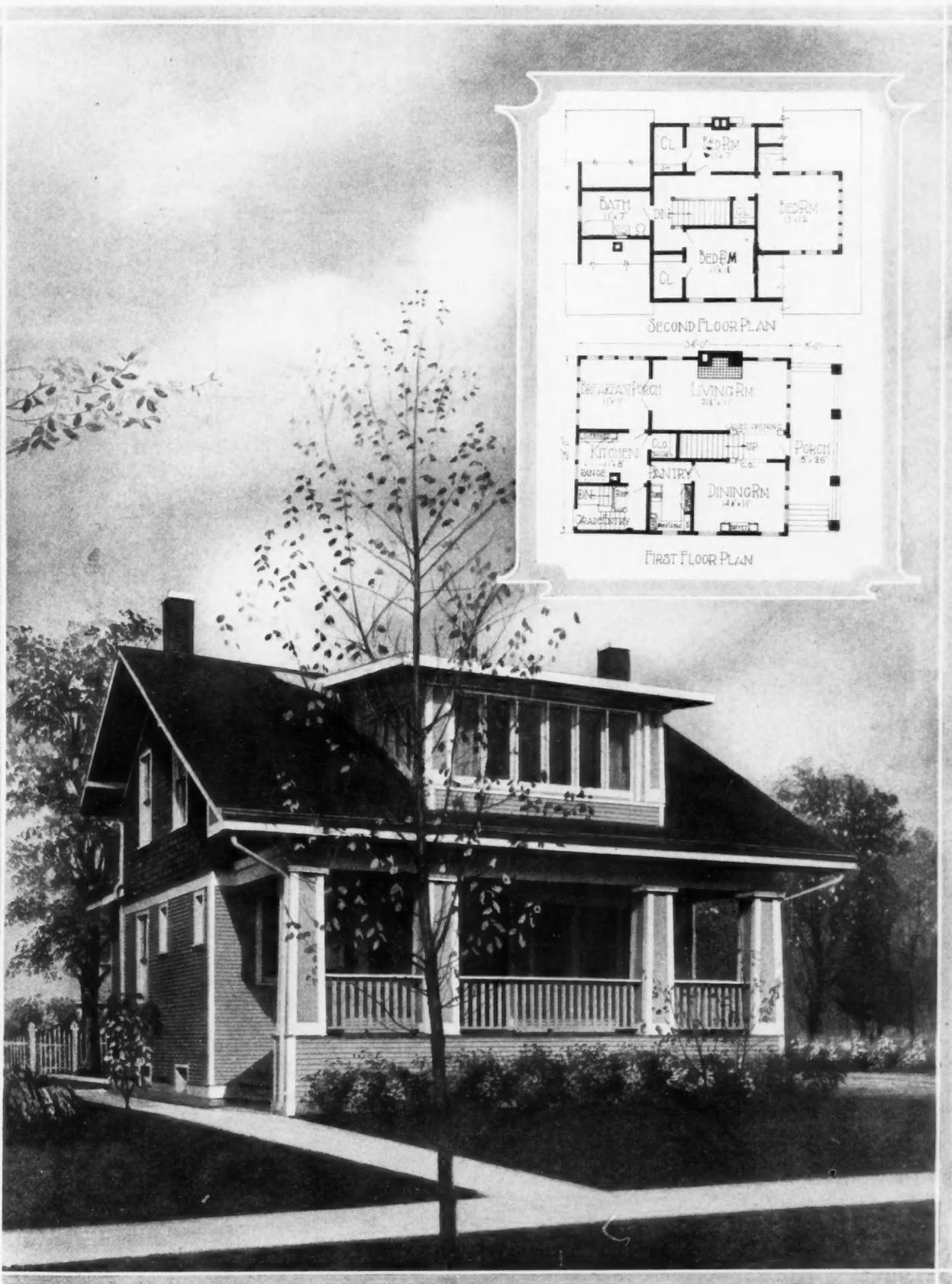
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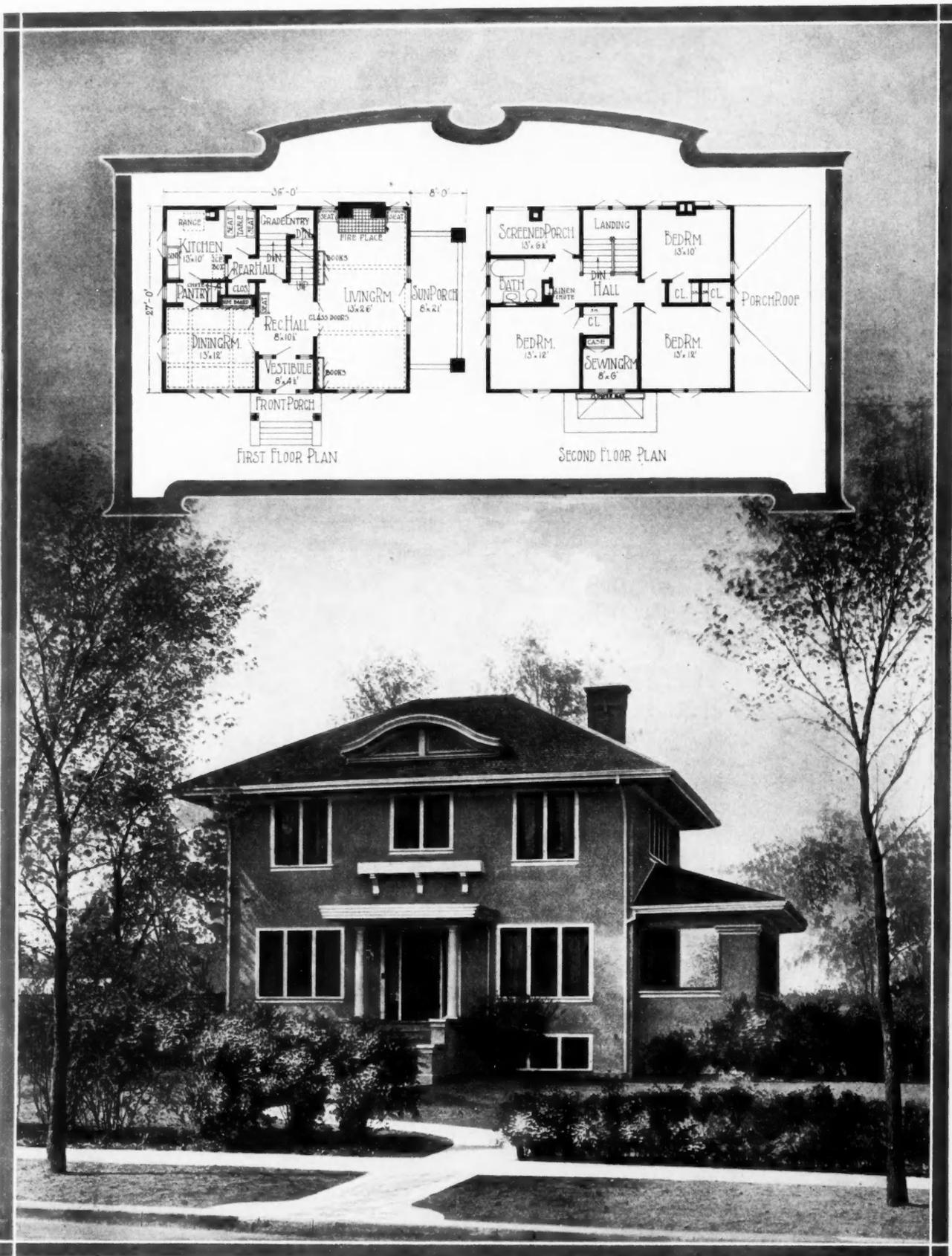
Workmen's Boarding House for 12 Men, Which Makes the Best of a Bad Situation.



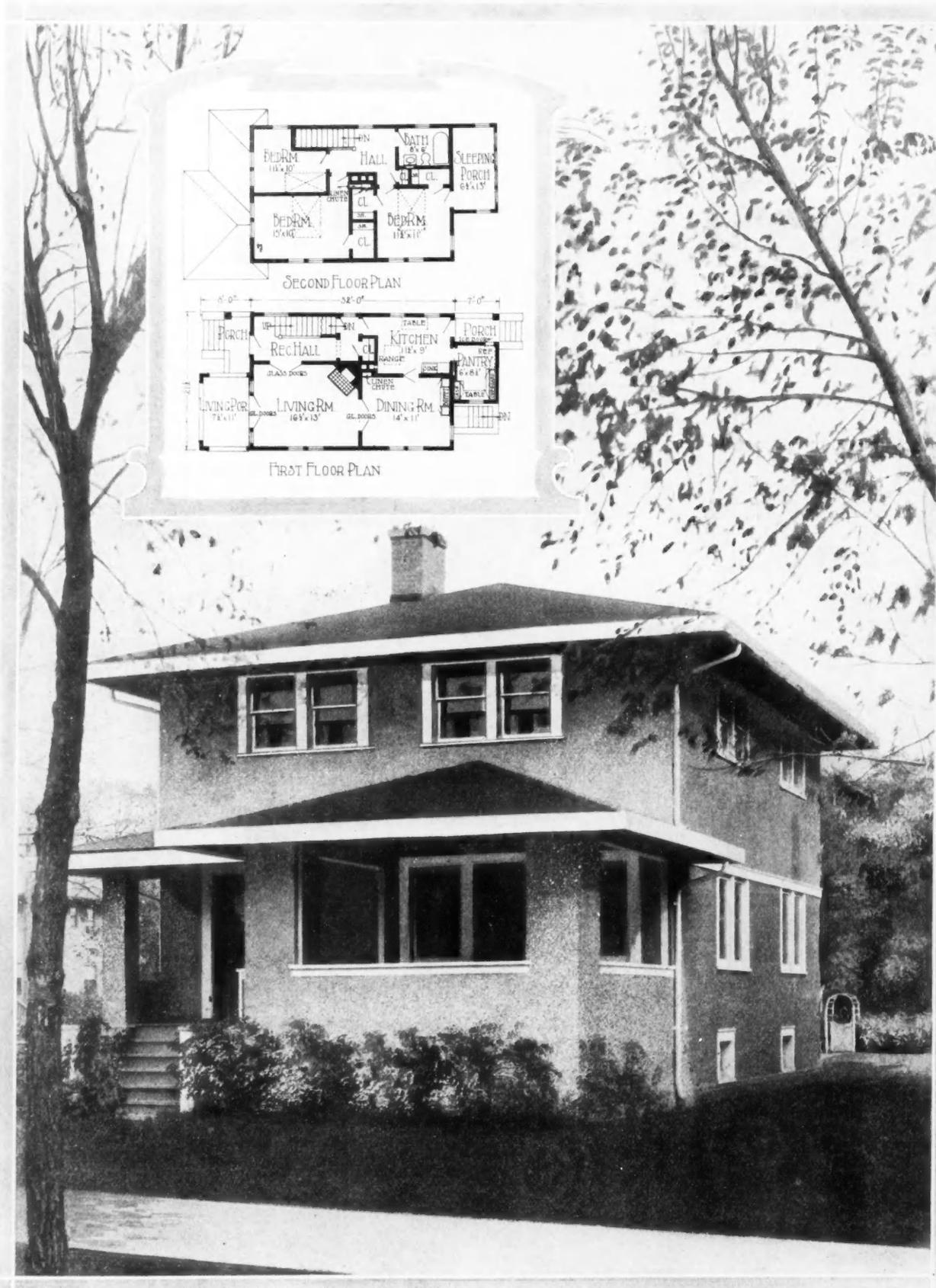
A Modern "Primitive" Interior with Heavy Timber Ceiling. The Trim is Straight Line.



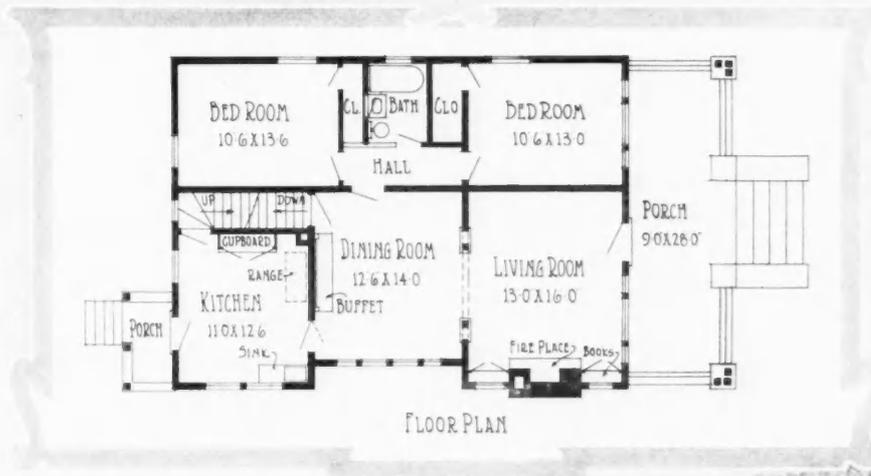
YOUR IDEAL COSY LITTLE HOME. Here it is—the design you have been dreaming of and waiting for. It has that big living room and attached sun room. It has a dining room, pantry, kitchen group to gladden the housewife's heart. Upstairs are three bedrooms and bath. Size of house is 28 by 42 feet.



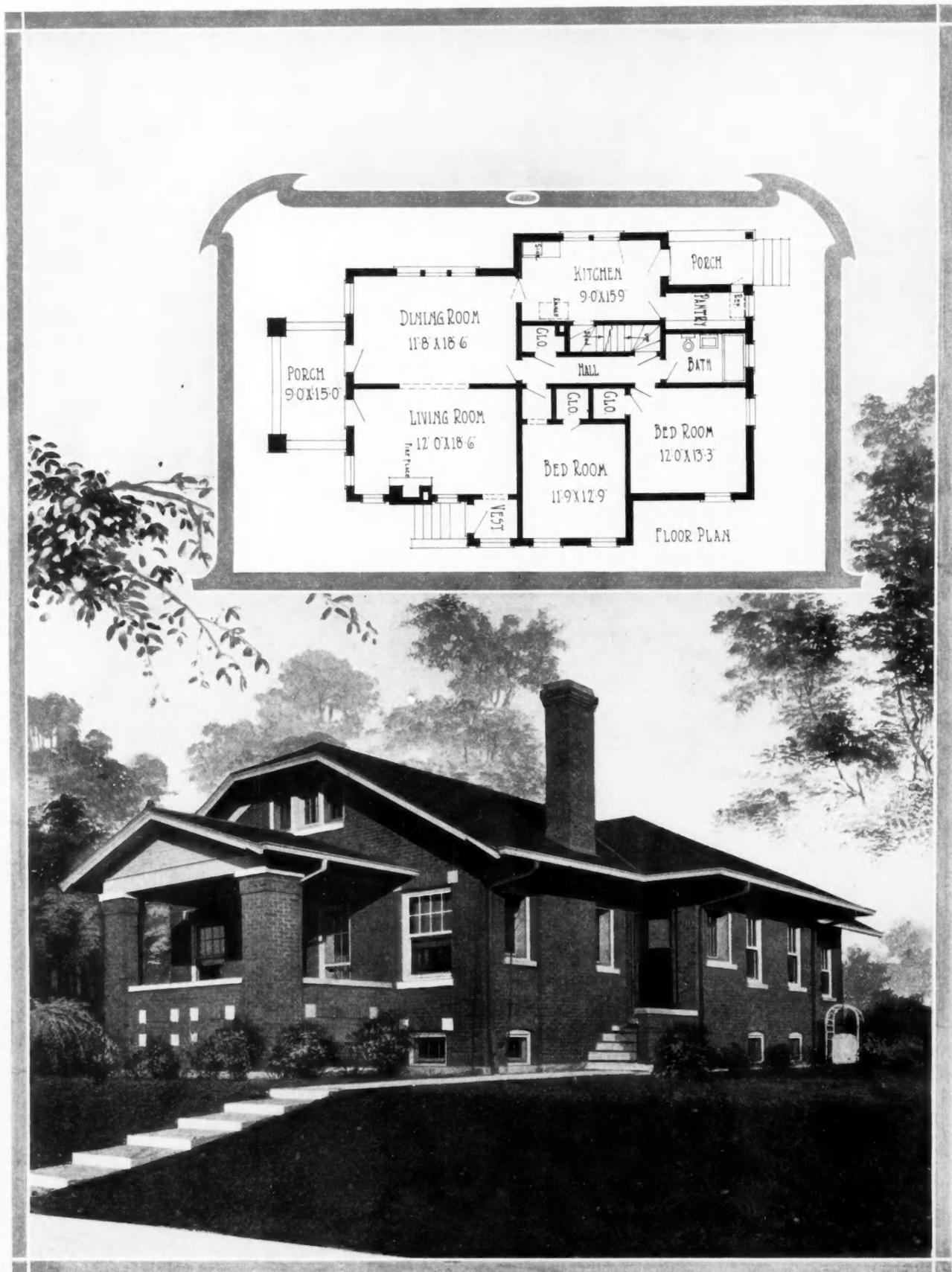
WELL-PLANNED SQUARE TYPE HOUSE OF STUCCO. The living room is 15 by 26 feet, with fireplace, wall seats and bookcases. A handy pantry is placed between the dining room and the kitchen. Notice the pleasant little breakfast nook in the kitchen. The second floor contains three bedrooms, a sewing room, sleeping porch and the bath. Size is 36 by 27 feet.



SQUARE STYLE CONCRETE DWELLING. A narrow lot design that gives the impression of square massiveness is shown in the photograph above. It is only 21½ feet in width. It is a house of six or seven rooms, depending on how you count. The exterior is simple and chaste, as a concrete house should be.



WELL PLANNED WESTERN BUNGALOW. We must give the Pacific Coast credit for much of the verity of modern home architecture in America. Ideas originally carried out in light summer cottage construction out West have been adapted to the severer needs of our Northern and Eastern climates; and a modified bungalow has resulted that is 100 per cent OK.



A MODEST HOME BUILT FOR PERMANENCE. Brick is used for the outside walls of this pretty little dwelling. This is the kind of house they are building in Chicago; and they can't build them fast enough to supply the market. They can be built to sell at a low price. This one has five nice rooms. The exterior appearance has class.

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.

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:

- EXTERIOR WALLS**
- All Frame
 - Stucco
 - Brick Veneer
 - Brick (Solid)
 - Structural Tile
 - Concrete Blocks
 - Monolithic Concrete
 - Stone
 - Glass (Store Fronts)
 - Ornamental Terra Cotta

- ROOFING**
- Wood Shingles
 - Asphalt Shingles
 - Asbestos Shingles
 - Metal Tile
 - Clay Tile
 - Slate
 - Composition Roll
 - Built up Tar and Gravel
 - Tin Plate
 - Canvas

- SUPPORTING FRAME**
- Stud and Joist
 - Heavy Timber Mill
 - Structural Steel
 - Reinforced Concrete
 - Self Supporting Plank
 - On Concrete Piles
 - Fireproof Floors
 - Fireproof Partitions
 - Metal Lath

- INTERIOR FINISH**
- Soft Wood
 - Hardwood
 - Wallboard
 - Marble
 - Metal Ceilings and Walls
 - Metal Doors
 - Metal Windows
 - Metal Trim
 - Metal Grilles, etc.
 - Composition Flooring

SPECIALTIES, FIXTURES AND EQUIPMENT NEEDED

HEATING PLANT

- Warm Air Furnace
- Pipeless Furnace
- Steam, Direct Radiation
- Steam, Blower System
- Hot Water System
- Vapor System
- Fireplaces

PLUMBING

- Indicate number of Fixtures needed
- Closets..... Bathtubs.....
 - Shower Baths..... Urinals.....
 - Lavatories..... Kitchen Sinks.....
 - Laundry Tubs..... Slop Sinks.....
 - Drinking Fountains.....
 - Chemical Closets.....

WATER SUPPLY—for Country Locations
 What Capacity Needed?.....

LIGHTING AND LIGHTING FIXTURES

- Municipal Service {electricity
- {gas
- Do you desire quotation on Fixtures?.....
- Private Lighting Plant to be installed, Electricity..... Acetylene.....
- Gasoline.....

ELEVATORS

- Passenger..... Freight.....
- Dumb Waiters..... Ash Lifts.....

AUTOMATIC SPRINKLER SYSTEM.....

SCHOOL, CHURCH OR THEATRE EQUIPMENT

- Seats, Pews or Opera Chairs.....
- Blackboards.....
- Library Shelving.....
- Rolling Partitions.....
- Bank Vaults and Safes.....
- Steel Lockers.....

FARM BUILDING EQUIPMENT

- Stanchions for..... cows
- Stock Pens.....
- Stalls for..... horses
- Stock Watering Buckets.....
- Feed and Litter Carriers.....
- Cupola Ventilators.....
- Skylights.....
- Hay Track and Carrier.....
- Barn and Garage Door Hangers.....
- Cup Elevators for Corn and Grain.....
- Lightning Protection.....
- Studding Sockets.....
- Roof Windows.....

BUILDERS' HARDWARE

- Burglar Alarms.....
- Door Checks.....
- Casement Adjusters.....
- Ventilating Sash Operators.....
- Panic Bolts.....
- Weatherstrips.....
- Coal Chutes.....
- Sidewalk Doors.....
- Prism Lights.....
- Refrigerators, Hotel or Market.....
- Refrigerators, Mechanical.....
- Fire Escapes.....
- Fire Shutters.....

HOUSEHOLD UTILITIES

- Garbage Incinerators.....
- Package Boxes.....
- Disappearing Stairs.....
- Disappearing Beds.....
- Sleeping Porch Sash.....
- Refrigerators, Outside Icing.....
- Vacuum Cleaning System.....
- Clothes Dryer.....

Note Here Any Special Requirements Not Marked Above.

Name.....
 Street No. or P. O. Box.....
 Town.....
 State.....

We {are are not

acting as Architects as well as Builders on this job.

Mail the above to

"AMERICAN BUILDER" INFORMATION EXCHANGE
 1827 Prairie Avenue, Chicago

See Other Side for Equipment, Machinery, Tools and Building Materials Needed

The "American Builder" Information Exchange

Data Sheet (Continued)

I desire information regarding the Building Materials, Equipment, Machinery and Tools checked, for which I am now in the market.

BUILDING MATERIALS

- | | | | |
|--|---|---|---|
| <input type="checkbox"/> Art Glass | <input type="checkbox"/> Fireproofing | <input type="checkbox"/> Paints, Fire Retardant | <input type="checkbox"/> Sash Pulleys |
| <input type="checkbox"/> Awning Cloth | <input type="checkbox"/> Fireproof Shutters | <input type="checkbox"/> Pipe, Conductor | <input type="checkbox"/> Screen Wire Cloth |
| <input type="checkbox"/> Battens, Metal | <input type="checkbox"/> Flooring, Composition | <input type="checkbox"/> Pipe, Steel | <input type="checkbox"/> Screens, Window and Door |
| <input type="checkbox"/> Beds, Disappearing | <input type="checkbox"/> Flooring, Hardwood | <input type="checkbox"/> Pipe, Warm Air Furnace | <input type="checkbox"/> Sheathing Papers |
| <input type="checkbox"/> Boiler and Pipe Covering | <input type="checkbox"/> Floor Finish | <input type="checkbox"/> Pipe, Vitrified Clay | <input type="checkbox"/> Sheet Metal Work, Galvanized |
| <input type="checkbox"/> Boilers, Heating Plant | <input type="checkbox"/> Floor Hardeners | <input type="checkbox"/> Plaster, Gypsum or Hardwall | <input type="checkbox"/> Shingle Stains |
| <input type="checkbox"/> Bolts, Expansion | <input type="checkbox"/> Floor Hinges | <input type="checkbox"/> Plaster Board | <input type="checkbox"/> Skylights |
| <input type="checkbox"/> Brick, Common | <input type="checkbox"/> Furnaces, Warm Air | <input type="checkbox"/> Plaster Blocks, Partition | <input type="checkbox"/> Slate Blackboards |
| <input type="checkbox"/> Brick, Face | <input type="checkbox"/> Garbage Burners | <input type="checkbox"/> Plate Glass | <input type="checkbox"/> Slate, Structural |
| <input type="checkbox"/> Brick, Fire | <input type="checkbox"/> Garage Door Hardware | <input type="checkbox"/> Plumbing Fixtures | <input type="checkbox"/> Sound Deadeners |
| <input type="checkbox"/> Building Papers | <input type="checkbox"/> Hay Track | <input type="checkbox"/> Prism Lighting | <input type="checkbox"/> Store Front Construction |
| <input type="checkbox"/> Calcimine | <input type="checkbox"/> Heaters, Instantaneous | <input type="checkbox"/> Radiators | <input type="checkbox"/> Structural Steel |
| <input type="checkbox"/> Caulking and Glazing Compound | <input type="checkbox"/> Heaters, Tank | <input type="checkbox"/> Refrigerators, Outside Icing | <input type="checkbox"/> Stucco |
| <input type="checkbox"/> Ceilings, Metal | <input type="checkbox"/> Hollow Tile | <input type="checkbox"/> Reinforcing Bars | <input type="checkbox"/> Tanks, Cypress |
| <input type="checkbox"/> Cement, Portland | <input type="checkbox"/> Insulating and Deadening Materials | <input type="checkbox"/> Registers | <input type="checkbox"/> Tanks, Steel |
| <input type="checkbox"/> Coal Chutes | <input type="checkbox"/> Lighting Fixtures | <input type="checkbox"/> Roofing, built up Tar and Gravel | <input type="checkbox"/> Terra Cotta, Ornamental |
| <input type="checkbox"/> Closets, Chemical | <input type="checkbox"/> Lighting Systems | <input type="checkbox"/> Roofing, Canvas | <input type="checkbox"/> Tile, Clay Structural |
| <input type="checkbox"/> Columns, Porch, etc. | <input type="checkbox"/> Lightning Rods | <input type="checkbox"/> Roofing, Clay Tile | <input type="checkbox"/> Tile, Floor |
| <input type="checkbox"/> Concrete Inserts | <input type="checkbox"/> Limestone | <input type="checkbox"/> Roofing, Ready Roll | <input type="checkbox"/> Varnish |
| <input type="checkbox"/> Creosote | <input type="checkbox"/> Linseed Oil | <input type="checkbox"/> Roofing, Shingles, Asbestos | <input type="checkbox"/> Ventilators |
| <input type="checkbox"/> Door Track and Hangers | <input type="checkbox"/> Mantels, Wood | <input type="checkbox"/> Roofing, Shingles, Asphalt | <input type="checkbox"/> Wallboard |
| <input type="checkbox"/> Doors, Hardwood Veneer | <input type="checkbox"/> Metal Columns | <input type="checkbox"/> Roofing, Shingles, Metal | <input type="checkbox"/> Wall Ties |
| <input type="checkbox"/> Doors, Fire-Resisting | <input type="checkbox"/> Metal Lath | <input type="checkbox"/> Roofing, Shingles, Wood | <input type="checkbox"/> Waterproofing |
| <input type="checkbox"/> Dumb Waiters | <input type="checkbox"/> Metal Lumber | <input type="checkbox"/> Roofing, Slate | <input type="checkbox"/> Water Supply Plants |
| <input type="checkbox"/> Elevating Machinery, Granary | <input type="checkbox"/> Mortar Colors | <input type="checkbox"/> Roofing, Tin | <input type="checkbox"/> Windows, Casement |
| <input type="checkbox"/> Enamel, White | <input type="checkbox"/> Nails, Cut Iron | <input type="checkbox"/> Safety Treads | <input type="checkbox"/> Windows, Reversible |
| <input type="checkbox"/> Fireplace Fixtures | <input type="checkbox"/> Nails, Galvanized | <input type="checkbox"/> Sash, Steel | <input type="checkbox"/> Wire Glass |
| | <input type="checkbox"/> Paints | | <input type="checkbox"/> Wood Dye |

CONTRACTORS' EQUIPMENT

- | | | | |
|---|---|--|--|
| <input type="checkbox"/> Air Compressors | <input type="checkbox"/> Chutes, Concrete | <input type="checkbox"/> Gravel Washing Plants | <input type="checkbox"/> Saw Rigs |
| <input type="checkbox"/> Back Fillers | <input type="checkbox"/> Column Clamps | <input type="checkbox"/> Hoists, Electric | <input type="checkbox"/> Scaffold Brackets |
| <input type="checkbox"/> Bar Benders | <input type="checkbox"/> Concrete Tampers | <input type="checkbox"/> Hoists, Gasoline or Steam | <input type="checkbox"/> Scrapers |
| <input type="checkbox"/> Blocks and Tackle | <input type="checkbox"/> Contractors' Lights | <input type="checkbox"/> House Moving Trucks | <input type="checkbox"/> Screens, Sand and Gravel |
| <input type="checkbox"/> Buckets, Dredging and Excavating | <input type="checkbox"/> Cranes, Locomotive | <input type="checkbox"/> Jacks | <input type="checkbox"/> Shovels, Steam |
| <input type="checkbox"/> Cableways | <input type="checkbox"/> Crushers and Pulverizers | <input type="checkbox"/> Ladders | <input type="checkbox"/> Sidewalk Forms |
| <input type="checkbox"/> Cars, Dumping and Industrial | <input type="checkbox"/> Derricks | <input type="checkbox"/> Loaders, Wagon | <input type="checkbox"/> Tractors |
| <input type="checkbox"/> Carts, Concrete | <input type="checkbox"/> Drills | <input type="checkbox"/> Mixers, Cement and Concrete | <input type="checkbox"/> Trailers, Automobile or Truck |
| <input type="checkbox"/> Cement Block Machines | <input type="checkbox"/> Engines, Gas | <input type="checkbox"/> Mixers, Mortar | <input type="checkbox"/> Transits and Levels |
| <input type="checkbox"/> Cement Ornamental Molds | <input type="checkbox"/> Engines, Steam | <input type="checkbox"/> Motor Trucks | <input type="checkbox"/> Typewriters |
| <input type="checkbox"/> Cement Tile Machines | <input type="checkbox"/> Floor Scrapers | <input type="checkbox"/> Pile Driving Machinery | <input type="checkbox"/> Wagons, Dumping |
| | <input type="checkbox"/> Floor Surfacers, Electric | <input type="checkbox"/> Pumps, Contractors' | <input type="checkbox"/> Wheelbarrows |
| | <input type="checkbox"/> Forms, Steel, for Concrete | <input type="checkbox"/> Salamanders | |

POWER SHOP EQUIPMENT

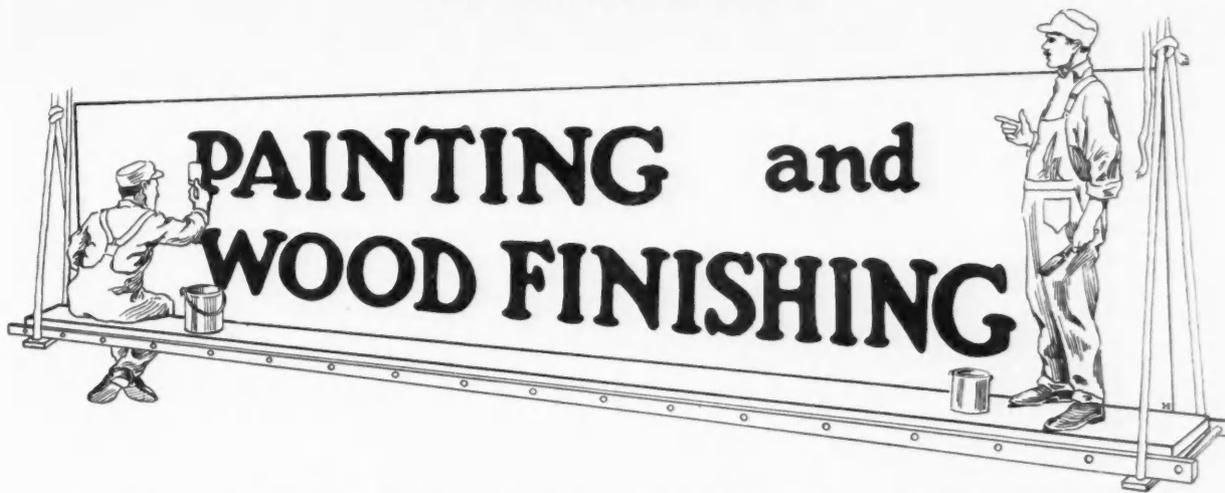
- | | | | |
|---|---|--|---|
| <input type="checkbox"/> Hand and Foot Power Machines | <input type="checkbox"/> Dry Kiln | <input type="checkbox"/> Grinders | <input type="checkbox"/> Sanders |
| <input type="checkbox"/> Electric Motors | <input type="checkbox"/> Dust Collecting System | <input type="checkbox"/> Jointers | <input type="checkbox"/> Sash Trimmers |
| <input type="checkbox"/> Gas Engines | <input type="checkbox"/> Band Saws | <input type="checkbox"/> Lathes | <input type="checkbox"/> Shapers |
| <input type="checkbox"/> Safety Guards | <input type="checkbox"/> Borers | <input type="checkbox"/> Mortisers | <input type="checkbox"/> Tenoners |
| <input type="checkbox"/> Shop Trucks | <input type="checkbox"/> Saw Tables | <input type="checkbox"/> Moulders | <input type="checkbox"/> Rubbing Machines |
| <input type="checkbox"/> Pulleys | <input type="checkbox"/> Swing Cut Off Saws | <input type="checkbox"/> Planers | <input type="checkbox"/> Cutter Heads |
| <input type="checkbox"/> Glue Pots and Clamps | <input type="checkbox"/> Saw Rigs | <input type="checkbox"/> Bench Planers | <input type="checkbox"/> Machine Knives |
| | <input type="checkbox"/> Combination Woodworker | | |

MECHANICS' TOOLS

- | | | | |
|--|--------------------------------------|---|---|
| <input type="checkbox"/> Augur and Bits | <input type="checkbox"/> Gauges | <input type="checkbox"/> Mortisers, Lock | <input type="checkbox"/> Sharpening Stones |
| <input type="checkbox"/> Braces | <input type="checkbox"/> Gimlets | <input type="checkbox"/> Planes | <input type="checkbox"/> Shingle Nailers, Automatic |
| <input type="checkbox"/> Cement Workers' Tools | <input type="checkbox"/> Grinders | <input type="checkbox"/> Pliers | <input type="checkbox"/> Shovels |
| <input type="checkbox"/> Chests, Tool | <input type="checkbox"/> Hammers | <input type="checkbox"/> Plumbers | <input type="checkbox"/> Squares |
| <input type="checkbox"/> Chisels | <input type="checkbox"/> Hatchets | <input type="checkbox"/> Rules | <input type="checkbox"/> Tape Lines |
| <input type="checkbox"/> Clamps | <input type="checkbox"/> Lanterns | <input type="checkbox"/> Saws | <input type="checkbox"/> Trowels |
| <input type="checkbox"/> Compasses | <input type="checkbox"/> Levels | <input type="checkbox"/> Saw Sharpening Tools | <input type="checkbox"/> Vises |
| <input type="checkbox"/> Files | <input type="checkbox"/> Mitre Boxes | <input type="checkbox"/> Screw Drivers | <input type="checkbox"/> Wrenches. |

Fill in Your Name and Address on Other Side of This Sheet and Mail to

"American Builder" Information Exchange
1827 Prairie Avenue, Chicago



Planning the Interior Color Scheme

FACTORS FOR HARMONY IN HOME DECORATING AND FURNISHING—A MODEL COLOR PLAN SUGGESTED.

By Ralph G. Waring

Specification Engineer

NOTE: This is the sixth of a series of articles by Mr. Waring. The seventh will appear in an early issue.

JUST as the artist selects a color range for his palette while keeping in mind the completed picture with its shadows grouped at the left, the high lights on the right and the whole range of intertones in the middle, just so does a similar problem of arrangement of materials and colors confront the home maker. Harmony of color, contrast of color, and tone relation are just as imperative in the home as on the canvas. If the owner is able to visualize the finished decorative scheme of his home, he should have a mental picture of an harmonious whole. He will not work in a haphazard manner, but will build the color scheme room by room until the whole represents the best that harmony can produce. There is no magic in interior decoration, for if one chooses to study and understand the underlying principles of proportion, balance, harmony and repose, results worthy of merit can be equally accomplished whether on Riverside Drive, New York, or Main Street, Home Town.

In the average household the interior decorator is the mistress of the home. This is as it should be for it is to represent the confirmation of her hopes and the fulfilment of her desires, that the home is being built. The most successful genuine "home builder" I have ever met and enjoyed is a contractor who builds the homes his wife designs after she has considered all

the factors of location, price, exposure, and people who expect to buy the completed structure.

Very few men can design a woman's home that is convenient and has a well chosen decorative scheme, for no man understands the problem as does the woman of the home. If she understands even in a limited way, the psychology of colors, she knows that certain tones are stimulating or depressing, irritating or soothing, according to their absorption of light and according to their effect on individual temperaments. This latter is an important point. Phlegmatic people like red and usually need it. Highly strung and nervous people are over-stimulated by red when used in large quantities, but are often benefited by touches of this color. Green is restful to most temperaments, as are brown and warm gray. Soft, warm colors are always appealing, and if one follow the dictates of color in nature, even the shadows are warm; there are absolutely no cold colors in her landscapes.

The woman proclaims her individuality by the selection and grouping of her furniture, by the choice of color combinations, by artistic or inartistic assembling of decorative objects, by the harmony or lack of it—shown in her window arrangements, her rugs, her hangings, and her pictures just as surely

(Continued to page 132.)



A Bungalow Interior with Specially Designed Door Front.

War Industry To Be Distributed

AT the conference in Washington, Dec. 12, of the Chamber of Commerce of the United States, Daniel Willard, chairman of the Government War Industries Board, made a statement that is decidedly reassuring to the business interests throught the country generally, as it predicts a wider distribution of war industry.

"One mistake," Mr. Willard said, "has been made. We have concentrated our orders too much in certain localities. This has brought about a housing problem, a demand too great for electric power, and a transportation problem."

This mistake and other similar conditions had brought about the appointment by the Council of National Defense of George N. Peek, industrial representative of the War Industries Board, who, Mr. Willard said, is to find out what factories or power plants are idle or not running on full time, and gather information which will aid in distributing the load of production for the war in all localities and among all producers.



Building and Loan Associations Help Building

"FIVE hundred homes clear of debt are being added to Jackson every 12 months," said Irving B. Rich in an address before the Rotary Club of Jackson, Mich., in describing the good work done by building and loan associations. There are six such organizations in Jackson, with assets of nearly \$6,000,000. Some points made by Mr. Rich in explaining the relationship between home building and citizenship were:

"One who joins an association enters a confraternity in which he stands on equality with every other member. He is not a client of an institution—he is a part of it. He shares equally in the net profits. It offers a man every inducement to save money, and by saving money to help to better things.

"The true condition is simply this: The investor gets a better return for his money than he would get in any other equally safe investment, and the borrower secures a more liberal loan at a lower ultimate cost than he could get in any other

way, and gets it not as a favor but as a matter of right.

"The associations stand close to the people. They do not centralize wealth nor furnish cash for the exploitation of unsafe or speculative schemes. The field is local. The results beneficial. With frugal and economical hands they gather the savings of the thrifty, and having done so, enrich the community by assisting in the creation of the most valuable assets of this republic—American homes."



Knock-down Houses for Boys in France

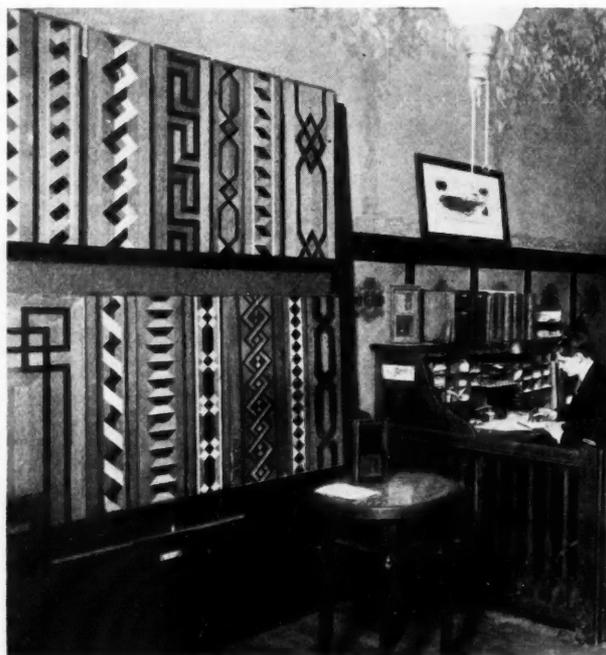
THREE hundred million feet of lumber were recently contracted for by the government to erect portable knock-down houses for the use of American troops in France as hospitals and barracks quarters. This is a construction undertaking half as big as that of the erection of army camps in the United States.

Means to meet promptly the nation's requirements for housing millions of soldiers abroad were discussed at a general conference of lumbermen and plans prepared by War Department architects were submitted. These plans provide for houses to be made up in panels, put together by bolts, shipped knocked-down, and bolted together by soldiers in France. The lumberman saw no difficulty in carrying out the general idea outlined.

It was the general opinion of those present that best results could be obtained by a co-operative effort of lumber manufacturers and contractors. Use of material of standard sizes was also urged. The lumbermen considered that they should not undertake the manufacture of panels, a work with which they are unfamiliar, but that they should confine their efforts to producing the lumber needed, and delivering this lumber to contractors, who would engage carpenters to put together the boards in such form that they might be easily converted into buildings.

Labor is unobtainable in Europe for construction purposes; hence the idea of panels to be bolted together. In this way soldiers may quickly erect either a one-room shelter or a house of sufficient size for the care of hundreds of hospital patents.

Houses shipped in this way will occupy minimum space in the boats going across.

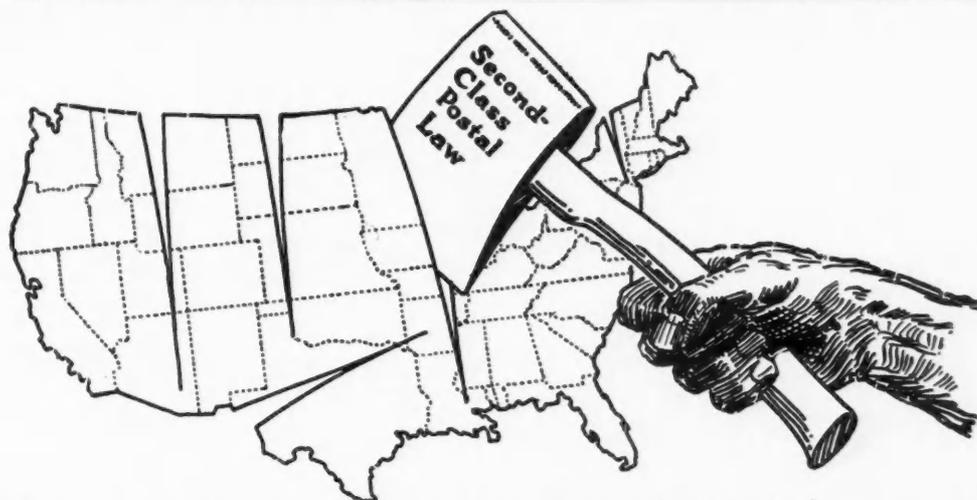


How the National Flooring Co., Indianapolis, Displays Its Wares. "Pick Out Your Hardwood Border."

America Must Be United

In this time of unprecedented national peril and world peril, America must be strong with the strength of unity—one nation. America must be bound together, as it is to-day, not so much by the machinery of Government, as by Ideas, held in common by all and fully exchanged, so that all the people throughout the country may understand and sympathize with one another. This is what has brought this great nation together

and holds it together. This result has been accomplished primarily by the Press—particularly the weekly and monthly periodicals and business papers. These periodicals have not local or sectional bias; they go to all parts of America, and serve all parts alike; their great service is in helping to bring all sections close together into one great nation, through a common understanding.



