

FEBRUARY, 1918

PRICE 20 CENTS

AMERICAN BUILDER

THE WORLD'S GREATEST BUILDING PAPER



20 FARM BUILDINGS
IN COLORS



922

FARM BUILDING NUMBER

Inside Page 2. Advertisers' Index Page 207

Published in Chicago

QUALITY

CONSERVATION is now a government command. Each one of us must do his part in the observance of this order and practice economy wherever possible.

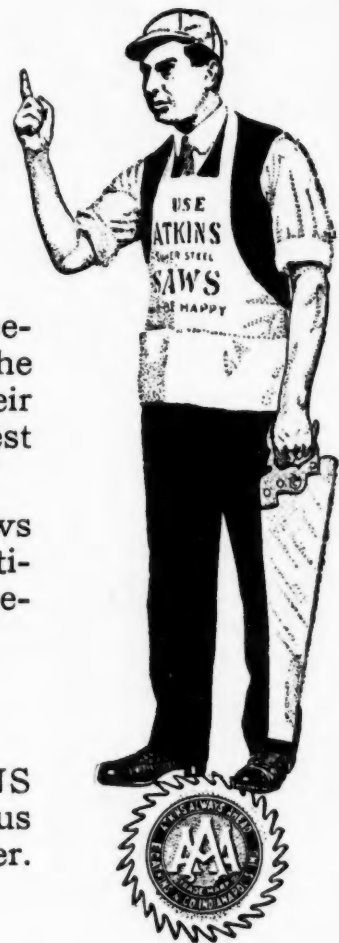
It is possible for skilled mechanics to make noticeable savings of time, labor and energy through the use of ATKINS SILVER STEEL SAWS. Their reliable **Quality** is the users' assurance of the best results.

We manufacture a complete line of perfect Saws for Every Purpose. Our years of scientific investigation have wrought into every one the improvements that make them known everywhere as

"The Finest on Earth"

Your Dealer will supply you with ATKINS SILVER STEEL SAWS. If he can't, write us and we will send the address of our nearest dealer.

*Send 20c for a Nail Apron,
Saw Sense and Monthly Time Books.*



E. C. ATKINS & CO., Inc.

Established 1857

The Silver Steel Saw People

Home Office and Factory, Indianapolis, Ind.

Canadian Factory, Hamilton, Ont.

Machine Knife Factory, Lancaster, N. Y.

Branches carrying complete stocks in all large distributing centers as follows:

ATLANTA,
CHICAGO,
MEMPHIS,

MINNEAPOLIS,
NEW ORLEANS,
NEW YORK CITY,

PORTLAND, ORE.
SAN FRANCISCO,
SEATTLE,

VANCOUVER, B. C.
SYDNEY, N. S. W.
PARIS, FRANCE.

A Complete Planing Mill — All In One Machine

Right now when speed is everything—when time means money—you will want the handiest, speediest Saw Rig obtainable.

That will be an



EVEREADY SAW RIG

The Eveready was designed for complete service—to do every ordinary job—and also for those unusual, catchy little tricks that are so annoying and delaying—if you do not have the right tool.

The Eveready does them all. It is light in weight—can be taken right out on the job—and yet is strong and sturdy, built for a lifetime of hard usage. Two men can work on opposite sides of the machine at the same time. An efficient, dependable little Saw Rig that will make anything that can be made of wood.



Eleven
Different
Operations

**RIP SAWS
CROSS CUTS
TENONS
JOINTS
BORES
GRINDS
SANDS
JIG SAWS
RABBETS
BEVELS
MITRES**

Write today for descriptive
literature and catalog

Ransome-Leach Company

New York, N. Y.

Oshkosh, Wis. Dunellen, N. J. Reading, Pa.

Liberty Bonds accepted in payment at full face value.

Putting the Camps



C. H. & E.

32,000,000 ft. went into the 1,600 buildings at some of the largest cantonments.

At Camp Grant as high as FIFTY carloads of lumber a day "melted" away as the vast cantonment was rushed forward.

In practically every cantonment C. H. & E. Portable Saw Rigs were used to size the lumber.

Lumber went right from the cars to the C. H. & E. saws. Cut to standard sizes, it was rushed by industrial railways, motor trucks or wagons to the camp units.

On this world-beating rush job C. H. & E. Portable Saw Rigs proved their worth.

Here's the point in this reference to the cantonment work; none but tried and proven equipment was sought for this job. A record-breaking pace was set. C. H. & E. saws helped set it.

The Cantonment Contractors KNEW C. H. & E. On 3,000 other jobs throughout the country C. H. & E. Saw Rigs had been used. Big contractors like Snare & Triest used 17. J. G. White Company, 9; Westinghouse, Church, Kerr, 22; Geo. A. Fuller Co., 21; Stone & Webster, 36; Bentley & Son, 20; Hardaway Contracting Co., 38; Arthur Tufts, 35; Thompson, Starrett Co., 16. We could fill these two pages with names of "repeat-order-users of C. H. & E. equipment."

Across on Time



Portable Saw Rigs

C. H. & E. Seven Sizes

(Gasoline engine or motor drive)

C. H. & E. Portable Power Saw Rigs are manufactured in seven sizes to meet every requirement of the trade.

C. H. & E. No. 3 Rig, a light, portable outfit, with three-horse engine.

C. H. & E. No. 8 Rig (a little heavier than the No. 3 outfit), with four-horse engine.

C. H. & E. No. 6 Rig (a complete combination wood-worker), with either four- or five-horse engine.

C. H. & E. No. 1-A Rig (rip and cross-cut saw only), with five-horse engine.

C. H. & E. No. 2 Rig (an all-iron outfit), with five-horse engine.

C. H. & E. No. 4 Rig (an all-iron outfit), with six-horse engine.

C. H. & E. No. 5 Rapid Cut-off Saw, for cross-cutting only.

Any one of these different C. H. & E. Saw Rigs (pick the one best suited for your work) will help you push the work along faster, will help you keep down the cost, will make you independent of the mill-man.

Write for large, new C. H. & E. Catalog just off the press.

Other C. H. & E. Equipment

Power Drive
Bilge Pumps
Centrifugal Pumps
Piston Pumps
Triplex Pumps
Road Oil Pumps
Builders' Hoist (gasoline engine or motor drive)
Mortar Mixer
Material Elevator
Gasoline Engine

Immediate Shipment

C. H. & E. Manufacturing Co., Inc.
322 Mineral Street, 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 $\frac{1}{8}$ 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 38

Huther Bros. Saw Mfg. Co.

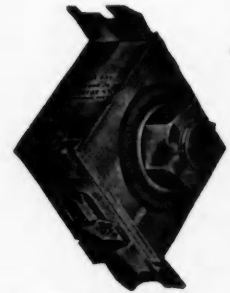
1101 University Ave.

Rochester, N. Y.



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

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



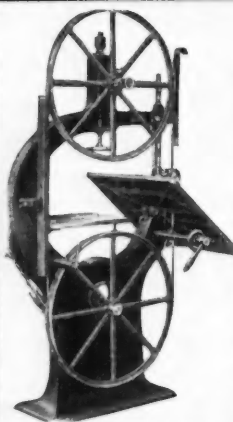
Patented Dec. 30, 1913



Grooves cut with Huther Dado Head.

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

SEND TODAY FOR CATALOG NO. 38

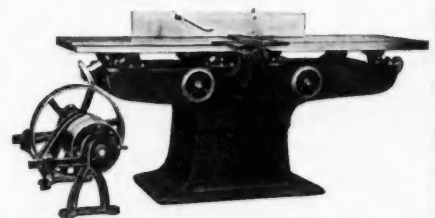


Get Our Attractive Catalog Covering

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

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

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



Miller's Lock Mortiser

TWO MINUTES

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

cuts true in any kind of wood for any size lock from 4" to 14" 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 Belt Mortiser and Rule Gauge for 75c., Postpaid

WALLACE BENCH PLANER

Motor or Bench Driven

"I find that your planer will plane as smooth as a hand plane so that the material can be finished with sandpaper."—So says E.J. Thompson, Fort Collins, Colo.

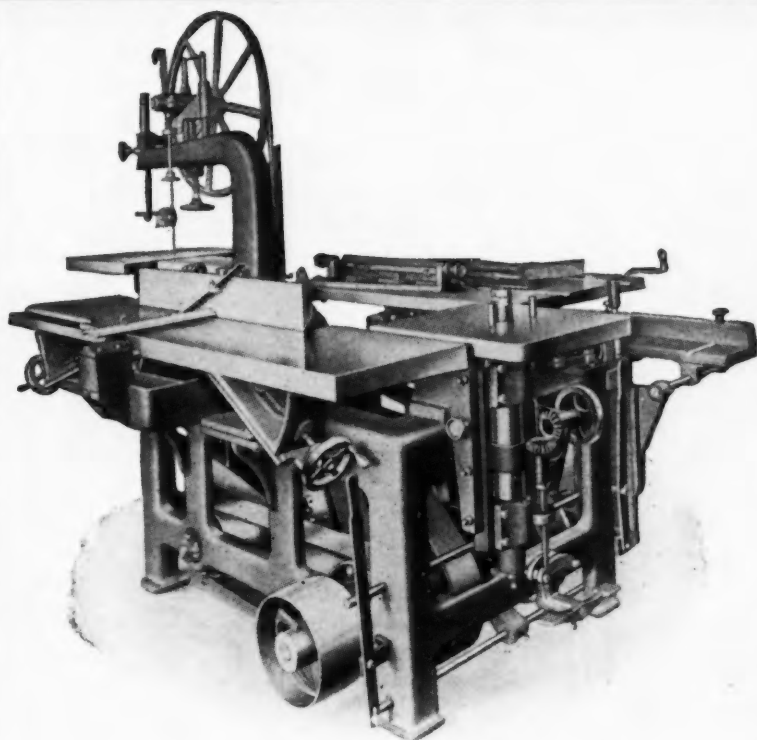
Flap and Shutter safety guard; totally enclosed motor; portability; ease of operation—these features found in no other planer.

4-inch knives, 18 inches long, weight 50 pounds.

J. D. WALLACE & CO.

1405 W. Jackson Blvd., Chicago, Ill.





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.....

The Crescent Universal Wood Worker

Will help you to overcome the effects of shortage of labor because with this machine in your shop in one day you can turn out more work by you self than four men could do in a week by hand. Think what this means to you if you have been trying to compete with machine labor by hand. One half the labor saved would mean a profit to you on any large job.

The **Crescent Universal Wood Worker** is adapted for band sawing, ripping, cross cutting, resawing, panel raising, dadoing, sanding, jointing, moulding, tenoning, knife grinding, mortising by the use of various attachments that may be had with it.

Ask today for our catalog giving complete description and

The Crescent Machine Co.

224 Main St.
Leetonia, Ohio



The Crescent catalog is free to you — ask for it.



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

DON'T buy a toy, get a real machine: 64-inch safety head, thin air hardened steel knives, adjustable bevel fence, removable steel lips, rabbeting arm, pedestal that gives your feet clearance; easy to keep clean under the machine; a practical time-saver and money-maker. Write for Bulletin H-7.

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



SUPERIOR HOLLOW CHISEL 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 PRICE \$15.00 HAND AND FOOT-POWER MACHINERY

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

**SEND FOR
CATALOGUE**

W. F. & Jno. Barnes Co.

74 Ruby St. ROCKFORD, ILL.



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



CHICAGO MACHINERY EXCHANGE

1215-1223 WASHINGTON BOULEVARD
CHICAGO, ILLINOIS

THESE "AMERICAN" MACHINES

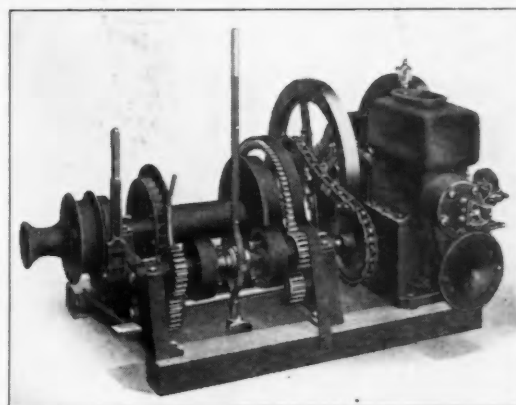
*Bring Many Man-Power
to Your Assistance*

They'll enable you to keep your work up to schedule in the face of labor shortage. They'll speed up your operations, will help you deliver on time. They'll keep your costs down and eliminate delays in your work. They'll pay you handsome profits on the investment they represent.

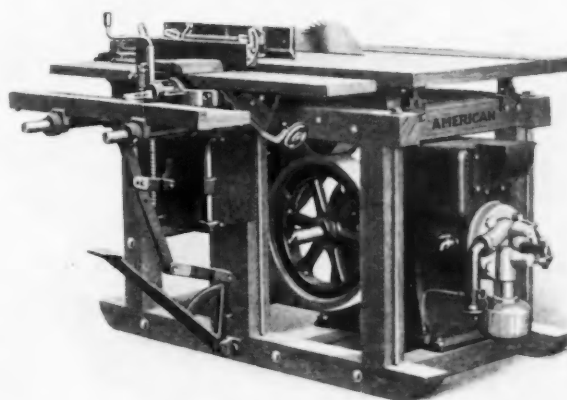
This new No. 4 "American" Hoist will reveal itself as an all-around utility that will speed things up in most profitable fashion. Capable of handling loads up to $\frac{1}{2}$ ton at 100 ft. per minute, it weighs only 645 lbs. and requires space only 32x47 inches. Drum, sheave and winch head are independent and reversible. Every safety appliance is provided. It comes belt driven or with self-contained motor or gasoline engine.

The "American" Variety Woodworker puts a small planing mill at your service, right on the job. Four men can use it at one time, without getting in one another's way. There are 18 up-to-date woodworking machines combined in this "American" unit, ready to do their work at a big saving over hand methods. And the real quality is there, too—the stand-up-ability—that enables this woodworker to "stand the gaff" in hardest service. Belt driven, motor driven or gasoline engine driven—take your choice.

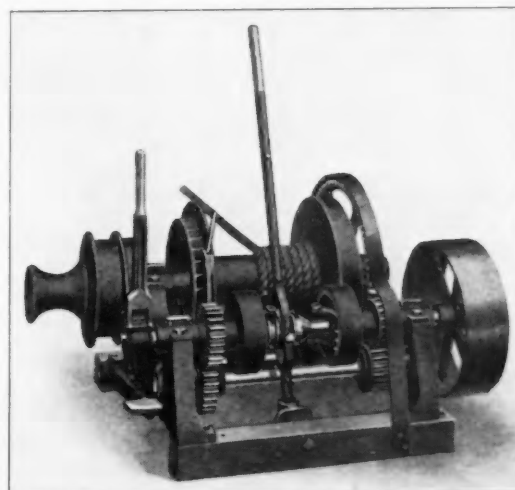
Now is the time to place your order for prompt delivery, ready for spring contracts. Write today for the Bulletins on these two "American" money-makers.



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

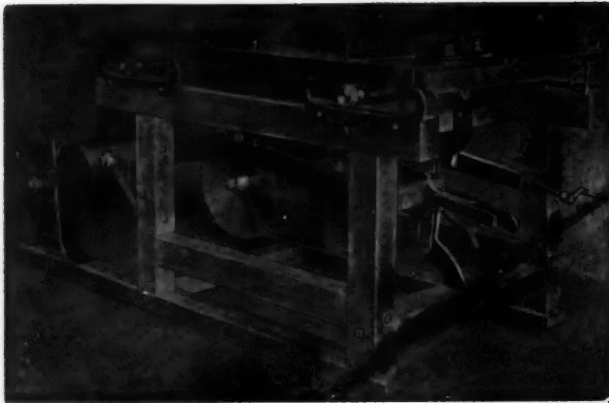


"American" Variety Woodworker with Gasoline Engine Built in



"American" No. 4 Hoist Arranged for Belt Drive

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

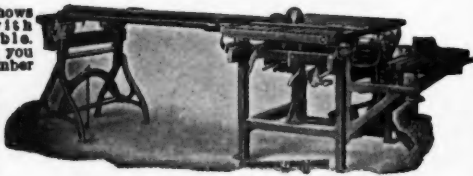


**NOW IS THE TIME TO GET A
BEACH
DOUBLE ARBOR RIP AND CUT-OFF MACHINE**

Get this money-maker on the job. This portable 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. Looks instantly for ripping or bevelling.



QUICK ACTING *The Taylor* SELF LOCKING

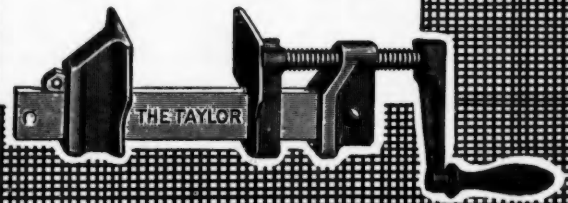
Clamps

**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



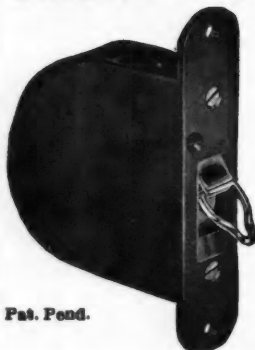
Awarded Medal of
Honor on
Mechanics' Tools
at Panama-Pacific
Exposition.

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 modernising old window, as alterations in sashes and frames are not necessary. Sashes should be weighed before ordering.

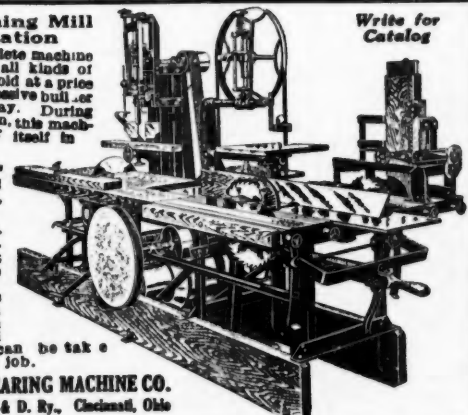
Write for Circular
CALDWELL MFG. CO.
2 Jones St. Rochester, N. Y.

Parks Planing Mill Combination

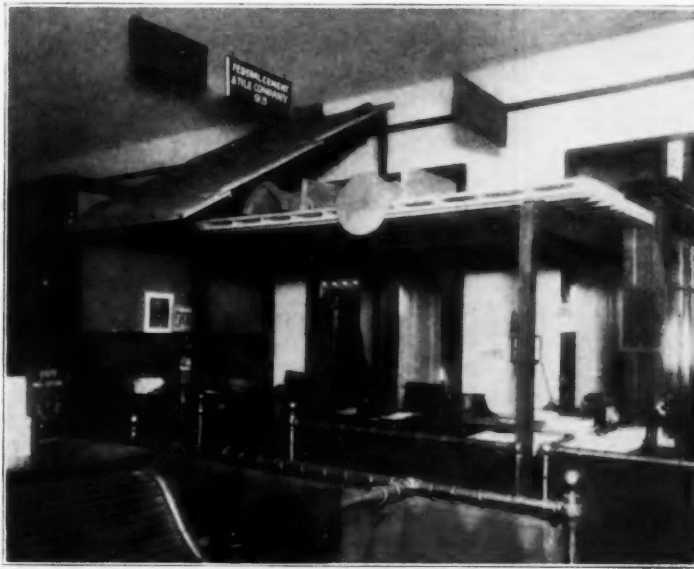
The most complete machine for getting out all kinds of mill work, and sold at a price which any progressive builder can afford to pay. During the season, this machine will pay for itself in couple weeks.

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 taken right out on the job.

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



Write for
Catalog



THE Federal Cement Tile Co. is only one of the 200 exhibitors at the Building Material Exhibit. See this great Exhibit---and see it *soon!*

Building Men!

You don't know how valuable this Exhibit can be to you until once you've used it.

Building Material Exhibit

Entire Second Floor

Insurance Exchange Building

Jackson Boulevard at Wells Street, Chicago

YOU can select and place orders for every material here on one floor at an immense saving in time, labor and cost. 12,000 visitors monthly. Come!

It's Free To See

"Look Before You Build"



It's Time That Counts

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

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

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

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

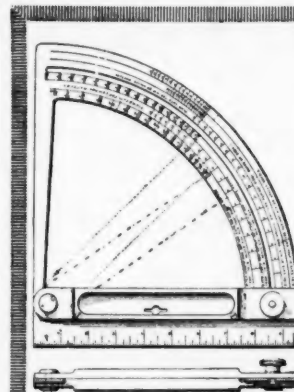


The L. S. Starrett Co.

The World's Greatest Tool Makers

ATHOL, MASS.

42-688



THE CALHOON RAFTER AND POLYGON BEVEL

Prompt Delivery by Parcel
Post on Receipt of

Price \$3.50 Each

A. O. CALHOON & CO.
PERRY, MO.

A POPULAR PRICED STEEL TAPE

LUFKIN "BANNER"

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

Measuring Tapes, Boxwood
and Spring Joint Rules

Send for Catalog

THE LUFKIN RULE CO.

Saginaw, Mich.

106 La Fayette St.
New York



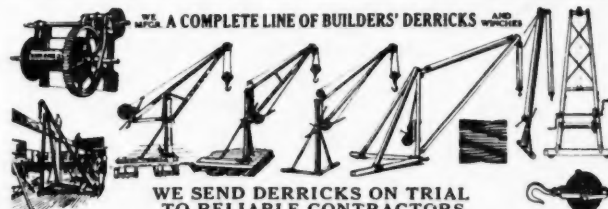
NICHOLLS FRAMING SQUARES

Gives All Lengths
and Cuts of All
Rafters for
Sixteen
Pitches
of Roof.

Full
Directions
Stamped on
Back of Square.

Send for Our Little
Book Explaining This Rule

Nicholls Mfg. Co., Ottumwa, Ia.



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 Sasgen 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.

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

Yours for 12c



This Supreme of ALL Nail Sets

Every carpenter should own one or more of the "Syracuse." Sizes 2-32 to 5-32.

Round and Square

Our No-Rol is another style made square to prevent rolling away and being lost. No-Rol are 15c; round pattern, 12c each. Either of these sent postpaid. Write for them today.

Syracuse Twist Drill Company
Syracuse, New York

The Calculating Rule

For busy workmen. Why trust to guess work and your figuring. Let the interlox Rule do your figuring.

This wonder rule makes all measurements, "outside or inside," quickly and accurately. Read at a glance. Lengths 2 to 8 feet—selected box-wood, finished with waterproof lacquer—solid brass trimmings. Ask your dealer or send us 25c per lineal foot and we will ship you one promptly. Get one today—you need one.



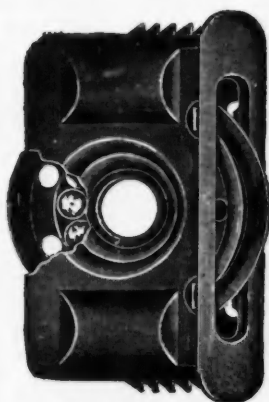
DAHL MANUFACTURING CO.
51 E. 42nd Street New York, N. Y.

Sand's Aluminum Levels

Always Tell the Truth

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

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



No. 10 Ball Bearing

"Grand Rapids" Ball Bearing ALL STEEL Sash Pulleys

Fasten Automatically
No Nails—No Screws
Just Bore Four Holes

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.

North Bros. Mfg. Co.
Dept. A, Philadelphia, Pa.



Special Drawing Set

No. 450

Price \$4.65

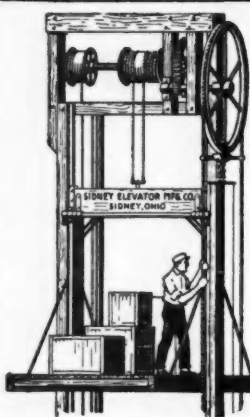
Sent parcel post prepaid
Cash with order

We have also a full assortment of large sets of instruments

PEERLESS BLUE PRINT CO.

341-347 FIFTH AVE.

NEW YORK CITY



SIDNEY ELEVATORS

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

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

The Reasonable Cost Will Interest You

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

SIDNEY ELEVATOR MFG. WORKS
SIDNEY, OHIO

G & B TWO LEVELS IN ONE

TRANSIT LEVELS

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."

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

STOP THOSE RATTLING WINDOWS

Do away with sash weights, cords, pulleys and pocket frames and save money by using **AUTOMATIC SASH HOLDERS**

Proved by Use—Unexcelled for windows without pocket frames. Excellent for new windows.



Send for circular and price, or \$1.00 for trial set prepaid; state approximate weight of sash.

HARDWARE SALES CO., Inc. 52 Church St., New York



THE COLUMBIA

DUMB WAITERS ELEVATORS
CELLAR HOISTS
JUMPER DISAPPEARING DUMB WAITERS
CHAIN HOISTS, CRANES AND TROLLEYS
SEND FOR CATALOGUE

J. G. SPIEDEL, Reading Pa.

The Atlas Concrete Mixer

Made in 6 sizes and many styles. Prices \$48.00 and up. Send for Circular

"CONCRETE FACTS"

ATLAS ENGINEERING COMPANY

3009 Lisbon Avenue

Milwaukee, Wis.



This Instrument Sent Free for Your Test and Comparison

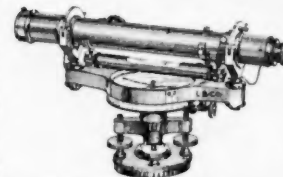
\$65.00

IF YOU want a serviceable, dependable Wye Level with compass—one that does both leveling and surveying work—send for this No. 411 instrument and test it side by side with any other instrument of the same nature. This test will prove conclusively that the **BECKMANN LEVEL** is the biggest value for your money.

Write today and ask us to tell you more about our free trial offer.

The L. Beckmann Co.

500 Adams St., Toledo, O.



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.



CARPENTERS WANTED AS AGENTS

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

Sanitary Automatic Dumbwaiter saves carrying food to and from cellar. Perfectly ventilated; screened openings; finished inside with durable white enamel. Keeps food perfectly. Top lies flush with kitchen floor. You can walk over it. Operates with push button or lever. Also furnished as a Refrigerated dumbwaiter. Assembled complete ready to install. But three hours required to place our waiters in actual operation: old or new homes. Quotations include every needed supply. \$10.11 apiece. Illustrated catalogue.

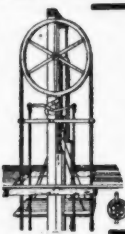
York Automatic Dumbwaiter Works 639-645 West Market Street, York, Pa.

DUMBWAITER

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.

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



KIMBALL ELEVATORS

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

Address

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

Sedgwick Hand-Power Dumbwaiters and Elevators

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

SEDGWICK MACHINE WORKS 132 LIBERTY ST. NEW YORK



Lowest installation cost

Easily installed in either old or new buildings by any good carpenter



SORLIEN CEILING BED CUTS COST OF BUILDING

A sleeping porch equipped with Sorlien Ceiling Beds is a valuable addition to your home.

You can install one or more "Sorliens" in your present porch without detracting from its usefulness by day.

The "Sorlien" gives to small homes the convenience of a den, library or sewing room by day, and converts these rooms into comfortable bed rooms by night.

If you are planning on building and wish to reduce costs without omitting convenience, put your problem up to us.

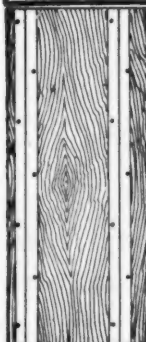
Price of bed \$45.00, f. o. b. Minneapolis. Write today for booklet.

Sorlien Ceiling Bed Company

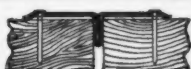
406 Sixth Ave. South

Minneapolis, Minn.

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.

CWC WATERPROOFING PRODUCTS

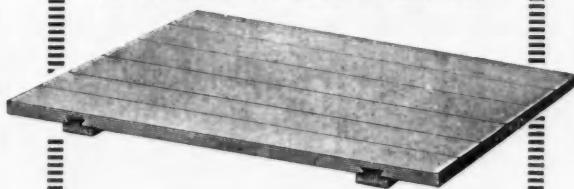
Ceresit Waterproofing Compound
Cem-bric Covering Compound
Indurite Concrete Hardener
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Get the Ceresit Waterproofer and learn about these waterproofing products.

CERESIT WATERPROOFING CO.
910 WESTMINSTER BLDG., CHICAGO

CERESIT

DIETZGEN DRAWING BOARDS



are accurate, dependable, and perfect in workmanship.

Only the most carefully selected and thoroughly seasoned stock is used in their manufacture, the stock being seasoned by a special process.

They are made of narrow strips of white pine, glued to the required width. The working edges are smooth, allowing an easy movement of the T Square.

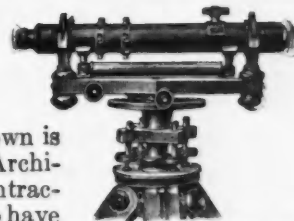
Send for Drawing Board Booklet

Eugene Dietzgen Co.

Manufacturers

Chicago New York San Francisco
New Orleans Pittsburgh
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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.



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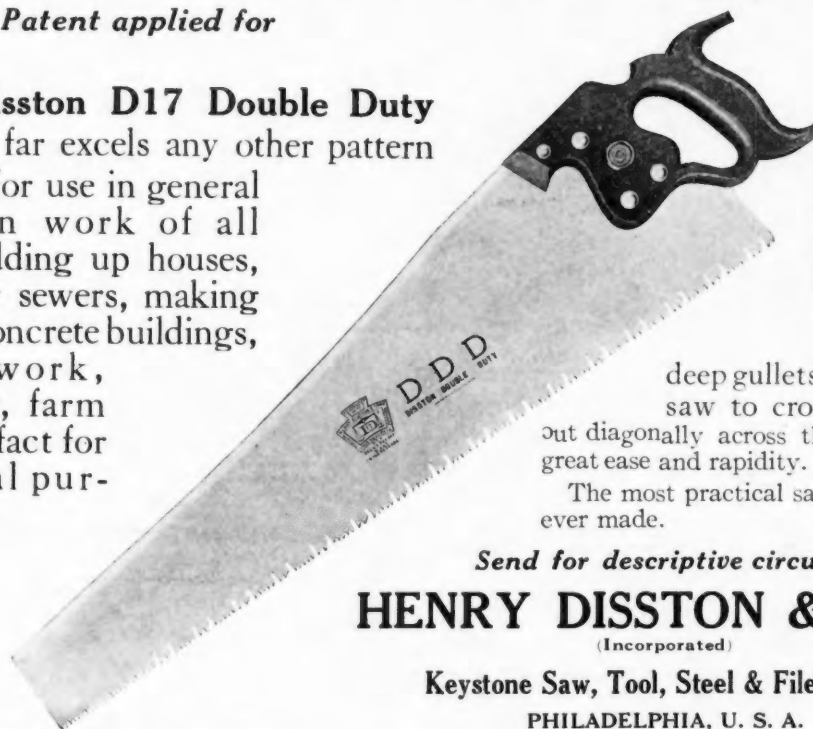
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A Sworn statement in detail will be sent to anyone upon request.

Disston's New Saw For Double Duty Work

Patent applied for

This Disston D17 Double Duty Handsaw far excels any other pattern ever made for use in general construction work of all kinds—studding up houses, shoring for sewers, making forms for concrete buildings, railroad work, millwright, farm use, and in fact for all general purposes.



The combination of crosscut and rip teeth with the very

deep gullets enables this saw to crosscut, rip or cut diagonally across the grain with great ease and rapidity.

The most practical saw of the kind ever made.

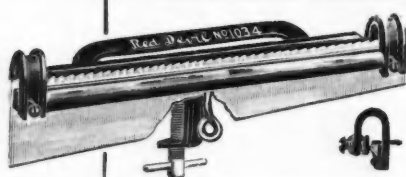
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HENRY DISSTON & SONS

(Incorporated)

Keystone Saw, Tool, Steel & File Works

PHILADELPHIA, U. S. A.



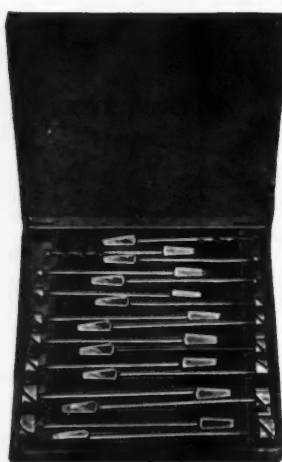
"Red Devil" Carpenter's Adjustable Saw Vise

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.

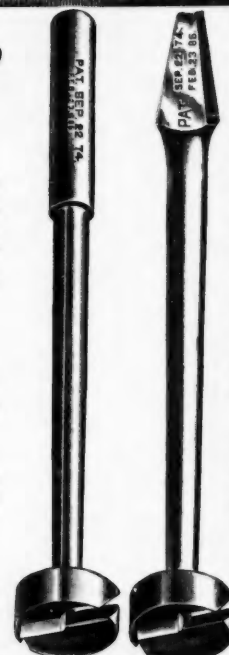
Unequaled for Delicate Work

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 Floor Surfacing Machine Co.
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"The Oldest Concern in the Business"



Wire Window Guards



Counter Railings
Elevator Enclosures
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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 Surfer



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
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1853 **BUCK** 1918 **BROS.**



Pine Beveled Edge Shank and Socket

Chisels

Tang and Socket Butt Chisels

Plain and Beveled Edges

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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

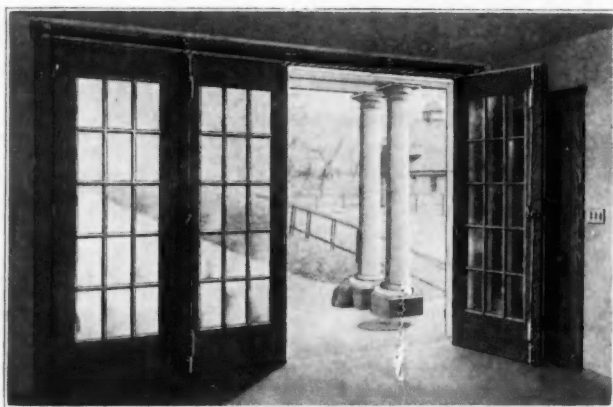
Dixon's Pencils

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
N'S 410
ERS, 538



Garage Doorway Equipped with 4-Door Slidetite Hardware. Interior

The Door of Opportunity

through which garage builders find easy access to convenience, economy and distinctive appearance of their garages, opens on

Slidetite (Patented)

Garage Door Hardware

Operates easily. Keeps out the cold. Economizes space. Prevents doors from sagging, warping or banging in the wind. They can't move unless somebody moves them, and can't jump the track. Takes away that barn door effect. Adapted to every garage.

Write for Copy of "Distinctive Garage Door Equipment." Sent Without Obligation



A Mark of Merit

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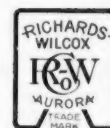
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NEW YORK
CHICAGO

AURORA, ILLINOIS, U.S.A.

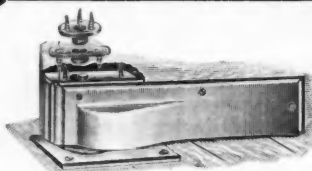
Richards-Wilcox Canadian Co., Ltd., London, Ont.

"A hanger for any door that slides"

PHILADELPHIA
MINNEAPOLIS
BOSTON
ST. LOUIS



A Mark of Merit



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 1/4-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

MORGAN DOORS

because of their

WHITE PINE CORE, WEDGE DOWEL CONSTRUCTION,
EXTRA THICK VENEERS and GUARANTEE

For complete information, write

Dept. C-77 MORGAN SASH & DOOR CO., Chicago
MORGAN MILLWORK CO., Baltimore MORGAN CO., Oshkosh, Wis.

SAMSON SPOT SASH CORD



SAMSON CORDAGE WORKS, BOSTON, MASS.



SILVER LAKE A Sash Cord

The Best Cord adds nothing to the cost of a house, is guaranteed to wear twenty years, and your client is saved the annoyance and expense of replacing broken cord. Made in all sizes to fit all pulleys. Silver Lake A is printed on every foot of cord. Guaranteed full lengths.

Don't Blame the Window Put in the Right Sash Cord FIRST

SILVER LAKE CO., Newtonville, Mass.



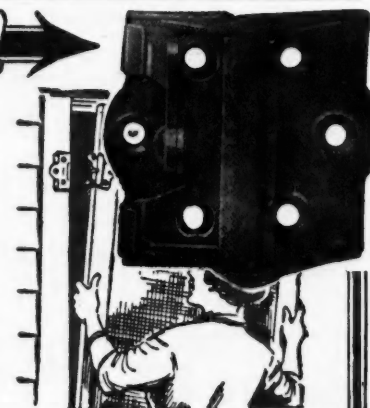
JIFFY!

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.





Griffin Pressed Steel Door Stops

No. 640

Are drawn into shape from one-piece of high quality Cold Rolled Steel making them extra strong—guaranteed indestructible.

The rubber bumper is made from the best rubber and is backed up by a metal disc which in turn is knurled—“ENTRENCHED”—in place—will stand all the “banging” one can possibly give it and cannot work out of place.

Compare this beautiful, plain door stop with the ordinary kind. It is modern and when finished in any of the various Griffin Hardware finishes, it harmonizes with the beautiful interior finish of the Modern Home or Building.

No sharp edges or corners to cut the hand on, catch the clothes, as the woodwork is dusted. This is the door stop your customer is looking for.

Send for complete circulars and information at once.

The Griffin Mfg. Company
Erie, Pennsylvania
NEW YORK: 30 Warren St.
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Broaden Your Field

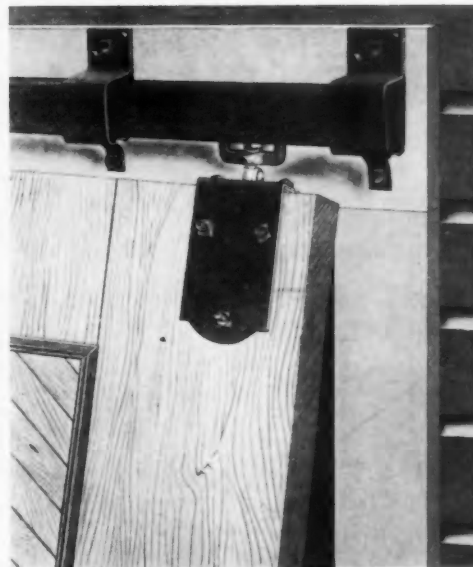
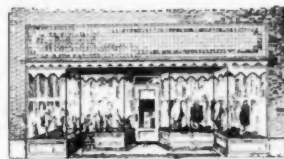
RAPIDLY changing conditions in the building trade are bringing things to a point where the great majority of contractors must be satisfied with a much smaller business or must widen their field.

Building activities, except in a relatively few places, are going to be much lessened. This does not mean, however, that contractors must cut down their force or make less profit.

Desco
METAL
STORE FRONTS

The pushing of Desco Construction opens up a wide and lucrative field to the contractor in any city. Everywhere the rebuilding and remodeling of stores offers opportunity for steady, profitable business. Write us today for details of this construction.

Detroit Show Case Company
491 Fort Street, West
DETROIT MICHIGAN



NOTE THE FLEXIBLE CONSTRUCTION

Better Barn Equipment

Farmers are coming to see that a well-planned, well-equipped barn pays bigger dividends than the hit-or-miss building of former years. And better barns mean better equipment—better door hangers. Not necessarily more expensive door hangers, but hangers that can be depended upon to stay up when put up—hangers that will operate easily in all kinds of weather year in and year out.

In the construction of the PITTSBURGH Door Hanger every possible contingency has been anticipated. Lateral and vertical adjustment overcome the warping of doors and settling of building—hinged construction precludes possibility of doors being torn down by sudden shocks—covered trolley track keeps out snow, rain, ice and birds' nests—roller bearings insure ease of operation at all times.

If you are not quite sure what door hanger to use on that new garage, barn or other farm building, write for a copy of our new 8-page circular illustrating and describing the many exclusive features of the PITTSBURGH Door Hanger and Track—the standard by which all others are judged.

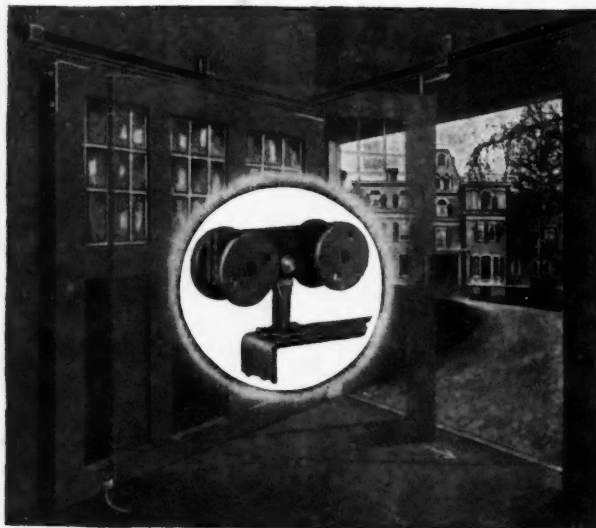
Ask for Circular H-11

McKinney Mfg. Co.

Makers of Hardware
Pittsburgh, Penna.

Lane's Garage Door Hangers

Many of the modern garage requirements cannot be readily satisfied by the common methods of hanging doors.



Our literature illustrates many interesting designs to meet these problems.

May we send it?

Lane Bros. Co.

**CHERRY STREET
Poughkeepsie, N. Y.**



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.



The Toughest, Strongest
Hammer Made

**\$1.50
EACH**

WAX HOLE

No. 41 16 oz. Full Polished No. 42 13 oz. Full polished

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

Makers of Fine Tools



The Great Diehl Line of Hardware Specialties

Free catalog
upon request



New Way Hinge

The most practical and economical self-supporting basement window hinge on the market.

Address
Hardware Specialty Co.
Glenbeulah, Wis.

Other Excellent Products

Hangers
Fasteners
Hinges
Latches
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Couplings
Base Knobs
Door Catches
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Transom Lifts
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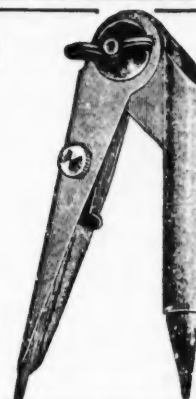
Just The Thing! Low Price

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.



YOUR BEST BUY A PROFIT BOOSTER



Topping Garage Door-Hanger Set

Topping Garage Door Hangers are in demand everywhere. Their merit is known by all who use them and they stand all test of time.

Will wonders ever cease! At last a perfect door hanger. There is *nothing better* on the market.

It covers 8 important advantages:—

- 1—allows the use of the full door opening without risk or damage to car or door.
- 2—enables the doors to be left wide open without danger of swinging or blowing shut and without needing propping open.
- 3—needs no run-way extending beyond the building on either side.
- 4—allows the doors to be properly weathertight when closed.
- 5—enables the owner, chauffeur, etc., to enter the garage without opening up the whole door.
- 6—allows the door to be easily and quickly opened or closed at all times.
- 7—is so simple that the hanger cannot get out of order, stick and refuse to operate.
- 8—automatically locks open and automatically locks closed.

They are put up in sets with all necessary hardware furnished complete with every hanger.

Contractors are urged to apply for our profit making plan. Big profits made easily.

"We make nothing else but Door Hangers."

"RED RIB" Barn Door Hangers

Red Rib barn door hanger track positively will not spread on account of the solid double-grooved wheel. Strongest trolley made. Sheds water. Bird proof. Tandem wheel. Hinge Hanger. Noiseless. Roller bearing wheel.

And do not forget they are absolutely guaranteed.

Contractors are urged to write us and ask about them. We have a Money Making proposition to offer.

Write for catalog today

Safety Door Hanger Co.
Ashland, Ohio



No 101 Adjustable

Bishops Refined "Greyhound" Steel Saw—A Masterpiece

Of the Saw Maker's Art. We are proud of its quality and guarantee it to cut faster and run easier in all kinds of wood, to hold its sharpness and set longer than any other good saws.

It's the Your-Money-Back-If-Not-Satisfied Saw

30 Days' Trial Will Prove Our Guarantee

The "Greyhound" is the result of years of experimenting to originate a purity of steel with fine grain and tough body.

Made in both Straight and Skew Back

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

Packed One in a Box

GEO. H. BISHOP & COMPANY
LAWRENCEBURG, IND.



Buy Good Tools IT WILL PAY YOU

The White Adze is guaranteed and will wear twice as long as a cheap tool.

Get them of your dealer. If he hasn't them write us direct.

THE L. & I. J. WHITE CO.
10 Columbia Street BUFFALO, N. Y.

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.

\$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.
560 CAPITOL AVE. INDIANAPOLIS, IND.

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.

THE EXPERT'S CHOICE FILE



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

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

You get your money back if the Expert's Choice does not prove to be the most economical file you have ever used. DELTA SAW FILES are made for fine or coarse teeth—also for that extra hard saw. Buy your tools of the dealer who sells Delta Files. He is the quality man.

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

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

 CARPENTER'S SPECIAL 15¢ EACH

MECHANIC'S FAVORITE 20¢ EACH

EXPERT'S CHOICE 25¢ EACH

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

DELTA FILE WORKS

PHILADELPHIA,
PA.

Look for
This Sign
at Your
Hardware
Store

The best Auger Bit File made — We will deliver on receipt of 30 cents each.

Berger's Metal Lumber

Replaces wood, piece for piece, as joists, studding and framing.

Berger engineers prepare the erection drawings. The members come to the job cut to fit and marked for position. This construction is

Strong and Fireproof

It's ease of installation and light weight effect savings in labor and in cost of footings, columns and girders.

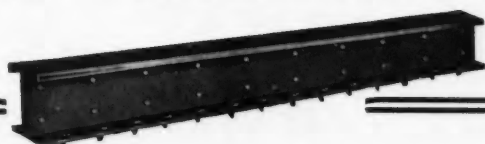
Bulletin 12 A. B. is yours on request

The Berger Mfg. Co., Canton, Ohio



Branches: Boston New York Philadelphia
Chicago St. Louis Minneapolis
San Francisco Los Angeles

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Berger Building, New York City, U. S. A.



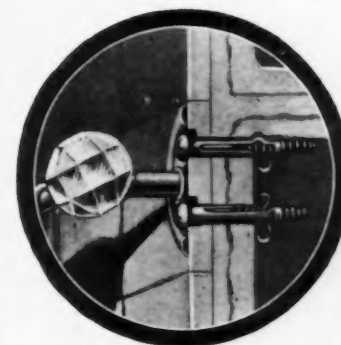
—“three times as many in a quarter of the time

and with half the labor, too!”

That's the way the foreman describes the results he had from using Ankyra Ankor Bolts instead of lead and wood plugs to fasten fixtures in hollow tile walls.

(They hold in any kind of wall, not just hollow tile).

Here were the exact figures the first day Ankyra Ankor Bolts were used on this job:

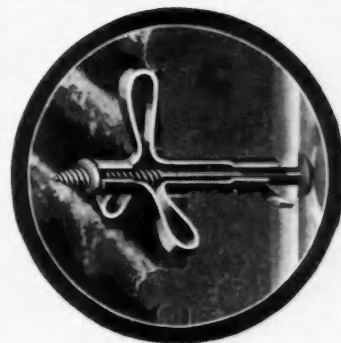


In the morning one man and a helper (at 75 cents and 50 cents an hour, respectively) had put in nine wood and lead plugs.

In the afternoon, the journeymen, by himself hung fixtures requiring 27 fastenings in one hour and five minutes by using Ankyras Ankor Bolts.

COMPARE THE COSTS

Lead and Wood Plugs		ANKYRAS
\$0.75	Journeyman's Wages, per hr.	\$0.75
.50	Helper's " " "	-----
1.25	Total labor " " "	.75
4 1/2	Time required, in hours	1 1/2
\$5.62 1/2	Total cost for labor	\$0.81
9	Fastenings made	27
\$0.62 1/2	COST PER FASTENING	\$0.03



The cost of the Ankyra itself is no greater than the lead needed for a plug.

Ankyras never work loose or pull out and are cost savers in any building work—

Have your dealer show you some, or if he has none, send us his name and we will send you samples and full details.

Ankyra Manufacturing Company

151 Berkley Street

Wayne Junction, Philadelphia

Self
Riveting

Self
Adjusting



Ankor

Bolts

GOODELL PRATT

1500 GOOD TOOLS



High-Speed Bench Grinder

THIS Bench Grinder combines high speed and high power, yet it is so light in weight and so compact that it may easily be carried in a tool chest. This is greatly appreciated by all mechanics who desire a serviceable grinder of medium size.

The wheel makes 22 revolutions to each turn of the crank, which gives plenty of speed to grind any tool. This grinder enables you to sharpen tools with a surprising degree of smoothness and ease. The reason for this is in its unusual construction and design.

The gears are completely enclosed and are packed in grease for proper lubrication and silent running. The castings are finished in red and black enamel.

A high grade abrasive wheel, 5 inches by 1 inch is furnished with each grinder. These wheels are of just the right grain and grade for sharpening edge tools at this machine's speed. An adjustable work rest is also provided.

The name Goodell-Pratt on a tool always means a good tool, the greatest value for the dollar.

Goodell-Pratt Company

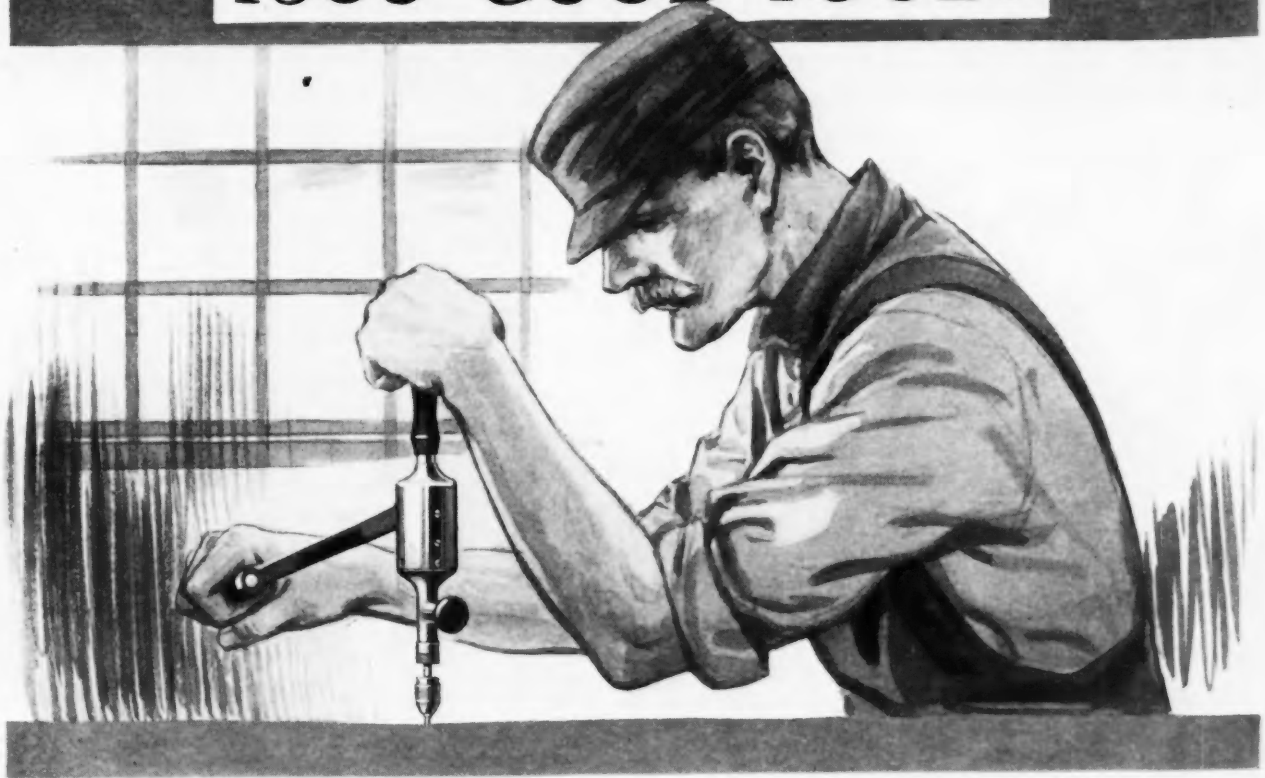
Greenfield, Mass., U. S. A.

Toolsmiths

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

GOODELL PRATT

1500 GOOD TOOLS



High-Speed Hand Drill

THIS Hand Drill is particularly useful where it is necessary to drill a large number of holes very rapidly. It has the extremely high speed of seven revolutions of the chuck to one turn of the crank. Wood finishers, floor layers, and others doing similar work will find it the speediest tool ever designed for its purpose.

The easy operation of this Drill is no less remarkable than its speed. It operates easily because the spindle runs in ball bearings. All gears are enclosed in an aluminum casing to

protect them from dirt and breakage. They are cut from solid blanks and are packed in grease to insure proper lubrication.

The long crank and large crank handle insure ample power. Light weight is made possible by an aluminum casing. The chucks are all steel with three hardened jaws for holding round shank drills from 0 to $\frac{1}{4}$ inch in diameter.

You will find this Drill superior to any other type of hand power drilling device.



Goodell-Pratt Company

Greenfield, Mass., U. S. A.

Toolsmiths



On your way home step
into any hardware store
and ask to be shown a

Carborundum Niagara Grinder

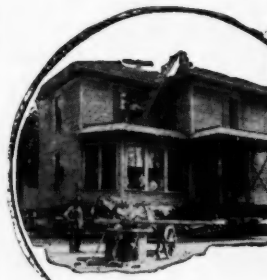
It's the grinder you should
have in your tool kit or on
your work bench—

A practical, durable, sensible,
grinder for every grinding need
of the carpenter, cabinet maker
and handyman. Easy running,
accurately made for real serv-
ice.

*The Carborundum Niagara
Grinder is the grinder with the
genuine Carborundum Grinding
Wheel*

The Carborundum Company Niagara Falls, N. Y.

New York Chicago Philadelphia Cleveland
Cincinnati Boston Pittsburgh Milwaukee
Grand Rapids



Move Houses Don't Wreck Them

BIGGER profits
are made every day
by moving old buildings to
cheaper lots, remodeling them and
selling them instead of wrecking them. When you
wreck a building you get very little money out of it.
Buildings that are moved, fixed up a bit, bring a good price
and big profits. Customers are easy to get. Profits are big.
House-moving is made easy with

ALL-STEEL GIANT House-Moving Trucks

Made of the best Bessemer steel. Will carry heaviest loads
and last for years. Perfect oscillator prevents racking of
building. Hundreds of users testify about the remarkable
efficiency and money-making features of these trucks.
Every house-moving contractor, carpenter and build-
ing contractor should investigate this proposition. It
means big money for you. Let us show you how
you can make 100% larger profits. Send us a
postal now for Catalog B. "Suc-
cessful House-Moving Contractor,"
a house-mover's magazine, will
also be sent Free. Write today.

La Plant-Choate Mfg. Co.

620 Eastlack Ct.

**CEDAR RAPIDS,
IOWA**

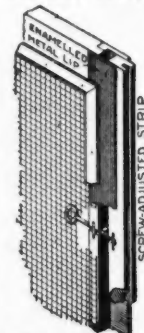


**30 Days'
Free Trial**

THE WHEELER SCREEN

is truly "Self-Fitting" by its Screw Adjustment.

You find three troubles in every non-adjusting screen: (1) Errors
of the Opening (no man can make two openings of same size);
(2) Weakness of the Wooden slide-tracks used by all sliding
screens, except the "Wheeler"; (3) Swelling and Shrinking of
all window frames in wet and dry weather.



Corner showing
Screw Adjustment

We End All Troubles.

No matter what trouble—whether error of car-
penter—or imperfect window frames—no matter
what weather, merely push out Adjustable Strip
in the side by means of Thumb Screws located
near top and bottom. The Screws push out this
Strip—more at top—less at bottom—until Screen
exactly fits. With troubles ended, conveniences
follow and the "Wheeler" outpoints all others
on all features. To the Contractor they afford
two profits—the usual margin, and another in the
saving over cost of fitting and painting the edges
of all others. They fit without touch of tool at
one-tenth the cost of other installations.

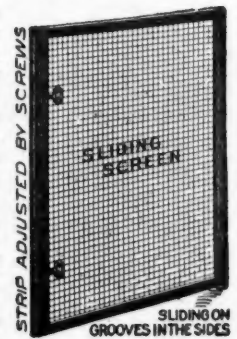
Big Money Selling Our Screens.

You can make more money *selling* the
"Wheeler" Adjustable Screens than by
making other screens. Keep your men
busy at other work. Let us take care
of your Screen orders. You actually
make \$5.00 to our \$1.00, because we
allow you the big-single profit on each
house-order, since that is the only way
for us to get the little-many profits on
the 100 house-orders.

PROMPT SHIPMENTS:—Special machines
—floor space of nearly 2 acres—fill orders in
days where others require weeks; speed lim-
ited only by time for drying the finish speci-
fied—3 to 5 days is our *average* on White-Pine-
Painted Screens.

If we have no Agency in your town, write for our
proposition; don't delay—Screen time is soon here.

WHEELER SCREEN CO.



SLIDING ON
GROOVES IN THE SIDES

Geneva, Illinois

When Rigidity Counts in a Plane

When you're finishing a tough hard stick, and want to turn out an especially smooth job—it's then that your plane must be absolutely rigid—must not chatter.

SARGENT

REG. U.S. PAT. OFF.

Automatic-Set Bench Planes

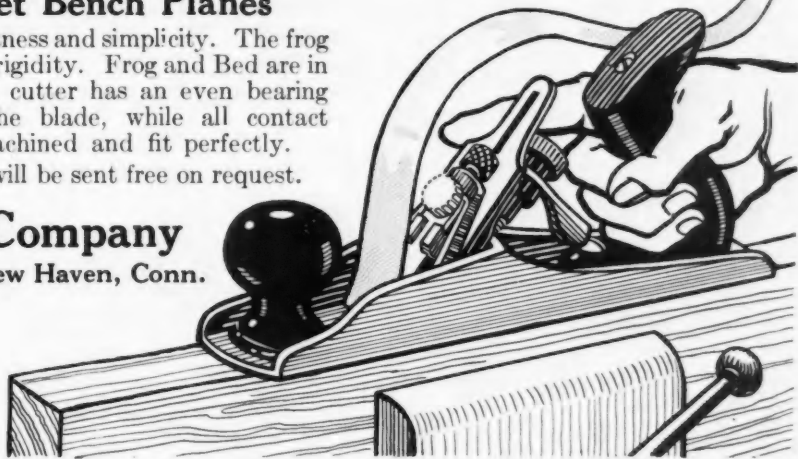
combine solidity, compactness and simplicity. The frog is especially designed for rigidity. Frog and Bed are in such alignment that the cutter has an even bearing down to the level of the blade, while all contact surfaces are carefully machined and fit perfectly.

Descriptive catalogue will be sent free on request.

Sargent & Company

51 Water Street

New Haven, Conn.



WANT THE BEST LONG-LEAF PINE THAT GROWS?



"THERE'S A DIFFERENCE"



Specify "Bogalusa"

Trade Mark Reg. U.S. Pat. Office

APPRECIATE that every stick identified as "Bogalusa" means "Automatic Safety for the Buyer?" REALIZE that the Strongest and Everyway Best Structural Wood in the World's Markets is Our Own Native Product, and that "BOGALUSA" is the symbol of the very best of

Best Long-Leaf Pine

"THERE'S A DIFFERENCE"

Dependable Dimension Stock—Heaviest Structural Timbers—Every Piece Identified

Particular about Integrity of Manufacture, Grading and Count? Understand the value of "every foot a foot?" For positive assurance of satisfaction simply state that all orders must be guaranteed by the simple word "BOGALUSA." The Great Southern Lumber Company, operating the largest lumber manufacturing plant in the world, places its entire responsibility and resources at your command when you put a "Bogalusa MUST" on your order. Don't ASK for "Bogalusa"—but TELL them "Bogalusa," and "nothing but."

"THERE'S A DIFFERENCE"

Your request (on business stationery if convenient) will bring the **Bogalusa Book**, "a liberal education on the correct and economical use of Long-Leaf Pine," and including all official gradings. THE LARGEST SAW-MILL IN THE WORLD DESIRES TO SERVE YOU. May we?

GREAT SOUTHERN LUMBER COMPANY

1600 Fourth Avenue

BOGALUSA, LA.

MEMBER SOUTHERN PINE ASSOCIATION

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.



Cadillac Lumber Co.

CADILLAC, MICH.



Protection is the easy way to more profits on the same job. Our rods are in big demand and there is a big profit in selling them. They are made of pure copper endless cable (no joints) with attractive fixtures and are easily put on any building.

Be prepared to take advantage of the opportunities for this work which are continuously arising. Let us show you the way to more profits on the same job.

FREE TO CARPENTERS AND BUILDERS. Our book "Lightning. How to escape its dangers"—also Catalog, and rules for the proper erection of Lightning Rods and fixtures on buildings. Also free cable samples and lowest dealers' prices.



Write for them today.

Jos. L. A. Barnett & Co.
Cedar Rapids, Iowa

Carpenters--Builders

"Go over the top" with the

Barnett System

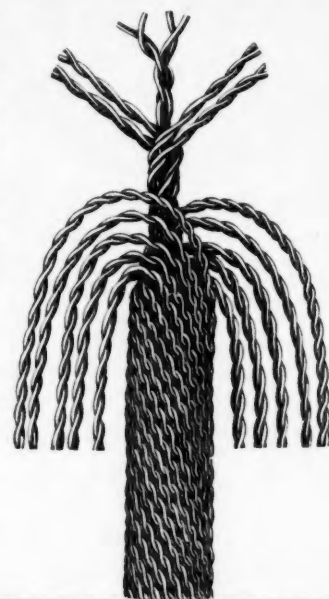
of Guaranteed Lightning Protection

Pull in that extra profit for yourself.

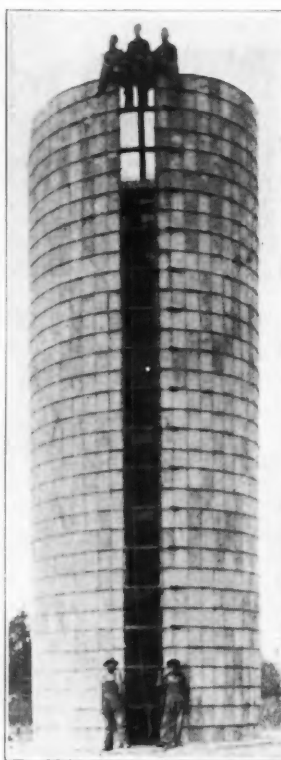
Install this protection on every building of the man you are working for, and your own buildings as well. See that they are adequately safe from lightning.

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

The Barnett System of Guaranteed Lightning



American Farm Builders!



ADD the Best Concrete Stave Silo equipment to your building business! A

\$111.00 Perfection Concrete Stave Silo Mould Machine

will make, in four days, all the concrete staves for a 110 ton silo—that won't blow down or burn up and will be everlasting.

The profits are over 100% in erecting

Perfection Silos and Stock Water Tanks

Write us for full free particulars about this Mould Machine—and our booklet on silos and silage.

\$111.00 will equip you for meeting the demands for all silos and water tanks required for your section.

PERFECTION CONCRETE STAVE SILO COMPANY

1710 Locust Street
DES MOINES, IOWA

Going to Build?



Sure You Are, Mr. Contractor!

And you, Mr. Repair Man! Perhaps you have wondered why the other fellow has been busy on cold, snowy and dark, rainy days while you have been idle. His success is entirely due to his having communicated with us and grasp the opportunity we are offering.

We have the secret and necessary information to make you successful, laying Asbestone in old or new buildings, over worn-out wood or concrete floors, or over new wood or concrete floors sheltered for all inclement, disagreeable weather. Write at once for full information furnished gratis upon receipt of word from you requesting same.

If your Local Building Supply House cannot furnish you with Asbestone we would appreciate the opportunity of assisting you to obtain it.