America must not be split into a half dozen sections

Weak with the ILLS and EVILS of Sectionalism

But such a disastrous result is not only possible, but probable, unless the present law pertaining to second-class postage is repealed before it goes into effect. Postal legislation was enacted in the present Revenue Bill, which divides the country up into "zones" and progressively increases the average carrying charge upon newspapers and periodicals from 50 to 900 per cent.

These nation-binding publications are confronted with certain injury or destruction—which

means loss to you personally, and loss to your country. It will destroy a large part of the periodicals. You will be deprived of the papers that have kept you informed on your country's problems, that have helped you in your work. Your children will lose the clean publications that have entertained and helped educate them. And eventually, such magazines as do survive, will cost you much more.

NO INCREASE IS NECESSARY

Last Year the Postal Department Earned a Surplus of Nearly \$10,000,000

The Post Office was never intended as a tax-gathering institution. It was basically designed to give service to the people—to all the people at the same rate. The Publishers are not trying to evade taxation. They will gladly accept any rate of tax upon their profits that may be levied. Most of them have gone on record as being willing to turn over to the Government their entire net profits for the period of the war. They already pay proportionately

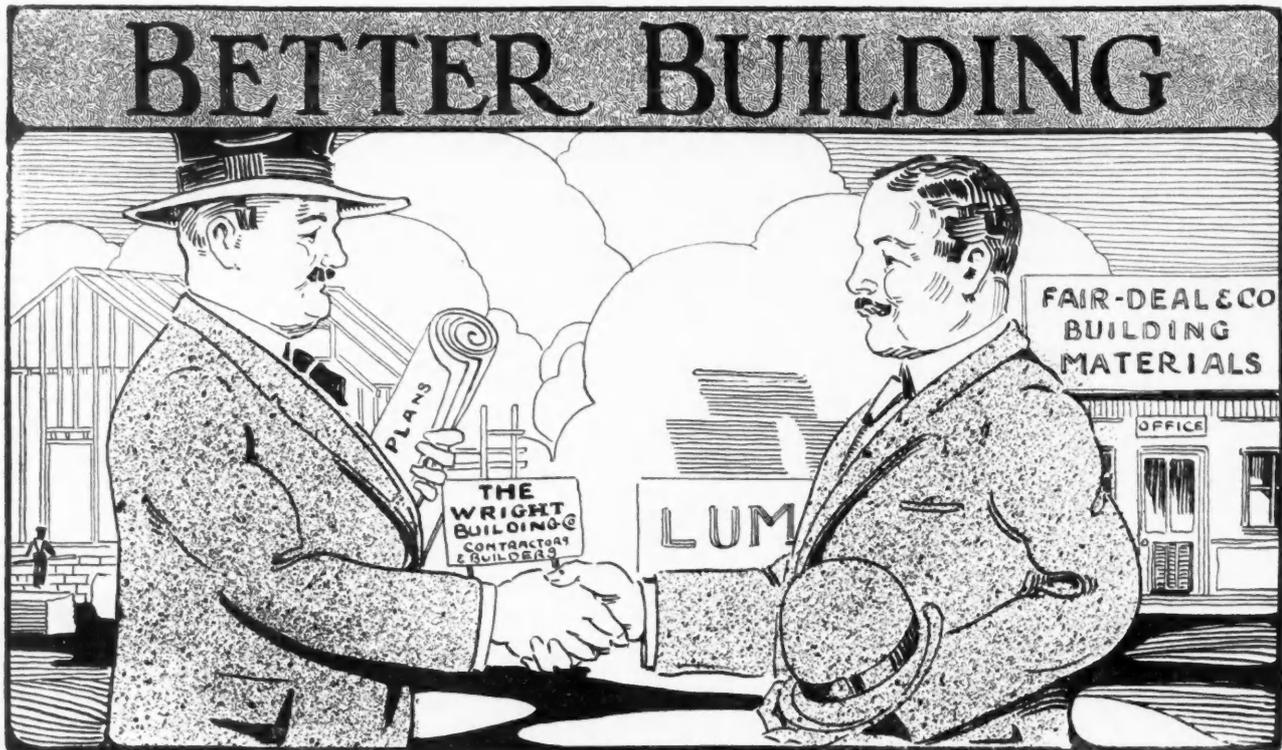
more taxes than most businesses, but this advertisement is not designed to parade selfish troubles, but to awaken your interest in the danger of permitting the destruction or obstruction of the channels of national intelligence.

This is the time of all times when America must be a united America—one nation strong with the strength of unity.

Let Your Influence Be Used To That End

THE ASSOCIATED BUSINESS PAPERS, Inc.

The International Organization of Trade, Technical and Class Publications
HEADQUARTERS, 220 WEST 42nd STREET, NEW YORK



How We House and Display Our Building Materials

By Charles Lyon

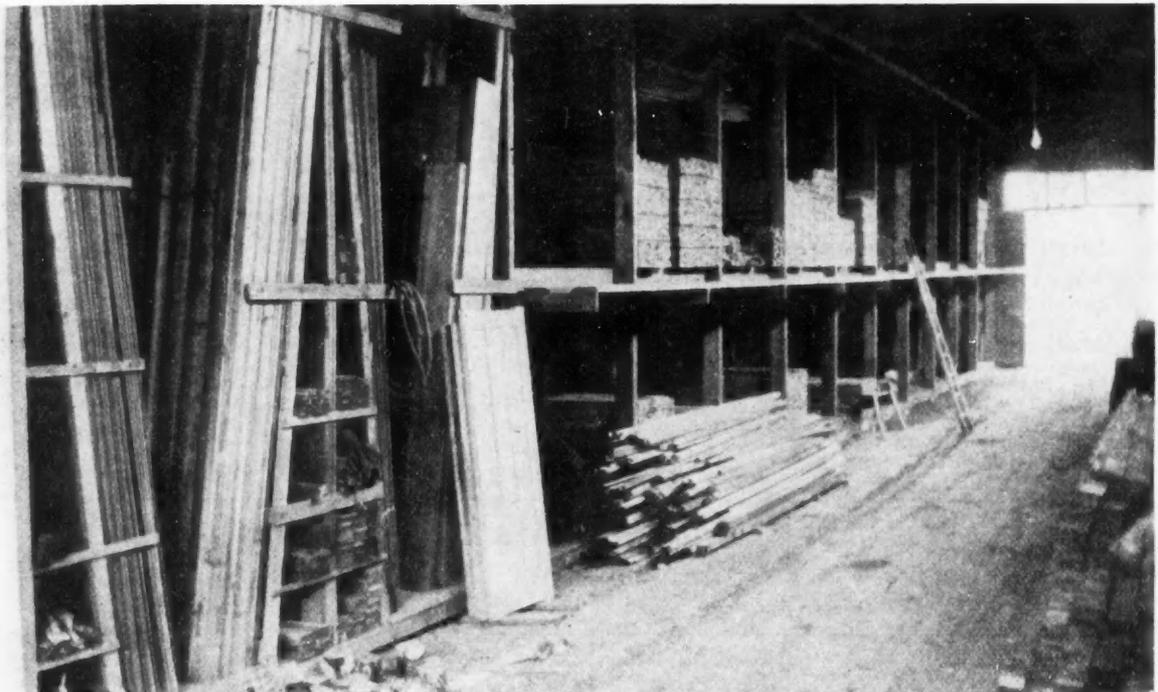
Building Material Dealer, Fairfield, Iowa

WE believe in putting a lumber business on the main street where folks can find us easily, and housing it in a business-like, attractive building that will encourage trade, besides keeping our stock in first-class condition.

We have our entire business under one roof. Our

building—some would call it shed—fronts 100 feet on the street, and extends back 120 feet. It is a double-drive shed, with office in the middle at the front. The roof at this point is high enough for a two-story office.

On the first floor of this office we have the book-keeper, stenographer, and all facilities for handling the



View of Moulding Racks and Lumber Bins in Warehouse of Charles Lyon, Building Material Dealer, Fairfield, Iowa.



The Charles Lyon "Shed" is a Low Monitor Roof, Double Driveway Warehouse, With Office and Display Rooms In the Middle at the Front. The Business-like Appearance of this Building Does Credit to Its Location on a Main Street of Fairfield, Iowa.

office end of a lumber and building material business. This is a big double room, about 32 by 12 feet in size, lighted by four big windows and with doors both from the street and from each of the driveways.

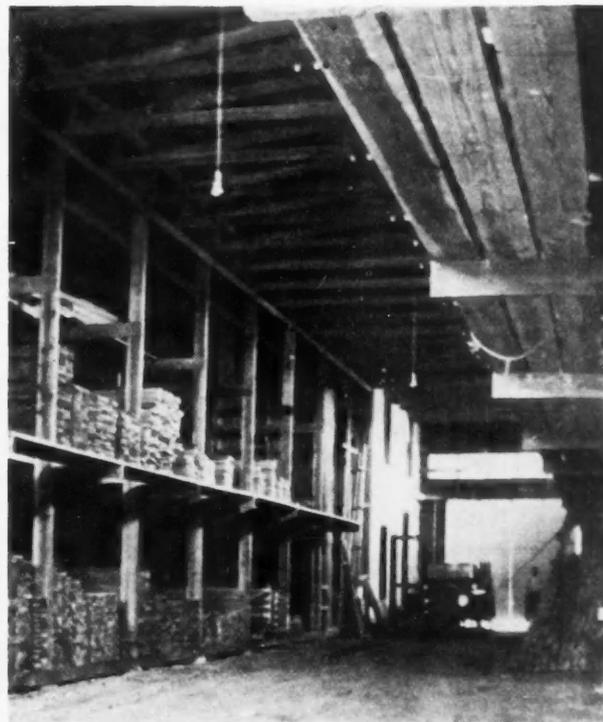
I tell you it helps our business to have this bright, attractive office; and we keep it dusted out and on dress parade all the time.

Upstairs above the office we have special facilities for displaying the goods we have for sale. Notice in the small floor plan diagram the four display rooms. These rooms are all nicely finished, and are just as homelike in a business way as we know how to make them. Some of the specialties that lumber dealers are handling these days require quite a bit of room for

their proper display. But it's a good investment of space, for sales jump up just as soon as the goods are displayed attractively.

We also have a display room and store room just back of the office on the first floor.

There is a basement excavated under the office, size



Another View of Interior of Lumber Shed.

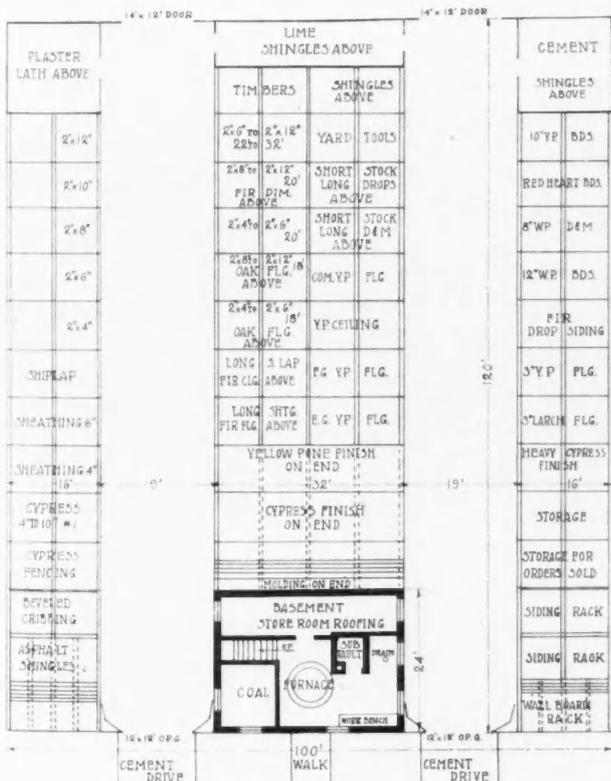
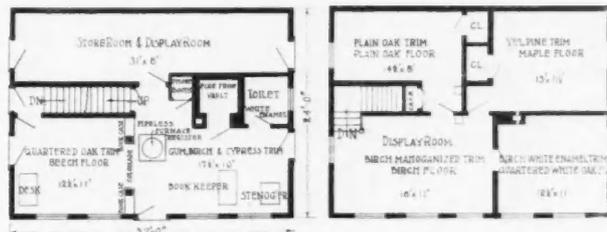


Diagram of Warehouse, Showing Racks, Bins and Enclosed Spaces Allotted to Various Materials.



First Floor of Office. Second Floor of Office. Plans of Office Section of Building Center Front.

Contractor-Dealer Good-will Section

24 by 32 feet, in which is located the office heating plant—a one-register furnace.

The diagram of our warehouse shows the racks and bins allotted to various items of lumber, flooring, mouldings and other millwork, shingles, wall board plaster, lime, cement, etc. The two driveways are 19 feet wide and extend clear thru.

The warehouse or lumber shed is of the low monitor roof type. A generous amount of light is let in.

A good idea of the way we store our lumber and millwork can be gained from the two photographs of the interior of the shed.

Much of our hauling is done with a truck and wagon trailer which we find very useful. The outfit stands in front of the building in the photograph and is shown again decorated for the parade at our recent "Old Settlers" celebration.

The building material dealer who will fix up his yard and office and make them attractive to his customers will find his list of customers growing. We work with our local carpenters and builders to promote building activity, and we find that it pays. The lumber dealer today is handling a greater line of materials, and they are more valuable materials than ever before. They are worth careful housing and should be kept track of. In our office we have a special journal in which we record the loss or gain on each transaction. Our inventory system gives us at all times the book value of stock on hand.



Old Settlers Celebration. Finished Doors From Our Service Rooms Were Used on Truck.

We emphasize service, knowing that service properly rendered is the surest way to build up a business.

This applies particularly to a building material business, for in it service and trustworthiness are more important than any cut price.

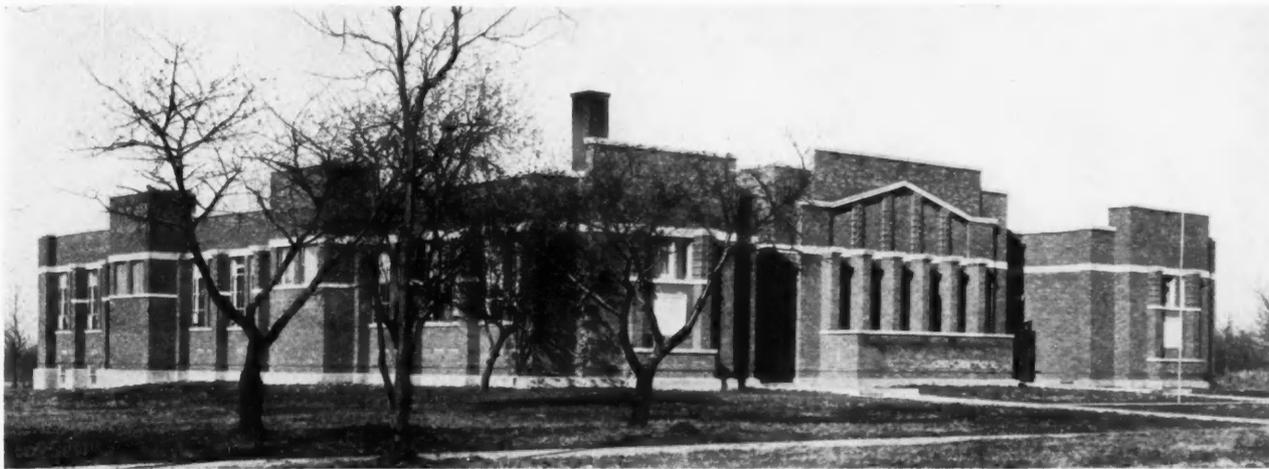


Two Views of Main Office Room of Charles Lyon, Building Material Dealer, Fairfield, Iowa.

Getting the Schools Down on Earth

THE HOW AND THE WHY OF THE POPULAR ONE-STORY PUBLIC SCHOOL BUILDING

By C. E. Schulze, Architect



Modern One-Story School at Franklin Park, Ill. Designed by Ashby, Ashby and Schulze, Architects, Chicago.

A GROWING tendency in school architecture is toward the one-story building. Aside from the greater safety of having the entire school only a few steps above the ground level, this arrangement has to commend it the greater convenience of the principal in keeping the children under his observation, the doing away of the noise of the incessant going up and down the stairs, the convenient arrangement of an adequate assembly room, and usually the greater attractiveness in the appearance of the building.

In the planning of the new school building at Franklin Park, Ill., the architects, Ashby, Ashby & Schulze, of Chicago, have embodied the above advantages, and the result is illustrated by the accompanying photographs.

The building is constructed of hollow tile faced with golden yellow variegated brick, with trimmings of Bedford stone, and presents an appearance unique in school house design. Its beauty will be enhanced by flowers which will be placed in the flower boxes provided in the center and side wings.

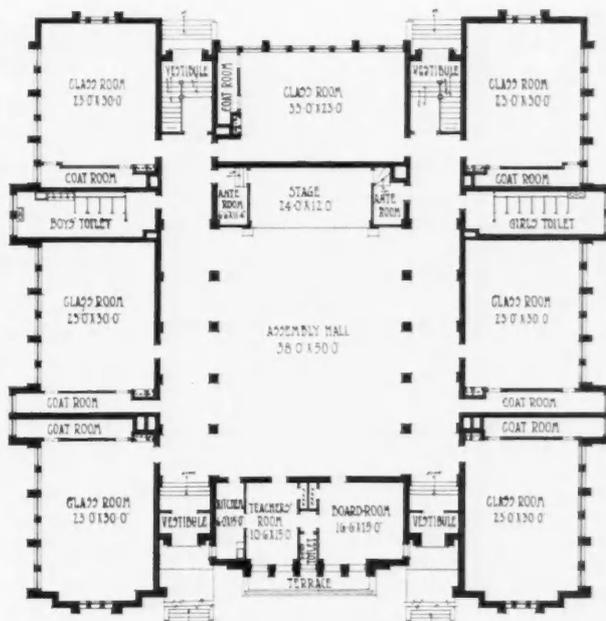
Upon entering the building one is at once struck with the beauty of the assembly room, which is so arranged that the corridors are separated from it only by brick piers, making it possible to utilize this space for seating purposes. The piers are laid up of the same brick as that used in the exterior, and the walls and ceiling are finished in plaster of a rough texture, a few shades lighter in color than that of the piers. The ceiling beams, which are the exposed bottom chords of the roof trusses, and all the other woodwork, are of oak, stained to harmonize with the prevailing color scheme of golden brown and yellow. This room is lighted entirely by skylights and at night by semi-indirect electric fixtures. The seating capac-

ity is about 350 not including the space in the corridors, and is used for civic gatherings of all kinds, in addition to the regular school assemblies.

By referring to the plan it will be seen that all the class rooms, toilet rooms, teachers room and board room open directly from the assembly room. All the class rooms, which seat 43 pupils each, have steel sash of the type used in high class factory construction, admitting the greatest possible amount of light.

The toilet rooms have non-dusting cement floors with sanitary base; and are light and airy.

The entire building is heated and ventilated by the direct-indirect system, the boiler room being located in the basement which extends under the three rear class rooms only.



Main Floor Plan of Franklin Park, Ill., School.



The Assembly Hall in the Franklin Park, Ill., School Measures 38 by 50 Feet.

More Fire-Retarding Construction—The Heating Plant

By Ralph W. Ermeling, Architect

BUILDINGS which have a central heating plant—hot air, steam or hot water, or coal ranges or laundry stoves—have piping and connections to conduct the heat to different parts of the building. The openings thru floors and framework caused by these conductors may present a natural passage for fire unless looked after especially. Another place which needs watching is the ceiling over the furnace or boiler. The joists and flooring naturally become extremely dry owing to the constant heat thruout the winter months. The tinderlike condition of the floor and the inflammable materials of which it is built suggest the possibility of fire.

The building ordinances and fire prevention bureaus of the large cities of the country require certain standards of construction in such cases. Any woodwork within two feet of the top of a boiler or furnace should be protected at least by a loose fitting metal shield arranged to preserve an air insulation of at least one inch between the metal and the wood. This is well illustrated in Figure 3, where the under side of the joists are ceiled with wood or plaster board and then protected by heavy sheet metal kept at least one inch from the ceiling. When the joists are exposed on

the under side the sheet metal may be attached in the same way. Sheet metal should not be placed directly against the joists. When attacked by fire it becomes red hot and will ignite the woodwork if unprotected by some insulator—air, plaster board, asbestos, etc.

A single covering for the ceiling better than sheet metal is asbestos, particularly the kind known as cellular which comes in sheets consisting of thin layers held apart from each other by corrugated layers. The asbestos is non-burnable and the air spaces are an added insulator. This is illustrated in Figure 1. Figure 2 shows a more common method of protection—the use of metal lath and plaster. The lath should be at least No. 24 guage and covered with $\frac{3}{4}$ in. asbestos or cement plaster. Strong plaster board—not less than $\frac{1}{2}$ in. thick and coated with $\frac{1}{4}$ in. of gypsum plaster makes a good non-conductor of heat. All ceiling covering over furnaces and boilers should extend entirely over an area which is as large as the heater and four feet in front of it. Protective coverings as suggested for ceilings should be used also on any woodwork or wooden lath and plaster partitions within four feet of the heater.

(Continued to page 140.)

DETAILS OF FIRE-RETARDING CONSTRUCTION

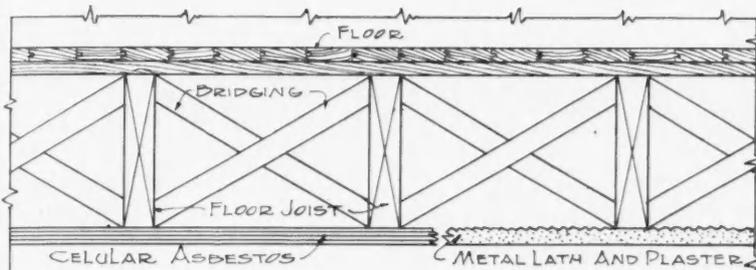


FIG. NO. 1

FIG. NO. 2

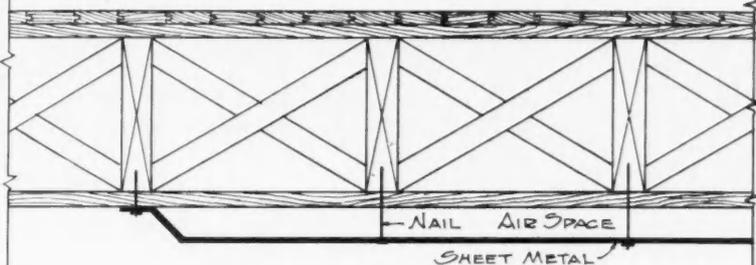


FIG. NO. 3

FIG. NO. 1-2+3 SHOWING METHODS OF PROTECTING CEILING OVER FURNACE OR BOILER

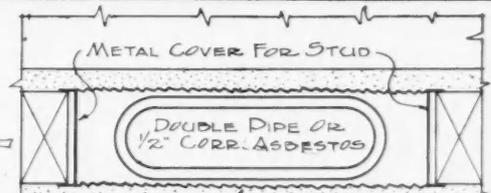


FIG. NO. 6

PROTECTION OF HOT AIR PIPE IN WOODEN STUD PARTITION

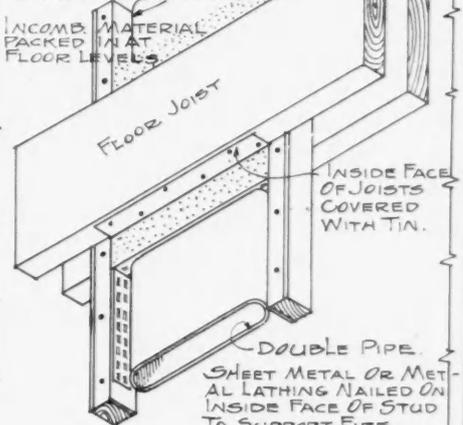


FIG. NO. 7

ISOMETRIC SKETCH SHOWING METHOD OF FIRE STOPPING BETWEEN FLOOR JOISTS AROUND HOT AIR PIPE, CARRIED UP IN A PARTITION

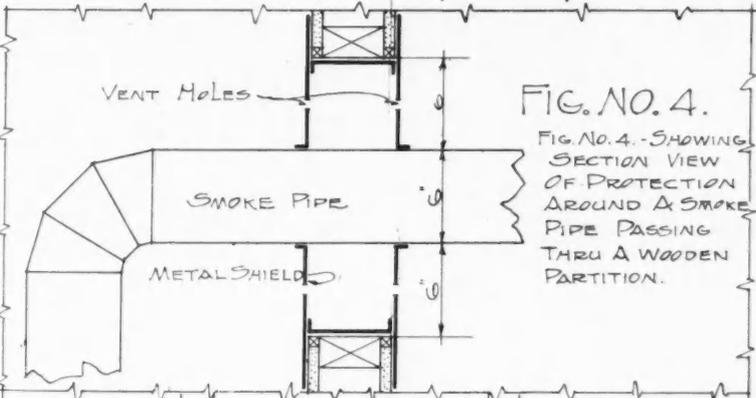


FIG. NO. 4.

FIG. NO. 4.-SHOWING SECTION VIEW OF PROTECTION AROUND A SMOKE PIPE PASSING THRU A WOODEN PARTITION.

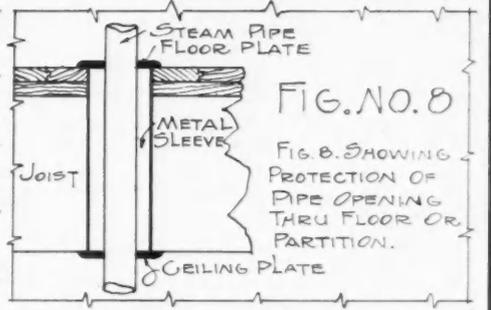


FIG. NO. 8

FIG. 8. SHOWING PROTECTION OF PIPE OPENING THRU FLOOR OR PARTITION.

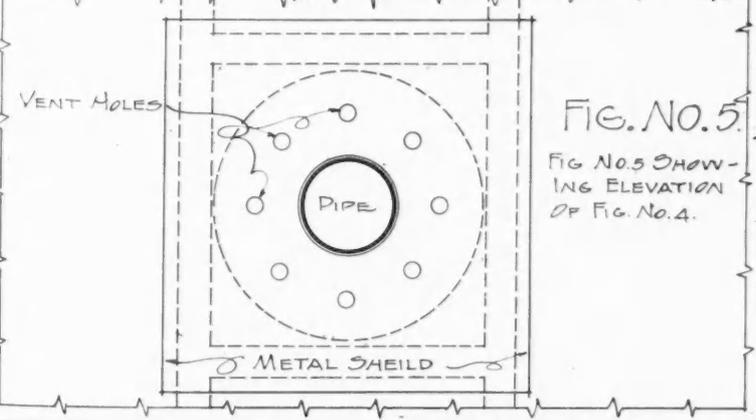


FIG. NO. 5.

FIG. NO. 5 SHOWING ELEVATION OF FIG. NO. 4.

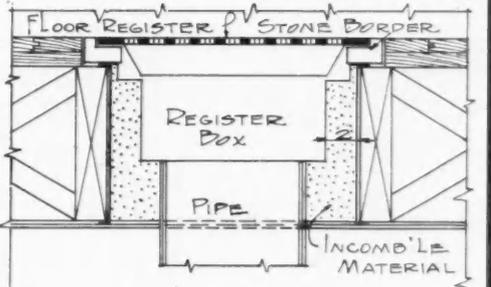


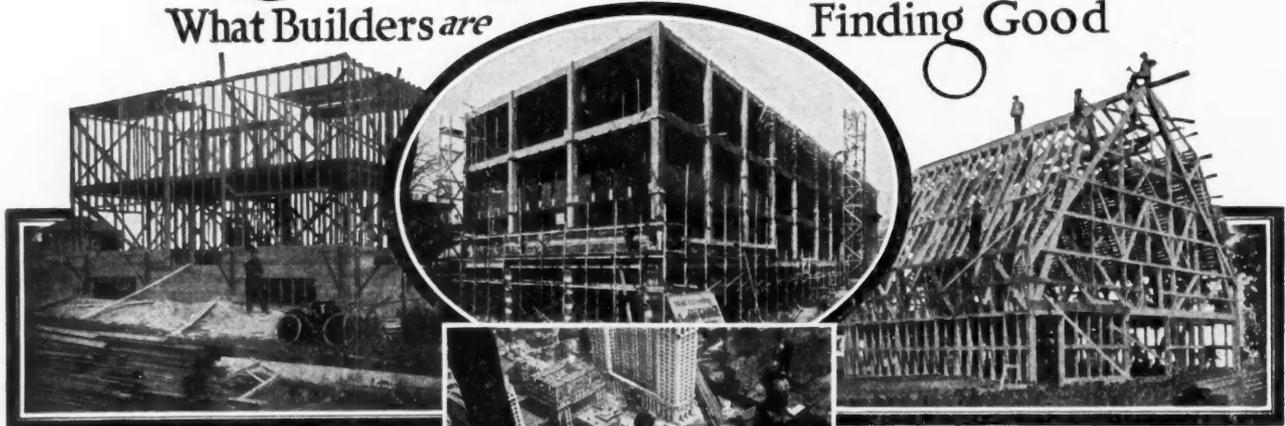
FIG. NO. 9

FIG. NO. 9 SHOWING A COMPLETE METHOD OF FIRE STOPPING. FLOOR REGISTER. WELL SUITED FOR EXISTING BUILDINGS.

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.

The Automobile as a Power Plant

Several years ago automobile owners here and there who possessed considerable mechanical ingenuity began rigging up home-made devices to utilize the powerful engines of their machines to do various kinds of work. The demand for something better became so strong that mechanics turned their attention to the solving of this problem, with the result that the automobile owner with no pretense to inventive ability may now quickly and easily transform his car into an engine to furnish power for running a concrete mixer, sawing wood, filling the silo, or doing any one of a thousand other things about farm or shop.

The devices to enable the car owner to apply the power easily to the work in hand are ingenious. One of the best is shown in the illustration. The device, which is on wheels, is rolled up to the rear of the automobile and the lever ends inserted beneath the axle. A vigorous downward push on these bars elevates the wheels of the auto, and at the same time jams the shaft wheels of the little truck against the tires in a species of friction clutch. The stationary engine is then ready for work. The whole device is so small and so

light that it can easily be carried on the running board.

The automobile engine, when transformed into a stationary engine, may be used for a multitude of purposes. One of the most interesting to builders is to run a concrete mixer



Auto Power Plant Operating Barrel Concrete Mixer.

for construction work; the powerful engine makes easy work of this. Saws of all kinds may be operated, and, in fact, a well equipped shop may get all its power in this manner.

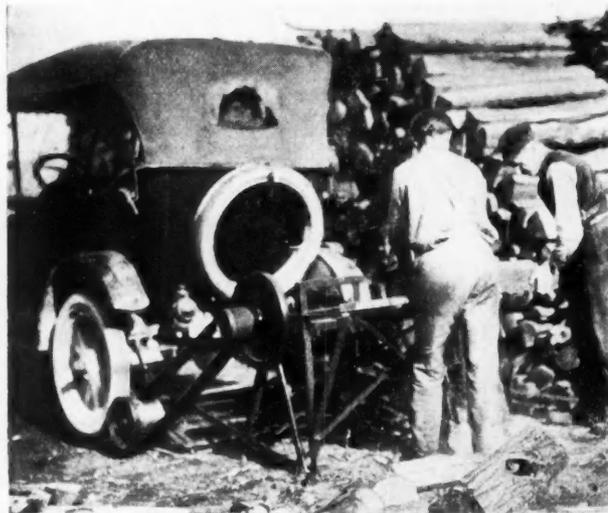
FRED TELFORD.

Sanitary Toilets

Rural builders have discovered the chemical closet as a ready seller in farm communities and in towns where there are no sewers. The price is low, the installation is simple and easy, and purchasers have found the outfits so satisfactory in use that they recommend the same to their neighbors; one sale makes another. There is nothing unpleasant about a properly built chemical closet.



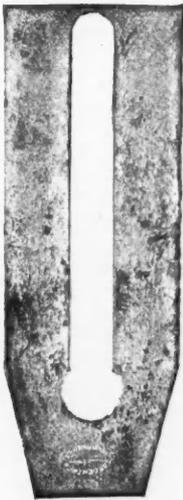
Sanitary Toilet Screened by Curtains in Bed Room.



Auto Power Plant Hooked Up to Buzz Saw.

Long Service for Plane Knife

By putting the eye of the plane knife in the upper end, the useful life of the cutter is considerably lengthened.



¼" Extra Ware.

The illustration, which is made from a photograph, shows a cutter which has been in actual use for a long time and has been sharpened and resharpened until it has worn right up to the slot. The eye, or round hole in the slot thru which the cap screw is inserted, is placed in the upper end, the cutter, therefore, having more metal at the cutting end, is not likely to break or twist when it is worn down, and the actual life of the cutter is greater because of this construction.



Grooves for Weather Strips by Auto Power

James F. Richards is the hustling weatherstrip man of New Haven, Conn. Very likely he is the most hustling in all New England. Anyhow, he believes in getting onto the job quickly and with special equipment to put the work thru in a hurry.

Richards has rigged up a Yankee device that is worth copying. He has a wooden belt pulley bolted onto the outside of the rear driving wheel of his Ford runabout. On the back platform he has a small woodworking machine, with knife for grooving windows for metal weatherstrips. It's the work of a moment to slip on the belt, jack up the rear wheel and start the engine.

Mr. Richards says that the advertising he gets out of doing work this way is great. His outfit attracts a lot of attention. All of the neighbors are eager to know what he is doing, and then they want him to weatherstrip their houses also. He, of course, has an excellent metal weatherstrip to offer—one that has the talking points—so he finds it easy to change interested spectators into customers.

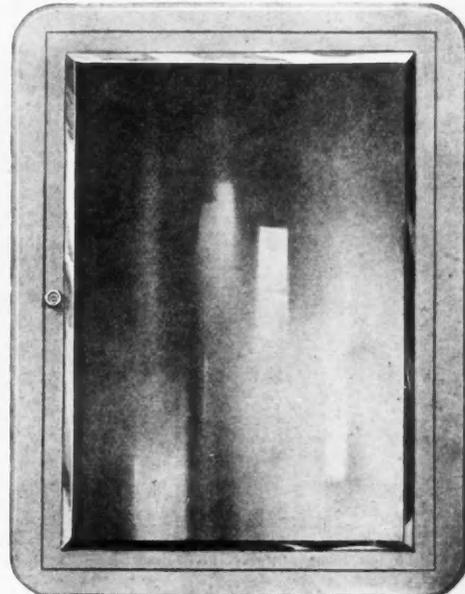
Medicine Chest of White Enameled Steel

A prominent line of bathroom fittings is made of Henzitized steel, white enameled. By a secret process, the steel is armored and sealed with an undercoating, which makes rusting impossible; then six coats of enamel are put on.

Everyone knows that metal exposed to the moisture laden air of a bathroom is sure to rust. Also, wise contractors and architects and real estate men have learned that special bathroom fittings, something high-class and showy, are what the people want. Renters and buyers alike are greatly influenced by such nice finishing touches.

Both of these facts call for white enamel, guaranteed non-rusting ware for medicine cabinets, mirror frames, shelves, holders, towel rods, etc. The cabinet illustrated is a sample of this line.

The details of this cabinet are in keeping with its high-grade construction. White ceramic knob matches white handles of plumbing fixtures. The shelf supports are spot welded in place. You can't lose them. Shelves are of polished glass. Shear clips provide easy installation, no matter what the size of the opening.



White Enamel, Rust-Proof Medicine Case.



James F. Richards, of New Haven, Conn., and His Auto Power Woodworker for Weatherstrip Grooving.



New Thatched Effect Roof Using Asphalt Shingles is Demonstrated on North Shore Golf Club, Chicago.

Asphalt Shingles in Thatched Effect

The illustration of the North Shore Golf Club, Chicago, is typical of the unusual effects that are possible with wide-space asphalt shingles. Not only is the tile effect of roof treatment effectively realized, but the thatched effect is combined to produce an unusually pleasing treatment. The roof area is great enough to show off this combination to advantage. One of the best features of this kind of treatment is the knowledge that it is not common, for the thatched roof requires special construction of roof sub-structure.

The wide-space shingles used on this job, thru the patented method of laying, require less material to cover the same amount of space. Therefore the shingles are less expensive to purchase and less expensive to lay. Being asphalt, slate surfaced shingles, they are flexible and can be readily accommodated to such uses. They are 9 by 14 inches in size,

and when laid are spaced apart 6 inches and exposed 4 inches to weather.

These shingles are made in two plain colors—dark red and grayish green—and a mottled combination of both colors that is very beautiful. The mottled shingles look very much like slate on a roof; in fact, it is extremely difficult to tell the difference at a little distance.

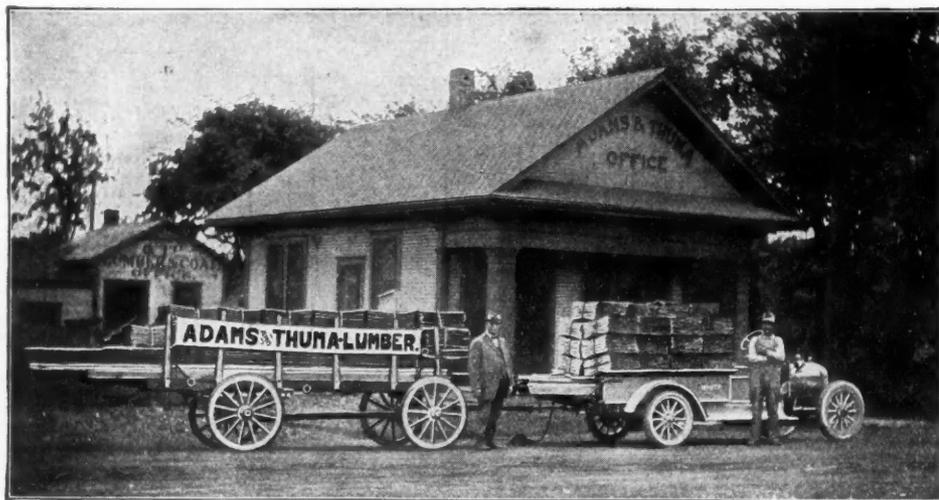


Increased Total Haulage Using Trailer

It is generally understood that the body load capacity of an automobile or truck is far from the total haulage capacity of the machine. The use of a properly constructed trailer increases the total haulage capacity of the machine to a surprising amount. In addition to the power consumed in moving the car itself, with body loaded up to maximum carrying capacity, power in the form of horizontal pull is available.

A careful consideration of certain important details of construction, on the part of the manufacturer of the trailer is necessary. In the first place, the trailer must not injure the machine to which it is attached. Also, the trailer must be built for road and speed conditions similar to those of the machine to which it is attached. The trailer must follow in the tracks of the driving machine with a minimum of frictional resistance.

The trailer shown in the illustration is an example of a favorite type and size for general use. This is a one and one-half ton capacity trailer. The trailer is fitted with a shock absorbing draw bar.



Three Thousand Pound Miami Trailer and White Truck Working for Adams & Thuma, Lumber Dealers, of Jamestown, Ohio. For more than a year and a half this outfit has saved them one truck and one driver.

WHAT'S NEW?



New Style Latch for Swinging or Sliding Barn Doors

A popular barn door latch of new design can be swung over and out of the way so as not to catch the harness



This Barn Door Latch Swings Over Out of the Way.

as the horse goes thru. It is adapted either for swinging or sliding doors. It is heavy and strong, smoothly constructed, and is reversible. The finish is japanned,

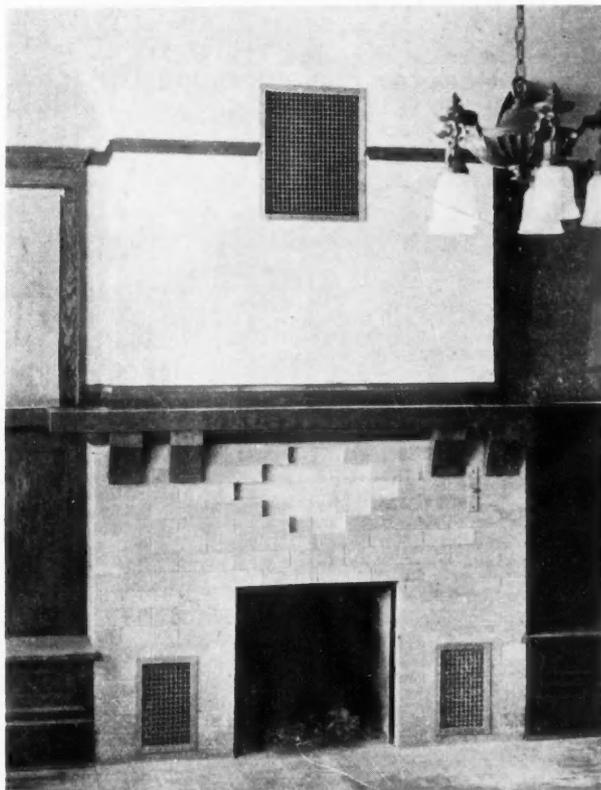
or for outside use, rust-proof Sherardized.



New Fireplace Heater Warms and Ventilates

A heating and ventilating engineer out West in the bungalow country has invented what he calls a bungalow fireplace, tho we see no reason why such a good thing should be limited to bungalows. It makes use of the old-time principle of warm air circulation as used in school room heaters.

A firepot of heavy cast iron is put into the fireplace, and just above it is a drum of sheet steel containing baffle plates which can be turned to cause direct draft or indirect draft. The former is used only when starting the fire. The indi-



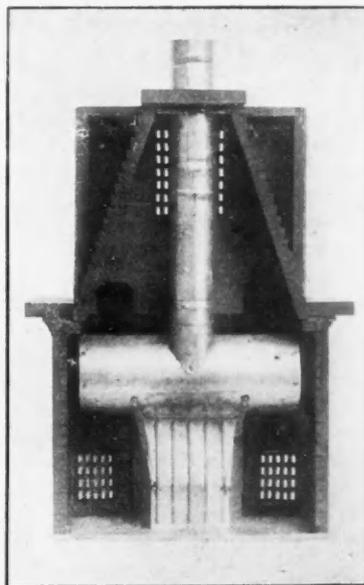
New Fireplace Viewed from Front. Cool Air Is Drawn In Thru Lower Register, Is Warmed and Sent Back Into Room Thru Register at Ceiling.

rect draft arrangement diverts the hot gases to the ends of the drum before they are permitted to escape up the smoke flue. The smoke flue is a sheet iron pipe.

All around this metal firepot and smoke chamber is built a brick casing. Cool air is drawn in thru gratings at the bottom. It circulates all around the heated metal of firepot, drum and smoke pipe, and is thrown out into the room thru a grating near the ceiling.

Here is a fireplace, then, that gives all the cheerful glow and joy of the open fire, and also heating efficiency of an incased school room heater. The illustrations show front and inside views.

This new fireplace has passed the invention stage. It is in actual use in a large number of residences in the Northwest. A considerable saving of fuel and much satisfaction is the verdict of the users.