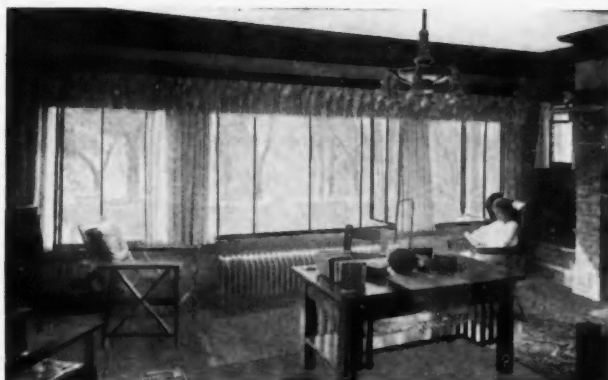
FRANKLYN R. MULLER & COMPANY



MULLER
ASBESTONE
COMPOSITION FLOORING

824 Madison St.
Waukegan, Ill.





We'll Help You Get Business

—on profitable Whitney Window work for homes, schools, hospitals, hotels, apartment houses, etc. Our Service Department will co-operate in adapting Whitney Windows to unusual requirements. Our Sales Department will help you close contracts for jobs.

WHITNEY CASEMENT WINDOW HARDWARE

—offers you a splendid opportunity to keep busy during these times of restricted building operations by making present dwellings and buildings more comfortable with perfected Whitney Casement Windows that overcome all the disadvantages of ordinary hinged casements and up-sliding sash windows, and introduce several appreciated features.

Write today for our interesting proposition.

WHITNEY WINDOW CORPORATION
309 S. Fifth St. Minneapolis, Minn.

Chief Metal Building Corners

Warp-Proof — Rust-Proof — Fit Anywhere



They make a corner with the smoothness and neat appearance of a "mitred corner" and save the time and labor of beveling down the siding. Made of heavy galvanized steel. Fit any corner—inside or outside and make a smooth corner that does not hold dust or moisture. Cannot warp or split, and prevents warping of the siding.

Chief Corners protect buildings from injury and are practically indestructible. Furnished ready perforated for nailing to the siding. Put on easily and quickly. Can be painted any color or left unpainted as desired.

Write for free sample and full information



SHRAUGER & JOHNSON :: 430 Walnut St. ATLANTIC, IOWA

Neat Corners Made Quickly KEES Metal Building Corners



will enable even inexperienced workmen to make perfect "mitred" corners quickly. Pierced ready for nailing, they save beveling expense, fit any corner and are practically invisible when painted. Made of heavy galvanized iron, they form a neat, indestructible and weatherproof corner.

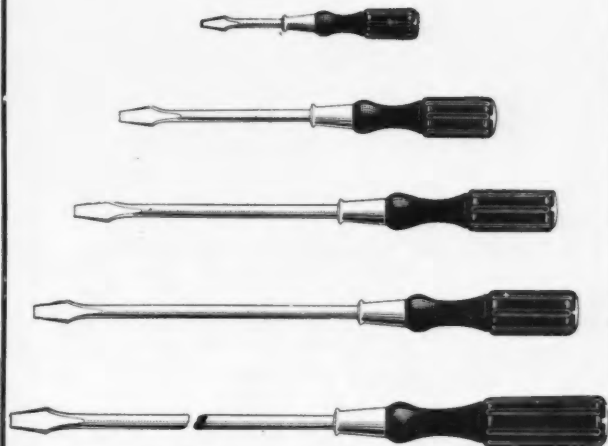
Kees Metallic Batten Strips

will make your buildings rain, rot and vermin-proof. They allow for contraction of siding, will never warp and make snug, permanent and weather-tight joints.

Write for Prices and Free Samples

F. D. KEES MFG. COMPANY
BEATRICE, NEBR. Box 552

Stanley Tools



"HURWOOD" Screw Drivers

Unsurpassed for Strength and Durability

Blade, Shank and Head are one piece of special steel. Two patented projecting wings under the head together with a rivet which passes through the ferule, handle and shank, securely fastens the Blade in the Handle, preventing its turning.

The Blades are finely tempered and well finished.

The Handles are polished and stained black.

Many styles and sizes from which to make your selection.

Carried by All Hardware Dealers

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

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.

Priced at Only \$29.00

Study our full line of Gas Logs, Fire-sets and Screens in helpful catalog. Gives directions for installing. Get this book for future reference.

Hornet Mantel Co.
1147 Market Street
St. Louis, Mo.

Below:
One of 40
styles
shown in
Our Big
FREE Catalog

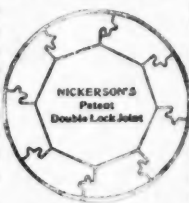


World's Largest Mantel House

THE BEST COLUMNS

for Porch, Interior and Pergola use the
NICKERSON Patent DOUBLE LOCK JOINT
THEY CANNOT COME APART

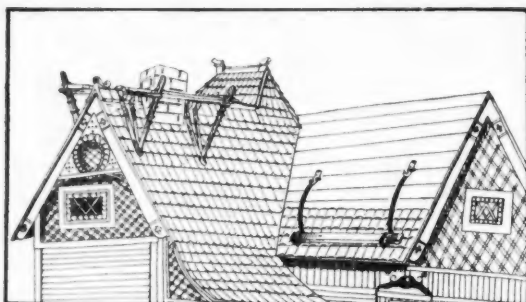
We Specialize on Detail-work. "Vignola" is our Standard for proportions when Architect's details are not furnished.



Clinch you Trade by giving them the very best Columns. Ours have the best Construction and correct shape.

All kinds of interior trim to detail.
Write for Catalogue No. 4.

NICKERSON MFG. CO.
KNOXVILLE - TENNESSEE
Members Knoxville Builders' Exchange

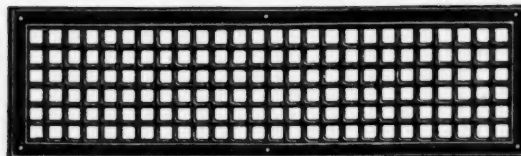


The Neville Adjustable Chimney Scaffold and the Neville Roofing Brackets are sold on a positive guarantee. If not satisfactory after ten days' trial they may be returned at our expense and we will return your money. Send for descriptive circulars. **NEVILLE MFG. CO.** KEWANEE, ILLINOIS

"H & C" Steel Grilles

FOR HEATING OR VENTILATING PURPOSES

"H & C." Steel Grilles can be made in practically any size desired and finished to match hardware. Several different styles are regularly furnished and are illustrated in catalog 16.



Class 570, here shown, has $\frac{1}{2}$ " square holes with $\frac{1}{4}$ " fret-work between. Class 575 is similar, having $\frac{3}{4}$ " square holes. These Grilles can be furnished in one piece as wide as 33" and in long lengths.

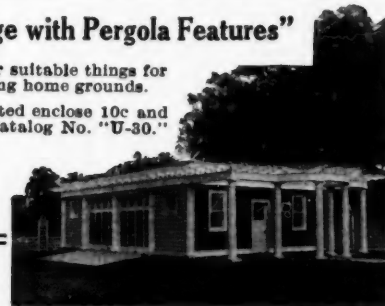
Get full information from us

The Hart & Cooley Co.
23 Booth Street, New Britain, Conn.

"Garage with Pergola Features"

and other suitable things for beautifying home grounds.

If interested enclose 10c and ask for Catalog No. "U-30."



Hartmann-Sanders Company
Chicago Office, 2155 Elston Ave. New York City Office, 6 E. 39th St.

Protect Your

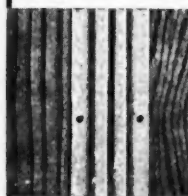
barns and buildings from weather and vermin. Line your grain bins or wagon boxes with

METALLIC BATTEN STRIPS

They allow for expansion and contraction of siding 5, 6, 7, 8, 9 and 10 foot lengths—interlocking joints. Easily cut; no waste. Nailed directly to siding.

Write for free sample

Metallic Batten Company
Owensville, Indiana



End View Showing Batten Open.—Pat.



MYERS

ALL WEATHER



BARN DOORS



SHEDS



Myers All Weather Door Hangers for sliding doors on all kinds of buildings—Weather, Bird or Dirt Proof, with Roller Bearings and Stayon Device, Adjustable and Flexible Features, produce perfect door service the year through. Note some of the late Myers Styles—Remember their names so you will know the right kind to recommend and sell to your customers and friends when they inquire for good sliding doors.

The Myers Giant and New-Way Hangers for Double Girder Tubular Steel Track, for heavy or light doors on any building.

The Myers Faultless Hangers for Self-Cleaning Track the weather fighters of all hangers. A combination of covered and straight steel track riveted together. Trolley operates on straight track and the steel hood extends down over it, shutting out the weather and also protecting the tops of the doors from rain and snow.

The Myers Right Angle Garage Hangers for O. K. Stayon or any Flat Steel Track—the new method for doors on garages or other buildings. Doors are on the inside and slide around the corner on a curved section of the track—out of the weather—out of the way. No swinging doors to cause trouble—no sweeping of snow or chopping ice the winter through—the doors are out of the weather range. Hangers work equally well for doors on the outside of the building.

The Myers Tandem and Stayon Hangers for O. K. Stayon Flat Track cover a wide range of sliding doors—satisfactory for most any kind.



FACTORIES



WAREHOUSES



DOOR HANGERS



GARAGE

YOU can readily see that with the Myers Line of Twelve Styles of Tubular and Flat Track Hangers, we have provided for almost every kind of a sliding door hanger your customer may require. Because of their many practical, economical and convenient features your trade will not doubt the soundness of your arguments when you tell them of the Myers and that they are the best to be had. Catalog and prices to the trade.

If you build barns, Myers Hay Unloading Tools will prove interesting to you. An extended line of Unloaders, Forks, Slings, Pulleys and Fixtures for unloading hay or grain from the rack into the mow or onto the stack—Information on request

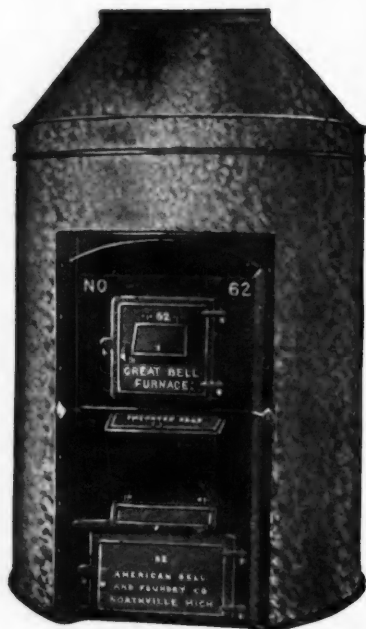


F. E. MYERS & BRO., Ashland, Ohio

Pumps, Hay Tools, Door Hangers

Ashland Pump and Hay Tool Works





The Great Bell

-original Pipeless Furnace

Father of Them All

We have thousands in use. Sizes, styles and prices to suit all. \$50.00 and up.

Made for the building where a furnace is needed, but where the cost has been prohibited.

The GREAT BELL PIPELESS FURNACE will heat any one or two-story building in the most efficient manner with the least effort and the lowest relative cost. While **Cost** is secondary to **Service** in this furnace, our methods of production and sales have reduced the cost so low that no builder can afford to overlook our proposition.

And we guarantee our furnaces to be and do all we claim for them in both catalog and correspondence.

Write for our catalogs, describing the various styles, prices and specifications of the Great Bell Furnaces.

American Bell & Foundry Co.

27 Cody Street, Northville, Mich.

HESS MEDICINE SANITARY LOCKER



The Only Modern, Sanitary STEEL Medicine Cabinet

or locker, finished in snow-white, baked everlasting enamel, inside and out. Beautiful beveled mirror door. Nickel plate brass trimmings. Steel or glass shelves.

Costs Less Than Wood

Never warps, shrinks nor swells. Dust and vermin proof. Easily cleaned.

Should be in Every Bath Room. Four styles—four sizes. To recess in wall or to hang outside. Send for illustrated circular.

HESS, 920L Tacoma Bldg. CHICAGO

The Recessed Steel Medicine Cabinet

Makers of Steel Furnaces

Free Booklet

Many a Contractor is Richer and More Popular thru Specifying

Andrews Hot-Water Heating



Andrews special, built-to-fit-the-job, ready to screw together heating systems are in use in over 2200 cities and towns of this country. Best material and Andrews famous steel boilers. Save fuel. Get our estimate and special contractors' proposition.



ANDREWS HEATING COMPANY
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Plumbing, Heating and Pneumatic Waterworks Supplies at Wholesale



When in the market for Plumbing, Heating and Pneumatic Waterworks Supplies and you wish to

Save 20 to 40%

on every article, write for my free illustrated Catalog. The only house that sells first-class guaranteed goods at wholesale prices direct. Shipments are promptly made from a very complete stock.

Small orders are as carefully handled as large ones.

B. B. KAROL, 800-802 S. Kedzie Ave., Chicago, Ill.

Make Your Basements WATER TIGHT

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

The Bitu-Mortar Waterproofing Co., Inc.

BITU-MORTAR
WATERPROOFING
WATER-PROOF PERMANENTLY

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



The Hess Welded Steel Pipeless Furnace
One large register delivers heat and draws cold air from the floor back to the furnace

The **Hess Pipeless Furnace** is suitable for all classes of residences and other buildings, and has attained great success and is very popular. This is the only pipeless furnace we know, which has *special provision for warming a detached room, such as a bathroom or kitchen, which must be shut off from the main room, and which, therefore, is not properly heated by the pipeless furnace method.*

Ask us more about this; it means that

Hess Pipeless Furnaces May Be Used Successfully **Where Others Have Proved Unsatisfactory**

Hess Furnaces are sold direct from the factory to contractors and consumers, at one factory profit only, and the makers' guarantee of efficiency goes direct to the user.

A Special Discount is Made to Contractors

Send us a sketch of any building requiring heat, and let us tell you how to heat it and what it will cost. No charge; no obligation.

Hess Warming & Ventilating Co.
1220M Tacoma Building
Chicago

Many Contractors and Owners

Are Making Money by Installing

Hess Welded Steel Furnaces

Hess Furnaces are absolutely and permanently proof against leakage, because every seam is *riveted* and then *welded*, by melting the steel plates together where they join, thus making it practically one continuous piece of metal.

Hess Furnaces burn any fuel—hard or soft coal, screenings or slack, coke, wood, lignite or gas. This is a great advantage when fuel is scarce and high, for the cheapest fuel obtainable will prove effective and economical.

Hess Furnaces humidify the air by evaporating a sufficient amount of water, thus making the atmosphere healthful and pleasant.

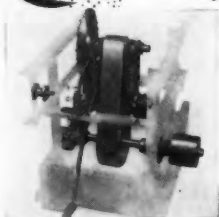


The Hess Pipe Furnace with Separate Pipes and Registers

Connectina this Universal Tool Unit By Four Bolts

to
our

Combination Swing Cut off and Ripping Machine

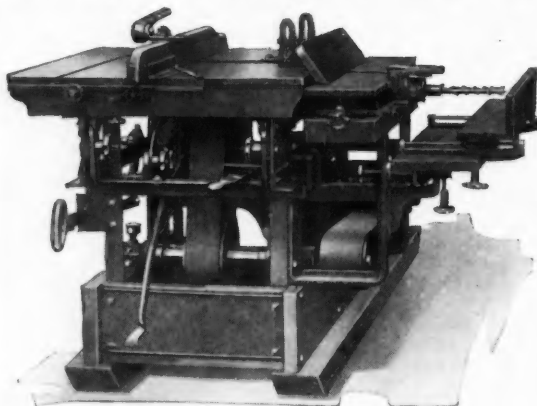


SWING UNIT

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 stationary 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

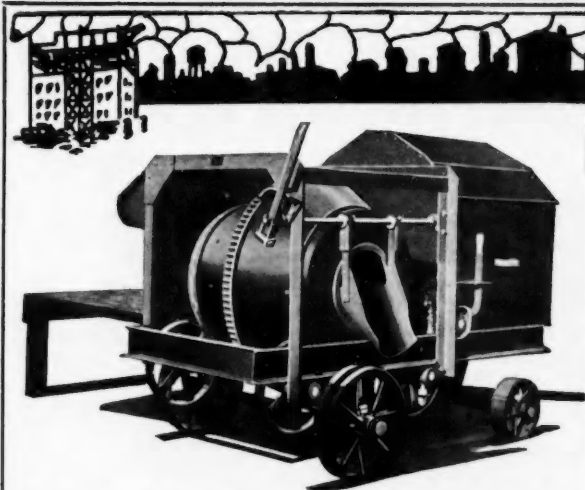


The Knickerbocker Company

Woodworkers, Concrete Mixers,
Mortar Mixers, Hoists and Pumps

525 Liberty St.

Jackson, Michigan



BUILD SERVICE

The corner stone of the successes of many large contractors is the increased efficiency of their **Mixer Service**.

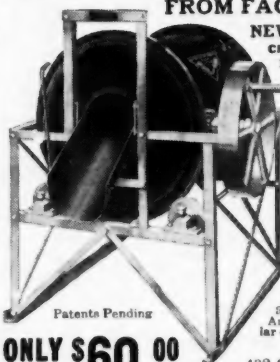
Eureka Quality Mixers

are better service and profit builders for you. Low charger—5 and 7½ cubic feet capacity. Continuous or batch. Eureka Mortar Mixers and Hoists reign supreme above all others.

Eureka Machine Company
103 Handy Street, Lansing, Mich.

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

ONLY \$60.00

8 MEN CAN'T STICK IT

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.

Have You Investigated?



Half Bag Archer Mixer Delivering Direct Into Forms on Sewer Conduit Work

Archer Mixers Are Proven Leaders

Do you want a mixer that will save you time on every job—a mixer that will enable you to get more work done with a smaller gang? Do you want a mixer that will save you so much that your extra profits will more than pay for the machine on your next job—or that will enable you to get more work by figuring lower? Then you must get the ARCHER—the original end discharge mixer.

Residences and farm buildings will constitute the majority of work next year. In this field the "half bag" ARCHER is, without question, unequalled.

Let the ARCHER, Itself, Show You by Its Work How Much Better it is for You in Every Way. Write for Trial Offer.

Archer Iron Works, 2432 W. 34th Place, Chicago



Jaeger Mixers

Save Their OWN Cost

The time you save in mixing—the better quality of work you turn out with a JAEGER—soon equals the amount you originally paid for the machine. After that the savings go into your own pocket in bigger profits.

Our catalog fully describes the JAEGER MIXER—how it makes "A MIX A MINUTE"—how it saves money. Send for a copy.

THE JAEGER MACHINE COMPANY
521 Dublin Avenue
Columbus, Ohio



No. 34-E Jaeger Mixer on trucks with 2 h. p. engine. Capacity, 3 to 4 cu. feet per batch.

Ransome-Leach Co.

**Representing
a New
Service for
Contractors
and Builders**

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 Company and the Oshkosh Manufacturing Company.

This new organization, known as the Ransome-Leach Company, through economic effort 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' world.

RANSOME-LEACH COMPANY

New York, 115 Broadway

Oshkosh, Wisconsin

Mixes mortar and plaster as well as concrete—

A Batch a Minute

This is how fast the **Frank Mixer** works and it only takes $2\frac{1}{2}$ H. P. to do it. A **Frank Mixer** can be used on any job where concrete or mortar is used. It is **easy to charge** and **quickly discharged**. A friction clutch makes it possible to stop the mixing shovel, but not the engine. You can't make a better investment.



Send For
Catalog
Today

Low Cost and Simplicity

The **Frank Mixers** sell for less than any other mixer on the market, considering their construction and efficiency. Every part of the **Frank Mixers** is in full view. The drum is round, leaving no corners and is easily cleaned.

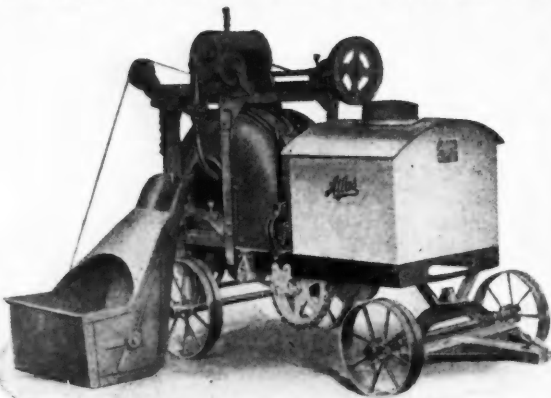
For thoroughness, as well as ease, quickness, and cheapness of operation, the **Frank Mixers** have no equal on the market.

Frank Mfg. Company

241 Century Bldg., Des Moines, Iowa



The ATLAS MIXER



YOU can depend on the **Atlas Mixer** for uninterrupted service.

Because: It represents the best established practice in concrete mixer construction—

Because: It has fewer working parts than any other mixer of equal capacity, therefore will give less trouble—

High grade engine—more power than you will ever need.

Send for circular, "Concrete Facts"

Atlas Engineering Company

Manufacturers

Home Office: 3009 Lisbon Avenue, Milwaukee, Wis.
CHICAGO PHILADELPHIA NEW YORK

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

Sterling

No. 6 -A



WHEELBARROWS

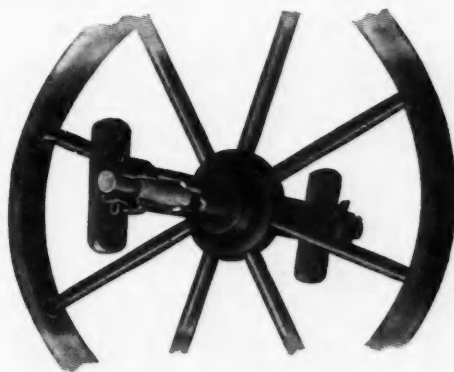
The Wheels Are Self-Oiling

We here feature just one of many exclusive improvements found only on the "STERLING" Barrow.

The wheel bearings are treated with an oil preparation which keeps the shaft well oiled at all times. Additional oiling is never necessary. The bearings become smoother and tougher with wear, and lessen the effort of wheeling fully 50%.

The Axle

is not the ordinary half-inch common bolt but instead it is made from perfectly smooth and round shafting stock of five-eighths diameter



The Brackets

are heavy pattern, and made of malleable iron. They extend over the ends of the hub, forming dust proof protection to shaft and bearings.

Catalog No. 19 shows a complete line of wheelbarrows and carts. Please write for this catalog

Sterling Wheelbarrow Company.

• Milwaukee • Wisconsin •

Branches • Chicago • New York • Cleveland • Detroit

STOCKS CARRIED IN ALL LARGE CITIES.



"The Standard"

Low Charging Mixer is equipped with a Folding Platform. This platform is so designed that it folds up in front of the mixer for moving, as shown in illustration, and is dropped down to the position shown in illustration below.

This construction affords a wide platform for charging, and at the same time enables the machine to be used and moved in narrow streets and alleys or beside car tracks.

Low Charging Concrete Mixers

are the money savers of the day. There are no mechanical loading devices to get out of order so easily. Drum is charged at its base from low charging platform.

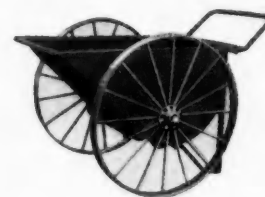
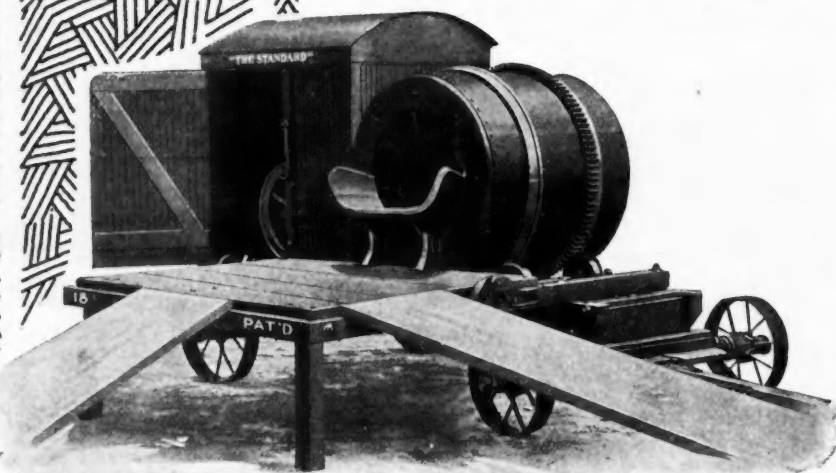
The Material to be mixed is charged directly into end of drum from where it is drawn into the center by charging blades which are a part of and rotate with the drum. This feature cuts concrete costs one-third—ask us about it.



Dump Wagons—Wheelbarrows

Our line of wheelbarrows and concrete carts are of sturdy construction. The wheel carries the greatest possible amount of the load.

Your need of exceptionally strong, durable, wheelbarrows and concrete carts can be supplied by us. We make special carts also. The wheels on any of our carts are practically indestructible in ordinary service.





"The Standard"

Write for our hoist catalog, and specify the special equipment which you may require. The Standard hoisting outfits, and hoists with either gasoline or steam power are specially designed for building construction and contractors' use, for either single line hoist or double platform elevator.

Contractors' Hoists

The Standard Scale & Supply Company
Manufacturers

Pittsburgh

Chicago

Philadelphia

New York

**Contractors'
Equipments**

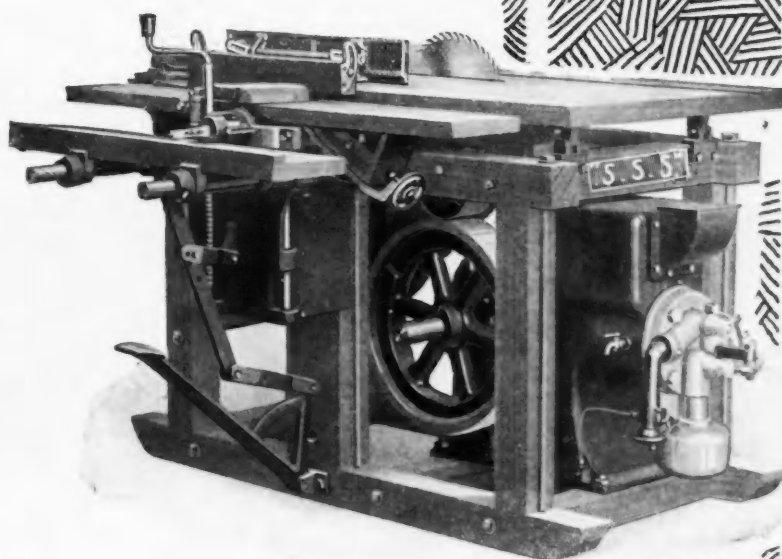
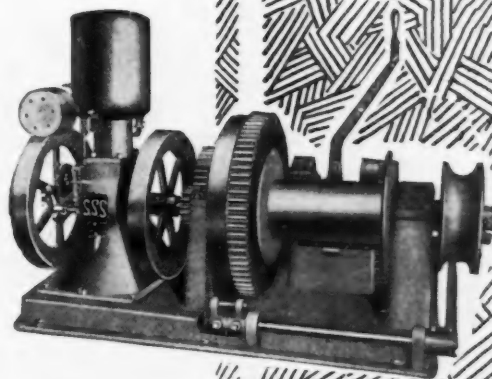
Combination Saw

"The Standard" Contractors' Equipment

Contractors' Portable Variety Woodworker. Twelve Tools in One. Rip Saw, Cut-Off Saw, Mitre Saw, Dado Machine, Gaining Machine, Grooving Machine, Rabbetting Machine, Jointer or Planer, a Boring Machine, a Matcher, a Moulder, a Sander.

Very well built throughout and will stand hard continuous service. We can furnish Saw Benches, Wood and Pole Saws, etc.

Write us about them.



Contractors Investigate This Wonderful Combination Mixer

Write for FREE Catalog

Get our Mixer catalog. Write for it today. Tells you just how this mixer is made and why it will do what it does.

You need and want every device that will enable you to save time and money in construction work. That's why the Northfield Mixer—the mixer that does the work of three distinct machines—is worthy of your instant attention and investigation.

Listen—No difference how much or how little construction work you do, the Northfield Mixer will be a money-saving, money-making, business-getting investment for you. There's no job too small for the economical use of this mixer and the more jobs and the bigger jobs you have, the more useful and convenient you'll find the Northfield.

The Northfield is a batch mixer that will mix, on slush concrete work under normal conditions with a five-man crew, an average of between 30 and 40 cubic yards of concrete per day. That means that it mixes more than three times as fast as concrete can be mixed by hand.

It will absolutely do better and more thorough mixing than any mixer made, bar none.

It's the only mixer that is an absolute success turned by hand power.

Mixes plaster thoroughly—does it more economically than it can be mixed by hand, does it better and in one-half the time. It's the only machine that will mix plaster and do it right.



Machines In

Sold At a Price Never Before Made

We offer the Northfield Mixer to you at a price that makes it the biggest value of any piece of machinery you ever bought.

There isn't a mixer that will equal the Northfield at concrete work that sells at less than \$300.00, and there are none at any price that will mix concrete, mortar and plaster with equal success. This mixer stands absolutely alone both in what it will do and in first cost to you.

We absolutely guarantee the Northfield Mixer to do exactly what we say it will. Let us prove that to you.

NORTHFIELD IRON CO.

402 Water Street

Northfield, Minn.



Dunn-machine made tile are dense, strong and firm; glazed inside, and of uniform shape. Much better than clay tile.

Let Drain Tile Keep You Busy

Make drain tile if your building business slackens up. The increased demand for drain tile, and the decreased production of **clay** tile, is keeping manufacturers of **cement** tile working day and night.

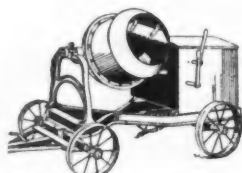
A cement tile plant can be started and operated on small capital. Manufacturing is easy; materials (sand and cement) are plentiful. The product is sold within easy wagon-hauling distance from the plant. Profits are unusually satisfactory.

The Dunn Machine makes the strongest tile because of its triple-packing operation—each tile is packed twice, with extra packing at the ends. Is the lowest priced machine of its capacity built.



Complete information on the manufacture of cement tile as a business will be sent upon request.

There is room for thousands of plants; opportunities exist in every farming community. Investigate!



Dunn Concrete Mixers. The biggest labor savers in the field. Insure the highest quality of mix at a speed of a batch per minute. Easy and simple to operate. Strong and durable. Bulletin No. 8 gives sizes, styles and prices.



Sewer Pipe Molds. Supply the big demand for cement sewer pipe. Manufacturing is easy, profits are large. Dunn molds make all sizes from 6 to 36 in. diameter, without tamping or other difficult work. Ask for bulletin No. 7.



Block Machine. Makes high grade blocks at the rate of 150 per day. Requires little tamping. Durable construction; moderate in price. Write for bulletin No. 10.



Ornamental Molds. Concrete porches, vases flower boxes and other ornamental concrete work is in big demand and pays big profits. Molds cost very little. Ask for bulletin No. 9.



Sill and Step Mold. Simple in construction and operation. Adjustable to many sizes. Prices and other information in bulletin No. 6.

W. E. DUNN MFG. CO., 415 24th St., Holland, Mich.



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

VALUE is what you get for your money—and this mixer is the *big value* in the light mixer field, because you get more for your money than has previously been possible to get for the money it sells for.

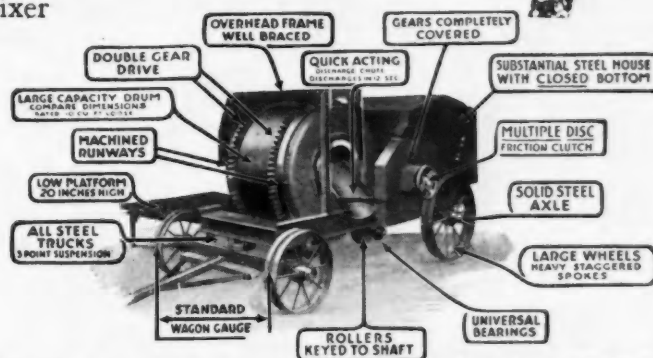
It is not the cheapest mixer built. It is a reliable, dependable, long-lasting light mixer, a fast worker with a mixing action which meets the approval of best engineers. Scientific design takes the place of weight, without sacrifice of strength or dependability.

Big volume production and careful standardization of parts keep the quality up and the price down.

No such value has ever before been sold within the price range for light mixers—it is the record-breaking value—the “good buy” opportunity for the big contractors who want a light mixer for smaller work and of the smaller contractor who wants the most dependable mixer for general contracting.

Send back the coupon today for full details.

Koehring Machine Co.
Milwaukee, Wis.



KOEHRING MACHINE CO., Milwaukee, Wis.

Gentlemen:—

Please send me without any obligation on my part, catalog giving full detail and description of Dandy Big Value Mixers and Equipment.

Name.....
City.....State.....
Street.....

"NORTHWESTERN"

*Frost-Proof
and
Fool-Proof
Engines*



*All bolts protected
with lock washers*

*Write for
Bulletin No. 4*

Saving — Service

MONEY SAVING—The "Northwestern" Twin Service Carburetor with selective control enables the operator to use either kerosene or gasoline as desired. By using kerosene contractors save 16c per gallon of fuel.

Lowest-priced drum mixer on the market.
Used in all countries and every state.

LABOR SAVING—Faster mixing and faster discharge. These make the most of high-priced labor.

SERVICE—"Northwestern" mixer (both large and small sizes) are in stock ready for shipment at all important cities. Necessary repair parts also at agency depots. *Agents in 55 cities.*

NORTHWESTERN STEEL & IRON WORKS

"The House of Good Service"

Capital Stock \$200,000.00

EAU CLAIRE, WISCONSIN



WONDER JUNIOR

"The Mixer That Makes the Money" for Builders

THIS year of all years, you need a Wonder—the mixer that saves most man power, that pays for itself quickly and then rolls up dividends on investment. The "Junior" is the result of 12 years of mixer experience of thousands of builders all over the world. Its mechanical principle is fundamentally superior to any other. Easiest to clean, easiest to operate. Goes into basements or upper floors. Mixes mortar as well as concrete. You can bank on WONDER satisfaction at the lowest price **real mixer satisfaction** can be bought, and wonder te ms will suit you. Capacity, 3 to 4 cu. ft. per batch. 2 H. P. Wonder Gas Engine detachable for other work. Other sizes, 5 to 6, 7 to 8 and 10 to 11 cu. ft., with and without side loaders.

Send for Catalog and see how the WONDER is Built

WATERLOO CEMENT MACHINERY CORPORATION
103 VINTON STREET, WATERLOO, IOWA

Mixers, Pavers, Hoists, Pumps, and Contractors' Equipment

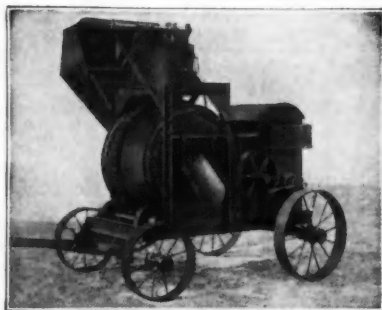
New York

Chicago

Kansas City

San Francisco

Austin Drum Mixer Features



Wide loader and opening into drum permit fast charging without clogging.

Design of mixing blades such that the mix is carried over on discharging chute very wet, allowing rapid discharge, either entire batch or part.

4-H. P. hopper cooled gasoline engine, or steam or electric power. Twenty gallon steel water tank and steel engine housing.

One position control. Capacity 60 to 80 cu. yds. per day.

Write for Bulletin 7-D

F. C. AUSTIN COMPANY, Inc.

The Products of the Municipal Engineering & Contracting Co. are now being marketed by us.

Main Office: Railway Exchange Building, Chicago

New York Office: 30 Church Street

MORTAR MIX**CONCRETE MIX****PLASTER MIX**

MIXES

ALL with a THREE BLYSTONE

Throw away your concrete shovels—ditch your plaster and mortar hoes. Do **all** your mixing with a **Blystone**—your concrete, plaster and mortar.

A man with a hoe or a shovel is only a half mixer—a waster of your time, materials and money, no matter how hard he tries.

Man power is too costly and scarce—too valuable to you on other work—to be humped up over a hoe drudging at work that a **Blystone** mixer will do better for you in a quarter of the time at less than half the cost. This one mixer is all you need for all your mixing—the **Blystone**.

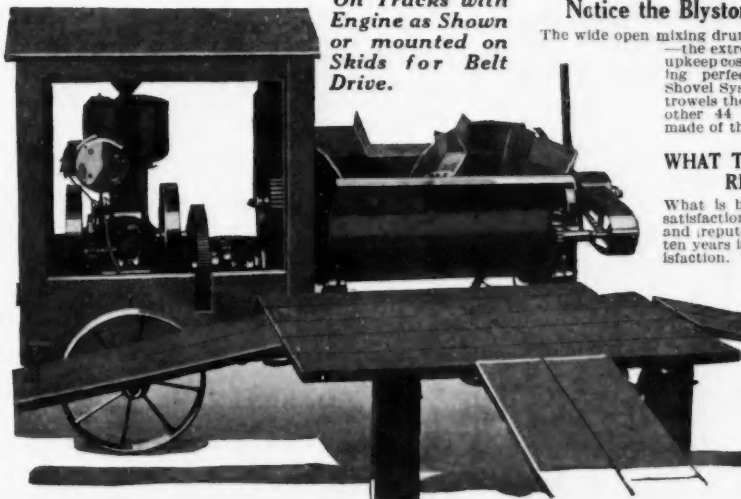
Blystone for Concrete

You can't go wrong in getting the concrete mixer that is giving perfect service to hundreds of contractors doing small and medium sized concrete jobs—sidewalks, foundations, silos, floors, etc. Its unequalled thoroughness of mix, its simplicity, its durability, its exceptionally low cost of operation and upkeep made it the ideal concrete mixer for the average contractor.

You can't go wrong in getting the concrete mixer that—because of its perfect mix—is conceded undisputed leadership in the concrete products industry. More than 2,000 successful products manufacturers making highest quality products use the **Blystone** exclusively.

MADE IN 3-5-7-9-14 Cu. Ft. CAPACITIES

On Trucks with Engine as Shown or mounted on Skids for Belt Drive.



Blystone for Plaster

You can't go wrong in getting the mixer that mixes plaster so thoroughly that you can use $33\frac{1}{4}\%$ more sand to each sack of hard wall and makes the plaster so smooth that a plasterer spreads 15% more per day—the mixer that with three men mixes up 400 sacks of plaster a day—the mixer that, for instance, saved \$3,000 in cold cash for one plaster contractor on one job—the mixer that is used by the leading plaster contractors from coast to coast.

Blystone for Mortar

You can't go wrong in getting the mixer that is conceded and used by the mason trade as the ideal mortar mixer because it is such a tremendous saver of time, labor and materials and produces the best mortar mix in existence.

Notice the Blystone Mechanical Advantages

The wide open mixing drum, so easy to fill, empty and keep clean—the extreme simplicity that keeps operating and upkeep costs away down—automatic discharge giving perfect control—**Blystone** Reverse Spiral Shovel System of mixing that shovels, kneads and trowels the mass from one end of the drum to the other 44 times a minute. The whole machine made of the very finest materials money will buy.

WHAT THE BLYSTONE PERFORMANCE RECORD MEANS TO YOU

What is best for you is best for us—complete satisfaction. The world wide performance record and reputation of the **Blystone** during the past ten years is a positive guarantee of complete satisfaction. Let a **Blystone** do all your mixing.

Write for Catalog and Prices
Mixers Shipped Promptly

Blystone
MANUFACTURING CO.
1117 Carpenter St.
CAMBRIDGE SPRINGS, PA.



Mortar Mixing With the Kent

Saves Labor and Lowers Cost

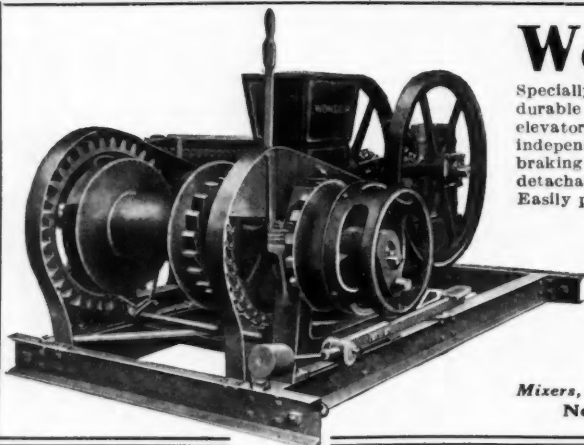
One laborer and the Kent Mortar Mixer will keep from 35 to 65 masons busy. This is not a claim. It is a fact many big contractors have proved on the job.

Don't Be a Waster of Labor

Let the Kent take the place of four or five hoe men. It will never let your skilled workers on the wall be idle. The Kent embodies all the improvements our twelve years' experience in mixer manufacture have suggested. It is a high grade machine you'll be proud to add to your equipment.

Write for descriptive circular and prices

THE KENT MACHINE CO.
KENT, OHIO



Wonder Builders' Hoist

Specially adapted to Builders' needs and moderate priced, yet ruggedly built, durable and a highly profitable investment. Has single reversible drum and elevator sheave for operation of single or double cage elevators. Winch head independent of drum or sheave. Two line speeds and load capacities. Ample braking facilities and safety guards. One lever control. 5, 7 or 9 H. P. engine detachable for other purposes, or electric motor. Built on duplicate part system. Easily portable. Regular Wonder Guarantee of satisfaction—a hoist proposition you should investigate now.

ELEVATORS—Single or Double Cage—Get our prices and terms.

Send for Catalog

Waterloo Cement Machinery Corporation
103 Vinton St., Waterloo, Iowa

Mixers, Pavers, Hoists, Pumps, Backfillers and Contractors' Equipment
New York Chicago Kansas City San Francisco

Caldwell Galvanized Tanks



For temporary uses or where a low-priced tank is required, we recommend a Caldwell Galvanized.

It costs less than wood and gives good service for several years.

For more permanent installations, we recommend a Caldwell Cypress or Heavy Steel.

Send for Catalogue

W. E. CALDWELL CO.
INCORPORATED
1990 Brook Street
LOUISVILLE
KY.

Caldwell
TANKS
AND
TOWERS

C. G. HUSSEY & CO.

Pittsburgh, Penna.

MANUFACTURERS
OF

COPPER

In Sheets, Plates, Rolls

CORRUGATED COPPER CONDUCTOR PIPE

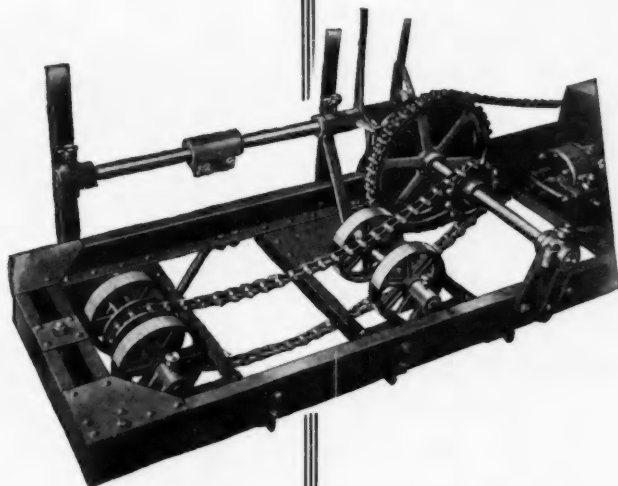


Copper Nails, Copper Rivets, Conductor Pipe, Eaves Troughs, Elbows, Shoes, Mitres, Soldering Coppers, Gaskets, Etc.

SOMETHING NEW

THE

SMITH UNDER-SLUNG CHAIN DRIVE

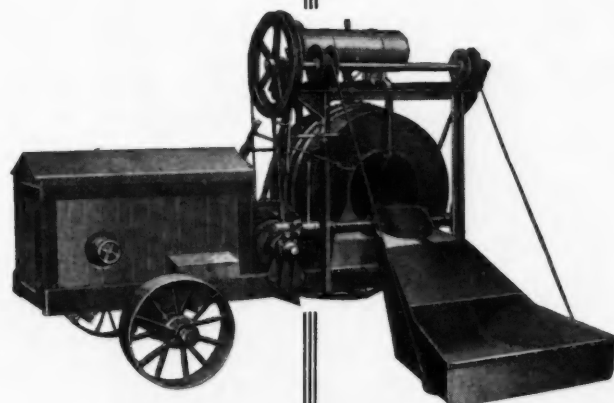


Right now, when price "boosting" is an everyday occurrence, it will be refreshing to read about a "LOWER" price.

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**.

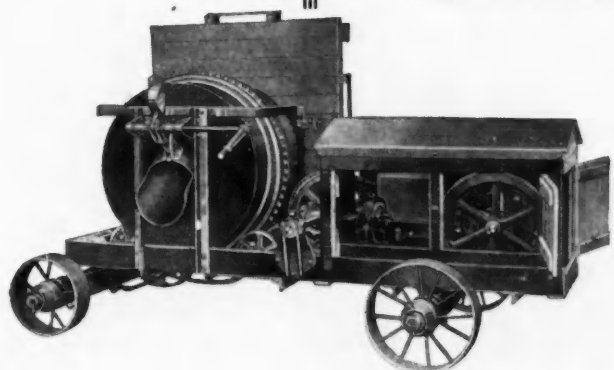
Do you get the full significance of the **Smith Under-Slung Chain Drive**? Instead of the chain passing around the drum, it goes **under** it.

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

The Creosoted Lath

Built with
Bishopric
Stucco
Board



Jno. C. Cameron
Contractor
and Builder
Arlington, Mass.

The wood lath in Bishopric Stucco or Plaster Board are thoroughly creosoted. Why?

Because creosoting preserves them, prevents swelling, shrinking, warping, and they withstand exposure to all kinds of weather.

The Union Pacific, the Northwestern, and other railways creosote their ties and telegraph poles for the same reason.

The creosoting of wood is nothing new. It has been done for many years — more than long enough to prove that it does what it's intended to do. And so it is with every other part of this product—the dovetailed lath, the Asphalt Mastic lining, the fibre board backing—all ages-old in principle and acknowledged to be *unsurpassed* for the various purposes intended.

It's the *combination* of these principles and materials into the Bishopric



"Built on the Wisdom of Ages"

Stucco Board that accounts for the *dependability, efficiency and uniform satisfaction* under all conditions, of that product.

The dovetailed lath hold the stucco so it can't let loose—the Asphalt Mastic is moisture proof and fire-resisting, *dampness can't penetrate it*—the sized fibre board protects against heat and cold and is an effective sound-deadener. And all these in combination meet the *most exacting* requirements of a *successful* background for stucco, cement or plasters.

Bishopric Stucco or plaster Board *costs less* than other backgrounds and saves in both material and labor. From any and every viewpoint it's an *economical* proposition.

Our *free book* illustrates homes, apartments, factory and public buildings on which Bishopric Board has been used. It contains letters from builders, architects and users, and furnishes facts and figures

to prove the stability of Bishopric Board.

Don't take our word for this—investigate for yourself—be convinced!

Send today for Book and
Free Samples of
Bishopric Stucco
or Plaster
Board

DOVETAILED
LATH

CREOSOTED
LATH

WATERPROOF
FIBRE BOARD

ASPHALT
MASTIC

The Bishopric Manufacturing Co.

903 Este Ave., Cincinnati, Ohio

CUTS THE COST 1/4

Short Talks With Our Subscribers

"Another Eighty"

HE is a prosperous farmer. He owns two hundred and forty acres of good land. He has made some money this year.

His home is a barn of a place without conveniences, but he plans to buy "another eighty" right soon.

He didn't ask any advice, but needs some. He should be told that he would better do something for his family and get started living like real folks. He can afford to and should build a new home with modern conveniences.

He probably won't pay any attention to such advice, but he needs some enlightenment on the things really worth while in this world more than he needs "another eighty."

How to Demonstrate Costs

THE story is told of a certain farmer who came in to Aurora, Ill., the other day and asked an implement dealer the price of a good farm wagon of a certain well known make.

"One hundred dollars," was the answer.

"A hundred dollars! Why, good Lord, man, my father bought that same wagon here twenty years ago for \$60.00."

"Sure he did," the dealer replied, "and I sold it to him. What's more he was short of cash because money was scarce, but he was long on corn, so I traded him that \$60.00 wagon for 300 bushels of corn. What's more, if you'll bring me 300 bushels of corn I'll trade that \$100 wagon and throw in for good measure a steel range at \$50, a \$40 suit of clothes for yourself, a \$40 dress for your wife, a \$5 dress for the baby, a gasoline engine, a cream separator and a \$3 box of cigars."

If this had been a lumberman or builder instead of an implement dealer, we have no doubt the present low cost of building materials would have been demonstrated with equal readiness—and some worth while improvements for permanent prosperity would have resulted.

EDITOR AMERICAN BUILDER.

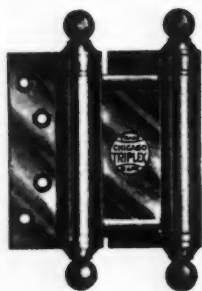
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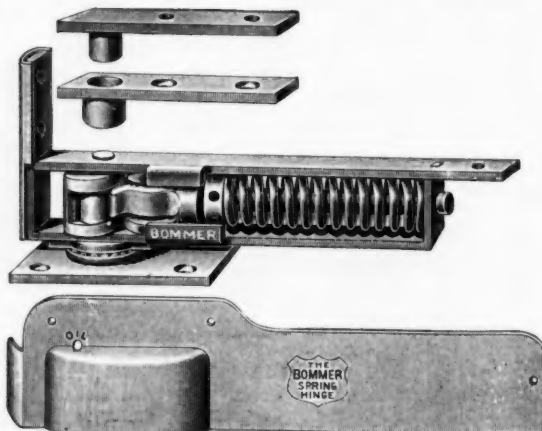


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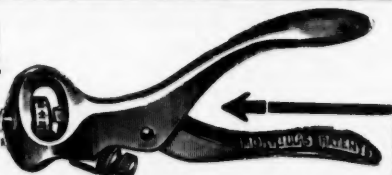
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VOL. XXIV

February, 1918

No. 5

A Boom in Farm Building
"War Profits" Going Into Rural Improvements the Country Over

IF the future fulfills the promises of the present, some rural districts of this country will be transformed in appearance within the next year or two. That transformation will come about thru the building of bigger and better farm homes, bigger and better barns, and a tremendous increase in the numbers of bins, cribs, implement sheds, garages, hog houses, poultry houses and all the various other forms of out-buildings necessary to the business of modern farming.

The farmer, on the top wave of prosperity, is going to put his "war profits" into improvements on "the place," and those improvements will include whatever comforts and conveniences he may have lacked in leaner years.

Those who make a business of watching the trend of industrial activity say that while unprecedented prosperity is the principal reason for the widespread activity in rural building, that is not the only reason. They say the American farmer—and his wife and children as well—is just awakening to the realization that he need not deny himself the comforts and luxuries of city homes just because he lives on the farm, and now that he has the money coming in, he is going to enjoy those advantages.

Furthermore, the farmer is finding out that his buying power, or the buying power of the commodities he produces on the farm, is, in the purchase of many desirable things, just about twice what it was a few years ago. He finds that especially true when he goes to buy building materials, and that is why he is preparing all over the country to equip his farm with modern structures, including the farmhouse.

A load of corn or wheat, or a bale of cotton, or a fat steer or hog, will buy twice as much building material as it would even four years ago, which naturally suggests that this is a fine time to trade farm products for building material. Since the European war began the price of lumber has advanced only about 28 per cent, the statisticians say, while the prices of 96 other important commodities, including farm products, have made an average advance of 127 per cent. Why lumber prices have not soared along with the prices of most everything else is something of a mystery, but the fact remains they have not. And that is why the farmer is getting out his hammer and saw preparatory to "fixing up," before building material prices take to scooting upward.



RENT paying, under most circumstances, is a form of blood letting. When you have paid your rent, you have what?—*May Irwin.*



"Pontiac Per"
37.68 lbs. Butter in 7 Days

Help Food Production by Better Crop and Live Stock Housing!

Every Builder, Lumber Dealer and Farmer Can Render Patriotic Service by Working Along the Lines Indicated by These "20 Farm Buildings in Colors"

NOW is the time.

Right now is not one bit too early to get down to details about that new dairy barn, or hog house, or corn crib, or implement shed.

Draw up your plans now for your farm building improvements and decide on all details now while you still have a little leisure time to look thoroly into the merits of each proposition.

Farm building improvements are urgently needed. Crops are being wasted because the farmers have no place to store them. A news dispatch from Washington, dated January 15, tells of an emergency threatening the destruction of half of last fall's corn crop, because the farmers have not proper crib storage facilities. The country elevators, it is stated, have been filled for months, and millions of bushels of corn are rotting in the fields because the farmers have no place to store it.

It is up to the readers of the AMERICAN BUILDER—the retail lumber dealers, and the rural builders—to mobilize right now for the greatest spring building campaign among the farmers that this old land of ours has ever seen.

You are the architects for

the farmers, to help them plan their farm building improvements and to give them all the technical building advice required to build and equip a modern barn. And you are also (or should be) the salesman of the modern farm building *idea*. Don't wait for the farmers to come to you; you go to the farmers and show them how a new dairy barn or hog house, corn crib

or implement shed, or the old one remodeled, will save farm labor, increase food production, stop the waste of valuable food crops and make money for the farmer!

Now is the time for the farmer to build. Uncle Sam wants him to build, and the AMERICAN BUILDER has been asked by the officials at Washington to urge its readers to put this proposition squarely up to the farmers.

To assist in a practical way in this enterprise, we are presenting in the 16-page colored section immediately following, pictures and plans of TWENTY FARM BUILDINGS. Each one of these buildings is a practical model or guide for anyone concerned with the planning, building or equipping of any similar building.

Very complete details
(Continued to page 67.)

**Show These Building Improvement
Ideas to Your Friends, Neighbors and
Prospective Customers. They Will
be Interested.**

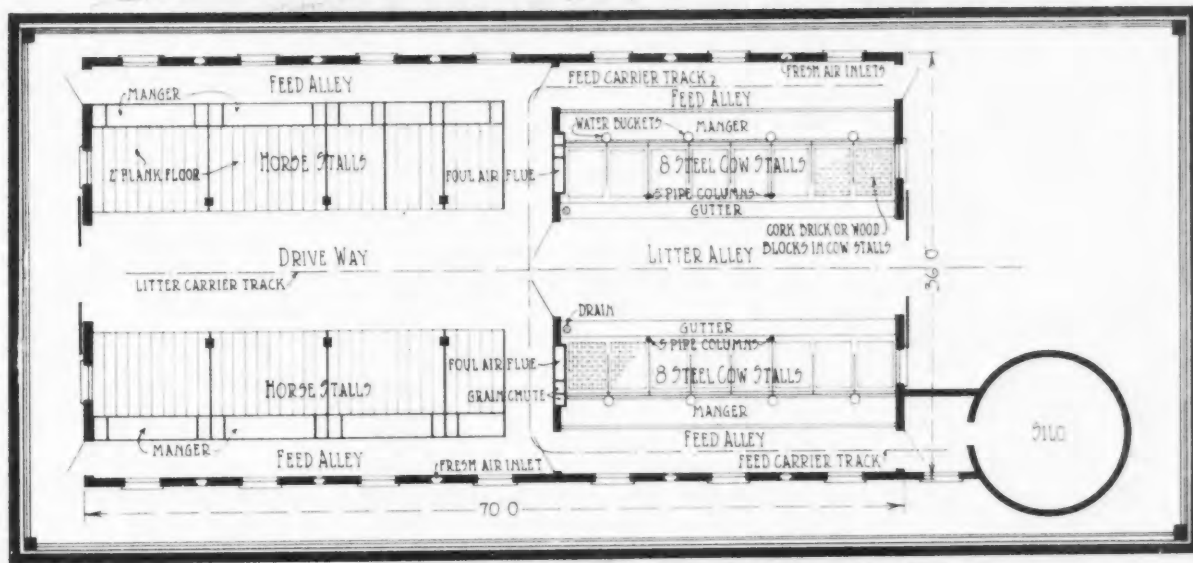
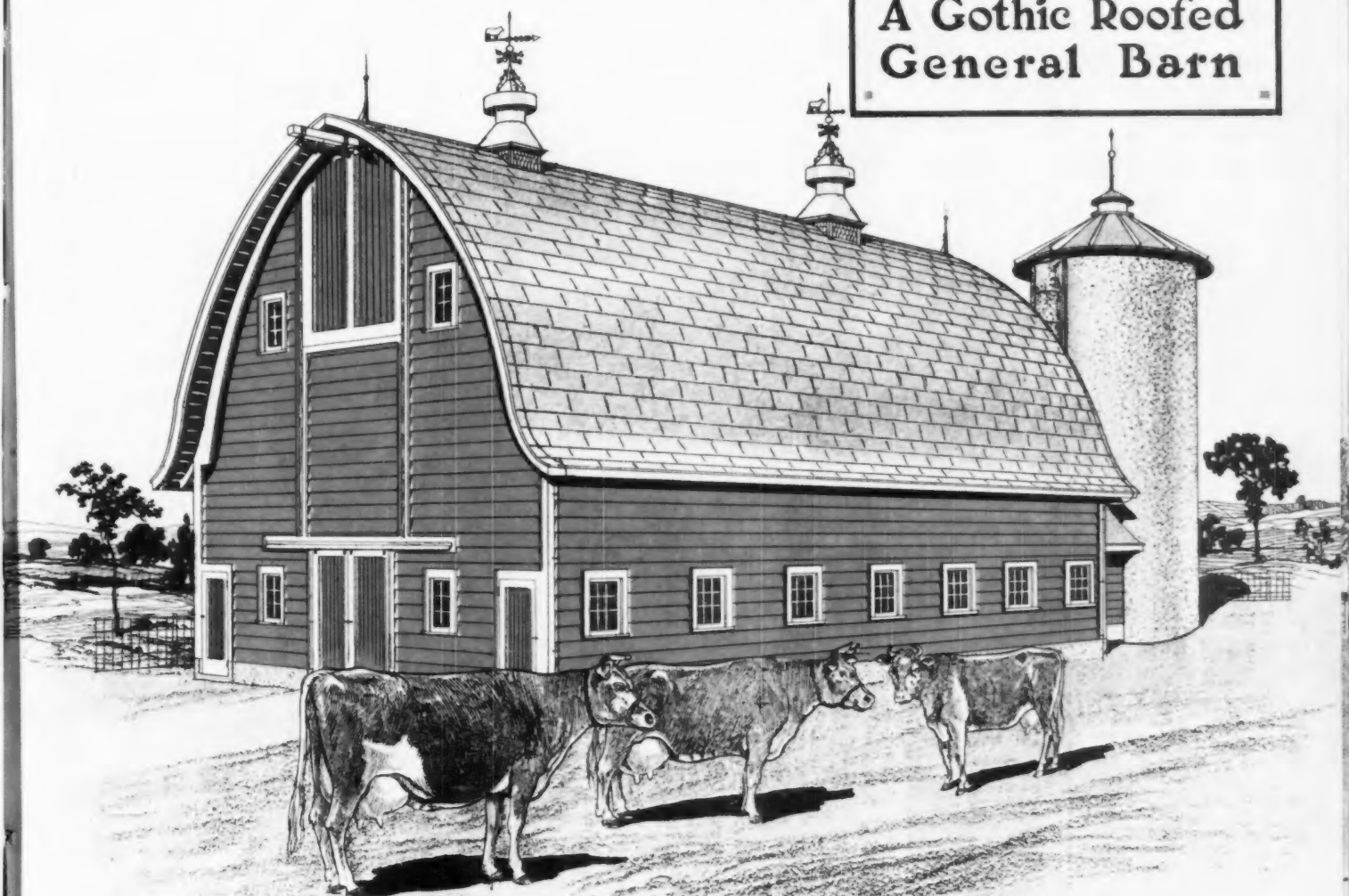
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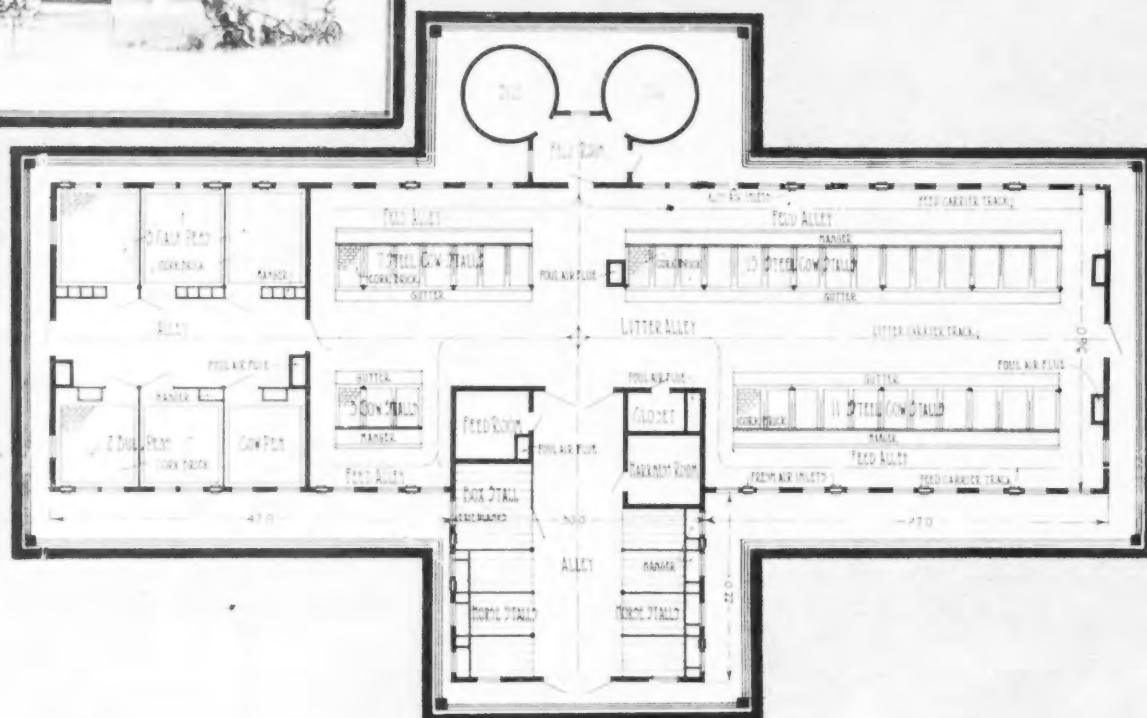
20 Farm Buildings in Colors

Plate 1

A Gothic Roofed
General Barn

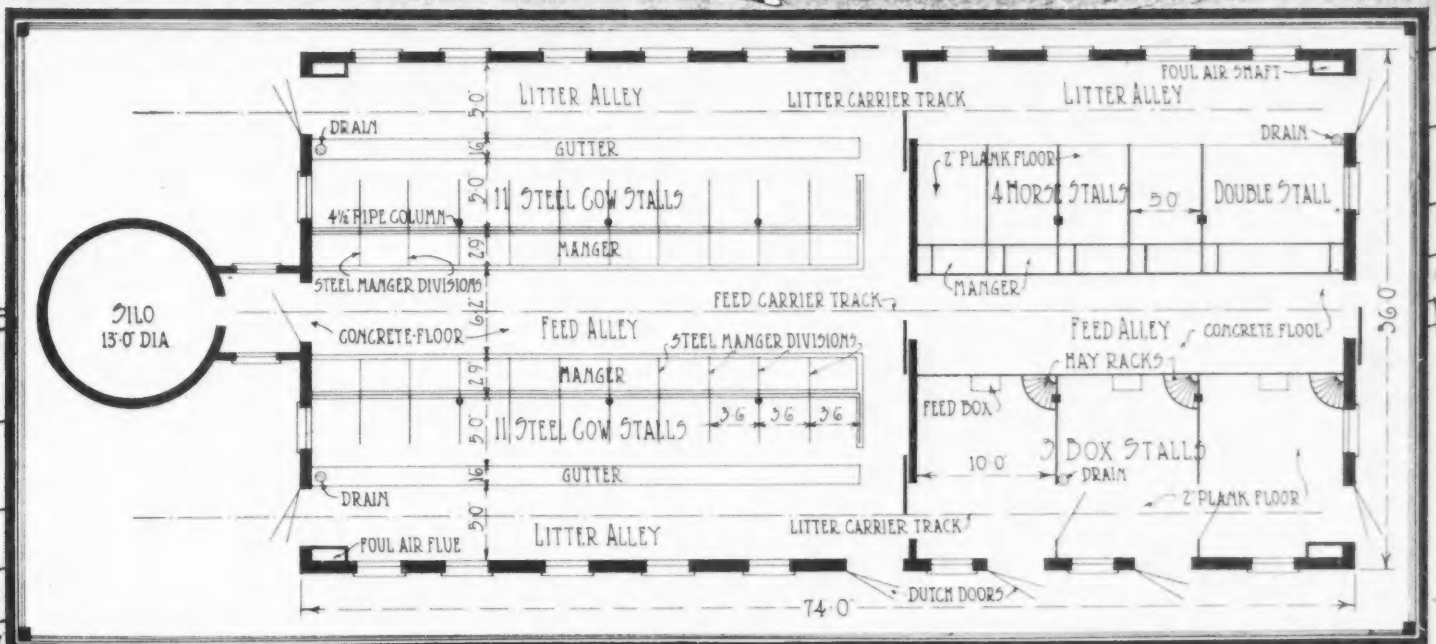
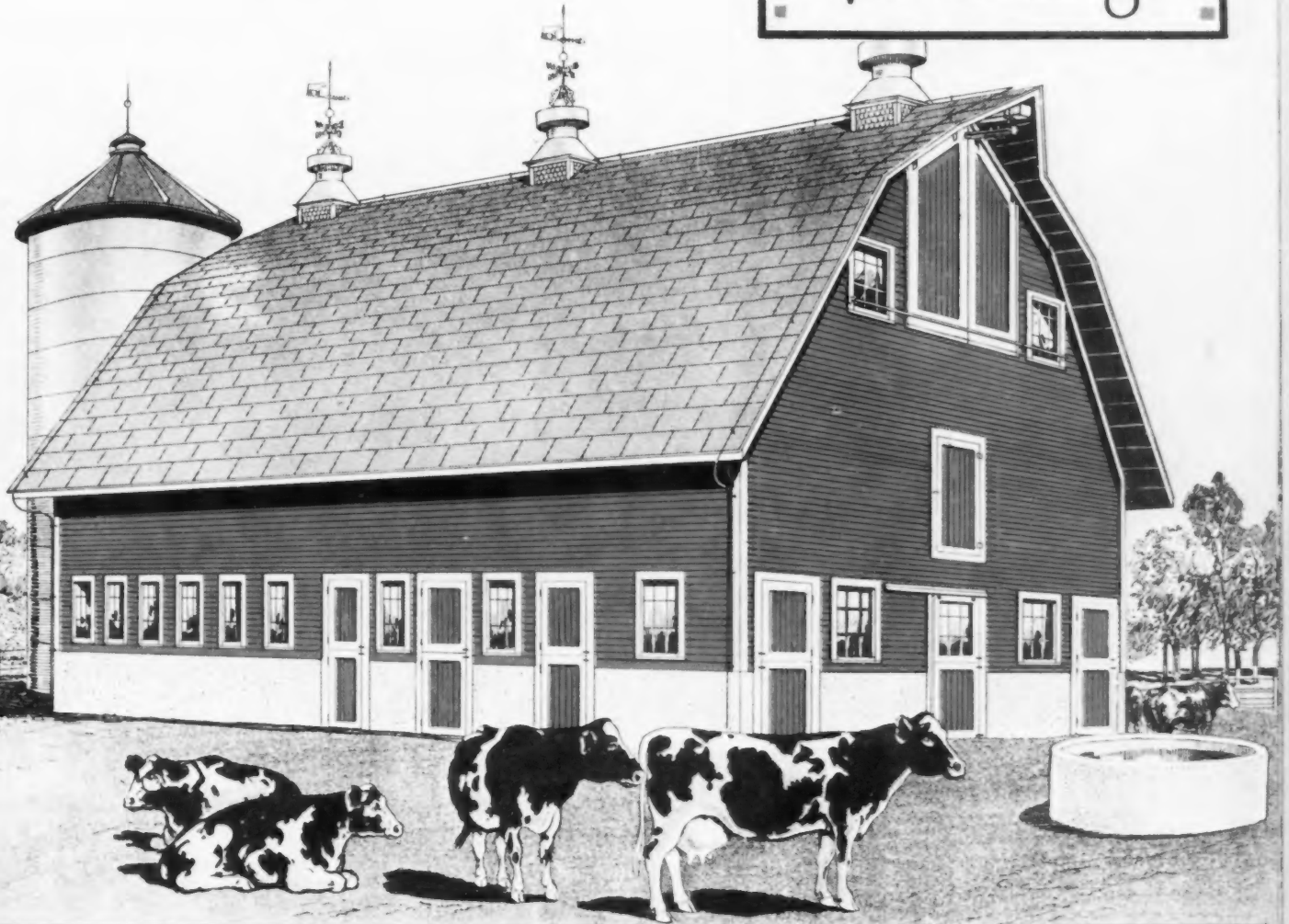


TShaped Dairy, Horse and Storage Barn



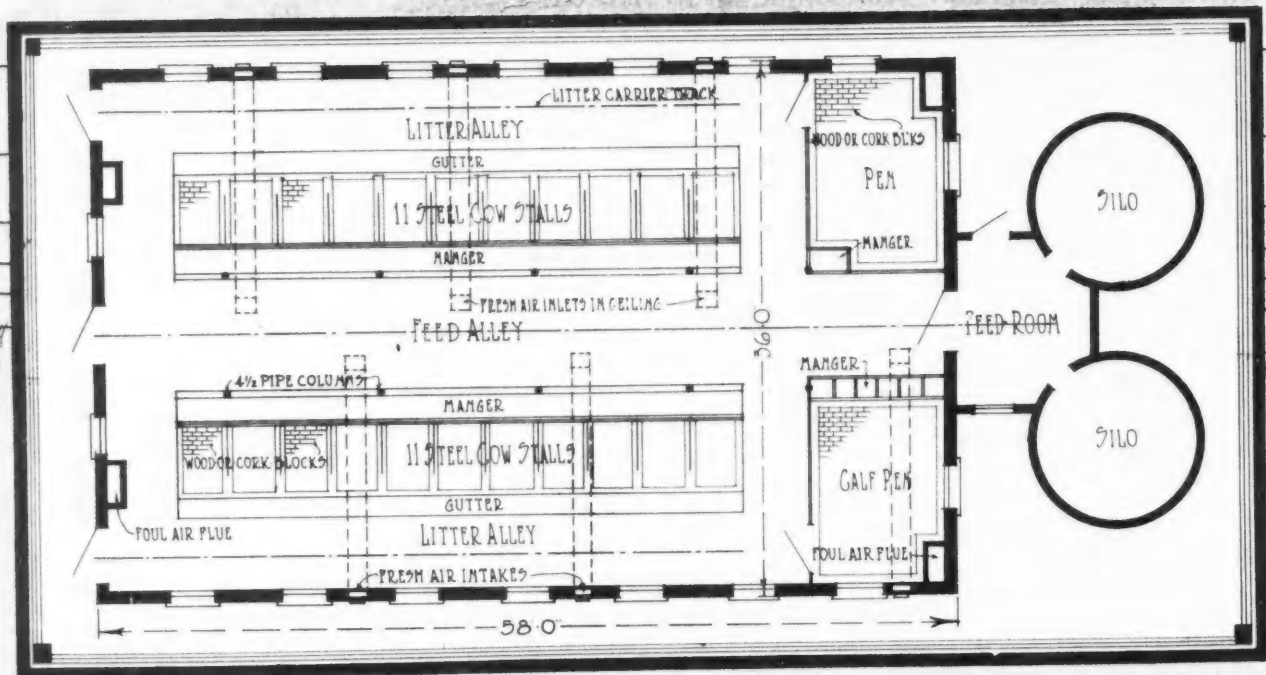
20 Farm Buildings in Colors

A General Farm Barn 74 Feet Long



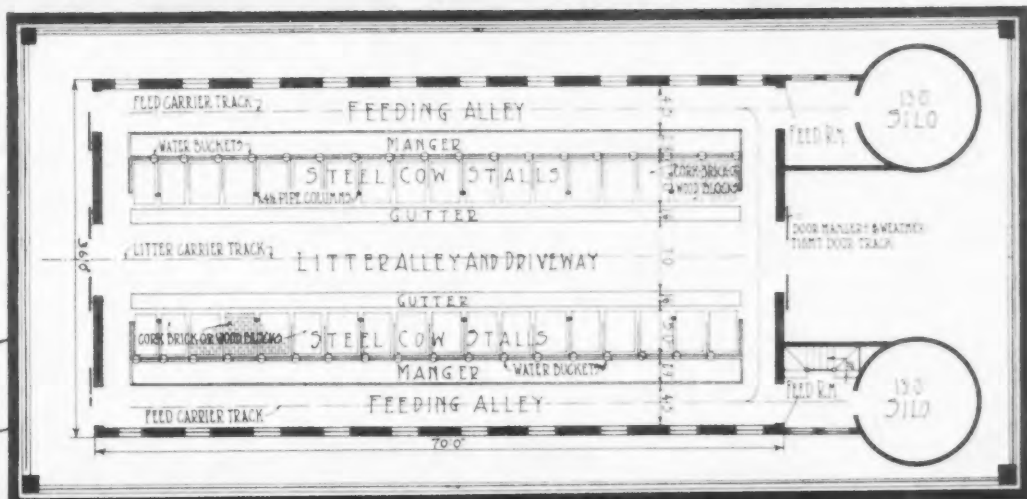
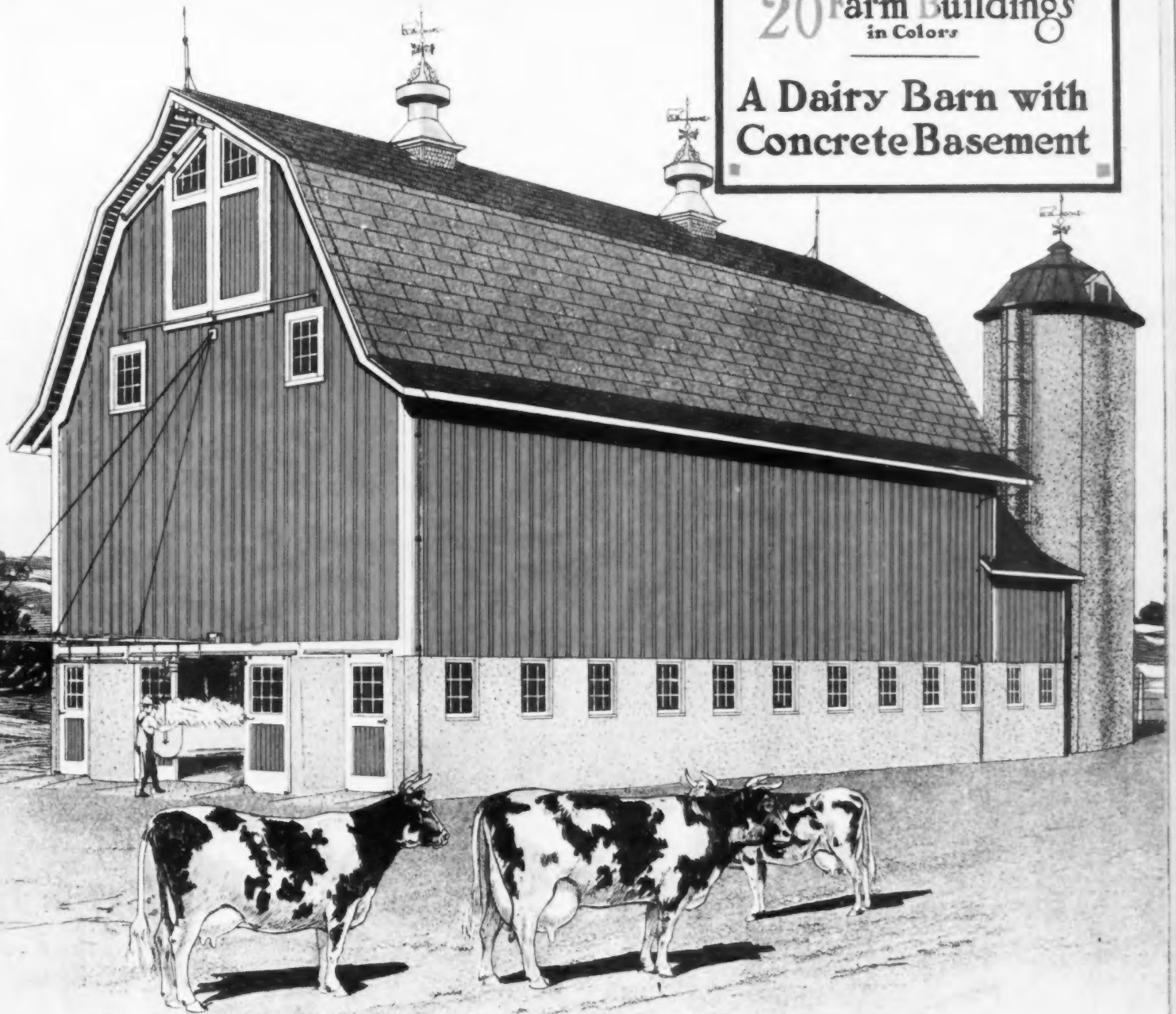
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A Colonial Style Dairy Barn



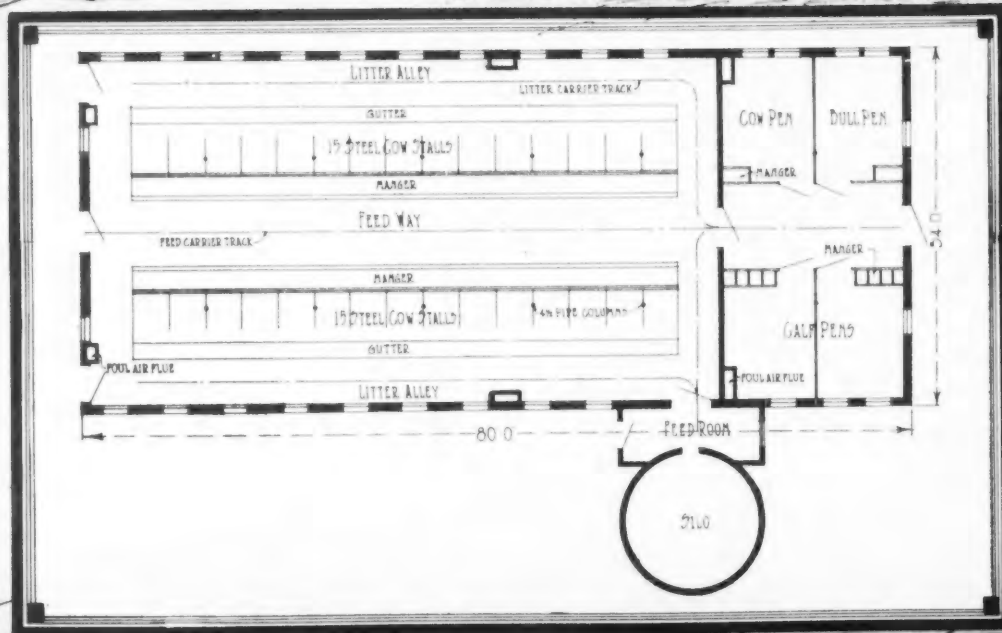
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A Dairy Barn with Concrete Basement



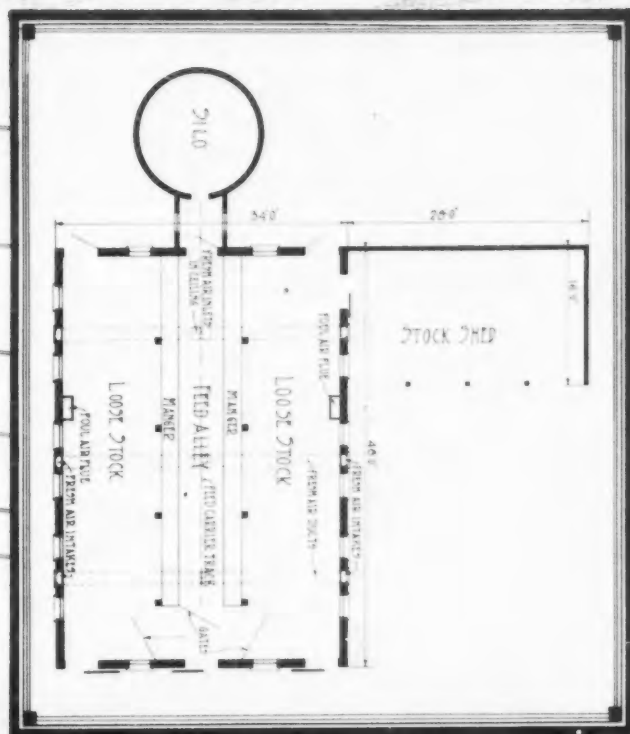
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A Basement Barn for 30 Cows

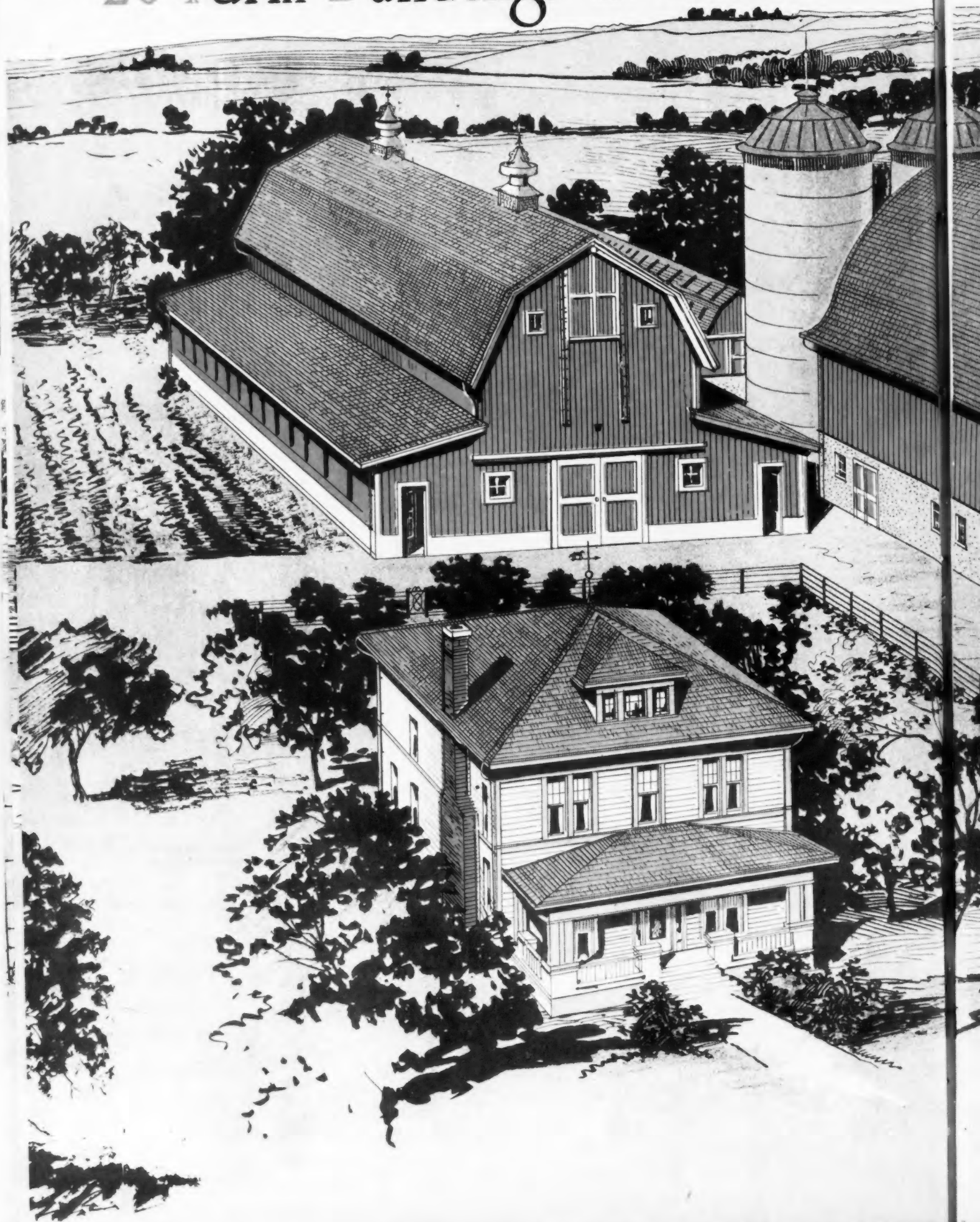


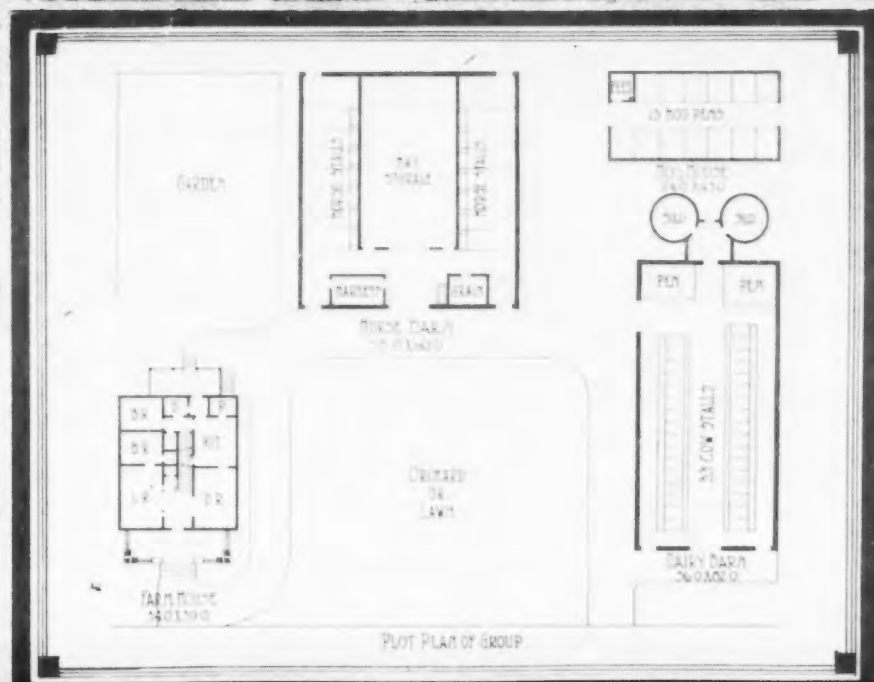
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A Gable Roofed Stock Barn



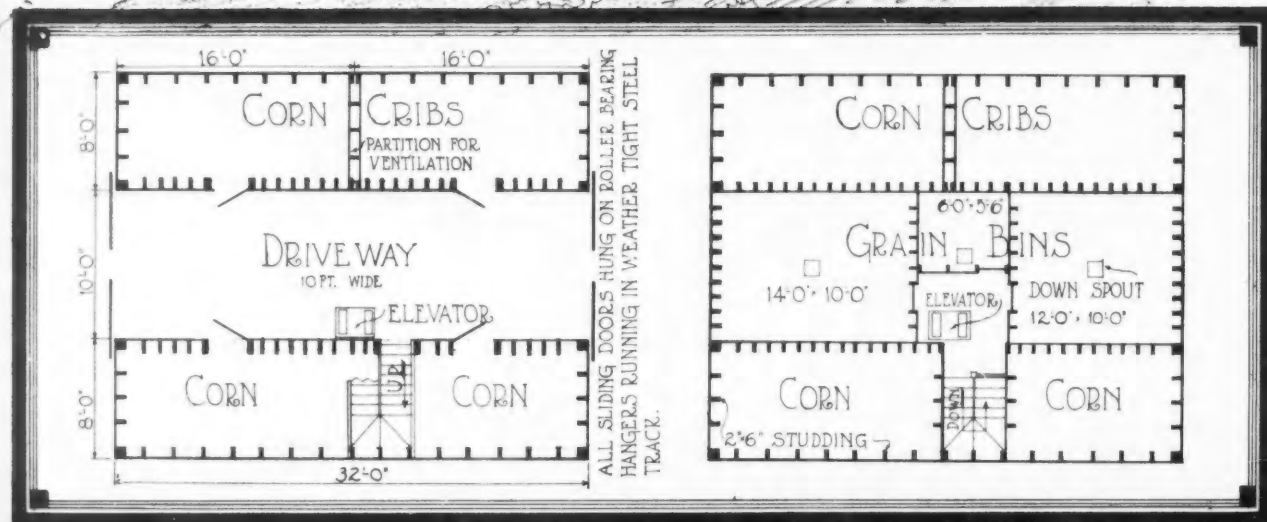
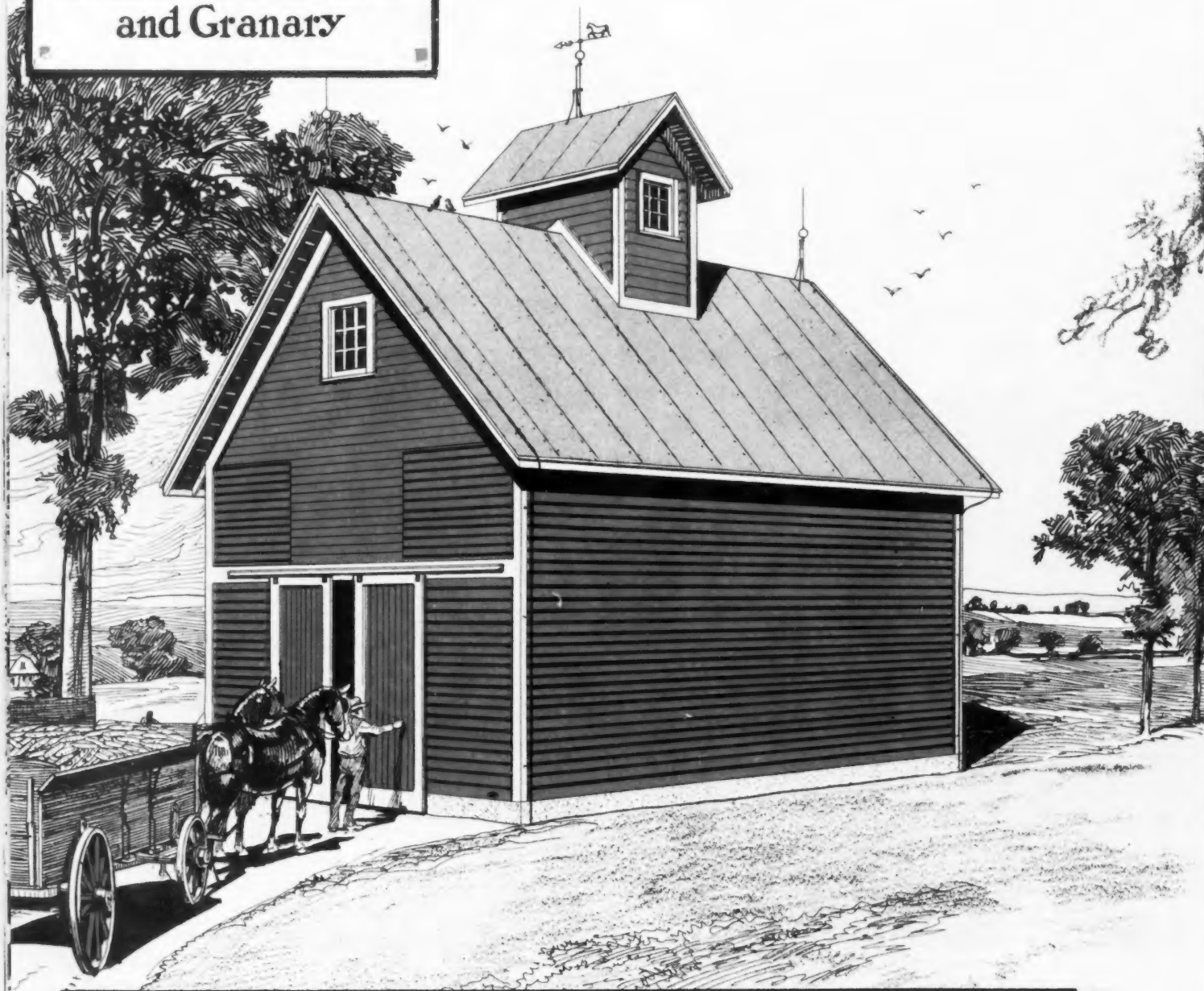
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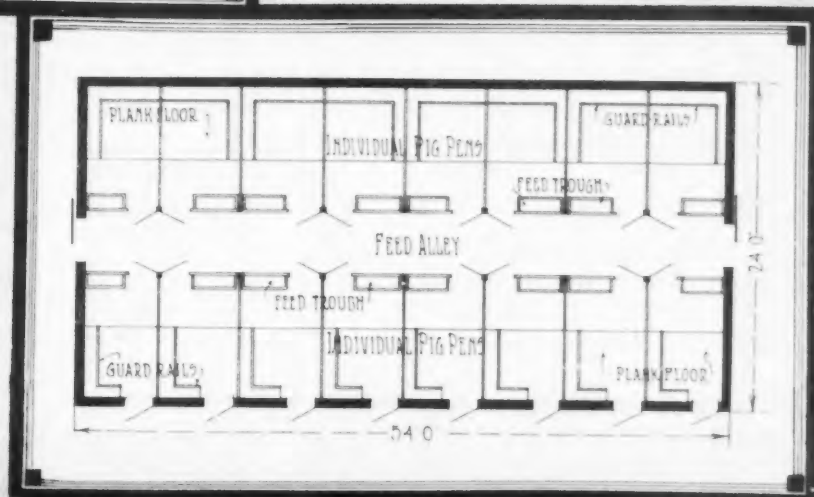
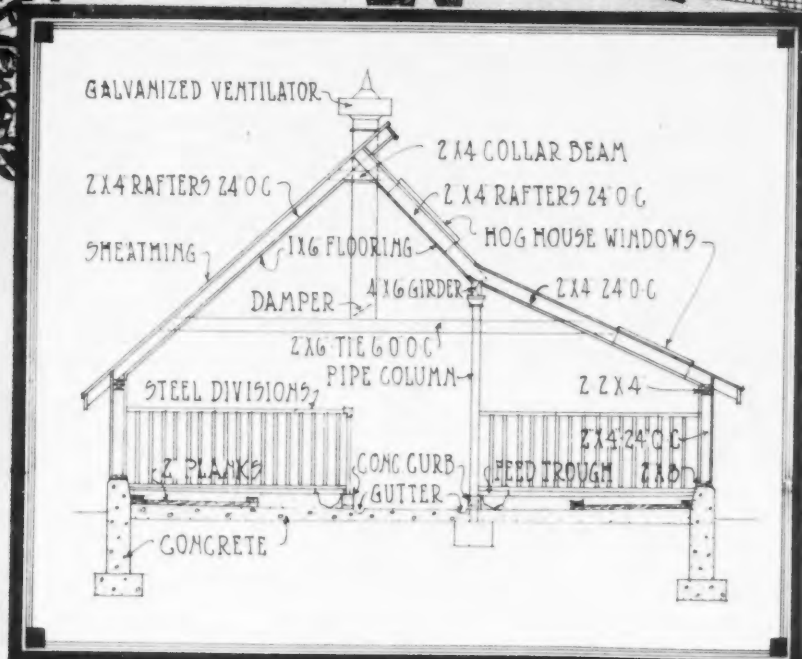
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A Modern Corn Crib and Granary



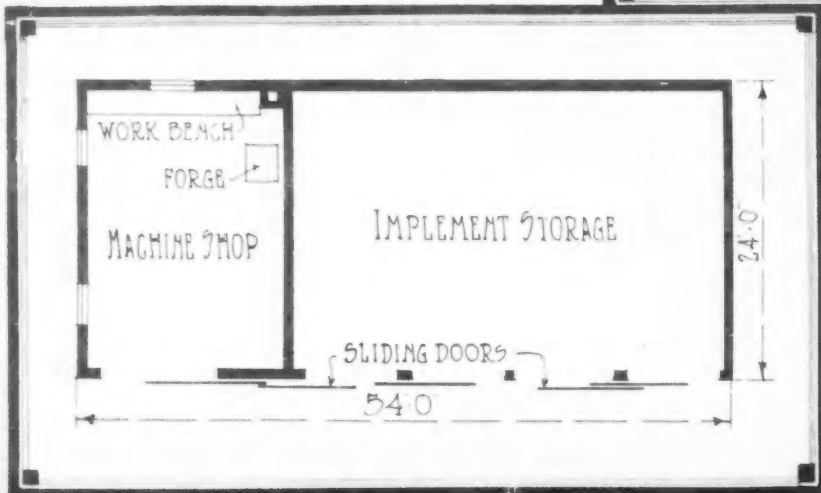
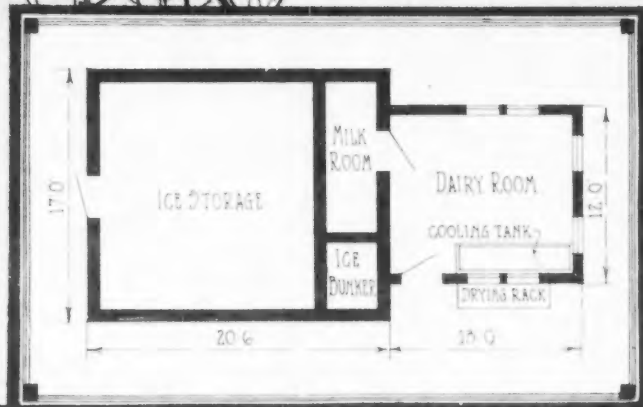
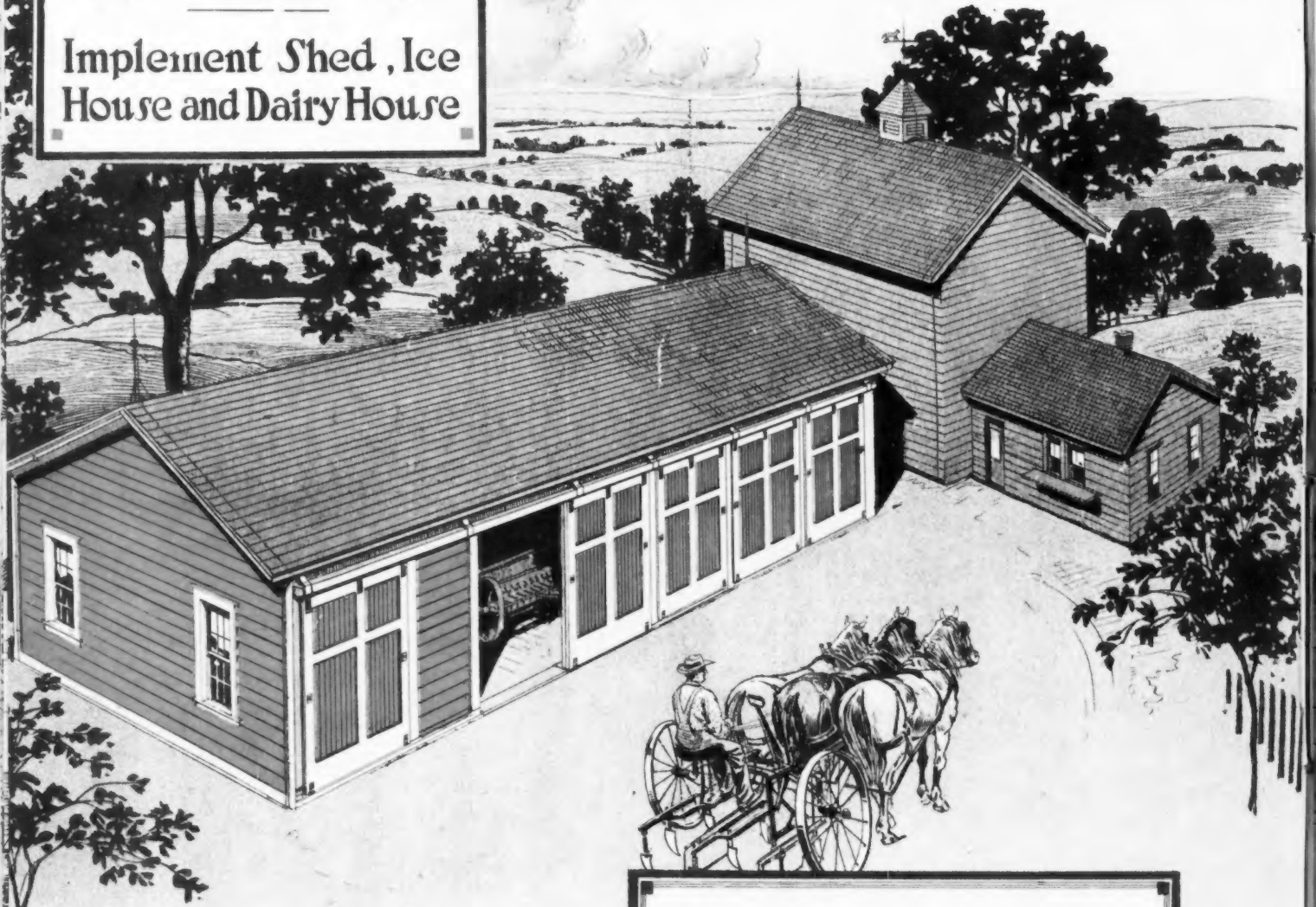
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A Community Hog House with Roof Windows



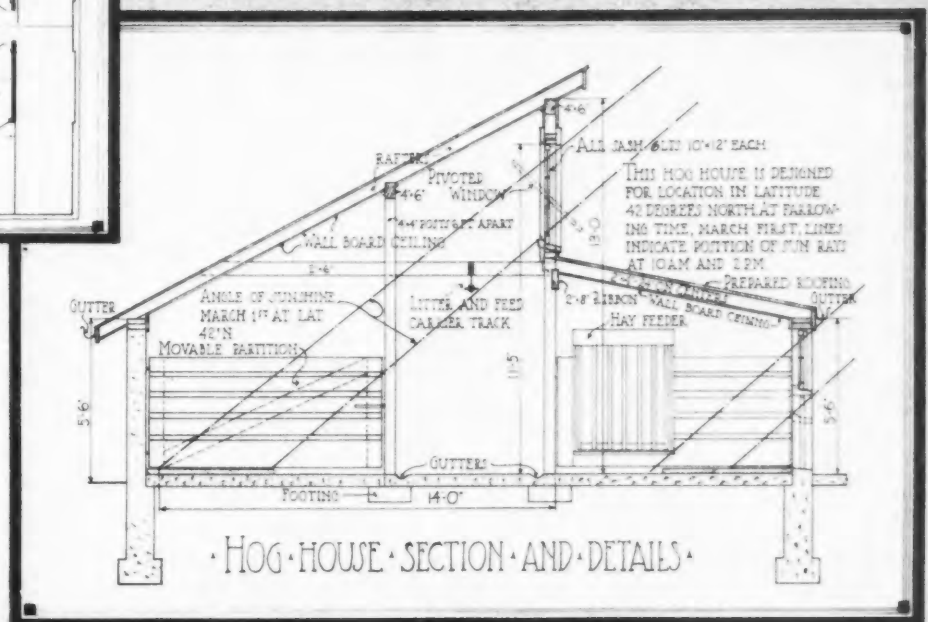
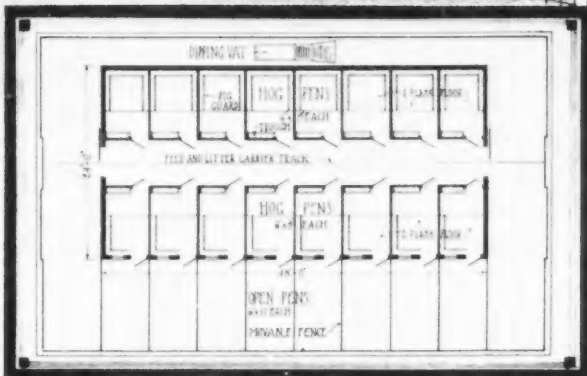
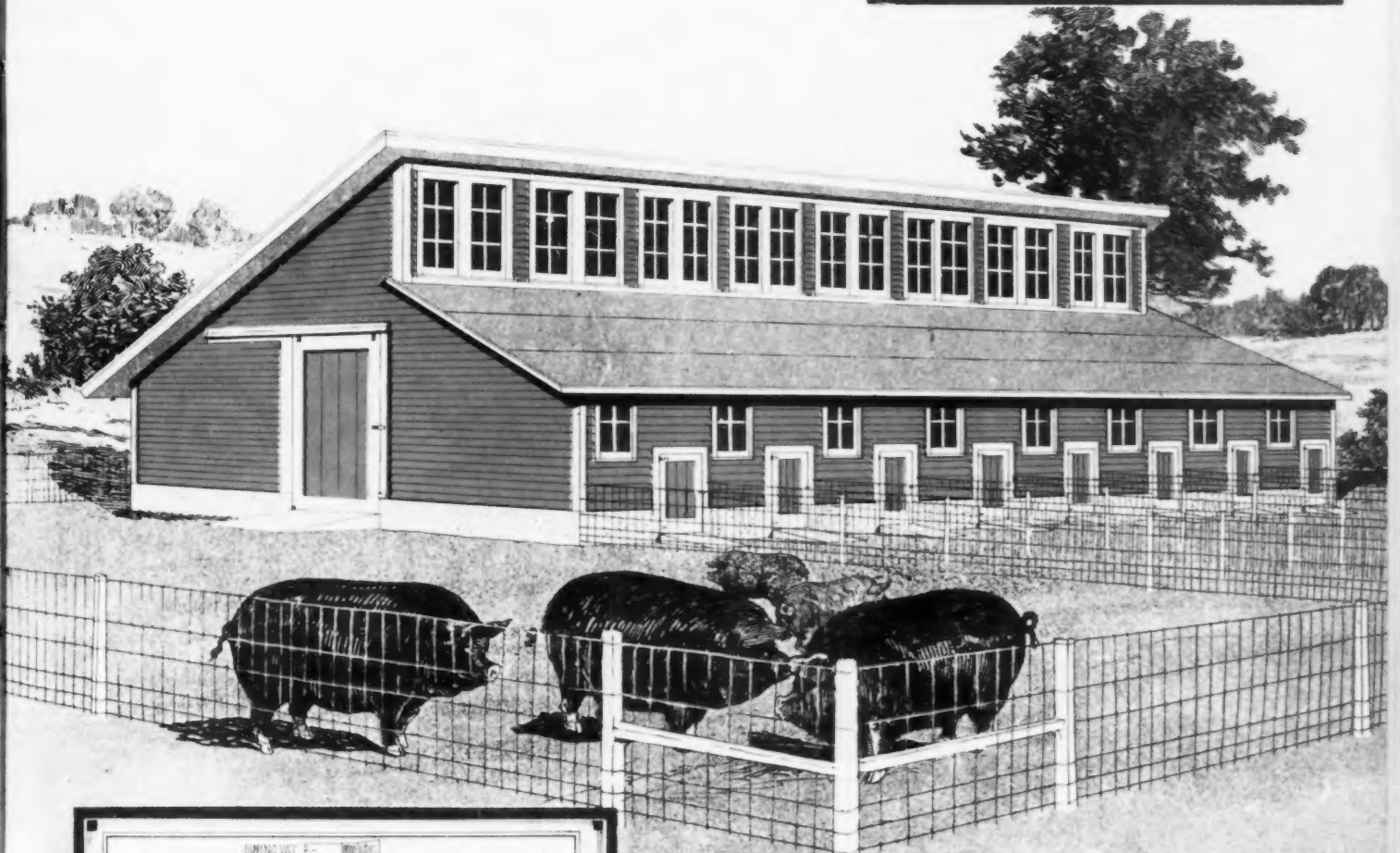
20 Farm Buildings in Colors

Implement Shed, Ice House and Dairy House



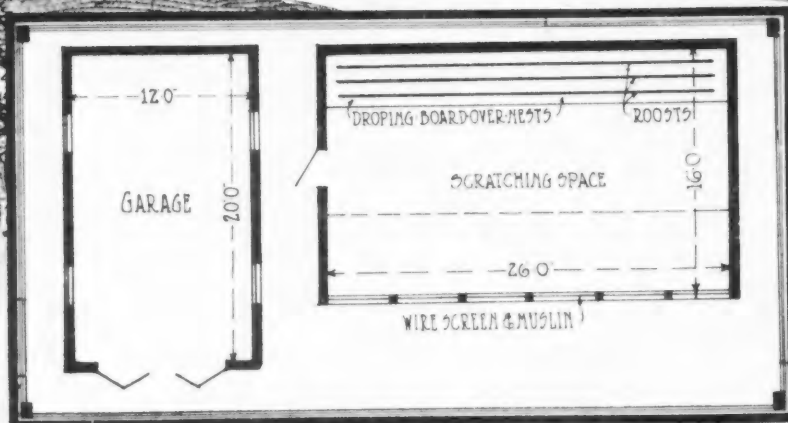
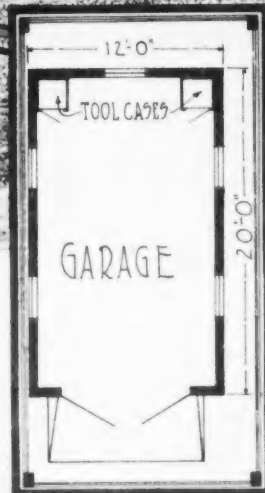
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A Sawtooth Roofed Winter Hog House



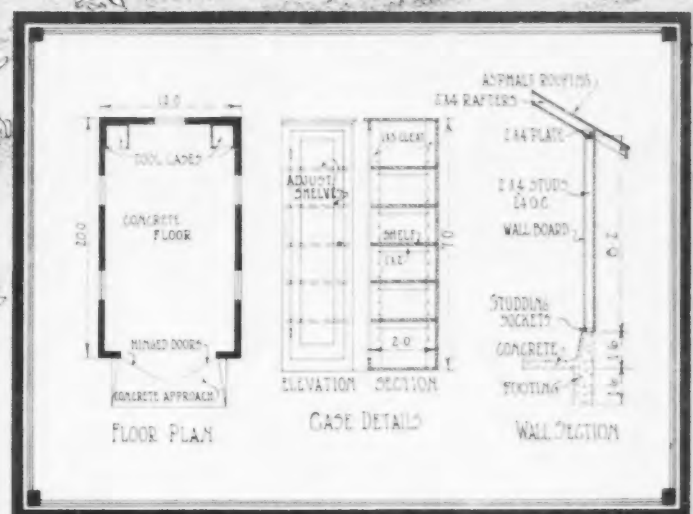
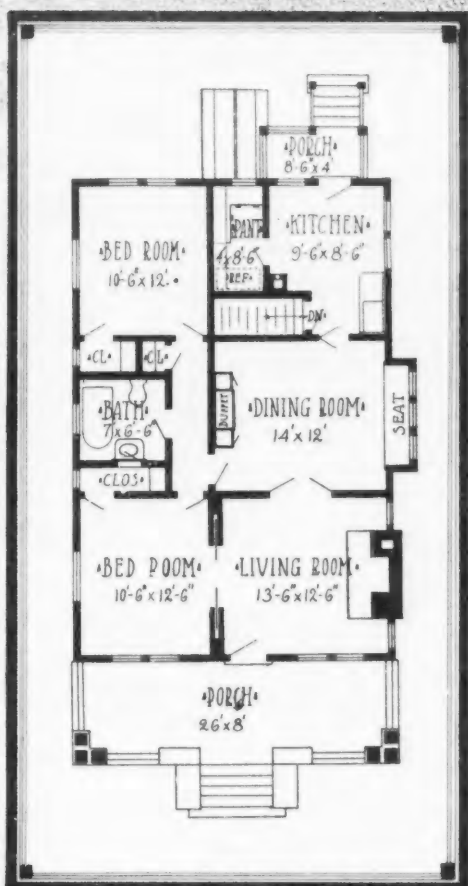
20 Farm Buildings in Colors

Two Garages, Implement Shed and Poultry House

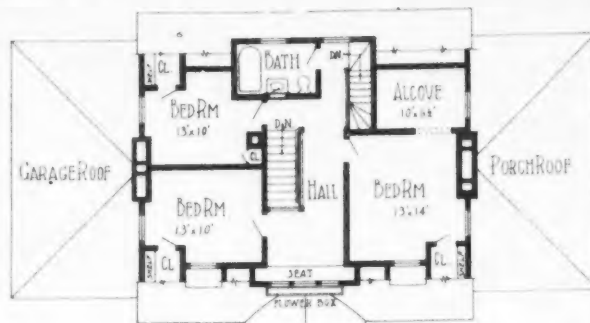


20 Farm Buildings in Colors

A Modern 5 Room Bungalow & Garage



A detailed black and white architectural illustration of a two-story cottage. The house features a gambrel roof with a large, square chimney on the right side. The front facade includes a sunroom with large, multi-paned windows. The house is surrounded by mature trees and shrubs, creating a lush, wooded setting. Below the illustration is a floor plan showing the layout of the first floor. The plan includes a bedroom (BEDRM), a bathroom (BATH), an alcove (ALCOVE), and a kitchen (KITCHEN). The dimensions for the bedroom are 10' x 11', and for the alcove, they are 10' x 11'.



Floor plan of the first floor of a house. The plan shows a Garage (11 x 22) on the left with a Bench. The main living area includes a LivingRm (13 x 17) with a Brick Fire Place, a Living Porch (11 x 22) with a Brick Fire Place, a DiningRm (13 x 17) with a Brick Fire Place, a Kitchen (9 x 9) with a Sink, Stove, and Table, and a Den or BedRm (10' x 9'). There is a central Hall with a Staircase (Up) and a Bathroom. The plan also shows a front Porch and a Flower Box.

FIRST FLOOR PLAN

(Continued from page 50.)

based on these twenty farm building designs, but presenting information that holds good for any similar building, are presented on pages 67 to 83, immediately following this colored section.

Quite a variety of barn designs are included in this collection. There should be something here to meet almost every requirement.

There are two Gothic roofed barns, one of them a basement barn; the other with boarding extending down to within 18 inches of grade. One is a dairy barn exclusively; the other arranged to stable both horses and cows. These Gothic roof barns are practical—strong, easy to build once you understand how, and certainly fine to look upon. In the Northwest, where this style started, one barn has led to another in a surprising way till the country is dotted over with them.

There are three gambrel roofed barns, two of them with concrete basements; the other with half basement, that is, concrete extending up four feet above grade. Two of these are dairy barns, one arranged for cows to face in, the other to face out. The third is a combination horse and cow barn.

One of the designs (Plate 2), is that popular type, a high gambrel roof storage barn in the middle and a one-story gable roof cow stable wing extending out on either side. This is a very well balanced design, an economical arrangement, and a good looker.



Good business, patriotism and sentiment all urge a better home for this lady. Whether a family pet or only one of a commercial herd, she deserves a good stable and will pay for it by giving more milk.



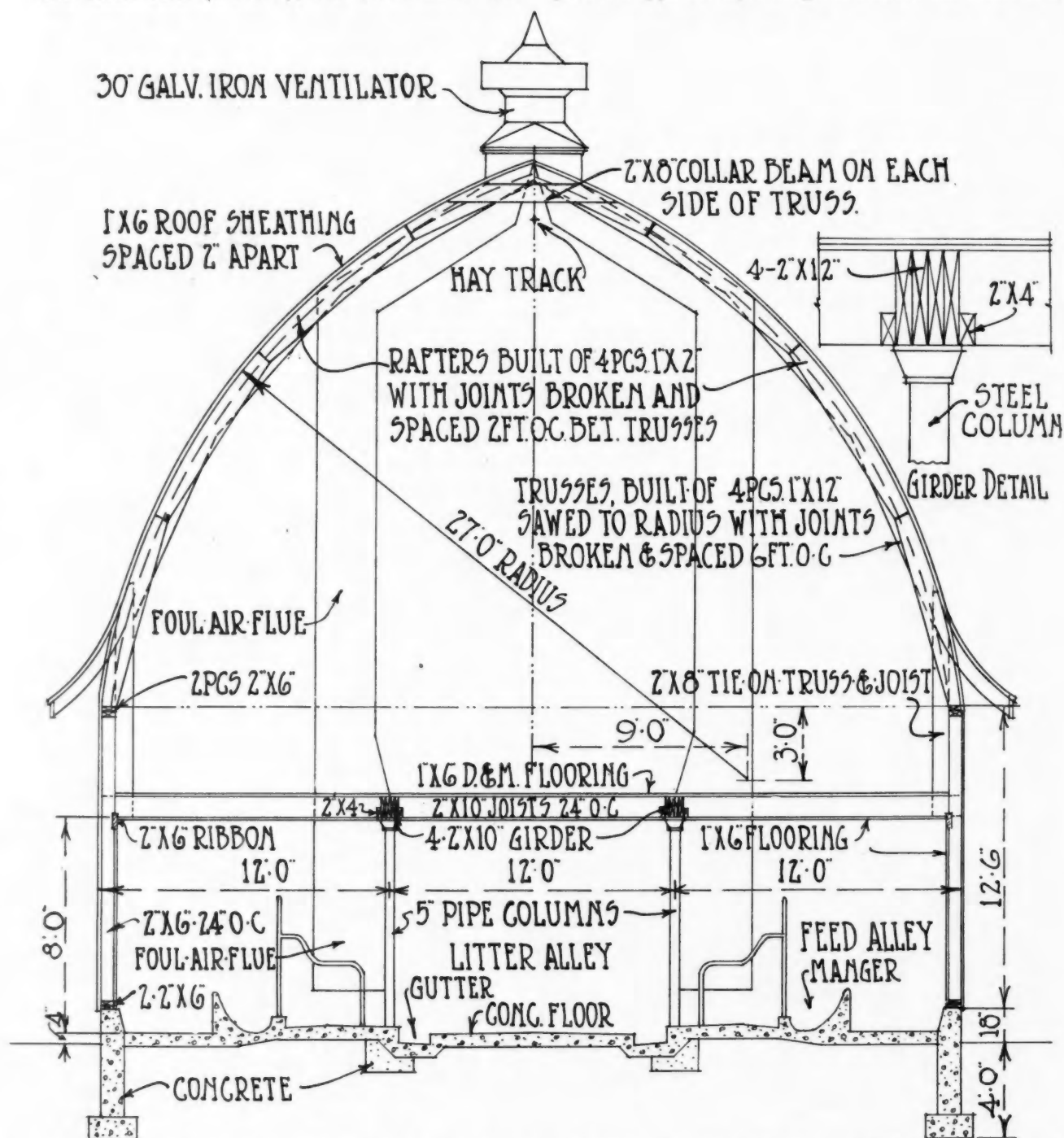
Sunlight in the dairy stable is very desirable. Fresh air and sunshine are the two essentials for healthy cows. Four square feet of glass for each cow is the minimum. This stable on the Bass Farm near Fort Wayne, Ind., has more than that, and more is often desirable. Many would prefer to see these animals arranged to face in instead of out. The sunshine is not wanted in the cow's eyes, but is needed in the manure gutters.

Something of a novelty has been worked out in the Colonial style dairy barn (Plate 4). This is a low pitch gambrel, the first slope starting at the hay mow floor line. Seven foot studs are used in this barn. It is a very pretty design, harmonizing perfectly with a Dutch Colonial farmhouse. Some farmers care a good deal for looks and want all of their buildings handled in the same style of architecture. The hay storage space is cut down in this barn, but the two big silos will store the major part of the ration.

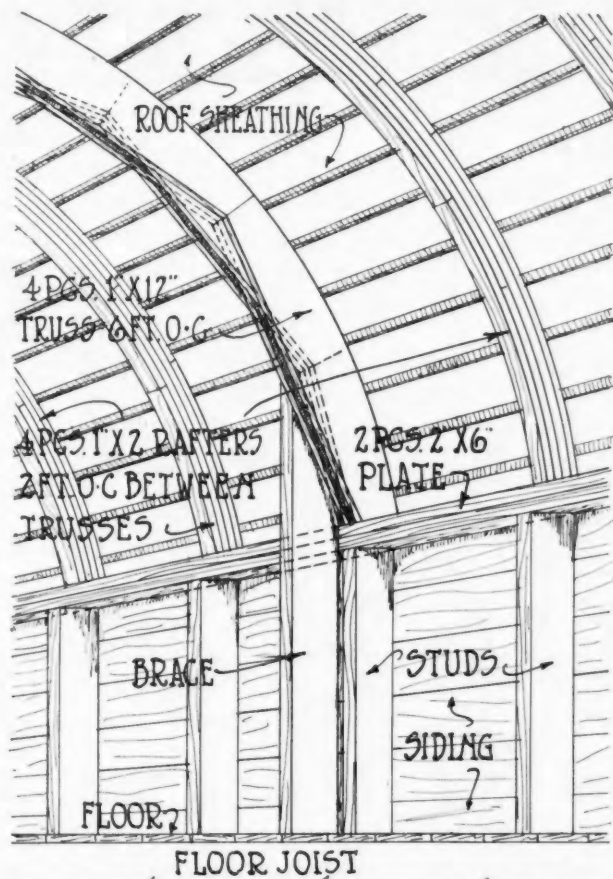
The stock barn (Plate 7), has the familiar half

pitch gable roof. This has long been a popular style for heavy timber barns. In so many localities the heavy timbers are no longer to be had, and the plank frame, self-supporting roof has come in. This construction has favored the gambrel roof, because it works out better for building the trussed rafters for the self-supporting roof. For this gable roofed stock barn we show a plank frame method and it seems to work out in a very practical way. (See detail page 74).

In the Farmstead Group (Plate 8), there is a very practical type of hay storage and horse barn that is a



Section thru Gothic roofed general barn, Plate 1. This makes a very strong roof and is easily constructed. Each side of the roof is laid out on a 27-foot radius. The rafters are built up of four pieces of 1 by 2-inch lumber, bent to the radius, with joints broken, spaced 2 feet apart between the heavier rafters or trusses, which are built up of four pieces of 1 by 12-inch lumber spaced every 6 feet. The outside of trusses are sawed to the circle by trimming off the projecting corners. A 2 by 8-inch collar beam is on each side of each truss makes the connection at the ridge. A 2 by 8-inch tie anchors the end of each truss down to the floor joists. The customary end bracing to prevent the ends from bulging out is, of course, used. Notice girder detail which gives a flat ceiling with girders and joists all in the same plane. This is desirable where cows face out and fresh air flues across the ceiling are not required.



Perspective View Close Up of Gothic Roof Rafters and Truss. Rafters are built up of four 1 by 2-inch pieces bent to the circle. Trusses are formed of 1 by 12-inch boards nailed together and outside corners trimmed to the circle. Note 2 by 8-inch tie anchoring foot of each truss to floor joists.

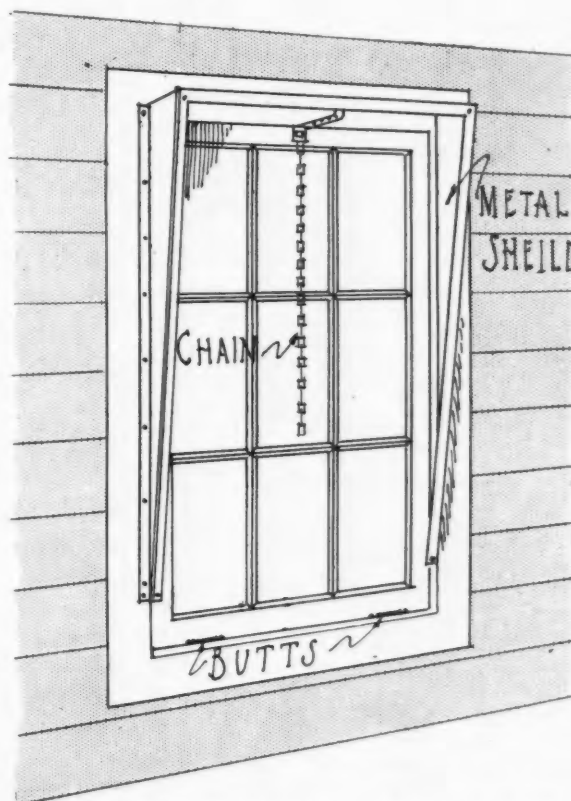
little out of the ordinary, but one that is bound to increase in numbers and popularity. The high central part is hay mow clear from the ground floor to the high self-supporting gambrel roof. This great depth



Getting in the Hay at the Oakland Farm, Wayne, Ill. Modern hay carriers hoist immense loads. Hay doors in the ends of the barns are preferred by most farmers today; they find that barns arranged to drive in with the hay are too expensive.

of mow means, of course, tight packing for the hay and great capacity. The horses are stabled in one-story shed additions along each side.

Three community hog house designs are presented. One (Plate 11), is the modified sawtooth roof type arranged for roof windows. The windows in the lower slope light and warm the front range of pens, and the windows in the upper slope let in the direct sunshine to the pens at the rear. This is a very efficient type of hog house, and the worth of these roof windows for hog houses is well proven by the great number of farmers who are using them, and also the number of reputable manufacturing concerns that are offering this style of window.



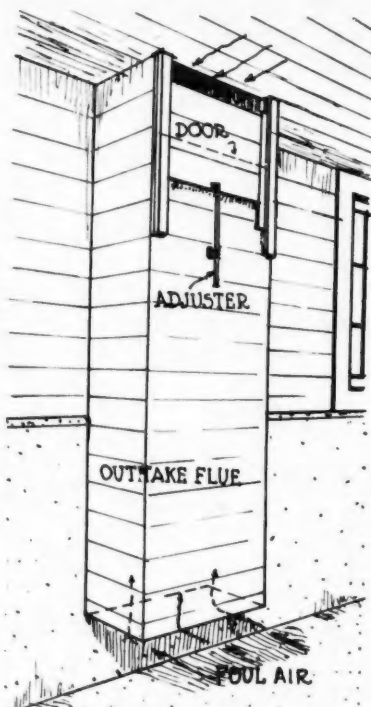
A Ventilating Stable Window, hinged at the bottom to swing in. The metal shields at each side throw all the draft up when window is opened, protecting animals from direct draft.

This community hog house (Plate 11), is intended to front toward the south. A hog house with roof windows, to front east and west is the low gambrel roof design at the rear of the Farmstead Group (Plate 8). In this, roof windows are set in along both sides of the gambrel roof; the sun shines thru one set in the forenoon, and the other set in the afternoon.

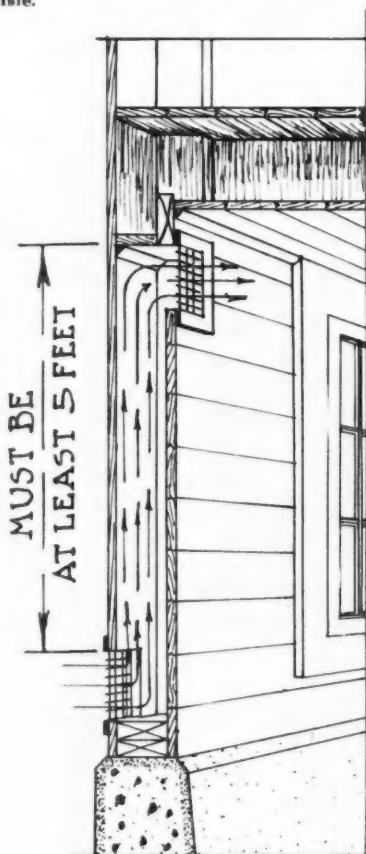
The third community hog house is of the regulation sawtooth roof type (Plate 13). Too many of these houses have been put up and are in use to require very much explanation. Hogs must have a warm, dry winter shelter if they are to do well. This is the year, above all others, to provide proper housing for the pigs.



Perspective Sketch and Detail of Fresh Air Flue for stable with cows facing in. Fresh air is brought in just above the foundation, is carried up to the ceiling and across between joists to ceiling register at the center aisle.



Sketch of Foul Air Out-Take Flue. This should be constructed of two thicknesses of boards with building paper between. A well insulated foul air flue, carried up thru the hay mow to the ventilator on the roof, is absolutely essential for a successful ventilating system. In warm weather the door at the ceiling is opened to exhaust the hot air; in cold weather it is closed and the cooler air is exhausted from near the floor.