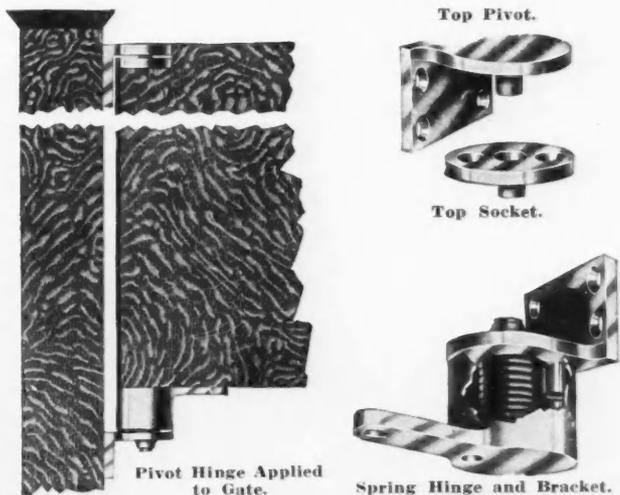
New Fireplace and Casing Viewed from the Rear.



This Gate Hinge Can't Sag

A gate spring hinge of the pivot type is so constructed that even if the gate is wide or heavy, it cannot sag. The spring does not carry the weight of the gate and a very light tension may be applied, which is usually desirable on office partition gates.

The details of this hinge are illustrated in the accompany-



ing drawings. The spring hinge is at the bottom; the pivot and socket at the top. It is very easy to apply this hardware, the only tools necessary being a screw driver and bit brace, or if the top pivot is applied to the top of the gate without mortising, a screw driver only is needed.

This hinge is well liked for office gates, as it is noiseless, neat and compact in appearance, and has no rough or projecting parts to catch clothing.

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.

Special Call to Skilled Men—Uncle Sam Wants You

SAY, you red-blooded fellow Over Here, take down the receiver and listen to a line of talk that ought to get under the hide and into the heart of men of your brand.

You are a skilled man. You have been fighting life's game in a country where every man has an even chance to make the most of himself. You are an American, and all that you are and all that you hope to be, reflects to the credit of a democracy.

That democracy is being assailed by the most damnable foe that ever fired a cannon, that ever drove home a bayonet, that ever ravaged a neutral state, that ever sunk a hospital ship, that ever shelled women and children in lifeboats, that ever crucified and castrated captured enemy soldiers, that ever cut the right hands off boy children in captured territory, that ever raped women by the thousand, that ever lived to fasten its demon clutches on the throat of civilization.

Almighty God will not permit the unleashed hellishness of Kaiserism to engulf the world. No sane thinking man can conceive of an all wise and all loving supreme Deity permitting our section of the world to become under German leadership—the stench of the universe but now, not tomorrow—right now—Almighty God needs the help of trained men.

It has been said repeatedly, by men who ought to know what they are talking about, that this war will be won in the air. Uncle Sam is building an air fleet that will astound the fighting world. Factories from Maine to California are working day and night on aeroplane parts. Guns and oil and gasoline and cameras and other material parts of these war machines are coming along as fast as skilled organized American factories can bring them out. Already they are being assembled, and that acme of the American get-together spirit, The Liberty motor, is being installed.

Ever since this great war started, the government has been establishing aviation schools to perfect the bird men who will be the eyes of the national army. These schools have already turned out a mighty healthy number of those fearless chaps who can climb to dizzy heights, loop the loop, spiral with the engine cut off, repair a jammed machine gun and get it into action before they reach the ground, and there are thousands more well on the road to their commissions, and they are getting into the seats of the new machines almost

before the paint is dry on the initials U. S. A.

The machines and many of the fliers are taken care of, but there is a crying need of trained men to care for these machines, and those men will be forthcoming when the need is known.

There is a blank at the bottom of this page that, when properly filled out, will make a glorious chapter in the history of this country. It will be the answer of skilled gentlemen to the challenge of skilled brutes.

But let's get down to cases. Do you drive an automobile? Thank God if you do, and sign the blank.

Do you know anything about a gasoline engine? Thank God if you do, and plaster your name on the blank.

Are you a machinist or a machinist's helper? Thank God that your time in the land of the free has been spent learning a useful trade, and put your signature to the blank, firm and right in your conviction that it is the greatest act of your life.

Do you know skilled men, and have you any influence with them? If you have, put that influence to work, put your shoulder to the wheel, remind yourself that war is now the business of America and that we are threatened with all those things Germany has taught the world to expect from her. Spot your skilled men, and if they are not working on war essentials, shoot some of your brand of Americanism into them.

If you are 18, 19 or 20 years old, sign the blank and become a man.

If you are between 32 and 40 years of age and qualified, sign your name where it belongs, among those who know no obligation greater than their love of country.

There has never been a greater appeal to skilled men. There probably will never be a greater need of skilled men called upon to perform a duty so essential.

In God's name, you skilled men, recognize this emergency. Know a need when you see one. Discern between German-made news and American-made news. This is no six months' war. It is a fight between principle and despotism, and it is a finish fight.

Uncle Sam needs skilled men. He puts his need up to you. In humanity's name, sign this blank with a hand that doesn't shake. It's an opening for a body blow at Autocracy.

HERE IS A LIST OF THE KIND OF MEN WANTED

(Arranged in the order of number of men needed)

- | | | | |
|----------------------------------|---------------------------------|--------------------------------|-------------------------------|
| Chauffeurs. | Photographers. | Riggers (Airplane Assemblers). | Gas Works Employees. |
| Auto Mechanicians. | Machinists. | Telephone Linesmen. | Buglers. |
| Automobile Engine Repair Men. | Blacksmiths. | Tool Makers. | Moulders. |
| Office Clerks. | Motorcycle Repair Men. | Vulcanizers. | Pattern Makers. |
| Carpenters. | Stenographers. | Welders. | Telephone Adjusters. |
| Radio Operators. | Cabinet Makers. | Lihtographers. | Barbers. |
| Electricians. | Draftsmen (Mechanical). | Packers. | Truck Masters. |
| Instrument Repair Men. | Magneto Repair Men. | Telephone Operators. | Brick Layers. |
| Cooks. | Metal Workers. | Motorcyclists. | Cobblers. |
| Coppersmiths. | Automobile Engine Testers. | Plumbers. | Propeller Testers (Airplane). |
| Armors (Machine Gun Repair Men). | Rope Riggers (Cordage Workers). | Painters. | Boat Builders. |
| Sail Makers. | Propeller Makers (Airplane). | Tailors. | Saddlers. |
| | | | Stock Keepers (Experts). |

JUST FILL IN, CUT OFF AND MAIL ONE OF THESE SLIPS

Volunteer Department, 119 D Street, N. E., Washington, D. C.

I desire to enlist, as a skilled workman, in the Aviation Section of the Signal Corps.

Name Age.....

Address

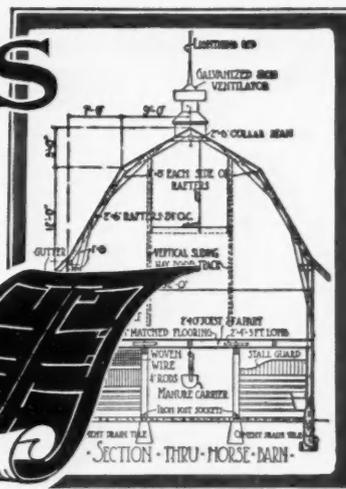
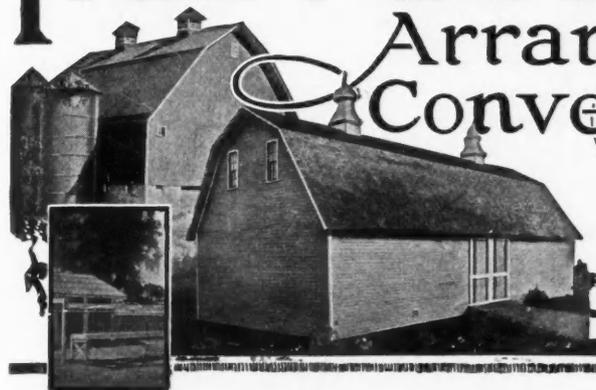
At present employed with.....

.....

Trade No. Yrs. in Trade.....

FARM BUILDINGS

Arranged For Convenience -



Remodel the Dairy Barns

THERE are thousands of old barns that are not giving the service they ought to.

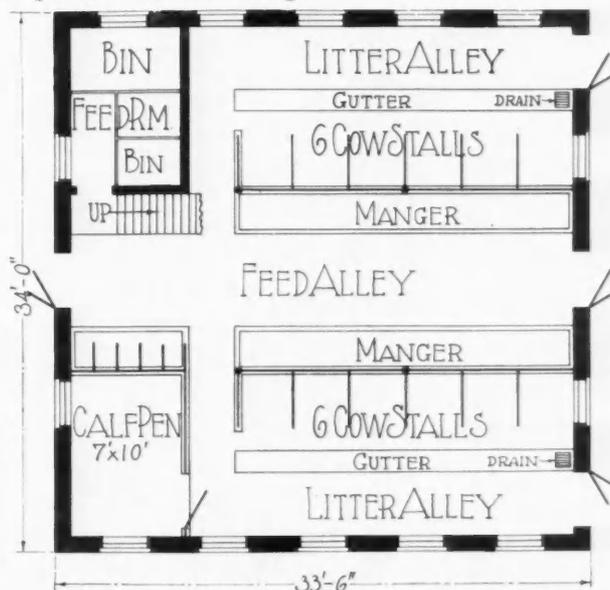
Instead of being labor-saving in these days when the farmer is so put to it to get help, they actually make extra work.

What these old barns need in the majority of cases is principally a concrete stable floor.

Rip out the old broken, rotted and befouled planks and timbers, and put in a sanitary, easily cleaned stable floor of concrete. The cost is not great. The saving in labor in two years' time will very nearly pay the entire expense.

You will also find most old farm buildings rotting down into the ground. While you are at it putting in the concrete stable floor, you better jack up the building to get a little more headroom in the stable,

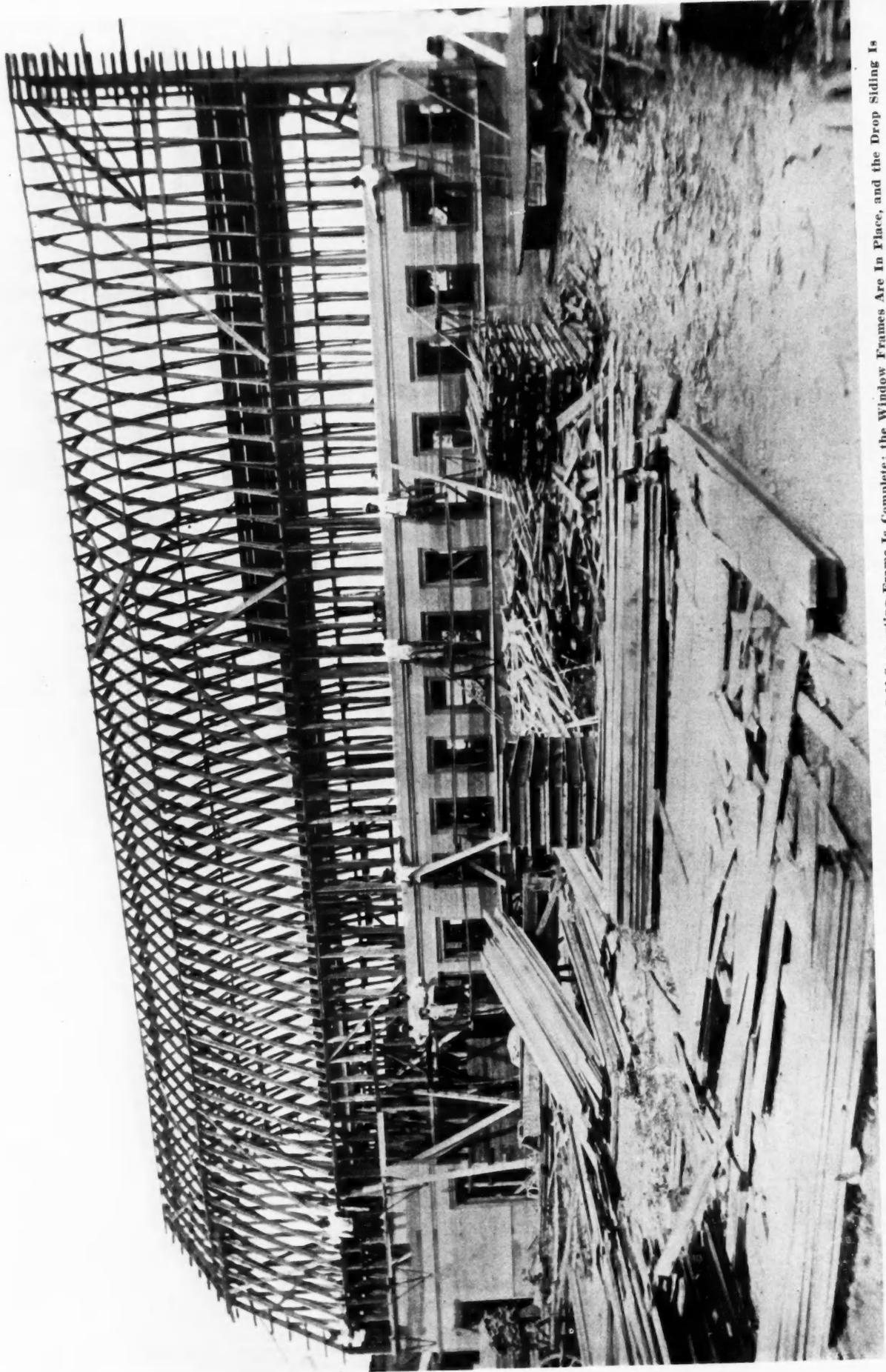
and then lay up a new wall. Build it of masonry, either hollow tile, brick, or concrete. Let it extend up to the first floor joists. At least run it up high enough to permit cutting out all of the decayed parts of posts, sills, and siding.



Stable Floor Plan of Barn Arranged to Care for 12 Cows in Stalls, Besides Calf Pen and Feed Room.



Photograph of Barn, Size 33 Feet 6 Inches by 34 Feet, that Has Been Remodeled to the Extent of Concrete Stable Floor and Approach, and Basement Walls. Ventilating System Was Put in and All Buildings Rodded for Lightning Protection.



The Ebert Barn Photographed During Construction. The Balloon or Trussed Rafter Self-Supporting Frame Is Complete; the Window Frames Are In Place, and the Drop Siding Is Being Nailed On.



Photo of Big Dairy Barn and Horse Barn, Size 38 by 108 Feet, Built by Anton J. Ebert, Near North Crandon, Wis.

A Barn That Is A Barn—from the Barn State

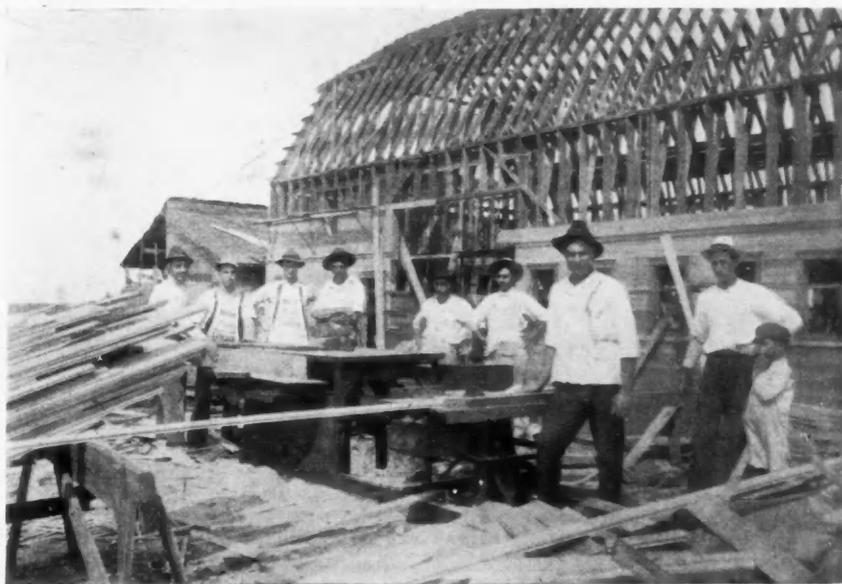
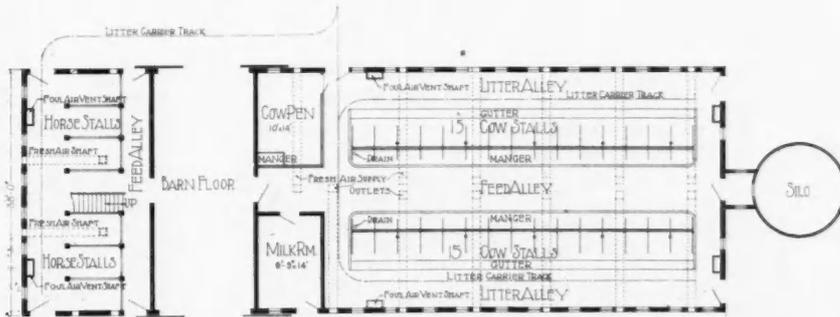
UP in Wisconsin they know how to build barns. Wisconsin is a dairy state. Thorobred Holsteins and Guernseys are the rule, and the farmers know how to house them.

For the Wisconsin farmer, the dairy barn is in truth his farm factory. He doesn't hesitate to invest quite a sum of money in this factory, knowing well that it serves him well by protecting his valuable animals during the cold weather—and Wisconsin winters are cold—by keeping up the milk flow, winter same as summer; and by cutting down his chore work to the minimum.

The Wisconsin dairy farmer is thrifty and farsighted. He invests his first money in his barn, his manufacturing plant, and makes the old house do. Presently he finds that the new barn has earned him a new house, and then he proceeds to give himself and his family the luxuries of modern housing that his high-grade milch cows have been enjoying.

The big dairy barn illustrated in the accompanying photographs and floor plan was built near North Crandon, Wis., by Anton J. Ebert, the local contractor and builder. It is 38 by 108 feet in size; balloon or trussed rafter type of self-supporting roof. In the silo end are

thirty cow stalls; in the other end six horse stalls and a barn floor, or threshing floor. By this arrangement the horses are very effectively separated from the dairy cows—as they should be.



Contractor Ebert has a 4 h.p. Gasoline Engine and Woodworking Machine that He Takes Onto the Job. He Believes in Using All Labor-saving Equipment, Including Steel Scaffold Brackets.

An Attic Living Room

By Ralph W. Ermeling, Architect

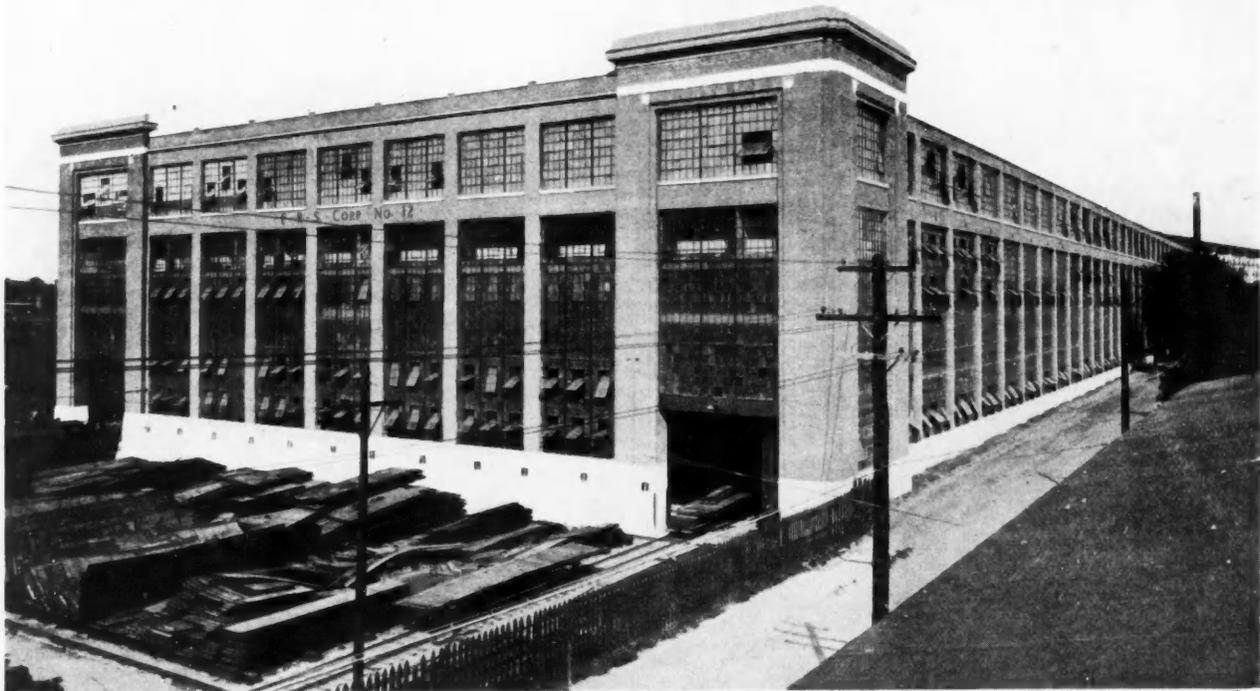
WE ARE giving an illustration on the opposite page of what can be done with a low attic—it is only 7 feet 6 inches in height—which has an unpromising wedge in the roof forming the dormer. Posts are built up at the corners. They may be actual bearing supports or merely casing. To give the room an air of informality—a place where a man may bring his friends for the evening, a den, or living room, or a play room for the children, as you please—it should all be done in plain, substantial-looking lumber, large grained, like chestnut or yellow pine, and stained. No mouldings are used, and the plainest sort of construction to save expense. In other words, this is a suggestion for an attic improvement that will please every member of the family and that will not make too deep a dent in father's bank account—a winter job for a carpenter who can convince the owner that he will get an extra room in the house—a knock-about, usable room—for a very little money.

The ceiling beams can be set up, and the framework erected, and the wall spaces treated to wall board. There is a seat, a good place to lie around in old-fashioned, solid comfort. It has a box underneath for fishing tackle, golf clubs, or for fur storage—it is

cedar lined. A small electric light at the head—a la Pullman berth style—will make the corner very attractive in the evening. A little bracket shelf on the side wall places the pipe and pouch within easy reach. Overhead is an open shelf space for things discarded, and put out of sight behind simple curtains.

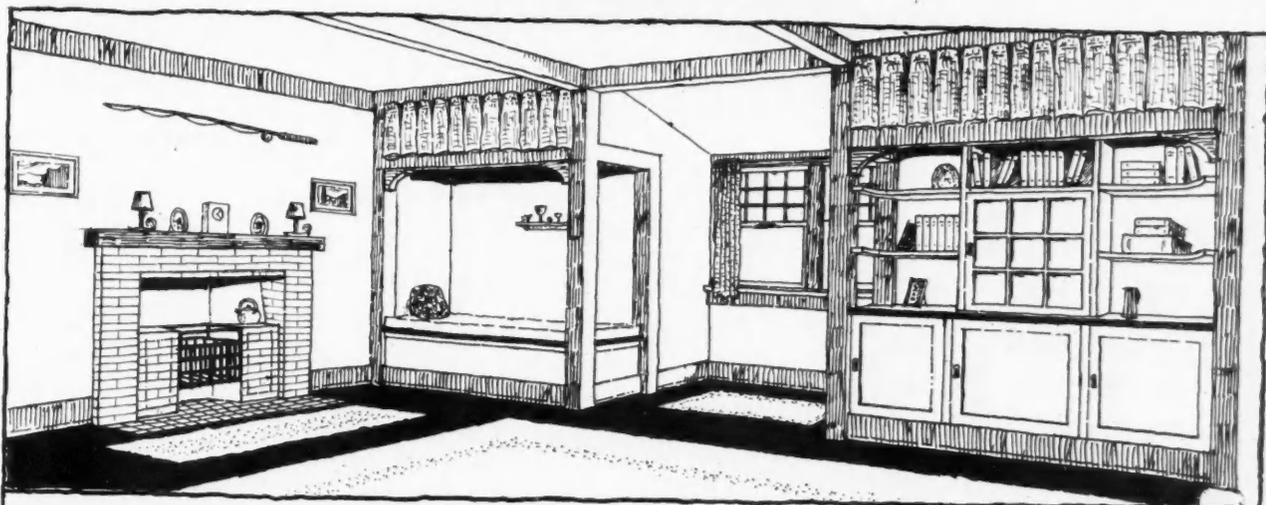
The other side of the dormer has a series of shelves—for books, magazines, toys—the contents varying according to the uses of the room. In the center is a more secretive section, with a door to keep the dust out of the pigeon holes and the bottom drawer. This section can lock up sundry things from the inquisitive fingers of the younger members of the family. The doors at the bottom can also be fitted with simple hardware—to lock, if desirable—alho they are merely frames with wall board panels. The bottom shelf is divided, one part of it hinged for another stowaway compartment.

If your side wall contains a flue, a very simple, small fireplace can be put in at small expense. Common clay brick, stained with a bright-colored wood stain, will give it a rough and ready tone that is very pleasing and in harmony with the informality of the room. This room represents straight carpenter work—nothing will have to be made at the mill.

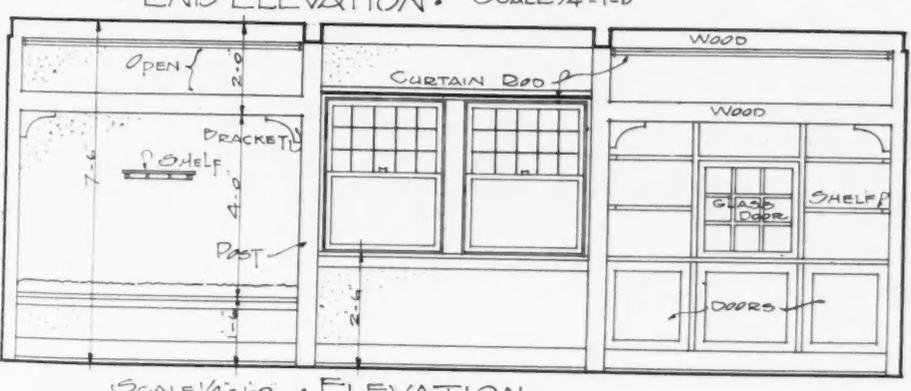
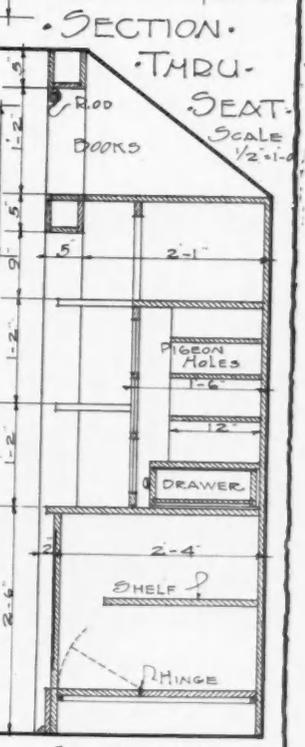
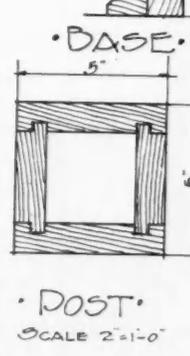
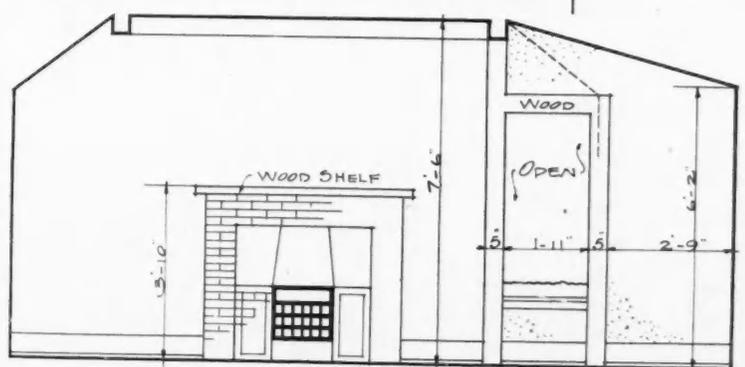
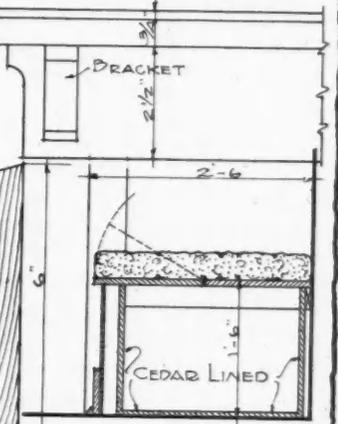
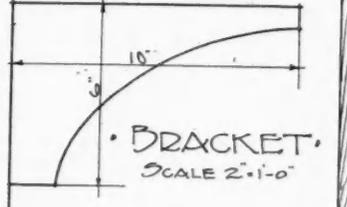
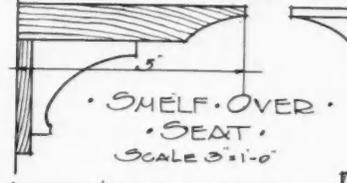
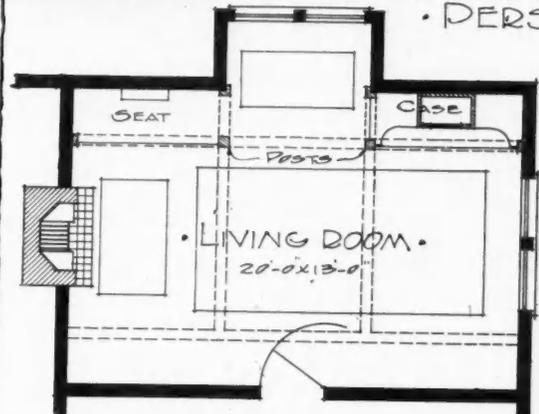


IDEAL SHOP CONSTRUCTION. Above is the new plate and angle shop of the Fore River Shipbuilding Corporation, 605 feet long by 93 feet wide. It is a steel frame building, brick and glass walls, with rock asphalt floors; two stories in height, covering an area of $3\frac{1}{4}$ acres. The second floor is reached by elevators, one at each end of building. The second floor contains a mold loft and sheet metal working shop for the laying down of ships to full size, from which templates to punch plates and shapes are made. This shop is served by electric monorail hoist which goes from end to end of shop.

The machinery is all of the latest type, including power press, rolls, punches, shears, drills, electric spot welder and hydraulic press. Under the second floor and sustained by its floor trusses are sets of offices at each end of building. There are also completely equipped washrooms, locker rooms, toilets and shower baths provided for the workmen. The building is a model of shop construction in every sense of the word.—Frank C. Perkins.



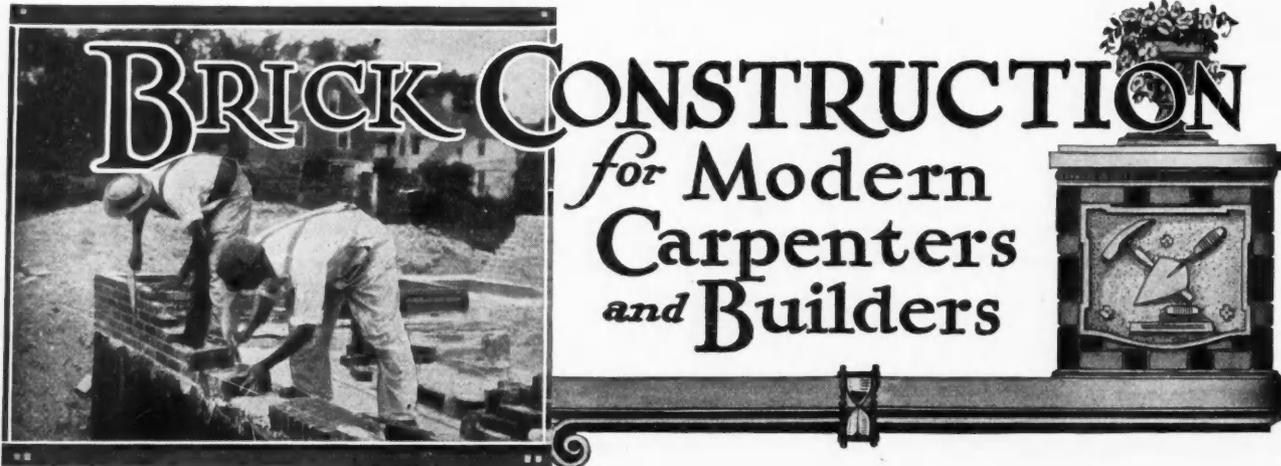
• PERSPECTIVE • VIEW •



• SECTION •

AN ATTIC LIVING ROOM

Sketch, Plan, Elevations and Construction Details of an Attic Living Room. Designed by Ralph W. Ermeling, Architect.



Brick—The Oldest Unit of Building Material Made by Man

BRICK, one of the most important building materials of the present day, is not a product of the nineteenth century, but dates back to the earliest history of the Ancients.

We find that in the year 2300 B. C., in the city of Babylon, the chief city of Babylonia and at that time the most important city of all Western Asia, bricks made of burned clay were used. The people of this ancient period erected a wall entirely of brick around the city, 50 feet thick and 200 feet high,



By R. M. Combs,

Vice-Pres. Thomas Moulding Brick Co.

for protection against nomadic tribes. These brick were made from the earth excavated to form the ditch or moat that surrounded the wall of the city. They were burned in furnaces similarly to the present method of burning brick and were laid in the wall with a hot, pitch-like substance for mortar. This wall, so constructed, protected the ancient city of Babylon for twelve hundred years, until the year 1100 B. C.

History fails to chronicle any-



Modern Five-Room Bungalow Built at Adel, Iowa, for \$1,600. The Unit Is Brick Size as to Face, But Extends Clear Thru the Wall.

thing concerning the making of brick from 1100 B. C. to 500 B. C., at which time we find that great Nebuchadnezzar still made brick in Babylon, and that upon each brick he had a likeness of his face and whiskers. This is the first evidence we find of a trade mark in the history of burned clay.

After the fall of Babylon, sufficient brick were

plished by the selection of color and should be made so that the texture of both brick and mortar will produce the desired result of obtaining a building different from other buildings nearby, yet in harmony with them.

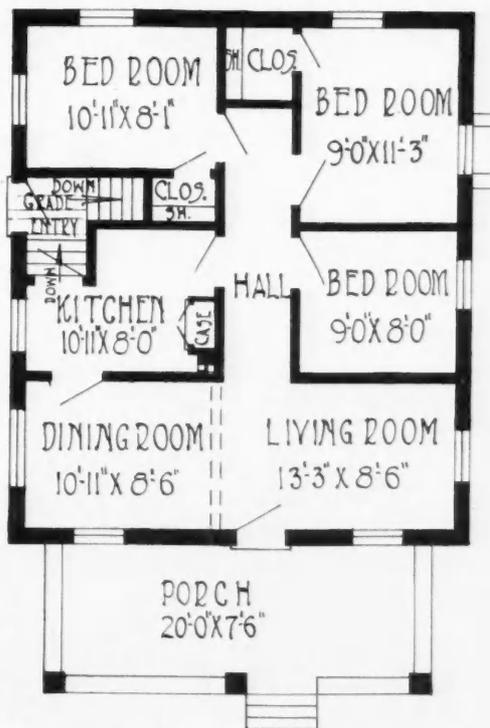
Brick today are made in units of various sizes, as well as in various colors and various textures. The



Here is a Six-Room Cottage Built Two Years Ago at Adel, Iowa, for \$1,150. Local Tile Used.

recovered from the ruins to build an entire new city, proving that the salvage of a brick structure was utilized in olden times as it is being used at the present day.

Today a well-constructed wall of brick (which is still an imperishable fabric of well-burned clay) is as permanent as tho erected in the early ages. Brick considered for the problem at hand should be carefully compared to the surroundings in which they are to be used; that is to say, the brick for the latest building erected in a neighborhood which is already filled up with structures, should be selected to harmonize with the surroundings. When this is given careful thought the brick in the new building will be made to stand out with individuality. This can be accom-



Main Floor Plan. There is a Cool Room and Storage 12 Feet Wide Across the Building Under Kitchen and Bedroom.

relative size of the brick with their color and finish, and the size and color of the mortar joints, will determine the effect of the finished wall. The color effect of the brick can be entirely changed by the color and the thickness of the mortar joint used. This comparison can be perhaps better understood by observing the effect of a lace veil on a lady's face; a white veil will give the impression of one complexion, while a black or purple veil over the same face will entirely change the appearance of the individual. The influence of the mortar joint upon the brick can be understood when you stop to think that the joint in a building constitutes about one-sixteenth to one-eighth of the finished wall.

(Continued to page 116.)

STRUCTURAL TILE WORK

for Houses, Farm Buildings,
Stores, Garages, etc.



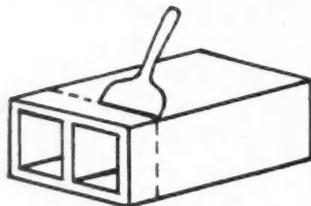
conducted by
MATT L. KING
TILE CONSTRUCTION ENGINEER

Method of Cutting or Breaking Tile

By MATT L. KING

IT is common for masons who are accustomed to laying brick to have trouble cutting tile to length.

The most successful method of removing an inch or two is to first mark the tile to length, then use the brick hammer, splitting the walls of the tile by striking the end; then when it is split back, leaving only a feather edge, strike crosswise, breaking the edge, then split back again, continuing this process until the proper length is secured.



Breaking Tile to a Line.

With some tile, especially soft or medium burned material, a monkey wrench is used to very good advantage in breaking small amounts off the end of a tile.

If halves or a third or two-thirds are desired from 4 by 5 by 12 or 8 by 5 by 12 blocks, the best method is to use a sharp brick set or chisel and brick hammer. The blocks should either lie on the scaffold or, if the work is being done on the ground, a sand pile is slightly preferable with some blocks. The block should be marked to length and then the brick set should be placed on the line, so that the width of the set will extend from one wall to another of blocks.

The set should be sloped so that the top leans toward the long end of the tile. Hold it firmly and strike it one sharp blow with the hammer. Next the set should be moved over to catch the next

partition of the block and struck again.

In this way work around the block. It will only require a minute or so until the block no longer rings, and the two parts can be separated. Usually in case



Permanent Poultry House with Clay Tile Walls.

of halves it is a simple matter to make two good halves out of one good block.

The average brick mason is inclined to pick up the block and hit it a sharp lick with the trowel. The result is generally pretty disastrous to the tile and does not help the progress of the building nor does it improve the mason's temper.

By following the above instructions, however, and using a little skill and judgment it is easily done.

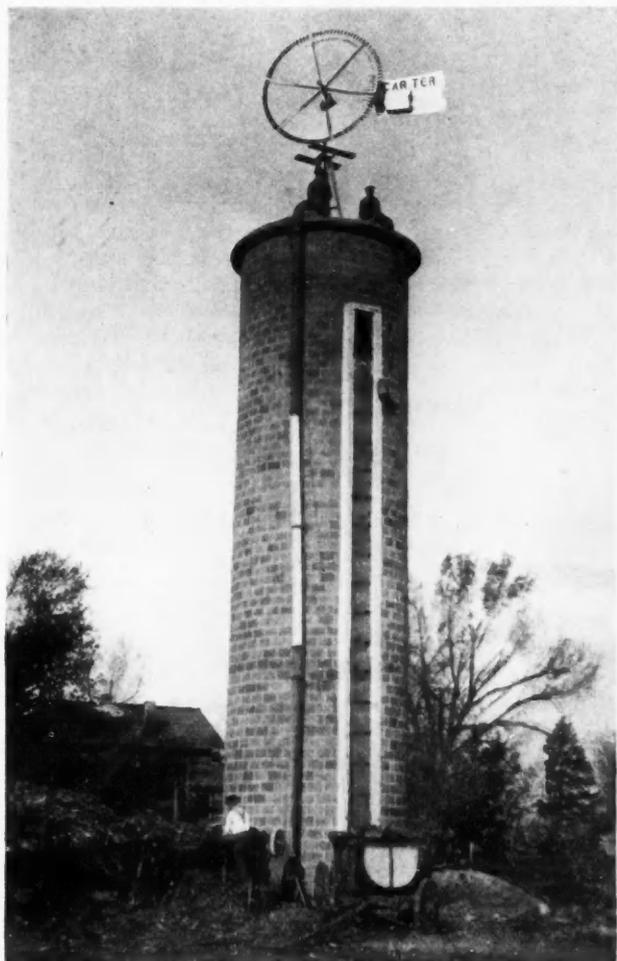


Hollow Tile Community Hog House, Iowa Type, Size 24 by 60 Feet, on Farm of Loren Jolley, Near Adel, Iowa.

The Campbell Silo

THE picture shows a silo 16 ft. in diameter and 50 ft. high with a wind mill on top.

Query: What did the wind mill tower cost? Something for nothing at last? Yes, that is exactly what it is. In addition to costing nothing, it will take a long time to rust out, for the simple reason there is nothing that can rust. The tower, or shall I say silo, is made principally of vitrified clay; the rest of it is cement mortar and steel. The steel is well bedded in the mortar so that it will never rust.



Silo With Wind Mill on Top Demonstrating Ability of Tile Blocks to "Stand Up."

It is perfectly feasible for a clay block, or Iowa Silo as they are most commonly called, to support both a water tank and wind mill. For this purpose the silo is built just as it otherwise would be, costing nothing extra.

So far as we can learn there are none built yet that support both, but the one shown supports the windmill and there are a great many supporting water tanks containing anywhere from 250 to 600 bbls. of water. The walls of these silos are made of hollow clay blocks only four and five inches thick.

It goes without saying the additional weight of a water tank on top of a silo puts greater additional pressure on the blocks of the silo, but they are abundantly

strong even tho the silo walls are only thin walls.

The wind mill on top of the silo causes side pressure, but the weight of the roof and the silo walls is sufficient to take care of the side pressure no matter which way it comes.

The pumping is accomplished by means of an arm on the top of the silo operated by the wind mill. This in turn operates another rocker arm located at the pump.

Light Reinforcing for House Foundations

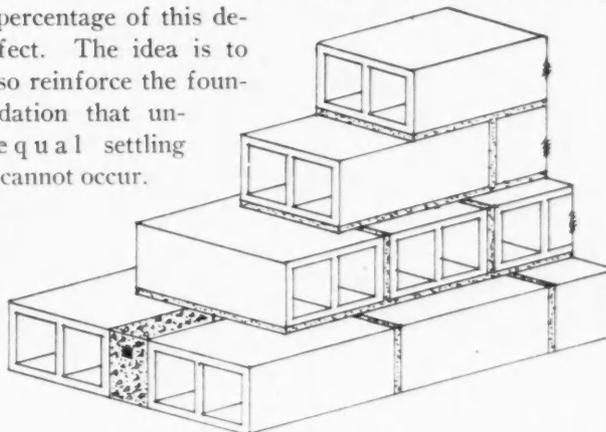
THE bearing power of soils is as follows:

Kind of Material	Bearing power in tons per square foot	
	Min.	Max.
Rock—the hardest—in thick layers in native bed	200	...
Rock equal to best ashlar masonry.....	25	30
Rock equal to best brick masonry.....	15	20
Rock equal to poor brick masonry.....	5	10
Clay on thick beds, always dry.....	4	6
Clay on thick beds, moderately dry.....	2	4
Clay, soft.....	1	2
Gravel and coarse sand, well cemented...	8	10
Sand, compact and well cemented.....	4	6
Sand, clean, dry.....	2	4
Quicksand, alluvial soils, etc.....	0.5	1

The usual settling cracks that will occur occasionally, even with building designed and constructed in the best way which are difficult to account for, can in a great many cases be overcome by the use of steel in the foundation.

For moderate and smaller sized buildings the use of steel, as shown in the illustration, will avoid a large percentage of this defect.

The idea is to so reinforce the foundation that unequal settling cannot occur.



Combination Tile and Reinforced Concrete Foundation to Prevent Cracked Walls.