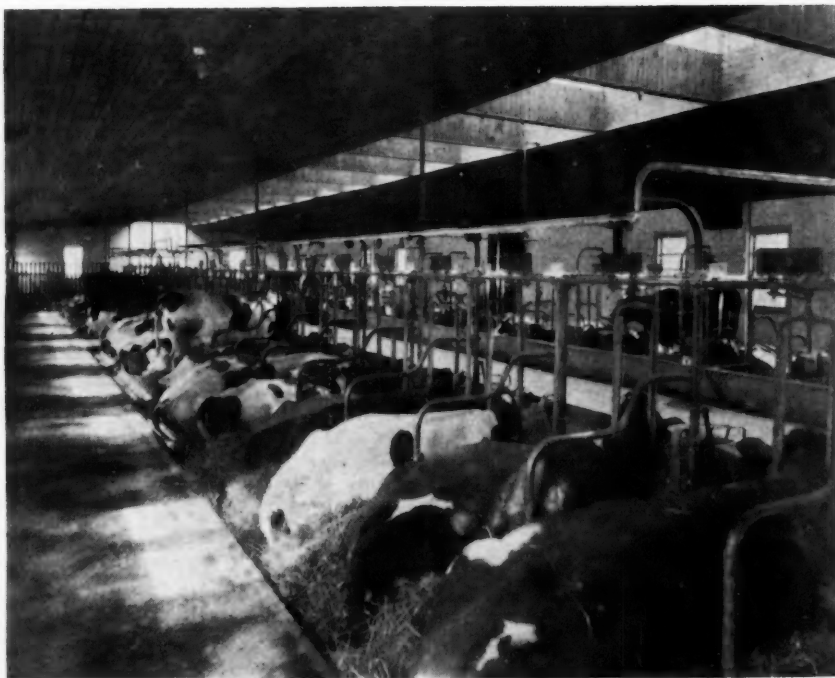


Detail of Fresh Air Flue in stable with cows arranged to face out. Fresh air should always be admitted in front of the cattle at the ceiling and foul air taken out back of them near the floor. The 5-foot height between the inlet and outlet for fresh air assures an upward current of air at all times and prevents a back draft.

The standard design modern two-story corn crib and granary is illustrated in Plate 10. It is a building of large capacity. The corn is put in by means of cup elevator to be operated by gasoline engine or horse power. This

equipment is perhaps the greatest labor-saver that a corn belt farmer can install. It saves his time when he is the most rushed getting in his crop. The granary equipment is not expensive. The important thing is for the builder to decide in advance, exactly what make of elevator he will install and build his crib to suit. Different elevators require different dimensions, as for instance, in the cupola, and builders should study this all out before they begin to build the corn crib, and get it right.

Two implement sheds are illustrated in these pictures (Plates 12 and 14). It is a crime the way farmers leave their machinery out in all kinds of weather, when a few hundred dollars invested in an implement shed would lengthen the life of the machinery anywhere from five to fifteen years. Builders should help the farmers cut down the depreciation on farm implements by making a campaign on implement sheds.

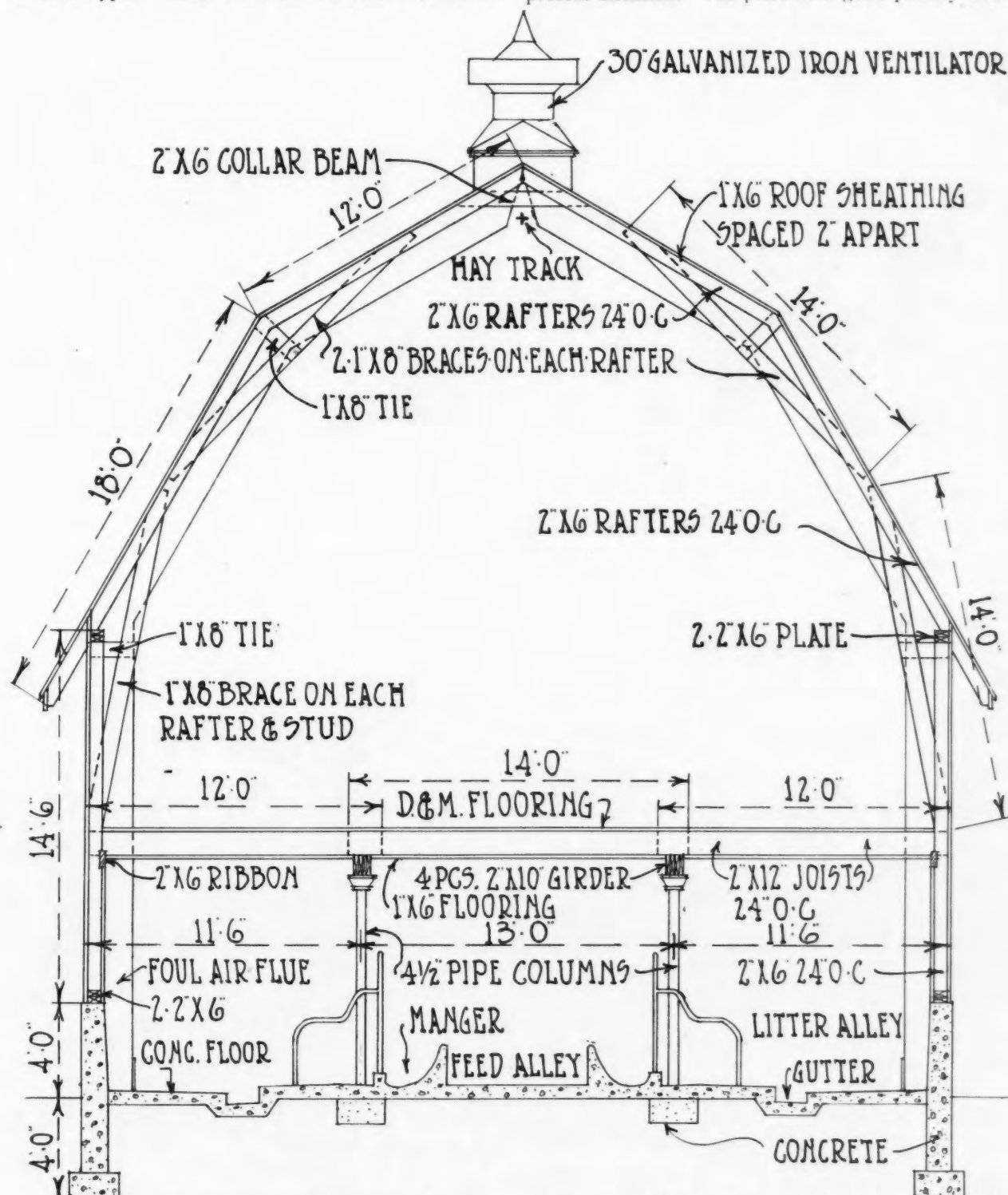


Cow Comfort is the Aim and Purpose in Building a Dairy Barn. Swinging Stanchions, stalls of proper width and length, clean mangers and a smooth moisture-proof floor that can be kept clean, are the important factors. A farmer can take real pride in a stable like this; it makes his cattle more valuable and more productive.

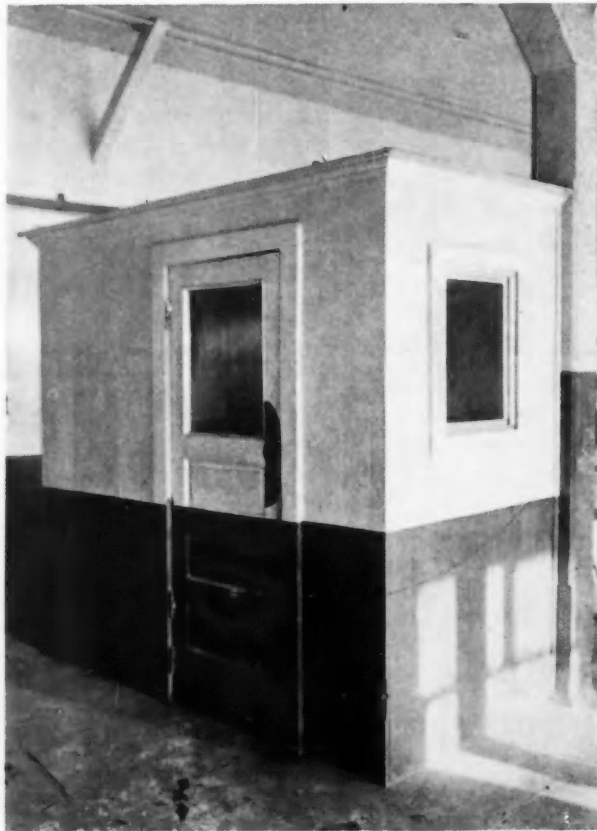
Practically every farmer needs one—and will admit it. Three garages are illustrated, all of them practical one-car garages such as most folks want to put up. A very important detail of the modern garage is how to hang the doors. A few years ago there was only one way, but with the growth of the automobile, hardware manufacturers have attacked this problem and have perfected special garage door hardware of several different types. These make for satisfaction, and the

builder should be thoroly posted on the different styles and makes.

A very sensible poultry house is illustrated (Plate 14). This is an open front design with a sawtooth roof. Every farmer ought to have a good poultry house—this year more than ever before with eggs at fifty cents a dozen and raising his own chicken feed the farmer is the one individual to benefit from the present situation. The price of a good poultry house



Details of General Farm Barn, 74 feet long, Plate 3. This shows the popular braced rafter type of self-supporting gambrel roof construction. Two by 6-inch rafters are placed 24 inches apart and each rafter is braced at the purlin with two 1 by 8-inch braces, and at the plate by a 1 by 8. A 2 by 6-inch collar beam on each rafter gives the ridge the necessary strength. This barn is 36 feet wide. The stable is arranged with cows to face in. The concrete foundation walls are carried up 4 feet above grade, making this a half basement barn.



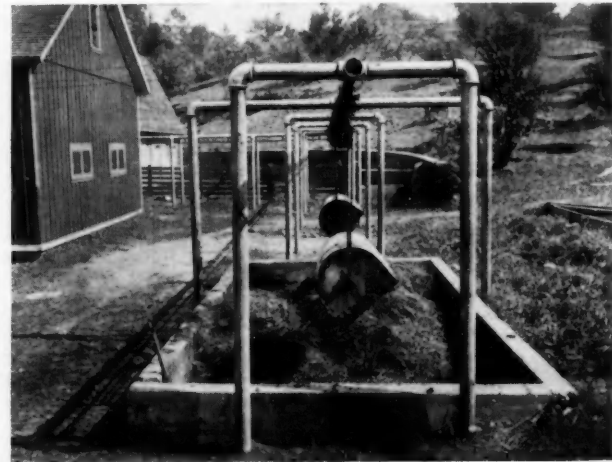
This small, tightly-constructed room is inside the dairy stable of the Bass Farm, near Fort Wayne, Indiana. In it the milk is weighed, recorded and emptied into cans.

will be soon paid back with egg money. There is chance for a lot of business building poultry houses if lumber dealers and carpenters will make a campaign along this line.

In Plate 12 is illustrated a combination ice house and milk house. There is no trouble to get ice this winter, and if it can be stored away it will be worth a good deal of money to the farmer next summer. This building makes a very practical combination and can well be constructed of hollow tile, as illustrated.

Last, but by no means least, three very practical, well designed farmhouses are illustrated. In Plate 8, the Farmstead Group, there is a square type farmhouse of ten rooms. See page 75 for floor plans. Plate 15 illustrates a modern five-room bungalow, and Plate 16 shows one of the best designs for a Dutch Colonial country home that we have ever seen.

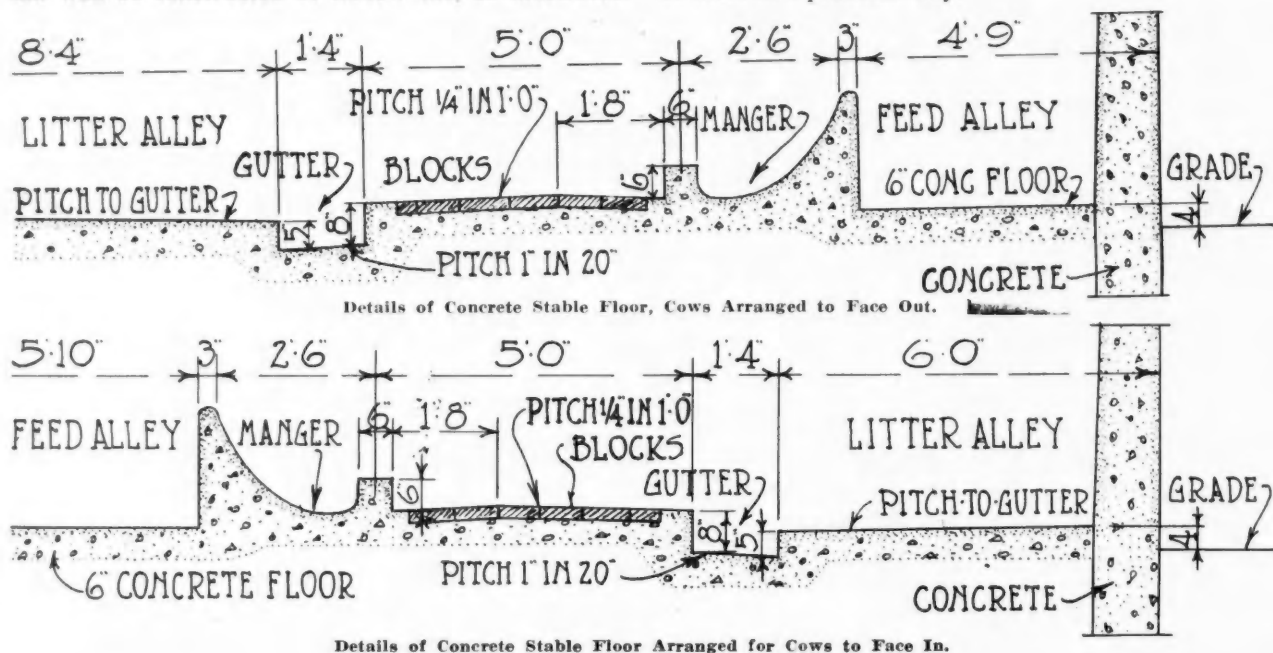
It is seldom that you find a home of modest size and reasonable cost so perfect in every detail as this. Nature has joined with architect and builder to produce

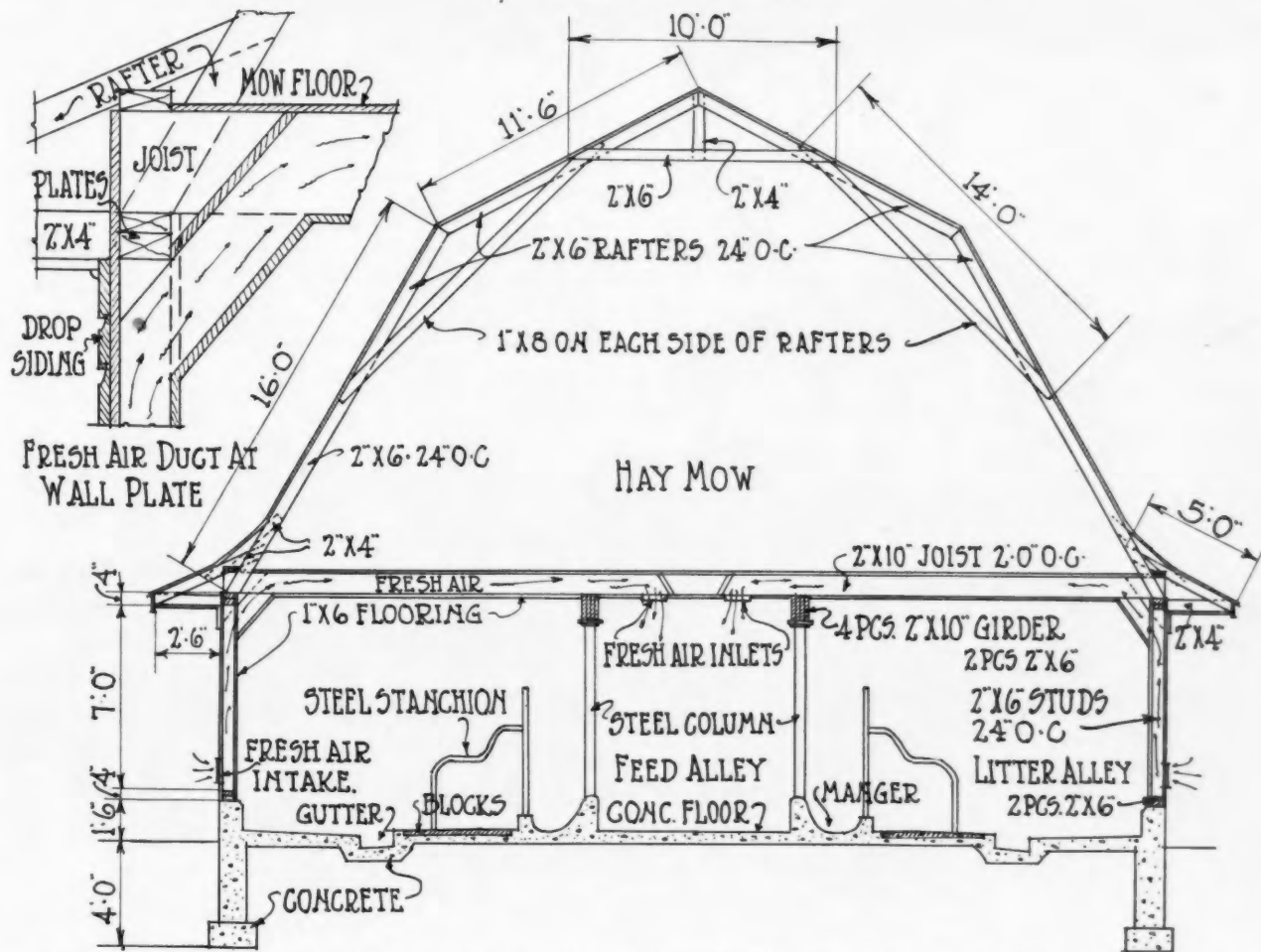


Iron pipe supports for litter carrier track carry out quite a distance to the concrete manure pit on the Baker Farm near Gates Mills, Ohio. A roof over the manure pit should be added.

a residence gem. The floor plans show a perfect balance of spaces each side the central hall—living room balances dining room and sun porch the garage. The size of the house proper is $36\frac{1}{2}$ by 28 feet; porch and garage add 22 feet more to the length.

All of these buildings are illustrated in such a way that builders, lumber dealers and prospective building owners can winnow out from them the helpful features that apply to their own particular needs and make use of them in a practical way.





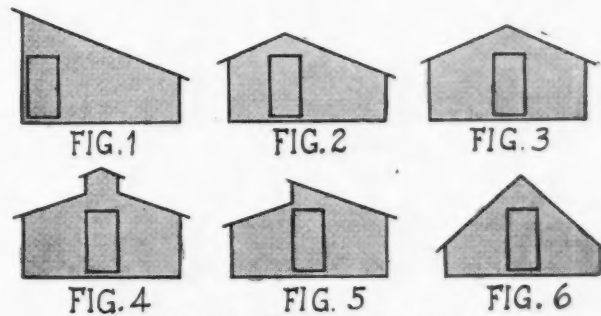
Section Thru Colonial Style Dairy Barn, Plate 4. This barn is 36 feet wide. The roof starts at mow floor, and the slopes are low. It hasn't the storage capacity of the regulation high gambrel, but harmonizes better with a fine Colonial Farmhouse.

Six Poultry House Styles

The drawings show a number of types of roofs to cover poultry houses, also the shapes of the buildings and suggestions of the manner of construction.

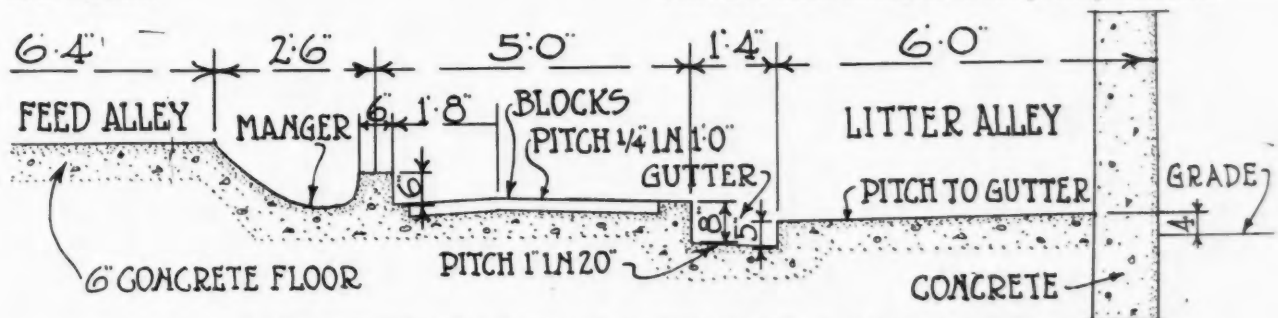
Most of these elevations are simple and reasonable in cost. The construction always is light and intended to be draught proof, but always with some provision for ventilation.

The simple shed roof shown in Fig. 1 is probably the cheapest practical house that can be built. But it is very much improved in appearance by changing the shape of the roof as shown in Fig. 2. Altering the roof, however, usually changes the shape of the floor plans. The house with lower front roof projection is made narrow so that the sun can shine clear into the back corners.



Six Popular Types of Hen Houses.

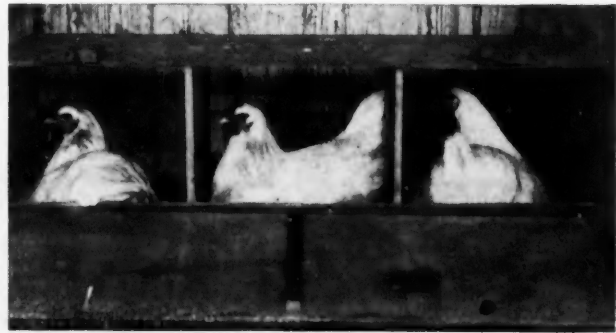
These two shapes are more used by practical poultrymen than all others. However, Fig. 3 when nicely built and finished with a neat cornice has the appearance of a better building and is advocated by some men who have made successes in the poultry business.



Details of Concrete Stable Floor. Cows Arranged to Face in. Feed Alley Elevated.



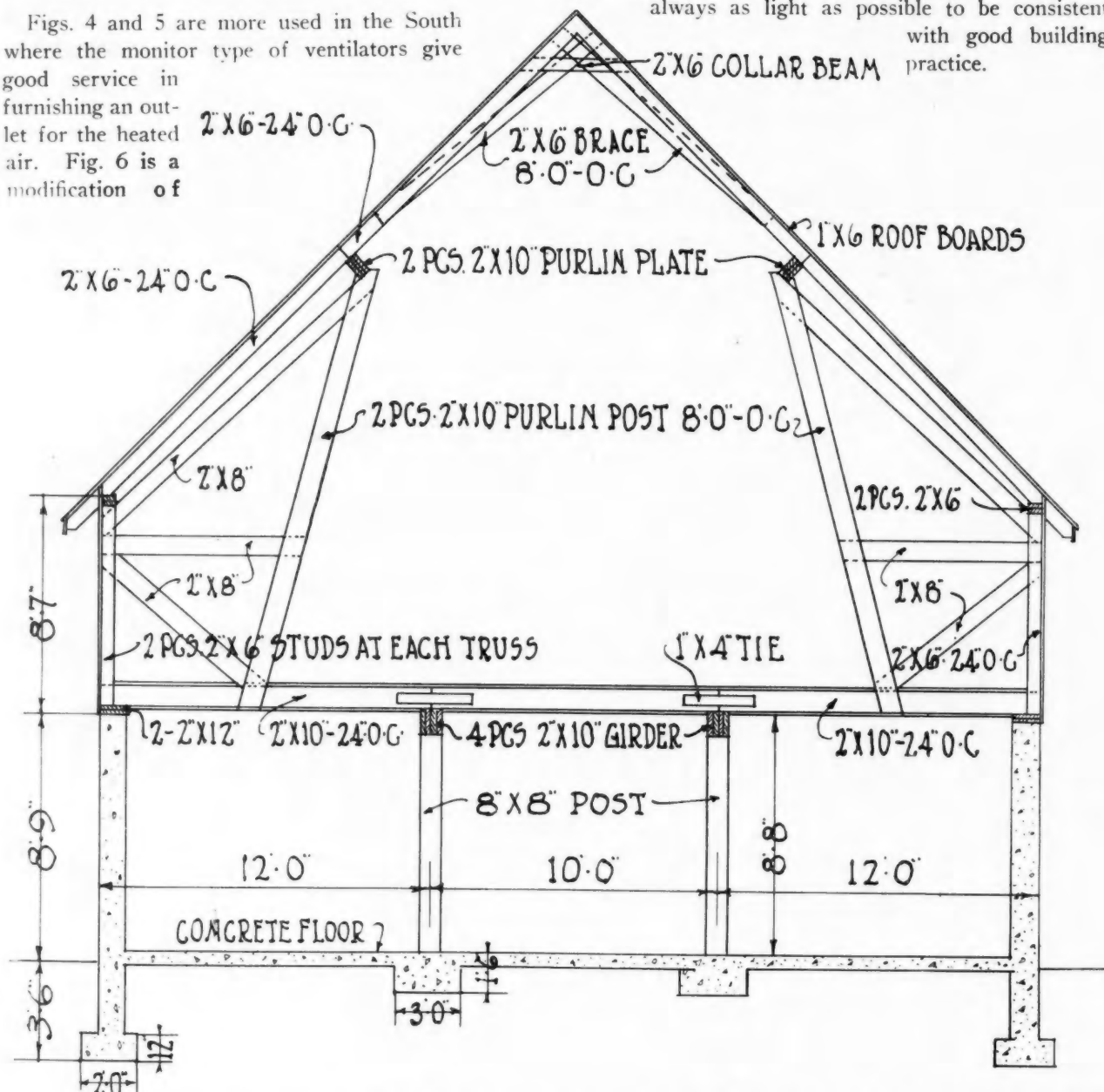
A glimpse of the buildings at what is probably the most notable breeding farm for Black and White Cattle in America, that of Oliver Cabana, Elma Center, N. Y.



100% Efficiency on the Nest.

Figs. 4 and 5 are more used in the South where the monitor type of ventilators give good service in furnishing an outlet for the heated air. Fig. 6 is a modification of

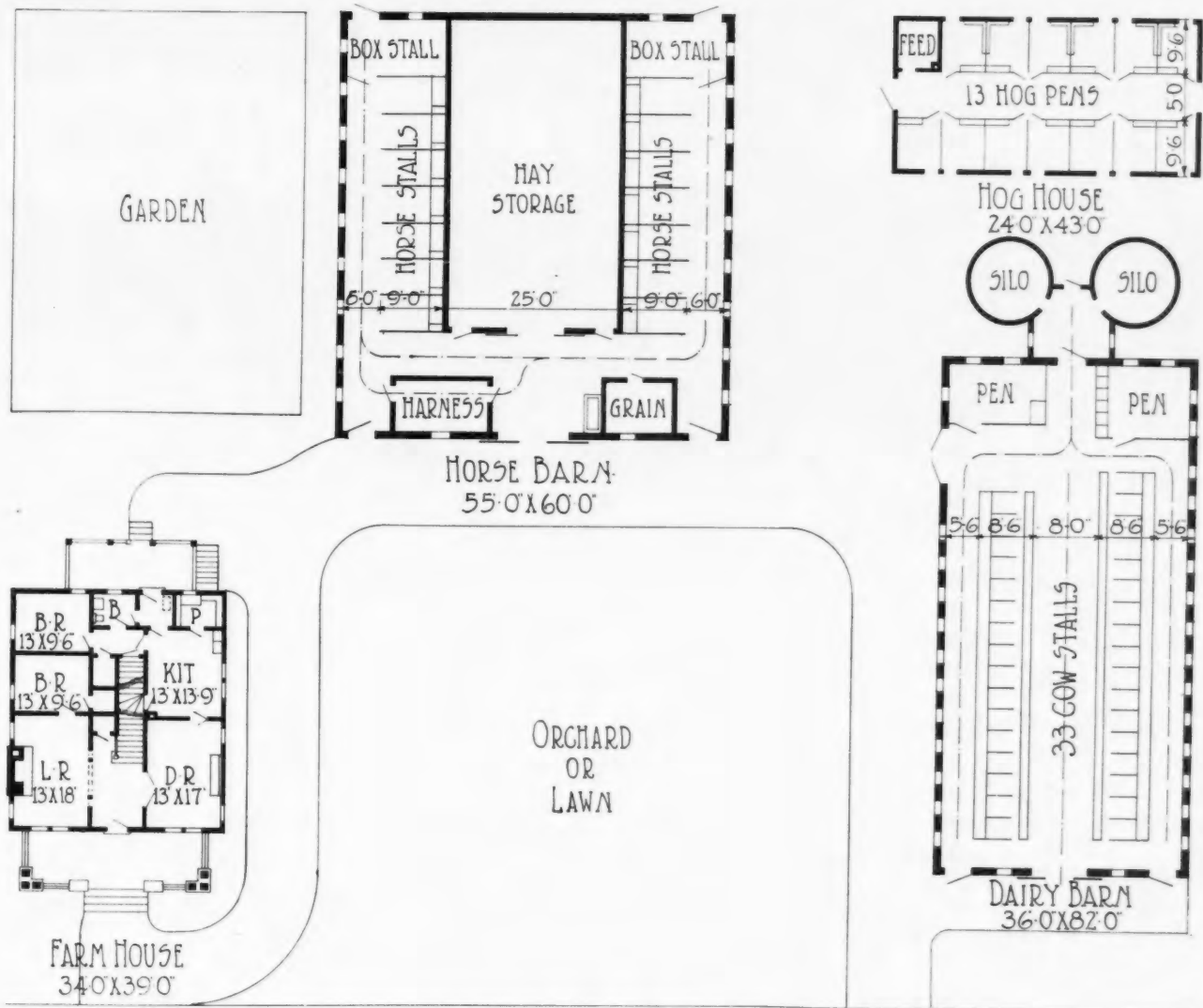
Fig. 3, by building the roof steeper and the side lower. The low side of the roof in all northern poultry houses should be kept down to a height of from 3 to 5 feet for warmth. The high part of the roof seldom is higher than from 6 to 8 feet. The manner of construction is always as light as possible to be consistent with good building practice.



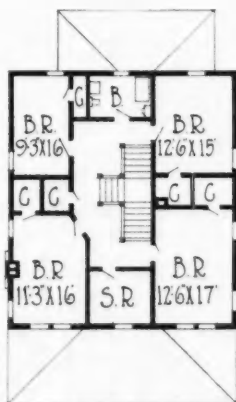
Details of Plank Frame Construction for Gable Roofed Stock Barn, Plate 7. Purlin posts are built up of two pieces 2 by 10-inch, spaced 8 feet apart. They slant outward to a point about 6 feet in from the ends of the floor joists; 2 by 8-inch braces stay both ends of these purlin posts running to the wall studs just below the plate; 2 by 6-inch braces and a collar beam give necessary stiffness at the peak. This adapts plank frame construction in a practical way to the needs of the gable roof, which usually is the heavy timber style.

"20 Farm Buildings"

75



PLOT PLAN OF GROUP



Second Floor Plan of Farmhouse.

THE group planning of farm building should be the aim of every rural builder and farmer. Draw up at one time a development scheme to take in all needed buildings for the next ten or twenty years. Start in on the first building needed and place it according to the general plan; the same then with the next, and so on.

Plan your Farmstead group, even if it will take a generation to work it thru.

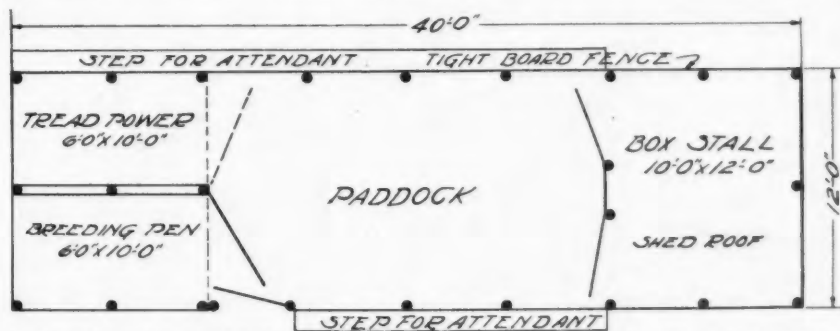
The FARMSTEAD GROUP (Plate 8), shows the four principle buildings for a good sized dairy farm—ten-room farmhouse, barn 36 by 82 for 33 dairy cows, hay storage and horse barn, size 55 by 60 feet, and community hog houses containing 13 pens. The cow barn has concrete basement and Gothic roof. The horse barn is an interesting design combining a high gambrel roof hay barn with a low shed addition on each side where the horses are stabled. The hog house is a gambrel roof design with windows set in the roof along both slopes. Two big silos are attached to the far end of the cow barn, which brings them handy to the hog house also. The arrangement of these building as illustrated on this plot plan follows well approved lines. It is a compact arrangement. The circle of stable work can be made with few wasted steps. The buildings make a good appearance from the road and there are separate driveway entrances for the house and the barns.

How to Build a Bull Pen

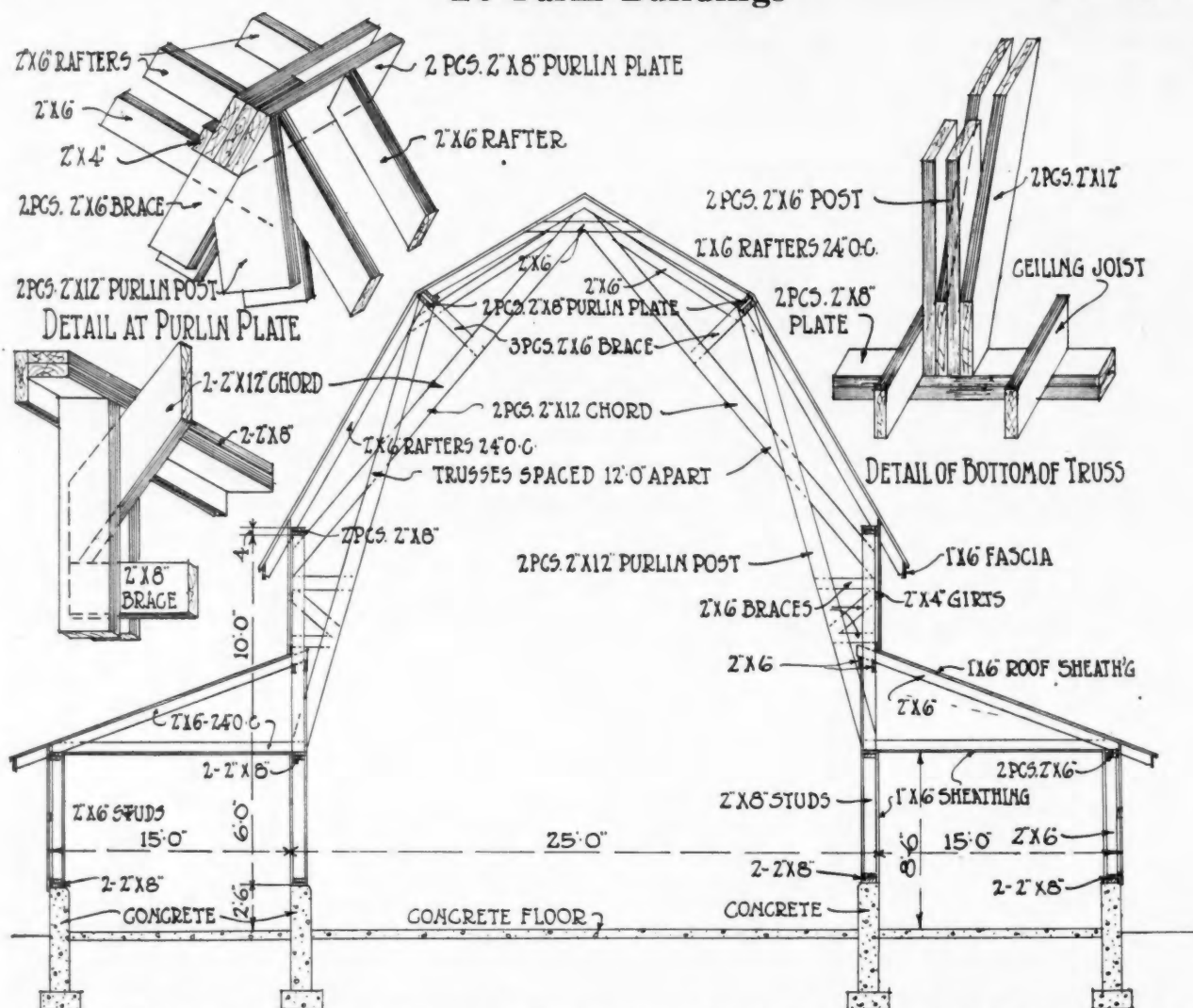
Dairy bulls need considerable exercise. This plan of making a bull pen is intended to provide comfortable quarters in all kinds of weather and to encourage exercise.

The tread power may be hitched to the pump and to the cream separator. When

the bull runs the separator he gets exercise regularly twice a day. Pumping may come at irregular intervals. Exercise may be more valuable to the bull and the future of the herd than the amount of power developed, but there is some advantage both ways.



Plan of Bull Pen Which Insures Safety in Managing and Good Health for the Bull.



Details of Hay Storage and Horse Barn, Illustrated in Farmstead Group, Plate 8. The high center part is the hay mow and will hold an immense quantity of packed down hay. The horses are stabled in the shed wings along each side. Standard plank frame construction is used for supporting the high roof, trusses being spaced 12 feet apart. Instead of being tied across the bottom of the structure as usual, the side wings brace these trusses from the outside to prevent the feet of the trusses from spreading.

Hog Gates and Panels

R AISING hogs with luck and profit is no longer a subject of conversation among well posted farmers, because nowadays proper feeding, care and sanitation spell success and profit in swine.

Sanitation calls for steel equipment wherever practical. In no place can steel equipment be used to such excellent advantage as in panels and gates for pens inside of the hog house or for dividing feeding floors

outside of the hog house, as illustrated below. It is a photograph showing use of steel hog panels on the R. J. Weiland farm near Canistoto, S. Dak. This photograph shows only one-fourth of the complete job. All panels are mounted on removable posts for cleaning or so that farmer can easily change the size of the pens as desired. The outer end of each pen is mounted so that it can be swung open just like a gate.



Example of Steel Gate Panels for Pig Yards on the Weiland Farm, Near Canistoto, S. Dak. These 7 pens each measure 7 by 21 feet. All panels are mounted on removable posts for cleaning or changing the sizes of these hog runs. Each pen has its own gate.

BARN EQUIPMENT

Sanitary and Labor Saving

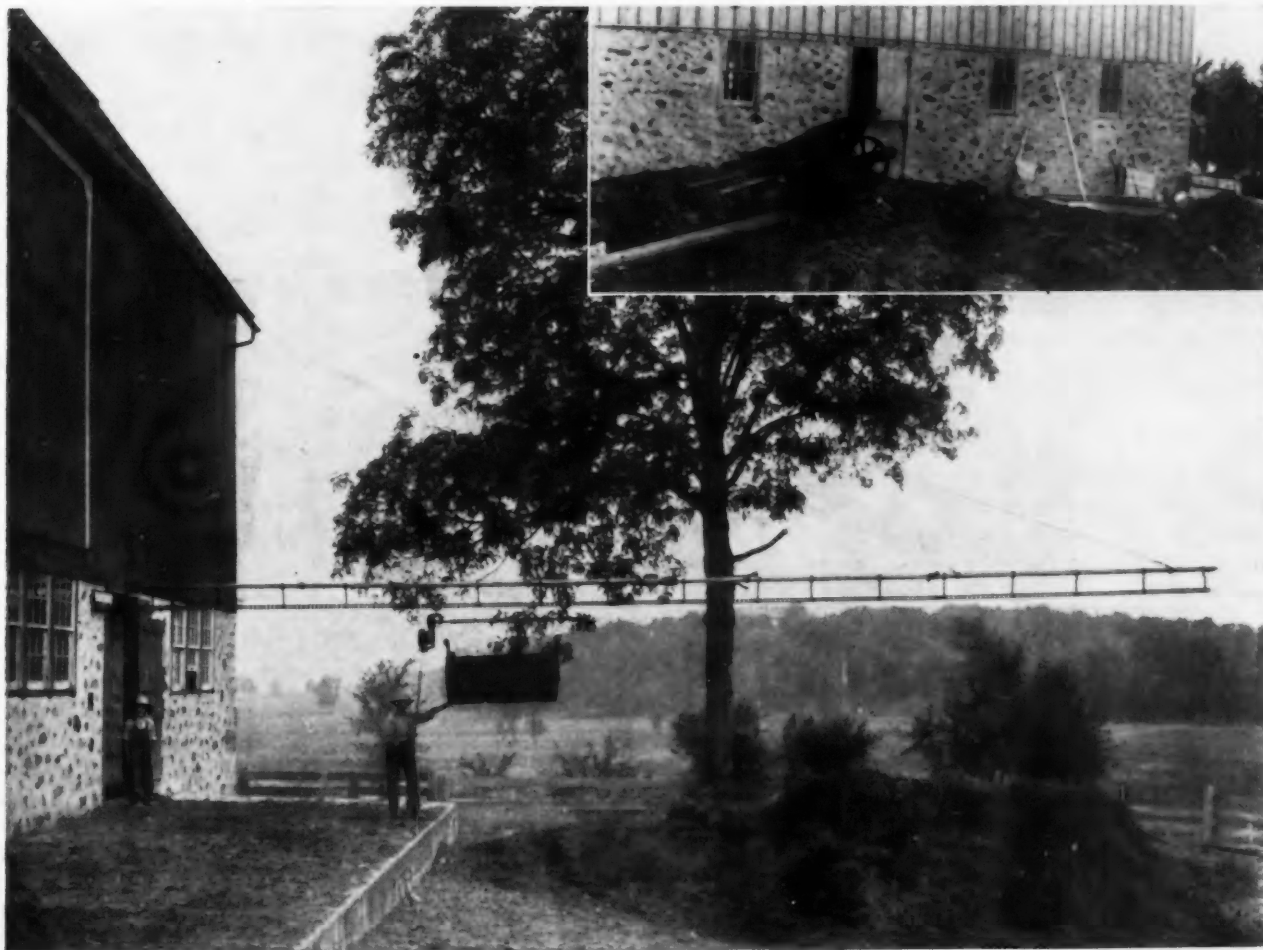


THE present shortage of farm labor, together with the high price of dairy products and the crying need for their increased production, present the best opportunity in a generation for the sale and installation of modern barn equipment.

This is the rural builder's opportunity. He can

turn it to his own account for getting business, and can also do a good turn for the farmers and serve the nation in this time of need.

Every old barn should be remodeled. The farmer can't afford to take his time and that of his men, doing his stable work the old-fashioned, hard way.



Make Your Barns Modern and Equip Them With Modern Labor-Savers. Here you see the old way and the new for getting out stable manure. The overhead litter carrier is run out on a boom supported by guy wires from the roof plate. Gale Brothers' barn, Eden, Wis.

There are four things that every old stable needs to make it a paying proposition for the farmer. The rural builder is the man to line up this remodeling work and see that these four or five improvements are made.

First, there is the concrete floor. Tear out the old rough and rotten planks and lay a smooth, moisture-proof, easily cleaned floor of concrete.

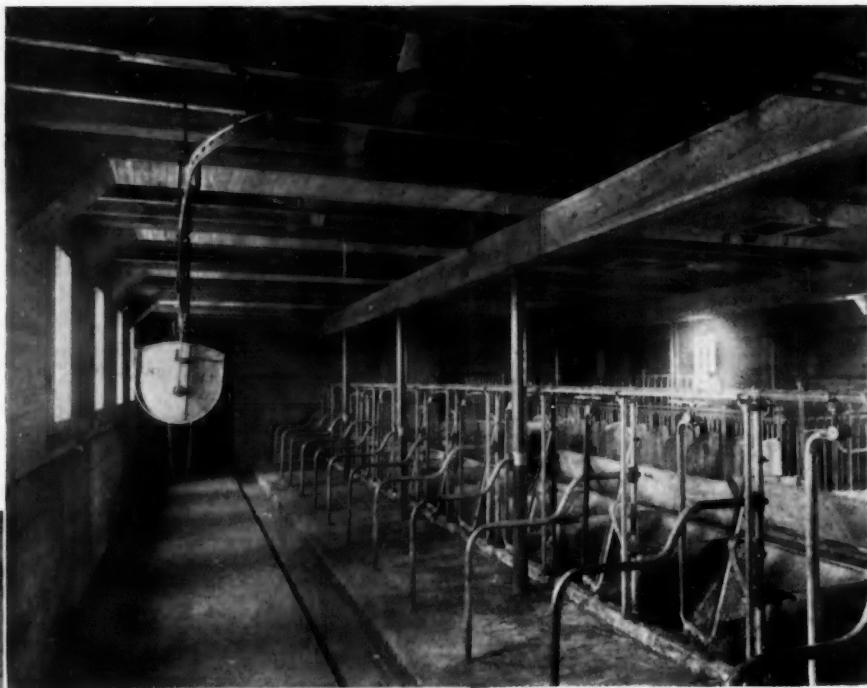
Then put in an overhead carrier track on which to run feed carriers and litter carriers. Run



Old-fashioned Stocks, which should not be tolerated in any dairy barn, harbor filth, shut out the light and torture the cattle. In this stable they were set so close together that the cows could lie down only on the bias. They could not turn their heads. Contrast all this with the modern swinging stanchions illustrated above.

the feed carrier from the silo, down the feed alley in front of all the cattle; and run the litter carrier track along all manure gutters and out of the stable to manure pit or pile. The farmer will do his stable chores in half the time and with half as much help, if he has this labor-saving equipment in his barn.

Then to make a good job of the remodeling, tear out the old stocks or wooden stanchions and put in sanitary iron pipe stall partitions and swinging stanchions. Bring in fresh drinking water, either from an overhead tank or an air pressure tank, and provide an individual watering cup at each stall or a double bucket for

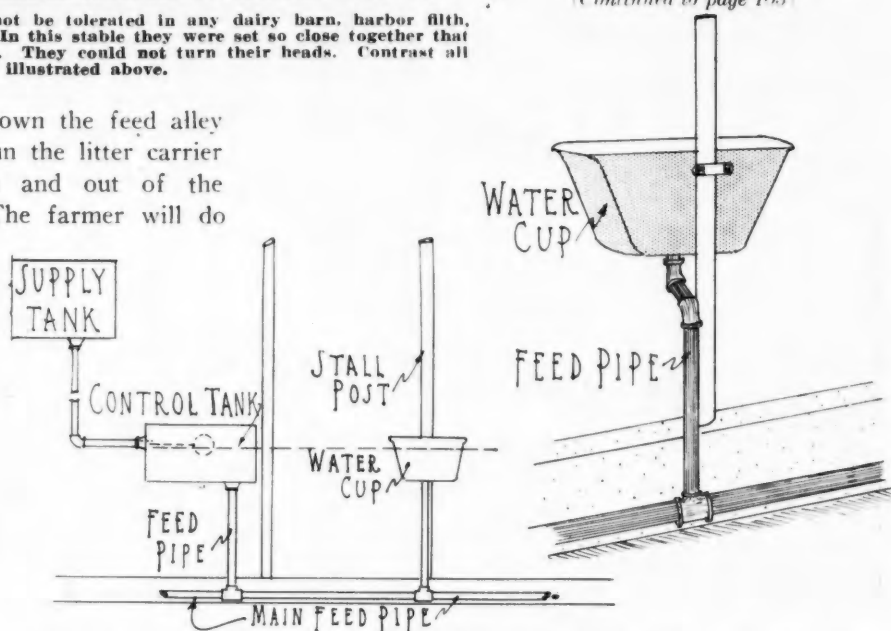


A Typical Modern Cow Barn Equipped with Steel Pipe Stall Divisions and Swinging Stanchions. Craig Farm Barn, near Janesville, Wis.

each second stall.

You may think this is an extravagance, but it is not. The cows will give enough more milk to pay back in two years' time the entire cost of the individual water buckets. Milk is 87 per cent water. No cow can drink the amount of water she requires for full milk production if she has a chance for only two drinks a day, and that usually of ice

(Continued to page 103)



Details of typical drinking water cups to be attached to each second cow stall. Control tank keeps the water at a constant level.

Bumper Crops and High Prices Assure Continued Farm Prosperity and Great Farm Building Activity

TWENTY-ONE BILLION IS CROP'S VALUE, AS SHOWN BY FINAL FIGURES FOR YEAR 1917

FARMERS contributed approximately \$21,000,000,000 to the wealth of the nation this year in the production of grain and other farm products, far exceeding any other year in the history of the country. Of this immense total the corn crop leads with an estimated value of \$4,053,672,000. The oats crop is valued at \$1,061,427,000; wheat at \$848,372,000 and potatoes at \$543,865,000.

Final report on the crops, issued by the Department of Agriculture, show that with the exception of wheat the leading grains established records in production. A big wheat area was planted, but severe winter killing cut down the crop heavily. A late season and early frosts hurt the corn crop, but more in point of quality than quantity, and there is more soft corn in the country this year than ever before.

1,000,000,000 Bushels in Excess

Nearly 1,000,000,000 bushels more grain was raised than in 1916. The final estimate shows a total production of 5,666,728,000 bushels of the five leading grains. This compares with 4,686,253,000 bushels last year, and is close to the record aggregate production in 1915.

The total wheat yield is given

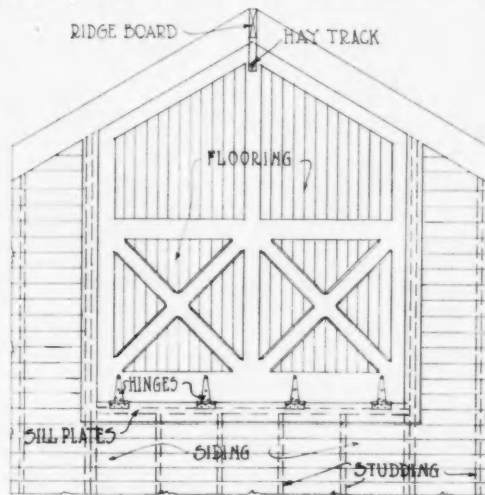
as 650,828,000 bushels, compared with 636,318,000 bushels last year, and 806,361,000 bushels, the 1911-15 average. This includes 418,070,000 bushels winter wheat and 232,758,000 bushels spring. The record crop of 1915 was 1,025,801,000 bushels.

Corn production is estimated at 3,159,494,000 bushels, about 31,000,000 bushels under the preliminary figure and compared with 2,566,927,000 bushels raised in 1916. The five-year average was 2,754,164,000 bushels and the previous bumper crop in 1912 was 3,124,746,000 bushels.

The yield of oats was also a record one and is given as 1,587,286,000 bushels, slightly more than the preliminary estimate and compared with 1,251,837,000 bushels last year. The five-year average was 1,230,499,000 bushels.

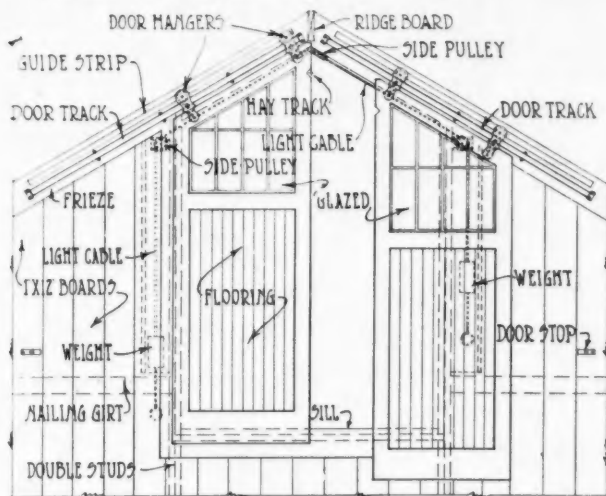
The bumper potato crop is maintained in the final report; in fact, the figure of 442,330,000 bushels is a little in excess of the preliminary estimate and compares with 286,053,000 bushels last year. The five-year average was 362,910,000 bushels.

(Continued to page 170.)



ELEVATION OF HAY MOW DOOR

Arrangement of Hay Mow Door Hinged at the Bottom to Swing Over and Down. Heavy Tee or Strap Hinges Must Be Used. This Type of Door Is Opened and Closed with the Help of the Hay Fork Tackle.

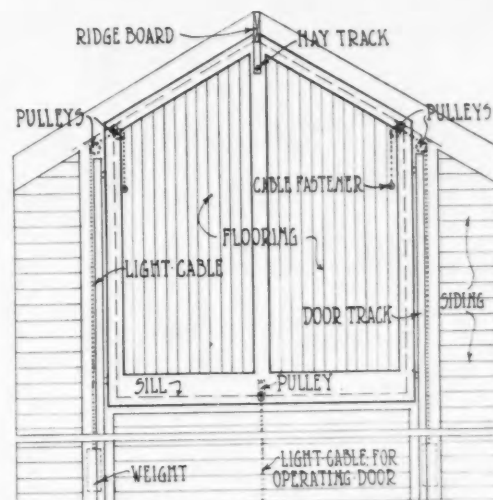


ELEVATIONS OF DOORS CLOSED & PARTLY OPEN

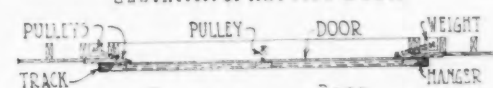


PLAN OF SLIDING HAY MOW DOORS

Arrangement of Hay Mow Doors Hung in Two Panels on Slanting Tracks. Doors Are Counter-Weighted. A Guide Bar Is Placed Across the Bottom to Keep Doors From Swinging Out.

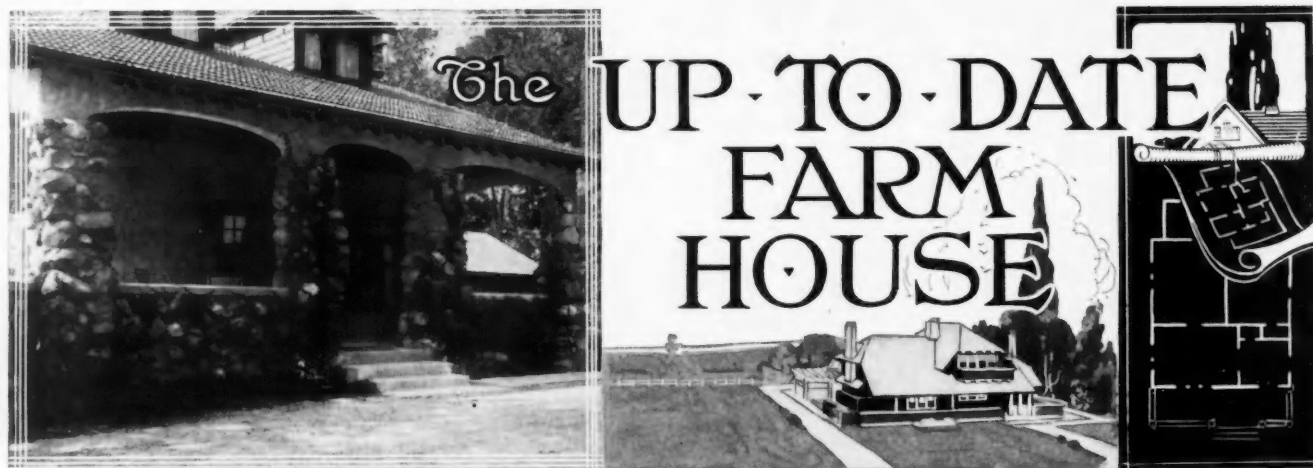


ELEVATION OF HAY MOW DOOR



Arrangement of Hay Mow Door Counter-Weighted and Fixed to Slide Vertically Up and Down. A Very Good Door for a High Barn.

THREE WAYS TO HANG A HAY DOOR



Repairing and Modernizing the Farm Home

USUALLY on farms that are money makers the improvement of the barns and fences comes first, because this is where the money comes from to carry on the business. The houses on many valuable farms are sadly neglected because the old house may be used a while longer in its present condition. This idea is applied to small houses as well as larger ones.

In these old houses the floors often are worn in places until the nail heads become quite prominent. Floor boards wear unevenly, sometimes knots appear like warts above the worn surface, and soft places are worn down to the tongue and grooves. Such floors may be repaired at comparatively small expense by covering the old floor with thin hardwood flooring.

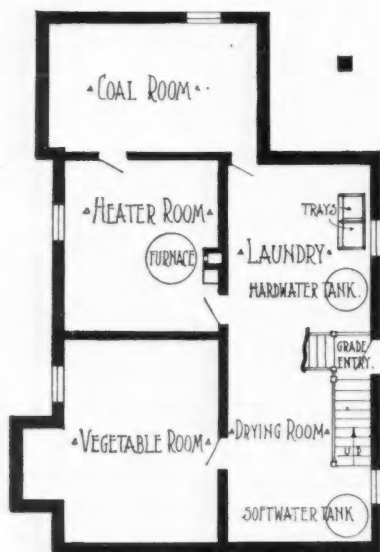
Farm Water Works

The first real improvement in a farm home comes with the supplying of water under pressure for domestic use.

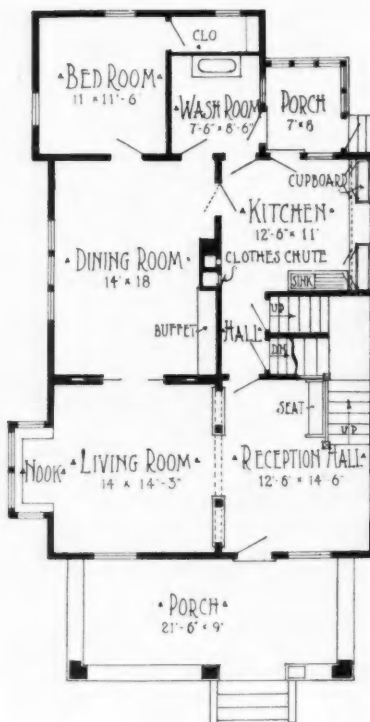
There always is a farm well or some kind of water supply. It is not difficult and not necessarily expensive to erect a tank. The tank may be large or small, according to the house requirements, also the quantity of water required for live stock, and the amount of money available.

The main thing is to arrange for domestic water on tap as needed. Hot and cold water in the kitchen sink is the main necessity. Other plumbing may be added as seems best.

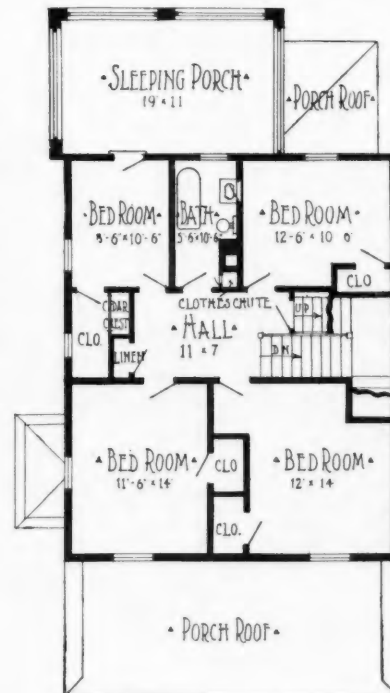
All water pipes and fittings are standardized, so



Basement Floor Plan.



First Floor Plan.



Second Floor Plan.

Convenient Arrangement of Iowa Farm Home Illustrated on Opposite Page. Contains Many Special Farm Conveniences.

that the different sizes may be ordered from any supply house with the assurance that the threads will screw together and fit properly to make water-tight joints.

The whole outfit necessary to supply running water may be enumerated as follows:

One overhead tank (or low-down pressure tank) from 2,000 to 5,000 gallons.

One force pump and jack to put water into the tank.

One two-horse gasoline or kerosene engine to drive it.

One water front for the kitchen range.

One round 130-gallon water tank heater.

One enameled kitchen sink, with hot and cold water connections, including a properly trapped waste pipe.

In connection with these necessary furnishings will be the iron pipe and fittings necessary to carry the

water from the elevated tank to the house and to distribute it thru the stove water front and the kitchen reservoir to the sink.

The waste pipe from the sink should connect with a regular vitrified sewer pipe carried to a safe distance. The sewer is trapped and ventilated outside of the building and the sink waste pipe is trapped and ventilated inside of the building. The waste pipe trap is close up under the sink to prevent any possibility of foul air being forced thru the waste pipe back into the kitchen. The ventilator pipe sticks out thru the roof.

This simple outfit will lighten the work of the women and go a long way towards making farm home

(Continued to page 172.)



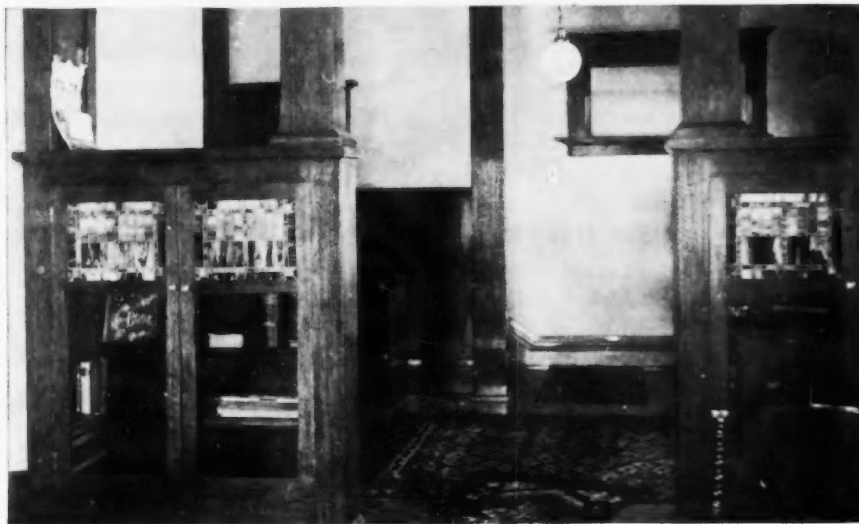
A Typical Iowa Farm Home

By R. P. GRIFFITH

Carpenter and Builder, Goldfield, Ia.

Our crew recently completed a farmhouse near Eagle Grove, Iowa, that is the typical house that farmers are building in this section of the state. It has a long roomy dining room to accommodate threshing crews, corn-shelling and silo-filling crews; also a washroom, where the men can enter from outside, "clean up," and pass directly to the dining room without passing thru the kitchen or other parts of the house.

Note that the kitchen opens directly to the dining room, with no hall or serving pantry between. Any plan for a farm house, not having this feature—where hired kitchen help is an exception and the ladies change work like the men, in busy times—would be rejected at once.



View of Farm Home Interior Looking From Living Room Thru Colonnade Opening to Reception Hall and Stairway.



A Typical Iowa Farm Home Built by A. H. Shores, Near Eagle Grove, Iowa. This House Has Ten Rooms, Plumbing, Electric Lights, Basement Heating Plant and Other Modern Farmhouse Improvements.