The sheering strength of 3/4-inch bar shown in the foundation is approximately 30,000 pounds. This would probably support a residence wall and prevent cracking even tho 10 feet on each side of the corners were actually unsupported, or 20 feet unsupported in the center of the wall.

Even at present with high prices of steel, \$15 or \$20 worth of steel would greatly reduce the likelihood of cracks forming in the wall of a residence.

If you have had any experience with the use of steel in foundation, tell us about it. If you want to know anything about the details, ask it.

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

Book Case Designed to Use Leaded Glass Sheets on Hand

To the Editor: East Northport, L. I., N. Y.

I would like to get a plan of a bookcase that I want to build myself. Now, I will give you a brief description of what I want, and will you kindly tell me what you can draw the plans for?

I have four sheets of leaded glass with lights, as per rough sketch. These are first-class, with coppered bars, and I would like to have the design of a nice bookcase to be finished up in fumed oak and made out of quartered oak. I would like something quite fancy, but with no carving on. I am a mechanic myself, so I don't care how fancy it is. I don't want a plain top. I would like it broken in some way

with two pilasters in front, and I don't care to have it sitting way up on legs. I want to use the glass spoken of on this bookcase. GEORGE EHRLE.

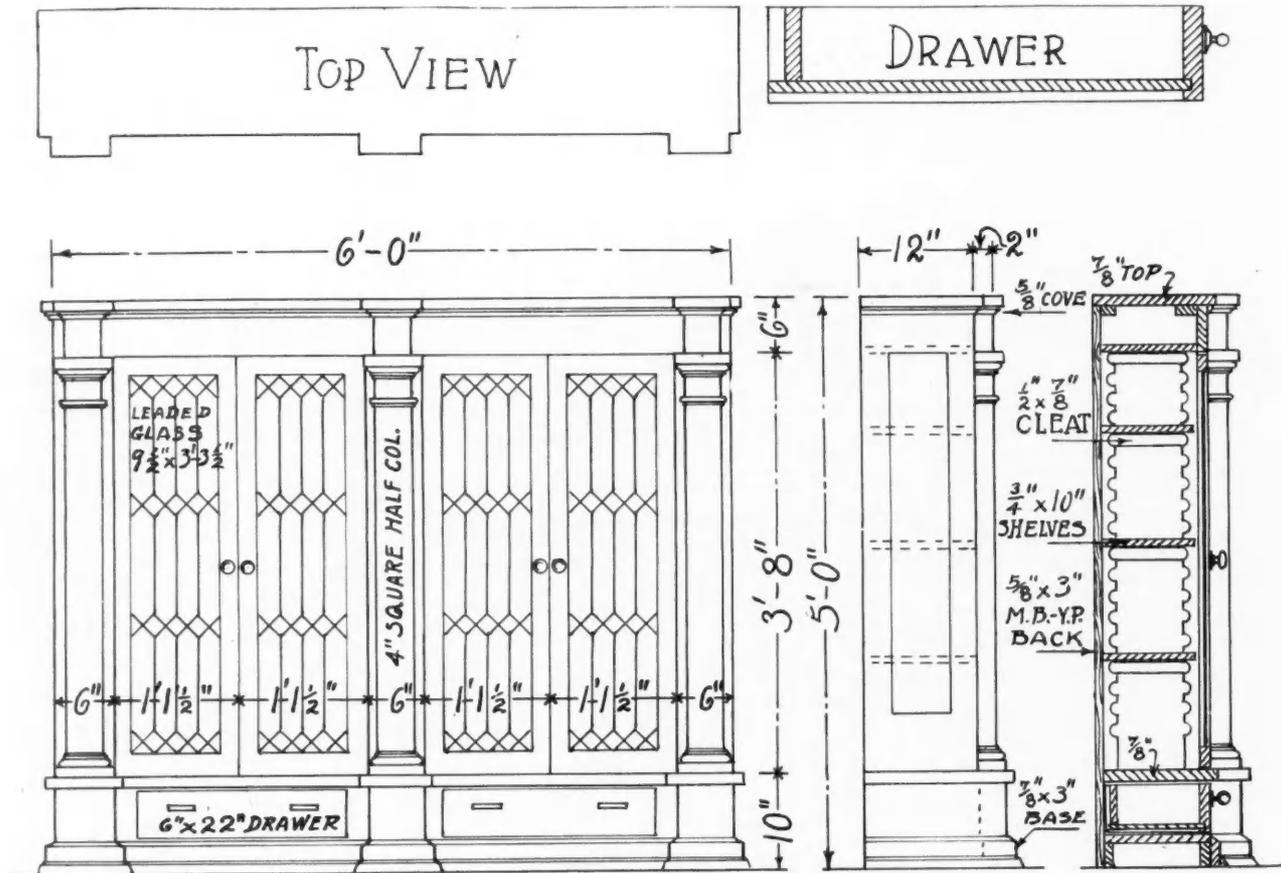
Answer—In response to your request we have put your bookcase project into our drafting room, and have worked out a very attractive scheme for utilizing the leaded glass panels which you have.

The enclosed blueprint gives our suggestions. We send you these with our compliments as part of our service to our readers. EDITOR.

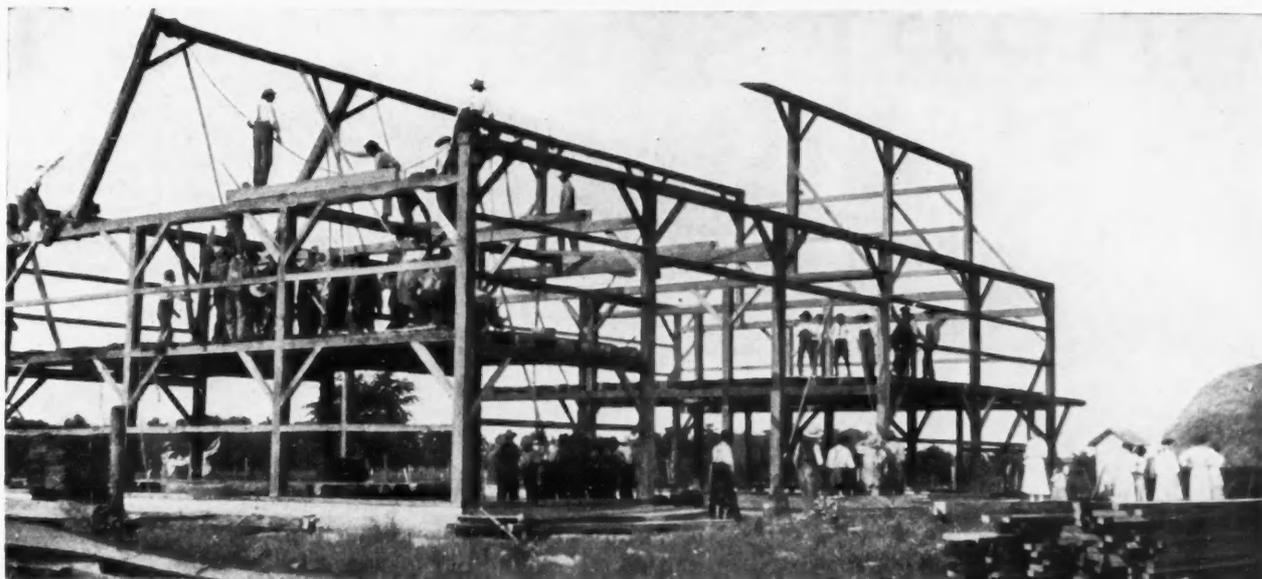


A Raising Bee

To the Editor: Graytown, Ohio.
Am enclosing a picture you can publish in the AMERICAN



Suggestion for Book Case to Utilize Leaded Glass Sheets.



A Barn Raising Bee in Action Near Graytown, Ohio. Barn is 40 by 76 with 18 Feet Posts. Mart Suhrbier, Builder.

BUILDER. It is of a grain and stock barn, which I finished some time ago near Graytown, Ottawa Co., Ohio. It is 40x76—18 ft. posts. The frame is all native timber.

I use a power boring machine.

MART SUHRBIER,
Contractor and Builder.



A Busy Builder

To the Editor: Fairfield, Cal.

I notice a great deal about winter work which I enjoy reading.

I am picking up some of it myself, as I have a little shop on the back end of my lot. I just finished a kitchen cabinet for a fellow that I remodeled a house for. This winter I raised up the roof seven feet in order to get another story under. Now I got a barn to build, and also a hog house similar to that shown on page 50 of the February, 1915, issue. I am also figuring on raising a house up four feet, so as to get an 8-foot basement.

Enclosed you will find a picture of a modern bungalow I built this past season, planned by myself.

LOUIS HAGEMANN.

Quick Way To Hang a Door

To the Editor: Canton, Ohio.

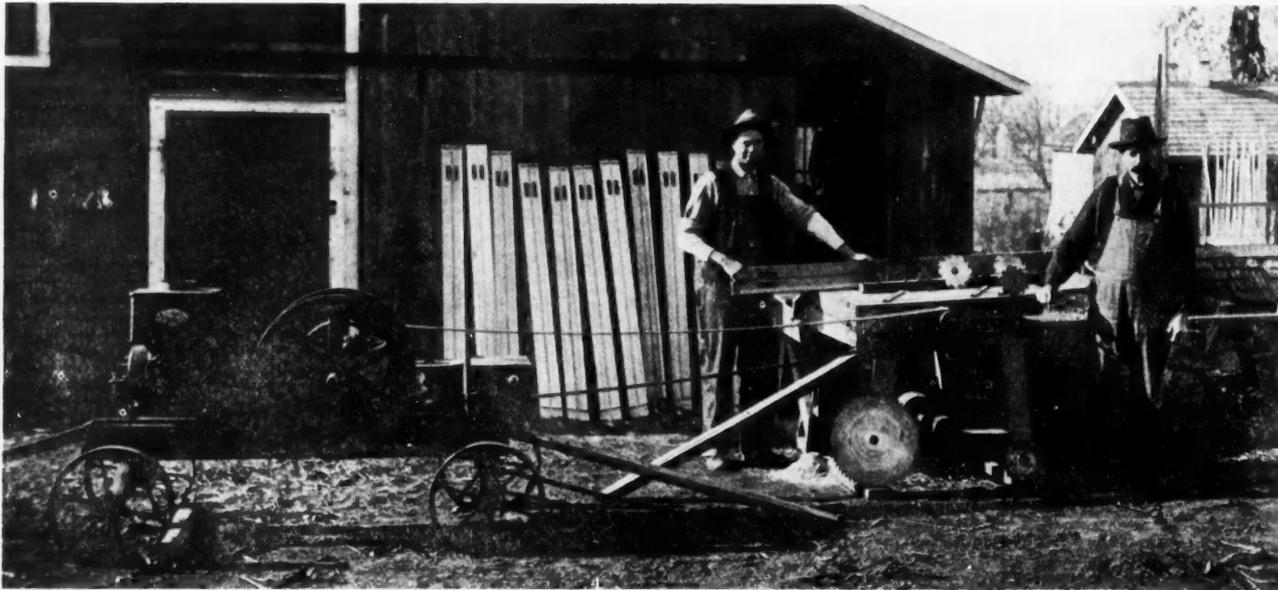
I saw in the December issue that G. W. Donaldson would like to know the quickest method of hanging a door.

Here is my method:

First I have the gains for the butts gained out on the bench before the jambs are set. Then I drive a nail in the stile so I can hold the door while I mark it. On one edge I mark with the point of the pencil close to the jamb. On the other edge I lay the pencil flat against the jamb, which gives me just the right amount of clearance. After the door is planed to these marks I drive a nail at each corner of the frame, place the door against these nails, raise it up against the head jamb, use my foot to force a chisel under it to hold it in place while I mark for the butts. Then I take my router on which I have a piece of aluminum $3\frac{1}{2}$ in. by 9 in. screwed at the bottom, which keep it from digging in at the wrong place, and set it just the depth of the butt. Gain out for butts, screw one half to door and other half to jamb. Place door in position, slip pins in place, and job is completed. I always leave stops off until after the lock has been mortised in.



Modern Bungalow Planned and Built by Louis Hagemann, Fairfield, Cal.



Saw Rig Equipped with Special Head Making Window Frames for Fred Baumann & Son, Belle Plaine, Minn.

This method should not take more than 20 minutes on a pine door.

I wish to thank you for the book "How to Read Plans and Take off Bills of Material" and hope this will help Mr. Donaldson.

Then I read how Architect Gilmore says the building magazines remind him of an auto race. They don't me, for my father was a subscriber to "The American Carpenter and Builder" and two other building papers, and I am a subscriber to the AMERICAN BUILDER, and I don't think that there has ever been any other one in the lead.

FRED E. LUCAS.

He Uses a Power Woodworker

To the Editor: Belle Plaine, Minn.

Enclosed you will find photos I have taken of our saw rig and jointer, which we built ourselves.

One is a photo of our jointer head at work. This is a jointer we bought and the table we built ourselves. The photo shows where we planed 6,000 feet of green cottonwood.

The other is a photo of our saw rig at work making window frames, with a patent dado head. This is one of the best dado heads on the market today.

FRED BAUMANN & SON, Contractors and Builders.

(Correspondence Department Continued to Page 92.)



Jointer Head Mounted on Home-Made Table Planed 6,000 Feet of Green Cottonwood.



What Every Architect and Builder Should Know About Strength of Materials and the Design of Safe Construction

Noon Hour Talks by the Boss Carpenter

Talk No. 66—Calculations for a Small Factory Building (Continued)

THE BOSS SHOWS AN ALTERNATE TYPE OF CONSTRUCTION USING STEEL BEAMS, CAST IRON POSTS AND TIMBER PLANKING

"IN OUR last talk," said the Boss, "we showed the exterior elevation, plan and section of a small factory building and designed the posts, girders, beams, floors and roof, using timber semi-mill construction throughout the building. This time we will take the same building and the same loading, but substitute rolled steel I-beams in the place of the

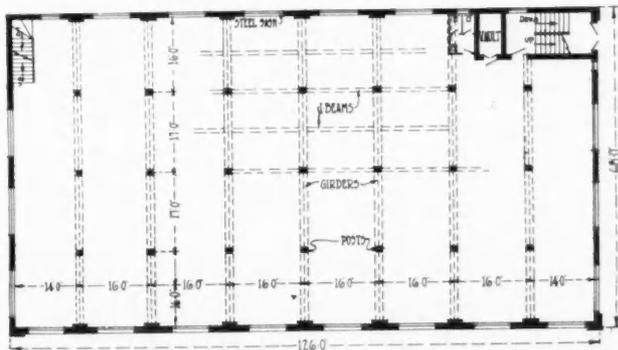


Fig. 1. General View of Floor Plan, Showing Location of Beams and Girders.

timber beams and girders, and round, hollow cast iron columns instead of the square timber posts. We will use wood floor and roof planking as in the other case.

"Since a detailed description of the building was given in our previous talk, we will not go over that part again. You will remember that we used the long span of the beams and girders as a basis for our calculations, and then used these same sizes of material in the shorter end spans. The floors are to carry a load of 125 pounds per square foot of area, and the building has a flat roof. The total roof load is considered to be about 55 pounds per square foot of roof area.

"The general layout of the interior framing is just the same as before and is shown in Figs. 1 and

2. Since this is the case and the floor loads are identical with those used in our previous case, the thickness of the floor planking will be 3 inches, as before. Tongued and grooved planking covered with a $\frac{7}{8}$ -inch finished floor should be used. Fig. 3 shows the method of spiking the floor planks to the flanges of the beams.

"Again, the loads carried by the floor beams which extend between girders will be 17,000 pounds, uniformly distributed, as in the previous talk. The size of the rolled steel I-beam needed to carry this load with a factor of safety of 4 will be found from the following formula:

$$15,000 \times S = \frac{1}{8} Wl$$

Where S is the 'section modulus' for the rolled steel beam, W is the total uniformly distributed load in pounds carried by one beam, and l is the length of the beam in inches between supports.

"The value of S , 'section modulus,' is given in all of the handbooks of the steel manufacturers who furnish rolled sections for the market, and is the same for all standard sizes of beams. Rolled steel I-beams are usually classed by their total depth and the weight per foot of length, as shown in the table which follows. The area of cross-section and the value of the 'section

(Continued to page 120.)

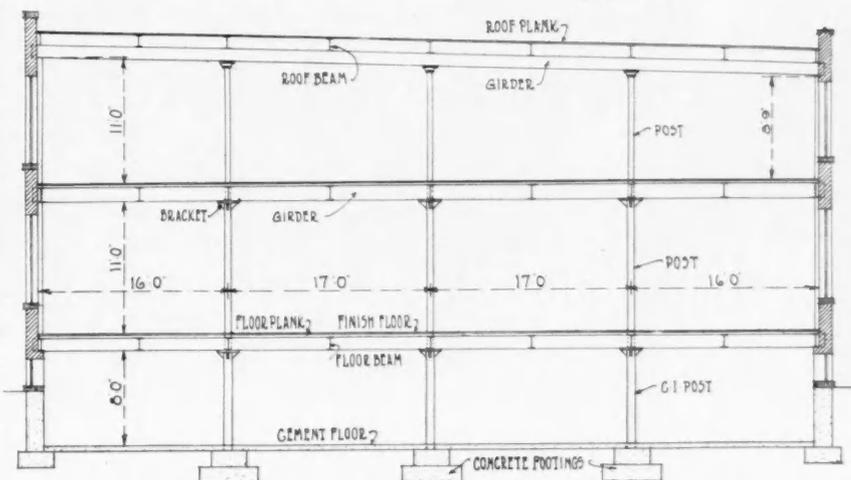


Fig. 2. Cross-Section of Building, Showing Heights and Columns.



Model Home Designs

A Livable, Lovable Home

The accompanying plans and perspective drawing have been studied with the purpose of showing a distinctly home-like dwelling for a small family of the sort who feel the roof-tree to be something more than a piece of real estate.

To insure family privacy under all circumstances, every home should have two lines of communication, invisible the one from the other. Also for compactness and economy, both in construction and in travel about the house, long hallways should be avoided. To attain these ends, our house has a front and a back stairway, separated by the central chimney and closets, the whole group of stairs, halls, chimney, etc., being located in the center of the house.

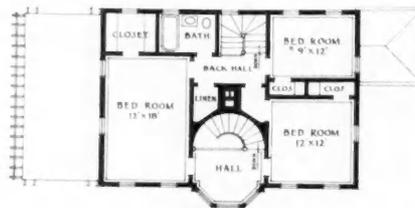
On the first floor the living room, across the entire end of the house, is

the ideal family gathering place, with its shaded porch for the warm season and a generous nooked fireplace throwing out warmth and hospitality against the cold and stormy months. Notice that this room is accessible from and to all other parts of the house.

The front entrance opens into a welcoming hall with one of those half-circular stairways so charmingly con-

ceived in the olden times. To the right is the dining room, with a built-in china cabinet and direct communication with a light and airy kitchen equipped with ample pantry space and every modern convenience. The back stairs are most handy both to the upper story and to the cellar.

On the second floor the two principal bedrooms occupy the two front corners



SECOND FLOOR PLAN



FIRST FLOOR PLAN



Dutch Colonial Home Possessing Many Superior Points, Designed by George Guppy, Architect.

of the house and flank the hallways, front and rear. The front hall is expanded into a pleasant sewing room by a glazed bay thrown out over the front door. On this floor note the ample closets, especially the one in the master's room, the convenience of the bathroom, and how the small third bedroom is most fortunately located in the event of a maid in the house.

As to the house decorations, the opportunities here are too numerous to describe offhand—painted finish or natural woods, papers, hangings or what not. In so small a house one general caution can, however, be given. Do not try to introduce too many distinct periods into the several rooms. In fact, do not try *any* distinct-period decoration, but adopt some homelike treatment founded, say, on our own so-called Colonia! style, or early English Georgian, and let a note of harmony pervade the entire house, carefully avoiding any too conspicuous contrasts.

The exterior of the house may be done either with weathered shingles, the trimmings picked out with soft gray or buff, and with bronze green blinds; or the walls covered with wide siding and painted either pure white or as suggested for the trimming above.

Of course, the windows should be divided with small lights of glass, and the little muslin curtains which make the rooms so homey inside are just as effective seen from the outside.

The final touch is given by Father Time and Mother Earth. Anyone in

the family with a gift of making the flowers bloom can in a season or two give the home that atmosphere which makes it belong.

Something New In A Bungalow Cornice

The bungalow designer takes liberties and gets away with it. He has brought back the fancy rafter end and the decorated barge board, and has made the public like it.

Pierced ornamentation along with jigsaw work, had been relegated to the architectural attic, but the bungalow man has climbed up there and dragged it out again.

In fairness, too, we must confess it looks OK. The pierced barge boards of this little brown and white six-room bungalow add a touch of light and shade to the gable ends that is very attractive. This seems to be well in keeping with the rest of the design. The exposed rafter ends, the braced brackets supporting the gable projections, and the vivid white trim set off against the dark body color, all produce a very pretty picture.

This is a bungalow that will go on a comparatively narrow lot. The size is 27 feet 6 inches by 39 feet. Six rooms, besides bath, pantry, and closets are provided.

The living room and dining room open together so as to make quite a spacious apartment. The three bedrooms and bathroom open from an inside hall. The front bedroom, opening from the living room, could be used as a parlor or den, if preferred.

The kitchen and pantry are well placed. The refrigerator is in the pantry with icing door from the back porch.



Floor Plan of Bungalow, Size 27 Ft. 6 In. by 39 Ft.



Six-Room Brown and White Bungalow with Pierced Ornamentation in Cornice. Floor Plan Shows Six Rooms Conveniently Arranged.

Six-Room Stucco Cottage

It makes a wonderful difference how a home is designed. There is a harmony or architectural parts, a balance that costs no money to achieve, but which may add \$1,000 to the selling value of a dwelling house.

This is the beauty of good proportions. It has nothing to do with the so-called ornamental effects that are often added—stuck on by the amateur planner in his effort to help out a bad job. It comes from proportioning height of side walls with height and pitch of roof, by placing the windows so that the window groups and the wall spaces between them are of graceful shape, and by making sure that every architectural part has a valid reason for being present.

In much of our home planning in America we are getting back to simple lines and modest, useful effects; and the average small dwelling is the better for it.

This little stucco cottage illustrated in the photograph is pleasing to look at, because it is in harmony with itself. The large, square columns at the corners are right to hold up the heavy roof projection. The windows are placed where they are needed for proper lighting of the different rooms, yet they come right as viewed from the outside also. The exterior is stuccoed in a dark gray or warm tan shade, which contrasts brightly with the white painted trim.

The floor plan shows the interior of this cottage to have six very convenient

rooms. The living room is of generous size, 17 feet 6 inches by 15 feet, and thru a wide cased opening at the back one enters the dining room. This is the most cheerful part of the house with

its bay window, with built-in-seat, its attractive dining room buffet and satisfactory size.

Opening out of the dining room is a small inside hall, which leads to the two bedrooms and bathroom and also down to the basement. Straight back of the dining room is the kitchen with attached pantry. The ice box in this has its icing door out to the back porch, which means that the iceman doesn't have to come into the house at all to fill the refrigerator.

The size of this cottage is 28 by 43 feet.



Employment of Minors

Do not employ children under sixteen years of age at any of the following:

- Work on scaffolding, or on ladders, or any heavy work in the building trades.
- Operating any steam boiler or steam-generating apparatus.

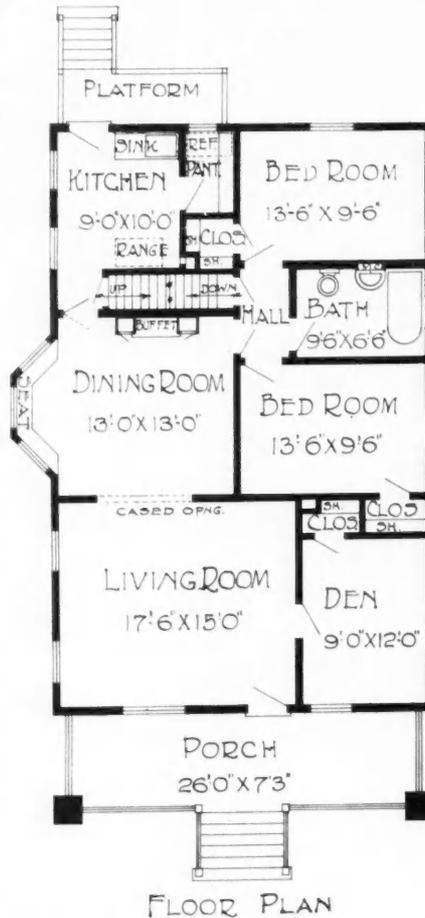
- Operating any wire or iron-straightening machinery, punchers or shears.
- Operating any emery or polishing wheel for polishing metal.

- Oiling or assisting in oiling, wiping or cleaning any machinery in motion.

- Operating or assisting in operating or taking material from any circular or band saw, or any cross-cut saw or slasher, or other cutting or pressing machine from which material is taken from behind.

- Employment on any wood shaper, wood jointer, planer, sand-paper, wood-polishing or wood-turning machine.

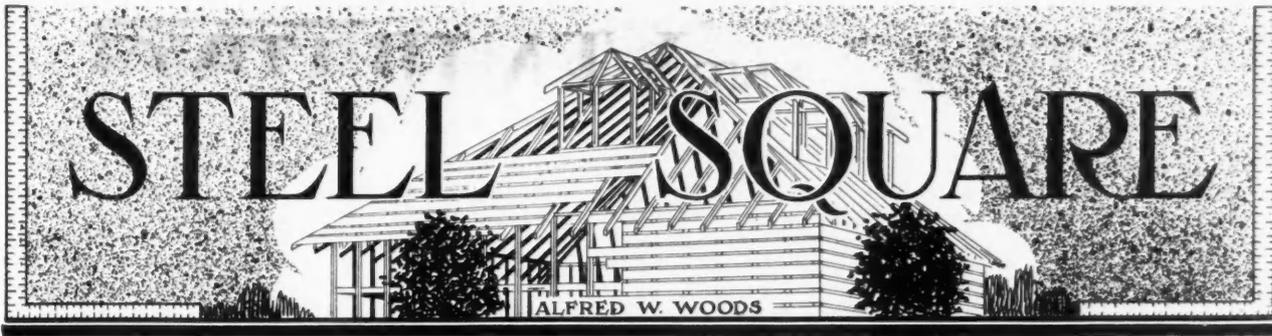
- Any other employment dangerous to life or limb, injurious to health, or depraving to the morals.



Floor Plan of Stucco Cottage, Size 28 by 43 Ft.



Well Designed Little Six-Room Stucco Cottage Containing Many Desirable Features.



Possibilities of the Steel Square

REMINISCENCES IN CARPENTRY WORK PERTAINING TO THE USE OF THE STEEL SQUARE TOGETHER WITH SOME ODD USES TO WHICH IT MAY BE APPLIED.

By A. W. Woods

THE Steel Square is a tool of mystery, for who has not wondered at the marvelous results in a mathematical way that may be obtained with it when in the hands of one who knows how to manipulate it? It is one of the oldest tools, its use "runneth back to the time the memory of man knoweth not." Next to the saw and hammer it is probably the most used of any to be found in the carpenter's tool chest, yet commonly speaking, it is the tool of which least is known, as to what may be accomplished with it. It is used by the lowest saw and hatchet workman to the highest skilled in the art of carpentry, and yet comparatively few, up to recent years, could get along very far with it, without running up against a problem too deep to get across.

Before going further, we want to say that we have reference to the plain steel square stripped of everything but the standard measurement in inches and their fractional divisions. This alone in connection with a knowledge of degrees when applied with it can be made to cover the whole field in the art of framing. We have no doubt, some will say that we are discriminating against the many patented squares now on the market, dozen of others which the general mechanical public have never seen or even heard of and we might further add, the majority of the patentees of

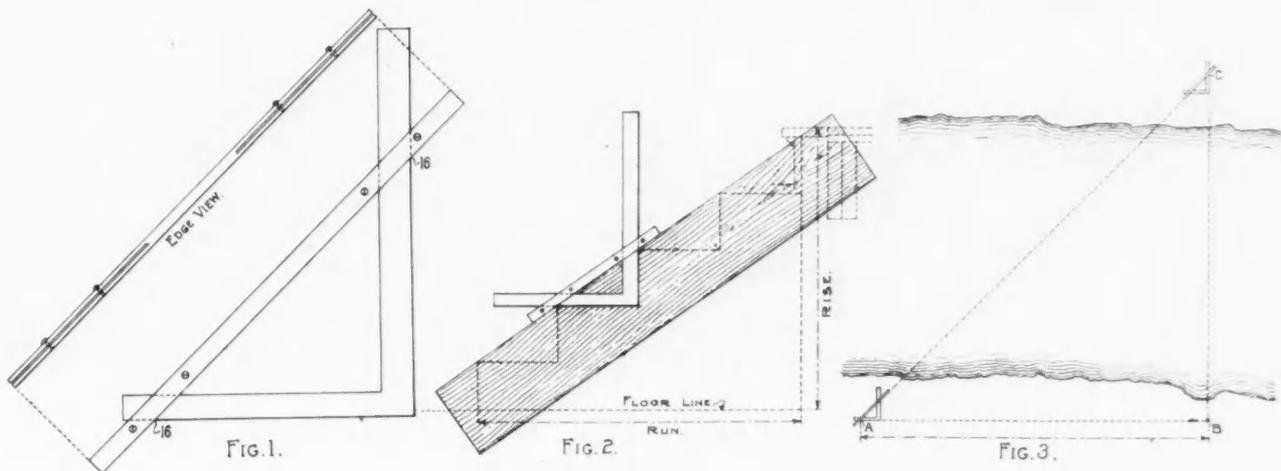
these squares wish themselves that they had never heard of them. Of course some of them contain merit in the way of short methods in arriving at some of the more common cuts but at best their scope is limited and we repeat that none of them produce anything but what may be obtained with the common steel square as before mentioned.

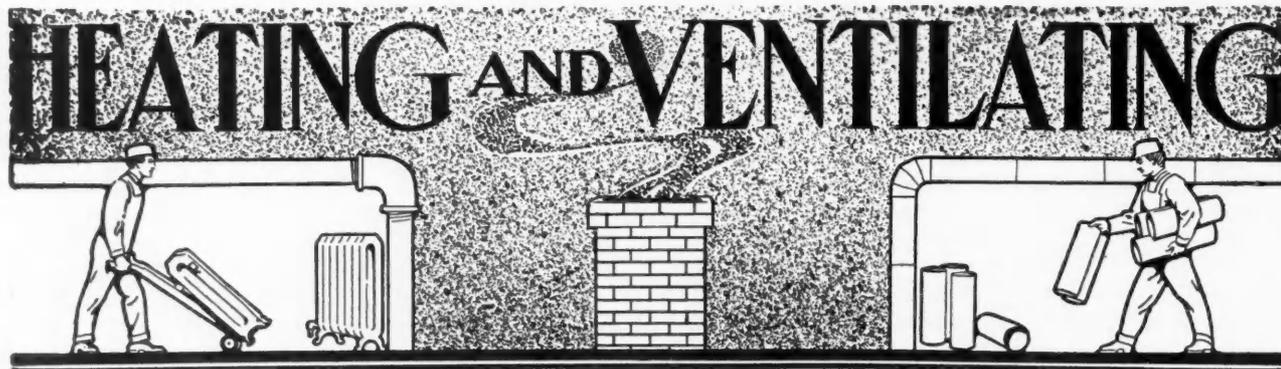
Yet strange as it may seem, it has been only in the memory of the old time carpenters now living that its (the square's), rigid arms with its figures and divisions have become more generally understood, due to the teaching of publications pertaining to carpentry and building. You say then, how did the old time framers get along without the use of the square?

They got along with it indirectly, that is, they used it in connection with the compass in laying out diagrams from which they obtained the required angles; and from these they transferred by means of the bevel square which they adjusted to the angles in the diagram; and then by applying the bevel square to the timbers, scribing with a scratch awl. It was then ready for the man who just sawed wood and trusted to the one who did the scribing act for the accuracy of the joints when set up in place.

As a rule the man who did the scribing was not one given to enlighten others as to how he arrived

(Continued to page 142.)





The Installation, Care and Operation of the House Furnace—(Part I)

By K. G. Smith

Engineering Extension Department, Iowa State College*

FOR at least six months in the year inhabitants of Iowa are vitally interested in the problem of house heating. Various means are employed for this purpose; the fireplace, the stove, the steam heating system, the hot water heating system, and the warm air furnace. The fireplace is not effective in severe weather, and the stove, for heating purposes, is gradually being displaced by the other systems. Each one of the three systems mentioned has its own field to which it is particularly adapted, and its advantages and advocates.

Steam and hot water systems usually have the advantage of being installed under the care and oversight of competent engineers and are carefully designed to meet requirements. The warm air furnace has suffered because of its elasticity. That is, a furnace which would easily heat a house in zero weather, under normal conditions of firing would heat the same house at 20 degrees below if crowded. It is on account of this very elasticity that the warm air furnace of small heating capacity has been abused and often proven unsatisfactory thru no fault of the system itself.

A good furnace of sufficient size, well installed and properly operated, is a healthful and efficient method of heating the average dwelling house. For large buildings in which the rooms to be heated are far distant from the furnace, it is not adapted. This statement does not apply to mechanical hot blast systems.

It is not intended in these articles to discuss questions of design and the merits of various types of heating installation, but to confine what is said to the installation, operation and care of the warm air, house heating furnace. However, much of what is said in regard to chimneys, firing, and care applies to other systems just as well as to the warm air furnace.

Chimneys

To get a good, satisfactory installation begin with the chimney. The chimney should be as straight as possible and free from bends or offsets. An attractive architectural design sometimes interferes with the

chimney draft by decreasing the size of flue. The flue area should not be decreased for the sake of supposed architectural effect. Gases passing out of the chimney are retarded by rubbing against the walls. The less wall there is for a given area, the more efficient the chimney. Lining a chimney with good, smooth tile with well pointed joints reduces the friction and lessens the danger of fire but, in so lining it, *care must be taken not to reduce the flue area below what is necessary for good draft.* For instance, if an 8 by 8-inch flue is desired, the *inside measurements must be 8 by 8 inches.* No flue should be less than 8 by 8 inches, better 8 by 12 inches. Floor beams should not stick into the chimney.

Aside from having a good flue the chimney should



Why Some Chimneys Won't Draw.

be high enough to be free from interference by currents of air deflected by the roofs of buildings or trees. Chimneys from 40 to 60 feet high are the most satisfactory. Height is measured from the grate to the top of the chimney. A chimney depends for its draft on its height, and the difference in temperature of the air on the inside and outside. If the air inside the chimney is chilled by dampness or because the chimney is exposed to cold winds on the outside of the house, it will not draw well. For this reason, the best location for a chimney is in the center of the building where all four walls are protected. Exposed walls should be at least 8 inches thick.

There should be no holes in the chimney other than those necessary for the smoke pipe. It is not a good

*Publish as Technical Service Bulletin 27, of Iowa State College.

(Continued to page 116)

Stanley Garage Hardware



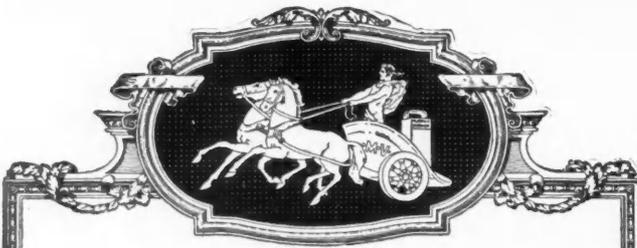
BECAUSE of the many advantages of using hardware specially designed for garage use, and the advisability of building garages so that their doors may open out, a larger quantity of Stanley Garage Hardware will be used this year than ever before. Its strength, its durability and its appearance make it the hardware you should use on the garage you build.

A beautiful calendar bearing the above picture reproduced in colors will be sent to any architect, contractor or building material dealer requesting it on his business stationery.

The Stanley Works, New Britain Conn., U. S. A.

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Chicago
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ANA

Correspondence Department

(Continued from page 84.)

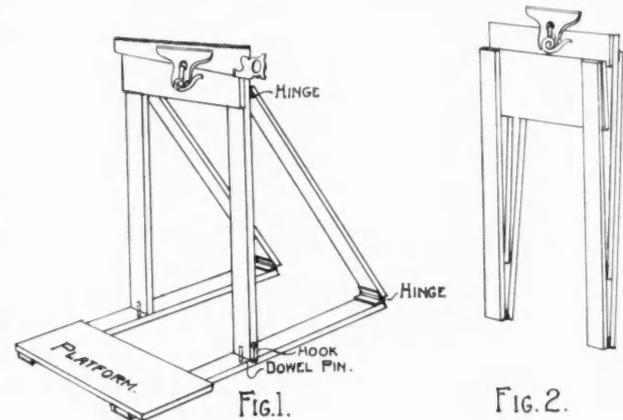
A Filing Stand

To the Editor:

Wellsville, N. Y.

I am enclosing a sketch, as shown in Figs. 1 and 2, of what I call a "Filing Stand" that I have developed, and find it a great convenience many times.

I wish to suggest a few of its advantages, the first of which is that it is perfectly rigid wherever it is set up and may be placed on any kind of a floor without any fastening whatever, the weight of the operator holding it in place.



Handy Saw Filing Stand.

Another thing is that it may be set where the light is best and at any angle to the light. It can be built to the height as chosen by the mechanic, so that he can work to the best advantage.

Filing is only one of the things I use it for. I find, in fitting up scraper blades, where one is working on finished or partly finished floors, it is a great help. When folded up, as shown in Fig. 2, it takes up very small space and can be hung on the wall, if desired.

CLAIR P. LUDDEN.

✦ Hanging Doors

To the Editor:

Twin Valley, Minn.

In the December number G. W. Donaldson asks for quickest way to hang doors. In plans, where shown which way door is to swing, it is easier to cut out for butts in jamb before nailing together. Lay jamb on bench, mark down 7 inches from head gain to the top of butt and 12 inches from floor line up to lower butt. Fit in butts, two or three, as needed, but do not screw them on yet.

After jamb is set, but before the casings are on (they are in the way), tack a thin block inside of each jamb to prevent the door from falling thru; hold the door against and have it marked close along the jamb. Trim to this mark, which is the inside of the door, but by squaring across the edge of the door to the mark you get the same size for the outside, and it will fit perhaps a little too tight, yet when you bevel it—towards inside—you get a good-fitting door without having to try it a dozen times.

We will suppose that the door was planed straight and the jambs set straight-edge. If the door does not fit, you still have a way, by driving light shims back of jambs, pressing them close to door, as you like.

In fitting the butts, I cut around them with a knife, chip out a light backing for the chisel, then cut to near the depth wanted and use the router plane for leveling the bottom of

(Continued to page 94.)

Hundreds of Contractors and Builders

have earned their reputation through

AMBLER Asbestos Shingles

(Nothing to Burn)

and what they have done YOU can do.

Ambler Asbestos Shingles make a permanent, indestructible fireproof roofing, and are a monument to the good judgment of the Contractor or Builder who specifies them.

They are composed of Cement and Asbestos—both unburnable and, therefore, proof against fire. They are made in three unfading colors; and many designs, and will harmonize well with any color scheme or architectural style.

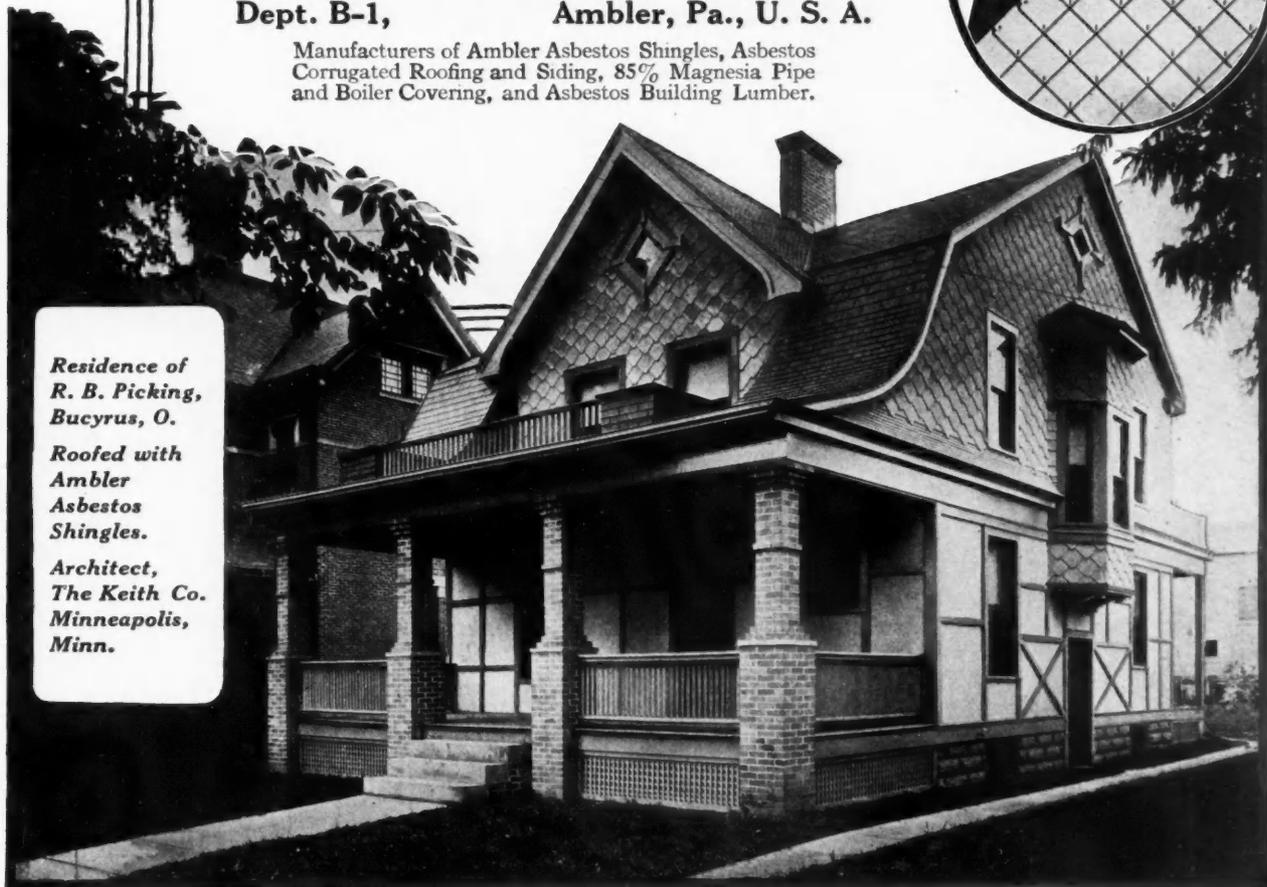
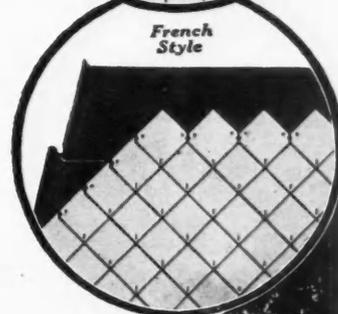
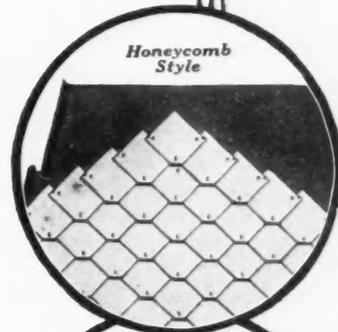
As it is impossible to tell their whole story here we will gladly send you literature, prices and pictures upon request.

KEASBEY & MATTISON COMPANY

Dept. B-1,

Ambler, Pa., U. S. A.

Manufacturers of Ambler Asbestos Shingles, Asbestos Corrugated Roofing and Siding, 85% Magnesia Pipe and Boiler Covering, and Asbestos Building Lumber.



*Residence of
R. B. Picking,
Bucyrus, O.*

*Roofed with
Ambler
Asbestos
Shingles.*

*Architect,
The Keith Co.
Minneapolis,
Minn.*

Correspondence Department

(Continued from page 92.)

gain. This does not make so smooth a cut as a chisel may, but makes it even, no twist, and in shorter time.

After the door is beveled, slip a chip under it to hold high enough to mark for butts. Use a sharp knife and cut at both edges of gains in the jamb; if done right they will meet.

In fitting locks (I never have had a mortiser), it takes me about forty-three minutes to put on an inside lock complete. Three feet is about the right height from the floor to the center of knob for ordinary doors. It pays to bore holes for mortise close, as it makes easier digging out. After the lock is fitted to door, mark lightly above and below tumbler (on jamb). Then measure from front side of tumbler to the front edge of door, make a mark to correspond on jamb; hold strike plate with the front of tumbler hole just to the mark; next hold it right there till you have bored the two holes for screws; a No. 4 point in an automatic drill is about what to use. Screw the plate on. This makes a good backing for chisel while cutting out for the tumbler and lock bolt. Then the cutting around the plate, removing the two screws, gaining in and putting plate on again takes only a few minutes.

I put on the head stop first; I put on the head stop leaving about $\frac{1}{32}$ inch for clearance; last, the stop on lock side, quite up close.

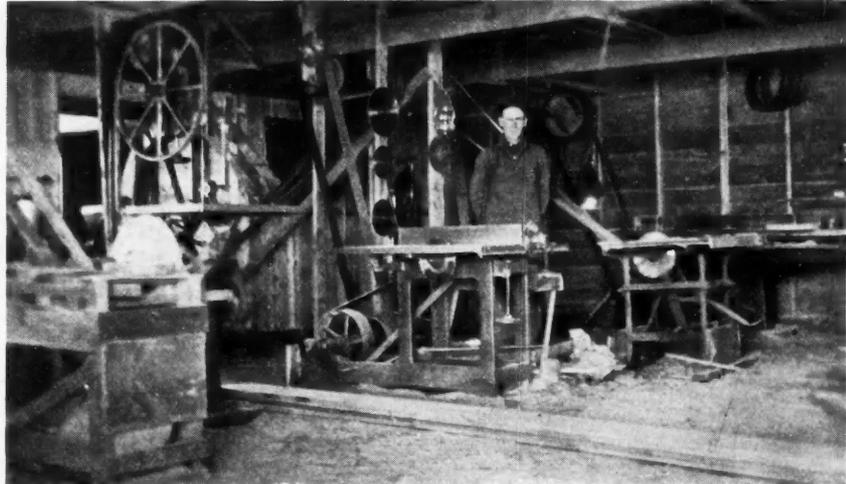
A. O. STIEN.

Well Equipped Power Shop

To the Editor:

Regent, N. D.

My woodworking shop, illustrated in the photo, is 30 by 32 feet in size. The equipment includes 32-inch band saw, a combination saw table, a swing cutoff saw, a 12-inch jointer, an 18-inch sanding disc and turning lathe, and a mortiser. I run it all with an 8 h.p. gas engine.



R. A. Billman in His Woodworking Shop.

In this shop I keep busy the year around. In addition to my building work, I make store showcases, hardware wall cases, office fixtures and all kinds of furniture. I am always anxious to get the AMERICAN BUILDER. R. A. BILLMAN, Contractor and Builder and Manufacturer of Wood Specialties.

THE BOSTWICK STEEL LATH CO.

BOSTWICK
Corner Bead for
Every Plaster
Corner. Bost-
wick Snap
Bead for
Long Con-
crete Beams,
Girders and
Columns.

Bostwick Kornerite
to Prevent Corner
Cracks.

IT WILL PAY YOU
to Send for
Samples and Data.

N I L E S , O H I O

JOHNS-MANVILLE ASBESTOS ROOFING

Profitable Opportunities in Your Town

The roofing dealer who can meet every roofing demand with a suitable and serviceable roof is the dealer who lands the big business.

In the Johns-Manville Line of Asbestos Roofings, there's a roof for every requirement—and each has distinct service and sales features. Based on the age-old mineral, Asbestos, these Roofings resist fire, time, weather and wear, with a cost for upkeep and repairs so low as to be practically negligible.

The market for these roofings lies at your very door. The farmer whose stock and equipment comprise his working capital needs the protection of a safe and durable roofing for his big new barn. Your neighbor, building a new house, will be glad to safeguard it with a roofing of fire-safe shingles. The new bank building, the business block, the hotel, church, school, warehouse, or factory—each of these has a distinct need for just such a safe and economical roofing as Johns-Manville offers.

A Genuine Dealer Opportunity

We want a few builders in various sections of the country to handle Johns-Manville Asbestos Roofings. We want men of good standing, able to make full use of the help we will give—men who measure up to the big possibilities of this profitable business.

If you're the right man, ask us for further details, for our proposition will prove interesting.

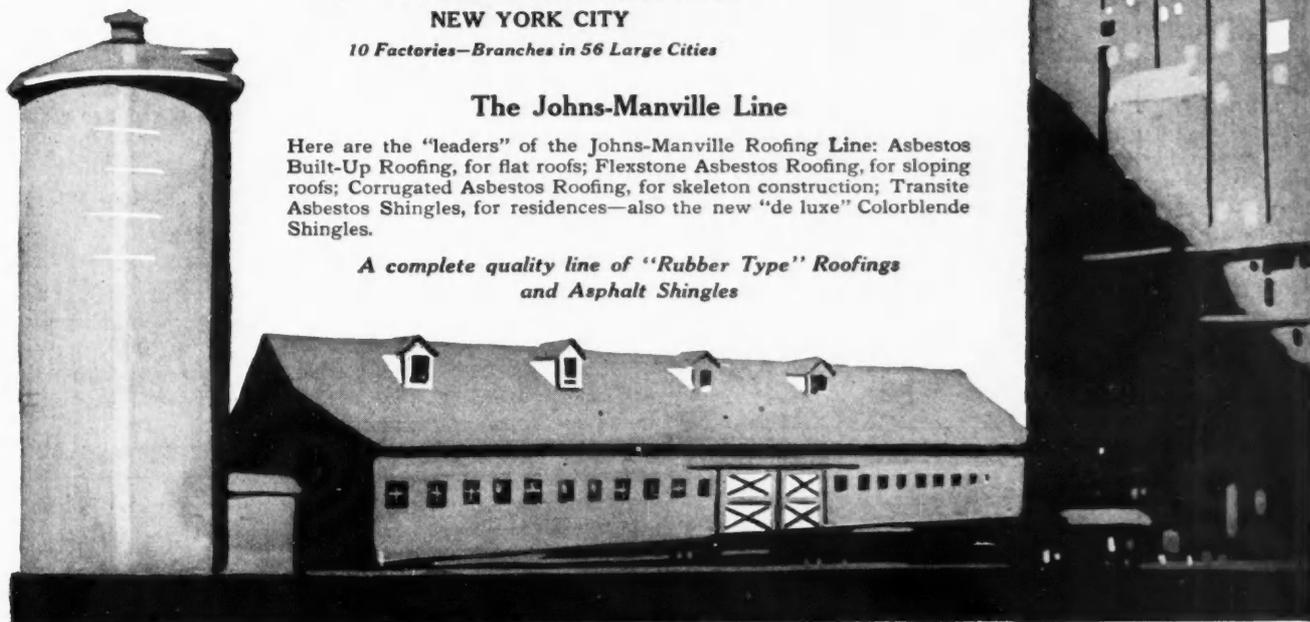
H. W. JOHNS-MANVILLE CO.
NEW YORK CITY

10 Factories—Branches in 56 Large Cities

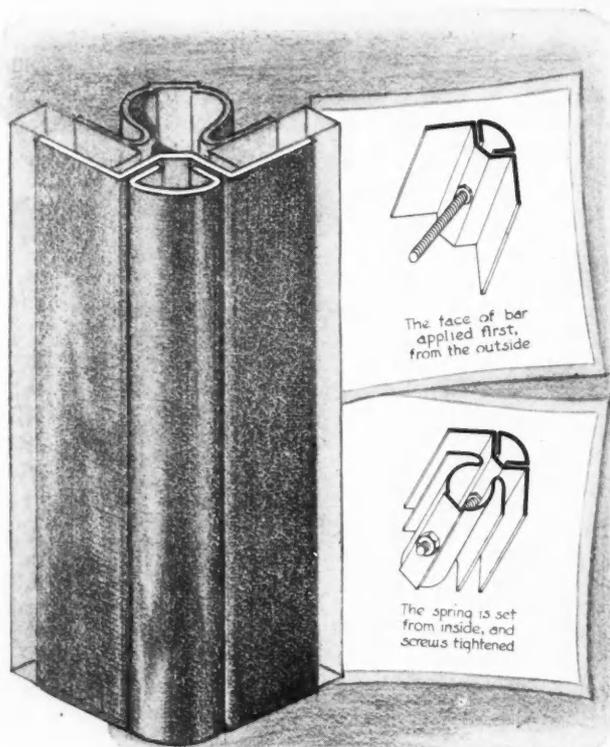
The Johns-Manville Line

Here are the "leaders" of the Johns-Manville Roofing Line: Asbestos Built-Up Roofing, for flat roofs; Flexstone Asbestos Roofing, for sloping roofs; Corrugated Asbestos Roofing, for skeleton construction; Transite Asbestos Shingles, for residences—also the new "de luxe" Colorblende Shingles.

*A complete quality line of "Rubber Type" Roofings
and Asphalt Shingles*



WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER



Are You Interested in Store Fronts

YOU no doubt are. In selecting a certain Store Front Construction, be sure that you select one that will prove satisfactory—a construction that will *finish up* well, and which affords the greatest possible safety for the glass; a construction that will be easy to install, saving you time and labor, *besides* being permanent and of a lasting, good appearance. All these merits are embodied in

Kawneer STORE FRONTS

Make one good Store Front Job sell another. Merit will tell. Two good jobs will sell *the third one*, and you will soon find yourself firmly established in your community, doing a profitable Store Front Business.

You have been looking for short, clean and well paying jobs. Here's your chance. Write for our Catalog "H," containing half size details of our Store Front Construction. It is yours for the asking.

Kawneer Manufacturing Company
Niles, Michigan

PIN THIS COUPON TO YOUR LETTERHEAD

*Please send me a
copy of Catalog 'H'*

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

Correspondence Department

(Continued from page 94.)

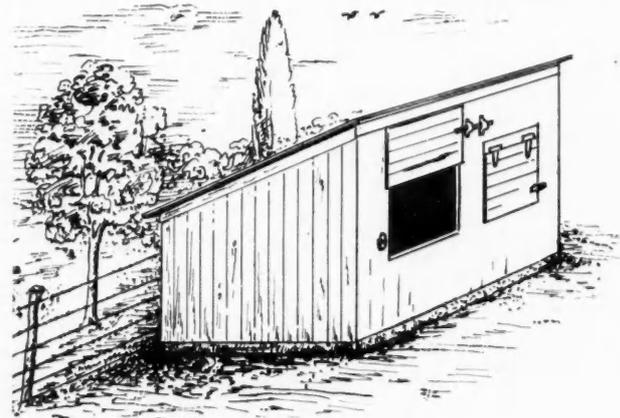
Tank House to Prevent Freezing

To the Editor:

La Fargeville, N. Y.

I recently built two small buildings over concrete water tanks, and as some of the readers may be interested in such work, I will tell about the construction of the tank and building.

The tanks were 6 by 12 feet by 1 foot 8 inches inside measure and with the walls 6 inches thick, with a base extending out about 5 inches on the ends and rear and about 3 inches in front. In this base, or ledge, were set bolts about 2 feet apart, so that the sills could be bolted fast. The 5-inch ledge was made so that the frame could be boarded on the inside as well as out. This base should be high enough above the



Simple House to Protect Stock Tank.

ground to protect the sills and should extend out only 2 inches on the front, so as not to make the wall too thick for small stock to reach over and drink, the 2 by 4 are set flatwise in front on this account.

The building is 6 feet high at the back and 8 feet in the front, or 6 feet above the tank, so that there will be room for the doors, which open upward. Covers are put on the tank inside the building; these may be hinged to a plank laid lengthwise or may extend across the tank and be left loose.

These tanks cost \$20 each for cement and labor, the farmer furnishing the stones, gravel and helping with the mixing. The building required some 200 feet of 2 by 4's, 400 feet of matched lumber and 1 thousand shingles. Buttons were used to hold the doors shut and also to hold them open, and two large slot pieces were put between them near the top, so that a stick could be put thru to hold the doors up.

It took two and one-half days to build one of these buildings.

JOHN UPTON.



Builders Complete From Foundation To Roof

To the Editor:

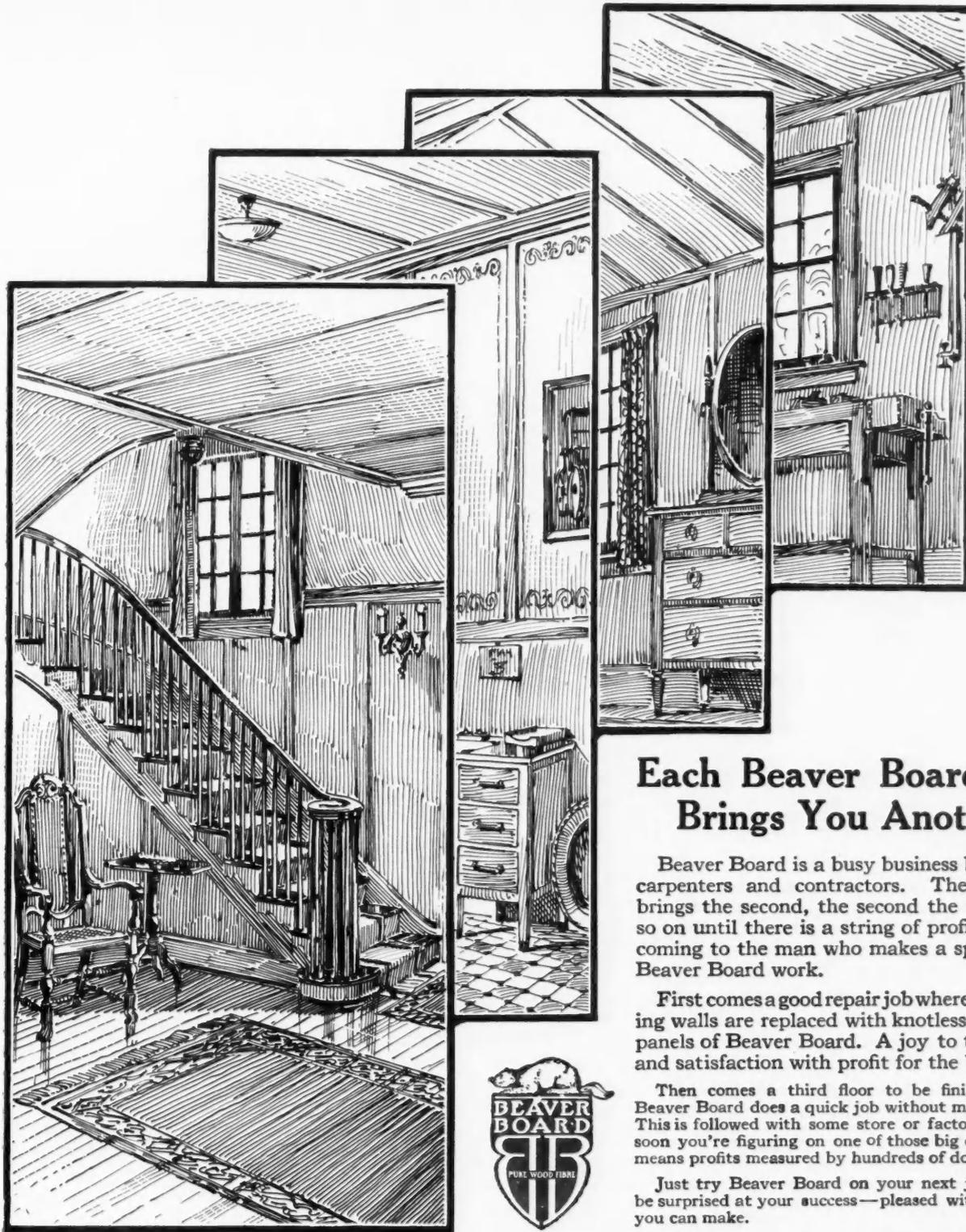
Pleasant Plain, Ohio.

Inclosed find our check for \$2.00 also coupon for renewal of our subscription to the AMERICAN BUILDER on which we have checked the book we desire as premium. Please accept our thanks in advance.

We have never taken the time to write to let you know who we are or what we do but a glance at the above letter head explains our position in the world of workers in the hive of industry.

We are forwarding to you by this mail one of our 1917

(Continued to page 98.)



Each Beaver Board Job Brings You Another

Beaver Board is a busy business builder for carpenters and contractors. The first job brings the second, the second the third, and so on until there is a string of profitable jobs coming to the man who makes a specialty of Beaver Board work.

First comes a good repair job where old cracking walls are replaced with knotless, crackless panels of Beaver Board. A joy to the owner, and satisfaction with profit for the builder.

Then comes a third floor to be finished. Here Beaver Board does a quick job without muss or litter. This is followed with some store or factory job, and soon you're figuring on one of those big ceilings that means profits measured by hundreds of dollars.

Just try Beaver Board on your next job. You'll be surprised at your success—pleased with the profit you can make.

Our Department of Design and Decoration is always ready to help with practical suggestions.

THE BEAVER BOARD COMPANIES
31 Beaver Road Buffalo, N. Y.

Distributors in principal cities, dealers everywhere.



You can't expect BeaverBoard results unless this trade-mark is on the back of the board you buy.

BEAVER BOARD

FOR BETTER WALLS & CEILINGS

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

Correspondence Department

(Continued from page 96.)

calendars and think it one of the best we have ever put out for advertising our business.

There are just the two of us and we work together and do all of the above mentioned things ourselves and depend on none to do our work, as competent help is hard to get. We build a building from the ground up by the day or contract.

We complete a building from the ground to the painting and we find that this is the most satisfactory way we can work as there is no waiting for the tinner; when the gutters are ready to line, we are there; when the bricklayer is wanted, we are ready; and when it is ready to plaster, we do not have to wait for the plasterer, and also the same with the priming coat of paint and the finishing coats, we are not bothered by the worry that possibly we are doing some part of the other workmen's work nor do we have to wait for them.

This we have found not only satisfactory to us but to our customers, as there is no delay or waiting and the only delays we suffer are from parties who furnish us material, transportation companies and weather or from sickness.

Our motto is: "What is worth doing is worth doing well." We write advertisers in the AMERICAN BUILDER every month and sometimes as high as five and six of them and are now representing several of them.

I was a Charter Member subscriber to the AMERICAN BUILDER, but after a few years we dropped it and then commenced again as we find that you are advocating better work, progressive ideas, etc., the same as we have found are necessary from actual experience.

A. A. STEWART & SON,
By W. D. Stewart.



Wisconsin Farm House

To the Editor: Osseo, Wis.
Am enclosing a picture of a farm house which I planned and built last summer, the house is 28x28 with 12 ft. posts exclusive of porch.
ERNEST JOHNSON.



Credit at the Bank

To the Editor: Morgan Park, Ill.
I am in a partnership in carpenter contracting and jobbing. We have been in business for two years, having started with no capital and very little equipment. Our aim is to make each job a recommendation for more work, and upon this basis we are working up a good business and a good recommendation in our locality, but we are greatly hampered by lack of capital.

We have a great deal to learn yet about the business world, and any information will be very much appreciated.

(Signed)

Answer: The key to the whole situation is the kind of
(Continued to page 100.)

"Beautiful Birch for Beautiful Woodwork"

1917		DECEMBER				1918	
SUN	MON	TUE	WED	THU	FRI	SAT	
●	○	○	○	○	4	5	
2	3	4	5	6	7	8	
9	10	11	12	13	14	15	

Turn over a new leaf NOW! 1918 WILL BE ANOTHER BIG BIRCH YEAR!

LINE UP WITH THIS WINNER AND GET YOURS SEND FOR "BEAUTIFUL BIRCH" FREE BOOK TODAY

The Northern Hemlock & Hardwood Manufacturers' Association
201 F. R. A. Bldg. Oshkosh, Wis.

GUARANTEED LUMBER



Southern Pine in a Giant Southern Sulphur Dock.

STANDARDIZATION of Grades is one of the big attainments in the modern manufacture and merchandising of lumber.

There no longer need be *any* uncertainty as to the *quality* of the lumber you may specify for particular uses.

Whether your need be for exceptionally large, long, dense, strong structural timbers, or for the softest, clearest, most workable interior trim, the quality of the

Southern Pine

"The Wood of Service"

you order is *absolutely guaranteed*, provided the material comes from any of the more than 200 giant saw mills subscribing to the Southern Pine Association.

Southern Pine Association saw mill products are subject to the most stringent lumber grading rules ever devised, and the accurate application of these rules is insured by a corps of Association grading experts, whose activities are in the interest of the lumber user. Association inspection means *you get what you specify*.

Copies of the Density Rule, devised by the U. S. Forest Service and adopted as standard by the American Society for Testing Materials, the U. S. Navy, the Southern Pine Association, etc., Standard Lumber Grading Rules and a list of Southern Pine Association subscribers will be mailed you gratis, promptly on request, if you address Department J-42.

Southern Pine Association

NEW ORLEANS

LOUISIANA





Robt. Thorne Residence

Lake Forest, Ill.

JOHN W. McKECKNIE
Architect

Distinctive
residences and
homes are built with

MIDLAND TERRA COTTA

MIDLAND
TERRA COTTA
COMPANY

1515 Lumber Exchange
Chicago

G. M. KERNS
Architect

Russell Harper Residence.

Ottumwa, Iowa



Correspondence Department

(Continued from page 98.)

bank with which you get connection and the kind of connection you make.

Undoubtedly you are operating at the present time with some bank.

If you feel that your bank is of a substantial sort and the personality of the cashier and president, whoever has charge of the bank, is the right kind, it is a most excellent good thing.

One of the most valuable assets that a concern can have is a good banking connection.

We would advise your getting in touch with your hardware man, your groceryman, and, in fact, six or eight different people in your section, and in a conversational sort of a way ask them relative to the personality of the two or three banks in that section.

When you feel that you have learned as to the best bank, call on the banker and talk to him just exactly the same way you wrote to us.

Under no circumstances at any time try to deceive your banker. It is almost as bad as trying to deceive yourself.

Always keep in mind the fact that banking business is based entirely on confidence, and confidence must come from your own personality.

We know of many concerns that have large capital that have a great deal of difficulty in negotiating loans, and we also know of a large number of people of very limited financial resources who are able to get almost unlimited credit at their bank.

Draw up a financial statement, which would consist of accounts receivable, also of materials on hand, also of fixtures. Add that column up and set opposite your liability. The difference, of course, is your net resources.

After having made your bank connection, write a letter to R. G. Dun of Chicago, also Bradstreet Agency of Chicago, also United Agency of Chicago, saying somewhat as follows: Dear Sirs:

We are in the general contracting business and are submitting our statement of resources herewith.

We pay all of our bills on maturity and generally are able to avail ourselves of the cash discount.

We give as references the following people: (Then give as reference your bank, also two or three places where you are dealing that you know you will be able to secure complimentary remarks.)

It is desirable that one or more of the above should be of the larger establishments, such as, perhaps, the Rehm Hardware Company, or the Stebbins people in Chicago.

It is very desirable to establish a line of credit with several people like them.

This can be done by taking your statement to them and meeting their credit men and telling them exactly what you are doing.

It is very desirable to have a letterhead that talks and carries the general atmosphere of trustworthy concern.

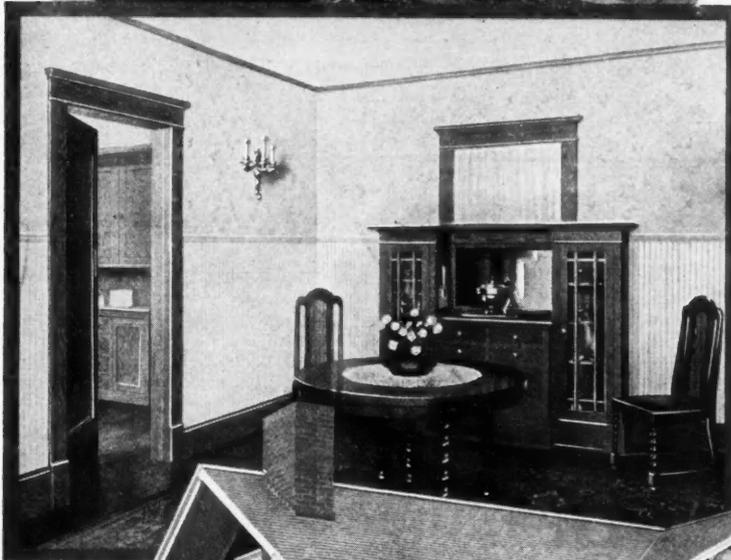
Avoid any fancy curlyques on your letterheads. Use good, plain, square, block type and a good quality of paper.

Have your address and also telephone show on this letterhead. There is one thing we want to emphasize, and that is, in talking to your banker or the credit men of any large concerns, do not permit yourself to be troubled with any nervousness, because the people that you will meet there are just common people who are anxious to do business.

We have known of a number of cases where a man who had good resources and was entitled to good things, spoiled his chances by having a certain amount of stage fright.

One of the very essential things for you to do is to learn to be a good collector.

(Continued to page 102.)



1866 CURTIS WOODWORK

"The Permanent Furniture for Your Home"

Partners Three

By reason of their size and position, Curtis Manufacturers can maintain Curtis standards of quality no matter how adverse conditions may be. Thus they are always able to protect the dealer and contractor.

Curtis Dealers and Curtis Contractors do their share by giving Curtis advertising and Curtis quality their cordial support. And in this way, all three share in a bigger business than would otherwise be possible.

Drop in and talk over CURTIS Woodwork with a Curtis Dealer. Learn from him what benefits you can get by joining the Curtis family. If you are unable to find a Curtis Dealer, write us for his name.

CURTIS Woodwork is advertised in nineteen strong National and State Farm Papers

- | | | |
|------------|------------------|-----------------|
| Doors | Window and Door | Mantels |
| Windows | Frames | Wall Panels |
| Stairways | Storm Doors and | Ceiling Beams |
| Newels | Windows | Mouldings |
| Sideboards | Screen Doors and | Porch Columns |
| Colonnades | Windows | Porch Rail |
| Bookcases | Window Seats | Porch Balusters |

Everything in Woodwork

The Curtis Companies, Service Bureau
1864-1964 South Second Street Clinton, Iowa

Manufacturing and Distributing Plants at
Clinton, Iowa Lincoln, Neb. Minneapolis Wausau, Wis. Chicago
Oklahoma City Sioux City, Iowa Dayton, Ohio Topeka, Kan. Detroit
Eastern Offices at Pittsburgh and Washington

The makers of CURTIS Woodwork guarantee complete satisfaction to its users.
"We're not satisfied unless you are."

Correspondence Department

(Continued from page 100.)

Have no timidity about this whatever. If a body owes you a dollar, it is just as right that they should pay it promptly, as per contract, as tho they had picked up a dollar that you had dropped on the sidewalk.

In all your collections it is desirable to do it in a pleasant, friendly sort of a way, but in a firm way, that indicates to your people that you expect them to come across.

Should there be any other angle that you would wish any data on, do not hesitate to call on us. EDITOR.



Wants Ideas for Combined Buffet and Dumb Waiter

To the Editor: Meyronne, Sask., Canada.

I have a little question I would like to solve and I am asking you for assistance.

I have a \$5,000 house under construction, and the owner wants a combination buffet and dumbwaiter installed in the dining room. He would like to have the dumbwaiter in the center of the buffet, and he wants one that will be artistic looking and of the Colonial design.

Hoping that you or some of the readers of the AMERICAN BUILDER will be able to furnish me with a design of the aforesaid cabinet.

D. R. LEADLEY.



A Kansas Bungalow

To the Editor: Horton, Kansas.

Enclosed find picture of a modern bungalow, which was built for G. G. Weichen, of Robinson, Kansas, at a total cost of \$7,000. W. O. Snyder, architect and builder.

I have been a constant subscriber of the AMERICAN BUILDER



since its origin. A copy of November, 1906, which contains view of William Jennings Bryan's home, is one of the first. I consider the AMERICAN BUILDER the best and most up-to-date journal printed. When I get up against a real proposition, the best reference and advice are my volumes of the AMERICAN BUILDER.

W. O. SNYDER,
Building Contractor.

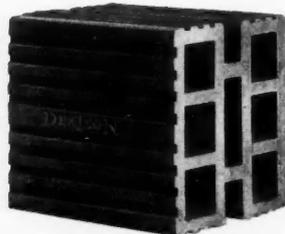


The Glidden Varnish Company Sold

The Glidden Varnish Company, Cleveland, Ohio, after a business career of 50 years, and its subsidiary, the Glidden Varnish Company, Ltd., Toronto, Ontario, have just been sold outright to a newly formed corporation, headed by Adrian D. Joyce, general manager of sales and distribution of the Sherwin-Williams Company. Two other prominent Sherwin-Williams men are officers of the new corporation, R. H. Horsburgh, their controller, becoming secretary-treasurer, and O. A. Hasse, their manager of paint and varnish sales becoming vice-president of the new corporation.

Conserve Steel

For the army and navy by building with Hollow Clay Blocks.

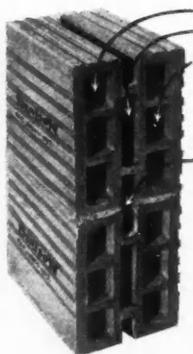


Patented July 31st, 1917

The Strongest Tile Made

Carries load of over 70,000 pounds to the square foot of bearing surface.

DENISON Load-Bearing Tile



Three separate tiers of dead air spaces insulate against outside heat or cold.

Broken mortar joint prevents frost or moisture penetrating to inside wall.

Sides grooved to clinch plaster—no tarring necessary.

Suitable for all classes of building from farm buildings to skyscrapers. Can be finished with face brick, plastered with stucco, or left with the tile exposed.

The tile lays up easily and quickly, bedding surfaces are on the same level, and each unit is complete in itself. Jamb, corner and fractional blocks simplify construction.

There is a good profit for you and an assured, satisfied owner.

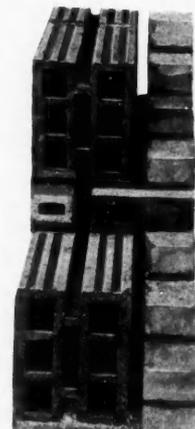
Send for portfolio of construction details and prices at your nearest shipping point.

MADE BY THE

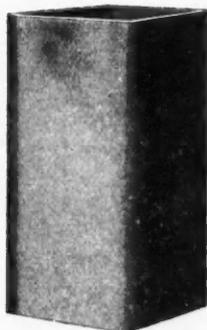
Mason City Brick & Tile Co.
Mason City, Iowa 900 8th St., S. W.

Brick facing bonds at any desired interval.

Each tile four brick and three mortar joints high.



Clay Products for Modern Building



Flue Linings Prevent Fires

WINTER winds call for hot furnace fires. Flues must be free from crevices or sleepers will awake some cold night to find the whole building one roaring furnace. Breaking joints in chimneys with Fire Clay Flue Lining, which offers but one joint in 24 inches, is more economical than an added thickness of masonry and improves the draft. Vapor from natural gas will eat mortar, but not Flue Lining.

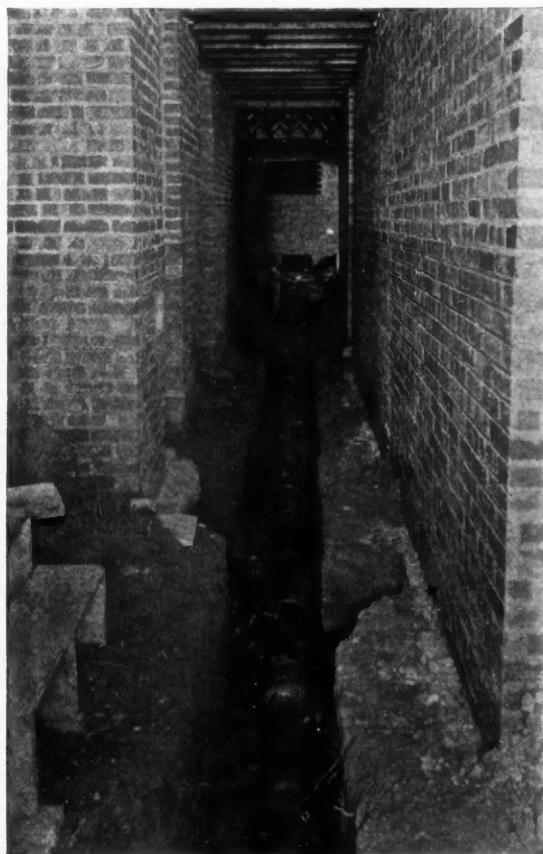


Wall Coping Defies Frost

Winter frost plays havoc with damp masonry walls. Keep walls dry and improve the trim of your building by covering the parapet with *Vitrified Wall Coping*. Its hard burned structure and glazed surface resists weather far longer than the life of any building.

Vitrified Clay Pipe

"THE PERMANENT PIPE"



For Modern Building Drainage

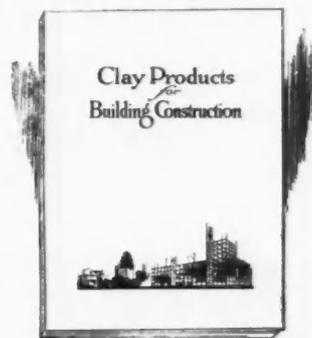
MORE and more, sewage is becoming impregnated with corrosive chemical substances. Resistance to corrosion, rust, decay and electrolysis is the first essential of a satisfactory sewer material.

Vitrified Clay Pipe has no rivals in withstanding the attacks of strong acids or alkali. A piece of this pipe was unimpaired after being immersed for a year in a concentrated mixture of sulphuric and hydrochloric acids.

Vitrified materials are preferred for every purpose where cleanliness is essential, for the higher grade of bathroom fixtures, for hospital appliances, for tiling of walls and floors. The same superiority found in a porcelain bathtub make Vitrified Clay Pipe the logical material for your building drain and building sewer.

Correct installation is highly important. We recommend poured joints of cement grout or an approved compound. Let us advise you through pamphlets or personal letter with regard to your drainage problems.

Write for This Book



THE SEWER PIPE MANUFACTURERS' ASSOCIATION
 JOHN L. RICE, FIELD COMMISSIONER SECOND NATIONAL BLDG AKRON, OHIO



WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER



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 line 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!

WITHOUT OUR ESTIMATE YOU HAVE NO COMPETITION

The
Whitacre-Greer Fireproofing Co.

Manufacturers of
**HOLLOW TILE FIREPROOFING
and BUILDING BLOCK**

Waynesburg, Ohio

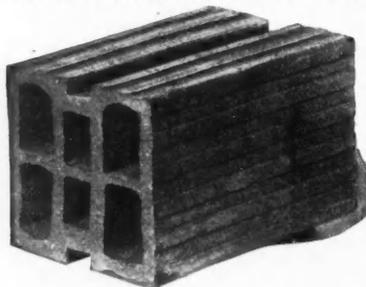
Chicago Office:
538 South Dearborn St.

Pittsburgh, Office:
7138 Jenkins Building

FIREPROOFING MADE OF PURE FIRE CLAY

**"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 Fireproofing, Building, Arch, Partition and Drain Tile, Hollow Brick and other shale products. Send for our literature.

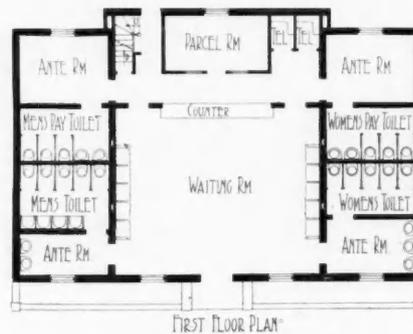
**VIGO-AMERICAN
CLAY COMPANY**
7th and Ohio Sts., TERRE HAUTE, IND

Motor Stations On All Highways

Roadside Stations for Motorists Proposed Like Passenger Stations Along Railways

Under what is called "The American Plan," a nation-wide campaign has recently been launched by the Public Comfort Station Bureau, 261 Broadway, backed by the American Automobile Association, National Highways Association, National Old Trails Road Association, and other national organizations, to provide roadside stations in cities along all highways like passenger stations along the right-of-way of a railway.

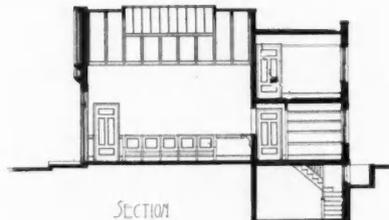
The plan was called forth by the urgent need for Public Comfort Stations, and the almost criminal lack of them in this country, which is far behind Europe in that respect. Railways have taken care of their passengers by providing toilet accommodations in the stations and on the trains, but no provision has been made by the public for the public. Even in the crowded cities Public Comfort Stations are scarce, and at no points along the highways, even the national highways, are stations to be found. The entire motor-travel-



FIRST FLOOR PLAN



UPPER FLOOR PLAN



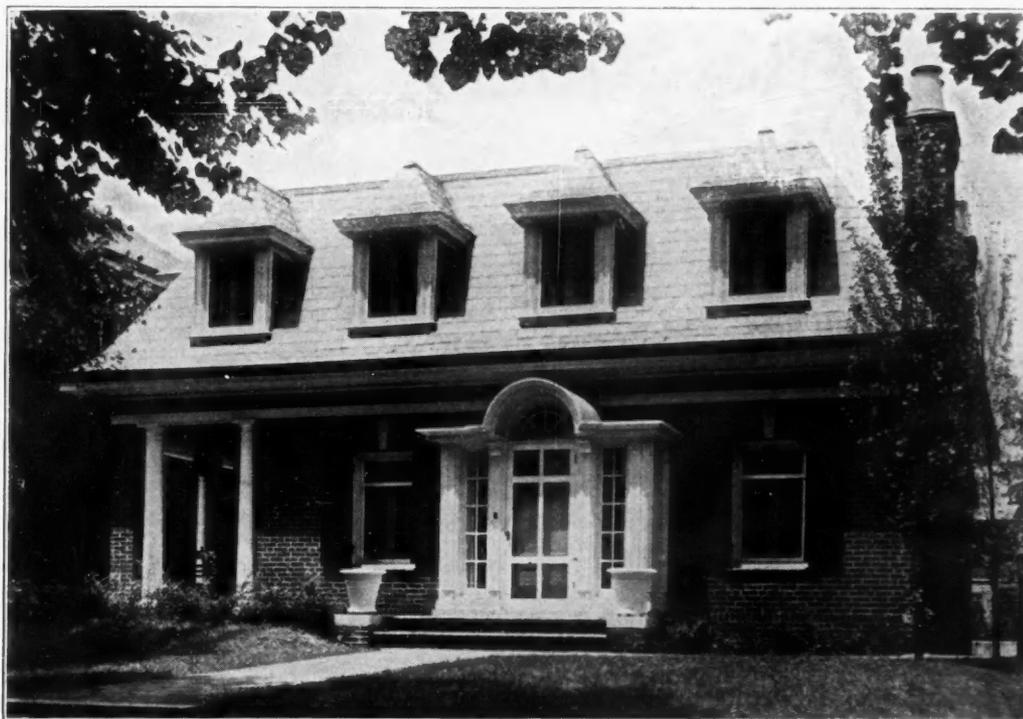
SECTION

First and Second Floor Plans and Cross Section of Model Roadside Station Proposed for All Important Motor Highways by the Public Comfort Station Bureau.

ing public is dependent on private kindness for their accommodations, in spite of the fact that more people now travel by motor than by train.

The several national associations co-operating in this campaign purpose using their joint influence to have erected in every city thru which a main highway runs, one or more Public Comfort Stations, provided with a comfortable waiting room, equipped with sanitary toilet accommodations for men and women, containing pure and wholesome drinking water and in hard-water localities having a small water-softening

(Continued to page 106.)



Martitz & Henderson, Architects

B. F. Charville, Builder

*Residence of H. L. Sallenback, Saint Louis
Built of Kiln Run Hy-tex Chaldeans.*

Don't encourage your customers to put off building. Every building-material man knows that prices cannot go down during the war, or for some time after the war.

For some years to come there will be no more favorable time for building than the present.

And don't forget to tell your customers of the advantages in a brick house—beauty, comfort, safety against fire and economy against depreciation.

Every one of our offices is ready to cooperate with you.

Hy-tex

The Standard of Quality in Brick

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.

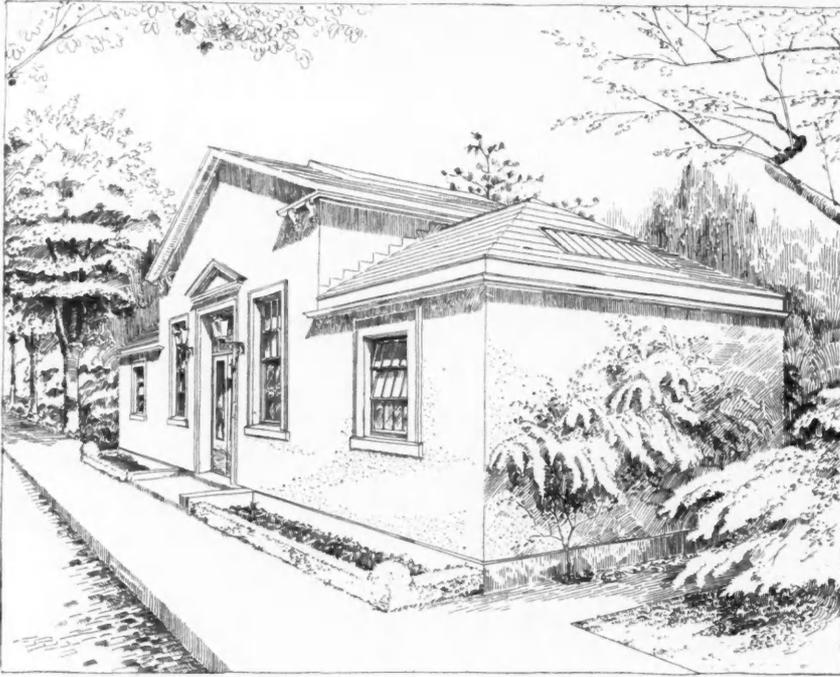
"Suggestions for Small Hy-tex Homes"—shows the possibilities of brick in small homes. It is illustrated with perspectives and floor plans of small brick houses.

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.....



Perspective Sketch of Very Attractive Roadside Station as Recommended by the Public Comfort Station Bureau.

apparatus for supplying soft water for automobile radiators. The stations are to be equipped with telephones so that wherever located the traveler will always be in touch with the outside world. Other necessary electrical equipment will likewise be provided. The waiting room can be used, too, as

general uprising for conveniences so long needed and generally long denied. Societies and individuals are invited to co-operate in the work. ✦

REMODEL and repair to preserve the nation's building wealth.

an emergency hospital in case of accidents along the road, while telephones connecting the various stations along the line will tend to prevent crime or check the escape of those engaged in criminal practices along the highways.