The One-Register or Pipeless Furnace

A NEW APPLICATION OF A VERY OLD PRINCIPLE

By J. D. Eddy

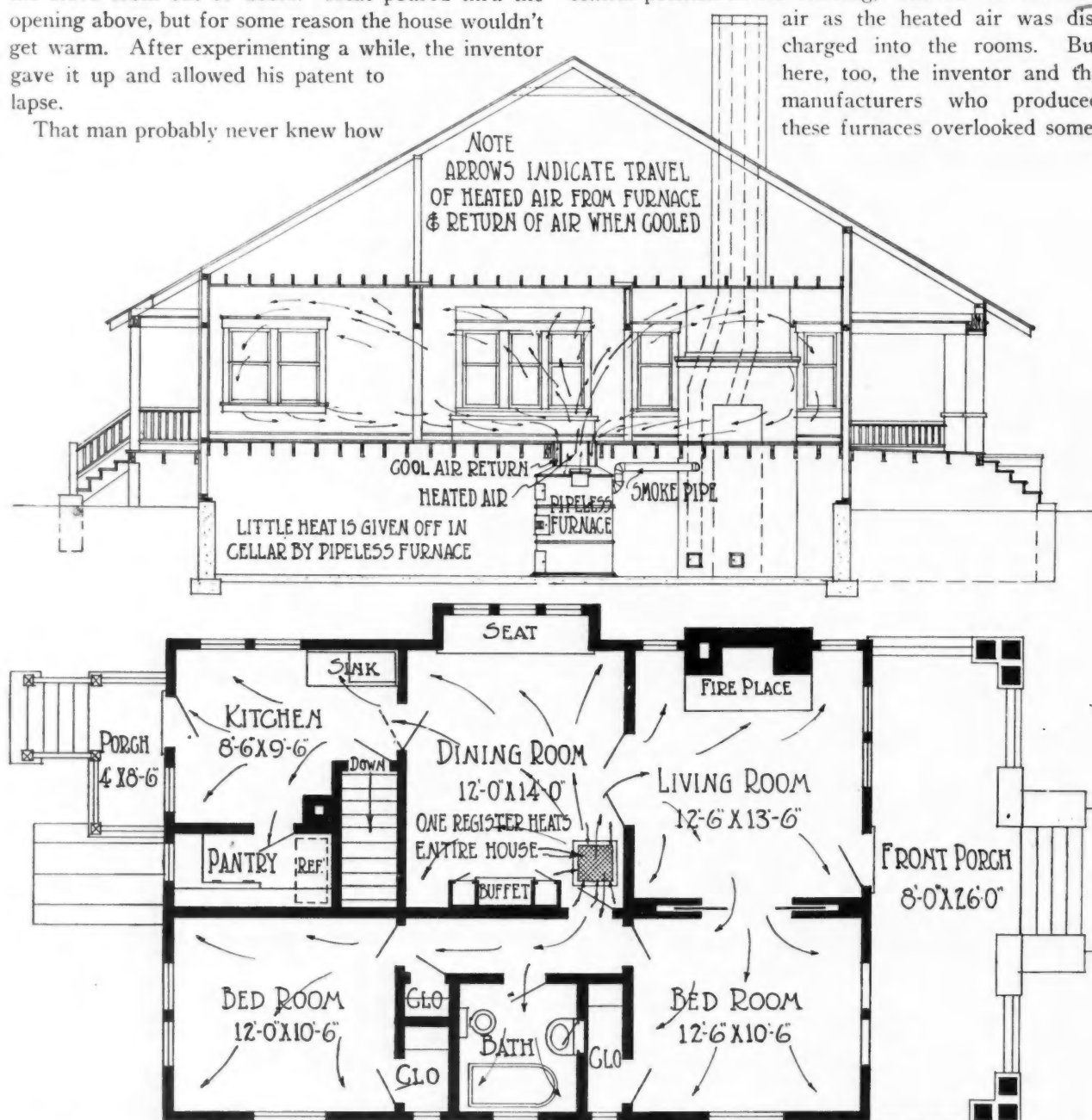
FIFTY or sixty years ago some one conceived the idea that a stove with a jacket around it, placed in the basement, with an opening above it, could be made to heat a house. He thought so well of the idea that he made a model, drew plans and specifications and secured a patent.

The heater was built. Because of the jacket an inflow of air was needed. This was provided by an air duct leading into the space between the jacket and the stove from out of doors. Heat poured thru the opening above, but for some reason the house wouldn't get warm. After experimenting a while, the inventor gave it up and allowed his patent to lapse.

That man probably never knew how

near he came to helping solve a modern heating problem. Either he did not know or overlooked the fact that in heating a house, or a store, or any type of building, the air heated by the fire must displace the cold air in that house, or store building. He had neglected to provide an outlet for the cold air and, in consequence, his invention was a failure.

Recognition of this fact made possible the furnace which came after. A "cold air register," placed in a central position in the building, "sucked" out the cold air as the heated air was discharged into the rooms. But here, too, the inventor and the manufacturers who produced these furnaces overlooked some-



Floor Plan and Section Thru Modern Five-Room Bungalow, Plate 15, Showing How Efficiently This House Can Be Heated with a One-Register or Pipeless Furnace. The furnace is placed under the middle of the house, and one large register directly over the firebox gives out a large volume of warmed air which penetrates to every corner and floods the entire house with warmth. All of the heat is delivered up into the living rooms; none is wasted in the basement or cellar—in fact, the farmer's cold storage cellar space is not spoiled in the least by putting in a pipeless furnace.

thing. They got the results, but disregarded what present-day standards demanded—efficiency.

In the basement a maze of pipes was strung, each pipe leading to a room above. These pipes, as the heated air passed thru them, threw off much of the heat. In fact, the basement, where no one habitually sits or stays any longer than is necessary, got the first crack at the heat. Coatings of various kinds and of more or less value were applied to the pipes to keep the heat in. Still much of the heat was wasted on the deserted basement.

Then, only a few years ago, four or five at the most, along came a man with an "original idea." It was original, too, in part.

"Why not," he probably said to himself, running his hand thru his hair, or holding his chin between thumb and forefinger, or doing some one of the many things men do in stories when they are in deep thought—"why not save that wasted heat?"

So he set about to save it and he did. He invented the pipeless furnace.

For the benefit of those who do not know what a pipeless furnace is, it is suggested that the first paragraph, or rather the first two paragraphs of this article, be read again. The pipeless furnace was invented in civil war times. But the modern inventor



Two-Story Houses as Well as Cottages Are Successfully Heated with the Pipeless Furnace. The Saving in Fuel Is Important.

had the benefit of the scientific facts of the circulation of air and the experience of the furnace men in the application of these facts. All he had to do was to get the cold air out of the building, so it could be replaced with heated air.

This he did by making a register, one section of which was the counterpart of the cold air register and the other of the hot air register. This did the

(Continued to page 174.)

The National "Own Your Home" Movement

WHAT IT IS—WHO IS BACK OF IT—WHAT IT MEANS TO YOU

THE National "Own Your Home" Movement is purely and simply a campaign of education. It is the application, on a nation-wide scale of an idea which has already proven successful in upwards of 50 cities—educating people to Own Their Homes.

The net result of "Own Your Home" campaigns, already undertaken in Denver, Oakland, Minneapolis, Birmingham, Gary, Davenport, Rochester, Savannah, Winston-Salem and other cities, has been making these better places in which to live. Everyone has been helped—poor, rich; employer, employed; professional man, laborer; merchant, mechanic; the business man and the laboring man most of all.

Other results which will follow from educating these people to Own Their Own Homes are: Better city government; less graft, and better use of public funds; better schools, churches, parks and playgrounds; more efficient hospitals and institutions for the care of poor and unfortunate classes; a general improvement in community morale; better service from transportation

lines and public service companies.

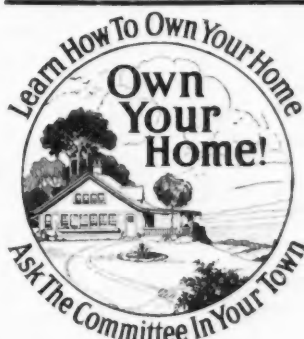
In view of all these benefits a group of foresighted men have taken the initiative in a National "Own Your Home" movement, which will have as its object the education of people desirous of owning their own homes; how little it will take; how to go about it; and the advantage of being an owner instead of a renter.

Why a National "Own Your Home" Movement at This Time?

Tho the country is at war, the percentage of family men remaining at productive and profitable labor is practically at what it was in time of peace.

Statistics show that most homes are bought by family men over 31 years of age. It will be seen, therefore, that the number of present prospects for the "Own Your Home" movement is practically at normal. These family men, who are employed at good wages, are being taught thrift in a way never thought of before, and a thrifty person is the best prospect for home

(Continued to page 182.)



Industrial Housing Problems—(PART II)

By Leslie H. Allen

Of the Aberthaw Construction Co.

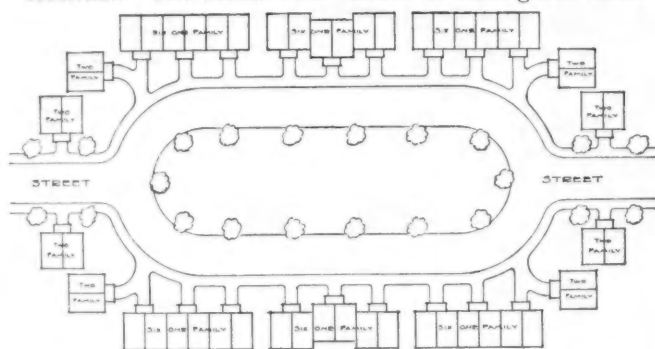


General View of American Steel & Wire Company Housing Group at Donora, Pa.

The Skilled and Unskilled Workman

In order to arrive at some working basis to govern the laying out of new work, it will be well at this point to consider the essential needs of a workman's family in the light of present-day needs.

It must first be recognized that we have two classes of workmen to be considered: (1) The unskilled workmen, mostly foreigners or negroes, uneducated, unused to American houses and American standards of living, earning a very low wage, and (2) the skilled men, mechanics, machinists, etc., earning a higher wage, mostly Americans, living according to American standards, demanding more and willing to pay more for the comforts that the foreigner does not consider essential. The result of a failure to distinguish these



Suggested Plot Plan for Community Park with Adjacent Dwellings in Rows.

two classes is that at the present time nearly all the houses built are American houses for skilled workmen, and the need for better houses for unskilled labor has remained unsatisfied, resulting in overcrowding getting worse and worse. Here and there, as in Philadelphia and Washington, a most excellent attempt has been made to solve the problem of housing the unskilled,

low-paid workman. Such examples have not been copied, and only serve to show up more sharply the mistakes of other cities.

Housing Essentials

The essentials of a modern city house may be summarized as follows:

- Watertight roof, walls and floors.
- Bedroom for parents.
- Bedroom for male children.
- Bedroom for female children.
- Living-room for cooking, eating and general day use.
- Private toilet-room with sanitary water closet and sewer connection.
- Suitable heating arrangements.
- Running water supply fit for drinking.
- Uninterrupted daylight and ventilation thru windows in every room.

Sink in kitchen, with running water and waste.

Further additions required by the American family and considered necessary by them:

- Cellars.
- Closets.
- Bathtub with running water.
- Window screens.
- Separate parlor.
- Desirable improvements which usually are added:
- Porches and piazzas.
- Lavatory bowl.
- Hot water supply to bath and bowl.
- Window shades.
- Window blinds.
- Dining-room separate from parlor or kitchen.
- Electric lighting or gas piping.
- Wall-paper.
- Laundry tubs.

Need for Economy

Any attempt such as the above to divide essentials from luxuries must come in for a good deal of criticism, as there is bound to be a difference of opinion

upon the details of such a list. The classifications suggested will at least serve to indicate the lines upon which the planning of a house should be studied in view of the need for strict economy in designing and building necessary to bring buildings down to a cost that will be remunerative.

It is generally agreed by economists that the workman cannot afford to pay more than one-quarter of his monthly wage in rent. This means that the man earning an average of \$12.50 a week cannot afford to pay more than \$150 per annum. Assuming that a housing operation ought to pay at least 10 per cent gross per annum, this gives \$1,500 for purchase of lot with sewer and street improvements and the building of a house. At the present time a four-room house of good construction cannot be built for this money and it is therefore necessary to plan with the very strictest economy.

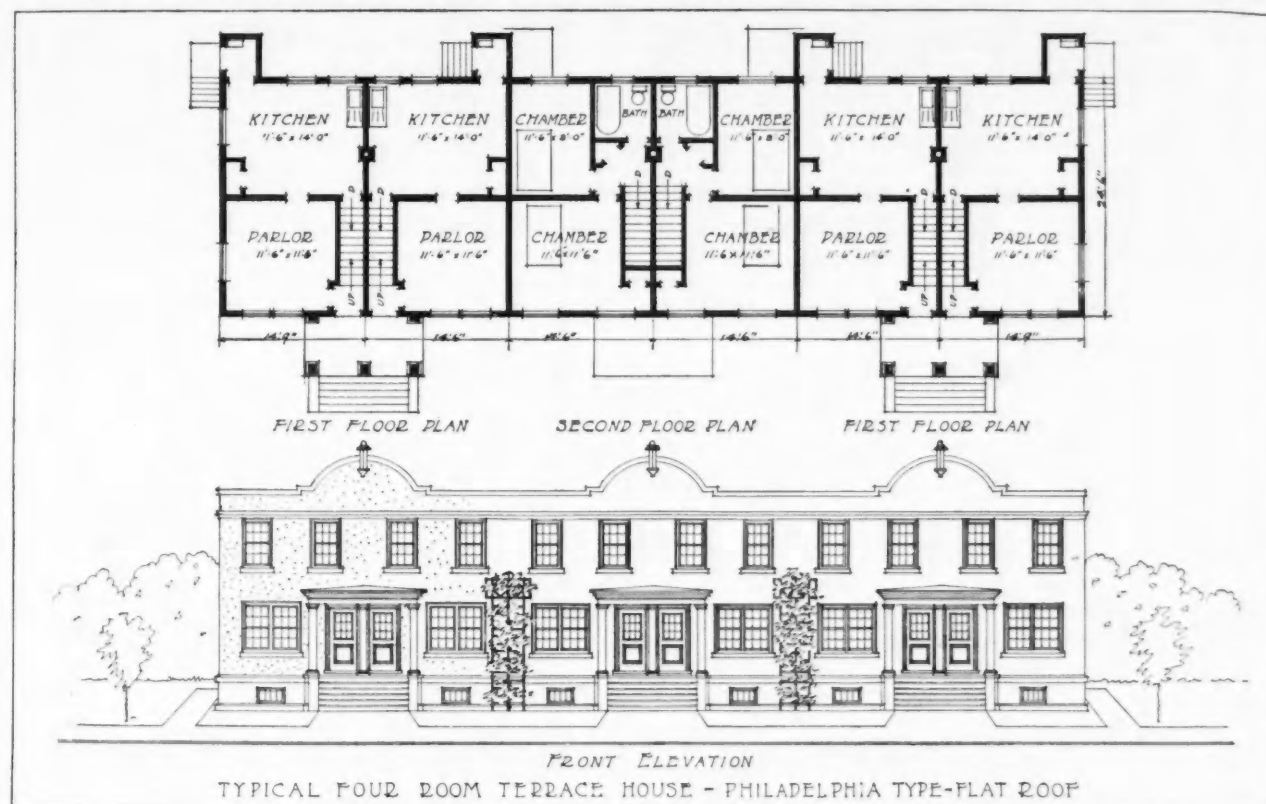
Many of the workmen whose homes we wish to build

healthy, a house in which every room has a proper amount of light and ventilation and direct sunlight, and that has decent privacy in its sanitary accommodations and sufficient bedrooms for the sexes to sleep apart.

The various types of houses now in use are as follows:

- (A) Single houses of five to seven rooms.
- (B) Two-family houses of four to seven rooms.
- (C) Terrace or row houses of four rooms and up.
- (D) Apartment-houses or tenements, two rooms and up.
- (E) Boarding-houses for single men.
- (F) Hotels.

The single house is the ideal residence for the American family, but is beyond the means of the low-paid unskilled workman. A single house with five or six rooms with 3,000 sq. ft. of land cannot be built for less than \$3,000 except in the cheapest kind of frame construction, and even at this price it would call for a higher rental than he can afford to pay. For higher-



have come from countries where four walls and a roof are considered a sufficient shelter from the elements to make a home. Altho we do want to see them housed in a better manner than this, yet it is not necessary to give them a six-room house, large cellar, furnace heat with running hot water, laundry tubs, lavatory bowls, picture-mouldings and all the other comforts and luxuries that are required by higher-paid workmen. We do want to house the lowest-paid man in a sanitary and hygienic home, but it is not necessary that this home be furnished with all the conveniences and appurtenances that are being considered necessary in the American home. We should give him a house that will not harbor vermin, that will not be damp or un-

paid men in the plant the single house is very desirable.

The two-family house is often built for workers who wish to purchase their home. Tho not suitable for the unskilled worker, they are quite attractive to higher-paid men who like to buy a two-family house so that the rental received from one-half of the house will help to pay the carrying charges and amortization of the whole house. In some cases these are built side by side with a party wall and in some cases one tenement is built above the other. The first-named is preferable, as there is more privacy.

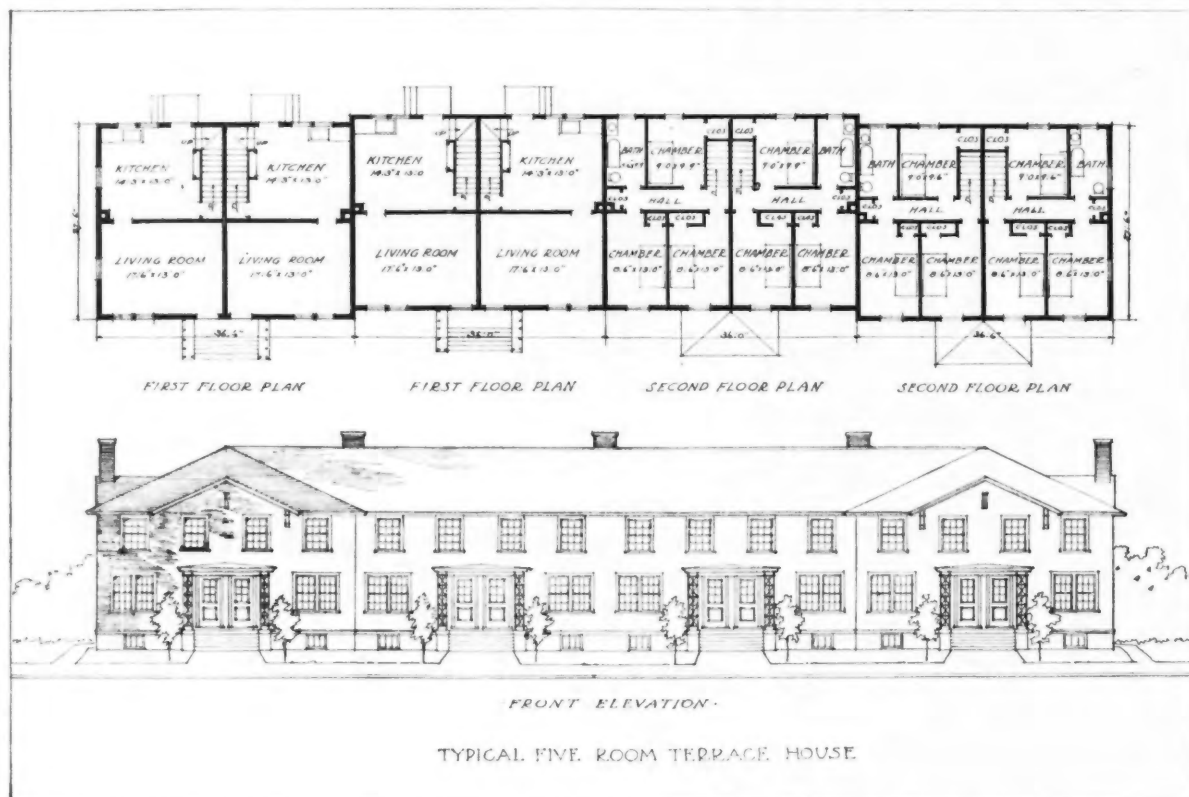
One of the most successful houses for the unskilled worker is that known as the "Philadelphia" type of house, of which many thousands have been built in

Philadelphia, Washington and other large cities. The typical four-room Philadelphia house is two rooms deep and has a living-room and kitchen downstairs, two bedrooms and bath upstairs. It is built in long rows or terraces with party walls in between. These can be built on as narrow a frontage as 13 feet 6 inches (a 15-foot frontage is desirable), on a lot of 900 square feet. The cost of both land and building is much lower than the preceding type. Houses built when prices were normal have been rented for as low as \$12 a month and have shown a fair profit.

The building of houses in terraces is comparatively new in this country except in Philadelphia, altho it is very common in European countries. It allows for a

living-room and bedroom), or four rooms (kitchen, living-room and two bedrooms). Each apartment should have its own private toilet and its own water supply.

Altho city laws do not in every case require it, multiple dwellings ought in every case to have fireproof stairways and fireproof cellars, and care should be taken to see that every room and also the halls and stairs are properly lighted. In English cities the stairs are often built outside the building and each apartment is approached from balconies. This is in many respects a good way of building, and has been copied here in a few New York City buildings. This type of plan eliminates the common hall and inside stairs, which



very little land per house unless the lots are very deep, but is desirable in many other ways. Each family has a direct entrance from the street without any common hallway and is not interfered with by other tenants overhead. The cost of heating the house is less owing to there being fewer outside walls. In a house two rooms deep each room has a proper amount of light and ventilation, and these houses have proved very successful wherever they have been used.

A recent variation of this type of house is the three-room two-family terrace house with one family on each floor. These are generally in demand by married couples without children.

The multiple dwelling or tenement house, housing from ten to fifty or more families, is undesirable from many points of view, and yet in crowded cities where land values are high is practically the only solution.

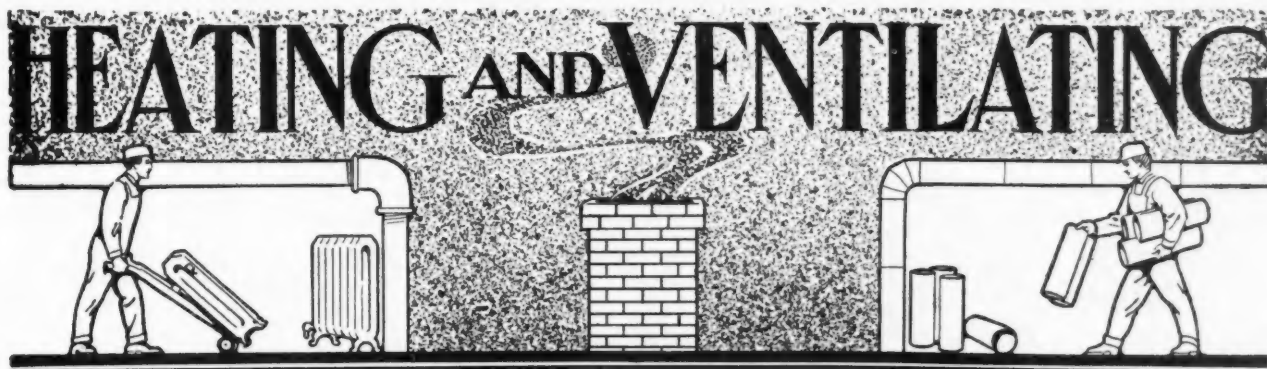
Apartments of all sizes can be provided, the most common arrangements being three rooms (kitchen,

are frequently dark and difficult to keep clean and supervise.

There is always some demand in a large manufacturing center for small apartment houses of two or three rooms with bath, etc., for married couples without children. They are not so desirable as homes for the workingman, and yet there are some mechanics who prefer them just as so many well-to-do people in our cities are content with and prefer this class of dwelling.

In rural districts many mills have built small boarding houses large enough to take care of from eight to a dozen boarders. The advantages of a small boarding house are that one man and his wife can run them, and the mill has no further responsibility. The men also prefer this sort of lodging to big company houses. The big disadvantage is that it is difficult to exercise any supervision over this sort of boarding house, and

(Continued to page 186.)



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

By K. G. Smith

Engineering Extension Department, Iowa State College*

Choosing a Furnace

Furnaces should be purchased from a reliable dealer with a guarantee and installed by an experienced furnace man in accordance with specifications made out by someone who understands thoroly the engineering questions involved. The following are some points to be considered by the purchaser when selecting a furnace.

Doors.—The doors should have solid hinges, a good catch and fit tightly, otherwise it will be almost impossible to keep a fire burning slowly because the cracks will let in too much air. There should be a damper in the firing door and ash pit door. At the rear of the furnace there should be a direct draft damper or door, opening automatically or otherwise when the firing door is opened. This allows the gases to pass quickly and directly into the chimney and prevents smoke from issuing into the cellar when the furnace is being fired. Clean-out doors should be provided so that soot and ashes can be cleaned from the heating surfaces conveniently. A door into the warm air space is an excellent feature because this allows dirt and dust to be swept or washed out from the warm air space. Few furnaces have this feature. Some furnaces are provided with an annular space around the firepot and holes or slots leading from it to the combustion chamber. This provides air for burning the gas coming from the coal

and is a desirable feature when burning coal containing a large amount of gas, such as Illinois or Iowa soft coal. Some means, however, ought to be provided for shutting off this air when the coal has burned down to coke. The door to shut off and admit this air is often called "the air blast door" or "hot blast door."

Firepot and Grates

Some furnaces have a firebrick and some a cast iron firepot. Each has its advantages. A firebrick firepot may be broken in one place and easily mended. A cast iron firepot, if cracked, is more difficult to repair. To facilitate such repairs, well designed furnaces with cast iron firepot have them made in sections. A cast iron firepot transmits heat somewhat more rapidly than the firebrick and, on the other hand, does not retain its heat quite so long. Fireclay is also used in the firebox of some furnaces. It is objectionable because it breaks off and drops out when heavy coal is used. One of the chief things to look for is a deep firepot. A shallow firepot will not be satisfactory in keeping a fire or in burning the coal clean. The kind of grates to be used depends on the kind of coal to be burned. As a rule, the rocking grates are most satisfactory, especially for soft coal.

Radiators.—The radiator or heating surface of a furnace is the metal surface on one side of which there is fire or hot gases and on the other the air to be heated. In a good furnace there will be a large radi-



With the Development of the Basement Heating Plant to Take the Place of Stoves, the Open Fireplace Has Come Back. It Is Not Needed for Warmth, But for Companionship and Good Cheer.

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

(Continued to page 192.)

AMERICAN BUILDER BUILDING PLANS



Complete Plans to Scale for 6-Room Residence

FOUR FULL PAGE PLATES GIVE FULL AND ACCURATE DIRECTIONS FOR BUILDING THE POPULAR TYPE DWELLING ILLUSTRATED BELOW

THE AMERICAN BUILDER, for the past several years, has been rendering the general building field a greater service than any other publication because of the large number and variety of modern home designs presented in each issue.

From eight to ten different designs have been published each month, or a total of more than one hundred every year.

These designs have been illustrated by means of dimensioned floor plans and photographs or wash drawings of the completed house.

We have always contended that it is important to show the prospective home owner a true picture of his proposed house as it will look when finished and occupied; and this is the reason for our devotion to the perspective sketch.

The experienced builder or architect can see, can visualize a set of working drawings, but the average man can not, nor can his wife.

So we have been presenting modern home design pictures accompanied by dimensioned floor plans, feeling confident that builders would get from these all the information they would need to reproduce them in their own way, and also their customers would see in some of these pictures the realization of their own home building dreams.

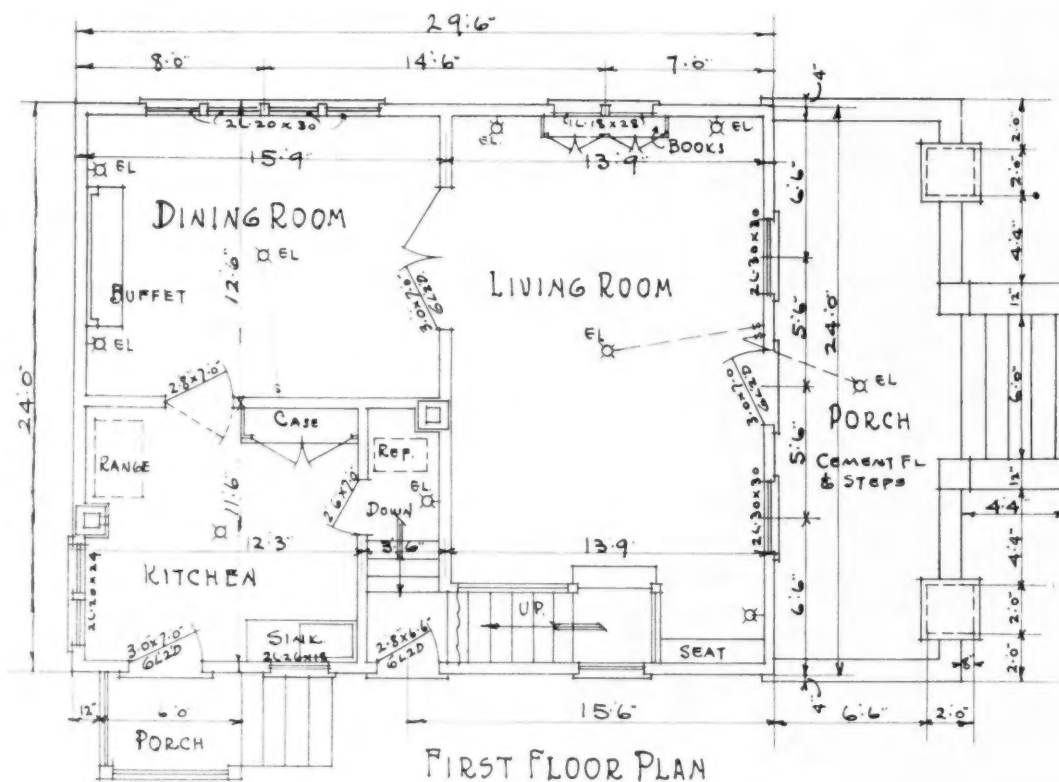
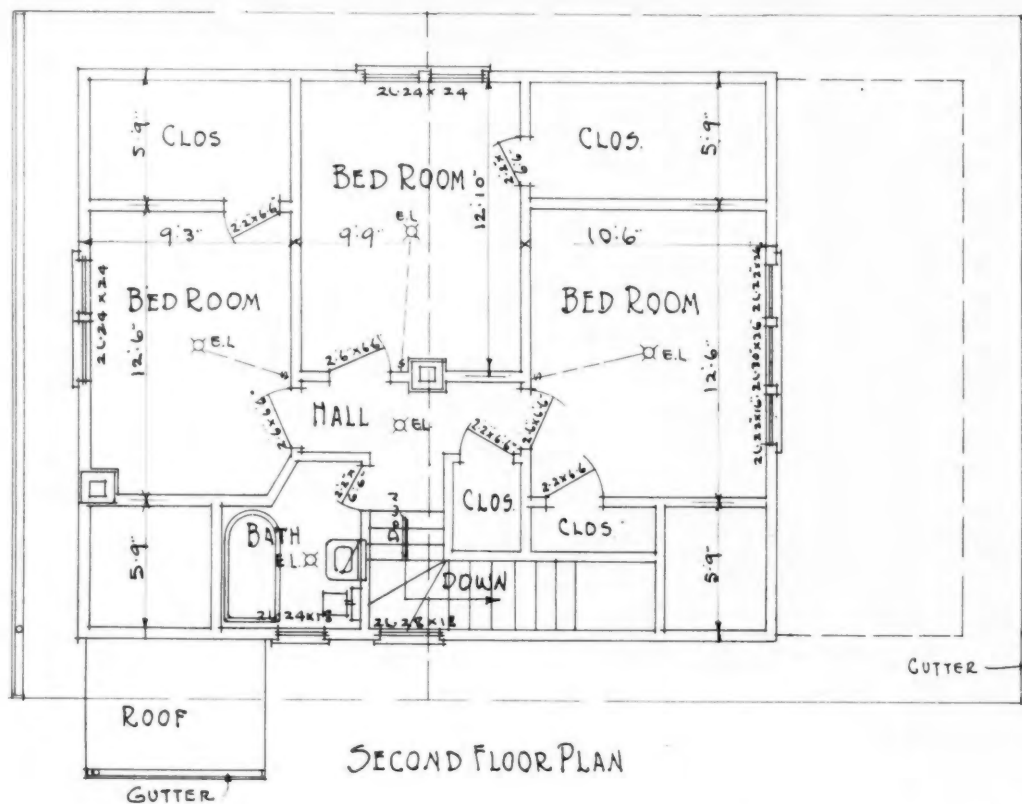
We are now supplementing this home builders' department in which many different designs are illustrated partially, with this new Building Plan Department, in which a complete set of working plans for one popular type modern house are presented.

The photographic rendering below shows exactly what results may be expected from the faithful carrying out of these plans.

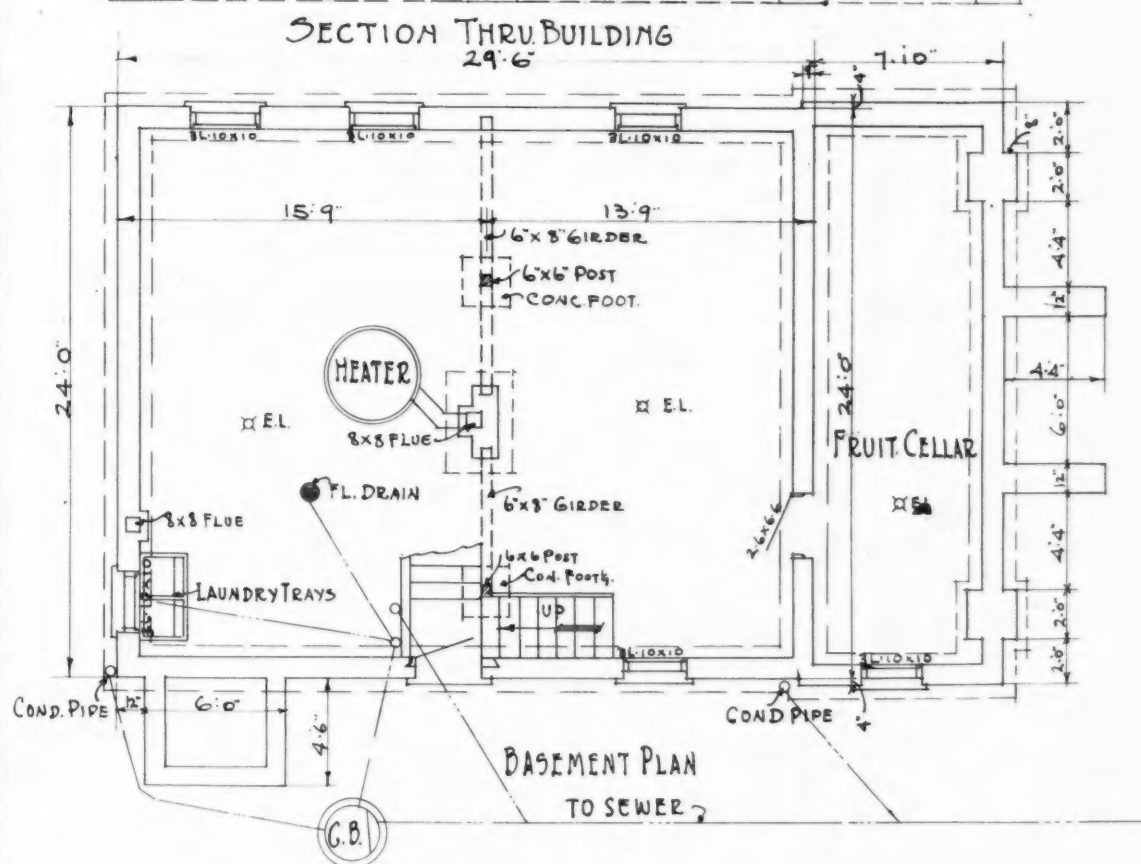
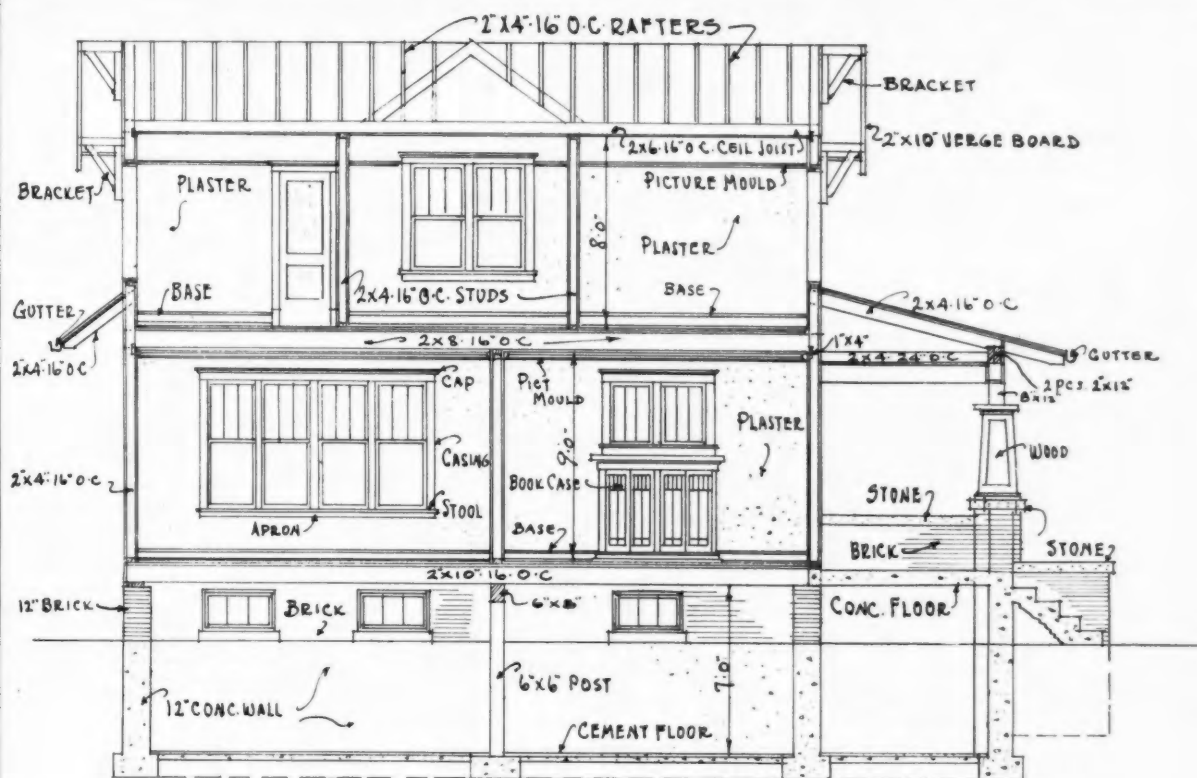
The four working drawing sheets have been especially prepared for this purpose, and are accurate and clearly readable, scale $\frac{1}{8}$ inch equals one foot for all except the details, which are made $\frac{1}{4}$ inch, $\frac{3}{4}$ inch and 3 inches to the foot, respectively.



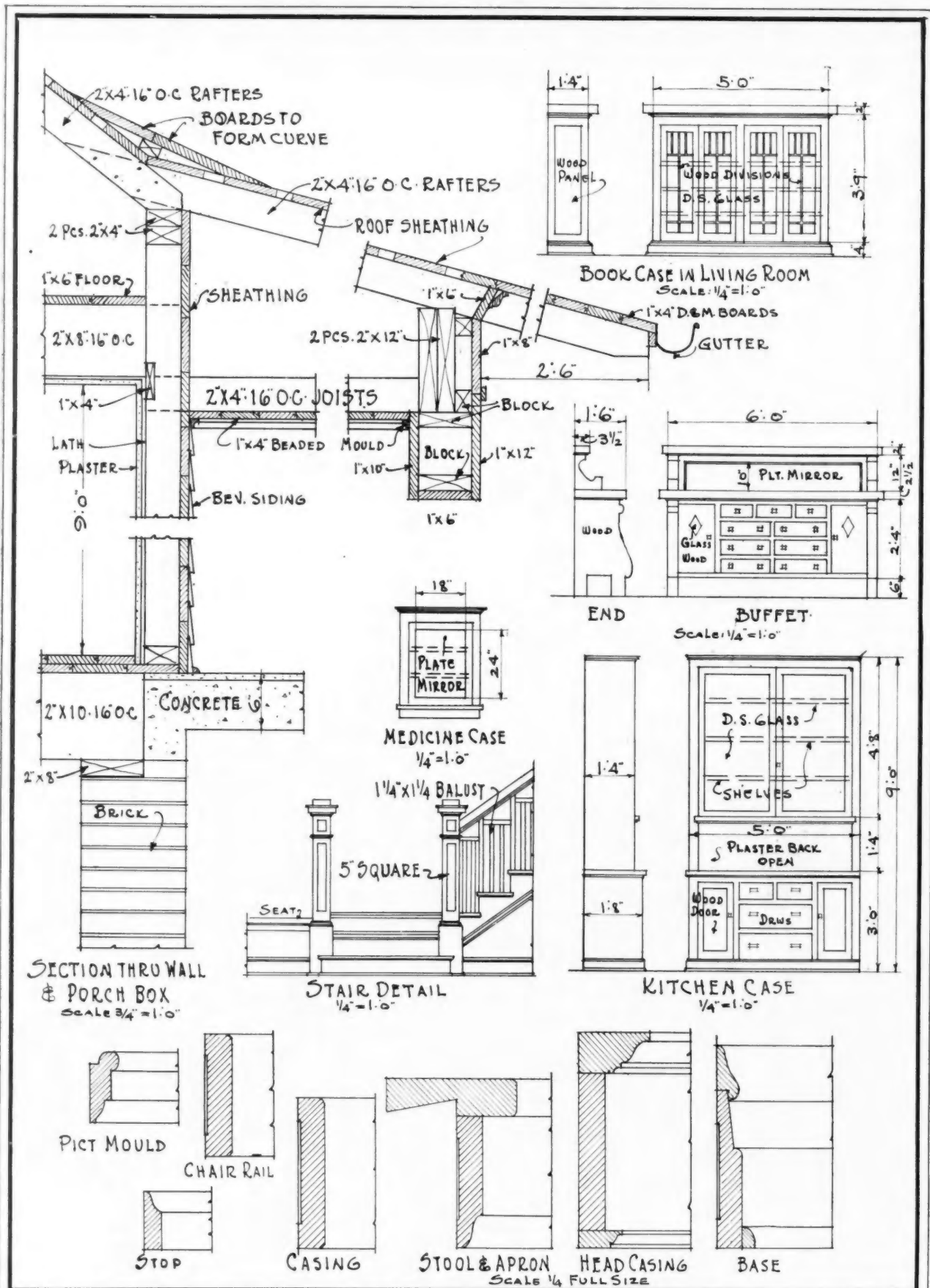
Six-Room Story-and-a-Half Residence, Size 24 by 29 Feet 6 Inches, Complete Plans for Which We Present on the Four Pages Following.



PLANS OF SIX ROOM ONE AND ONE HALF STORY RESIDENCE
SCALE $\frac{1}{8}$ " = ONE FOOT SHEET NO. 2



PLANS OF SIX ROOM ONE AND ONE HALF STORY RESIDENCE
SCALE $\frac{1}{8}$ " = ONE FOOT SHEET No 3.

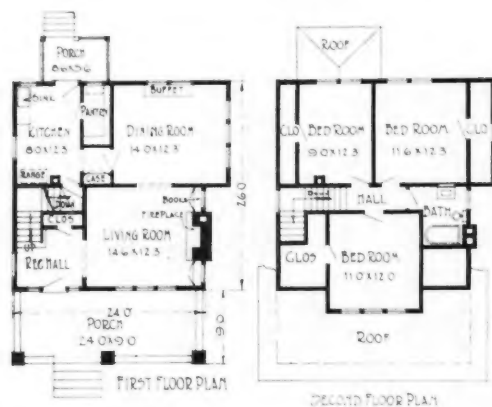


PLANS OF SIX ROOM ONE AND ONE HALF STORY RESIDENCE
SCALE AS NOTED ABOVE

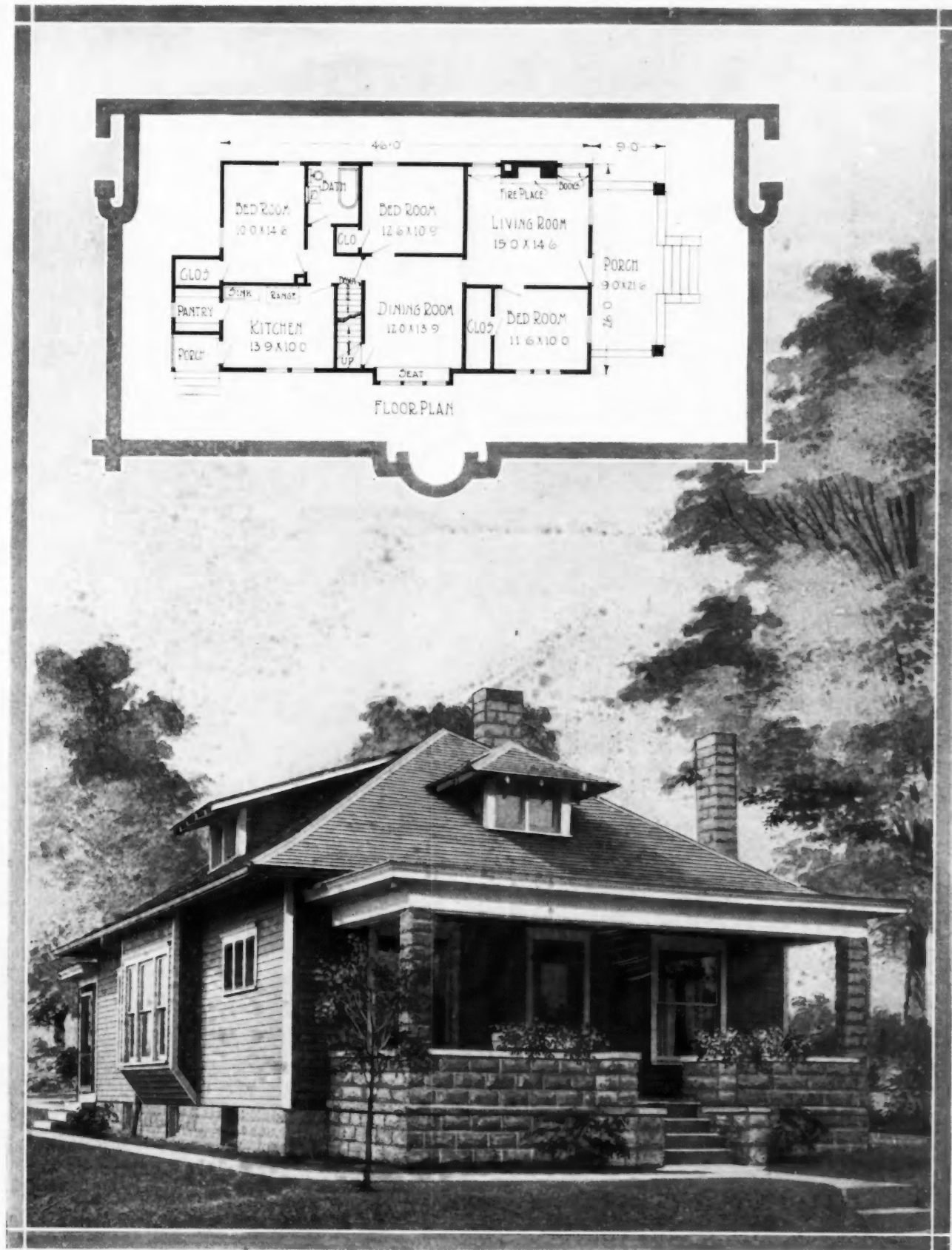
SHEET NO 4



A SQUARE HIP ROOF RESIDENCE, COMFORTABLE AND ECONOMICAL. Here the home-builder gets most for his money. Angles are costly. This house has none of them. It is all for solid substantial comfort. Eight fine rooms are provided. A combination of brick porch, light colored clapboards for the first story, and dark stained shingles for the second, catches the eye.



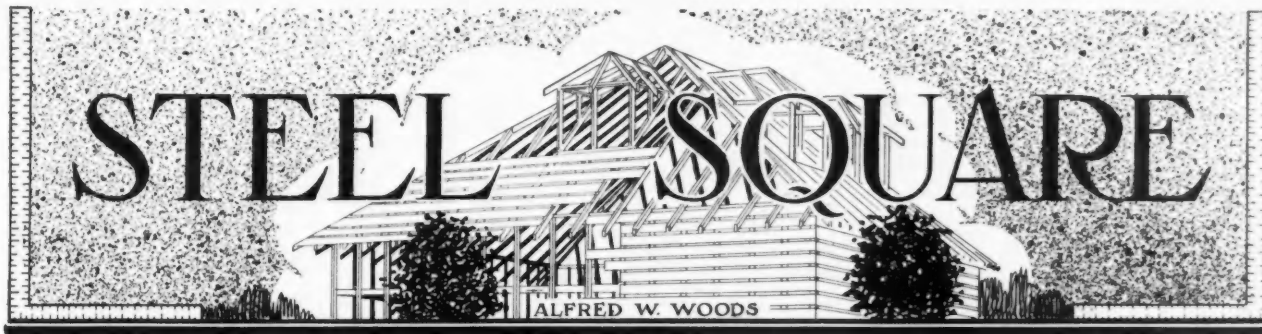
LOW COST AND ARTISTRY COMBINED IN THIS LITTLE HOME. It's a six-room dwelling that will go on a narrow lot. It invites the owner to plant a few shrubs and flowers and a grapevine for ornament. There is real satisfaction in a home like this, and the cost is so low that it's within the reach of anyone.



SIX-ROOM COTTAGE WITH FOUNDATION AND PORCH OF BLOCKS. Here is a sensible, straight-forward little place, size 26 by 46 feet, containing six rooms. Substantial porch gives extra weight to the design.



MODERN BRICK BUNGALOW OF SIX ROOMS AND SUN PARLOR. Inside the fire limits in cities they are building these face brick cottages in quantities and selling on the monthly payment plan. They go at a good price.



The Steel Square as a Price Computer

SHOWING THE STEEL SQUARE AS A CALCULATING DEVICE IN THE PURCHASE OF VARIOUS COMMODITIES

By A. W. Woods

IN most all of our writings on the possibilities of the steel square we have dwelt with it as a tool for the use of the carpenter in connection with the squaring of timbers, framing of roofs of all conceivable shapes and other tasks in his daily work.

The point we wish to bring out now is that its use-

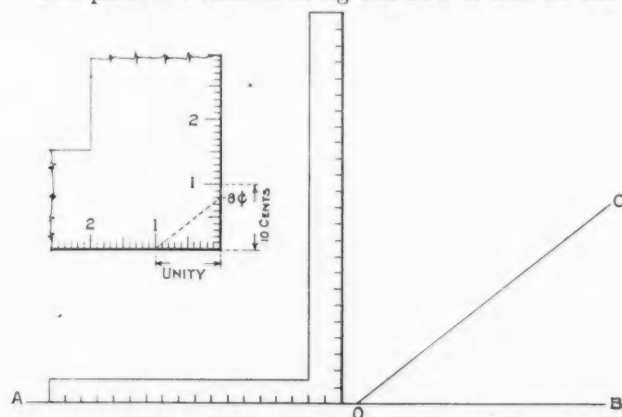


FIG. 1.

fulness does not stop with the carpenter alone; for in fact it is a wonderful calculating machine in a monetary way. Tho simple and even clumsy in appearance, its rigid arms are far reaching, so far that we do not know its limitations.

Therefore it cannot be considered as a tool confined to any one branch of trade; we will show that the market man, the farmer, the banker, the "loan shark"

and in fact most everyone can use it where a calculation is required, and that, too, without pen or pencil. To most people it would seem quite funny after making the day's purchase at the market place to see the white-aproned artist behind the counter doing business on the square—that is, we mean, reckoning the cost of the purchase by the aid of the common steel square; but such can be done, and you ask "how can it be done?" Well, we will show you.

Like everything else that is worth while, it requires preparation—but when once prepared, the rest is easy. Without preparation, it is like going to war with a wooden gun—you could not do much execution with it, while the other fellow would beat you to it.

However, the preparation in this case is very simple. Just lay off a line on a piece of common wrapping paper as at A-B, as shown in Fig. 1, and from about the middle of this line and at an angle to it, lay off another line as O-C, thus forming the angle B-O-C.

This angle, in connection with the steel square, forms the calculating basis and is therefore governed by unity and its selling price, and is reckoned on the heel of the square, as shown by the insert in Fig. 1. One inch on one arm of the square is made to represent unity, as one pound, one or a number of dollars, one acre, etc., while the other arm is made to represent the price on a sliding scale, as cents, dimes or

(Continued to page 194.)

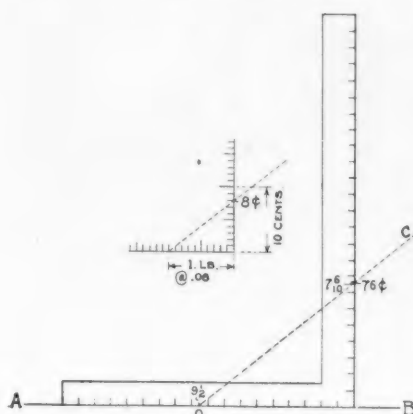


FIG. 2.

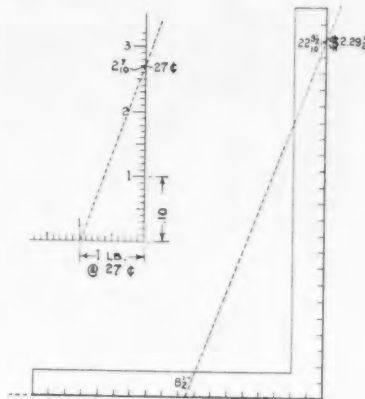


FIG. 3.

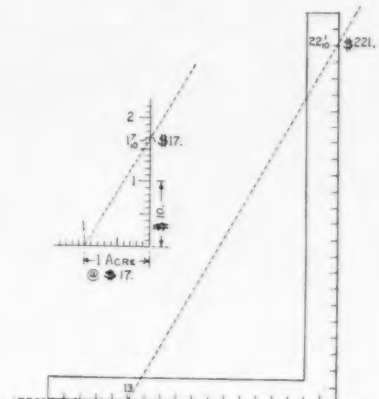


FIG. 4.

How the Steel Square Can Be Used to Figure Prices.

STRUCTURAL TILE WORK

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

conducted by
MATT L. KING
TILE CONSTRUCTION ENGINEER



Better Farm Buildings

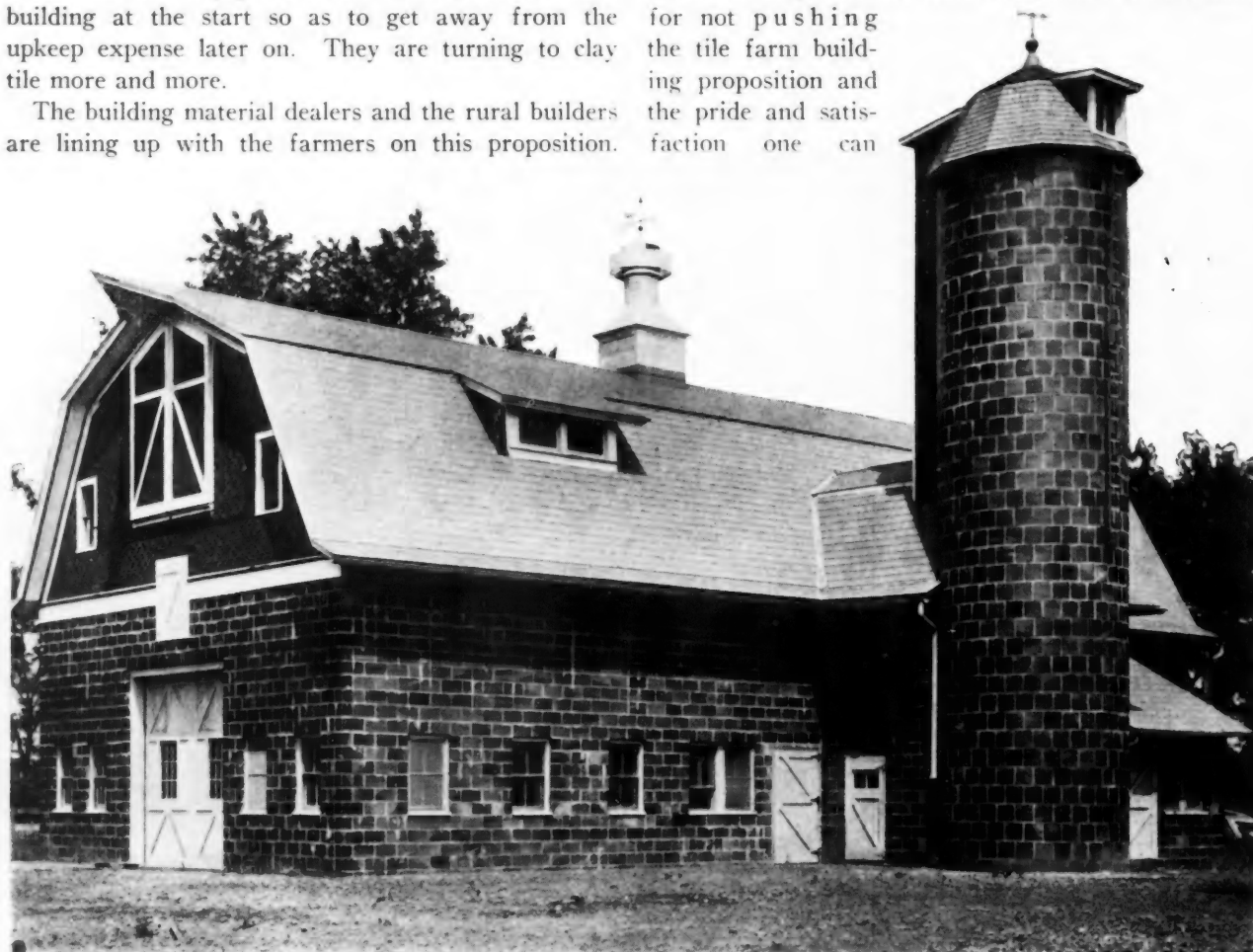
Build Them of Impervious Baked Clay Hollow Tile for Warmth, Dryness, Long Life, and Low Upkeep

A GOOD many farmers are coming around to the idea that it pays to invest a little bit more in a building at the start so as to get away from the upkeep expense later on. They are turning to clay tile more and more.

The building material dealers and the rural builders are lining up with the farmers on this proposition.

The lumber dealers are carrying in stock a line of all the commonly used sizes, and the builders are finding out that it is no trick at all to lay up a tile wall and make a good job of it.

As far as profits are concerned, there is no reason for not pushing the tile farm building proposition and the pride and satisfaction one can



Photograph of Extra Well Designed Tile Horse and Cow Barn, with attached silo and milk house on Phoenix Brothers' Farm, near Bradford, Ill. The tile runs to the eaves and the roof is covered with slate.



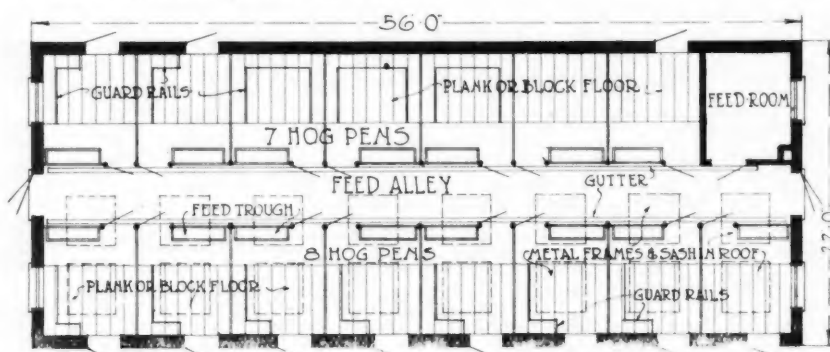
Ten Thousand-Bushel Round Corn Crib and 8,000-bushel grain tank, both of hollow clay tile on the farm of R. C. Head, near Jefferson, Iowa.

Out in Iowa they are getting into the habit of building not only barns, but also hog houses, poultry houses, corn cribs, implement sheds; in fact, all of the smaller miscellaneous farm buildings of hollow tile. There is no engineering problem at all involved in putting up these smaller buildings. Farmers do the work themselves—which, by the way, we don't approve of; the farmer should stick to his farming and get the local carpenter and builder to handle his building requirements, then the job will be done right. But nevertheless, farmers have been laying up these smaller buildings and it has made them acquainted with this material and has given them a lot of confidence in it. They have gone ahead from the smaller buildings to large

barns and community storehouses, for which work of course, they have employed experienced builders.

Silos of clay tile have become a familiar sight in almost every State of the Union. Some will say that it is the tile silo which has introduced hollow tile as a farm building material, and that the satisfactory service which the farmers have gotten from their silos has encouraged them to use hollow tile for their other buildings as well.

In fact, the circular type of construction using silo blocks, has been adapted to several other sorts of farm building: circular grain tanks, circular ice houses, circular milk houses and circular root cellars are quite common. Circular corn cribs are being built, and there are special ventilating blocks for this purpose; they let in the air but not the rain or snow. Round water tanks of clay tile are often seen, sometimes the tank being the upper part of the silo.



Floor Plan of Community Hog House with tile walls and skylight roof windows, illustrated below.



An Extra Substantial, Warm and Permanent Community Hog House, with hollow tile walls and sunlight windows. Size is 22 by 56 feet. Fifteen pens and a feed room with cooker are provided. The long slope of this roof faces the South. Outside pens are to be built later.



Why Must America Be Divided by "Zone Rates"?

Congress at its last session passed a hasty postal law increasing the postage on periodicals from FIFTY TO NINE HUNDRED PER CENT.

Some periodicals will be killed—all will be restricted in circulation and crippled. There will be fewer readers, and the habit of reading curtailed. The great function of periodicals is to assist in the spread of ideas—by printing the achievements in the world of thought, culture and science.

Thus to shut out farm journals—as these zone rates will—will lessen the productive power of our country by millions of dollars thru loss of better methods. Shut off trade journals and you decrease the manufacturing power by more millions. Shut off the religious papers and there are shut off channels that have raised millions of dollars for distressed humanity. Shut off the great

periodicals of the home and there is throttled an avenue that has given expert instruction to hundreds of thousands of mothers and saved their babies to health and citizenship.

These national periodicals are printed in the big cities—and the first zone, the cheapest zone, is in or near those cities; there are many educational opportunities near cities, and the cities will read anyway. Small towns and distant districts depend to a large extent upon periodicals; thus this law increasing periodical postage where it is most needed shuts off opportunity where needed. It penalizes periodical readers.

Repeal this law. Repeal this FIFTY TO NINE HUNDRED PER CENT periodical postage increase. Sign the petition below and mail it. Put a cross mark in the square—save the periodicals and the work that they have done and are doing for national education and patriotism.

SIGN BELOW

CUT OUT. MAIL TO CHARLES JOHNSON POST, Room 1417, 200 FIFTH AVENUE, NEW YORK CITY

PETITION TO CONGRESS—Sign Here!

The spread of education, of culture, of scientific knowledge and advancement, and of our vast internal merchandising and manufacturing has been, and always is, vitally dependent upon the freest and cheapest circulation of periodicals. The penalties resulting from any restriction on the freest possible circulation of periodicals will be destructive of the best interests of our economic life and the opportunities of developing our best citizenship.

The postal amendment passed by the last Congress increasing the postage on periodicals from FIFTY TO NINE HUNDRED PER CENT will throttle or destroy our periodicals at a time when the widest and most extensive circulation of publications is essential to the patriotism, education and upbuilding of our country.

Therefore, I, the undersigned, do most earnestly demand the repeal of this burdensome periodical postage amendment.

Name.....

City or County.....

Street Address.....

State.....

Periodicals mean much in your life. If you will help by a few arguments with your acquaintances and an occasional letter in a spare moment, put a cross mark here.



Will you help in securing the repeal of this iniquitous law? ☐

CUT OUT. MAIL TO CHARLES JOHNSON POST, Room 1417, 200 FIFTH AVENUE, NEW YORK CITY

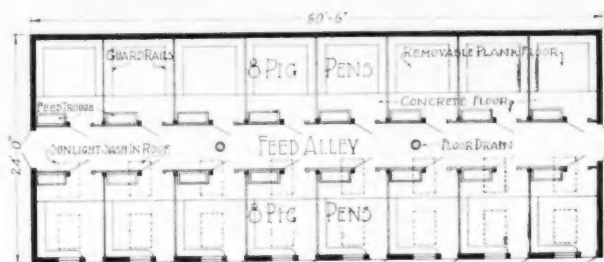


A Practical Hog Breeding and Feeding Plant in Iowa. The Community Hog House Has Sixteen Pens and All Are Thoroughly Warmed and Lighted by Direct Sunshine.