To build a Public Comfort Station such as this plan calls for, will cost approximately \$10,000. For the small towns and cities a less expensive building is contemplated, but which contains all of the elements found necessary to make a station safe and sanitary. By the clever working out of this plan these stations will be not only self-supporting, but will pay for the cost of construction within ten years. That means that a city builds a station, owns it outright, and out of the receipts from the pay privileges pays back the loan to itself. It is not a charge upon the community, but a good paying investment in dollars, decency and health.

Mr. J. J. Cosgrove is director of the Public Comfort Station Bureau, the central body with which the various national associations are co-operating. The campaign for Public Comfort Stations belongs to no one, however, but is a great

An Announcement of Interest to Architects, Builders and Owners of Buildings of All Kinds

IN the next issue of this magazine, we will present the first of a series of announcements, of importance to all interested in the construction of buildings. We will show, by picture and text, some of the manufacturing processes that give to EXCELSIOR WIRE LATH its superiority.

In addition, there will be ample opportunity to judge of EXCELSIOR WIRE LATH "in action." We will exhibit with photographic fidelity, reproductions of actual buildings where EXCELSIOR WIRE LATH has played its part in the successful construction.

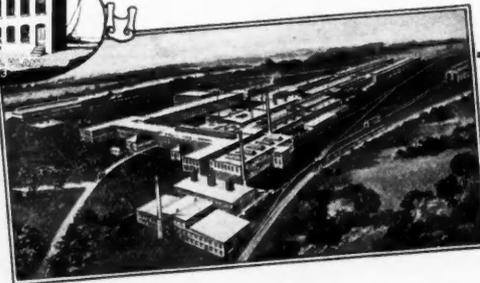
The success which has attended the use of EXCELSIOR WIRE LATH, as well as the many other Wright Wire products, has made possible the growth to the present great proportions, of the Wright Factories illustrated below.

WRIGHT WIRE COMPANY
Department F. WORCESTER, MASS.

Worcester
Plant



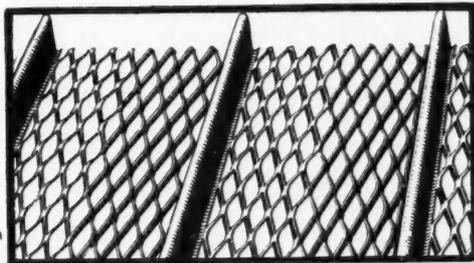
Palmer
Plant



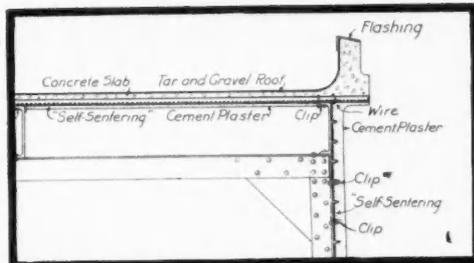
Why SELF-SETERING?

the answer—Speed, Economy, Permanence

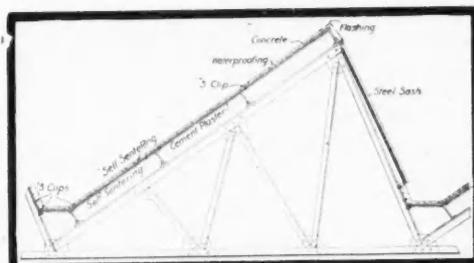
Right now, it is extra-wise policy for the builders and contractors to use Self-Sentering in their roof and floor construction.



SELF-SETERING



DETAIL OF EAVES OF FLAT SELF-SETERING ROOF



DETAIL OF SELF-SETERING SAW-TOOTH ROOF



SELF-SETERING ROOF

For under present conditions there is a good deal more repair and alteration work than new jobs to be had. And Self-Sentering is adapted to repair work as well as to new work—to small jobs as well as to the biggest building jobs. Always the result is the same—swift, economical, permanent, fire safe construction.

Self-Sentering

Form and Reinforcement for Concrete Construction

The first three diagrams show details of Self-Sentering and concrete roof construction. Self-Sentering can be utilized for any type of roof—pitched, dome, saw-tooth, or flat. It can be adapted to any type of building—steel-frame, wood-frame, or concrete-frame. The size of the job makes no difference. Self-Sentering is a combined reinforcing and centering—a one-piece metal lath and stud, a self-furring lath. It does away with the need of building up and tearing down temporary wooden forms in concrete construction.

The diagrams suggest the speed, ease, and security with which any type of Self-Sentering roof can be laid. The sheets are merely laid over the roof supports, attached to them securely by clips, wire nails, or staples, and the concrete applied to the required thickness. Only enough passes through the mesh to imbed thoroughly the steel. Then you have a roof comparatively light (because of the reduced dead load) but exceptionally strong and safe—a roof that will last practically forever, with little or no upkeep expense.

The diagram at the bottom of the page shows details of Self-Sentering floor construction. All that we have said about the advantages of Self-Sentering roof construction applies equally well to Self-Sentering floors. Also to Self-Sentering ceilings, walls, partitions; miscellaneous fireproof construction such as beam and column protection, false columns and posts, steps, stairs, and seat risers; for small buildings such as garages, stores, out-buildings, and additions; for Self-Sentering culverts, tanks, fences, bridge-floors, conduits.

Full particulars gladly sent on request to any interested builder or contractor

THE GENERAL FIREPROOFING COMPANY, Youngstown, Ohio

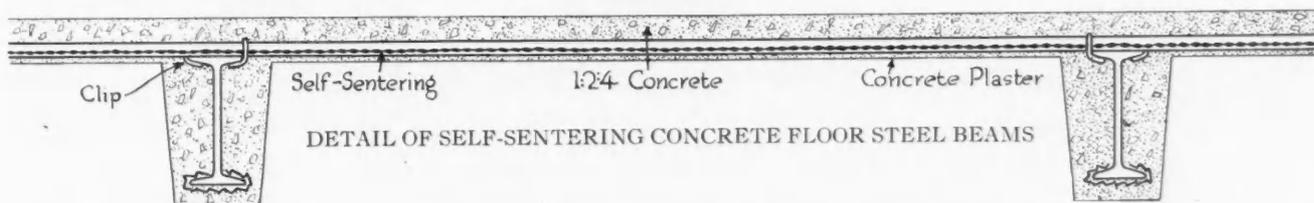
Manufacturers of all types of Metal Lath, Concrete Reinforcement, and Waterproofings

Member Associated Metal Lath Manufacturers

BRANCH OFFICES: New York City, Chicago, Philadelphia, San Francisco, Kansas City, Atlanta, Cincinnati, Buffalo, Utica



The best dealer in your town has GF products in stock



DETAIL OF SELF-SETERING CONCRETE FLOOR STEEL BEAMS

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

Build Store Fronts All Winter Long

Take That *Easy Profit*
Right at your Elbow

**Easy Profit?
Certainly!**

---because *merchants* are on their *toes* these days to *reach out* after business, and you'll find them *sold* on **Brasco** Copper Store Fronts.

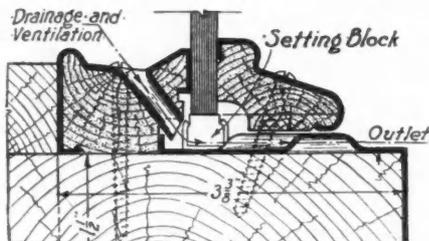
Easy to install; at a price that will get the business.

How's it done? Write us.

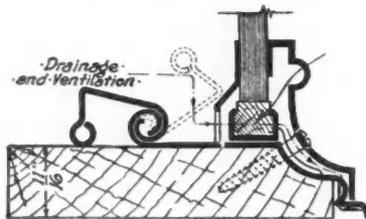
Brasco

MANUFACTURING CO.

1455 S. Michigan Ave., CHICAGO



Brasco Copper Covered Creosoted Type



Brasco-Hester Copper Shell Type

Cut out coupon, pin to your letterhead, and mail today.

Brasco Manufacturing Company:—

Please send me full information on your plan for making me money.

Name

Address

A-B-1-18

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER



The Battle Cry of Feed 'Em

Yes, we'll rally round the farm, boys,
We'll rally once again,
Shouting the battle cry of Feed 'Em.
We've got the ships and money
And the best of fighting men,
Shouting the battle cry of Feed 'Em.

The onion forever, the beans and the corn,
Down with the tater—it's up the next morn—
While we rally round the plow, boys,
And take the hoe again,
Shouting the battle cry of Feed 'Em.

—FRED EMERSON BROOKS ("Patriotic Toasts").

Her Turn

Smith got married. The evening of his first pay-day he gave his bride fourteen dollars of the fifteen-dollar salary and kept only a dollar for himself.

But on the second pay-day Smith gave his wife one dollar and kept fourteen dollars himself.

"Why, John," she cried, in injured tones, "how on earth do you think I can manage for a whole week on a paltry dollar "

"Darned if I know," he answered. "I had a rotten time myself last week. It's your turn now."—*Topeka State Journal*.

How Much is a Billion?

Maybe you wouldn't know a billion when you met one running around loose. Here is a simple way to know what it looks like:

Since the beginning of the Christian era 1,917 years have elapsed. Each year of 365 days (not counting those when suffragettes propose), each day 24 hours long, each hour 60 minutes. Now get ready:

$$1917 \times 365 \times 24 \times 60 = 1,007,575,200 \text{ minutes.}$$

Universal Training

Visitor—Have your employes had any experience in military training?

Employer—Well most of them have been soldiering on the job for years.—*Puck*.

Back to the Oleo!

"Grocery butter is so unsatisfactory, dear," said Mrs. Youngbride, "I decided today we would make our own."

"Oh, did you?" asked her husband.

"Yes, I bought a churn and ordered buttermilk to be left regularly. Won't it be nice to have really fresh butter?"—*Boston Transcript*.



Shove the Work Through

The work can't come too fast for a G-E motor operated machine.

G-E motors never lag—they are the surest, safest and most economical power you can employ.

Once tried, G-E motors will become your steadiest and most faithful helpers.

For construction work where odd jobs come up and extra mill work is needed, you will save time and money by using a portable G-E motor.

Ask your lighting company or our nearest Motor Agency to pick out a motor for your busiest machine.

General Electric Company

General Office



Schenectady, N. Y.

Sales Offices in All Large Cities

69 68



NEWS OF THE FIELD

DuPont Buys Bridgeport Wood Finishing

The paint and varnish business of the Bridgeport Wood Finishing Company has been purchased by the E. I. du Pont de Nemours Company, Inc., of Wilmington, Del. It is understood that the former business of the Bridgeport Wood Finishing Company will be operated as a division of the du Pont Company.

This is the second important step into the paint and varnish field by the du Pont Company, which up to this time has concerned itself principally with the manufacture of explosives. A short time ago the Philadelphia paint firm of Harrison Bros. & Co. was acquired, and now the Bridgeport business in paints and stains is added.

The facilities of the du Pont Company for the manufacture of many chemicals and raw materials used in paint making, backed by the efficient organization and unlimited resources of this company, will put these paint products before the building field in a bigger way than ever before.

Atkins Nail Aprons Go Up

For years E. C. Atkins & Co. have been furnishing canvas nail aprons to carpenters and other mechanics at a nominal price. These aprons carry the Atkins name, and have created

an incalculable amount of good-will for their saws.

The man who has been looking after this apron proposition is now in a peck of trouble and calls to us for help. It seems that the cost of these aprons has gone up so that they can no longer be furnished at the old price; in fact, double price must be asked. Requests for the aprons at the old price continue to pour in.

So remember, if you want an Atkins nail apron, double up.

Gravel and Slag Roofers To Meet in Chicago

January 15th to 17th is the date announced for the annual convention of the National Association Master Gravel and Slag Roofers of America. The meeting is to be held in Chicago. All roofing contractors are invited to attend. A very interesting program of papers and discussion topics has been arranged. Mr. H. B. Nichols, with offices in the Whitehall Bldg., New York City, is the secretary of this association.

Fast Building for Columbia Truck

The Columbia Truck & Trailer Company, which builds the Columbia semi-trailer, is building additions with notable rapidity to its factory in Pontiac, Mich. The latest addition is a new assembly plant where a progressive system, designed to speed up and intensify production, is being installed. The company has acquired five acres of ground to accommodate its future needs.

Proner Joins Wales Advertising Co.

Mr. Charles Proner, who for the past four years has been connected with the Smith & Hemenway Co., Inc., as advertising manager, has associated himself with the Wales Advertising Company of New York City. He will continue to direct the Smith & Hemenway Company account.

There's A Difference

in the lasting qualities of sheet metal, just as there is in the wearing qualities of fabrics.

Actual service has determined that the main point of difference for *KEYSTONE COPPER STEEL* is that it gives more wear—rust resistance—for Black and Galvanized Sheets, and Roofing Terne Plates. "Facts" will tell you why. Keystone is best for building construction, and all forms of exposed sheet metal work.

American Sheet and Tin Plate Company
General Offices: Frick Building, Pittsburgh, Pa.

DISTRICT SALES OFFICES:
Chicago Cincinnati Denver Detroit New Orleans New York Philadelphia Pittsburgh St. Louis
Export Representatives: UNITED STATES STEEL PRODUCTS COMPANY, New York City
Pacific Coast Representatives: UNITED STATES STEEL PRODUCTS COMPANY, San Francisco, Los Angeles, Portland, Seattle



ROOFING SLATE SERVICE

THAT YOU NEED==

We can make immediate shipments in any quantity—in any size—in any quality of

Genuine Bangor
Albion Bangor
Jackson Bangor
No. 1 Pen Argyl

Slatington Big Bed
Washington Big Bed
Trout Creek Big Bed
Franklin Big Bed

The various qualities of Roofing Slate quoted above are the product of the quarries of the following companies and are sold *exclusively* through the Vendor Slate Company.

GENUINE BANGOR

Genuine Bangor Slate Co.
 Old Bangor Quarry
 American Bangor Quarry
 Bangor Excelsior Quarry
 Star Quarry
 Royal Quarry

North Bangor Slate Company
 North Bangor Quarry
 Bangor Washington Quarry

Bangor Quarry Company
 Bangor Union Quarry

East Bangor Consolidated Slate Co.
 East Bangor Consolidated Quarry

Bangor Central Slate Company
 Bangor Central Quarries

Bangor Supreme Slate Company
 Grand Central Quarries

New Bangor Valley Slate Company
 New Bangor Valley Quarries

Bangorvein Slate Company
 Peerless Quarries

ALBION OR JACKSON BANGOR

Jackson Bangor Slate Company
 United States Quarry
 Valley Quarries
 No. 5 and 6 Jackson Bangor Quarries

Albion Vein Slate Company
 Stoddard Quarries

Genuine Bangor Slate Company
 Albion Quarries

M. L. Tinsman Slate Company
 Tinsman Quarries

PEN ARGYL No. 1

Hercules Slate Company
 Hercules Quarries

Hammann Slate Company
 Northampton Quarries

Shimer Slate Company
 Alpha Quarries

SLATINGTON BIG BED

WASHINGTON BIG BED

FRANKLIN BIG BED

TROUT CREEK BIG BED

Provident Slate Co.
 Genuine Washington Slate Co.
 Genuine Franklin Slate Co.
 Prudential Slate Co.
 Washington Slate Co.
 Trout Creek Slate Co.
 Blue Mountain Slate Co.
 Blue Valley Slate Mfg. Co.
 Custard Slate Co.
 Carbon Slate Co.
 Thomas Slate Co.
 Ellis Owens Slate Co.
 Lobb, Parry & Co.
 Henry Quarries Co.
 Royal Blue Slate Co.
 Highland Slate Co.
 Manhattan Slate Co.
 Roberts Bros.
 Blue Vein Slate Co.
 Ellis Owens Sons Slate Co.
 Pennsylvania Slate Co.

We are the largest shippers of Roofing Slate in the World



VENDOR SLATE CO.
 I N C O R P O R A T E D
EASTON, PENNSYLVANIA





Profit-Making Barns For Both Owner *and* Builder

Milk is an "essential" of life. **More** milk is the imperative need and demand. More and better dairy barns are absolutely necessary—for **better dairy barns result in more and better milk.** That's why there should be a great increase in **better** dairy barn building.

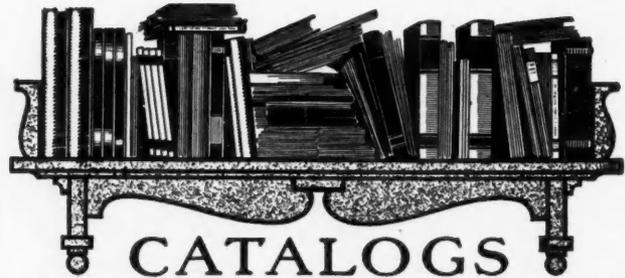
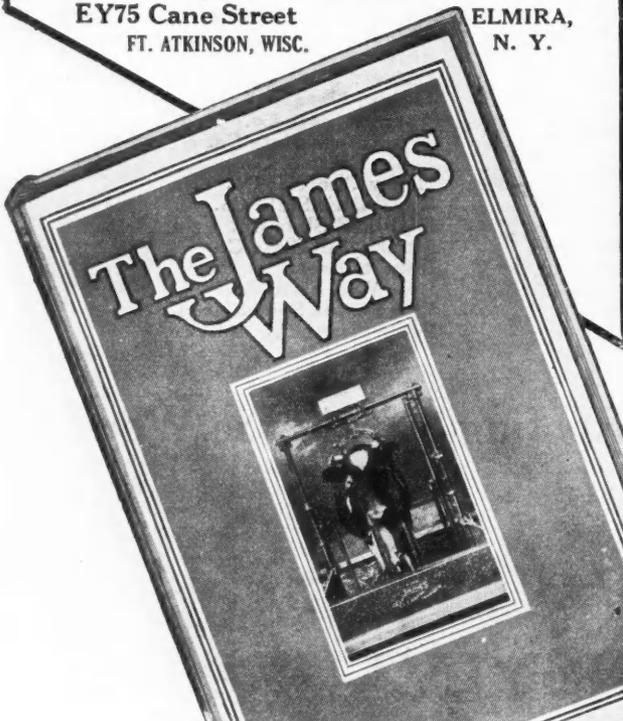
Why not get your share of the contracts for these barns?

We are in position to help you do this very thing.

Write Us For A Free Copy Of That Famous Book "The Jamesway"

When writing send us the names of farmers who are thinking of building or remodeling barns and give us the size of their herds. We will send advertising literature to those farmers which will bring their building contracts into your hands. Co-operate with us and you will make more money.

JAMES MANUFACTURING CO.,
EY75 Cane Street
FT. ATKINSON, WISC. ELMIRA,
N. Y.



CATALOGS BULLETINS & BOOKS RECEIVED

The following literature, dealing with subjects of interest to builders, is now being distributed:

Simplex Weightless Reversible Windows are presented in a 24-page catalog, size 8½ by 11 inches, of the Simplex Window Fixture Company, 451 St. Claire St., Chicago. The many styles and forms of this very successful reversible window are illustrated, both by perspective drawings in wash, and working drawings showing dimensions and details of installation.

John Deere Inside Cup Elevators are illustrated in a 12-page blueprint folder distributed by the Marseilles Company, East Moline, Ill. Working drawings show standard corn crib and granary construction and all details regarding grain elevating machinery. Valuable data is given regarding capacity of bins of various sizes.

"House Rats and Mice" is the subject of a 24-page illustrated bulletin (Farmers' Bulletin No. 896) by the U. S. Department of Agriculture, Washington, D. C. The author, David E. Lantz, states that rats and mice each year destroy crops and other property in the United States valued at over \$200,000,000. This destruction is equivalent to the gross earnings of an army of over 200,000 men. Detailed directions are given for rat-proofing farm buildings and old buildings in cities. Methods of trapping and poisoning rats are described.

"Concrete Ships" are offered by the Portland Cement Association, 111 W. Washington Street, Chicago, as a possible solution of the shipping problem, in a very well illustrated book of 48 pages. Photographs illustrate concrete ships in the making, and working drawings show their construction. The history of concrete shipbuilding is recorded.

"The Early Dwellings of Nantucket" is the subject of No. 6, Volume 3, of the White Pine Series of Architectural Monographs, published by the White Pine Bureau, St. Paul, Minn. Like the other books of this series, it is a fine example of engraving and printing. Architects will value it for the Colonial details illustrated. The White Pine Bureau Series is coming to be a notable record and storehouse of heretofore unpublished work of great architectural interest. Size of booklet, 8½ by 11 inches, 16 pages and covers. Text by J. A. Schweinfurth.

The Ransome Edition of Campbell's "How to Make and How to Use Concrete" is being distributed by the Ransome Concrete Machinery Company, 115 Broadway, New York City. Mr. Campbell's very practical text-book has already been reviewed in these columns. The Ransome edition carries a fine frontispiece portrait of Ernest L. Ransome, the founder of the Ransome Concrete Machinery Company, who died March 5, 1917. A tribute to him is also presented. Twenty pages at the back of the book are used to illustrate the Ransome line of concreting machinery. Size of book, 5 by 7¼ inches, 160 pages.

(Continued to page 114.)

The New Model KING Aerator



Means Better Looking Barns —More Business for You

THIS new model King Aerator means much to you as a barn builder. King Aerators always were different from the ordinary metal cupola or ventilator. This improved design with the flaring base adds still more beauty to the Aerator. It's another big reason why you want to specify and install King Aerators on the barn you build. The more beautiful the barn, the more you can be proud of your work. King Aerators add the finishing touch of beauty to any barn or farm building.

Start Your Customer Right

If your customer does not install a King System at the time you build his barn, he will want to add the system later. Start him right—with King Aerators on his barn roof. They are the first unit of the complete King System of Ventilation. The other units, or the foul air flues and fresh air intakes, can be added at any time.

Every owner of a modern barn wants his building properly ventilated. And when he thinks of proper ventilation he thinks of the King System—the only ventilating system that's planned by ventilating engineers to fit the exact conditions of the building it goes into.

Send for this Book on barn ventilation and telling about the construction of King Aerators and the service back of them. Our book shows photographs of many different types of barns. It will be helpful to you in showing your customers the kind of barns you want to build for them. The book is free. Send for it today.



King Ventilating Company
1202 Cedar Street
Owatonna, Minn.



Catalogs, Bulletins & Books Received

(Continued from page 112.)

Thatch Roof Effect, with "Creo-Dipt" Stained Shingles, is clearly demonstrated in a book of large photographic plates, entitled "Instructions for Designing and Constructing a Thatch Roof," by the Creo-Dipt Company, Inc., North Tonawanda, N. Y. The camera man got out on the job, and his photographs detail exactly how the modern thatch effect roof is constructed. A folded map insert shows working drawings. Size of book, 8½ by 11 inches 16 pages and covers.

"**Cutting the Cost of Hauling**," a new eight-page circular of the King Trailer Company, Ann Arbor, Mich., illustrates how trailers are being used by lumbermen and builders, and presents much interesting data.



Housing Problems in War Time

Intelligent British visitors to this country have expressed astonishment at the way our state and national authorities have neglected the important problem of housing those who work in the country's new manufacturing plants. In some instances hundreds of people have been compelled to camp in the streets or to overcrowd quarters already dangerously congested. Certainly the problem cannot be shirked or ignored any longer.

In a remarkably successful fashion Great Britain has attacked and still is attacking this problem of emergency housing. The story is told in several articles in the current special issue of the *Journal of the American Institute of Architects*.

At the outbreak of the war the British government looked to the local authorities for the new housing accommodations necessitated by the rapidly expanding ammunition and other

plants. The machinery and the legal authority for such emergency building already existed. Private enterprise was naturally expected to do its share in meeting the sudden demand for housing accommodation. Very soon, however, the government found itself forced to undertake a vast amount of industrial housing. It now furnishes all the funds and initiates the whole enterprise where the operation is of any considerable magnitude.

Of course, not all of the new buildings are permanent. There are many temporary cottages or "hotels" for women. In the main, however, the cottages are permanent, as are the stores, markets, schools, hospitals and churches that have been erected in the new communities or suburbs. Orderliness, tidiness and atmosphere of home comfort are found in these typical new communities, according to one writer. He thinks the housing program of the British government "epoch making," as some of the lessons presented by it will be of permanent worth.

American authorities might well arrange for a thoro investigation of the housing situation in England with a view to intelligent action in our own overtaxed and congested industrial centers.



A Million Feet for Ship Ladders

Ship ladders and boat-hook handles are not articles requiring much timber, so that the scale upon which the Navy Department is preparing for national defense may be somewhat judged by the fact that the department is in the market for one million feet of ash lumber, to be used for the manufacture of these articles, and other purposes which require high-grade material. Ash is one of the strongest native woods and has long been recognized as especially useful for the purposes which the Navy Department is now filling.

A Serviceable Ornament

The demand for a strong, serviceable door stop that will stand up under the bumps and jams, abuses such as it gets and yet ornament the base board is not overlooked in the

Griffin Pressed Steel Door Stop



No. 640
Patented
Cut Full Size

a beautiful, plain and ornamental door stop.

This Door Stop is made from the highest quality cold rolled strip steel, drawn into shape from one piece of material. The rubber bumper is so fastened that it absolutely cannot work out. It is the strongest Door Stop ever placed on the market and we guarantee it to be indestructible. When fastened in place with three round head screws will hold a weight of 250 pounds hung on the end.

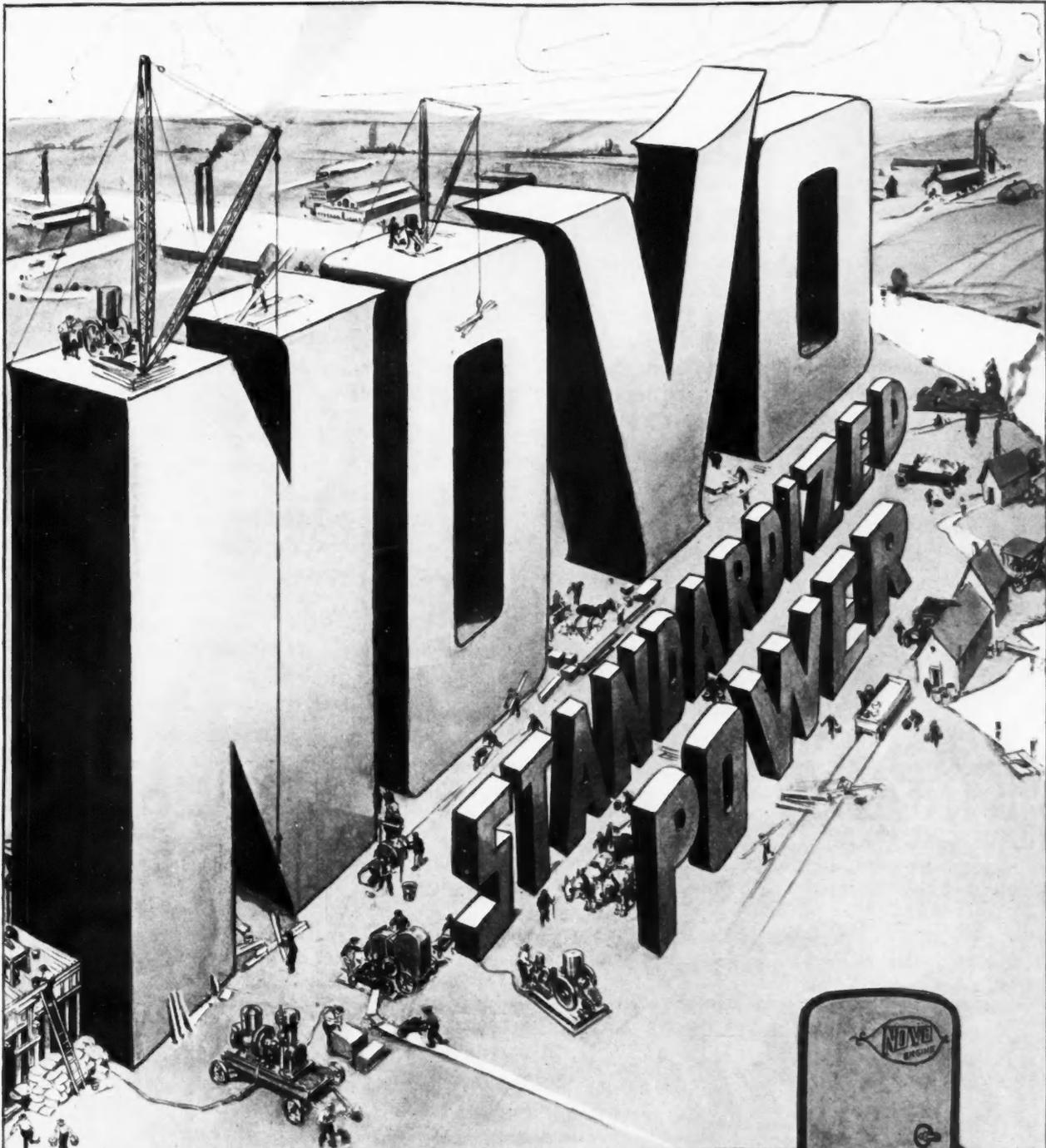
Finished in any of the Griffin hardware finishes; wrapped and packed with screws.

The GRIFFIN MANUFACTURING CO.

30 Warren St.
NEW YORK

ERIE, PENNA.

17 E. Lake St.
CHICAGO



NOVO Pumping Outfits
NOVO Hoisting Outfits
NOVO Compressor Outfits
NOVO Sawing Outfits

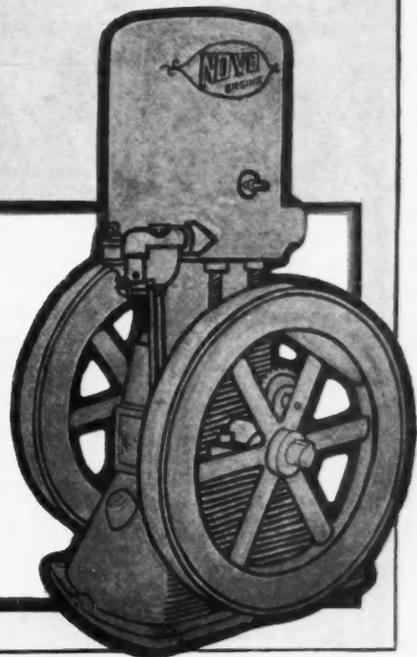
Used by 80% of
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**The Trade-Mark of Engine
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NOVO Engines and Outfits first showed the contractors of America the economy of using standardized units of power. Today, Novo standardized power may without exaggeration be called the Standard Power of America. Have you investigated the economy through standardizing on Novo Power? Our book, "Standardized Power," presents the subject clearly. Write—using your letterhead, please—for a copy of this book.

NOVO ENGINE CO.

Clarence E. Bement, Vice-Pres. & Gen. Mgr.
 797 Willow Street, Lansing, Mich.
 Chicago Office -- Lytton Building



Brick—Oldest Unit of Building Material Made by Man

(Continued from page 79.)

Brick can be laid in patterns (or, to be technical, the bond of the brick can be varied so as to give the design in the laying), and this manner of laying will add much to the character of the wall without detracting from its carrying properties. Many different ways of laying brick so as to produce a pattern as well as a dependable wall have been in vogue since the beginning of the making of brick, which dates back, as stated, to an early period in the history of building.

By the careful study of a problem, an architect can incorporate design in brick work that will proclaim the motif intended. Brick work, to be admired, should be looked at from a distance, so as to take in the building in its entirety, because, on close scrutiny, the units that compose the wall look coarse and rough, as do the brush marks of an oil painting.

Recent development of brickmaking has produced units of size and color that a few years ago were not dreamed of, thus enabling the designer to carry out his ideas in a variety of shades made in permanent colors.

Brick is not affected by the elements, as is proven by the great wall of China, which is over 1,000 miles long, 50 feet high, was built 2,000 years before Christ and is still standing, showing nearly four thousand years of actual service in brick work.

Installation, Care and Operation of the House Furnace

(Continued from page 90.)

plan to connect two furnaces in the same building to the same smoke flue. One may interfere with the draft of the other. Stovepipe holes above the basement must be closed tightly and the portion of the chimney below the smoke pipe hole as well as the part above must be air tight if the chimney is to have a good draft. Every pipe entering the flue should have a tight metal or cement collar 3 inches wide to prevent leakage into the chimney. The smoke pipe should not project into the smoke flue, but simply come flush with its inside surface. If two flues are separated by a partition wall in the same chimney, the partition should run the full length of the chimney and be air tight.

Foundation of Furnace and Cold Air Supply

The next important matter is to have the furnace well set in the cellar. If possible, it should be set slightly toward the sides exposed to the prevailing winds so as to give these rooms the advantage of shorter flues. The smoke pipe should not, under ordinary circumstances, be longer than 6 feet and should pass to the chimney as directly as possible. Some manufacturers favor a pit under the furnace into which the cold air enters. This gives a somewhat more effective distribution and circulation of the cold air, but

(Continued to page 118.)

Making Money on the Side

In these days of uncertain building operations, it is a wise contractor who cultivates an extra business that fits in with his construction business. Read what Rutherford G. Young, New Galilee, Pa., says about Shinn-Flat:

"My roofing business went to the bad this year on account of high cost of materials, but the Lightning Conductor business is booming. It is the easiest and most honest money I can make. I have handled Shinn-Flat for 8 years and am convinced that you have the best system of Lightning Protection on the globe. It's no trick to make \$50 to \$100 extra a week."

Shinn-Flat

Formerly known as National Flat Cable.

Shinn-Flat is the greatest scientific Lightning Conductor ever devised. It is endorsed by scientific authorities, in preference to all round or other old-style cables or rods.

Shinn Short Points are very popular with owners of fine homes. They are inconspicuous and readily harmonize with the architecture.

With Shinn-Flat you can not only sell Protection for every building you build, but you can get the job of protecting every unprotected building in your community. It sweeps the field of all competition. We help you get the business. Write us.

W. C. SHINN MFG. CO. 1635 Monadnock Bldg., CHICAGO

Get the Extra Profit by "Protecting" the Buildings You Build.

Lightning Can't Strike if SHINN Gets There First



Demanded! By Comfort and Health! By Proven Fuel Economy!

There's only one kind of a heating system that any competent authority would want to recommend—

The kind that gives the owner the highest quality and quantity of heating **SERVICE per dollar invested**—and that best safeguards him against trouble and loss after installation! You will find most interesting the proof that the ideal type is represented in the

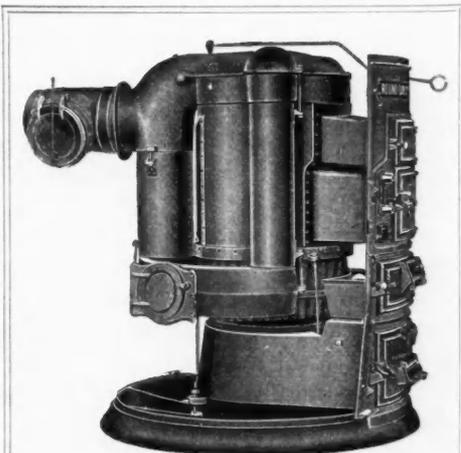
ROUND OAK Moistair Heating System

The Only Heating System That Auto-
matically Ventilates and HUMIDIFIES

Burns all fuels—insures abundant comfort in all weathers!

Floods home with constant stream of fresh, pure, warm **MOIST** air, free from dust, gas and smoke.

Durable—trouble proof—simple in operation—vastly more economical because of the features listed in the panel. A **System** that is backed by 47 years of practical experience.



Five Star Points of
Round Oak Supremacy

- ***Comfort**—Circulates pure warm everchanging air, free from dust, gas and smoke—automatically humidified like nature's way.
- ***Health**—The **one** heating system that automatically ventilates and properly moistens the air you breathe.
- ***Economy**—Longest fire travel (see cut), steals most heat from chimney. Perfected hot blast, extra deep fire pot and combustion chamber over size guarantees complete combustion with all fuels—Absolute control.
- ***Convenience**—Single regulation controls entire system. Automatic sprinkler guarantees dustless removal of ashes—extra large fitted feed doors—Burns all fuels.
- ***Durability**—Materials used stand highest physical tests. All hinge pieces drilled, not cast. Never a bolt where a rivet will do! Tight fittings guaranteed. Renders more than a generation of Supreme Service.

Additional Thousands for National Advertising in 1918

This advertising which comes as a climax to our successful campaign of 1917, will benefit every dealer who features this powerful system.

Let us tell you all about our plans—also about the exclusive advantage of Round Oak Moistair Heating System. **Send Coupon for Full Details.**

The Beckwith Company

ROUND OAK FOLKS

116 Front St., Dowagiac, Mich.

Established 1871



Also manufacturers of the Genuine Round Oak Stoves, Boiler Iron Ranges and Combination Coal and Gas Ranges.

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The man who builds will appreciate the reasonable cost at which you can construct modern, strong, fire-proof homes by utilizing our metal lath products. You can save the owner time, material and labor expense.

Use Hy-Rib and Rib Lath—and you save forms, stiffening channels and labor. The metal lath is so stiff and rigid that supports may be placed a greater distance apart—saving in the cost of supports and the labor and time necessary to attach the lath. Moreover, streaked and cracked plaster is prevented.

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.

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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. Saves time, labor and material in erection.

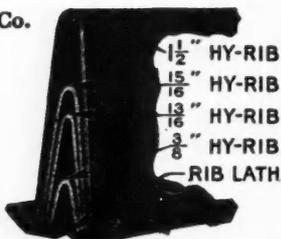
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Trussed Concrete Steel Co.
YOUNGSTOWN, OHIO



Representatives in
Principal Cities



Installation, Care and Operation of the House Furnace

(Continued from page 116.)

adds expense. If a pit is used beneath the furnace, it should be not less than 12 inches or more than 16 inches deep. The duct leading to it should be brick, cement or tile, never of wood, for wood will shrink, rot, or be gnawed by rats and mice. Holes in the duct let in bad odors and even vermin. In no case should any air be taken from the cellar.

If a pit is not used, the furnace should be set on a good, clean brick or cement foundation, never on a dirt floor. Never set a furnace on a dirt floor and then expect to pour cement around it and into the air space. Cracks are bound to be left and dust and sand will be carried up into the house with the circulating air. The supply may be taken from within the house from outside or from both sources. Naturally the heating of cold outside air in large quantities requires more fuel than to reheat the air within the house. The object of the outside air duct is to admit fresh air for ventilation. In buildings in which large numbers of people are gathered, an outside air supply is imperative. For the small family, air leakage around doors and windows and air admitted thru open doors and windows will probably be sufficient for ventilation, unless the house is one of unusually tight construction and kept closed much of the time. The outside air intake is no more necessary for a furnace than for a steam or hot water plant.

If an outside air supply of any considerable capacity is installed, vent flues must be provided somewhere in the building or an open fireplace may be used for this purpose. If only a very small amount of air is taken in from outside, say one-sixth of the total supply for the furnace, this will find its way out by leakage and special vent flues are not necessary. The outside air pipe should, in all cases, be fitted with a tight damper which can be closed in severe weather. The outside opening should be on the windward side of the house and be protected by a screen to keep out dirt, leaves and even birds and small animals. If the cold air supply is taken from the house, the registers should be located in the coldest parts of the rooms, at the foot of a staircase or in the hall. Wall registers located in a side wall or side of a staircase are probably not so efficient as floor registers, but are more pleasing in appearance and less apt to gather dirt. A cold air duct should not be located in the middle of the floor because there will be an unpleasant cold draft toward it. The area of the cold air duct should be at least equal to the combined area of the warm air pipes. When a pit is not used, the cold air ducts should enter at the rear or from both sides of the furnace casing at the bottom line, whether they take the air from outside or from the rooms above. Sometimes a room needs a special return or vent flue in order to heat. A return flue should not be placed in bathrooms or

(Continued to page 120.)



Making A Hit With Zinclad Rustless Shingle Nails

They make a hit with the man on the roof because they are $\frac{1}{3}$ lighter than ordinary nails, which makes them easy driving and thus increases his efficiency in laying shingles.

They make a hit with the contractor who buys them because " $\frac{1}{3}$ more nails" feature makes them cheaper by count than ordinary nails.

They make a hit with the owner because he gets a lasting roof without extra cost.

MORAL—get Zinclad nails for every shingling job and make everybody happy.
If your dealer cannot furnish them, write us.

W. H. MAZE COMPANY
PERU, ILLINOIS

Installation, Care and Operation of the House Furnace

(Continued from page 118.)

kitchens for obvious reasons. Instead of a return flue, these rooms should be provided with vents to the outer air covered by a wall register which can be opened and closed. It is not a good plan to install a return flue in a bedroom because if a sick person is confined there, the disease germs may be scattered over the house in the recirculated air.

Flues and Casing

Some furnaces are set in brick, but it is more common to set them in a sheet steel galvanized casing. The casing should be double with asbestos lining between. This prevents heat loss and consequent heating of the cellar. The heating pipes may be taken from the top or sides of the furnace bonnet. In either case there should be a layer of sand on the top. Pipes should not be taken from the top and sides on the same furnace because the pipe taken from the top will steal the heat from the other pipes. Pipes, taken from the side, should have their tops, not their centers, on the same level. Each warm air pipe should have a pitch of not less than 1 inch in 12 inches, better 1 inch in 10 inches and the pitch of all pipes should, so far as possible, be alike. Abrupt corners should never be used. Long bend elbows and a proper form of boot should be employed. It is not a good plan to use a pipe smaller than 9 inches.

(Continued to the February American Builder)

Calculations for Small Factory

(Continued from page 85.)

modulus' about an axis perpendicular to the web and passing through its center are also given. While we are not interested in the area of section directly at this time, it may be of use in future calculations. The first, second and fourth columns of the table are of importance now:

Properties of Rolled Steel I-Beams

Depth of Beam in Inches	Weight per Foot in Pounds	Area of Section in Square Inches	Section Modulus S
6	12.25	3.61	7.3
6	14.75	4.34	8.0
6	17.25	5.07	8.7
7	15.00	4.42	10.4
7	17.50	5.15	11.2
7	20.00	5.88	12.1
8	18.00	5.33	14.2
8	20.25	5.96	15.0
8	22.75	6.69	16.0
8	25.25	7.43	17.0
9	21.00	6.31	18.9
9	25.00	7.35	20.4
9	30.00	8.82	22.6
9	35.00	10.29	24.8
10	25.00	7.37	24.4
10	30.00	8.82	26.8
10	35.00	10.29	29.3
10	40.00	11.76	31.7
12	31.50	9.26	36.0
12	35.00	10.29	38.0
12	40.00	11.76	41.0
15	42.00	12.48	58.9
15	45.00	13.24	60.8
15	50.00	14.71	64.5
15	55.00	16.18	68.1
15	60.00	17.65	71.8

"These values of S are for use with web of the beam placed vertical.

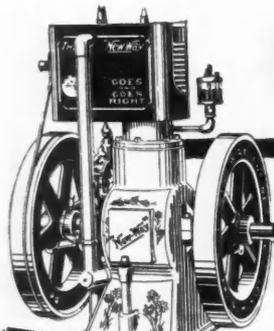
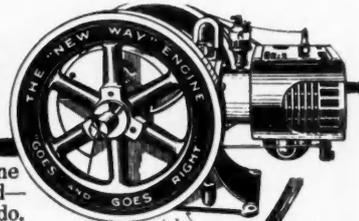
"Filling in the formula with the value of $W = 17,000$ and $l = 16 \times 12$, and solving for S, we have

$$15,000 S = \frac{1}{8} \times 17,000 \times 16 \times 12$$

$$S = 27.2$$

(Continued to page 122.)

IT NEVER STOPS

On any construction job, the profitable power unit is the one that never stops. The engine for which water must be hauled—water to freeze solid in winter or boil away in summer, won't do. The power plant that develops crankiness, with stops for minor repairs is a liability, not an asset. It delays the work, puts the force idle and eats into the profits.