Roof Windows for Winter Hog Houses

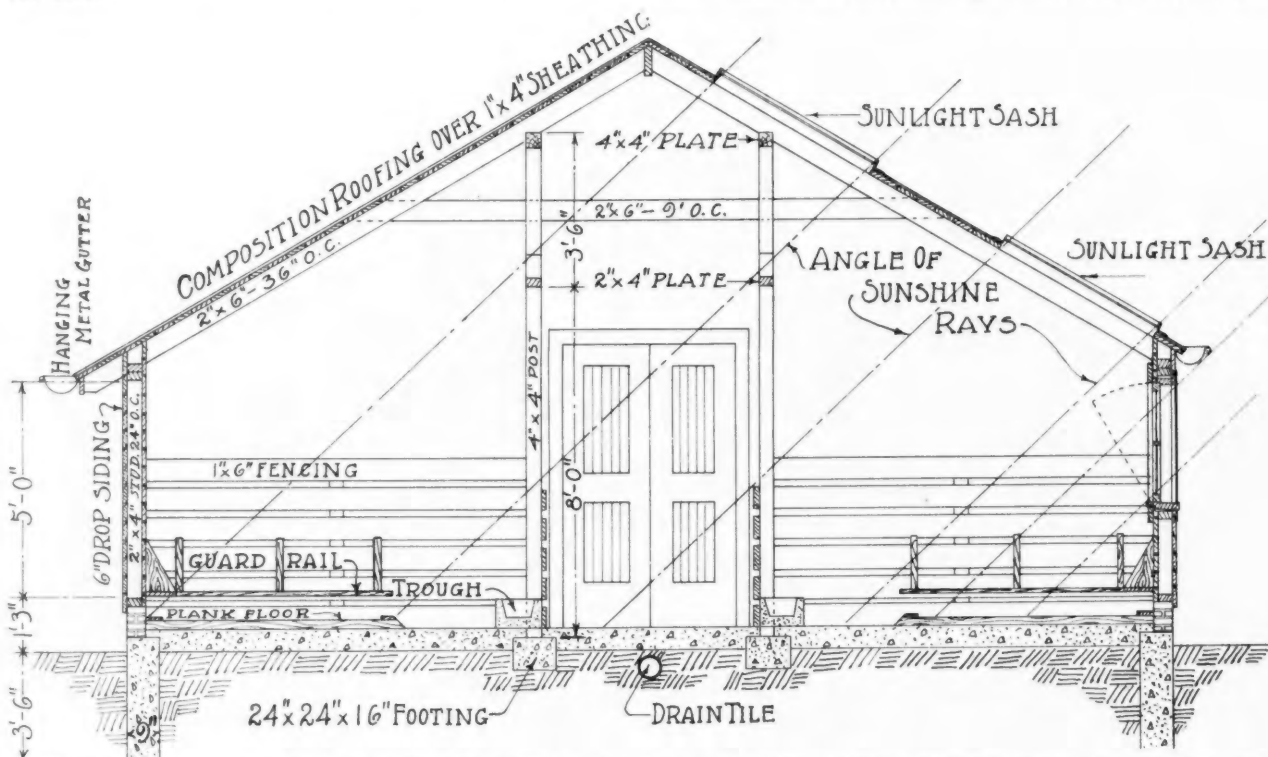
THE sunlit type of community hog house, having windows in the roof, is making such headway as almost to supplant all other types for new work.

Iowa is one of our greatest hog raising states; and it was there that this method of lighting and warming the pens by direct sunshine was first developed. Special galvanized metal frames and sash are set in the roof, admitting the sun's rays directly into the nests along both rows of pens. Sidewall windows will serve the pens along the south wall, but they can not put the sunshine thru to the row of pens on the far side.



This Building Fronts the South. Size is 24 by 60½ Feet. Sixteen Individual Pens Are Provided for as Many Brood Sows.

The manufacturers of these metal roof windows have made them weather tight and very easy to put



Typical Cross-Sections Thru Gable Roof Skylighted Winter Hog House. Note Lines of Direct Sunshine; Upper Roof Windows Light the Back Pens, and the Lower Roof Windows and the Side Wall Windows the Front Pens.



Solid Comfort, Warmth and Life-Giving Sunshine in the Early Spring Under the Roof Windows.

in place. Several models are hinged at the top to swing up for ventilation, and are automatically held in the proper position to admit just the right amount of fresh air to prevent overheating, as the heat of the sun increases with the advancing season.



Modern Barn Equipment

(Continued from page 78.)

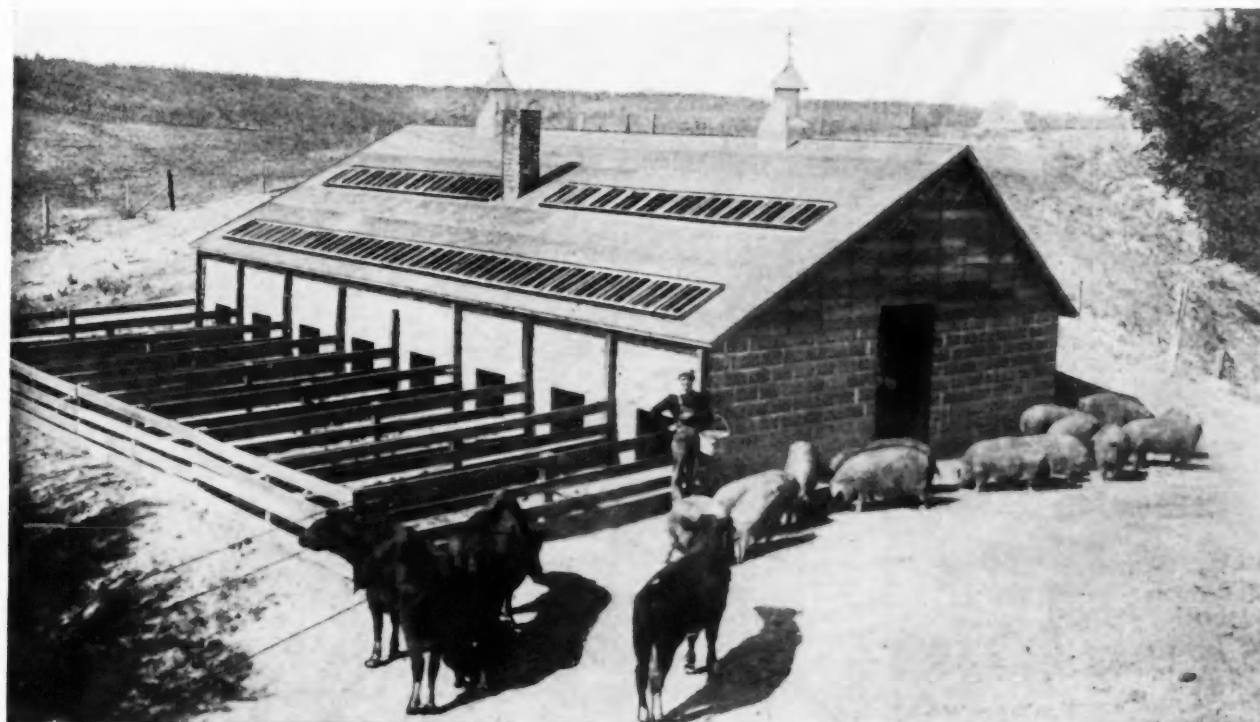
water. Cows give from 5 to 10 per cent more milk when they have all the water they want any time they want it.

These improvements don't cost much. Every farmer today should have them. The farmers have the money, and hired help is scarce. The thing for every country builder to do is to get thoroly acquainted with the different kinds and makes of barn equipment, know all

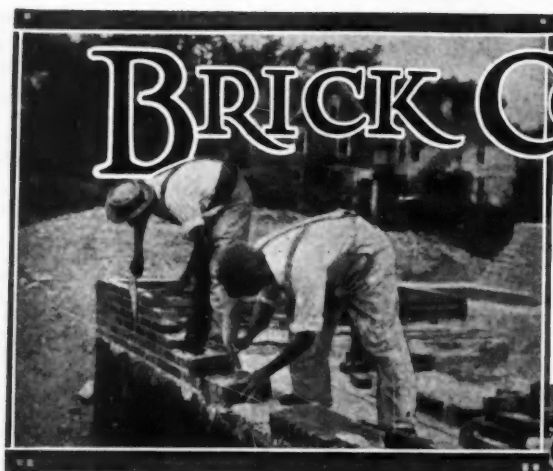


Direct Sunshine Into the Interior Demonstrated by This Photo of Inside of the Chapel Hog House.

about them, including prices, and then make a personal canvass of every farmer within a radius of ten miles and put up this proposition. Thousands of old barns are going to be remodeled and new barns built and equipped this year in order to save labor and increase dairy production.



This Substantial, Business-like Hog House of Geo. W. Green, Bloomington, Neb., Makes Use of a Double Row of Roof Windows.



CONSTRUCTION

for Modern Carpenters and Builders



How to Install Standard Steel Sash Units in Buildings of Brick and Concrete

By G. S. Hamilton

NOTHING could be easier than the installation of steel sash units in buildings of brick or concrete. Most builders, due to unfamiliarity, have an idea that steel sash erection is difficult. But the following description proves just how simple the operation really is.

When the sidewalls have been bricked up to the sill, the sill is set in place. A concrete sill having the outside portion about 1 inch lower than the inside portion should be used. These sills are standard and easily procurable from the same people who provide sills for wooden windows.

The sill should extend several inches on either side of the window opening, as it does where wooden

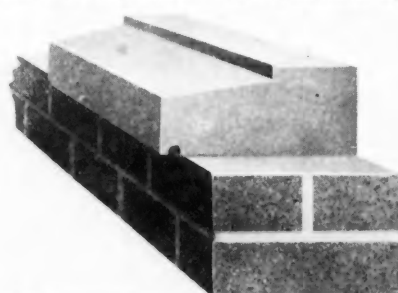
windows are used. (See detail photograph below.)

When the sill is in place, the steel window can be set. One man can lift the sash without assistance and set it in position. About $\frac{1}{4}$ inch of mortar should be spread on the sill before the sash is set.

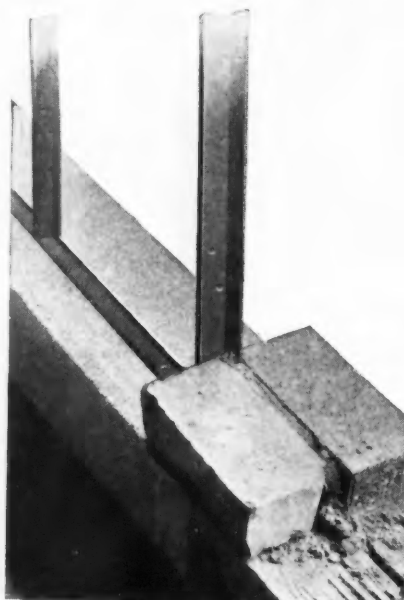
Be sure that the unit is so placed on the sill that the ventilator opens in at the top and out at the bottom.

After the sash has been plumbed in the opening it should be held in place by notched scantling while the mason bricks up around it.

The flange on the outside bar of the sash 1 inch deep is embedded on the brick. The brick work should



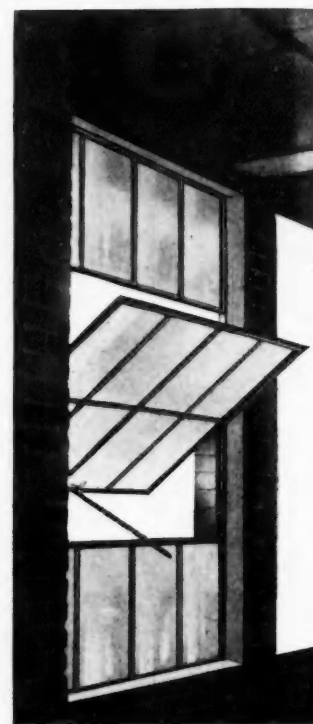
The Concrete Sill Upon Which the Sash Rests.



After the Sash Has Been Set on the Sill, the Brick Is Placed as Illustrated and Built on Up Till the Head of Sash Is Reached.



One Man Can Lift a Steel Sash Unit and Set it in Place on the Sill.



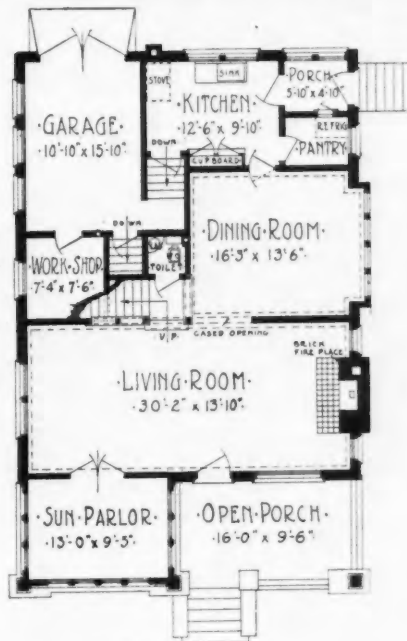
Typical Steel Sash Unit Installed in a Brick Wall.

be kept $\frac{3}{8}$ of an inch away from the body of the bar, thus leaving $\frac{5}{8}$ of an inch for imbedding in the brick work. This is sufficient to withstand maximum wind pressure.

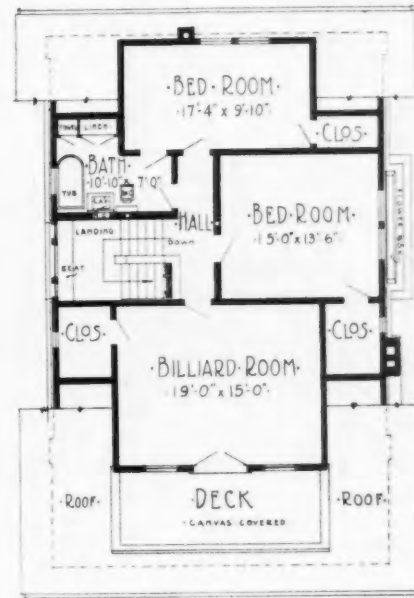
The sash is not intended to support any portion of the building wall or roof. Therefore, a steel lintel is absolutely necessary above every sash.

When the mason has bricked up to a level with the top bar of the sash, two angles $2\frac{1}{2}$ by $2\frac{1}{2}$ in. will be required. These should be laid across to support the brick work above the sash. These angles are not a part of the steel sash, but can be had from any supply house.

Almost all so-called "concrete buildings" have concrete piers and floors, but space is left to fill in around the window openings with

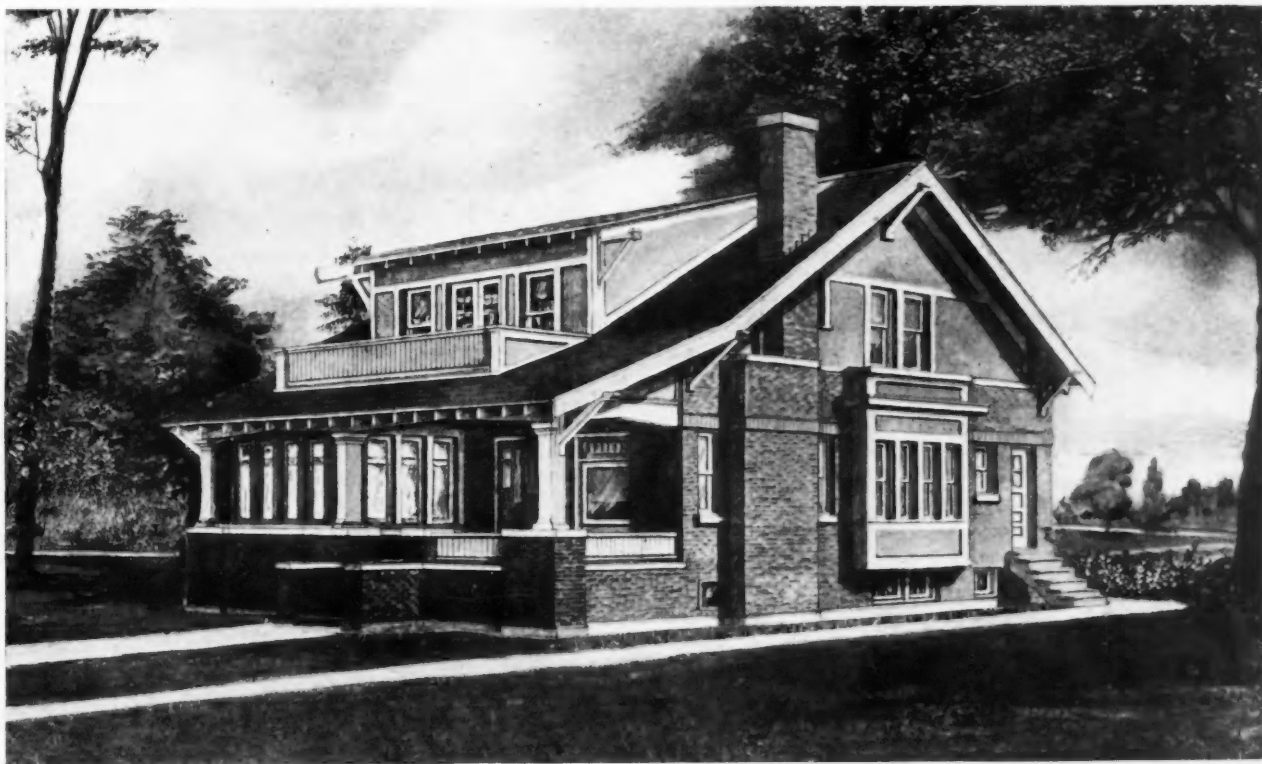


First Floor Plan.



Second Floor Plan.

Arrangement of Brick Veneer and Stucco Bungalow, Size 33 by 50 Feet.



Modern Brick and Stucco Bungalow of Six Rooms, Sun Parlor and Garage. The extra large living room with its sun parlor, semi-open stairway and broad opening to the dining room, is one of the happiest arrangements we have seen. The garage and work shop will appeal to any auto owner. On the second floor are three large bedrooms. The balcony over the porch is a good feature.

brick. Therefore, the same sill and jamb construction as used in a brick building is feasible in a concrete building. At the head, however, a different condition prevails. It is general practice to allow the top bar of the sash to imbed directly in the concrete. To do this, it is necessary to provide an opening in the concrete lintel for the flange of the sash bar, and this is done by nailing a strip of wood on the form about 4 inches from the outside edge. When

the concrete is set and frame removed, a slot is left into which the top of the sash can be inserted. Then insert the top bar of the sash in the slot in the lintel and lift the sash until the bottom bar rests on the concrete sill upon which the sash is held in position by wooden wedges driven in at the top.

About $\frac{1}{4}$ inch of mortar has been placed just before the sash is set. After the sash is set brick up between the sash and the concrete columns in the usual manner.

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.

Door Hangers Run on Double Track

Big barn doors weigh very heavy and builders have been troubled more than once by having their tracks warp and get out of line, making a hard working door.



Does Not Sag or Bind.

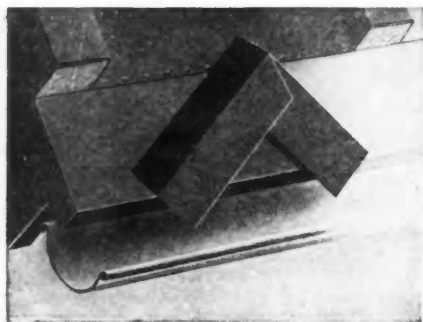
A form of double grooved wheel, working on a double track as illustrated in the accompanying drawing, avoids this difficulty. It makes a very strong trolley hanger and the track is extra rigid.

Another interesting feature of this outfit is that the wheels have roller bearings. The axle is machined from cold, rolled steel, with a shoulder at each end, which prevents wheel binding. This makes a very easy running door hanger even when supporting an extra heavy barn door.



Shadow Method of Laying Roofing

Shadow roofs are the latest. It is a patented method of laying composition roofing, the effect secured being exactly



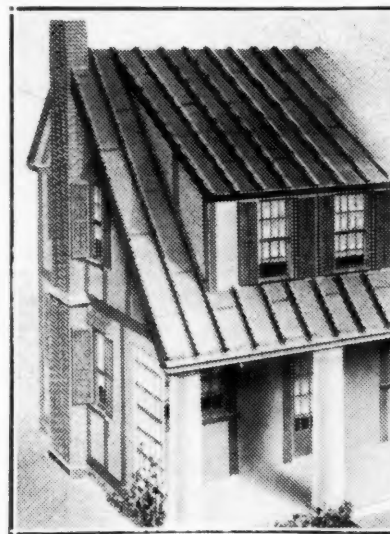
Detail of Shadow Method Roofing at Eave.

like that obtained with a copper roof as applied to the most expensive buildings. The battens cast shadows and the effect of light and shade relieves the flat monotony of the ordinary roof. A massive, rich appearance is pro-

duced, difficult to obtain in any other way.

Notice from the detail how this work is handled. Instead of laying the battens over the roofing and exposed to the weather, they are nailed to the roof boards and are covered-in by the roofing. The battens are $1\frac{3}{4}$ inch square and are spaced 20 inches on centers.

The roofing is creased in the form of a trough and is so arranged that the long seams join on top of the battens,



The Shadow Roof Follows the Old Copper Method.

nearly 2 inches above the body of the roof. Rainwater, therefore, cannot get at the seams.

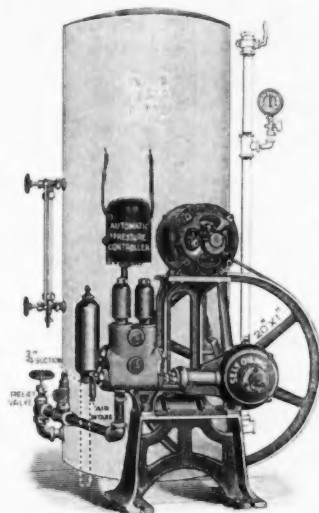
The roofing is prepared at the factory by a grooving machine, and is shipped in convenient sheets 6 feet 2 inches long by 2 feet wide. These are packed in flat crates, 40 sheets to the crate, which is enough to cover four squares of roof surface.

It is claimed that shadow roofs can be laid perfectly flat and free from wrinkles, even if applied over green roof boards. Expansion and other strains are taken up by the battens.



Electric Pump With Automatic Control

An improvement in electric house pumps features an automatic pressure controller. The motor is designed to use electric current from any of the farm lighting and power systems now on the market. The motor is one-sixth horse-power.



Pump Is Controlled Automatically.

The automatic pressure controller is a feature that appeals to users generally. It saves electricity, saves time and labor in starting and stopping when water pressure becomes low, and saves wear and tear on the pump itself.

This electric house pump is designed for pumping water from shallow cisterns, springs, lakes and other sources, forcing it into pneumatic tank or open gravity tanks for the water supply of private residences, public buildings, etc.

The size illustrated has a capacity of 180 gallons per hour. The pump is double acting. All parts run in oil,

the valves are large and waterways direct, which results in large pumping capacity with low current cost.

New Double Duty Hand Saw

It is generally conceded that the most important of the tools in a carpenter's kit are his hand saws—one for cross-cutting, the other for ripping. These are absolute essentials for general work, practice having determined that each must be individually constructed, so far as the teeth are concerned, for the particular class of work it is to perform.

While this applies to general carpentry work, in these days of general work, concrete building operations, factories, bridges, etc., there is so much lumber used for forms and uprights, etc., that notwithstanding the employment of a portable circular sawing outfit, considerable hand saw work is required.

The work required of a hand saw on these operations is not so much for a smooth cut as for quick cutting, and may be styled "roughing out." It involves cross-cutting, ripping and mitreing or cutting at an angle, which latter partakes of



Tooth Detail of New Double Duty Saw.

both cross-cutting and ripping, the lumber mostly used being pine boards one inch thick, studding, planks and joists.

Considering these facts, it will readily be seen that in the use of two saws for the work, a rip and a cross-cut, considerable time is lost during the day in picking up one, then the other, again either the rip or the cross-cut saw may not be near at hand, and, further, neither of these two give the highest results in sawing at an angle.

Obviously, therefore, if a single style of saw were made, with teeth especially adapted for this combination of work, one giving quick action with minimum labor, having a form of tooth easily kept in order by the average carpenter, its advantages would be readily and quickly appreciated.

This fully explains the object and purpose of the new saw now being made and marketed. It is called the "Double Duty" saw and the enlarged illustration of a section of the tooth-edge shows the character of the combination of teeth in this saw.

To be perfectly sure of its adaptability for the particular work in question, sample saws were made and distributed among carpenters on concrete construction work. These practical trials and tests demonstrated beyond doubt the practical utility of this style of saw and its advantages on the classes of work mentioned over the regular patterns, each of the carpenters using the saw highly commending it and expressing a desire to purchase one.

It will be noted that the tooth-edge consists of a special combination of rip and cross-cut teeth, each section separated by a deep gullet.



Electric Drill in a Sheet Metal Shop.

Universal Portable Electric Drill

The portable electric drill has come to be considered as a very necessary part of the equipment of every establishment having any considerable amount of drilling to do. The particular drill shown in the illustration has several interesting features. The motor used is designed so that it will operate on either direct or alternating current, provided the voltage is correct. The drill consists of five simple units which can be dismembered without disturbing electrical connections. Thrust is taken by high-grade ball thrust bearings. A fan is mounted on the armature shaft of the motor, providing forced ventilation which prevents over-heating.

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.

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

Ingenius Power Floor Saw

To the Editor:

San Francisco, Cal.

Recently in making alterations to a large reinforced concrete building having wood floors on 2 by 3 sleepers, it became necessary to cut about 10,000 lineal feet of groove 4 inches wide in the wood floors so that fireproof partitions might be built resting on the concrete floor slab below.

Quite a job.

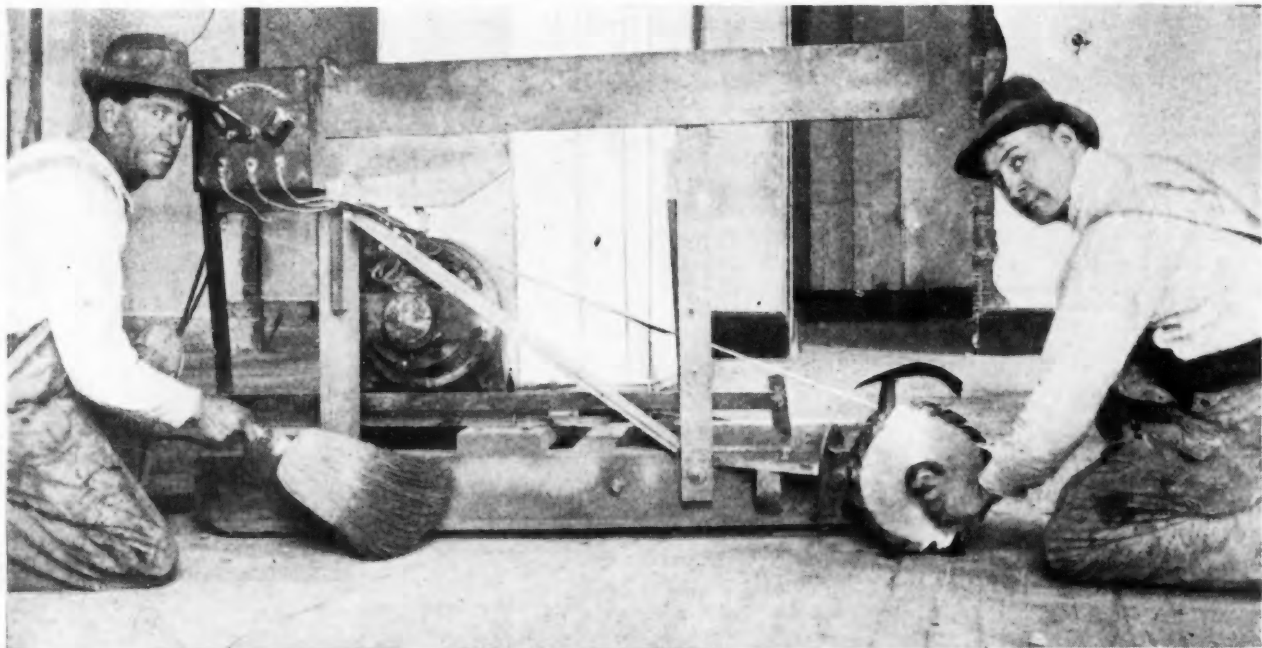
The prospect of seeing carpenters on their knees with hand saws at work on this prompted me to have fixed up a movable saw frame on small wheels or rollers provided with a 12-inch

How To Hang a Door

To the Editor:

La Fargeville, N. Y.

In answer to J. W. D., of California, I would say: To hang a door you will want a thin, flat rod, such as a door stop, a few inches shorter than the door. On this make a mark one-sixteenth of an inch from the end. This is for the clearance at the top of the door. Next, mark on it the location of the hinges and drive wire brads thru at top and bottom of each hinge or butt, letting them project just a little so they will make a mark. To mark for the hinges on the jamb, place this rod up against the head jamb. To mark



Home-Made Electric Power Saw for Grooving Out Wood Floor to Set Fireproof Partitions. Man in Front Is Adjusting Saw on the Line Ready to Start.

circular saw operated by a 3 H.P. motor and belt, so arranged that it could be raised or lowered slightly to suit any irregularities in flooring. This frame and saw worked very satisfactorily. It was pushed along by hand and the saw cut the $\frac{7}{8}$ -inch flooring right thru at the rate of about two feet a minute. See photograph herewith.

This might interest some of your readers having a similar problem.

G. ALEXANDER WRIGHT, Architect.



What Will Remove Mortar Stains?

To the Editor:

Sarona, Wis.

Can you tell me what to use to take mortar color off brick and stone window sills and cement water table?

C. H. FANN.

them on the door place the clearance mark at the top of the door.

The first step, however, is to dress the door down on the sides so it will just slip into place. Next, find out how much too long it is and cut it the right length. Then you are ready to use the rod for marking the location of the butts. Mortise out for the butts, having first marked with the butt gauge. Put the butts on next. Then hang the door and put the pins in.

To put in the lock, open the door part way and drive a wedge under it to hold it still. Lay out the mortise for the lock and work it out with bit and chisel, being sure that it is large enough to take the lock. Put the lock in place,

(Continued to page 110.)



ESPECIALLY when the mercury approaches zero, the automobilist whose garage doors are equipped with Stanley Garage Hinges realizes the advantages of doors swinging out. Such doors close snugly; as weather-tight as the front door of a residence.

The great convenience of the Stanley Garage Door Holder is also appreciated. The door may be opened with the certainty that no matter how hard the wind may blow, it cannot be slammed against the car and damage it as it enters or leaves the garage.



is designed for garages. The Stanley Garage Hinges are extra strong to hold the heaviest of doors; the Stanley Bolts keep the door closed tight; and the Stanley Pulls and Latches are generously proportioned so that fingers are not jammed or cramped in moving the door.

Stanley Garage Hardware satisfies **perfectly** every requirement of every building which houses an automobile.

Catalog describing the complete line will be sent on request

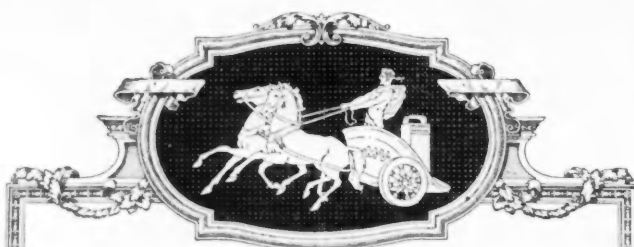
THE STANLEY WORKS

NEW BRITAIN, CONN., U.S.A.

Manufacturers of Stanley Ball Bearing Butts, Peerless Storm Sash Hangers and Fasteners, Stanley Strap and T Hinges packed with screws, one pair in a box, etc.

New York, 100 Lafayette Street

Chicago, 73 East Lake Street



The Varnish for Good Work

Architects and owners sometimes leave it to you when it comes to deciding upon what varnish to use for the work you do.

The demand they make is for a good job at a low price. It may seem to you that this is practically a demand for cheap varnish. But you know that cheap varnish costs more in the end. It will pay you to explain that your good workmen can do better work—work that will endure by using

Murphy Varnish

"the varnish that lasts longest"

The trial of Murphy Varnish will show you that you can do a high-grade job at low cost. It flows so freely and covers so much surface that you need less varnish for the job and fewer hours of labor. Your customers will find that Murphy Varnish "lasts longest" and produces a superior finish.

It is always the quality of the job, not the price, that keeps the customer.

Our principal house-finishing products are:

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Murphy Transparent Floor
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Murphy White Enamel
Murphy Enamel Undercoating*

Write for full information

Murphy Varnish Company

Franklin Murphy, Jr., President

Newark Chicago

Dougall Varnish Company, Ltd., Montreal
Canadian Associate

ANA

Correspondence Department

(Continued from page 108.)

having first marked and bored for the knob bolt and key hole. The knob can now be put on and next the keeper or strike iron is to be mortised for and fitted in place.

If you have a number of doors to hang and you will want some way to hold them while planing the sides, a notched board on one end of a saw horse will be found helpful for this.

JOHN UPTON.



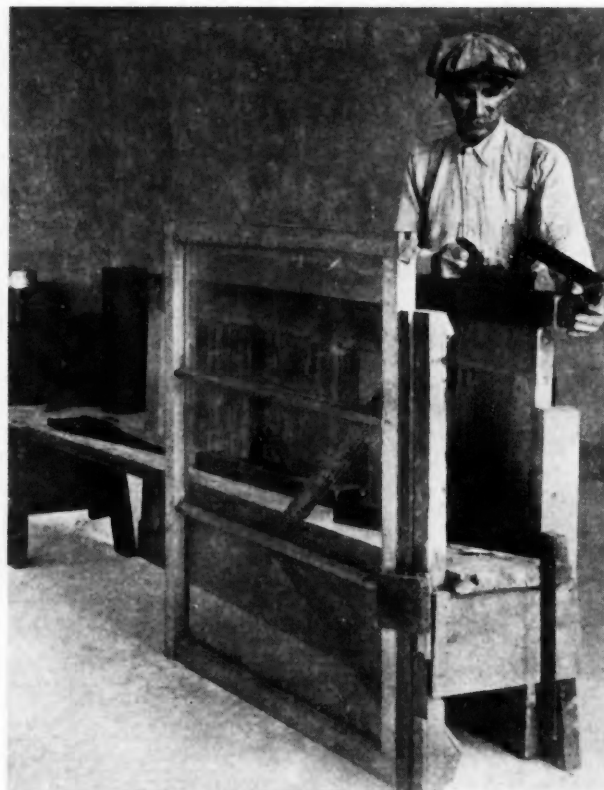
Still in the Ring, He Offers a Good Door and Window Fitting Bench

To the Editor:

Foxboro, Wis.

Just to show the young carpenters that there is no need of discarding a man because he has been in the game for over fifty years, will say that on the second day of September I was sixty-eight years and seven months old, and fitted six toilet doors 2 feet 6 inches by 5 feet by 1 1/8 inches in thirty-six minutes; the inspector said I had done a good job. As there was not room to take a picture of my bench in that room, I moved it to the gymnasium, and it shows the bench with a 46 by 48-inch sash on one side and a 3 by 7-foot door on the other side. My jointer shows thru the glass, and I am shown with my old wooden foreplane, which did most of the work.

The top of the bench is 2 by 12 inches by 8 feet and is 1 foot



T. R. Cormie and His Handy Door and Window Bench.

6 inches high. Legs and front uprights are 2 by 4 inches, and the picture shows how it is braced. The bench was made to walk on in fitting large schoolhouse windows and afterwards remodeled to use in fitting doors and proved to be very handy, as it makes a very handy place to lay your tools while fitting and hanging doors.

Here is the way I did the work: I had the doors standing near and first took a door and marked and cut off the ends

(Continued to page 112.)

AMBLER Asbestos Shingles



**-require no
upkeep tax**



*Residence of Dr. P. Chas. Lapp, Malvern, Pa.
Contractor, Walter Paschall and Sons, Paoli,
Pa. Covered with Ambler Asbestos Shingles*

The cost of painting and repairing is an unnecessary roof tax.

Save this tax by covering the home you are planning to build or buy with

AMBLER Asbestos Shingles

(Nothing to Burn)

They do not rust and are immune from air, water and fire. They do not absorb moisture and are unaffected by sun or frost. They need no painting as they are made of the finest quality of Portland cement reinforced by Asbestos Fibre. Time only serves to make them tougher, stronger and more durable. They are made in many styles and three non-fading colors: Blue Black, Natural Gray and Indian Red, and will harmonize with any style of architecture.

Write today for samples, pictures and prices.

Estimates gladly furnished free.

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.

(Continued from page 110.)

of the stiles; then set it in the space it belonged and trimmed the rest of them in the same way, except that I set the last one in the bench for fitting. The doors were over $\frac{1}{4}$ in larger than the openings, so it made a lot of planing. The doors did not have to be fitted at top and bottom, as they were 12 inches from the floor and 6 inches from the top.

At the time I did this work I weighed 122 pounds. I have taken and read every copy of the AMERICAN BUILDER.

I have not taken any contracts for the last five years, but prefer being foreman for others.

Hoping some of the boys will try this way of fitting doors and windows, I am.

T. R. McCORMIC.



I. B. Cox and Crew and One of Their Barns Near Moray, Kan.

Eighteen Day's Work for Three Men

To the Editor:

Moray, Kan.

As I have been a silent reader for three years, will try and tell you brother carpenters what we are doing here in northeastern Kansas.

I am sending a postal photo of a barn that I built last season, and it was what I call a hurry-up job, for we had a new house before us also. We completed the barn in eighteen days with only three men, and the last three days I

worked all alone. I am standing with the square in my hand over the dash in the picture.

Well, the building prospects are very bright at the present time. I have several jobs to figure on, but don't expect to get all of them. I am one of the boys that believes in the portable rigs on the job, as I have used one for three years now. I will try and send a photograph of my new shop when I get it completed with everything.

(Continued to page 114.)

Contractors—Be Your Own Brick Maker

Be independent of the clay brick manufacturer and dealer—don't be held up by annoying delays—whittling your profits down to nothing. Put yourself in position to take more business and make more money on your contracts. Hold your crews together in your own brick and block plant when not out on contracts.

You can offer your trade better brick and more kinds by operating

Helm Brick and Block Press

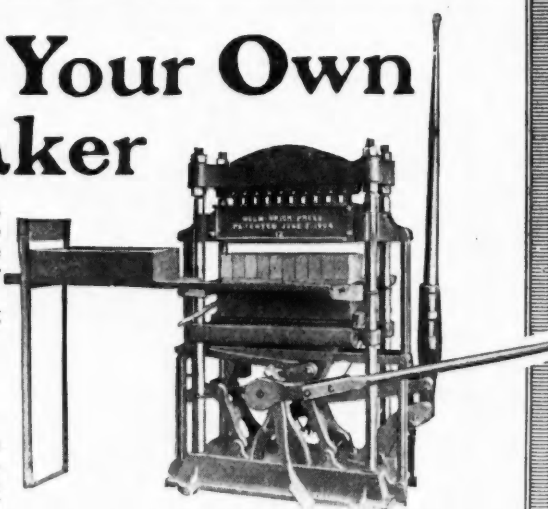
and making **pressed** cement brick and blocks. Each brick is perfectly true and uniform, made in various colors and shades, including the granite effect. Lay rapidly—easily cut—do not require gauging. A comparatively small investment gives you a plant of

10,000 Brick or 1,000 Blocks Daily Capacity and \$10.00 to \$50.00 Daily Profit

To men actually interested we will send our free book illustrating and describing the Helm DRY WALL System and our complete line of Helm Presses of various sizes and types.

Send the coupon attached to your letterhead

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Cadillac, Mich.



Helm Brick Machine Co.,
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Please send your free book.

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Here it is!

Just what You've Been Looking For

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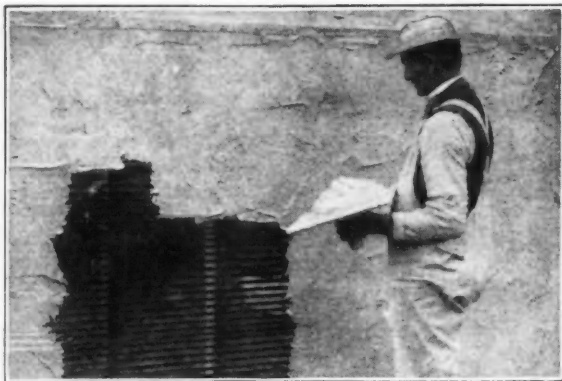
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Contractors everywhere are finding that the use of Hy-Rib and Rib Lath products prevents cracked and streaked plaster. Wood lath absorbs moisture, expands and causes the plaster to crack and streak. Our metal lath does away with this trouble.

Use **Hy-Rib** and **Rib Lath**—and you save forms, stiffening channels and labor. This metal lath is so stiff and rigid that supports may be placed a greater distance apart, saving in the cost of supports and labor in installation. Moreover, it provides a **permanent, fire-proof** construction.



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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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Write today for free copy of Hy-Rib Handbook, containing specifications, tables, illustrations, etc. Address Dept. H-44.

RIB LATH

A superior metal lath with beaded ribs that span between the studs, making it exceptionally stiff and rigid and permitting the wider spacing of studs. Provides a perfect clinch for plaster and prevents cracking or streaking of plaster. Saves time, labor and material in erection.

Trussed Concrete Steel Co.
YOUNGSTOWN, OHIO
Representatives in Principal Cities



Correspondence Department

(Continued from page 112.)

I think that the boys all ought to take more interest in the Correspondence Department. Of course, I am like the Arkansas preacher, "don't do as I do, but as I tell you," but nevertheless, we will all try and do better from now on.

The only fault that I find with your magazine is that it should come every two weeks instead of every four.

I. B. Cox, Carpenter and Builder.



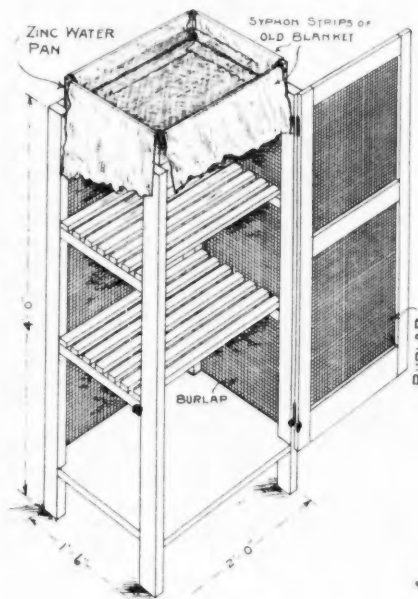
How to Make a Cooler

To the Editor:

San Rafael, Cal.

Perhaps some of your readers will be located far from the ice wagon this summer and will appreciate knowing how to construct a cooler that will keep butter and milk very satisfactorily when the thermometer goes up to a hundred. It should be about 4 or 4½ feet high and anywhere from 12 to 18 by 16 to 24 inches. In fact you can just make it of a size to suit your own convenience.

The sketch gives the sizes I used in making my own. The four corner posts were 1¼ by 2 inches. The top and bottom are solid. The middle shelves (as many or as few as you wish), are of thin slats about 1 inch apart. Door is just a plain frame covered with burlap. All sides are covered with burlap, the ordinary gunny sack being just about the right weave. Do not use the heavy burlap as it will prevent the free circulation of air.



Iceless Cupboard.

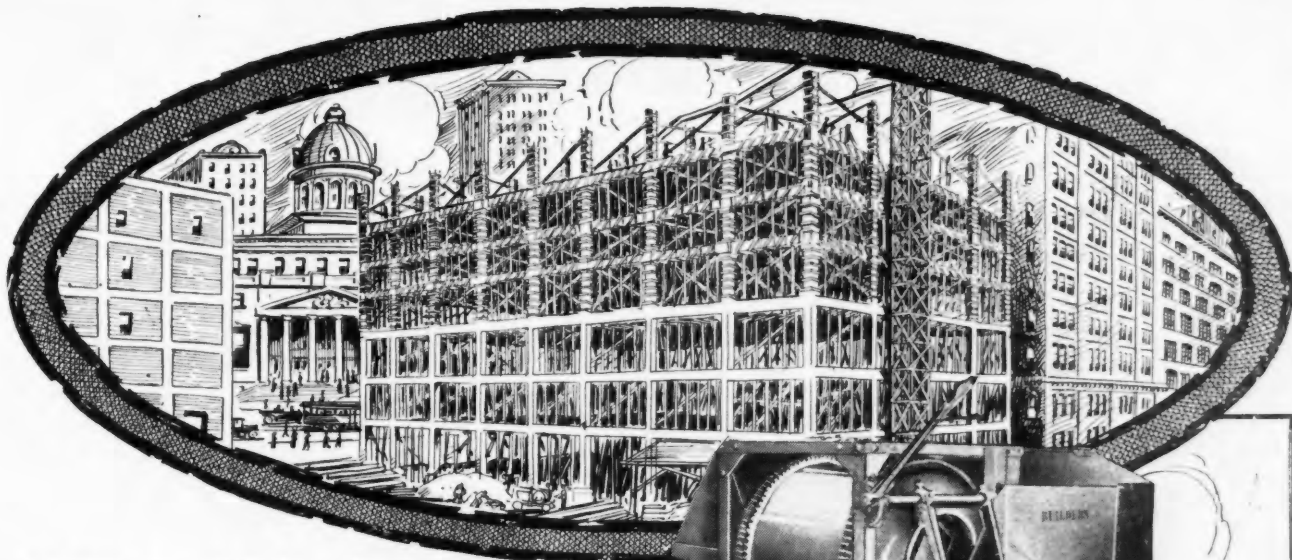
A zinc pan should be made a little smaller than the top of the cooler, and three or four inches deep. Fill this with water and hang a piece of blanket or similar cloth over the edge, allowing it to hang down about four inches onto the burlap of the sides. Be sure these strips reach the bottom of the pan inside. They will siphon the water out of the pan and down onto the burlap whence it runs slowly downward, cooling all the air that circulates thru the cooler.

If the cooler can be placed where there is a slight draft it will be highly satisfactory. But the evaporation will cool the inside even tho there is no draft. It may require several trials to secure the right size of siphon strips to get them adjusted correctly, but it is worth while.

I used one of these coolers two summers in the San Joaquin Valley of California where the average temperature was over 96 practically all summer, and never had ice in the house.

Sketch shows burlap only on two sides and the door, the other side being left off to show the interior arrangement. The sizes are not given with any great pains because it doesn't make much difference. Build of a size to suit your needs—or as I have known more than one to do, to fit the pan.

(Continued to page 116.)



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Wonderfully Successful "One Bag
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Built for money-making service. Sturdy—simple—dependable. Guaranteed to mix mortar and plaster as well as concrete. Has **all** modern improvements. Patented **high speed** mixing and discharge action. "Built of steel." **Double gear drive.** Investigate this mixer—get our low prices and easy terms. Also on Boss All Purpose Power Loaders, Lincoln Highway Pavers, Grouters and Hoists. **Deliveries from stock** in principal cities. Write, wire or phone nearest branch office.

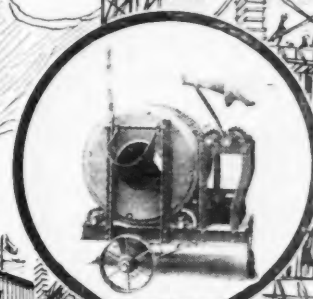
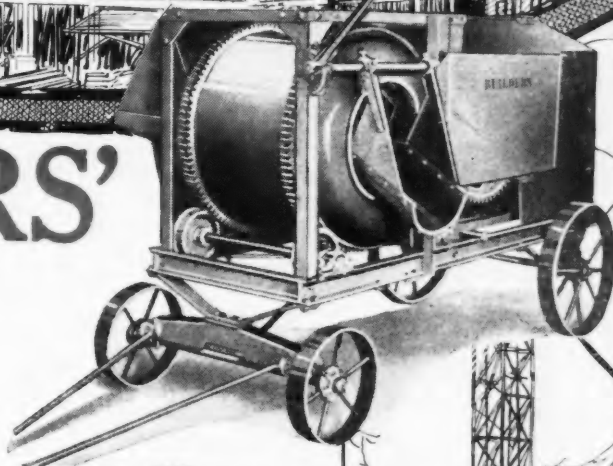


**The American Cement
Machine Co., Inc.**

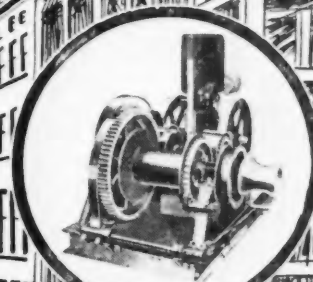
Keokuk, Iowa

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High Quality "One Man"
Hand Mixer



Heavy Duty Contractors'
Hoists: 6, 8, 10 H. P.

(Continued from page 114.)

As to material, that also may suit the maker's convenience. The points to remember are, make it fly tight, make top and bottom solid, the shelves of slats, and get the burlap smooth and well tacked. Then experiment until you get the siphon to working just right and the thing is done.

H. J. BLACKLIDGE.



How to Do Work Right

To the Editor: Centralia, Ill.

In the December issue of the *AMERICAN BUILDER* a reader asked for the quickest method of hanging a door. As I understand him, he wants to know the short cuts in fitting, hanging and putting on of the lock. This could be quickly answered, but as the work preceding this part of the job has a tendency of affecting the final results, it becomes necessary, in order to answer this question more fully, to go back to the beginning and consider the preliminaries.

It may be surprising to some of the Bro. Chips to hear that there is such a thing, but this, nevertheless, is a fact.

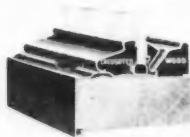
We will consider the hanging of an inside door. The preliminaries commence with the framing of the opening. Some carpenters allow only 2 inches width and height over the size of the door. This gives only small wedging room between the jamb and studding, but this is as it should not be. For this



Good Looking Barn with Extra Large Ornamental Hood, Built by J. W. Wratten, Bladen, Neb.

reason: The ordinary door casing is $5\frac{1}{4}$ inches wide, and the nailing chance in the above instance, at its best, is only 3 inches. This leaves $2\frac{1}{4}$ inches of the casing free to warp and draw away from the plaster, not saying anything about the ugly nail holes down the center of casing or the nailing of the end of the base to the lath. Another bad feature is that the plaster runs close up to the jamb and as it is generally left a little full, the casing rides in the center and doesn't lay up without splitting.

(Continued to page 118.)



Brasco Copper Covered Creosoted Sash



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A.B.
218

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Made of solid Asphalt, into the exposed surface of which fine chipped slate is rolled under heavy pressure. Tough yet pliable, extremely durable and resist fire and weather. Laid with ordinary shingle nails. Red, green and slate-black.

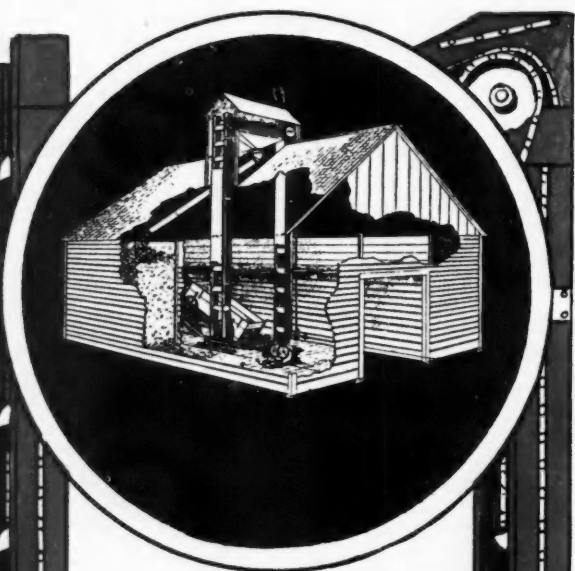
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MFG. CO.**

Department 301
MORTON, ILLINOIS

Correspondence Department

(Continued from page 116.)

Only cheap "screws" and jack-leg carpenters do work that way. A better way is to allow 6 inches between the studding and then double out or nail short pieces of material on the face of the studding, so that the jamb can be wedged, top and bottom ends and center. This gives a 5-inch nailing chance, which will hold the casing very rigid. On jobs where no false base is used it helps to improve the work to nail short blocks of about 8 or 10 inches long in the bottom corner on the outside face of the door studding to nail the end of the base to.

Door studding should be selected before nailing the partition together, so as to get enough of them that are straight edgeways.

Some builders set door jambs before plastering, but that is a poor way, as they generally get badly slopped up with plaster, which makes spots that are hard to get out. Others lath the job first and then run a lath around the openings for grounds, but that doesn't make a first-class job, as the lath vary in thickness and are not always straight.

A better way is to take narrow ¾-inch rippings and nail onto the studding around the opening close to the inside edge and let them lath and plaster up to that.

Setting the Jambs

This is an important part of the job and should be done by an experienced mechanic, instead of the "kid," as is often the case. To be properly equipped for this work one should have a straight-edge, trued up, as long as can be used under the head jamb, with a plumb level (not a plumb bob) set into it. This can be easily handled with one hand and leaves the other free for nailing.

Jambs should be gotten out about ⅛ inch wider than the thickness of the wall, with the edges slightly beveled back. The side jambs should be gained out ⅜ inch deep and the head nailed between them and not on top. The reason for this is that if nailed on top it will drive up when nailing on the stop, whereas the other way, the sides being wedged solid, can't drive back. It is a good plan also to make the side jambs about ½ inch longer than the length of the door. This avoids the necessity of having to cut much off the bottom to give clearance over carpets.

When starting to set jambs, first try the floor for level, and if one side is high, shorten the jamb for that side enough to bring the head jamb level. This will leave the door square at the top. Now try one side for plumb, and on the block that is shy, either top or bottom, nail a narrow 13-16-inch piece cross wedge. Trim the piece for the other block enough to bring it plumb. These pieces should not be over 2 inches wide and nailed on crossways of the studding and also close to top and bottom. Now set jamb in place and tack, being careful to keep edges in line with wall. Now wedge on center block to bring up to straight-edge. This wedging on the center block is very important for a good job, as it prevents driving the jambs back when gaining for the lock strike and the butts. Very often we run across doors that fit nicely at the top and bottom on the front edge and the center has so much space that the lock will hardly catch. This is caused from not having a center wedging between jamb and studding, allowing the jamb to drive back when gaining in the strike. After the one side is straightened perfectly, have a floor board of the exact length to fit between the jambs under the head and about the same width of the jambs cut perfectly square on both ends, lay down on the floor between the jambs and wedge up tight to it. This makes your opening exactly the same at the bottom as at the top, and if the sides are straightened perfectly the fitting of the door is

(Continued to page 122.)

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Buy this
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There are public sidewalks, curbing, culverts and other jobs. There are township culverts, bridges and scores of other sources of getting the business to fill in the otherwise idle periods. THESE JOBS YOU CAN LAND if you have a Sheldon Mixer.

Then, too, you can use your Sheldon Mixer to mix plaster and mortar for the walls, and cement for the basement floors of houses and stores you bid on. That helps you meet the labor shortage. It helps you make a larger profit on the job. And it helps you bid under the other fellow who stirs his stuff by hand.

You can get all these jobs with a Sheldon mixer BECAUSE the investment in a Sheldon is so little, the expense of running it so slight and moving it from place to place is so easy that you can outbid the others for the job.

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"We put in 100 cubic feet of concrete in 1 hour and 10 minutes with our Sheldon. That's going some!"—A. S. Moore, Winchester, Ky.

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Order Today

Don't lay this aside to "think it over." You might forget. NOW is the time to order if you want to get your machine in time for spring work. Freight moves slowly these days, remember. So, ORDER TODAY—I'll stand back of you. GEO. C. SHELDON, Pres.

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Meadows Manufacturing Co.
Pontiac, Ill.



(Continued from page 118.)

easily and quickly accomplished, whereas, if this work is not properly done, it requires numerous trials and a rubber plane to get a fit. When casing up a door be sure and show a 5-16-inch margin on the jamb; otherwise there will not be room enough for the butts and it will be necessary to dig into the casing, which makes an ugly job. The top does not require so much margin, and 3-16 inch is plenty.

Fitting and Hanging the Door

When there are a number of doors to be hung it pays to make a door holder that is portable and that can be set most any place. It consists of 1 or 2 by 4 in. about 7 ft. long for a bottom piece, with an end upright about $\frac{1}{2}$ inch or 1 inch shorter than width of door, so as not to project. The top end of this upright piece should be only a fraction wider than the door is thick, then by nailing a brace on each side close to top and slanting down to bottom piece, it forms a clamp to hold door rigid and keeps it from wobbling, which is necessary to make a straight, true edge. Now nail a cross brace across the front end, letting it stick out on the working or left-hand side only about 8 inches, so as not to be in the way, and let it project below the lower edge of the bottom piece $\frac{3}{8}$ inch or $\frac{1}{2}$ inch so it won't rock on floor. Run a brace from top of end upright down to cross brace, and then we are ready for business. If it is necessary to clamp a piece between the jambs for a holder cut it short enough to slip a piece of thin board on each side between the end and jamb. This prevents marring the jamb.

When starting to fit the door, if there is no special difference in the side, sight the edges and select the crowned (not the hollow side) for face side to work from, and mark it, so it won't be necessary to always sight it while handling. If the hollow side were taken as the face, the top and bottom

corners would stick out over the jamb when flush at the lock, whereas this other way the stop can be set straight and the door can be pulled straight and the lock will hold it so.

After the face side is determined, lay the door down on a pair of trestles and trim the projecting side styles, called lugs, in line with the ends of the door. Now with two short sticks, long enough to lap, get the distance between the jambs, less $\frac{1}{8}$ inch for space, and mark the door, top and bottom end, dividing the margin, if any, equally on both sides, and dress down to these marks, keeping the edge perfectly straight. A jackplane may be used to knock off the rough, but the finish should be made with either a fore or joiner.

Now try for fit, sides and top. The sides should show a strong $\frac{1}{8}$ -inch space all the way on the front edge when the back is up tight. Dress top to fit. Be sure the side shows the same amount of space the full length. If it has a $\frac{1}{8}$ -inch room in some places and bumps in other places, it might as well bump all along. After having the proper amount of space, bevel the edges, the back and top slightly, a scant $1/16$ inch, but the front should have a strong $1/16$ inch on $1\frac{3}{8}$ -inch doors and $1\frac{1}{4}$ -inch doors should have a strong $\frac{1}{8}$ -inch bevel.

If the door is left square, it is apt to bind on the back edge and the front. Even if trimmed barely enough so the outside edge will clear the jamb the door will show considerable space when shut and the least swelling will cause it to strike and stick, whereas if beveled, it will clear nicely, even when swelled considerably.

Before trying the door for fit, it is well to tack either a nail or a small block on each jamb the thickness of the door back from the edge and a little above the middle, or some put on two on each side close to top and bottom. This prevents the door from falling thru the opening when fitting and holds it flush with edge of jamb.

(Continued to page 124.)

EXCELSIOR Wire Products

"KILLENWORTH" the beautiful home of George D. Pratt, at Glen Cove, L.I., is what it is largely because of the

EXCELSIOR WIRE LATH

used in its construction. The outside walls are sturdy, heavy, well put up. Of equally good construction are the inside walls, the base of which is Excelsior Wire Lath.

This is an exceedingly handsome residence, every item entering into its construction being high grade. It contains every modern improvement and is a monument to the judgment and efforts of the architects, Trowbridge and Ackermann, as well as the contractor, Charles T. Wills.

Complete information concerning Excelsior Wire Lath sent upon request. Ask for booklet F.

EXCELSIOR WIRE LATH is equally well suited for public buildings of magnitude or dwellings or buildings of the smallest size.

Excelsior Wire Lath is a heavy woven fabric of cold-drawn steel wires. Has a strong even selvage that makes it easily handled and tied together. It is fire-retarding and makes walls of permanency. It can be had plain, japanned and galvanized.

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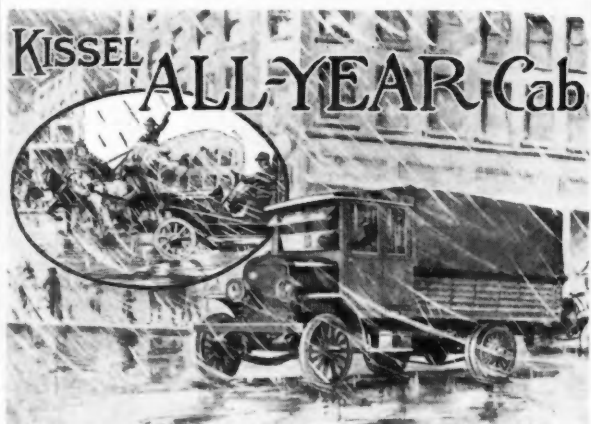
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STOP laying up your trucks in rain or snow storms—stop risking accidents and excessive wear and tear by speeding up to get under cover—stop tying up your transportation facilities. The new Kissel ALL-YEAR Cab gives full protection to drivers in most severe weather, increasing their efficiency, insuring competent handling and care of trucks, and keeping them in operation the year 'round, regardless of climatic conditions.

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KISSEL MOTOR CAR COMPANY
HARTFORD, WIS., U. S. A.

Correspondence Department

(Continued from page 122.)

After the sides and top are fitted (the bottom end is left until later), we are ready to fit the butts. The proper distance for door butts to set from the ends has never been definitely determined, but experience proves that is is a good plan not to set the hinge down too far from the top on account of the down pull. The bottom one can be set up higher, and looks enters into this part of the job. When base blocks are used it will help the appearance to set the bottom edge of the hinge even with the top of the base block. We have adopted the rule of 7 and 11, top and bottom, unless three butts are used; then we shorten up a little on both and divide the distance between for the third one.

To discuss the style of butts to use isn't really the intention of this article, as they are generally furnished or selected by the owner, but as it makes some little difference in the work, I might give it a mention. The half-surface butt in various styles is being used quite extensively, especially so on the cheaper class of buildings, and they serve the purpose admirably, as it takes a little less work to put them on, for all there is to do is to gain in the jamb leaf flush and the proper depth to bring the door even with the jamb, and put in the screws. Now set the door properly in place, fasten the surface plate with screws and let her go. To the beginner, tho, I would say, fasten the surface plate with one screw first only, then try the door and swing it. You will invariably find that you will have to do some drawing with the other screws, as there is a certain amount of lost motion that has to be taken care of and adjusted.

When it comes down to real looks, fine taste and good work, nothing will compare with the regular full butt, with both ball tips threaded in and screw slitted. The shoulder on the ball tip of the pin being threaded prevents the pins from working up, caused from opening and closing of the door. If necessary, the lower ball can be unscrewed and the pin driven up from below if it works hard.

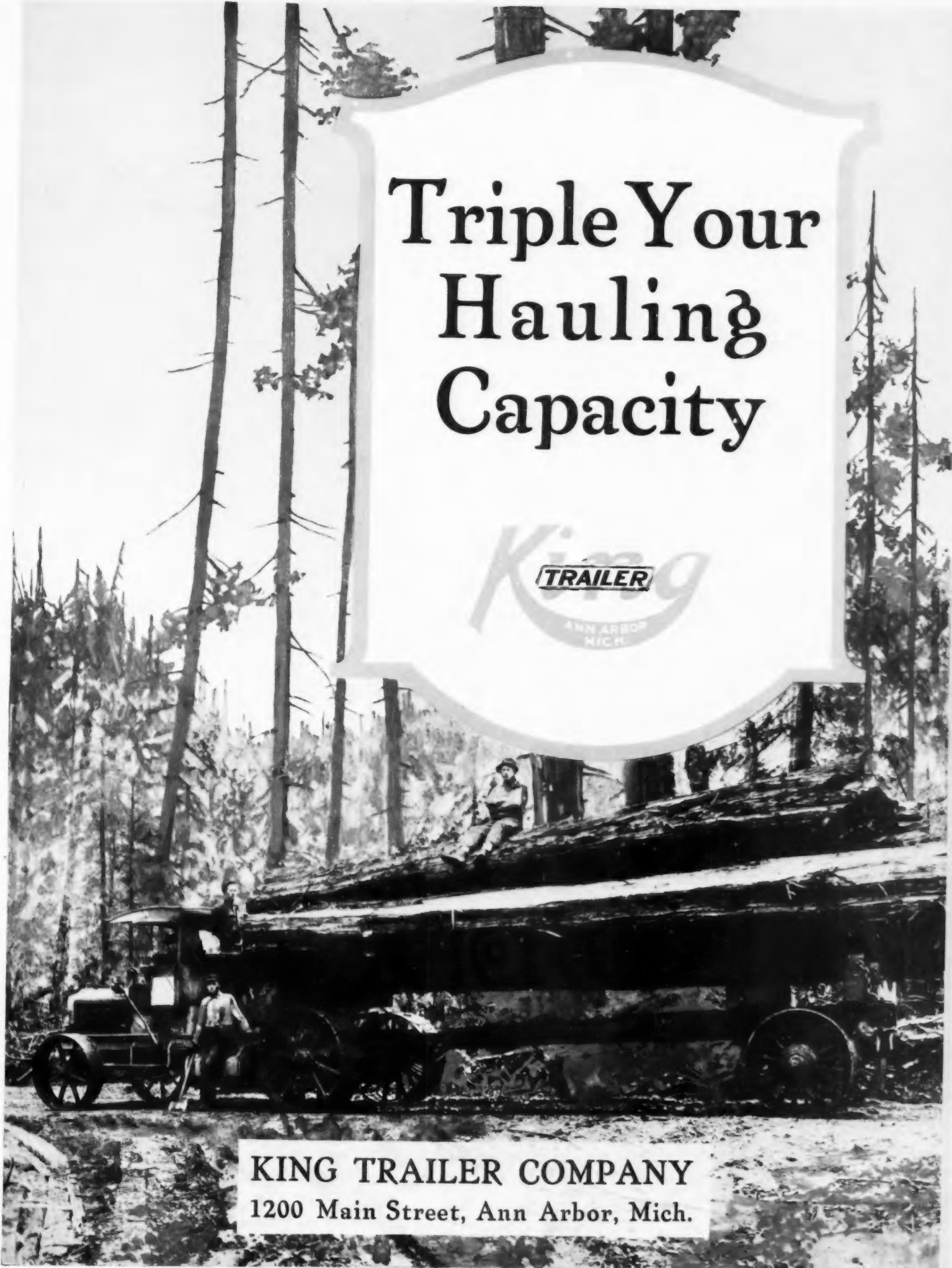
In fitting the regular butts I gain the leaf into the door first. I let it in a little below flush on the face side of door and flush on the back edge of hinge. This overcomes the bevel on the door and makes it fit up close to the jamb. This should be done, as doors nearly always shrink some in time. Then, by packing the butt a little, it is brought forward and the space divided. After the leaf in the door has been fitted and screwed in I set the door in place, allowing a scant 1-16-inch space at the top, and mark the jambs, marking on the top end of each hinge, with a sharp knife. Work from this mark and gain the jamb leaf in flush. Fasten with one screw only. Put the door on and try. If it needs adjusting it is less work when only one screw has been put in than when all three or four are in. The back edge should have just enough space so it won't bind, that is all, for the reason above given.