THE "New-Way" ENGINE

GOES AND GOES RIGHT

The "New-Way" runs, that is the secret of its success and popularity wherever big work is to be accomplished. Its reliability adds to the efficiency and productivity of every man on the force. Everyone is on their toes, alert, eager to keep even with that everlasting little engine.

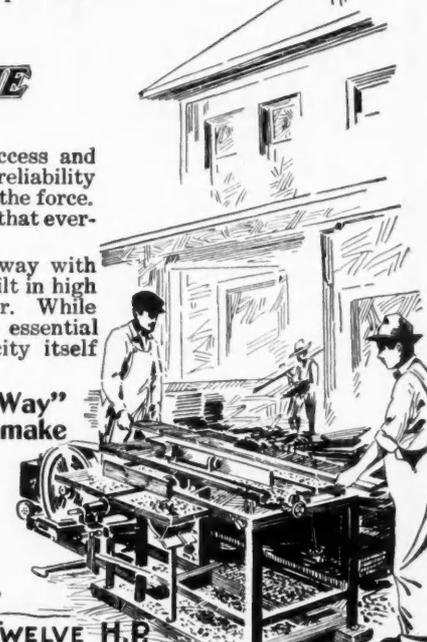
In the "New-Way" the water nuisance is done away with entirely. It is lubricated by the splash system, has built in high tension magneto, efficient carburetor. While this engine has all the refinements essential to a perfect power unit, it is simplicity itself and a fuel saver.

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No plumbing—no waterworks—no cesspool. Banishes the outdoor closet. Revolutionizes living conditions in country and village homes. Solves the one humiliating and perplexing country home problem. An imperative necessity to health, comfort and convenience. Perfected for his own use after years of experimental work by a heating and ventilating engineer. **Tested in over 2000 homes for three years.** Now offered to the homes of the world at a nominal price. Gives positive guaranteed satisfaction. Demanded everywhere. A sale at every home. Warranted for ten years. **Absolutely odorless, sanitary, germ proof.** Endorsed by physicians' health authorities, schools and thousands of homes. Every day we receive letters such as the following: "I have observed many of them in highly successful operation. In my private practice I unhesitatingly and continually recommend them. I wish these closets were in every home."—Dr. Thomas H. Turner (Health Officer). "I recommend the Shafer Closet in every home as a necessity and as a duty to public health."—Dr. D. B. Henry. "It is a complete success—a splendid invention of great practical use."—O. M. Misener, (Supt. of Schools). "Every home that would put one in and use it for a week would never let it get out of the house."—Arthur B. Ransom (Farmer)

\$112 Cash Profit in One Day

That's the record of one man (a plumber) in a single day. The same man has never sold less than five Closets for any half day's work. Every home a prospect. Every sale makes dollars—not pennies—of cash profit. **Liberal commission to agents.** Biggest money-making opportunity ever offered because it is an invention that is positively needed in every home not supplied with water-works and sewage system. Listen: L. J. Dulle, Mo., (Insurance Agent) says: "This is an easy thing to sell. Everybody you go to and talk Closet to has another prospect for you." C. A. Carter, Ill., (former Grain Dealer) says: "I was out today two hours and sold three. Find enclosed check. Ship me twelve at once." W. H. Bartholomew, Wash., (Farmer) says: "Closets arrived yesterday. Sold one in 15 minutes." Seymour L. Vance, N. Y., (Carpenter) says: "I sold nine the first three hours." W. D. Belknap, Ohio (former Real Estate Agent) wired: "Sold ten Closets today—send twelve by express." Do you want more proof of success and profit? Send today for free illustrated book showing pictures of homes and rooms containing this wonderful device, complete description, color plates, letters of endorsement from health authorities, doctors, editors and scores of users with names and addresses. This book is free—send for it today—investigate.

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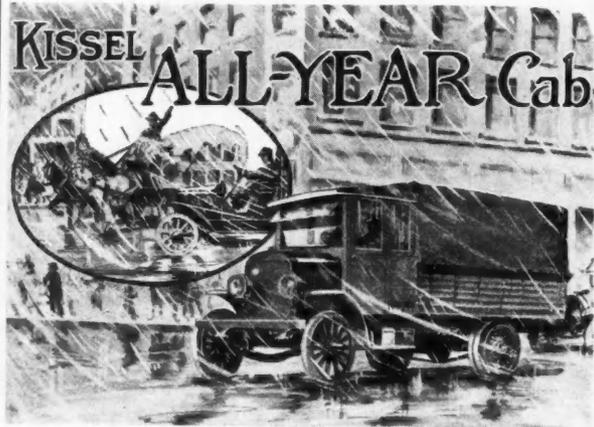


Chemicals, which are furnished with the closet, and air currents do the work, automatically.

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Investigate Kissel Trucks and the ALL-YEAR Cab. Send for the specifications and literature.

KISSEL MOTOR CAR COMPANY
HARTFORD, WIS., U. S. A.

Calculations for Small Factory

(Continued from page 120.)

Looking in the table, we find that the value of the 'section modulus' next above this is for a 10-inch I-beam weighing 35 pounds per foot of length. These beams will be used between girders in both floors.

"As in our previous talk, the girders receive the loads from the beams on each side at the center. These loads were found to be 17,000 pounds also. The girders are to be rolled steel I-beams, but the formula given above must be changed on account of the load from the beams acting as a single concentrated load at the center of the girder instead of being uniformly distributed. The beams, which meet the girders at the posts, carry their loads direct to the posts instead of the girders. In this case, the $\frac{1}{8} Wl$ is changed to $\frac{1}{4} Wl$.

"The formula for use in finding the size of rolled steel girders is as follows:

$$15,000 S = \frac{1}{4} \times 17,000 \times 17 \times 12$$

where the length of girder is 17 feet. Solving for S , we find the 'section modulus' to be 57.8. From the table, we see that this value corresponds to a steel I-beam 15 inches deep or high and weighing 42 pounds per foot of length. The girders thruout the entire floor in both stories will be made of this size.

"Since the general roof construction and the roof loads are the same in this case as before, we can use 2½-inch tongued and grooved planking for our roof, as shown by our calculation in the previous talk.

"The roof beams were found to carry a uniformly distributed load of 7,480 pounds. Supplying this value in the formula for size of I-beam loaded uniformly, we have

$$15,000 S = \frac{1}{8} \times 7,480 \times 16 \times 12$$

$$S = 11.9$$

From the table, we find that this value of S corresponds to a 7-inch I-beam weighing 20 pounds per foot of length. These beams will be used between girders at all parts of the roof.

"A calculation for the roof girders similar to that for the floor girders shown above gives a value of 25.4 for S . This value corresponds to a 10-inch I-beam weighing 30 pounds per foot of length.

"The height of the first and second stories of this building was 12 feet from top of floor to top of floor. The basement was 10 feet 4 inches high. We will use these lengths in finding the size of our cast iron columns, since the columns from each story pass thru the floor and rest on the column cap below. While the length of the basement columns will not be quite 10 feet 4 inches, it will be on the side of safety to use this length.

"Hollow, circular, cast iron columns may be obtained in sizes varying from 6 inches to 36 inches in diameter and in thicknesses of ¾-inch to 3 inches. In choosing the size of column, it must be remembered

(Continued to page 124.)

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Brickwork: Footings and foundation walls of brick, concrete and stone. Brick laying, joints in brick work, pointing, tuck pointing, etc. Brick and stone arches. Use of different kinds of stone.
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Present Occupation

Chicago Technical College
 136 Chicago "Tech" Building, Chicago

Calculations for Small Factory

(Continued from page 122.)

that the length of column between supports should not exceed 36 times the outside diameter. That is, if a 6-inch diameter column is to be used, it should not be over 216 inches, or 18 feet, in length.

"In calculating the size of a cast iron column to carry a given load, or in finding the amount of load which may be carried safely by a column of a given size and thickness, we will make use of the Rankine column formula, which was described and used in a number of our earlier talks. In this case the value of the unit crushing strength for cast iron will be taken as 80,000 pounds per square inch and a factor of safety of 8 will be used, thus making the value of *C* in the Rankine formula equal to 10,000 pounds per square inch.

"You may remember that our formula will be

$$10,000 = \frac{W}{A} \left[1 \div \left(\frac{1}{800} \times \frac{l^2}{d^4} \right) \right]$$

floor in both stories will be made to this size.

where *W* is the total central load on the column in pounds; *A* is the area of the column cross-section in square inches; *l* is the length of column in inches between supports, and *d* is the outside diameter of the column in inches.

"Unless you remember the method of solving a quadratic equation, it will be easier to assume a diameter of column and a thickness of metal, and solve the column equation for the load which may be carried safely by such a column. Then see how this answer agrees with the load to be carried by the column which

you are designing. For instance, if we wish to find the amount of load to be safely carried by a hollow, round, cast iron column, 6 inches outside diameter

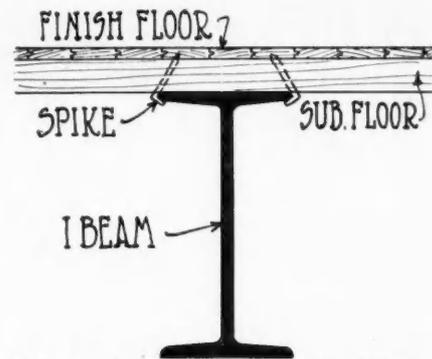


Fig. 3. Method of Spiking Floor Planking to Flanges of Rolled Steel I-Beams.

12 feet long, with metal 7/8 inch thick and the ends turned off flat, we will fill in the formula as below and solve for the central load *W*.

$$10,000 = \frac{W}{14.1} \left[1 \div \left(\frac{1}{800} \times \frac{(12 \times 12)(12 \times 12)}{6 \times 6} \right) \right]$$

$$141,000 = 1.72 W$$

$$W = 82,000 \text{ pounds.}$$

The value 14.1 used above is found by subtracting the area of the inside circle 4 1/4 inches in diameter from the area of the outside circle 6 inches in diameter, thus leaving the area of the cross-section of the hollow column.

"By referring to our last talk, it will be seen that the load on each of our basement columns is about 83,000 pounds. From the example just worked out, it looks reasonable to believe that a hollow circular section column 6 inches outside diameter and 3/4-inch thick will be about the size needed. The cross-section area of such a column will be 12.4 square inches and the length is 10 2/3 x 12, or 124 inches. From the formula

$$10,000 = \frac{W}{12.4} \left[1 \div \left(\frac{1}{800} \times \frac{124 \times 124}{6 \times 6} \right) \right]$$

$$W = 81,000 \text{ pounds (nearly).}$$

"This calculation shows that the 3/4-inch thickness of metal is not enough, as this load is not as large as the load to be carried. If a thickness of 7/8-inch is used instead, the column will be amply strong. So we will use 6-inch cast iron columns 7/8-inch thick for the basement.

"The columns on the first floor carry a load of 49,000 pounds, as determined from our previous talk,

(Continued to page 126.)

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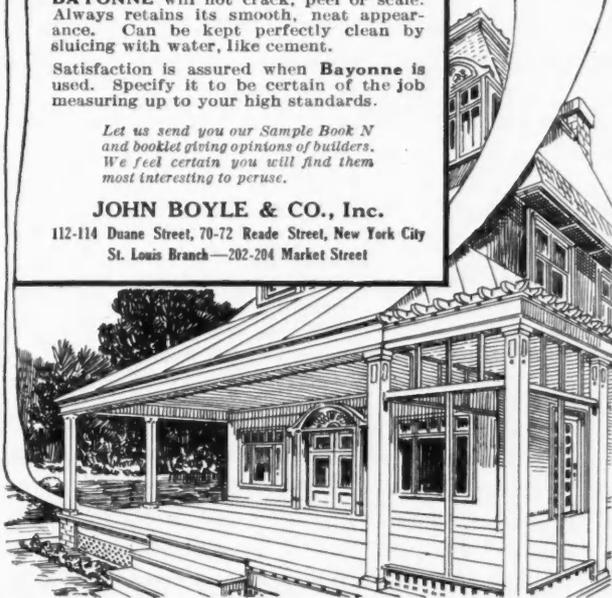
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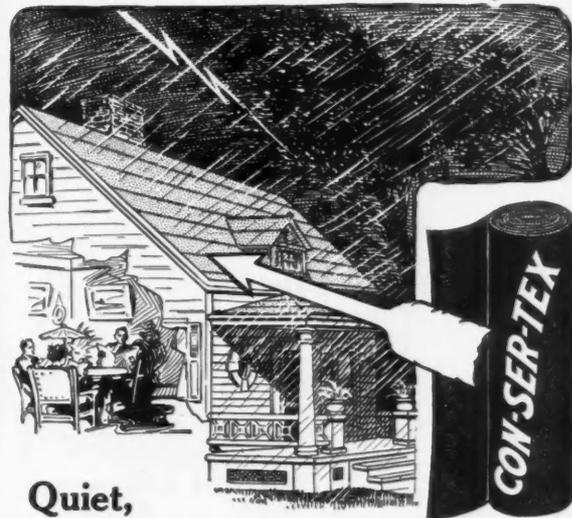
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Calculations for Small Factory

(Continued from page 124.)

and their length is 12 feet. We will assume that a 6-inch column with metal $\frac{3}{4}$ -inch thick will be suitable. The area of such a section is 12.4 square inches, as above, and the length of column is 12×12 , or 144 inches. These values, placed in the column formula, show that such a column is amply safe for the load to be carried. We will use 6-inch hollow columns $\frac{3}{4}$ -inch thick for the first floor.

"The load on the columns of the second story was found to be 15,000 pounds. By a similar set of trial calculations, it is found that a 6-inch diameter column $\frac{3}{4}$ -inch thick will be sufficient to carry the load with safety.

"In our next talk," said the Boss, "we will figure this same building for concrete floors and columns."



Is the Farmer Justified in Building Now?

(Continued from page 40.)

creased fully 25 per cent, it is also seen that most of the chief farm products have increased nearly 50 per cent in value. Due to the increased cost of labor, the increased value of land and the increased cost of seed, the net increase to the farmer is not 50 per cent. It, however, is sufficiently great to meet the increased cost of building and yet leave a safe margin.

Whether the farmers will continue indefinitely to receive the present prices for their produce is a guess. There is no doubt but that the prices will remain high for the duration of the war, and this seems to be fully two years longer. Following three of the wars with which we are familiar there has always been a period of depression. Whether the same will exist at the close of this war we cannot say, for it is not a parallel case. In fact, this is about the first time that approximately the whole world has been at war. In my mind I cannot see where the war will end in less than two years.

If the war should end in two years it would be nearly another year before the period of depression would be felt by the farmers in this country, should such a period materialize. That would mean, then, that it would be at least three years before we could expect a depreciation in the value of farm produce.

As long as farm produce remains as high as at present all other commodities will remain the same. Building materials, especially, will remain high. The forests are becoming smaller year by year, and the coal veins more expensive to handle, while the fuel oil will continue to be high as long as there is a great demand for it. It takes fuel to make brick, lime and cement.

Having more cash on hand as a direct result of high prices is not the only reason why farmers should improve their buildings. This extra cash is due to a more valuable commodity and every pound of this commodity should be conserved.

(Continued to page 128.)

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Is the Farmer Justified in Building Now?

(Continued from page 126.)

Alfalfa should not be stacked in the open field; corn should not be piled in the fence crib; hogs should not wallow thru the mud endeavoring to get their feed; cows should not stand under an open shed, nor should other stock be compelled to back up against a wire fence as a protection against the wintry blasts.

The ammunition factories, the steel mills and other industries have forced up the price of labor, and at the same time the army has made it scarce. This, then, means that farmers must plan to do more work with their present labor and to be more efficient in the use of their hired labor. Nearly every farmer who studies the scientific arrangement of farm buildings will find that he is wasting miles and miles of steps annually in doing his work about the farmstead. In fact, if he should take a watch and time himself for a few days while doing the chores, there is very little doubt but that he would soon prove to himself that he should either build new or arrange his buildings so that the saving in labor or the increased output of his own labor would not only pay the interest on the cost of the change but would pay some toward the principal.

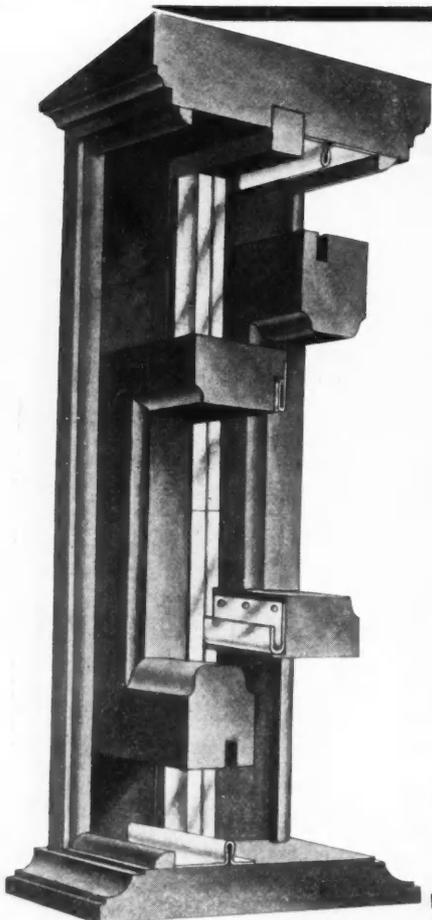
Along with the increase in the value of farm produce and the increase in the cost of living there has been an increase of from 20 to 25 per cent in the value of farm land. This means that the farmer must clear

up every fence corner, straighten up his draws, and, above all, clear out the brush around his buildings, and, if possible, reduce the size of his lots.

If a man's farm is worth \$150 per acre on an average, the acreage around his buildings, if it is as good land as the other land on the farm, is worth from \$200 to \$250 per acre. In order to make this land pay as an investment, the farmer must be getting from \$12 to \$15 an acre off of it. There are hundreds of acres wasted in every county because the lots are larger than necessary, or because there is some brush or an old orchard or a wornout grove around the buildings.

Our enemies have proven that they can do wonders with a small acreage. A study of their landscapes indicates that, instead of having their farmsteads cover from 5 to 15 acres of land, as is often the case in Nebraska, they will only cover a fraction of an acre. Of course, it is not likely that they conduct as much business on their farmsteads as our Nebraska farmers. However, pictures of their buildings show that they are a unit and are close together. Pictures of Nebraska farmsteads and measurements of them show that often the house and barn are 300 to 400 feet apart. Then, beyond the barn, there will be the yards. There is entirely too much waste land between many of our houses and barns. Not only is this land a waste, but it is expensive to maintain. Its great length requires considerable time each day to cross it.

(Continued to page 130.)



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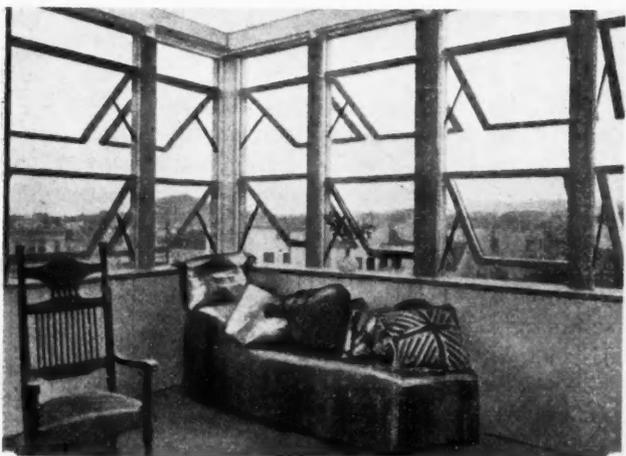
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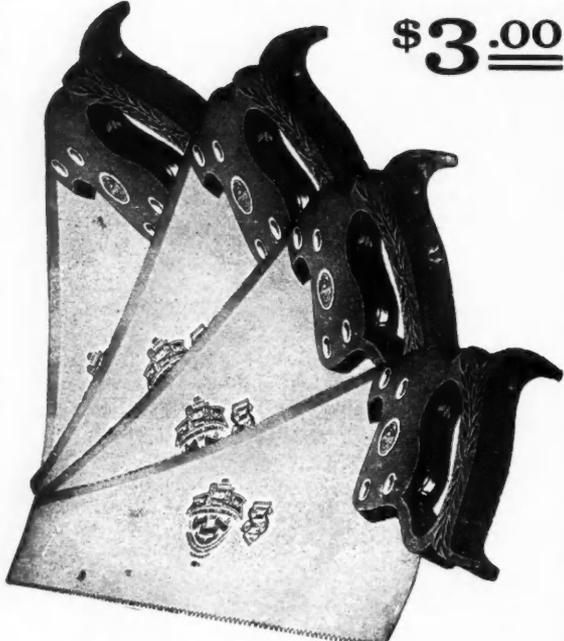
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(Continued from page 128.)

With the increase in the cost of building materials greater care should be exercised in planning the buildings and in selecting their material. The buildings should be elastic; that is, they should be so planned that only slight remodeling will adapt them to housing different kinds of stock. They should also be permanent. It costs money to replace buildings and it costs more to keep wooden buildings painted.



Industrial Housing Problems

(Continued from page 49.)

playgrounds, etc.

The artistic architect focuses his attention on dainty dormers, pleasing porches, arty alcoves and the like.

The city social worker urges straight rows of flat roofed houses, built very cheaply, to get as many houses for the money as possible—the plainer the better, because cheaper.

The sanitary-minded concentrate on open plumbing, shower baths and garbage-cans of the latest design.

Some favor tenements only because they are sure to pay; to others they are anathema.

Then there is the concrete enthusiast who wants an indestructible house that will not show a dent if the miner misses his wife when he throws a pick at her and hits the wall by mistake. He would like a concrete bathtub, cement floors, concrete stairs, war garden on top of the concrete roof, a house that can be washed out with a hose once a month, etc.

We have also with us the town planner, whose interest lies chiefly in pleasing vistas, central features, preservation of natural beauties, and what not, regardless of land values.

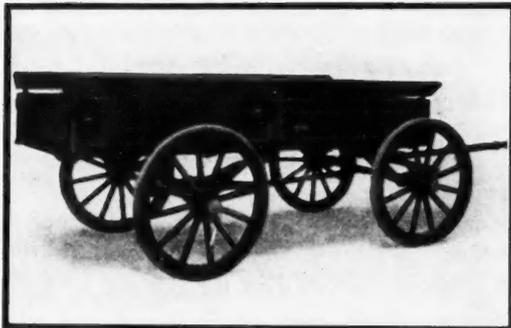
The welfare worker does not care much what the house is like provided that proper supervision and regulation be enforced, the education and improvement of the tenant being to her of supreme importance.

And so it goes—the unhappy manufacturer started on a new housing venture has embarked on a perilous voyage and must be wise as Ulysses if he would safely reach his goal.

Far be it from the writer to disparage or speak lightly of the ideals sociological, hygienic, artistic, financial or altruistic to which he has alluded. They all have their place, and it would be most unfair to suggest that all housing experts are cranks or visionaries. The fact that housing occupies such a large place in the public mind and that so many successful developments have been carried out is due almost entirely to the vision and enthusiasm of those who, seeing an ideal before them, have striven hard to awaken us to the need and the possibility of reaching it. It is only right that some recognition should be made here of the work of the National Housing Association in awakening us to the existing need and formulating standards for us to follow.

(Continued to page 132.)

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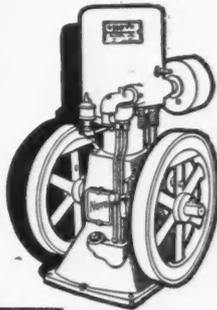
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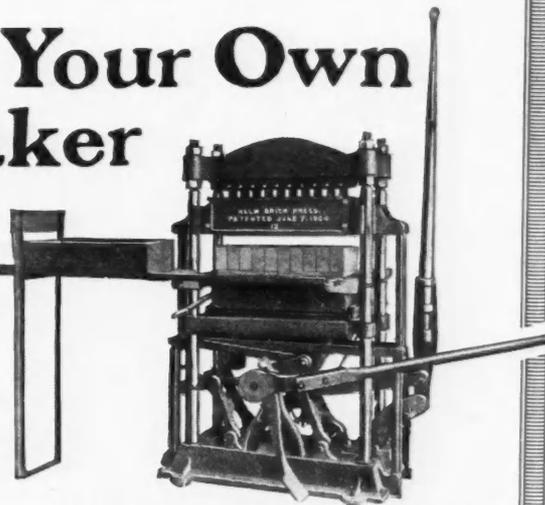
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471 Mitchell St., Cadillac, Mich.

Please send your two free books.

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Industrial Housing Problems

(Continued from page 130.)

But it is also unfortunately true that many developments have fallen far short of the hopes of their planners because too much stress was laid on impractical ideals and less important features so that housing planned for the workman proved unsuitable for him.

The other day the writer visited some neat-looking four-room cottages. Outside they were as dainty as could be, but in neither of the bedrooms was there room for the workman's double bed, owing to the artistic arrangement of the dormers.

An architect was describing recently with some pride the ten cottages he designed a few years ago for a rural manufacturer. The finished result was so charming that they were snapped up by the manufacturer's sister-in-law, the village parson, the superintendent's aunt, the doctor and others; as no more capital was available, the housing problem in that village was no nearer solution.

Continued to the February American Builder

Planning the Interior Color Scheme

(Continued from page 59.)

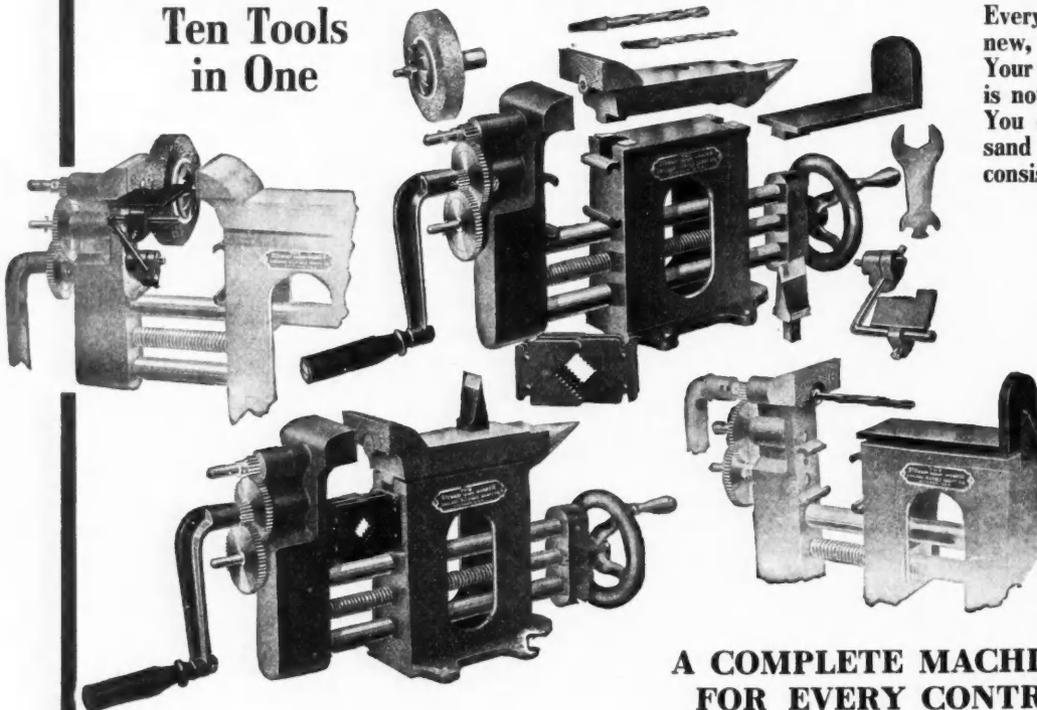
as a man is known by the company he keeps. She can make her home a place of quiet and restful beauty, or a combination of garish and clashing extremes. The former may have cost but little, the latter may represent a fortune.

It costs no more to buy draperies of a color that harmonize with your rugs and furnishings than it does to buy the same material in a shade which clashes. It is not the cash value, or even the beauty of a thing in itself which matters so much, as whether it belongs as an harmonious detail in the scheme of the rooms as a whole. Mrs. Owner must realize that all values are relative; that the effect of anything, and therefore its beauty, will depend upon something else; that it is not the individual merits of its individual furnishings which count the most, but the value of each thing *in its relation* to the things you see it *with* and the background you see it *against*. No end of trouble will be saved if the owner and decorator

(Continued to page 134.)

HARDIN - HANDY - WORKER

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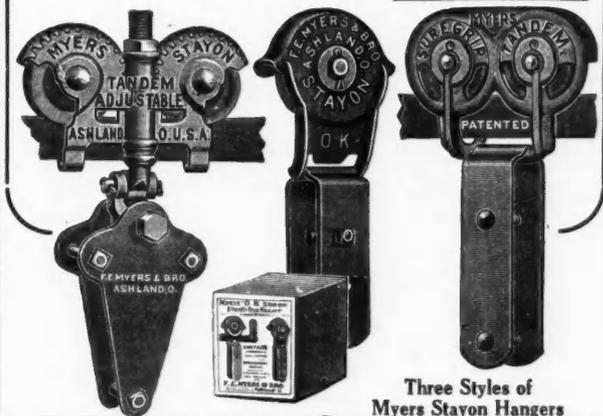
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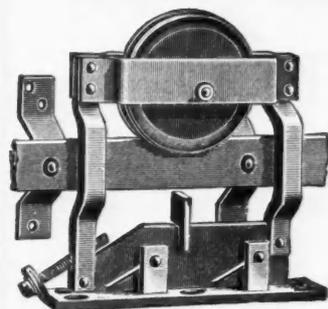
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Radford's "Mechanical Drawing" is a book of 272 pages, with 165 illustrations, and a supplement showing perspective views and floor plans of 41 brick, cement and frame residences.

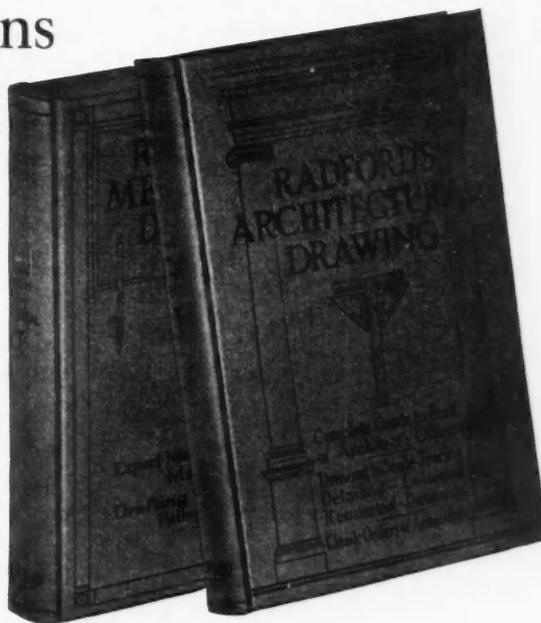
Radford's "Architectural Drawing" is a book of 304 pages, with 147 illustrations and a supplement showing perspective views and floor plans of 41 brick, cement and frame residences.

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Planning the Interior Color Scheme

(Continued from page 132.)

can keep in mind the ensemble effects and not rush out and buy here and there a furnishing, a wall paper, or drapery for some merely superficial reason.

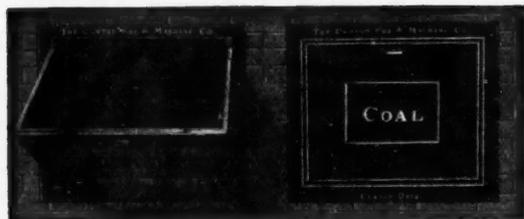
To begin with, it is well to remember that every detail of a room must be either a part of its background scheme or a part of its ornamentation. It is quite the usual thing to find one third background to two thirds decorative idea, when it ought to be the other way around. Therefore the first thing to consider in the furnishing of a room is the amount of background necessary, and the amount of neutral color to offset the decorations planned.

The background of a room primarily begins with the ceilings and walls; where it should end is quite a different matter. Then too, the floor is an exceedingly important factor in this group of background. Where there is much decoration introduced by furniture coverings and oriental rugs, the background should also include portieres and window hangings. In such cases it is best to keep the draperies of a room quiet and inconspicuous—in order to avoid confusion of ideas make them of the same color as the walls.

The floor, however, as part of the shell of a room, must be treated to conform with the background idea, either by the use of a large carpet or rug which carries the wall color in a heavier tone, or by a decorative rug laid on the background of a dark wood floor. If the carpet or rug be pronounced in design and practically covers the floor, the majority of pieces of furniture must then be made to blend with the colors of the walls. Upholsteries and hangings must also be kept in a quiet key for the express purpose of making that rug the chief ornament in the room. If this procedure becomes necessary everything possible should be done to soften the effect of this over colored or designed rug in order that it may still be a part of the ensemble scheme and not accent its presence by declaring itself apart from the good taste of the whole. This accents the point that the stronger your decoration in any one feature, as in curtains or rugs, the greater the amount of quiet background you must have in order to preserve that simplicity of idea which is essential to every well furnished room.

It is necessary first then to determine the relation of walls and floor coverings, hangings and upholsteries to each other, deciding at the outset which had best be included in the background of the room and which shall be treated as its decoration. Following this comes the working out of a color scheme, a matter largely dependent upon the relationships. Every color note introduced into your scheme is influenced for better or for worse by other colors in the room; in other words it is necessary to bring every part of a room into harmonious relationship with its dominant

(Continued to page 136.)



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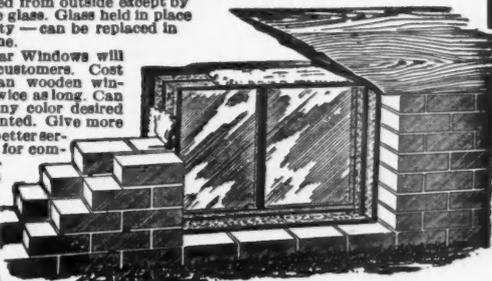
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Planning the Interior Color Scheme

(Continued from page 134.)

hue. There must be no incongruities; and a correct state of balance between the color values of the various parts of a room must be maintained at all times. In other words, no one detail—ceiling, woodwork, wall or floor—must be made so assertive by the use of too much color, even an harmonious color, that it loses its relative importance in the scheme of the room. The ceiling should be lightest, the side walls medium and the floor heaviest in the color scale. The common mistake of leaving a wide margin of light wood between a small rug and medium heavy walls results in a room that is sadly unbalanced and a floor that can never feel like a solid foundation for the rest.

The sequence of color from hall to living room, or from hall to dining room, or from one room to that most adjacent should be harmonious and quiet. No sudden change or clashing color should meet the eye at any place but an even mass or color gradation enlivened with a decorative touch now and then should be the means employed to overcome possible monotony. Strong and heavy colors should be avoided in rooms having extreme light and in rooms on northern exposures; the brilliantly lighted rooms should be treated with tones of color capable of softening the sunlight glare; the dark rooms should be capable

of reflecting and purifying all light received so that instead of appearing drear, the effect will be soft and cheerful.

Color Scheme Suggested for Home

Perhaps one of the most pleasing treatments of the hall would consider the use of a light ivory ceiling; a cream side wall; a light gray for the standing trim; a medium brown floor with a note of rich blue in the hangings and pottery, relieved by rose tones in the flowered chintz. A gray rug in soft, solid color balances the whole. Involuntarily one feels the homeliness of such a hall with its cheer and friendly warmth.

The living room could be given a light gray ceiling, an ecru side wall with a medium brown floor to match the hall; and ivory trim. Soft leaf green and light mauve should be used in the rugs and portieres, thus adding life and interest. The wall has both warmth and texture, and while suggesting space and atmosphere, provides a warm and very harmonious background for either oak or mahogany furniture.

The dining room should be given a cream ceiling, a buff side wall and medium brown floor; with an ivory trim. The Gobelin blue hangings; old fashioned gilt mirrors are in perfect harmony with the rich

(Continued to page 138.)



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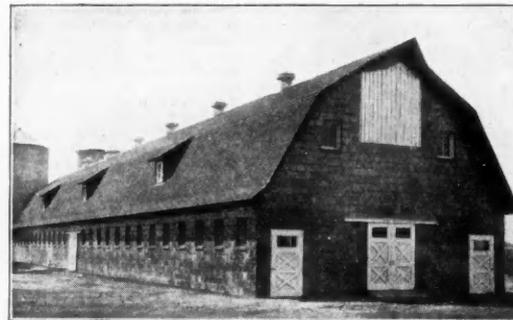
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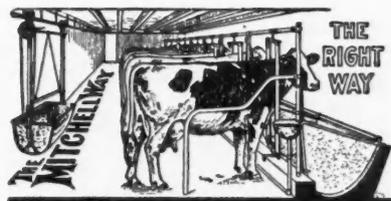
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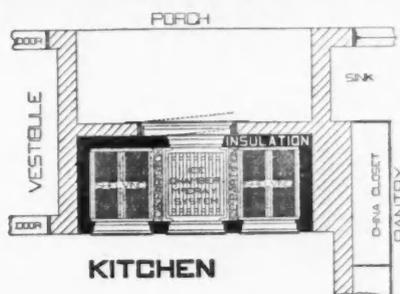
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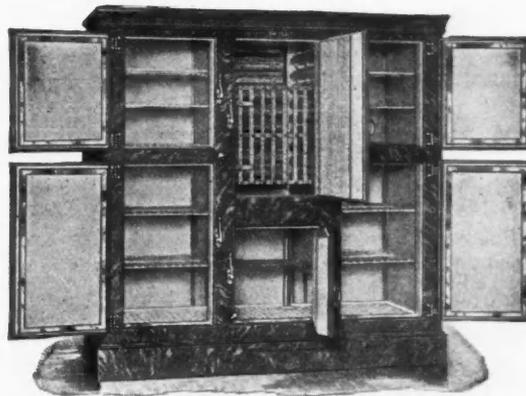
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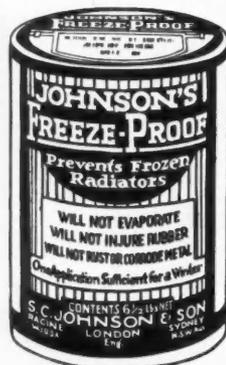
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Planning the Interior Color Scheme

(Continued from page 136.)

brown russet tones of Sheraton mahogany as employed by Sheraton himself and not considering the hideous black brown now being palmed off in some lines of dining room furniture. The rug may be a blue or a blue gray relieved by a light touch of red or red orange in the border.

The kitchen should be regarded as the keystone of the home and everything necessary and sensible be done to make it a light, cheerful and a perfect workshop. Very rarely is a kitchen properly lighted and a medium chosen for preparing the walls which can be washed readily and which is proof against the ravages of steam and heat. Tile, either glazed and inset; or marked on the wall with a lining tool, give a pleasant surface and weight to the lower portion of the side wall. The ceiling should be an ivory, the walls a cream and the tiling a brown enamel finish. The trim may be an ivory or brown as preferred. An inserted tile placed at regular intervals in the wainscoting when marked with a small block relief pattern in olive green will tend to give this room a pleasing touch. A dark brown linoleum should complete the floor treatment. Cream white tiles and walls of brier green; pure white tiles and walls of light blue gray, with racks of blue and white crockery behind their glass doors are suggested schemes which go well with the modern enamel kitchen of today.

The bathroom should have an ivory ceiling, a cream wall with a medium brown wainscoting of tile. Simplicity should go hand in hand with absolute sanitation in considering the arrangement and decoration of the bathroom. Plenty of light and air should be the essential features, and fussy curtains, fancy railings or other dust catching or incongruous furnishing should be constantly avoided. Bathrooms above all else should express reserve and elaboration is distinctly out of place.

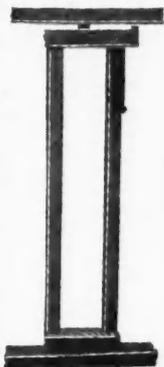
Where old mahogany bedroom furniture can be had, a gray bedroom, tastefully relieved by decorative coloring is most pleasing. A light French gray, stippled so as to allow a very light blue undercoat to glaze thru, makes a beautiful side wall in harmony with a pale gray ceiling. A dark brown floor covered with a heavy blue rug lends enough weight to the color scheme to balance against the orange red flowers of the blue window hangings and the orange candle shades on the dressing table. Such a room as this requires a careful limiting of the decorative color but when carefully and yet daringly done is a thing of genuine beauty.

My closing suggestion therefore would be for Mr. and Mrs. Home Builder to study this presentation carefully and then after taking an inventory of their present and prospective furnishings work from room to room of their house plans until they have considered all factors entering into their problem and have reduced everything to its simplest form.

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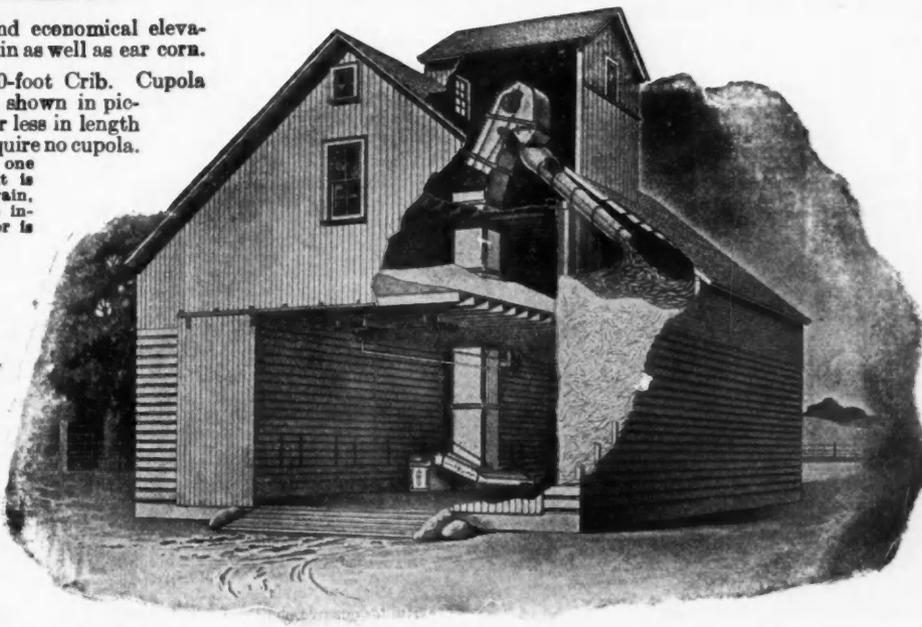
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Fire Retarding Construction—The Heating Plant

(Continued from page 66.)

Smokepipes should enter the chimney horizontally and the opening into the flue should be lined with round tile or a metal thimble set with cement mortar. The thimble used should be of a close fitting size, and a snug fitting collar surround the pipe and be secured to the chimney. In this connection it is well to see that the smokepipe does not come nearer than one foot of any woodwork or wood lath and plaster. When it becomes necessary to pass a smoke pipe thru a wooden partition Figures 4 and 5 show how it can be done with safety. An air space of at least six inches surrounds the pipe and the space between these double collars is vented.

When it is recalled that fire tends to pass thru any opening—vertically chiefly—and that steam pipes have been known to char wood in direct contact with them in the course of time, the use for metal protectors for steam pipes as shown in Figure 8 becomes apparent. A metal sleeve or tube is provided one inch larger in diameter than the pipe with a close fitting cap above and below the floor level.

A more common means of communication for heating systems is the vertical hot air duct running up thru stud partitions. These connect with the hot air furnace. The principal to be kept in mind is that all tubing and direct means of communication may become conductors of fire thru accident or overheat-

ing. Consequently the cold air duct to the furnace should be made of incombustible material, and horizontal hot air pipes should be placed at least six inches below wooden floor joists or wood lath and plaster ceilings unless covered with insulating material. The surest method of protection in stud partitions is to place the hot air pipe inside another pipe arranged to maintain 1/2 in. air space between the two on all sides. Asbestos covering is good but it should be well secured in place and a 1/2 in. thickness of corrugated or cellular asbestos is to be preferred.

Figure 6 illustrates this in section in another variation. Metal lath is used for the plaster for the space between the studs containing the hot air pipe, and the studs are protected in addition by a sheet metal covering with an air space. Figure 7 is an isometric sketch which shows how incombustible material may be packed in around the pipe at floor levels supported on sheet metal between the studs. Hot air ducts in closets need especial protection—pipes doubled with an air space of 1 in. between them on all sides. The air space between the pipes should be enclosed at the bottom and open at the top—no fire can pass up from below and the heat can get out at the top.

Figure 8 is a section of a register box which illustrates a complete method of fire stopping in combustible floors. It is advisable to surround the box at the floor level and to set it on incombustible material. A separate casing or lining for the woodwork allow-

(Continued to page 142.)



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ESTABLISHED 1876 INCORPORATED 1900

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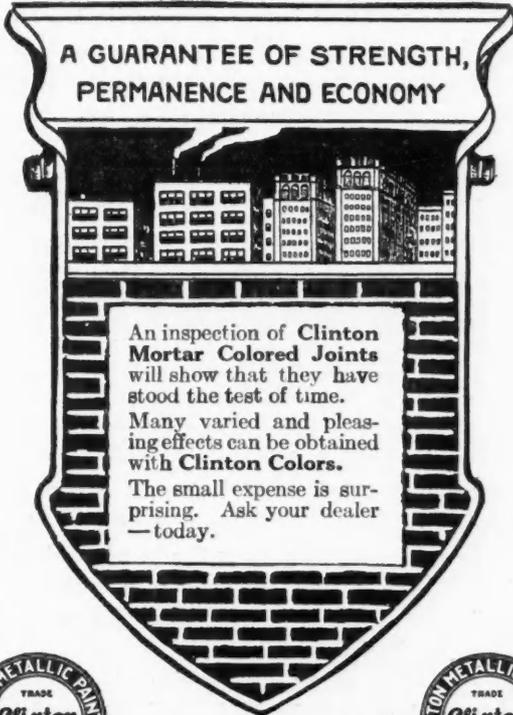


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Fire Retarding Construction—The Heating Plant

(Continued from page 140.)

ing a space of not less than two inches between the casing and the register box and filled with incombustible material gives an excellent protection. If it may seem that fire retarding construction is troublesome and perhaps adds a trifle to the cost of the building it is well to remember that these means of fire protection are recommended by the National Board of Fire Underwriters to safeguard homes and lives against the ravages of fire, and that from the owner's and investor's standpoint buildings so constructed constitute a better risk with the life insurance companies, and there is much less chance of loss or damage to property.



How to Use the Steel Square

(Continued from page 89.)

at his conclusions. He considered it as his stock in trade, and he was generally looked upon as one who was considerably above ordinary mortals. His services were in demand far and near and often there was a wait of days that sometimes lengthened into weeks and even months for this wise man to show up on the job to lay out the work.

His word was considered law and he usually got there, as the carpentry and joinery work of the pioneer days, still to be found scattered thruout the older sections of the country, testify.

But today things are changed. Technical schools that teach us all of the arts pertaining to building are to be found in practically all of the states in the union, besides there are dozens of publications designed for home study that are in the reach of all who really care to better their condition; and in this the AMERICAN BUILDER, now completing the thirteenth year of its existence, has tried to do its bit.

The more we look into the wonderful possibilities of the steel square the more we want to say but space forbids more at this time and we turn now to illustrate a simple home made device to be used in connection with the steel square. It is not new, in fact, we trust to most of the readers it is rather aged, but we trust to some it will be new. To these we address the following remarks:

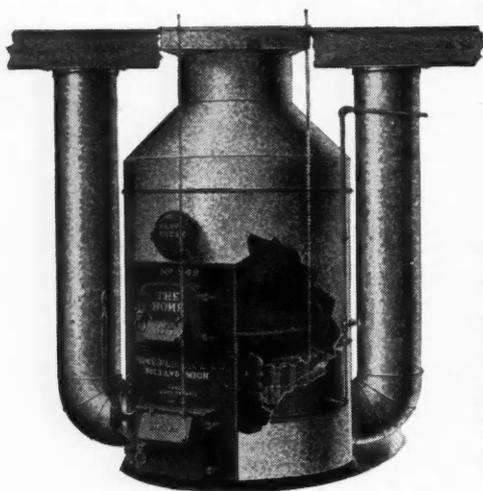
The article is generally known as a fence and can be had in any up to date hardware store made of finely polished metal, but the fence we are going to illustrate is made of wood and anyone can make it. It consists of a straight edge piece of wood with a slot at either end to slip over the arms of the square. It should have a few set screws in same so as to clamp it at any desired position as shown in Fig. 1 and it is ready for use.

The fence is a very useful device where there are a number of like cuts to be made, such as in stair strings as shown in Fig. 2. The fence is useful in determin-

(Continued to page 144.)

The Home Hot Blast Pipeless System

is the only practical and scientific way of heating with a pipeless furnace. There is no draft over the floor, so common with other pipeless systems.



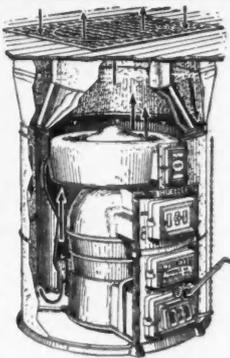
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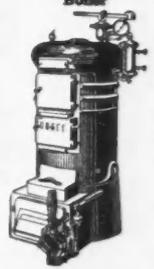
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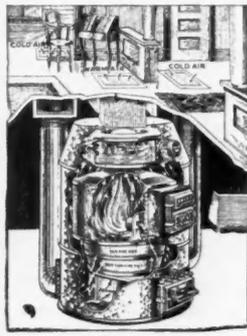
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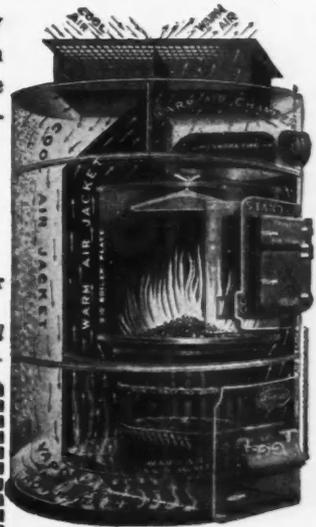
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How to Use the Steel Square

(Continued from page 142.)

ing the length of rafters by setting it at the figures that represent the rise given the roof per foot run of the common rafter as 12 and 8 for the one-third pitch and for the corresponding hip 17 and 8 and should be placed or run the same number of times as for the common rafter.

In case there is a fraction in the run, this will be taken care of by measuring off the amount of the fraction, square out from the last plumb line either way as the case may be, will give the proper point for the plumb line to pass through but the corresponding amount for the hip it should be the diagonal amount of the fraction in the run of the common rafter, that is, 17 is used for the corresponding common rafter because it represents the diagonal of one foot square. So the same proportion must exist in the fractions of a foot, that is, if the fraction in the run of the common rafter is one inch for the corresponding hip it would be seventeen twelfths inches, or $1\frac{5}{12}$ inches, and as the reckoning line of the hip is at the center of its back, the cuts (seat and plumb) should be made so as to catch the measuring point on that line accordingly.

If there is a ridge piece for the rafters to rest against, deductions for one-half of its thickness should be made as described above. There are other things that should be taken into consideration such as the

effect of the backing of the hip has on the seat cut but we will not stop to take that up now but pass on to the illustration as shown in Fig. 3. Showing the use of the fence in measuring inaccessible places such as the height of a tree or the distance across a body of water. In saying this we are well aware that this method of measurement would not appeal to the surveyor or engineer but the principle involved is correct. The result depends wholly on the accuracy of placing the fence and from sighting from one point to another. The cartridge from the best gun ever made will go amiss if the man behind is off in finding the range.

The illustration in Fig. 3 needs but little explanation as it will be seen that A-B-C forms a right angle triangle which is the same as that formed by the fence in connection with the square as shown in Fig. 1. The larger or imaginary triangle which is obtained by sighting along the fence on the square, stationed at A, to line up with that at C. Then by sighting along the tongue at A and along the blade at C while a party sets the stake at the intersecting point at B. Thus A-B and B-C must equal and as the former is on dry land it is an easy matter to get the correct measure without the necessity of measuring across the body of water.

If it is desired to find the distance from A to C this may be found by multiplying the distance from A to B by the decimal 16.9705.



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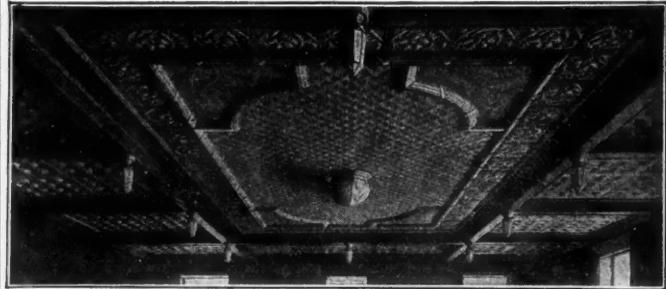
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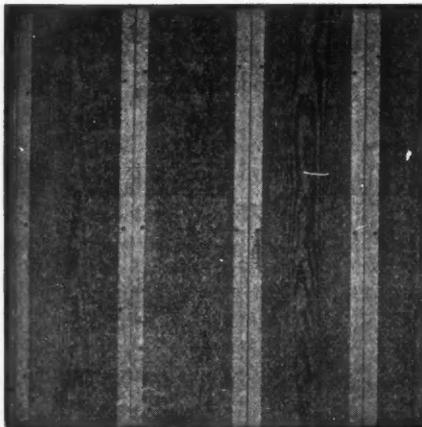
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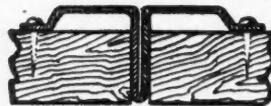
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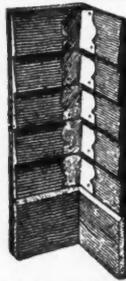
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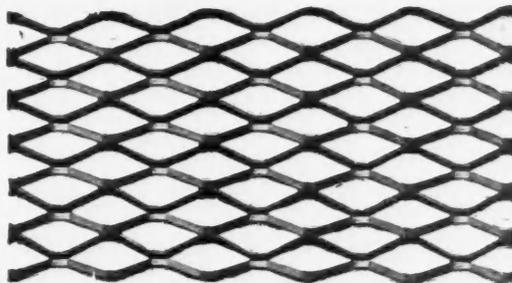
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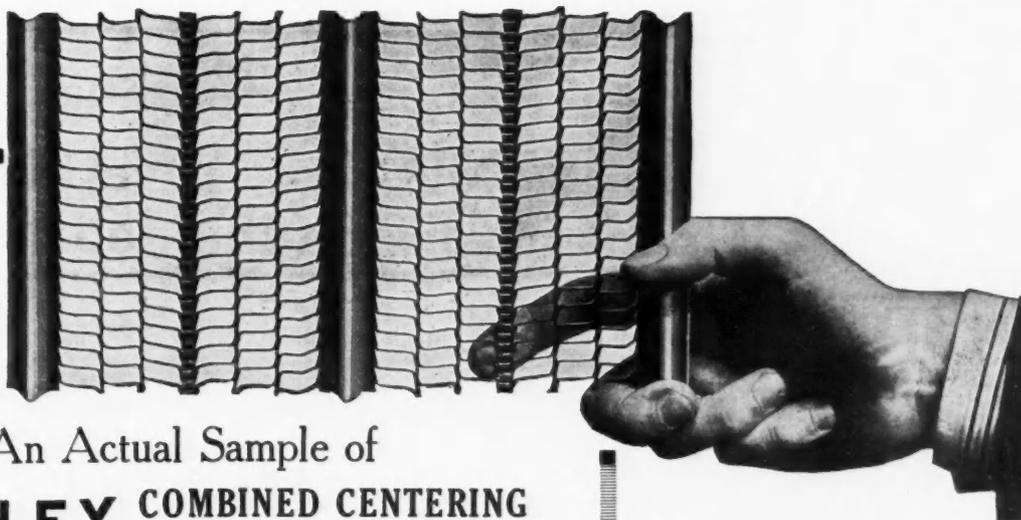
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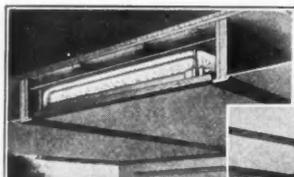
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Be sure you get the genuine "Nice" Filler. Ask your dealer to show you Nice or write for our prices and catalog of varnishes, paints, coatings, fillers, enamels, etc.

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Ceresit Waterproofing Compound
Cem-bric Covering Compound
Indurite Concrete Hardener
Radiolite White Enamel

Get the Ceresit Waterproofer and learn about these waterproofing products.

CERESIT WATERPROOFING CO.
910 WESTMINSTER BLDG., CHICAGO

CERESIT
TRADE MARK REGISTERED

PHOTOS WANTED of Advertised Goods in Use on the Job

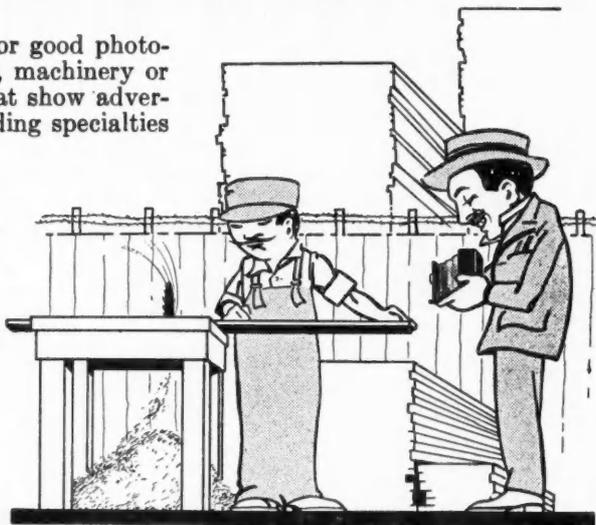
THE EDITOR will pay \$2.00 each for good photographs that show interesting tools, machinery or equipment in use by builders or that show advertised building materials, fixtures, or building specialties being installed on the job.

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

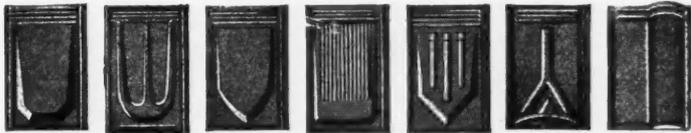
American Builder
1827 Prairie Ave. CHICAGO



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

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*The
Shingles
That
Last*



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Shingles
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The Most Complete Line of Designs **The Best Quality Workmanship and Finish**
 Made in Painted Tin or Genuine Re-dipped Galvanized Tin
SOLD AT THE RIGHT PRICE
 May we send you full-size samples and prices?

NATIONAL SHEET METAL ROOFING CO. 339-345 GRAND STREET
 JERSEY CITY, N. J.



**Roofed with
Winthrop Tapered
Asphalt Shingles**

**The ONLY Kind
Tapered Like Wood**

R. G. Castleman, 120 W. 46th St.,
Bayonne, N. J., writes:—

"I am enclosing a small picture of our house, which is claimed to have the finest appearing roof in the vicinity. We used red Winthrop Tapered Shingles on the roof and gray on the sides. The house was built in 1915 and there is not a sign of wear on the roof."

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Asphalt Shingles
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IS SAFE LUMBER"**

FOR BEST LUMBER
INSIST ON TRADE-MARKED "TIDE-WATER"

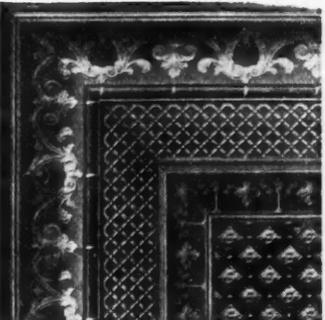
CYPRESS

LUMBER—BECAUSE IT'S "THE
GENUINE WOOD ETERNAL".
AND LASTS—AND LASTS—AND LASTS—AND LASTS

Look for this on every board—



Accept no Cypress without this mark.



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Metal
Ceilings
and Walls**

Here is a chance to build up an independent profitable business for yourself right at home. Many are now devoting their entire time to selling our metal ceilings and walls. Others have made big profits simply devoting part of their time to selling and applying our Metal Ceilings and Walls. No matter how you handle the proposition, the profit is in it, because the demand has already been created.

You Must Act Quick

Write us about your territory at once. This doesn't mean next month, or next week, or even tomorrow, but right now! One hour's delay may mean that someone else may be given your territory. Send for our special agent's proposition and large illustrated Ceiling catalog of attractive sales-making designs.

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"The Sheet Metal Folks"
401-417 Eggleston Ave. CINCINNATI, OHIO

World's Largest Manufacturers of Metal Roofing, Metal Shingles,
Metal Spanish Tile, Metal Ceilings, Metal Garages, Portable Build-
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**CORTRIGHT
METAL SHINGLES**

(The Standard Since 1887)

withstand intense heat, cold, damp-
ness, without curling, splitting,
cracking or warping. Their use
means true economy.

¶Cortright Roofing lasts indefinitely
without repairs. It resists fire.

¶Builders who recommend Cortright
Metal Shingles have powerful sales
arguments—backed by 30 years of
Cortright service. Cortrights are easy
to sell. And they are easier and quicker
to lay. Cortright Metal Shingles mean
satisfied customers and good profits.

Write NOW for details.

Cortright Metal Roofing Co.
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DAMP-PROOFING **PERCOPROOF** COMPOUND

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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gives such long and satis-
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As Handsome and
Enduring as Granite

KELLASTONE

IMPERISHABLE STUCCO

Can be applied in zero weather. Bonds perfectly with wood, brick, concrete or tile. Fireproof, waterproof, cold-proof and crackproof. **Most economical when its lasting quality is considered.** Write for booklet.

National Kellastone Co.
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Kellastone Sanitary Flooring is Sanitary and Seamless

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BOGALUSA

Trade-Mark Reg. U. S. Pat. Office



EXTRA DENSE LONG-LEAF PINE



THE MORE YOU'LL REALIZE THE
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"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 unless you can identify the lumber delivered as real "Bogalusa," *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,
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BOGALUSA

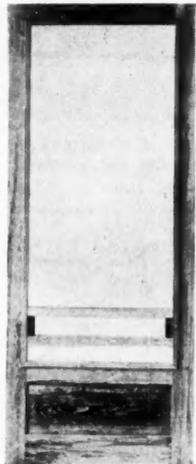
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TRADE MARK
"NO-SAG"
Is stamped on edge of each door

This is an assurance to
you of the
Better Screen Door

The metal brace placed in the No-Sag Door makes it rigid and of great strength, one that stands the test of continued use.

Your dealer will show you this door. Ask to see it, or obtain full explanation from the sole manufacturers.



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No needless interruption, dust or dirt on premises when laying Asbestone over old wood floors, for you need not tear up the floor, simply nail metal lath down and spread the material over it one half-inch thick.

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No cracks or seams, all one piece, like a sheet of hard rubber. Handsome, permanent colors, unequalled in splendor of tone or velvety lustre, adding a note of distinction to any building.

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If you cannot secure Asbestone through your local building construction mechanic we would feel grateful if offered the occasion of assisting you to obtain it.

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REX PRODUCTS are known as GOOD Roofings. They are manufactured by a Company that makes only good products.

REX SHINGLES are Asphalt, Slate Surfaced. Made in two colors—dark red or grayish green—natural colors of the slate. The same fabric is furnished in roll form—no pattern, or in shingle pattern stamped into the slate surface. Slate Surfaced Roofings are guaranteed for ten years.

REX ROOFINGS (so-called "paper" roofings) are made from best quality materials. Prices are graded according to quality. Liberal guarantees on all brands.

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Rex Flintkote Roofing—1, 2, 3 ply
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Double Sanded Roofing—3, 4, 5 ply
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Rex Roof Paints & Preservatives
Rex Flintkote Plastic

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Cost of Building Materials

Is Determined by Labor Costs

The need for buildings in nearly every locality is pressing.

Next year will be a busy, profitable one if every one interested in building construction will emphasize the relative cheapness of materials compared with other commodities, and show that labor costs, the real factor in the situation, will probably never return to a much lower level.

Building materials are not abnormally high, and compared with other products, are cheap. Advances in materials are due mostly to increased labor cost, from the man who works on the raw materials to the man on the building.

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REG. U. S. P. O.

metal lath is just as economical for a plastering base as before and it insures permanent fire-resisting structures.

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Member Associated Metal Lath Manufacturers

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HORNET MANTELS

The salability of any house is doubled when you show the purchaser the beauty and comfort of

Hornet Mantels

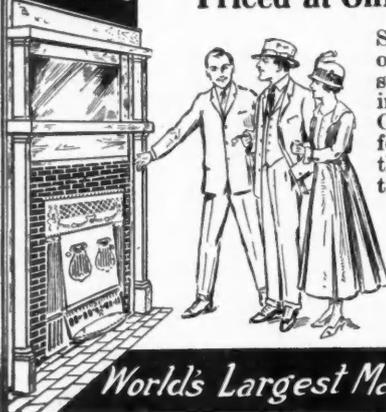
They add 100% to any interior. The model shown here gives an idea of our line and prices. It is offered in selected Oak or Birch, Mahogany finish, Piano Polish. Stands 7 feet high. Note beveled mirror, enameled tile and grate.

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Study our full line of Gas Logs, Fire-sets and Screens in helpful catalog. Gives directions for installing. Get this book for future reference.

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One of 40
styles
shown in
Our Big
FREE Catalog

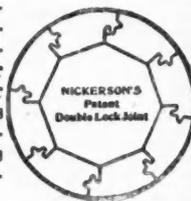


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for Porch, Interior and Pergola use the
NICKERSON Patent DOUBLE LOCK JOINT
THEY CANNOT COME APART

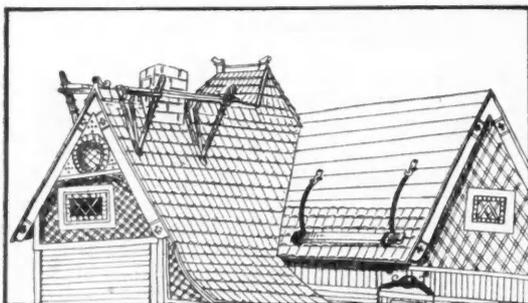
We Specialize on Detail-work. "Vignola" is our Standard for proportions when Architect's details are not furnished.



Clinch your Trade by giving them the very best Columns. Ours have the best Construction and correct shape.

All kinds of interior trim to detail.
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KNOXVILLE - TENNESSEE
Members Knoxville Builders' Exchange

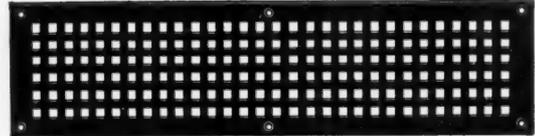


The Neville Adjustable Chimney Scaffold and the Neville Roofing Brackets are sold on a positive guarantee. If not satisfactory after ten days' trial they may be returned at our expense and we will NEVILLE MFG. CO. return your money. Send for descriptive circulars. KEWANEE, ILLINOIS

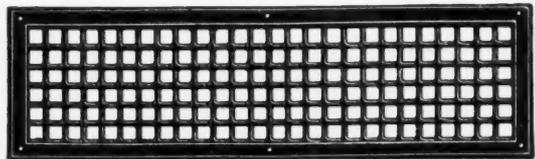
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Class 590—Illus. of grille 4"x4" extreme dimensions.



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"Garage with Pergola Features"

and other suitable things for beautifying home grounds.
If interested enclose 10c and ask for Catalog No. "U-30."



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Chicago Office, 2155 Elston Ave. New York City Office, 6 E. 39th St.

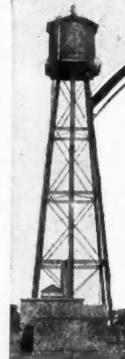
As Enduring As a Sky-scraper

Equip yourself with a Caldwell Structural Tower and you have the endurance of a modern sky-scraper.

The same latticed, bridge-like construction goes into both and one is as lasting as the other. You will be as well satisfied with a Caldwell Structural fifty years from now as you are today.

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1990 Brook Street
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KY.



Caldwell
TANKS
AND
TOWERS

*Blackboard talks
by the professor*

**No. 10
Here's
My New
Home**



I have just finished my new house out on the Colonial Heights Boulevard. The plaster has been on ten weeks now and the stucco has been on for four months. Neither shows cracks anywhere—nor will they ever show serious cracks. You see

**I'M BUILDING FOR PERMANENCE WITH
BERGER'S EXPANDED METAL LATH**

I am proceeding to decorate the walls, too, so that when we move into our new home it will be complete. I know that with Berger Lath the cracks wont come, so why should I wait for them before finishing the walls?
Before you decide what base to use for **your** stucco or plaster, make a personal examination of houses in your neighborhood; note their condition; find out "what's behind their plaster" and draw your own conclusions.
See Sweet's, Page 253 and write Dept. F. A. B. for data and literature on Berger's Expanded Metal Lath.



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Branches: Boston New York Philadelphia Chicago
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Reliable "Reliables"**

They fold up and you can stow them away in your trunk. They have the wooden scaffolding beat a mile.

They are cheaper, safer and can be lifted off of the nails and folded up when through. They can be used on stucco and brick work as well as on frame construction. Thousands of satisfied users order carloads every day.

Send today for full information and prices.

No steel scaffolds are more reliable than Reliables.

Elite Manufacturing Co.

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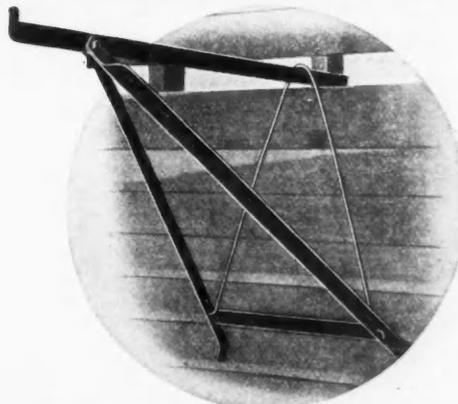
Steady That Scaffold

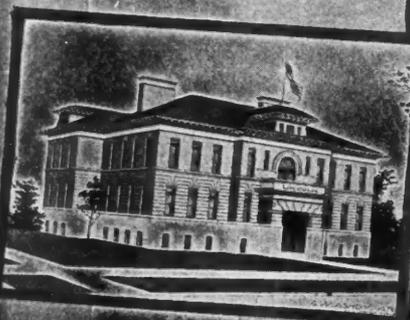
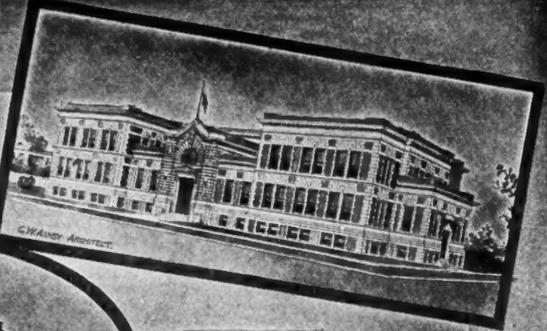
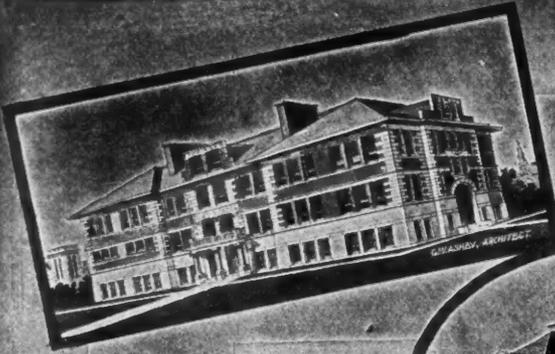
Make it firm and solid. Your men do better work on solid scaffold.

Buy "Trouble Savers"

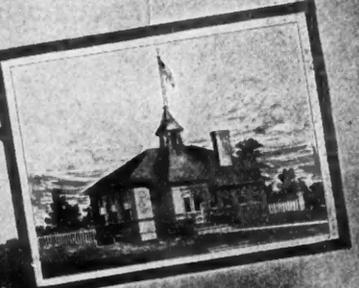
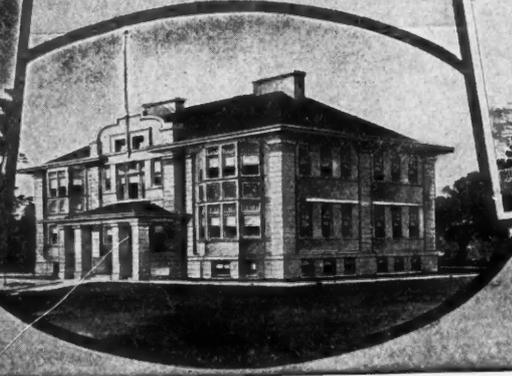
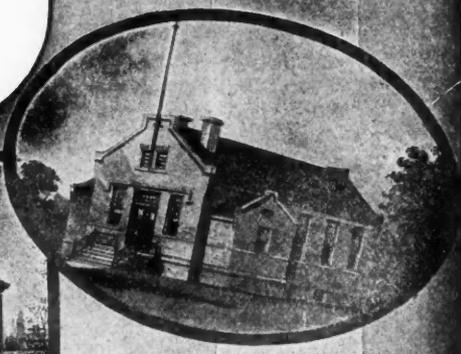
They last forever and are extremely easy to move from job to job. Five minutes' time required to put up. Try our big thirty day free trial. We stand the expense and responsibility. We trust you and want to give you our best of service. We know that once you have used "trouble savers" you'll come back and order more. Information gladly furnished about our free trial plan. Your quick reply is solicited.

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 Designs of Schools & Libraries
 display a composition of utility, durability and good, pure architecture without any "gingerbread." No buildings are too large or too small for our personal and prompt attention.
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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. •

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RO-SAN Chemical Closet

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We want one live carpenter contractor in each town to act as our agent. Hundreds of builders are selling these fixtures. Good profit for little work. We help you sell them. Write today for complete details.

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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.

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Makers of Steel Furnaces Free Booklet



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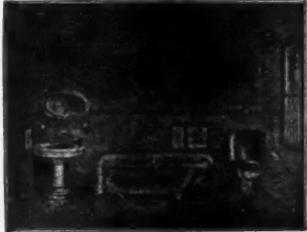
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To realize their tremendous scope, you must see the books—you can get the books for five days' examination without cost to you.

A.B.
1-18

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Town.....State.....
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Forms of Contract
Architect and Owner

Specification Writing
Inspection of Work
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How to Bid with Safety
Timekeeping, Superintendence
Cement Construction
Origin of Portland Cement
Advantages of Concrete
Common and Hydraulic Lime
Cements (Portland, Natural, etc.)
Proportions for Mixing
Aggregates (Sand Gravel, Crushed Stone, etc.)
Mixing by Hand and Machine
Depositing Concrete
Concrete Troubles
Waterproofing Concrete
Concrete Blocks and Brick
Cement Mortar
Stucco and Plaster
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Concrete Mixers

Block Machines
Number of Blocks Required
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A Living Catalog

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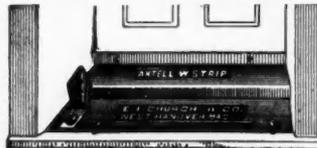
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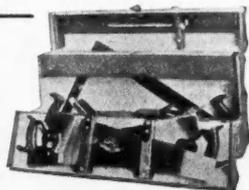
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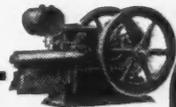
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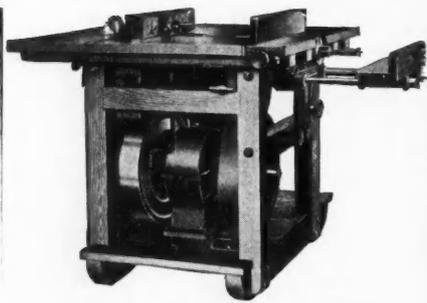
The best Hardware Dealer in your city sells "PEARL"

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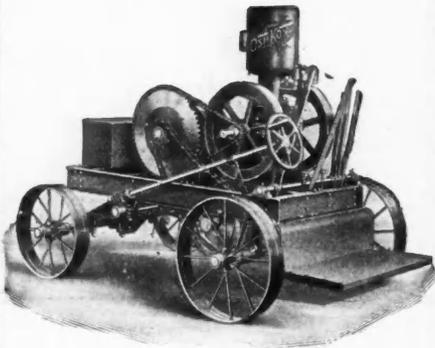
NOTICE TO ADVERTISERS

Forms for the February number of the American Builder will close promptly on January 15. New copy, changes and orders for omissions of advertisements must reach our business office, 1827 Prairie Ave., Chicago, not later than the above date. If new copy is not received by the 15th of the month preceding date of publication the publishers reserve the right to repeat last advertisement on all unexpired contracts.



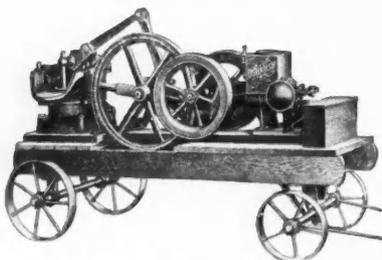
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A strong and handy portable mill. It joints, bores, sands, rip-saws, cross cuts, jig saws, rabbets, bevels, mitres, tenons, and grinds. A quality rig at a moderate price.



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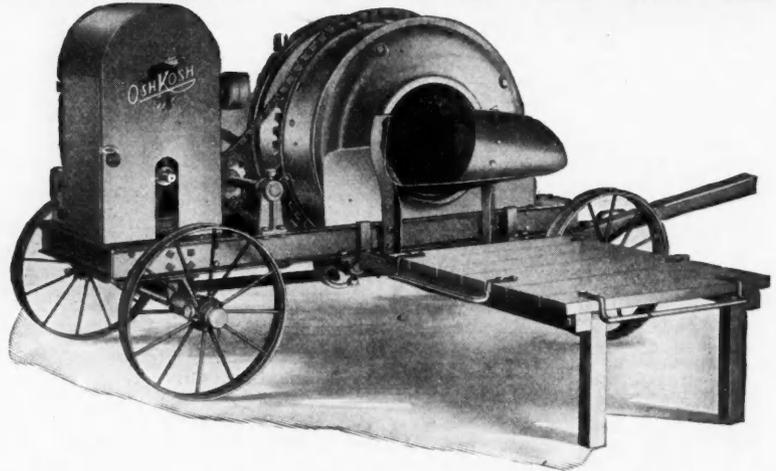
A practical back filler that does the work of from 20 to 30 men and only requires three men for operation. A self-tractor—moving forward as the fill is made. It will work where a team can't work.



Oshkosh Trench Pump

A rubber diaphragm pump operated by a 2 H. P. gasoline engine. Will run a ten-hour day without attention and guaranteed to have sufficient power. Furnished on skids, or trucks, as desired.

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THE man who gets the next big contract is the man who finished his last job **on time.**

But accidents are bound to happen—and a broken sprocket may mean having your men idle for days—a faulty job—a paralyzed contract—unless you can get immediate repairs. You will want a new part—and want it **quick.** You can get it quick if you own an



LOW LOADING MIXER

Oshkosh service—sure, speedy, obliging—stands firmly behind every Oshkosh sale. Phone your dealer if you need repairs.

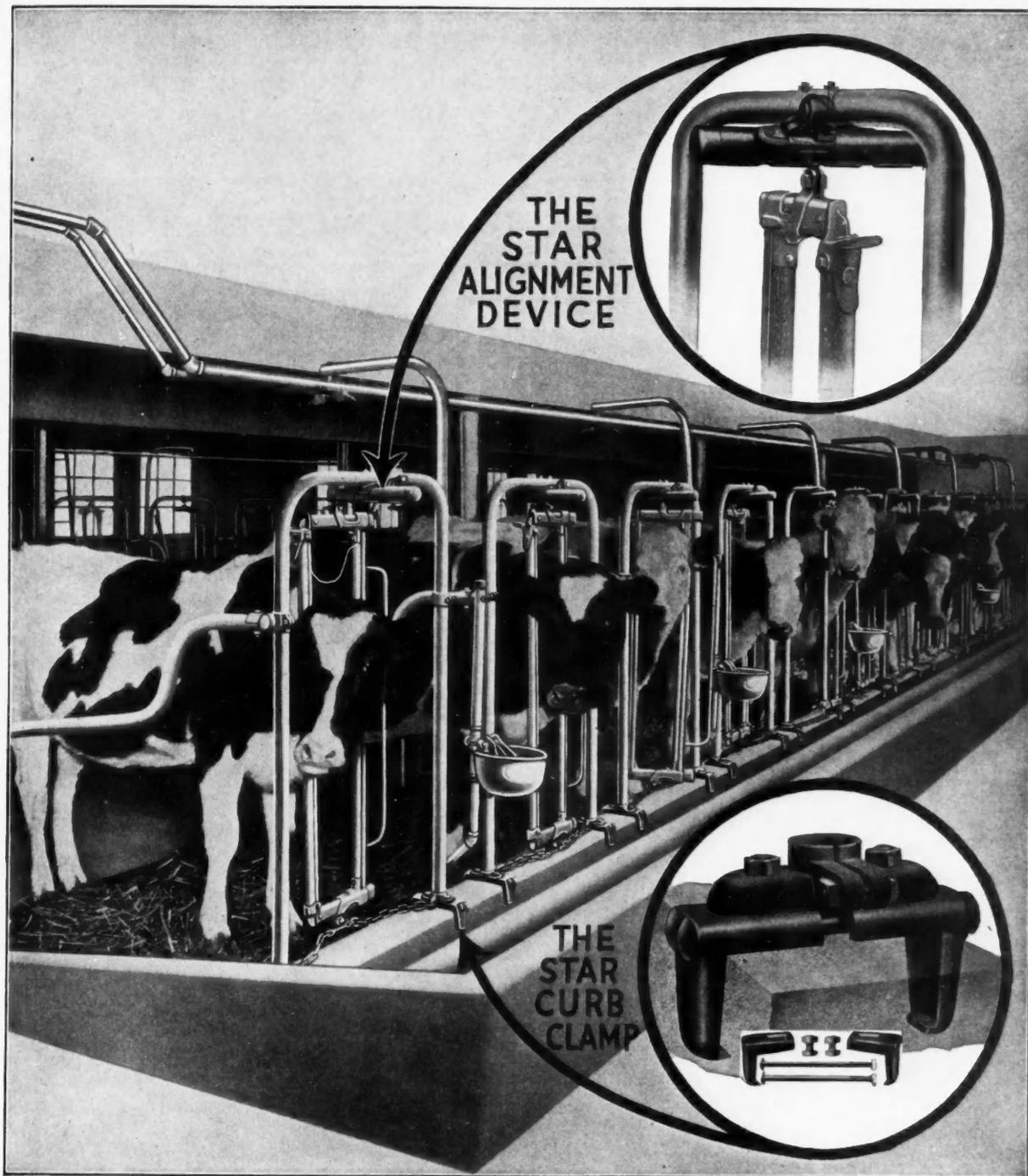
The OSHKOSH Low Loading Mixer is built for long service—sturdy, efficient, rapid—it will deliver two batches per minute—and do it ten hours per day—or more. It loads easily, direct from a wheelbarrow and discharges directly into a wheelbarrow—a real saving of time and labor.

A letter will bring descriptive catalog on this or any of the other Oshkosh products shown on this page. There is an Oshkosh quality machine for every need.

RANSOME-LEACH COMPANY

NEW YORK, N. Y.

OSHKOSH, WIS. DUNELLEN, N. J. READING, PA.



The Two Features That Cinch The Sale

You know that the nearer you come to carrying exactly what your customers want, the bigger your sales are bound to be.

The two big, new, added features on STAR Barn Equipment have been in use long enough to demonstrate that they "cinch the sale" every time our Dealers show them.

The STAR ALIGNMENT DEVICE *instantly*—by the simple turn of a lever—lengthens or shortens the cow bed. Takes about the same time that it does to lock a stanchion. Compare this exclusive STAR feature with the slow, laborious methods used on other stalls.

Then there is the STAR CURB CLAMP—by its aid the barn owner can set a stall in sixty seconds. No templets or anchor setting—the curb can be finished up with the rest of the concrete work.

On top of these new and exclusive features, STAR BARN EQUIPMENT has more practical advantages to offer than any other equipment made. The Unit Stall construction—the extra strong Giant STAR Stanchion with its One Hand Lock, Wood Lining and Easy Adjustment—but what's the use of trying to tell it all here?

Write for a free copy of the "How Book" for contractors, and send us a list of the farmers who are going to build or remodel barns in your vicinity. Write today—

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Main Office and Factory, 16 Hunt St., Harvard, Ill.
Eastern Branch, Industrial Bldg., Albany, New York

The STAR Alignment Device

Our new feature—the STAR Alignment Device—is a revolutionary improvement in stall construction.

By its aid you can *instantly* with the simple turn of a lever lengthen or shorten the cow bed.

And it takes no longer to make the adjustment than it does to lock a Stanchion.

This feature exclusive with the STAR.

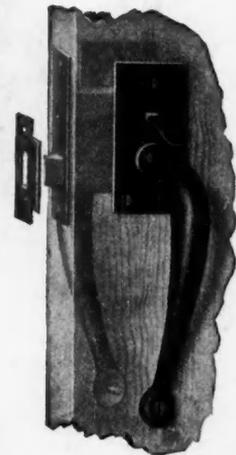
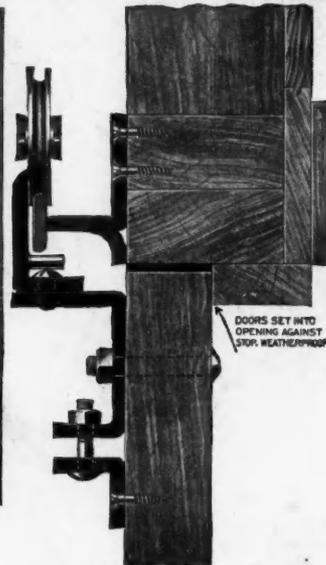
You may, if desired, equip with plain STAR Stalls and add the Alignment Device later, when you are ready.

The STAR Curb Clamp

This exclusive STAR feature is pronounced by barn owners everywhere, the greatest single improvement ever made in steel stall construction.

And—it is exclusive with the STAR. Does away with templets and anchor setting and enables you to finish up your curb with the rest of the concrete work.

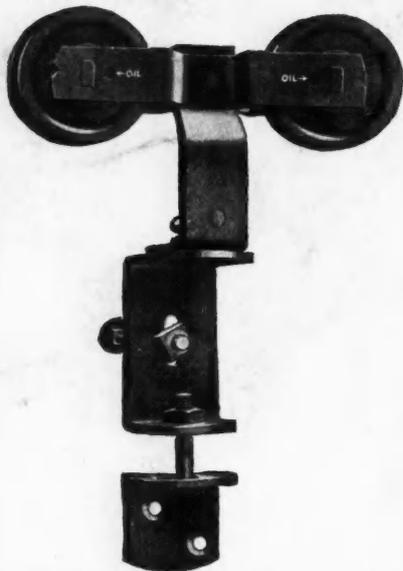
When the stalls arrive, drop them in place, tighten the draw bolts of the STAR Curb Clamp and the job is done. With the STAR Curb Clamp you can "set a stall in sixty seconds" and set it right.



Sectional View of Swivel Hanger

The No. 27 Latch has no complicated parts to get out of order.

Mr. Contractor



The Hanger operates on a swivel and turns on the track without sticking or binding in any way.

MR. Jones of your neighborhood has recently bought his new car. Have you sold him his garage hardware equipment? If you have not why not get busy and write his order for the needed hardware.

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