When the door swings scribe the bottom to the floor, giving $\frac{3}{8}$ inch or a little more, so it will clear the carpet or rugs nicely.

Now fit the lock, placing the knob as near as possible 3 feet from the floor. Doors having a regular lock rail adjust themselves. On the cross-panel style the escution should be placed in the center of either cross rail or panel, whichever comes nearest to the regular height. When marking for the strike plate be sure to divide the surplus space in the holes above and below the bolts; otherwise, if there is the least settlement one way or the other, the lock will not catch.

On all good work the escution plates are left off until the painter has finished. This prevents them from becoming soiled and also, if it ever becomes necessary to set the plates over, it will not show a white streak.

(Continued to page 130.)



Triple Your Hauling Capacity



KING TRAILER COMPANY
1200 Main Street, Ann Arbor, Mich.

On Long Hauls

The most profit is made where tonnage moved is greatest.

Speed is important.

That is why the Semi-Trailer should be built for speed as well as strength. It should be engineered and built like the auto truck and especially planned for the work at hand.

The wheels should be regular truck artillery type and fitted with solid rubber tires. Axles should be non-heating and fitted with roller bearings.

It should be built to run as fast as the tractor pulling it.

King Trailers have been carefully built to fulfill these specifications and that is why they are giving universal satisfaction in every branch of lumber hauling.

Logging Camps

The larger model King Pole Trailers are especially adapted for heavy log hauling service especially where the timber tracts are located considerable distances from the mill. In this branch of the work steel wheels should be substituted for the regular solid rubber tires. The motive power should be furnished by either a road tractor or a truck.

On the Coast, trucks and sometimes even pleasure cars are being converted into traction units and aided by King Trailers are hauling heavy timber, five to ten tons in weight, as far as 50 miles from the mills.

Saw Mills

Portable saw mills are rapidly coming into use as the value of lumber increases. It is now possible for the lumberman to establish his mill in various isolated tracts. By means of the tractor and his King Pole Trailers he hauls the logs to the mill and then the lumber to the railroad for shipment.

As the portable mill is, of necessity, some distance from railroad facilities the lumber is hauled at least five to ten miles. When the lumber on one tract is exhausted, the trailers and tractor are used to move the mill to another position—possibly many miles away.

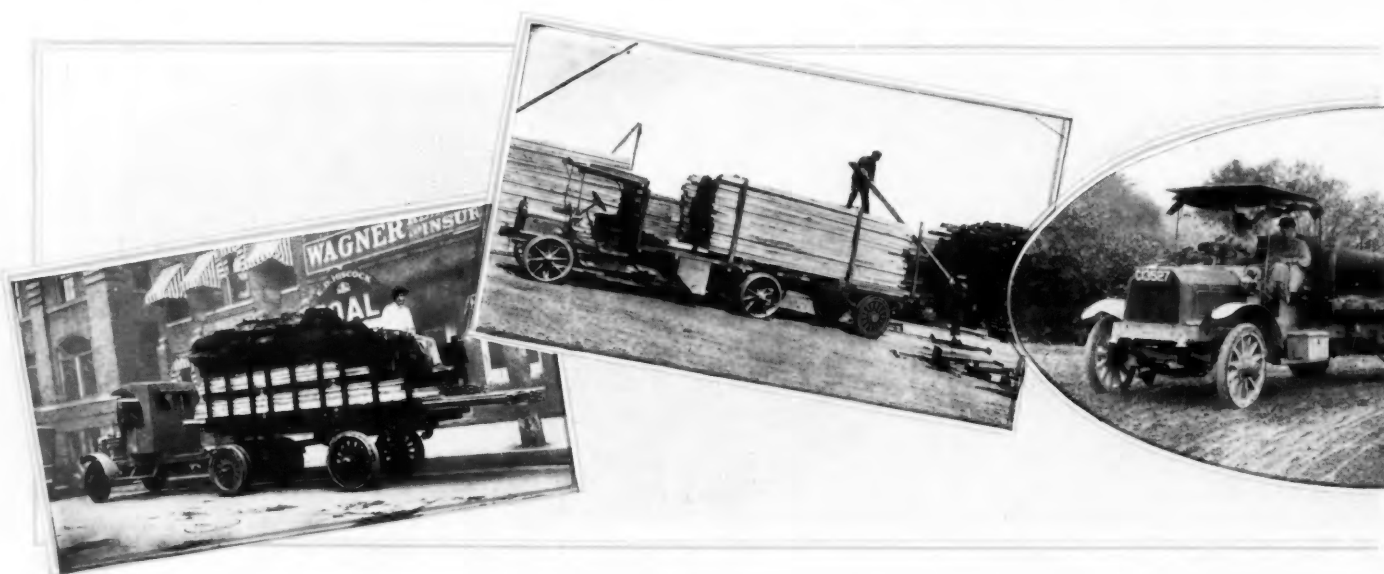


The Wholesale Division

The King Semi-Trailer hauling unit has been found especially adaptable to the building supply part of the wholesaler's business. The increased delivery efficiency enables him to give the contractor rapid fire service and the builder, who is working with might and main on a time contract, buys from the wholesaler who uses the King Semi-Trailer because quantity deliveries are assured.

One wholesaler who operates three King Semi-Trailers and one tractor truck has put his hauling operations on the most profitable basis possible. While one semi-trailer is being loaded at one end of the haul, another is being unloaded at the other end while the tractor is hauling the third semi-trailer from one point to the other. The tractor is always in motion.

On each trip the King Semi-Trailer and the tractor



Use King Trailers and Triple Your Haul

King Trailer Company, 1200 Main Street, Ann Arbor, Michigan



do the work of three one-ton trucks. Figuring one hour for one trip and estimating the truck operating cost at \$1 per hour it would cost \$3 to handle this same work with trucks. The operating cost of a King Semi-Trailer is approximately 15c per hour—in other words the cost per trip using a King Semi-Trailer with the tractor is \$1.15. Think of it! \$1.85 saved on each trip. This tremendous saving demonstrates conclusively that the lumberman who is not using King Semi-Trailers is wasting hauling profits.

The Retail End—City

Service is the primary demand of city customers. King Semi-Trailers have become a positive necessity to the city retailer. He must be able to handle large loads and furnish quick service. His short hauls must be profitable.

It isn't hard to understand why a retailer should attach a 3-ton King Semi-Trailer to a 1-ton motor truck if he can increase hauling capacity to 3-4 tons, barely increasing his operating costs.

Unloading railroad cars is non-profitable work. The retailer operating at a distance from an unloading track frequently finds himself up against the proposition of unloading and at the same time serving customers. This is where the relay system is especially profitable.

King Pole Trailers

can be used to advantage in hauling long timbers up to 40 ft. in length. These Pole Trailers are carefully engineered for the work in hand. Their construction is marked by the same careful workmanship, staunch materials and intelligent engineering that distinguish the entire line of King Trailers.

The Retail End—Miscellaneous

Country Districts

Lumber retailers in the country have discovered that King Model A and Model B trailers solve their delivery problem admirably. By increasing their delivery radius, they increase their sales territory. If the farmer hasn't time to come to them, they can go to the farmer. They can specialize in delivering supplies to distant points.

King Model A and B Trailers, which are suitable for hauling lumber, coal, cement, plaster, flour and feed up to 1 ton, can be attached to any auto by the King Universal Motion Connection furnished free with every King Trailer. These models are of 1,200 to 1,500 lbs. capacity.

What A Trailer Should Be

A wagon attached to an auto is not a trailer.

A trailer must be especially designed and constructed for the work at hand. When a horse drawn vehicle is attached to a motor, trouble inevitably results. Wagon wheel bearings are designed for slow speed. A good average speed for a wagon is 2½ miles an hour and the average horse is not capable of over-speeding these bearings. Attach the wagon to a Ford or other motor power and immediately the speed of the wheels is increased from 14 r. p. m. to 42 r. p. m.—an increase of 200%. Overheating inevitably results. The tires bounce from bump to bump in the road with a series of sledge hammer blows, the constant bang weakens the axle and breakage results.

The trailer must be pulled from the body—not from the axle.

It should track automatically with the pulling unit. It should be equipped with ball or roller bearings. The wheels should be artillery type—regular automobile construction, built to stand the same high speed and road conditions that the motor truck encounters.

The trailer should be equipped with a universal motion connection to permit up-and-down and rolling motion at all times.

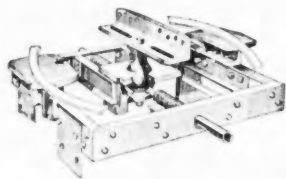
It should be equipped with a spring draw-bar to absorb shocks of starting and stopping.

The King Trailer fulfills these conditions—it is the result of years of intensive study and experience in successful motor truck design and construction.



ing Capacity at Original Operating Cost

King Trailer Company, 1200 Main Street, Ann Arbor, Michigan



King Irwin Fifth Wheel

The Trailer is only as good as its connection with the tractor. This must be a turn table and a stabilizer. Upon the connection depends the trailer's efficiency as a carrier. The Fifth Wheel of the Semi-Trailer must have a universal rocking motion as well as the ability to absorb the jerk and strain of starting and stopping and the shocks of road obstruction. This is why the invention of the King-Irwin Universal Motion Shock Absorbing Fifth Wheel has put the King Semi-Trailer in the front rank as an efficiency hauler.

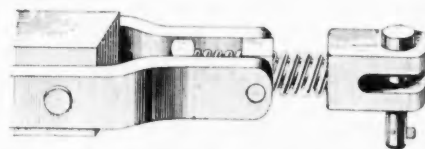
The King-Irwin Universal Motion Shock Absorbing Fifth Wheel is fastened to the tractor frame directly over the axle. The Semi-Trailer is connected with the tractor by means of a ball and socket joint—capable of universal motion. Broad rub irons are attached to the connection. A circle, which is furnished with the fifth wheel, is attached to the Semi-Trailer. This circle comes in contact with the rub irons, when, in rounding corners or passing over rough, uneven roads, the body of the Semi-Trailer is not perfectly level.

Ever ride on a railroad train that stopped suddenly—? Remember the awful jolt you got—? Do you know what would happen if a street car stopped without warning—? Everybody in the car would be jarred considerably and that's just what happens to a trailer that is not connected to the power plant with a King-Irwin Shock Absorbing Fifth Wheel. The tractor, the Semi-Trailer and the load receive a terrific jolt unless there is some sort of shock absorbing suspension.

In the King-Irwin Universal Motion Shock Absorbing Fifth Wheel, the crosshead which contains the socket, is held in suspension by springs in the frame of the fifth wheel. These springs are placed in position under slight compression, suspending the crosshead in a central position. This suspension absorbs all shocks, eliminating surplus wear and tear on both power plant and Semi-Trailer.

The King-Irwin Universal Motion Shock Absorbing Fifth Wheel is made in three sizes—as follows:

The 1½-ton size has 20" circle. It is especially designed for use with converted pleasure cars and truck units. Price.....\$ 50
The 3-ton size has 32" circle. It is designed for use with 1- to 3-ton trucks and converted pleasure cars. Price\$ 85
The 5-ton size has 34" circle. It is designed for heavy hauling duty to 15 tons. Price.....\$125



The King Universal Motion Connection

This connection is furnished free of charge with every King Trailer. In designing this connection we took special pains to insure tracking accuracy, as a trailer, to be efficient, must track with its pulling power. This connection is forged from the best grade of chilled steel—there is no malleable iron in its construction and it is as strong as is possible. It can be attached or detached in one second's time by removing King bolt.

Specifications King Semi-Trailers

	S-15—1½ Ton	S-3—3 Ton	S-5—5 Ton
Body	5 x 12 ft.	5 x 14 ft.	6 x 14 ft.
Tread	56 in.	56 in.	56 in.
Height	42 in.	47 in.	49 in.
Tires	34 x 3½ in.	36 x 5 in.	36 x 6 in.
Springs	40 x 2½ in.	48 x 3½ in.	48 x 3½ in.
Axles	2½ in. diam.	2¾ x 2¾ in.	2½ x 3½ in.
Bearings	Roller	Roller	Roller

Specifications King Small Trailers

	Model B	Model A
Capacity	1200 pounds.	1500 pounds.
Body:	7' long, 3'10" wide, 18" high.	7' long, 3'10" wide, 18" high.
Springs:	Semi-elliptic under- slung, 1½" wide.	Semi-elliptic under- slung, 1¾" wide.
Axles:	1¼" sq.	1½" sq.
Bearings:	Ball.	Ball.
Wheels:	Artillery, 16-spoke.	Artillery, 16-spoke.
Tires:	Solid rubber trailer type, 32x2".	Solid rubber clincher truck type, 32x2".
Connection:	King Universal Motion Coupler.	

Specifications King Logging or Pole Trailers

NUMBER P-15

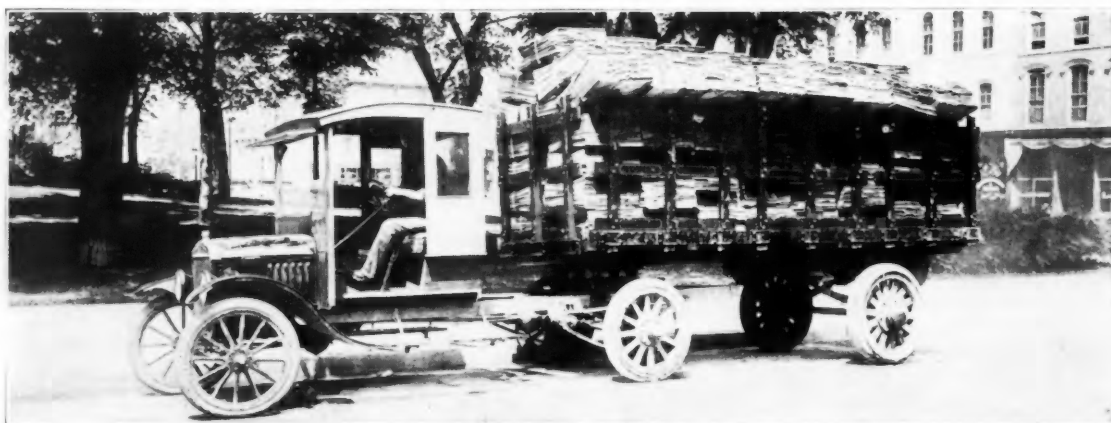
Capacity, 1½ tons guaranteed. Adjustable reach, length from nine to fourteen feet, from bolster. Adjustable bolster stakes.

Frame, 5" channel; Tread, 56"; Width of Bolster, 60"; Height, 56"; Axle, alloy steel, 2¼"; Springs, alloy steel, 40x2½"; Tires, 36x4"; Bearings, roller; Shackle bolts, hardened and ground.

NUMBER P-25

Capacity, 3½ tons guaranteed. Permanent reach, standard length nine feet from bolster. Length up to twenty feet at slight extra cost, if ordered. Adjustable bolster stakes.

Frame, 6" channel; Tread, 56" width of bolster, 60"; Height, 56"; Axle, alloy steel, 2¾x2¾"; Springs, alloy steel, 48x3½"; Tires, 36x6"; Bearings, roller; Shackle bolts, hardened and ground.



WRITE DIRECT TO US

PROMPT DELIVERY ASSURED

King Trailer Company, 1200 Main Street, Ann Arbor, Michigan

He Waited Too Long



"If I only had this set of books twenty or thirty years ago, they might have changed my whole life. The knowledge in the big CYCLOPEDIA would have enabled me to increase my earning power, to take on big work, paying big money, and possibly have helped me to make a fortune in the building business."

Hundreds of letters like the above have come to us, breathing between the lines the same pathetic story of regret—showing how hard it is for the untrained man to really get ahead in life. **The opportunity is yours NOW**, and the way is easy. **Don't wait too long. Don't wait at all.** Read the terms of our **NO-RISK, Guarantee Offer** over again, and sign and mail coupon today. You risk absolutely nothing, and you will reap the benefit ever afterward.

VERY BRIEF LIST OF CONTENTS

To realize their tremendous scope, you must see the books—you can get the books for five days' examination without cost to you.

Carpentry.
House Framing
Uses of Steel Square
Rafter Cuts
Strength of Timber
Roof Trusses
Stair Building
Drafting and Design
Working Drawings
How to Read Plans
Blue-Printing
Architectural Forms
Architectural Lettering
Construction Contracts
Forms of Contract
Architect and Owner

Specification Writing
Inspection of Work
Cost Estimating
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
Concreting Machinery and Tools
Concrete Mixers

Block Machines
Number of Blocks Required
Brick and Tile Machines
Forms (Wood, Metal)
Cement Houses
Foundations
Floors and Walls
Roofs and Chimneys
Fireproof Construction
Concrete Sidewalks
Ornamental Use of Concrete
Surface Finishes
Art Tile and Mosaics
Terrazzo Floors
Concrete on the Farm
Fence-Posts and Gate-Posts
Sewer and Drain Pipe
Concrete Silos
Reinforced Concrete
Principles of Design
Reinforcing Materials and Systems
Industrial Buildings
Concrete Piles
Sewer and Tunnel Work
Bridges and Viaducts
Culverts, Reservoirs

Estimating Concrete Work
Standard Specifications
Masonry Construction
Building Stone
Brick and Brickwork
Mortar for Masonry
Bonds and Joints
Steel Construction
Steel Shapes
Use of Handbook Tables
Allowable Stresses
Rivets, Tie-Rods
Columns, Beams and Girders
Floor and Roof Arches
Roof Trusses and Coverings
Mill Building Construction
Steel Bridges
Heating, Ventilation
Furnaces and Pipes
Plumbing
Sewers and Drains
Electric Wiring
Painting
Paperhanging
Furniture Making
Useful Tables, Rules, etc.

A B.
2-18

**Radford
Architectural
Company,**
1827 Prairie Ave.,
Chicago

Please send me, express prepaid, your 12-volume Cyclopaedia of Construction, for five days' free examination, with privilege of return at your expense. I enclose \$1.00 deposit, which you agree to return if I decide not to keep the books after examination. If I keep the books, I will pay \$2.00 a month until the special price, \$23.50 is paid, otherwise I will notify you within five days after receipt of books.

Your offer also includes Radford's Portfolio of Plans (over 300 designs), and one full year's subscription to the American Carpenter and Builder. You also agree to furnish set of Blue Prints and Specifications, if ordered within 2 months after acceptance of books.

Name.....
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**12 Big Volumes—Free Premiums—No Risk
SENT FOR ONLY \$1.00**

RADFORD ARCHITECTURAL CO.

1827 Prairie Ave., CHICAGO, ILL.

(Continued from page 124.)

After the lock is finished nail the stops in. If the jambs are not rabbited it should be nailed in to fit the door with a 1-32-inch space all around, unless the door is in a twist or bowed considerably. In that event the stop should be set so it will bring the door up in proper shape, as near as possible without too much strain.

Enough nails of about 1¼ inch brad size should be put in to make the stop lay up tight to the jambs. The brads should be set so they can be puttied. Don't use lath or a big-headed nail. It makes the work look cheap.

A well-hung door is a job to be proud of; a poor job an abomination and botheration, and a thing of regret forever after.

A. C. SCHNAKE,
Carpenter and Builder.



Size of Pipe and Strength of Nails

To the Editor:

Pittston, Pa.

As a subscriber to your valuable paper, the AMERICAN BUILDER, I come to you to answer any inquiry. On a job of houses where I am working, there are six houses on the street, and we have for a pipe line only one ¾-inch pipe to furnish water for the six houses. Now, what I want to find out is what size pipe will it take to furnish water for all six houses to equal a ½-inch service pipe for each of the six houses?

Now, I have figured it this way. To double a pipe will equal four times the volume, so if we double a ½-inch pipe, that would be a 1-inch pipe equal to four ½-inch pipes, or four houses. Now, the other two houses would equal one-half of 1 inch, or ½ inch, so at that rate it would take a 1½-inch pipe to furnish a ½-inch service to six houses. Am I right or not?

Also, I wish you would let me know the relative or maximum strength of 8d, 10d and 20d nails in erecting scaffolding, as I have often wondered how many nails it takes to erect safe scaffolding.

LOUIS BRANDENBURG.



Concrete Block Garage Built by Earl Brewer at Harpster, Ohio.

Public Garage of Blocks

To the Editor:

Harpster, Ohio.

The accompanying photograph represents a garage I finished Dec. 1, 1917. The building is 34 by 60 ft. in size and is constructed of cement blocks.

The building was built by my men and myself from the foundation to the roof, and the blocks were also made by us. The building is not plastered, and during all of our cold weather one small stove has kept this building from freezing inside. This shows the adaptability of cement block buildings

(Continued to page 132.)

Bonded Lightning Protection

That is just what we mean—every installation of Shinn-Flat Lightning Conductors is covered by a Cash Bond issued by a large bonding company that Lightning cannot strike the building.

No other manufactures of Lightning Conductors in America has ever stood behind his system to this extent.

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.

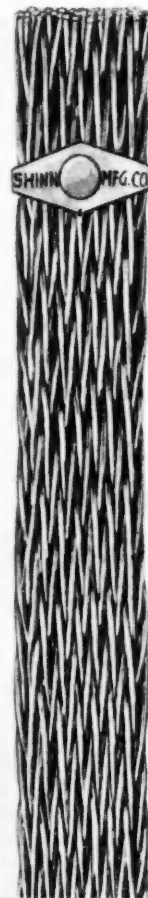
With Shinn-Flat you cannot only sell Protection for every building you build, but you can get the job of protecting every unprotected building in your community. It sweeps the field of all competition. We help you get the business. Write us.

W. C. SHINN MFG. CO.

1635 Monadnock Bldg., CHICAGO

Get the Extra
Profit by "Pro-
tecting" the Build-
ings You Build.

Lightning Can't Strike if SHINN Gets There First



Flue Linings



**PREVENT
FIRES**



FIRE is the servant or the demon of the household. A few inches of metal or masonry, at the most, stand between grateful warmth and the terror of homelessness and possible death in the flames.

In winter, when fuel is piled high, danger of destructive fire lurks in every cracked chimney, in every crevice caused by broken or disintegrating mortar.

Flue Linings of fire clay are the best fire insurance because they fit inside the masonry of the chimney and "break" the dangerous joints. Where an insurance policy merely reimburses, flue lining actually protects.

There is but one joint in 24 inches of flue lining. Not only is it much more effectual than an extra thickness of masonry, but it economizes space, and saves money.

Not only does Flue Lining banish the danger of so-called "chimney fires" but it improves the draft of the chimney by providing a smoother inner surface than the most perfect brick work.

It does not necessitate larger diameter for the chimney. The smoothness of the interior more than offsets the slight space occupied by the lining.

Safety, efficiency, economy, alike demand Flue Linings of fire clay. Nothing else serves the same purpose. The conscientious builder advises their use. The wise house owner insists upon it.

THE SEWER PIPE MANUFACTURERS'
JOHN L. RICE **ASSOCIATION** **SECOND NATIONAL BLDG**
FIELD COMMISSIONER **AKRON, OHIO**

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER



Store Building

Milwaukee, Wis.

WOLF and EWENS
Architects

Attractive
stores and
shops are built with

MIDLAND TERRA COTTA

MIDLAND
TERRA COTTA
COMPANY

1515 Lumber Exchange
Chicago

ALBERT S. HECHT
Architect

Woolworth Store

Blue Island, Ill.



Correspondence Department

(Continued from page 130.)

to cold weather. The two men on each side are the owners of the building. The man in the center is an automobile salesman.

Wishing the AMERICAN BUILDER success in 1918, I am

EARL BREWER, General Contractor.

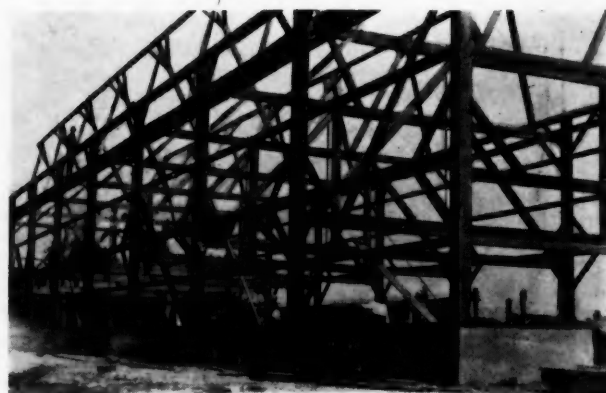


Photo 1. North Side of Barn Frame.

Evans Barn Rebuilt in Fifty-Three Days

To the Editor:

Sugar Grove, Ill.

I had the contract for building the new barns for J. D. Evans, president of the Poled Angus Association of North America. The barn is 120 by 36 by 20 feet; gambrel roof. The middle bents are self-supporting. No supports below. The entire space being used for shed room. The upper floor holds about 160 tons of hay.

Four days from the completion of this barn, it and another one, 36 by 48 feet, burned to the ground. The cause of the fire was never learned.

We immediately made plans to reconstruct them; and fifty-three days from the time of the fire both barns were completed.

Photo 1 gives a view of the north side, showing the style of bracing where the floor goes in. Photo 2 is a south view, showing the main posts resting on piers 3 feet square in the ground. This is the open side to admit stock.

Photo 3 is a cross-sectional view showing the self-support-

(Continued to page 134.)

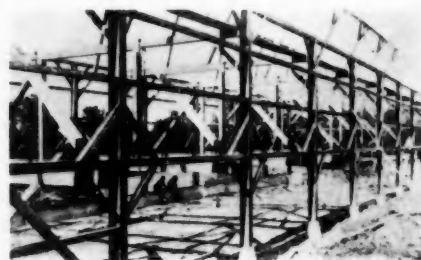


Photo 2. South Side of Barn Frame.

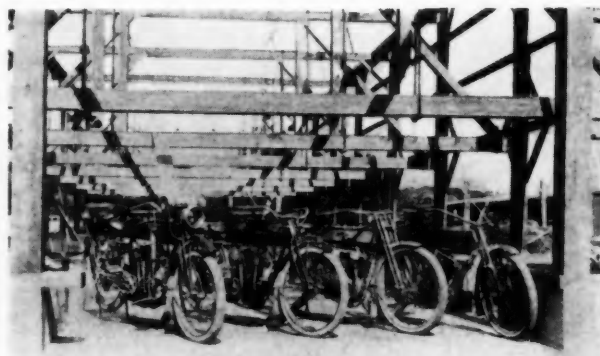
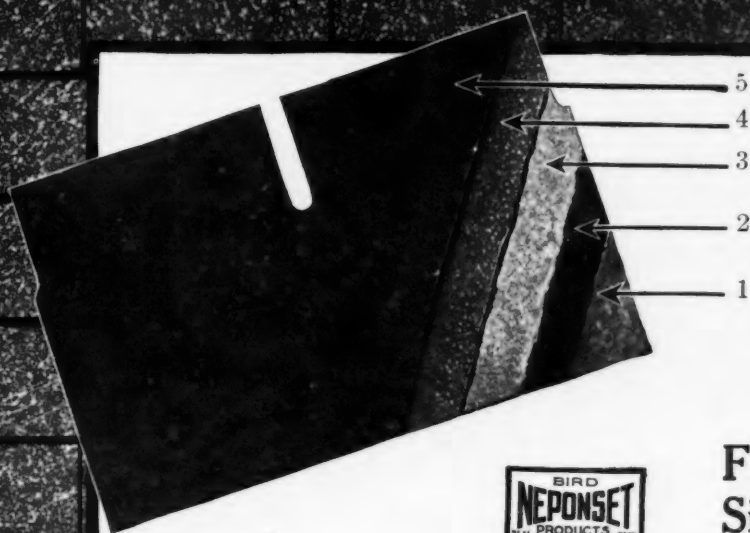


Photo 3. Builder Kouth and His Men Get There on Motorcycles.



This illustration shows why Neponset Twin Shingles are called "the roofing development of the twentieth century." First there is a heavy sheet of tough, fibrous felt (made in our own mills). Second, this felt is thoroughly soaked with everlasting asphalt. Third, a layer of crushed stone is deeply imbedded in this sheet under enormous pressure. Fourth, another layer of Neponset Compound is applied over the crushed stone. Fifth, a layer of crushed slate gives the Neponset Twin Shingle its attractive surface of red or green.



Five Layers Six Processes

Note the illustration carefully. It tells a real quality story. Read the

descriptive text. It shows *why* there are years and years of life and usefulness ahead of a Neponset Twin Shingle Roof.

Here are other advantages for *you*. Your man works *faster* with Neponset Twin Shingles. He handles only half the quantity that he would of single shingles. He works straight ahead because the notches automatically take care of spacing.

NEPONSET TWIN SHINGLES

mean a speedy job and a good job with less material—180 twenty-inch Neponset Twin Shingle, laid 4 inches to weather cover 100 square feet. It takes 424 single shingles to cover the same surface. It takes 848 nails for covering this area with single shingles and only 540 nails with Neponset.

If need be, one man can lay a roof with Neponset, because they're light and easily handled. It's really handling two shingles in one—the Only Twin Shingle—unbeatable for appearance, quality and true economy. Write today for full information about Neponset Twin Shingles.

BIRD & SON (*Established 1795*) Dept. C, East Walpole, Mass.

New York : Washington, D. C. : 1434 Monadnock Bldg., Chicago, Ill.

Canadian Office and Plant, Hamilton, Ont.

(Continued from page 132.)

ing bents. This picture also shows the way we travel to and from work. The motorcycle is very efficient in this line of work.

L. S. KOUTH



To Avoid Sore Hands

To the Editor:

Zion City, Ill.

I think it would be helpful to some of the readers of the AMERICAN BUILDER to get a little information about the care of their hands.

As most mechanics have work to do in the cold and wet weather, their hands get cracked and rough. I find it helpful to use a flat piece of pumice stone and scour the rough parts of my hands as I wash them with warm, soft water and good soap. There are some preparations of glycerine that are good to rub on the hands after washing to keep the skin soft and flexible.

I would like to see some practical information printed on this subject. Good hands are needed as well as good plans and sharp tools.

C. E. HOLCOMBE.



How Do You Paint a Ford?

To the Editor:

Carnduff, Sask.

I would be pleased to see an article in the AMERICAN BUILDER as to which is the best way to paint an auto body, that is, the metal bodies, as a Ford car, for instance.

After cleaning off all old paint, would it be correct to put on a coat of lead and oil as a primer, as I want to paint this car a gray color?

Trusting to see this in an early issue, I am,

WALTER H. COTTIS,
Building Contractor.

Wants Idea for Concrete Ash Can

To the Editor:

Bozeman, Mont.

I desire information in regard to constructing a concrete ash receptacle (portable); one which could be placed in yard—something which has been found practical in other cities.

G. A. ENSINGER,
Contractor and Builder.



Who Can Help Him?

To the Editor:

La Grange, Ore.

I would like to know of some kind of a device to enlarge small letters and figures. I have had one, but I lost the design. The kind I have reference to is something like the one used to draw an ellipse.

If you can give me an idea I would like to have it.

C. E. HENDERSON.



Wants to Build a Typewriter Stand

To the Editor:

Colorado Springs, Colo.

In accordance with your instructions "To ask for what we want," I would like plan and details for a typewriter stand, preferably one to close up and keep the dust and dirt out of the machine.

C. H. BLOOD,
Contractor.



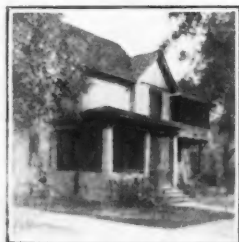
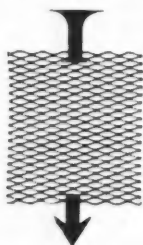
Wants to Build Upholstered Arm Chair

To the Editor:

Tuxedo, Man., Canada.

I would be very pleased if you or any of the readers could furnish me with details of construction of those massive, low-back, upholstered arm chairs.

H. E. CARR.



A Suggestion to Builders---Contractors---Dealers

Any Old House

made like new with an Overcoating of Stucco over

SYKES Expanded Cup Metal Lath

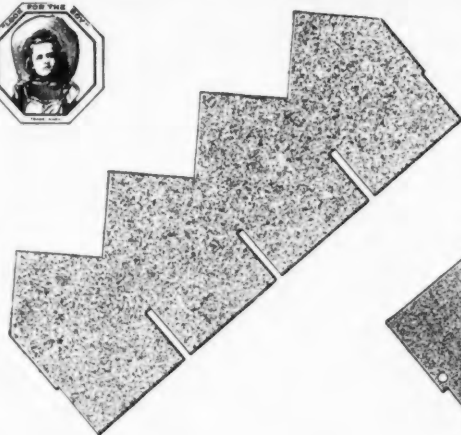
No Furring Strips Required—this Metal Lath saves Material—Time—Labor

Stucco and Sykes Metal Lath makes the old house a new and handsome one; gives warmth and fire protection. There's many a job like this in your county. The cost is comparatively low.

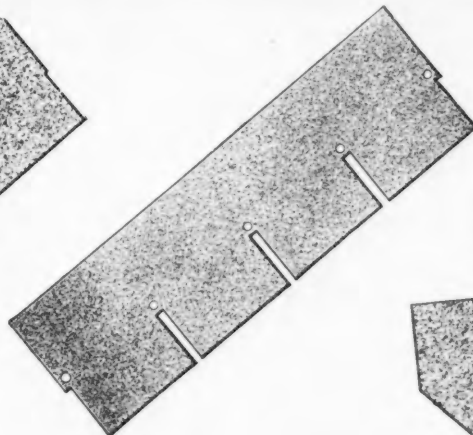
Write for Free Booklet—Specifications for Stucco Over Metal Lath—and for sample

Sykes Expanded Cup Metal Lath is ideal for Stucco and for Interior Work. It has the clutch that insures perfect key and saves labor and material.

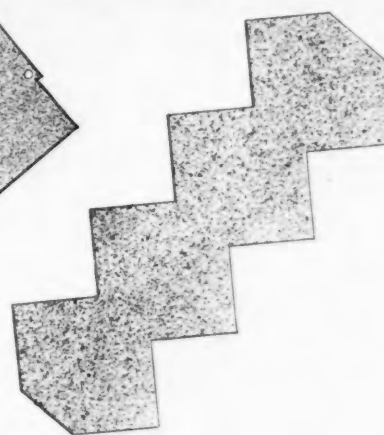
Sykes Metal Lath & Roofing Company
504 Walnut Street NILES, OHIO



REX REVERSIBLE SHINGLES
Length of shingle—12 $\frac{3}{4}$ inches
Width of shingle—8 inches
Length of strip—32 $\frac{3}{4}$ inches
Strips per square—110
Colors—Dark Red, Grayish Green
Weight—195 lbs. per square
Package—Two bundles per square



REX STRIP SHINGLES
Length of shingle—10 inches
Width of shingle—8 inches
Length of strip—32 $\frac{3}{4}$ inches
Strips per square—112
Colors—Dark Red, Grayish Green, Mottled
Weight—185 lbs. per square
Package—Two bundles per square



REX DIAMOND STRIP SHINGLES
Length of shingle—12 $\frac{3}{4}$ inches
Width of shingle—8 inches
Length of strip—32 $\frac{3}{4}$ inches
Strips per square—110
Colors—Dark Red, Grayish Green
Weight—165 lbs. per square
Package—Two bundles per square

Rex Products—A Dominant Line

ASPHALT Shingles have demonstrated their economy, service and profit possibilities. Asphalt Shingles in Strip form is one of the most sensible roofing ideas we ever had. "Strips" are favorites with the building trade; there is a steady demand for them. Here are three styles with which we can help you build bigger profits.

Asphalt Shingles resist fire. All styles we make bear the red label of the Underwriters' Laboratories. Labeled shingles earn lower insurance rates than more combustible roofings.

REX PRODUCTS are well known as GOOD roofings. You may be sure of the quality—it is a feature in which we take much pride. In fact, we guarantee it.

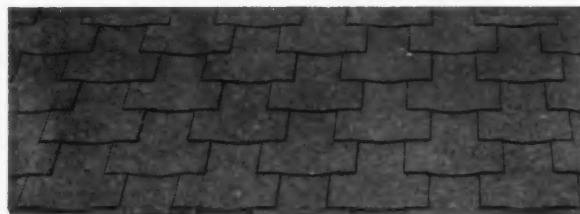
Here are other items not illustrated:

Rex Shingles (8x12 $\frac{1}{2}$ inches)
Rex Inlaid Roofing (shingle pattern)
Rex Starting Strips—50-ft. lengths, 8, 12, 16, 20-inch widths
Zarex Roofing—1, 2, 3-ply
Mikado Roofing—1, 2, 3-ply
Steadfast Roofing—1, 2, 3-ply
Double Sanded Roofing—3, 4, 5-ply
Guardian Roofing—1, 2, 3-ply
Regular Paradox—Rex Canvas Roofing
Rex Elack Waterproof Paper
Rex Roof Paints and Preservatives
Rex Flintkote Plastic

Send for particulars. We will mail our big Catalog No. 20, samples and prices, without obligation to you.



1, 2 and 3 ply



THE method of laying REX WIDE SPACE SHINGLES is patented. These shingles measure 9x14 inches, are laid with 4-inch exposure to weather, and spaced 6 inches apart. There are 240 shingles per square weighing 158 pounds. Colors are dark red, grayish green and mottled. Their first cost is low. Labor and freight saving adds to total economy. Fully guaranteed ten years.

The Flintkote Company

98 Pearl Street, Boston, Mass.

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1104 Equitable Bldg.

CHICAGO
651 Peoples Gas Bldg.

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Factories: RUTHERFORD, N. J. CHICAGO, ILL.



32 and 16 inch



Before "Fly Time" Comes "PEARL" Time

Before insect pests begin to breed and carry in your home disease-bearing germs and discomforts along with them—screen your windows and your doors—close in your porches—put that wonderful screen material—G & B PEARL—between your family and summer dangers.

Back of the enormous and ever increasing sales of G & B PEARL is its unusual wear quality. It is as durable and rust-proof as metal can be made and does away with the necessity of painting and repairing and continually replacing screens. No painted or galvanized cloth can be compared with it. The metallic coating which protects it from the ravages of rust is a secret process owned and controlled exclusively by Gilbert & Bennett. So avoid imitations and "just as good." They are inferior.

It's easy to identify genuine G & B PEARL—two copper wires in the selvage are the permanent mark—a Round Tag with our name is on every roll in the dealer's stores. Look for these marks—make sure they're there—and you'll get the hand-somest, best wearing screens that ever went on your house.

There is a dealer in your town who sells and recommends G & B PEARL. If you can't locate him write us for samples and literature. Address Dept. J.



**The Gilbert & Bennett
Mfg. Co.**

New York Georgetown, Conn.
Chicago Kansas City

G & B PEARL is made in two weights—regular and extra heavy. The best hardware dealer in your city sells "PEARL"

Lightning Rods Prevents Fires

By R. S. Whiting

WHEN I build a house or a barn I am going to put lightning rods on them. I have just completed a compilation of the annual property loss in the United States, due to lightning, which figures up approximately \$8,000,000 chiefly in the rural districts, in addition to which an average of 1,500 persons are struck by lightning, one-third of whom are killed and many others permanently injured.

Since Benjamin Franklin discovered the identity between electricity and lightning, and conceived the idea of the lightning rod thru which to conduct lightning to the ground without causing damage to buildings over which the discharge was directed, there have been many discouraging incidents obstructing the promotion of this valuable and necessary device. Apathy on the part of many, in the earlier days, towards the use of the lightning rods was largely due to the belief of some that lightning was a Divine instrument sent for the punishment of sinners, and for this reason their use on churches was slow to be recognized until later, when they were admitted to be a necessary part of construction as a means of protection against fire.

As a result of the operations of numerous fraudulent promoters thruout the country who engaged in unfair practices as well as introducing rodding equipment unfit for service, considerable prejudice was aroused which might have been avoided had the equipment been properly installed. During recent years the practicability and usefulness of the lightning rod has been so often demonstrated by honest dealers that it is now generally recognized as not only useful in securing low insurance, but also necessary in protecting buildings, especially those which are exposed or isolated.

Such evidence as is available, taking the general run of lightning rods, indicates that they reduce the fire hazard from lightning by 80 to 90 per cent in the case of houses and by 99 per cent in the case of barns. If an equal and large number of unprotected barns and houses were struck, about four times as many barns as houses would be set on fire. Experience has shown that rods of almost any kind, whether defective or not, give a greater or less degree of protection, but to obtain the maximum degree of protection standard equipment should be used. Besides, even tho rods of almost any kind give some protection, it is very unwise to permit a defective rod to continue without repairs or alterations.

Structures that have proved themselves especially liable to fire by lightning are: Farm barns, ice houses, churches, elevators and oil tanks. Houses are also struck with as great frequency as other objects, but are not as liable to fire as barns and other buildings containing inflammable materials in large quantities. Other favorite targets for lightning are power-plant chimneys, water towers and flag poles.

50% FUEL SAVED 100% MORE HEAT

By Using

Clean-Air ONE REGISTER Heater (PIPELESS)

*Gives More
Real Heat
Value at
Much Less
Expense
Both in first
cost and
Future
Upkeep*



MAKE THE MOST OF THIS OPPORTUNITY

You can do the bulk of furnace installation in your community. The One Register Furnace—sometimes called **PIPELESS**—has been thoroughly tried and proven. **It is the Contractor's Job to Install It.**
Clean-Air Heaters meet the most exacting requirements. They are built right—both theoretically and practically. Do away with long stretches of asbestos-wrapped pipe, and consequent loss of valuable heat. Can be easily installed in new or old buildings in one day's time.



We Want Good Men to Represent Us

Both our traveling force and our office will assist you in making the heating business extremely profitable, especially in those months when building is very quiet.

WE ARE HEATING ENGINEERS

Let us solve your Heating Problems. We will gladly show you where and how to install the furnace so that maximum efficiency will be obtained. This Service—performed by men who really understand the heating business—costs you nothing.

Clean-Air Heaters Positively Guaranteed By Standard Bond

This guarantee gives both you and your customer absolute protection. Send in coupon today and get our proposition.

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STANDARD HEATER CO.
GENTLEMEN:
Please send me without expense or obligation, Building literature about Clean-Air Furnaces.

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438 West Ontario Street
CHICAGO, ILL.
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A. B. 214

FLEX-A SLAB

The Standard Among Asphalt Shingles—"The Shingle of Enduring Fame"

FLEX-A-TILE Shingles in the new Slab form are **four in one**. They lay as one shingle—are self-spacing. And save over 50% in labor cost, 35% in freight and 38% in nails.

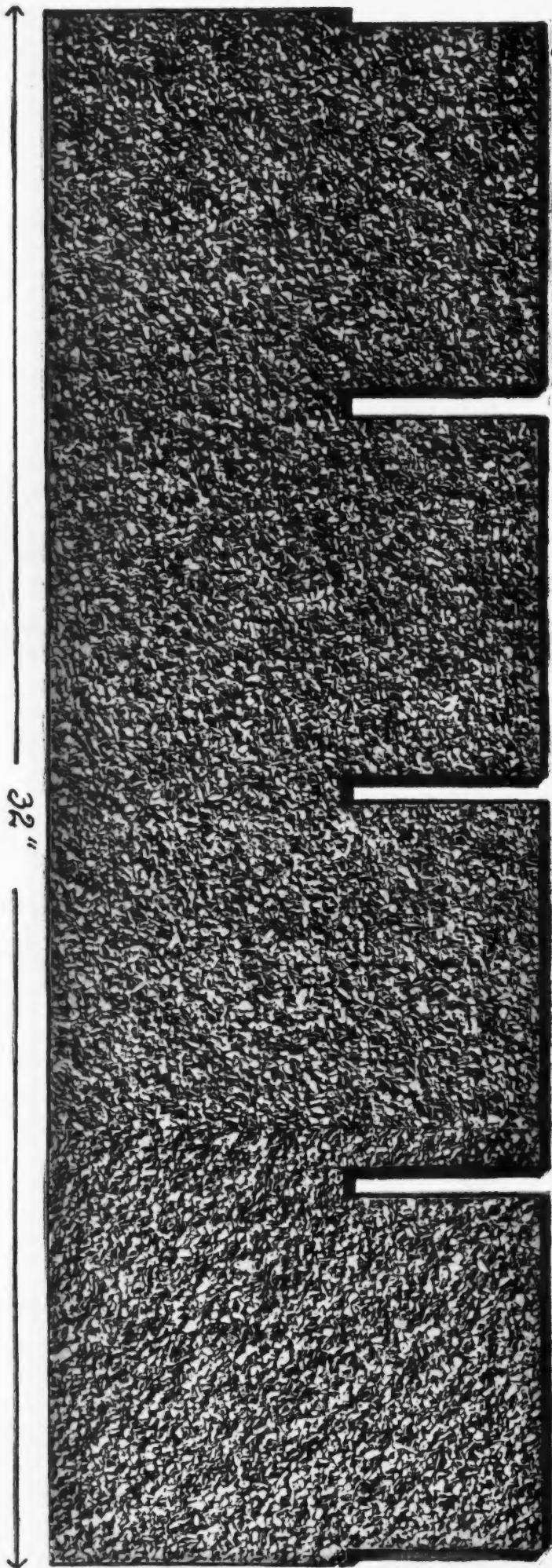
Three styles are made, Diamond Point, Style Four and Reversible. Coming in either deep red or emerald green natural stone surfacing, they allow of many attractive effects in design.

Flex-a-Tile Shingles **endure**—because quality is built into them. Strong thick wool felt, asphalt of high melt point, crushed granite surfacing—tested and combined and tested again—make FLEX-A-TILES **invariably** good.

For the roofing job you want to be **sure** of doing satisfactorily—for the job meaning **further** contracts—for the job on which you must cut labor and material costs—**use FLEX-A-TILES**.



FLEX-A-TILE Style 4 Slab
Laid in American Shingle Style



32"

10"

TILE SHINGLES

Made Better Than Ever by
the Splendidly Equipped
Heppes-Nelson Roofing Co.

In this annual number we
want to record that 1917
was a record-breaking year for us
—that 1918 is already proving even
more wonderful.

With our new and greater organi-
zation, as the Heppes-Nelson Roof-
ing Company, we offer still broader
facilities for supplying the demand for
FLEX-A-TILE roofing. Three big fac-
tories—in Chicago, Minneapolis and New
Jersey—insure prompt deliveries in any
part of the country.

The name FLEX-A-TILE will continue to signify
the highest grade of roofing made—a shingle that
does not crack, warp or curl, proof against broil-
ing heat and freezing cold, with natural mineral
colors that grow richer with age.

DEALERS

Some Territory Still Open

Some valuable agency territory remains to be allotted—
perhaps in your section. Write today for sample FLEX-
A-TILE Shingles, prices and full proposition. Conditions
point to good and steady 1918 profits for you.

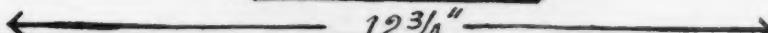
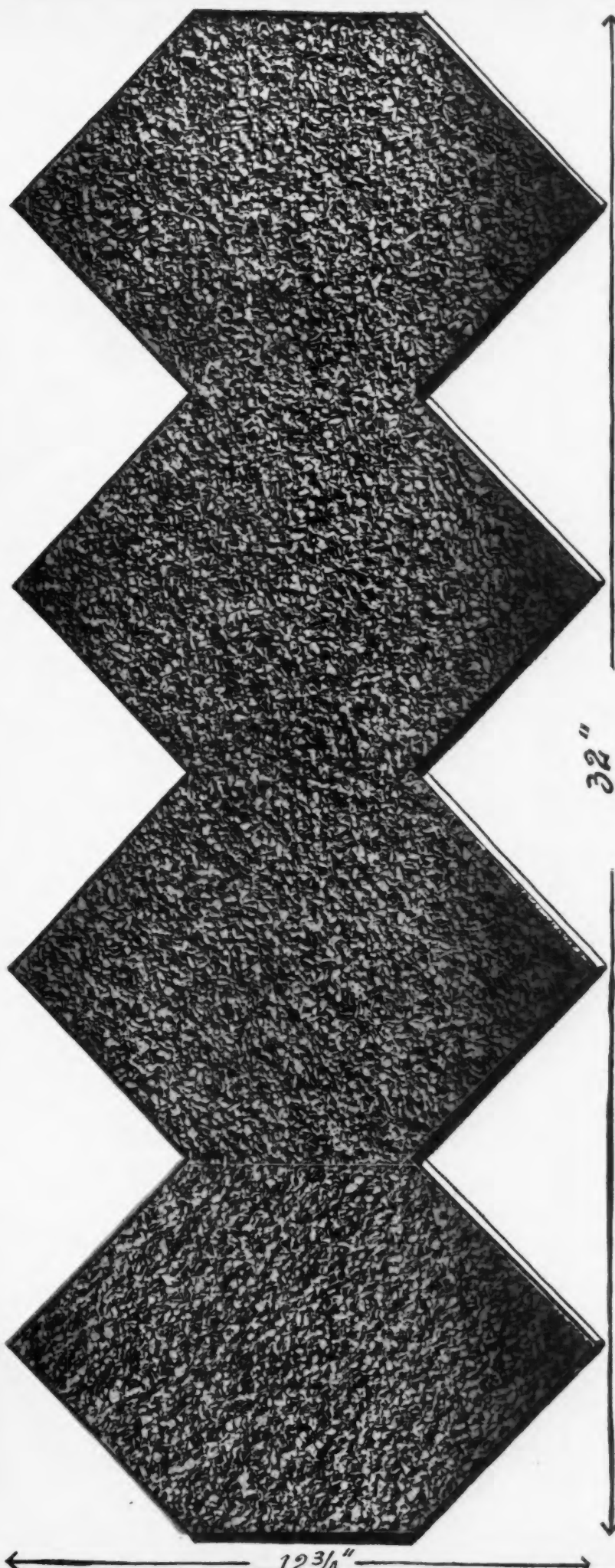
Prices are advancing. Buy now. They'll advance again.

THE HEPPES-NELSON ROOFING COMPANY

Main Office: Dept. B, 1010 Kilbourne Avenue, Chicago
Factories: Chicago, Minneapolis and New Jersey



FLEX-A-TILE Diamond Point Slab,
Laid in American Diamond Style





There's a Vast

in the lasting qualities of sheet metals, just as there is in the wearing qualities of fabrics. The user is concerned about securing maximum service.

Actual time and weather have demonstrated that the main point of difference in favor of

Keystone Copper Steel



Look for this special design below the regular brands—it indicates that Copper Steel is used.

is that it gives more wear and added life to Black and Galvanized Sheets, Roofing Tin Plates, Corrugated and Formed Roofing and Siding products. Demand Keystone for your work.

American Sheet and Tin Plate Company

General Offices: Frick Building, Pittsburgh, Pa.

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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



Difference—

A reputation for reliability has followed *Keystone* quality ever since it was first placed upon the market. Its record is unequalled.

The excellence of the copper-steel alloy was proved before offering it to the trade. It insures greater

Wear and Rust-resistance

for Building Construction purposes, Roofing, Siding, Cornices, Spouting, Gutters—and all forms of exposed sheet metal work where long life and lasting service are important factors.



Send for our booklets describing actual service tests. Every user of sheet metal should have them.

American Sheet and Tin Plate Company

General Offices: Frick Building, Pittsburgh, Pa.

MANUFACTURERS OF

Sheet and Tin Mill Products of every description, including Black Sheets, Galvanized Sheets, Tin and Terne Plates, Electrical Sheets, Corrugated and Formed Roofing and Siding Materials, Planished Iron Sheets, Polished Steel Sheets, Special Sheets for stamping, Automobile Body Sheets, Stove and Range Sheets, Etc.



TODAY!

There's no better axiom for any of us than that old familiar "hurry-up" one,

"DO IT NOW"

"If a thing's worth doing it's worth doing NOW." And there is no question about the *worth* of that

"Beautiful **birch**" BOOK

that we want you to send for NOW.

In our advertising each month we are telling millions of home builders, and others, to use **birch** for interior trim, veneer doors, veneer paneling, floors, etc.—making them "**birch WISE**," a direct help to the builders to whom these fine prospects will one day come.

You know **birch**, of course, but there may be some new information in this book that you can use with profit. In any event it costs nothing to find out.

The little set of **birch** finished panels that will go along with the book will help, too.

Note: We shall be pleased to send both book and panels to any list of your customers—up to 25—on request. No time like NOW.

THE NORTHERN HEMLOCK & HARDWOOD MFRS. ASSN.

201 F. R. A. BUILDING, OSHKOSH, WISCONSIN

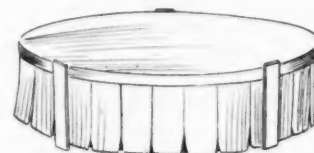
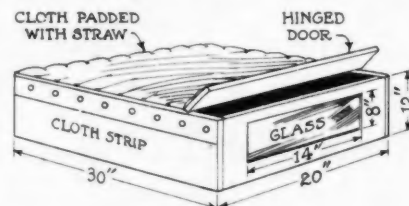


For the Handy Man Around the Farm

Brooder That Can Be Made at Home

A brooder which will do very nicely to keep the little chicks warm and well, may be made inexpensively at home. A box about 20 inches by 30 inches, and 12 inches deep, will do for the box itself. In one of the sides, which will be the front, put a pane of glass about 8 inches by 14 inches. Then, a half-inch down from the top, bore eight half-inch holes in each side of the box.

Tack a strip of cloth around the back and two sides, bringing it just up to the row of ventilation holes. Draw the nails from the first front board of the top, and fasten it with pieces of



Home-Made Brooders.

leather as hinges. Then cover the entire top with straw to the depth of about one inch. Over this padding tack a piece of cloth, stretching it as tightly as possible. It will be best to tack this cloth to the top along both sides of the line on which the little door hinges—this will keep the straw from spilling down into the box when the door is opened.

The hover is simply a cheese-hoop with cloth stretched over it and padded with straw or cotton. Three legs 6 inches long raise it from the ground, and a strip of cloth wide enough to reach down to the floor is tacked around it. This cloth should be split up to the hoop every three inches to permit the chicks running in and out.



To Remove Heavy Rack From Wagon

There is no need of straining and lifting and tugging every time it is necessary to put the rack on a wagon, or take it off.

A simple device to do this work is shown (page 142). Four stout posts, high enough to allow the wagon's passing under, form the corners of a frame for the rack. These posts are joined by timbers strong enough for the purpose, making two sides of a rectangle far enough apart to miss the wagon wheels, but close enough to hold the rack. Two timbers running from each end to the ground form a slide by which the work is done.

(Continued to page 142.)



Inspected Red Cedar Shingles

A Rite-Grade Shingle is up-to-grade, **honest**—a shingle that stamps you as an up-to-grade builder. And Why? Because the Rite-Grade mark appears only on such Red Cedar Shingles as conform to the rigid specifications of the West Coast Lumbermen's Association for **uniformity, thickness, grain, grade and selection.**

Buy only those brands of shingles in which the **Rite-Grade inspection mark** is incorporated.

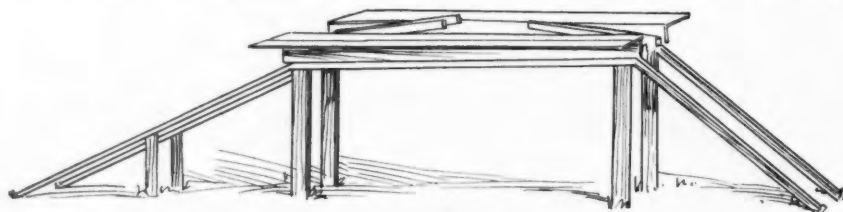
FREE PLAN BOOKS

Address below for Bungalow Plans (12 designs), House Plans and Farm Buildings.

SHINGLE BRANCH **West Coast Lumbermen's Association** 426 Henry Bldg. SEATTLE, WASH.

(Continued from page 140.)

To unload the rack, fasten a chain from the front to the end of the wagon tongue. Then simply drive in between the posts. When the rack reaches the right spot on the slide it lifts off the wagon and is slid nicely up into place; you unhook



Hay Rack Resting on Unloading Tables.

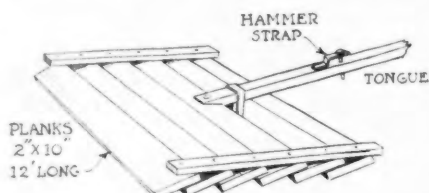
the chain and the job is done. To load it onto the wagon, simply back in under it, hook up the chain from rack to end of the tongue, and start.

Stout stakes may be driven in under the unloading slide at the spot where rack is taken up, as braces. Greasing the slides a bit makes it even easier.



Making a Land Float

On heavy land farmers occasionally have



A Serviceable Land Float.

use for a land float or clod crusher. When ploughing a field there are often spots that are too wet to plough properly. Such land when turned

up to the sun and air quickly forms into clods. After running the harrow over them the clods are left scattered over the surface. If a land float or clod crusher is dragged over the lumps while they are yet soft, they will pulverize and make good soil, but if permitted to bake hard in the sun, they are useless for crop growing.

The farm float consists of five or six planks 10 inches wide and 12 feet long, spiked together clapboard fashion and fastened with cross pieces. If a tongue is used it must project at the proper angle to rest in the neck yoke ring when the bottom of the float rests level on the ground. Some farmers prefer the tongue, others think two chains fastened near the ends and

brought together in the center work better than a tongue. The illustration suggests a tongue, but either pull will do good work if taken in time before the clods bake too hard.



Galvanized Iron Watering Troughs

The lightest and most convenient portable watering troughs are made with a wooden frame to support a round bottom galvanized iron trough. They are made in different lengths and widths for farm and ranch use up to 18 feet long and about 2½ feet wide.

The length of iron used is calculated to make half a circle with a 2½-foot radius. Two by 10-inch plank are used for the upper part of the frame. Headers are framed in at each end and fastened with iron rods. The legs are spiked on the outside of the plank frame. The legs may stand straight or they may be spread a little. The shape and width

(Continued to page 144.)



Send for this Booklet

Your own experience and my talks have given you a good line on the value of Metal Lath for walls, ceilings, partitions and stucco.

Few building owners, however, fully realize its advantages; so we've prepared an interesting booklet for them. It tells why they should specify

BERGER'S Expanded Metal Lath

In simple language, point by point, the owner is told how Metal Lath resists fire, deadens sound, prevents plaster from cracking and falling, stops the gnawing of rats and mice and gives all 'round permanence and satisfaction.

This booklet also contains points of interest for architects and builders.

You'll enjoy reading it yourself; and then, if you wish, we'll send you a supply for distribution to your clients.

Ask for Consumer Booklet F. A. B.

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 Members Associated Metal Lath Manufacturers.



What's Behind Your Plaster



*A Street of Mill-Construction—West 37th Street,
near Loomis Place, Chicago.*

Mill-Construction—Safe and Sure!

RIGHT NOW, more than ever before, the Mill-Construction type of industrial plant insures prospective builders a big saving in time, money and trouble. The material is available, its cost is reasonable, and the work of building is quickly accomplished. A Mill-Constructed factory, foundry, shop, warehouse or mill, employing for interior framing and floors

Southern Pine

"The Wood of Service"

is the most serviceable, as well as the most economical type of modern structure. Properly sprinklered, a Mill-Constructed building is far more fire safe than a non-sprinklered building of so-called "fire-proof" type, and is rated with reinforced concrete as a first class fire risk by factory mutual insurance companies.

The new book, "Mill-Construction", is an authoritative and valuable work on modern building. A copy will be sent you, gratis, promptly on request, if you address Department C-2.

Southern Pine Association

NEW ORLEANS, L.A.



Inexpensive Perfection in Farm Buildings

Practical experience, no less than scientific test, has definitely settled the fact that farm buildings of wood are dryer and warmer—more healthful and more comfortable—than those of any other material.

The modern farmer knows this. Therefore, if you show him that you have the right wood at the right price, he will become your client. And you will have opened the door to sales without number among the farmers of your community.

NORTH CAROLINA PINE

"The Wood Universal"

is being widely used for farm buildings. Its limitless utility, its genuine worth and its extreme economy are responsible for its growing popularity in this respect.

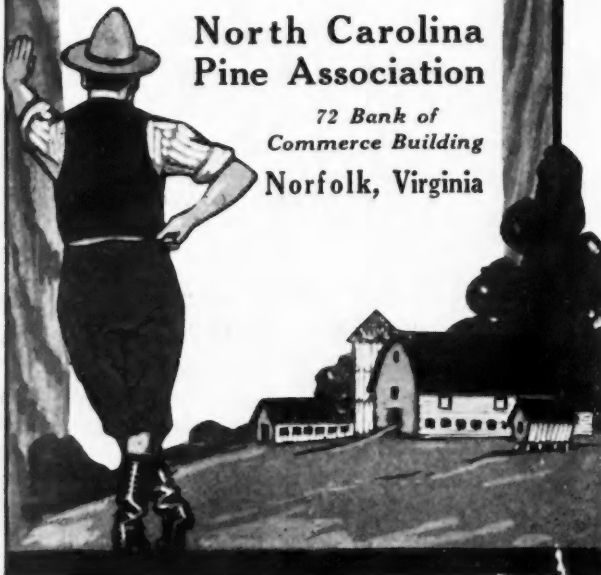
For homes, for barns or silos, for implement sheds or poultry houses, for out-buildings of all kinds, you can recommend North Carolina Pine with full assurance of satisfactory results.

Let Us Help You Get Farm Trade

If you will send us the names of actual farm building prospects in your community, we will send them direct a most interesting Farm Building Book. In addition we will mention your name and refer them to you for further information. Thus we can render both you and your prospect a valuable service free of charge. Send us the names as soon as you get them.

North Carolina Pine Association

72 Bank of
Commerce Building
Norfolk, Virginia



For the Handy Man Around the Farm

(Continued from page 142.)

of the box frame determine whether the legs shall stand perpendicular or not. The trough hangs from the top, being nailed all around, and has no other support whatever, either at the sides or bottom.

The round bottom semicircular trough has heavy galvanized iron ends lapped about an inch and riveted and soldered. Each sheet is lapped an inch and the seams



Galvanized Iron Watering Trough.

are fastened with tinned rivets an inch apart and the lap is sweated full of solder around and between the rivets. This makes a seam that will never rust thru or leak. The seams are the strongest and best part of the tank.

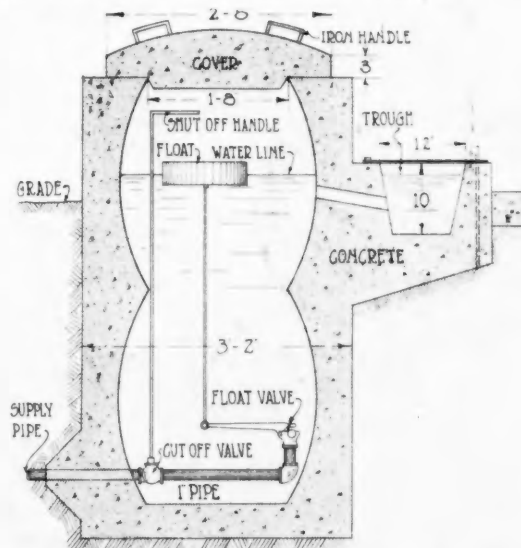
At one end in the bottom of the galvanized trough is soldered a $\frac{3}{4}$ -inch lock nut for small troughs, or an inch size for the larger troughs. In this lock nut a pipe plug is screwed from the bottom. This leaves an opening for a clean-out.

Every watering trough is supposed to be scrubbed with a broom or some kind of brush once a week in warm weather and rinsed afterwards to keep it perfectly clean. The health of live stock depends upon pure, clean water and good, clean wholesome provender.

Troughs more than 8 feet in length should have six legs, having one pair in the center. Sixteen or 18-foot troughs should have four pairs of legs. There is considerable weight to support when the trough is full of water. Sometimes when driving horses to the trough for water the trough gets butted with the end of the wagon tongue. Sometimes cattle crowding around get hooked against the trough or run against it to avoid punishment.

In making a frame for a galvanized trough, there is little more labor and expense in making it solid. Five or six rods with nuts to screw up tight help to hold it in shape. Two rods at each end, and one or two rods thru the middle legs to hold them from spreading are needed in the larger sizes.

Such watering troughs are carried in stock and made to order by local lumber dealers and machinery supply men in different parts of the country. Such contrivances are cheap, portable and will last a long time if carefully used.



Section Thru Float Chamber of Constant-Level Hog Watering Trough. A Barrel Was the Inside Form for Pouring the Concrete.



1866 CURTIS WOODWORK

"The Permanent Furniture for Your Home"

CURTIS Woodwork

is advertised in these strong National and State Farm Papers:

Country Gentleman
Michigan Farmer
Farmer's Guide
Farmer's Mail & Breeze
Wisconsin Agriculturist
The Farmer
Nebraska Farmer
Dakota Farmer
Oklahoma Farmer &
Stockman
Wallace's Farmer
Successful Farming
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Hoard's Dairyman
Oklahoma Farmer
Farmer's Review
Iowa Homestead
Wisconsin Farmer
20th Century Farmer

THE name Curtis counted. Competition on a certain job had narrowed down to two contractors. There was a difference in price. But the higher specified in his bid that he expected to use **CURTIS** Woodwork.

This quality-argument proved the deciding factor. The Curtis contractor got the job simply because he

had a known product—a trade-marked article of sterling merit.

It will pay you to get in touch with a Curtis dealer and learn more about **CURTIS** Woodwork. Learn how it's finished when it leaves the mill, its on-time delivery, its easy workability, how it cuts labor costs and eliminates time losses. Now especially with your shortage of labor you should know and recommend Curtis built-in furniture to your clients.

THE CURTIS COMPANIES, SERVICE BUREAU, 1865-1965 South Second St., Clinton, Iowa

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Topeka, Kan. Dayton, Ohio Eastern Offices at Pittsburgh and Washington

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

Three real reasons why you should urge your clients to build now.

1. Lumber, woodwork, and most other building materials are not high as compared with other products.
2. Curtis Standard Designs cost no more now than special woodwork cost "before the war."
3. Liberty Bonds will be accepted in payment for CURTIS Woodwork.





Cuts Cost of New Work

COMPO-Board is the one wall lining that can be used in new jobs without liability of buckling and cupping between studding. Its core of wood gives it strength to withstand a strain of 650 pounds nailed on studding with 16" centers.

It has proved its low cost, strength and highly satisfactory service in school class rooms where blackboards are essential, on ocean-going steam ships as lining for state-rooms, saloons, etc., and in many other places where it has successfully withstood terrific strain.

It is elastic enough to be bent or shaped, without breaking, to meet a variety of conditions—such as curved ceilings, alcoves, store window display backgrounds, etc.

If you would be **modern** in your ideas about building, you owe it to yourself to get acquainted with Compo-Board.

Write for free sample and interesting booklet.

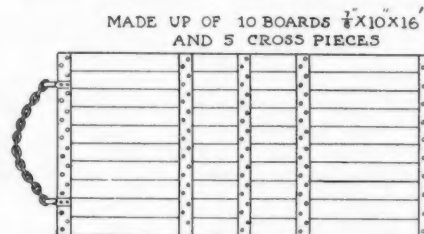
The Compo-Board Co.,
5777 Lyndale Ave. N.,
Minneapolis - Minnesota

Hay Skids as Used in The West

A great many farmers in the West use hay skids made of $\frac{7}{8}$ -inch lumber, nailed to 2 by 4 cross pieces. These skids are about 8 feet wide and 16 feet long with five cross pieces to make them strong. They should be fastened together with

carriage bolts.

The hay is loaded on by hand forks, and the skids are drawn across the stubble to the stack. The smooth bottoms do not injure the clover or alfalfa, even on



TOP VIEW

This Hay Skid Carries a Big Load.

light, sandy land. There is no pitching up, as that work is left for the horses and the derrick. Sometimes hay slings are used on these skids same as on a hay rack.



Farm Roofs

If the roofs on all the buildings on a stock farm were spread out on the ground they would cover a large area. It requires a good deal of care to keep such an amount of roof in good condition. A roof is a very important part of any building. If the foundation and roof are both right, the material between may last forever.

Gambrel roofs are superior to all others for farm barns. Gambrel roofs when properly proportioned are scientifically correct. They brace themselves, because each pair of rafters forms a separate truss. These trusses are placed three feet

(Continued to page 148.)

**EASIER
QUICKER
CHEAPER
CLEANER**

**MORE
PROFIT
FOR
YOU**

Takes the place of plaster for all walls and for ceilings.

WRITE FOR SAMPLES

THE PHILIP
CAREY COMPANY
1021 Wayne Ave.
Cincinnati, Ohio.

**John Smith
Carpenter
PLASTERGON
WALL BOARD**

**"Here's
How
I Make
More Money"**

PLASTERGON WALL BOARD

and the Plastergon Sales Plan have created more business than this carpenter can handle. He found out a long time ago that the big job wasn't always the most profitable, so he keeps on the lookout for the little job. Plastergon Wall Board is just the thing for permanently repairing damp, cracking plaster, making old fashioned rooms modern, old attics beautiful and a hundred other odd jobs that make money for the Plastergon man.

Plastergon can be used to advantage in every home, old or new. It is water-proof, warp-proof and twist-proof, and always gives satisfaction. The Plastergon Sales Plan makes jobs of wallboarding easy to get and once the demand for Plastergon is created, steady work and increased profits are assured.

Write for particulars about Plastergon and the Free Service we render

PLASTERGON WALL BOARD CO.
201 Philadelphia Avenue BUFFALO, N. Y.



*Will you share
these extra
1918 profits?*

Black Rock Wallboard has surprised the country

From Colorado, where anything made of wood meets its hardest test, comes this letter telling of **extra** Black Rock Wallboard profits:

"We have found a ready sale for Black Rock Board here. Several houses that have been put up in the country here have been finished inside with Black Rock Wallboard. Once you get a few jobs like this sold, they all ask about this wallboard. We consider Black Rock Wallboard superior to any other wallboard of this kind on the market."

—FLAGLER LUMBER CO.

Flagler, Colo.

Send for Free Booklet and Sample

This attractive booklet, "Walls and Ceilings That Beautify and Last," will interest every builder. Illustrated in beautiful colors which show how Black Rock Wallboard may be used in many ways. With booklet we will send information regarding our free plan service for builders, and an actual piece of Black Rock Wallboard. Write today.



There is a constant demand for wallboard interiors, as every builder knows, and the builder who is also building **reputation**, makes sure that the wallboard he installs will stand up. Here are a few of the reasons why one Black Rock Wallboard job sells another—why builders are finding it a money-maker:

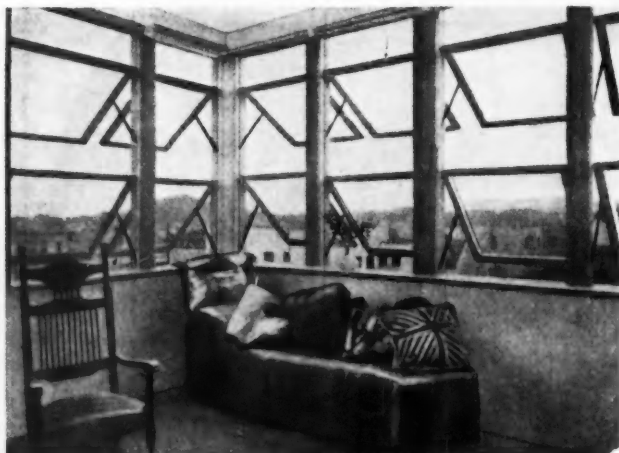
Quality—The moisture-repellant black centre and surface sizing make it practically weatherproof. Four plies of tough compressed fibre insure strength and permanence.

Delivery—Because of the vast resources back of the Black Rock Wallboard Company, and its immense manufacturing facilities, prompt delivery, so necessary to your business, is assured.



Black Rock Wallboard Co.

1505 Ontario Place, BLACK ROCK, N. Y.



SIMPLEX WINDOWS Are most desirable for—
SLEEPING PORCHES, SCHOOLS, HOSPITALS & FACTORIES
or wherever maximum ventilation is desired.

WEATHER & BURGLAR-PROOF
Reversible — Weightless — Noiseless

Both sides of glass washed from inside. No Pulleys, Cords, weights required.

Let us send you our Latest Catalog. It shows how to increase your profits.
Fixtures distributed by the Pittsburgh Plate Glass Co., all principal cities. Address inquiries

SIMPLEX WINDOW FIXTURE DEPT.
Pittsburgh Plate Glass Co., 451 St. Clair St., Chicago, Ill.



Fiberlic
Wall
Board
Fiberlic
Wood Grain
Panels

The material from which it is made, the fact that the pulp is chemically cleansed and that the fibre lengths give the finished product that natural reinforcement that is lacking in ground wood boards, is in itself a guarantee of the superiority of Fiberlic from strong, permanent, economical and sanitary construction.

MacAndrews & Forbes Company
200 Fifth Avenue, New York City
Factory: Camden, N. J.

For the Handy Man Around the Farm

(Continued from page 146.)

apart, so that their combined strength is enormous. Each roofing board is thoroly nailed to the rafters at each crossing, so that the rafters and roofing boards support each other.

When shingles are used for roofing, and so lap that each nail catches at least two shingles and a roofing board, then the shingles themselves form diagonal braces.

The upper part of a gambrel roof carries less water than the lower part. For this reason the pitch of the upper roof being less is correct in form. The lower pitch being very much steeper is capable of unloading the amount of water collected by both roofs. In the northern sections of the United States where the snow fall is sometimes heavy enough to be dangerous to roofs, the lower part of the curb or gambrel roof is steep enough to slide the snow off at the eaves, and at the same time the upper portion is so exposed to the wind that it seldom carries any considerable weight of snow.

Gambrel roofs are so shaped as to give a large amount of mow room in proportion to the size of the building. Also such roofs provide free passage lengthwise for the horse hay fork to travel from one end of the barn to the other. For the same reason at thrashing time the blower will distribute the straw and chaff into one end of the mow without the aid of hand labor.

Straight gable end roofs are still used, but to make them thoroly practical in the North, the pitch should be quite steep.



"I Remember" Revised

I remember, I remember,
The house where I was born;
The little window where the sun
Came peeping in at morn.
You'd hardly know the old place now,
For dad is up to date,
And the farm is scientific
From the back lot to the gate.

The house and barn are lighted
With bright acetylene;
The engine in the laundry
Is run by gasoline;
We have silos, we have autos,
We have dynamos and things.
A telephone for gossip,
And a phonograph that sings.

The hired man has left us;
We miss his homely face;
A lot of college graduates
Are working in his place.
There's an engineer and fireman,
A chauffeur and a vet,
'Lectrician and mechanic—
Oh, the farm's run right, you bet.

The little window where the sun
Came peeping it at morn
Now brightens up a bathroom
That cost a car of corn.
Our milkmaid is pneumatic,
And she's sanitary, too;
But dad gets fifteen cents a quart
For milk that once brought two.

—Canadian Courier.

Easy To Apply—

Gives the Best Results

*Read what a prominent Texas architect, a member of the American Institute of Architects has to say regarding the advantage of using **Cornell-Wood-Board** for a superior finished job*

"In building my new home (a two-story frame dwelling, just finished) I concluded to experiment with wall board.

"Therefore, after investigation, I selected CORNELL-WOOD-BOARD and used same throughout, including the ceiling of a sleeping-porch. In placing this board, I used 32" and 48" widths, nailing same direct to studding and ceiling joist, which were 16" centers.

"The board was put on by five carpenters who had no experience with wall board, and they were agreeably surprised by the ease with which it was applied, and the fact that it lay true and even on the walls without buckling.

"I am very glad that I used this wall board, especially so since my neighbors and friends compliment me on the rich and "nifty" effect. I know I'll have no cracks to contend with, and there has been no warping or buckling. I have good reasons to believe it will remain as it is—perfectly satisfactory."

CORNELL-WOOD-BOARD is more economical than other forms of interior finishing material; it is a remarkable resistant to fire and moisture, fewer men can apply it in quicker time, and customers are better satisfied with the finished appearance.

The uses for Cornell-Wood Board are unlimited. Contractors and builders can make extra profits and keep workmen busy all the year

around by taking advantage of the many opportunities for clinching new business in construction, alteration and repairing of walls, ceilings, partitions.

The Cornell Department of design and Decoration will draw up distinctive Panel Suggestions with Cost Estimate for any room or rooms, if you will send dimension sketches or blueprints. This Service is FREE. Write for full information.

Cornell Wood Products Company
Dept. 102, 173-175 W. Jackson Boulevard, Chicago

Cornell-Wood-Board

For Walls, Ceilings and Partitions of

Army Cantonments
Farm Houses

Residences
Churches

Garages
Bungalows

Schools
Offices

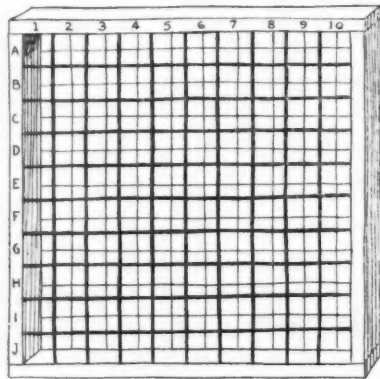
Theaters
Stores

Dairy Barns
Chicken Houses

And Scores of Other Practical Uses

Seed Corn Rack

A good serviceable seed corn rack is made with poultry netting stretched across both sides of a wooden frame made of 2 by 6 pieces. The mesh of the two



Frame Built of 2 by 6's and Covered Each Side with Poultry Netting.

screens should be about four inches if it may be secured. Some ears of corn are close to three inches in diameter, and there should be an air space. For easy counting the meshes should be in multiples of ten.

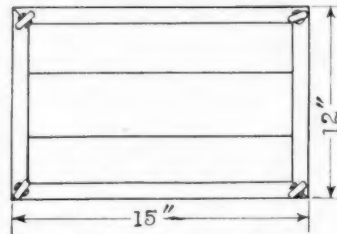
In using the rack the ears are laid into the meshes. It is much better than to stick the cob onto a spike. Seed corn should have air all around each ear to cure properly. Wooden shelves are objectionable because they shut out the air and form a harbor for mice. Wire frames may be suspended from the ceiling to make them mice proof.



A Floor Scrubbing Dolly

A little device illustrated is something that will interest every woman who does her own floor-scrubbing. It is simply a square frame large enough for a person to kneel on, with furniture castors at each corner. A padding of cloth and straw completes the arrangement.

Besides saving the knees of the user, it is a great time saver. By pushing with the hands it may be moved to any

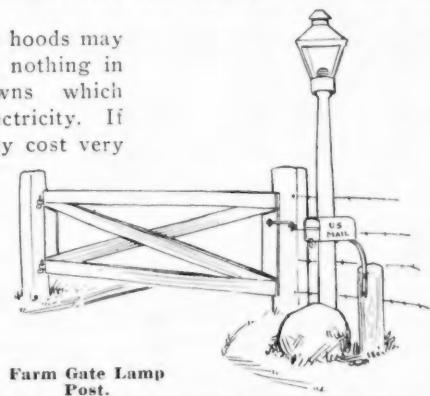


Padded Scrubbing Stool on Castors.

part of a room. There is no necessity of getting up from start to finish of the job.

On the farms where electricity is available, arc lights are placed around the yard and road where they will be most useful. But on the majority of farms, where there is no electricity, very few outdoor lights will be found.

Discarded lamp hoods may often be had for nothing in villages or towns which have installed electricity. If not, however, they cost very little new. The slight expense is hardly worth considering in view of the value to be received from this improvement.



Farm Gate Lamp Post.

YOU Can Do What Others Are Doing—Use E-COD Fabric

saving money for your client and making business for yourself.

Barns and Farm Buildings

are recovered or built new at a 50% saving on lumber bill alone. No paint ever used. Fire-proof, rust-proof and weather-proof.

E-Cod's felt backing keeps heat in and cold out.

The Ideal Reinforced Plastering Base, for new or old buildings.

Send for complete information to

MacADAMS & CALL

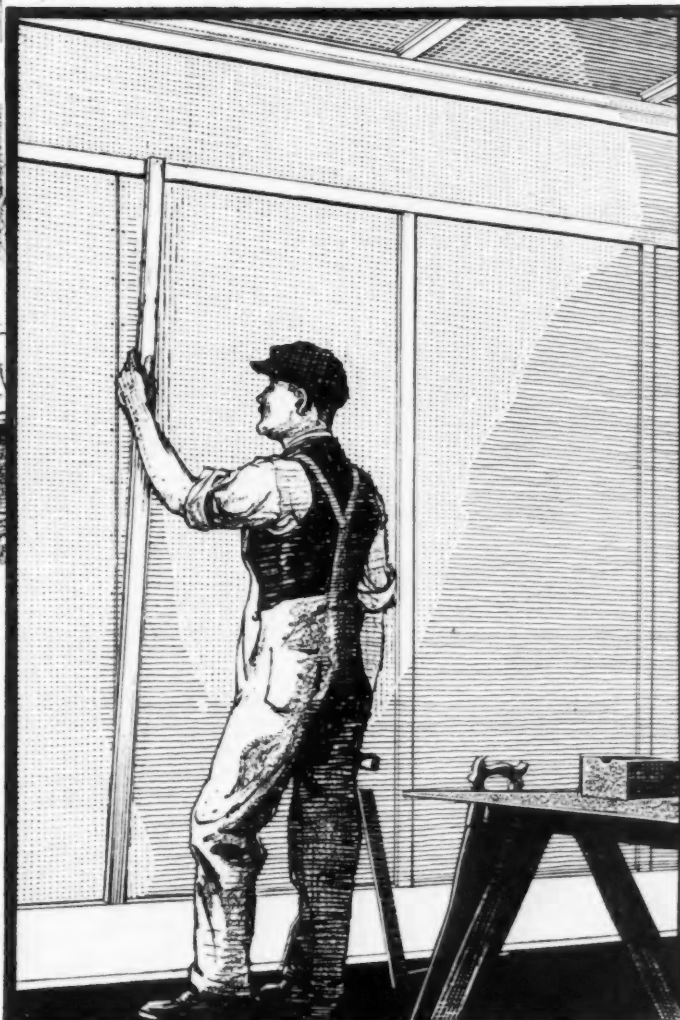
111 W. WASHINGTON ST. CHICAGO, ILL.

Sole Representative: E. D. CODDINGTON MFG. CO., North Milwaukee, Wis.





You can't expect Beaver Board results unless this trademark is on the back of the board you buy.



Why Should You Leave the Job Now?

Why should you pack up your tools and go to another Job? Why should you lose time and money while plasterers are cluttering up the building and putting on walls and ceilings that invariably crack and fall off before they are many years old?

Why? Why should you put yourself out, when you can use Beaver Board and stay on the job?

You should not. It's not an economical thing for you or the owner. It's not good business.

The walls and ceilings are just as much a part of your job as the floors and interior trim. They should be just as well built, and just as permanent too.

Beaver Boarding is Carpenters' work. A good Beaver Board job is a work of art. It requires skill in plan and execution.

Use Beaver Board and Have Steady Work

Plan now to use Beaver Board on your next building. Talk to the owner about it. Tell him how this sturdy lumber product is rapidly displacing plaster and how it will last as long as the building.

Let us help get this business for you. We will gladly send literature to your customers and help you in planning the work if you'll let us.

Write today for our plan of co-operation through our Department of Design and Decoration.

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

Distributors in principal cities, dealers everywhere.

BEAVER BOARD

FOR BETTER WALLS & CEILINGS

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER



"Don't tell me you never had a chance!"

"Four years ago you and I worked at the same bench. I realized that to get ahead I needed special training, and decided to let the International Correspondence Schools help me. I wanted you to do the same but you said, 'Aw, forget it!' You had the same chance I had, but you turned it down. No, Jim, you can't expect more money until you've trained yourself to handle bigger work."

There are lots of "Jims" in the world—in stores, factories, offices, everywhere. Are you one of them? Wake up! Every time you see an I. C. S. coupon your chance is staring you in the face. Don't turn it down.

Right now over one hundred thousand men are preparing themselves for bigger jobs and better pay through I. C. S. courses.

You can join them and get in line for promotion. Mark and mail this coupon, and find out how.

I. C. S., Box 8151 Scranton, Pa.

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Box 8151 SCRANTON, PA.	
Explain, without obligating me, how I can qualify for the position, or in the subject, before which I mark X.	
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<input type="checkbox"/> Spanish <input type="checkbox"/> German <input type="checkbox"/> French <input type="checkbox"/> Italian	
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Occupation & Employer _____	
Street and No. _____	
City _____ State _____	

Why Not Some Farmhouse Improvements for the Farmer's Wife?

THERE has been a great deal of talk about farm labor—and the shortage of it. The farmers have been urged by everybody who can write an article for the papers, to produce as great a crop as possible. But there has been little said about the farmer's wife—and what all of this increased production means to her.

When the farmer himself is hard pressed, as at harvest time, he can generally secure additional help to take care of the crops. He may have to pay a little more than in normal times, but he secures the additional labor as a general proposition. But the farmer's wife is not in such a fortunate position. She can't very well call in additional help.

Every increase in acreage upon the farm means additional work for the farmer's wife. Every time another "hand" is employed, it increases her work, of course. Already burdened to the breaking point in normal times, the farmer's wife now finds herself sorely pressed to drag thru the day's toil, made heavier by the increased acreage with its attendant increased labor in the fields.

The farmer's wife never has been appreciated in this country to the extent she should be appreciated. She doesn't figure in the calculations as she deserves. She is not equipped with the proper working tools, as a general thing, and conveniences and comforts are not provided for her as they should be. Many a well-meaning farmer who believes that he does his duty toward his wife will spend \$100 for an implement to be used in the fields, and then complain at spending 10c for a cooking utensil that would save his wife a lot of labor. He will go to great pains to provide water for the stock, as he should, but he overlooks providing water for the kitchen. He appreciates the advantages of labor-saving machinery for the fields, but fails to note that it would also prove advantageous in the home.



Muddy Barnyards Cost Money Concrete Best Investment

All good dairy men seriously object to a mud mixing match every time the cows are turned into the barn yard for an airing, but the expense of providing a mud proof yard is now and always has been the difficulty in the way.

Some relief may be had by carefully collecting the rain water from the roofs of the buildings and turning it into the cistern or drain. Some farmers are fortunate in having a sand hill or knoll for the barn yard, but no way has been invented to make a really clean barn yard except to pave it with concrete.

The best way to concrete a barn yard is to do it the same way as sidewalks are done in town. Commence next to the buildings with the foundation of

(Continued to page 154.)

When You Build a Silo—

you must be sure of two things—*first* that the silo is *air-tight* and second that it will be *water-tight*.

It must be air-tight because if the air gets in, the silage moulds and the stock will not eat it. **Concrete silos** are air-tight.

It must be water-tight. If it is not the juices which keep the fodder green will leak out and the fodder spoils. Concrete waterproofed with Medusa Waterproofing *cannot leak*.

MEDUSA PATENTED **WATERPROOFING** PASTE AND POWDER

Concrete treated with Medusa Waterproofing will not conduct either heat or cold readily. It keeps the heat in during the winter and out during the summer.

Be sure to build silos *for permanence*. Build them with concrete made water-tight with Medusa Waterproofing. If you value your reputation as a builder, don't take chances with concrete silo work by using untested waterproofing. Medusa Waterproofing has stood the test of time and experience and is *inexpensive to use*. Eight pounds of Medusa Waterproofing to a barrel of cement will produce best results.

Send today for our new Medusa Waterproofing and Silo booklet. It contains much valuable information which you can use to advantage in your farm building this spring



Here is a Practical Silo that is Built for Permanence



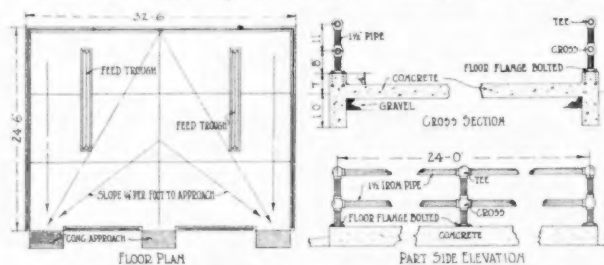
These Twin Silos are Absolutely Air-tight and Water-tight

Address Dept. G
The Sandusky Cement Co.
CLEVELAND, OHIO

(Continued from page 152.)

cinders and make concrete slabs about five feet square. A fall of about an inch to the road away from the buildings is necessary to turn the water and preserve the buildings.

It is not necessary to do the whole job in one year.



A Show Ring Hog Feeding Floor of Concrete and Iron Pipe.

Also, a smaller barn yard concreted will answer the purpose. It is very much more satisfactory to put a fence at the edge of the concrete.

The fence may be temporary and may be made in the form of feeding racks. But to get the full benefit of a paved yard the cows must be confined to the pavement.

One great benefit of a clean yard is preventing the cows from getting their feet and legs muddy. It is a great factor in keeping cows clean.



Silo Roofs

A good silo deserves a good roof. Silos are roofed:

first, to preserve the silage; second, to preserve the silo. But the third requirement—a silo roof for looks—always comes in for its share of attention.

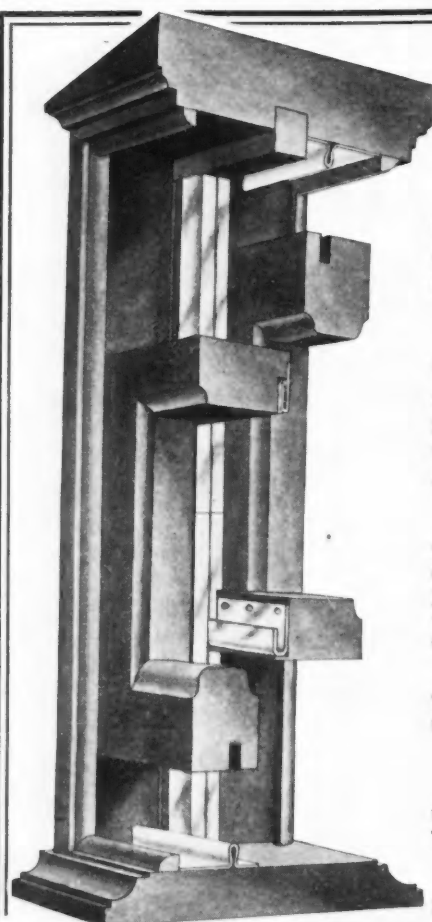
There are many new inventions in silo roofs, some of which open out from the center at the time of filling and leave the whole top of the silo open. Others are made in segments, each segment fitting between two rafters. One of these segments is hinged to be opened at silo filling time. Other silo roofs are made solid with rafters and sheathing boards covered with shingles or other roofing. Such roofs generally have a scuttle in one side with a trap door that may be removed at filling time. Some means of fastening the door after the silo is filled is necessary, otherwise it will blow open or blow off.

Some silo roofs are made with cornice projections finished in massive designs. It depends a good deal on the size of the silo and the material used. A heavy concrete or block silo seems to demand a heavier looking roof than a lighter silo made of wood.

Good looks has a value in the finish of any farm building. On general principles the higher and larger the silo the wider the roof projection should be.

The pitch of a silo roof should not be very steep. The distance from the peak to the eaves is so short that a steep roof is not necessary.

Generally speaking, a round roof looks better on a round silo. It is more in keeping with the general character of the building.



Reduce Coal Bills 20 Per Cent

This sounds unreasonable, but it is not. Thousands of satisfied customers will gladly affirm the above heading. How? The answer is—by simply installing

The Shogren Metal Weatherstrip

They prevent sash from all rattle when window is either open or closed. Shogren Weatherstrip is the only self-adjusting weatherstrip made. Adjustment is invisible and fool-proof. Shogren equipped windows track both sides of the sash the full height of the frame. A Shogren feature exclusively.

Our Offer to Contractors

To any contractor who needs an extra profit, our proposition should be especially appealing.

Every home or building in your locality has windows. Thousands of those very windows need weatherstripping. If you are a wideawake contractor you should collect profits on both the installing and on the material itself.

We Help You and Show You How

The proposition is different from others and can be made very profitable. Let us send you details and information.

Write for it Today!

WRITE
TODAY

Shogren Weatherstrip Co.
706-8 Townsend Street, CHICAGO, ILL.

WRITE
TODAY

"CONCRETE FOR PERMANENCE"



Tenant Houses Hopedale Mass

Industrial Housing—a big opportunity for you

War conditions in factories demand more and more men. Where are they to live? Every industrial center is being pressed to answer this question.

Construction must be quick—with readily available materials—but it should be fireproof and economical.

Concrete is the answer. Foundations can be easily and quickly poured. Walls can be constructed in Monolith, Cast Blocks or Stucco.

You can count on us for cooperation. Ask us for any technical information you need and send for our free book "Concreting in Winter" and "Guide to Good Stucco."

The Atlas Portland Cement Company

Member of the Portland Cement Association

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

ATLAS PORTLAND CEMENT

"The Standard by which all other makes are measured"



The Atlas Portland Cement Company,
30 Broad Street, New York, or Corn Exchange Bank Building, Chicago
Send me your free books "Concreting in Winter" and "Guide to Good Stucco."

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

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 Nuogue 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

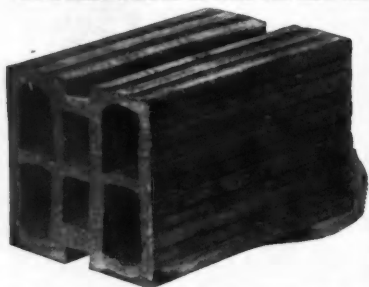
Chicago Office:
536 South Dearborn St.

Pittsburgh, Office:
7136 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.



NEWS OF THE FIELD

Prof. Talbot Elected President of Am. Soc. C. E.

Professor A. N. Talbot of the University of Illinois was elected, Jan. 16, to the presidency of the American Society of Civil Engineers. This is the oldest and most influential of the four national engineering societies. It has a membership of 8,225, an annual budget of \$150,000 and assets of \$600,000. It was organized in 1852. It maintains national headquarters in the United Engineering Building, Thirty-ninth Street, New York.

Eligibility to membership to the American Society of Civil Engineers is based upon professional accomplishments and the standard is unusually high. Professor Talbot's election to the presidency is an exceptional honor for men in academic life. In the history of the society only two other college men have been president, these being Professor Swain of Massachusetts Institute of Technology and Professor Marks of Leland Stanford.



Ransome President Dies Suddenly

Frank L. Brown, who was one of the directors of the Panama-Pacific International Exposition and for many years a leading business man in San Francisco, died suddenly of heart failure in New York, Tuesday night, January 1st.

Mr. Brown's business life in San Francisco began in 1894, when he came from Portland to take charge of the Washburn-Moen Company. He was instrumental in the consolidation of that concern with the American Steel & Wire Company, of which he was for a time head, before its amalgamation with the United States Steel Corporation.

He organized the Pacific Steel & Wire Company, and, with his associates, organized the Great Western Power Company. Immediately after the exposition closed, Mr. Brown went to New York to become president of the Ransome Concrete Machinery Company.

Mr. Brown was born in Kenosha, Wis., March 4, 1859.



Vitrified Sewer Pipe and the War

American vitrified sewer pipe is being shipped to France, according to information that reaches the office of the Sewer Pipe Manufacturers' Association. These shipments are designed for the construction of cantonments in France, similar to the American cantonments built last year in this country.

This is not the first time that vitrified sewer pipe, produced from the superior clays of this country have been shipped to distant foreign lands. South America has been an occasional buyer of sewer pipe and trans-Pacific shipments have also been recorded.

However, as evidence of the determination of the government to preserve the health of American soldiers and, as an augury of what may be expected by many American material industries after the war, the incident is noteworthy.

Whatever may be the shortcomings of the war administration

(Continued to page 158.)



Maritz & Henderson, Architects

B. F. Charoille, 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.

Hy-tex

The Standard of Quality in Brick

Every one of our offices is ready to cooperate with you.

Hydraulic-Press Brick Company

Saint Louis

Branch Offices: Baltimore, Chicago, Cleveland, Davenport, DuBois, Pa., Indianapolis, Kansas City, Minneapolis, Omaha, Philadelphia, Roseville, Ohio, Toledo, Washington

Largest Manufacturers of Face Brick in the World

Send for these Booklets

"Hy-tex Brick" tell you the many advantages in building with brick, and something about the completeness of the Hy-tex line and the benefits you can derive from Hy-tex Service.

"Suggestions for Small Hy-tex Homes"—shows the possibilities of brick in small homes. It is illustrated with perspectives and floor plans of small brick houses.

Mail the Coupon NOW

Hydraulic-Press Brick Co.
St. Louis, Missouri

Send me "Hy-tex Brick" and "Suggestions for Small Hy-tex Homes."

.....

.....

Name.....

Street.....

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

(Continued from page 156.)

tion, it has shown a praiseworthy resolution to avoid the most typical errors of the Spanish war mobilization and of the opening period of the Civil War. Both of these events were marked by extremely heavy mortality from typhoid fever and intestinal diseases that result from improper disposal of human wastes.

In contrast with this record, the cantonments of 1917 in America and 1918 on foreign soil have sanitary equipment as complete as the most modern city. Uncle Sam may take a chance with the Germans, but not with the germs. The typical cantonment has from 25 to 35 miles of sewer pipe, varying in capacity from 6 to 30 inches and other sanitary equipment to match.

The amount of building material that is being exported from America to France for the construction of cantonments speaks eloquently of the prostration of French building industries. How soon France will be able to take care of her own rebuilding problem, after the war, and the possibility of a prosperous over-seas trade in such things as sewer pipe is one of the prospective compensations for the inconvenience that home building industries are suffering during the war period.



Saville Now Vice-Pres. Cornell Co.

At a recent meeting of the board of directors of the Cornell Wood Products Company, Mr. W. G. Saville, assistant to the president, was elected vice-president of the company, in charge of sales.

Mr. Saville has been connected with this company in a sales capacity since the beginning of its manufacture of wall-board and his previous experience in the board business was in connection with the United Box Board Company, of New York City.



Milwaukee Corr. Salesmen and Officials: (1) Pres. Louis Kuehn, (2) Secy. A. J. Luedke, and (3) Sales Mgr. R. I. Schuppener.

Annual Milwaukee Corrugating Company Convention

The Milwaukee Corrugating Company, of Milwaukee, Wis., called all their salesmen in at Christmas time to attend a convention for general instruction and comparing of notes.

After four days of labor, in which every item of their immense line of sheet metal building products was discussed and analyzed, a question box was provided, and every salesman was invited to put in unsigned suggestions for improvement on any article manufactured or any department of the business. This proved a great source of amusement and instruction.

It was generally admitted that the convention, which was also attended by officers and heads of departments, was the most successful and interesting ever held.

DEMING



The Deming book is worth your while.

Are You Building Homes or Houses?

¶ Introduce your customers to home comfort and city facilities. Install a Deming water supply system and with it all the conveniences of a modern livable home.

¶ Let us explain to you the unusual conveniences of Deming Systems—their ease and simplicity of operation, freedom from breakdowns and the abundance of water at high pressure.

¶ Make a place for a Deming System in your next house job. You do the planning, your plumber makes the installation. You both profit.

Send a postcard for catalog and our cooperative proposition.

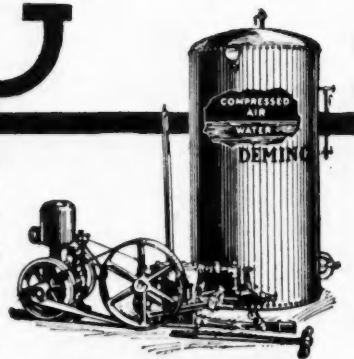
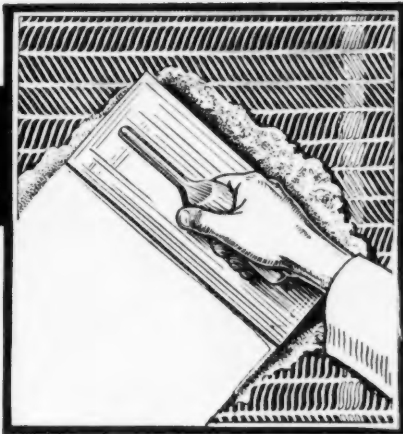


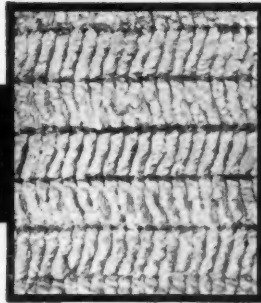
Illustration of Deming System No. 2010, operated by Gas Engine. Other motive power—Motor, windmill or handpump.

The Deming Company
99 Depot Street Salem, Ohio

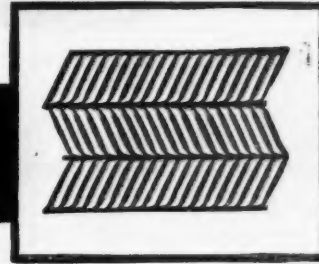
WATER SUPPLY



Herringbone Lath does not sag or bow



The plaster curls around the strands and ribs so as to form a perfect key



Close-up view of the rigid slanted ribs

Herringbone Lath Saves the Cost of Furring Strips

Herringbone Rigid Metal Lath is Self-Furring because the rigid, slanted ribs hold the material away from the sheathing or studs far enough so that the plaster can curl around behind the lath. Herringbone Lath therefore eliminates the cost of furring and the extra labor required to erect lath with furring strips.

That is only one of many important economies that the extreme rigidity and peculiar construction of Herringbone make possible. The heavy longitudinal ribs, set at an angle of 45 degrees to the plane of the lath, afford a firm, unyielding surface over which to apply the plaster. Thus Herringbone Lath does not sag and bow between the supports under pressure of the trowel, and lath, labor, and plaster are saved.

The short cross strands of Herringbone present a flat surface to the trowel over which it is easy to plaster. Just enough plaster passes through to curl around the strands and ribs, forming a perfect "key."

Hence the Herringbone grip never lets go.

Each year at least one conflagration reminds the contractor that he owes it to his customers to recommend fire-safe homes. This year it is the Atlanta fire which wiped out \$3,000,000 worth of property, largely residential. Herringbone and plaster form a stubborn barrier to fire, rats, mice, wear, and weather. Besides, Herringbone Rigid Metal Lath is applicable to every part of a building.

In climates where dampness is excessive or where the work is subjected to corroding actions of salt air, gases or acids, rust-resisting, non-corrosive Herringbone Armco Iron Lath should be used.

The Herringbone Catalog shows details and contains interesting data on fire tests, etc. Ask for a copy.

THE GENERAL FIREPROOFING CO., Youngstown, Ohio

Manufacturers of Metal Lath, Concrete Reinforcements, Waterproofings

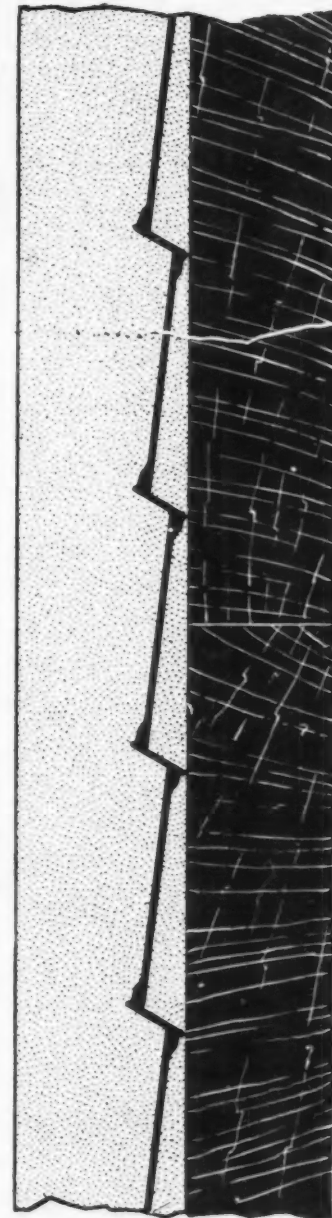
Members of Associated Metal Lath Manufacturers



Trade-Mark Reg. U.S. Pat. Off.

BRANCH OFFICES: New York Chicago Philadelphia San Francisco
Atlanta Kansas City Cincinnati Buffalo Utica

The best dealer in your town has GF Products in stock



(ACTUAL SIZE)

Herringbone

Rigid Metal Lath

Nemco Products



EVERY contractor is judged by the results of his work.

And the results depend on the materials used.

It will help you to build a record for doing dependable, permanent work, if in your plastering and stucco work you use

TRADE MARK

Kno-Burn

REG. U. S. PAT. OFF.

Corrugated Metal Lath

It requires a minimum of plaster;

Provides a perfect key;

Embeds completely in the plaster;

And it is easy to work over.

Send for Catalog No. 33

NORTH WESTERN EXPANDED METAL CO.

Members of the Associated Metal Lath Manufacturers
903 Old Colony Building - Chicago, Illinois

**What's
Behind
Your
Plaster**

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

An Up-To-Date Sales Method Applied to Heating Plants

Heating plant manufacturers formerly were too liable to consider that the sale of a heating system involved only a heating service.

In their advertising, as well as verbal sales arguments, this heating service was the dominating note. Little else was considered. How to impress the public that it was getting value received in quality and price—in radiators, piping and all the appliances and equipment going with the plant seemed to be the sole and only problem.

But no longer. A new school of heating plant salesmanship has been recently evolved. And the little schoolmaster is none other than the Round Oak Indian, Doe-Wah-Jack, of Beckwith and Round Oak Folks fame.

Instead of simply selling so much iron and steel in his sales propaganda, the Round Oak Indian merchandises the Health idea. Health first—then comfort—then economy—then finally the iron and steel safeguarding all three—there you have the sequence of the Indian selling logic. Result? The public promptly embraces the *health* idea. And the *heating plant* closely associated with it, logically goes with the sale!

Everyone is interested in the basic principle upon which this health argument is founded.

It is this: Properly humidified or pure moist air is healthful, and dry air is the opposite—a fact established by scientific and medical authorities. A simple illustration is offered by any finely finished piece of furniture allowed to remain too long next to the superheated steam radiator or an unhumidified warm air register. Neither varnish, wood nor glue can stand the dryness and the chair rapidly goes to pieces.

Approaching the subject from another angle, properly humidified air safeguards the family from the disease germs which prey on delicate throat and lung tissues, weakened by inefficient heating, ventilating and humidifying methods. Another point! Greater economy can be obtained by the use of a perfected humidifying device. At a given temperature, warm *moist* air is more conducive to comfort than warm *dry* air. In other words, much fuel can be saved without sacrifice to comfort.

During 1918 the "little Indian schoolmaster" will expound his theories in full page ads in leading publications headed by the *Saturday Evening Post*, *Literary Digest*, etc.

The campaign will be climaxed by a nationally advertised "Opportunity Sale," the purpose of which is to enable the dealer to get his local heating contracts signed up and lined up early, thus better serving his own interests as well as those of the general public.



Thirty-Foot Timbers Shipped by Express

An instance of speeding up on war contracts is shown recently by the shipment of five 30-foot Oregon timbers from Eugene, Ore., to Redding, Cal., by express. The timbers were so long the passenger train had to be uncoupled and the loading and unloading done thru the end door of the express car. The Redding Iron Works has a war contract for the construction of timber trucks to be used by the 20th Engineers at the front in France. The timbers, shipped by express, are of fir. It became necessary to ship by express because a carload of this special kind of timber had become sidetracked, and there was no time to wait for the necessary five pieces to finish the trucks for shipment with the engineers from New York.



We Create the Demand— You Reap the Profits

ARE YOU GOING TO BE THE LUCKY MAN?

We develop the roofing business in your city, and all *you* have to do is to take the orders, do the work and make a good big profit.

We interest and convince your prospects with illustrated literature to the extent that he is **90** per cent. sold before you call on him.

You don't need a lot of money to go into this ART CRAFT proposition. Only a very small investment is necessary. Your money is not tied up.

Art Craft Roof

Red

Green

Silver-Gray

The only roof that nails right over old roof or direct to boards. Art Craft roof is applied in strips, but the effect is that of individual shingles or tile as shown in above illustration.

Art Craft is guaranteed material. It must give satisfaction. It can't leak or rip off. It costs only half as much as a shingle roof and is many times better.

Art Craft will improve the looks of any home, whether it be a mansion or humble cottage.

Don't delay in sending this coupon for big samples and complete information about Art Craft Roof and our plan for putting contracts into your hands. Your profit is sure and liberal. Send the coupon today—NOW.

BIRD & SON

Successors to The Reckitt Corporation

76th and Ashland Ave.

Chicago, Ill.

Bird & Son,

Successors to the Reckitt Corporation.
76th and Ashland Avenue, Chicago, Ill.

Send me samples and complete information about Art Craft and your plan for giving me contracts.

Name.....

Address.....

The Calendar Crop

The calendar crop for 1918 has brought quite a collection of interesting and useful calendars to our desk. We will have plenty of help, it seems, in keeping track of the various heatless, meatless, wheatless, lightless and other special days. We presume others have received all of the calendars they wanted; if not, no doubt some of the following can still be had:

The Myers' Poster Calendar for 1918 follows the same style of former years. On a long wall hanger it illustrates the full Myers' line of pumps of all kinds, hay unloading tools, door hangers, etc. They have used this type of calendar for thirty years, distributing it to a mailing list of 35,000 dealers and friends.

The General Electric Co. have a 12-sheet calendar of large size on enameled paper. Each sheet features some piece of General Electric equipment. The calendar feature is unusual in that the month just past and the month following are given on each sheet in smaller sizes in addition to the current month.

The Universal Portland Cement Co. have distributed a 12-sheet calendar of generous size and in poster colors. The numeral pad fills about two thirds of the space. The company name, the other third. This calendar also is backward looking and forward looking. About ten days of the preceeding month and the month following are shown on each monthly sheet. In other words there are seven weeks indicated on every monthly sheet. On the reverse are yearly calendars for 1917, 18 and 19.

Vulcanite Portland Cement Co. comes to life on the first day of January with a large tasteful calendar in

brown and gold and red, white and blue for their trade mark. It is the same style calendar used by this concern for several years past.

Build with Brick, is the slogan at the top of the colored card-board calendar distributed by the Clay Products Association, Los Angeles, Cal. A very pretty brick and tile bungalow is illustrated. This is the type of calendar that seems to have a real advertising and sales idea to present in addition to the strictly calendar function of the offering.



1417 Fighting Men

Up to January 1st the American Sheet & Tin Plate Company had a total of 1,417 men in the various branches of the military service of the United States.



Better Homes Show for New York City

The dates for the New York City Better Homes Exposition have been set and the offices opened. This show will be held in the Grand Central Palace from Saturday, May 18th, until May 25th, inclusive. The main floor and the mezzanine, or second, floor have been engaged, with an option on the third floor for special art class exhibits.

The New York show will be along similar lines of the Grand Rapids Better Homes Exposition, but very much more extensive in features and exhibits. It is under the direct management of Louis W. Buckley, who managed the Grand Rapids Better Homes Show. He has opened his offices on the sixth floor of the Grand Central Palace with a good staff of show officials. Over one-fourth of the exhibit space has been reserved so far and the outlook for the success of the exposition is more than good. The floor plans are now ready and are being mailed out.



Your
Catalog
is waiting
for you

Willis Products Can Boost Your Profits

We know it and you should know it also

Thousands of Contractors and Builders have profited by our special service. Try it. Others have and liked it—so will you.

Your New Copy

of our large illustrated catalog, which tells about the entire line of Sheet Metal Building Materials is here waiting to be sent to you postpaid immediately on your request.

When you are making up your estimates you should have a Willis catalog at your elbow to give you exact cost and sizes. Eliminate guesswork.

A Willis Skylight

is always right. All easy-to-get-out-of-order parts have been left out in its manufacture. A hammer and screw-driver puts them up. You need no soldering outfit. All designs and sizes. Everyone guaranteed not to Sag or Buckle.

Remember it is free—we give it to you. Request your copy at once.



Willis Turret Skylight

Willis Mfg. Co.

Galesburg

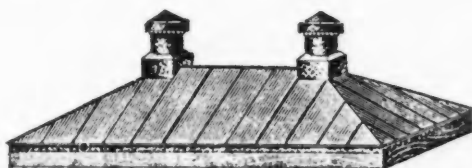
Illinois

Badger Sheet Metal Products *Give Satisfaction*



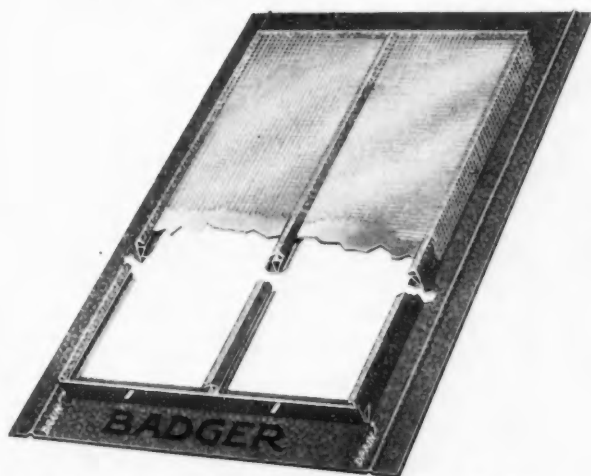
Galvanized Cornice

We can furnish many stock patterns or build to any drawing and specification.



Galvanized Hipped Skylight

We build skylights in any style, size or shape, and equip with either plain ribbed or wire ribbed glass.



Badger Hog House Skylight

Built in one size only, 28 x 36".

We also manufacture a complete line of hog house specialties.



The Badger Cupola

Rust and wear proof in every way.

*Write for special catalogs and literature on
any or all of the above. Free for the asking*

Badger Corrugating Company, La Crosse, Wis.
Formerly Badger Steel Roofing & Corrugating Co.

The Roof
that is
Proof
INSPECTED

Against the Ravages of Time is the Roof of

RED CEDAR SHINGLES

For Barn or Bungalow, for their Roof or Siding, they furnish an incomparable material, remaining *always* architectural and workmanlike, and they last for many years—and more.

LAY THEM RIGHT

A good roof depends on good workmanship, and on good nails. Use old-fashioned cut, or zinc-coated nails; never use wire nails.

A Guarantee of Quality



The Rite-Grade Inspection Mark appears on only such shingles as in every way conform to the rigid specifications of the West Coast Lumbermen's Association. When you buy insist on the Mark being on each bundle.

This is the identification mark of all Red Cedar Shingles that pass inspection

FREE—Sample Shingle, Building Books

Write address below for one or all:

- (1) **Sample Shingle**, an actual piece of Red Cedar.
- (2) **Farm Buildings**—very useful facts in this book.
- (3) **Bungalow Book**—twelve pretty designs with plans.
- (4) **Distinctive Homes**—twelve fine houses with plans.
- (5) Report of the University of Washington giving results of tests on the comparative fire resistance of roofing materials.

Shingle Branch
West Coast Lumbermen's Association
427 Henry Building, Seattle, Washington

Zin

Rustless

Zinclad Rustless Shingle Nails are the easy driving cut nails—*heavily coated* with pure zinc—and these are the kind of nails recommended by the leading wood shingle manufacturers.

Here's What a Good

Always *nail* trade marked shingles on with Zinclad Rustless Shingle Nails—the nails that hold indefinitely.

W. H. MAZE

Zinclad

s Shingle Nails

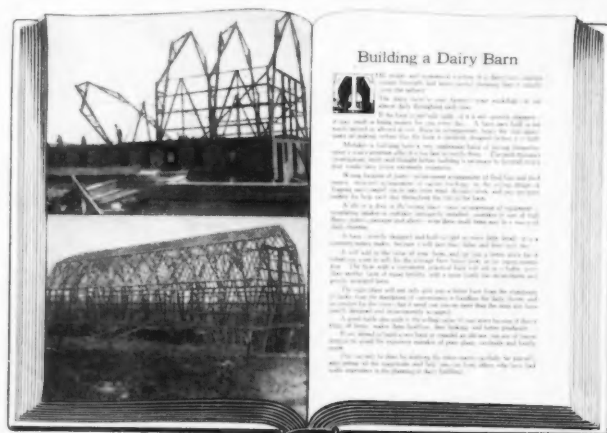
Trade marked wood shingles are good to specify, considering longevity, attractiveness, price. These fine qualities are lost if shingles blow off in a few years on account of poor nails.



Roof Depends On—

Get these everlasting shingle nails from your local dealer. If your dealer cannot furnish "Zinclads" write direct to us.

ZE CO., PERU, ILLINOIS



Opening Up New Barn-Building "Prospects" For You

The farm labor situation is making most dairy farmers plan for better "workshops." Better barns—easier working conditions are demanded as a result of labor shortage and increased demand for milk.

The one thing the farmer can do to meet the situation is to build new and better barns or remodel the old barn and put in new equipment that will make up for the lack of men.

We are co-operating with hundreds of contractors and builders—helping them "land" the contracts for building new or remodeling old barns "The James Way."

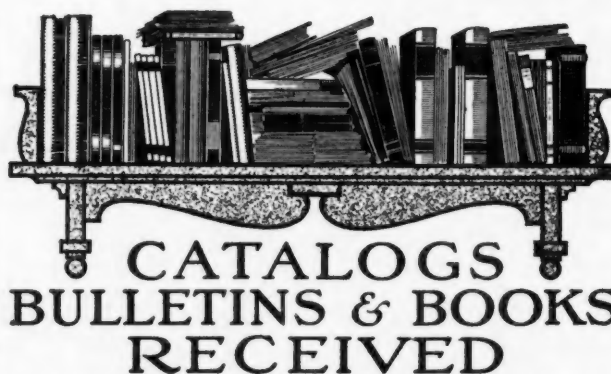
The first step in this co-operation is for you to get a copy of our 312-page book "The James Way"—open view of same shown above. It will enable you to talk barns and barn equipment **convincingly**. We will send you a copy **FREE** if you simply send us the names of farmers you know who intend to build or remodel barns, with size of their herds.

JAMES MFG. CO.

FE75 Cane St.

Ft. Atkinson, Wis.

Elmira, N. Y.



The following literature, dealing with subjects of interest to builders, is now being distributed:

"Concrete for Beauty, Adaptability and Permanence," is a book of 48 pages, size 6 by 9 inches, published by the Helm Brick Machine Company, Cadillac, Mich. It contains a mass of instructive information including working drawings on the subject of concrete block and brick building construction. It is a text book on the layout of cement products plants and the manufacture of blocks, bricks and dimension stone. The machinery equipment is fully illustrated and numerous buildings of all kinds constructed of materials made on these machines are illustrated.

Ventilation and Ventilators for Factories, Public Buildings and Dairy Barns are presented very satisfactorily in a new illustrated booklet of 32 pages by the Globe Ventilator Company, Troy, N. Y. In the illustrations they have not attempted to show the large number of their important installations, but rather the different classes of buildings upon which the Globe ventilator is in successful service. A table of sizes, dimensions, capacities, etc., will prove useful.

Color Schemes for the Home are presented in a most striking and pleasing way by the Patton Paint Company, Milwaukee, Wis., in their 56-page portfolio, size 8 by 11. This book is printed in full colors. It shows distinctive color schemes for every room in the house and also exterior color schemes for several very attractive residence designs, floor plans for which are given along with the colored views. A full exhibit of Patton color cards is included—house paints, floor paints, shingle stains, cement paints, barn paints, auto enamels, carriage paints and flat wall finishes. Price 25c.

"How to Judge Engines" is the title of Ed H. Witte's new engine book. It tells all about kerosene engines, their use and value. 36 pages, size 10 by 13 inches, profusely illustrated with very instructive drawings and photographs. Published by Witte Engine Works, Dept. 1770, Kansas City, Mo.

The Safety Door Hanger Company's Products are illustrated and described in a 32-page catalog, size 6 by 9 inches, issued by the Safety Door Hanger Company, Ashland, Ohio. Door hangers and track of several types to meet every requirement comprise this line.

"James Barn Magazine" for December makes a strong feature of individual water buckets for dairy cattle. Milk production in the principle dairy states can be increased 3½ billion pounds this winter, it is stated if water buckets are put into all stables. This 32-page illustrated magazine is mailed out by the James Manufacturing Company, Fort Atkinson, Wis., to those concerned with the building or remodeling of dairy barns.

"Natco on the Farm" is the newest offering of the National Fireproofing Company, Pittsburgh, Pa. It tells

(Continued to page 168.)



There's More Than Beauty In **KING Aerators**

THEY are designed first to help ventilate the barn. Second to add beauty to the building. It's their beauty of architecture that can make you justly proud of the appearance of the barn you build, but it's their scientifically planned construction that helps keep the barn properly ventilated.

The King Aerator is the first unit of the King System of Ventilation. It supplies about three-fourths of the motive power for circulating air through the building.

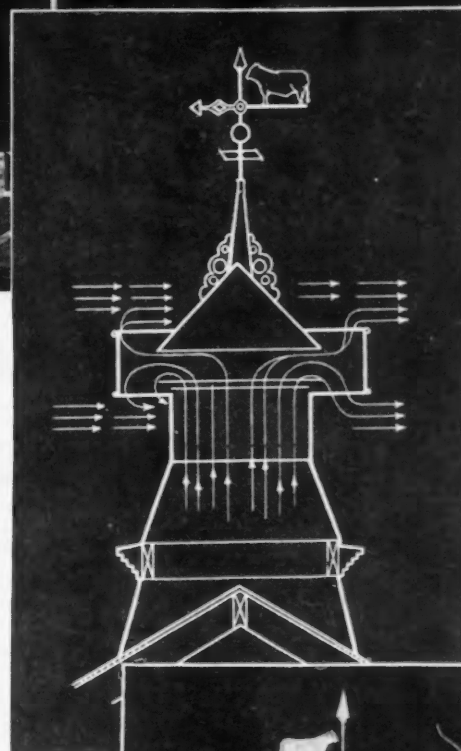
As you will note in the cross section illustration, the wind passing over the Aerator head creates a suction up through the Aerator. This draws the foul air out of the barn. No other metal cupola or barn ventilating device is just like this. This is one reason why farmers prefer King Aerators on their barns. Every farmer now wants his modern barn properly ventilated. Nothing answers his problem like the King System of Ventilation. Recommend and install King Aerators on the barns you build. If your customer doesn't want to install the system at the time you build his barn, at least start him right with King Aerators, so he can add the rest of the system later.

Send for this book, it is **FREE**

showing photographs of many different styles of barns equipped with King Aerators, and telling about the service back of the King System.

KING VENTILATING COMPANY
1202 CEDAR STREET OWATONNA, MINN.

KING AERATOR—the first unit of the King System of Ventilation. Easy to install. One man and a helper can put it in place in a few minutes time.



Catalogs, Bulletins & Books Received

(Continued from page 166.)

all about tile construction, pictures its use for residences and for all kinds of farm buildings, and shows by means of well-drawn sketches and working drawings, exactly how each kind of building is laid up. Information of a general nature on tile construction is included that will be very welcome. Size 8½ by 11 inches. 40 pages.

"The Kiln Drying of Lumber," by H. D. Tiemann, Engineer in charge of U. S. Forest Service Experiments in Timber Physics and Kiln Drying at the Madison, Wis., Forest Products Laboratory, has been published by J. B. Lippincott Company, Philadelphia. It is a book of 280 pages, thoroly practical and helpful in its scope and manner of presentation. The value of a technical knowledge of kiln drying is self-evident. This book, as does no other on the market, gives the reader the most recent and most clearly expressed information. Text and illustrations guide the way to the most efficient methods of work. Price \$4.00.

"The Modern Gasoline Automobile," by Victor W. Page, M. E., discusses in 1,032 pages, size 6 by 9, the design, construction, operation and maintenance of modern motor cars. There are over one thousand illustrations and thirteen folding plates. Publisher, the Norman W. Henley Publishing Company, 2 W. 45th St., New York City. Price \$3.00.

Huther Saws and Dado Heads are featured in new Catalog No. 38 of Huther Bros. Saw Manufacturing Company, Rochester, N. Y. It is a book of 94 pages, size 5 by 6 ¾ inches, exceptionally well printed and illustrating very clearly their complete line of saws, cutter heads, saw fitting tools and safety guards. This book is an inspiration to anyone owning or operating a woodworking machine.

"Architectural Finishes," with specifications, description, and other valuable information about Berry Bros. Varnishes and Finishes have been compiled especially for architects by Berry Bros., Inc., Detroit, Mich. It is a detachable leaf portfolio of 36 sheets, standard size for filing. Color cards are included showing their stains for interior woodwork, flat oil wall finishes, cement coatings, and and shingle tints.

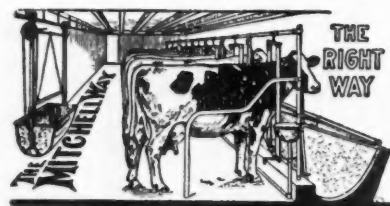
"Kragstone, the Stucco Beautiful" is an interesting little booklet just issued by the American Magnesia Products Company, 419 W. 12th Place, Chicago. It tells all about Kragstone Stucco, what it is and how to use it. Instructive details of construction are included.

"Clay" Steel Barn Equipment is featured in the new 48-page catalog of the Iowa Gate Company, Cedar Falls, Ia. Those who are acquainted with their line of farm gates, both plain and ornamental, will be especially interested in this showing of their enlarged line.

Eureka Concrete and Mortar Mixers are featured in a new 16-page catalog, size 6 by 9 inches, of the Eureka Machine Company, Lansing, Mich.

"Concrete Highway Bridges" is the title of a very interesting 28-page illustrated booklet by the Portland Cement Association, 111 W. Washington Street, Chicago. It shows many types of satisfactory highway bridges and presents standard bridge and culvert plans.

"How to Stoke the Furnace" is the very timely subject of Circular No. 4 of the University of Illinois (Urbana, Ill.) Engineering Experiment Station. The title is "The Economical Purchase and Use of Coal for Homes With Special Reference to Conditions In Illinois." The matter is presented in a very graphic, readily understood manner, and a wide reading of this booklet by builders and home owners is urged. The text fills 46 pages, size 6 by 9 inches.



STANCHIONS

Adjustable to fit Cow or Calf

STEEL STALLS

with Stationary or Folding Sure-Stops

CARRIERS

for Milk, Feed or Manure

26 STYLES

Send for Complete Catalogue

MITCHELL MFG. CO.

29th and Forest Home
MILWAUKEE, WISCONSIN

BARN BUILDERS Make Good Money
and Add to Their
Reputations by Recommending and Installing
Mitchell Barn Equipments

Write for "HOW TO DO IT"

—build Better Barns

—and more
of them—

The farmer knows that contented cows insure bigger Profits; they give more and better milk when stabled in comfortable stalls and stanchions.

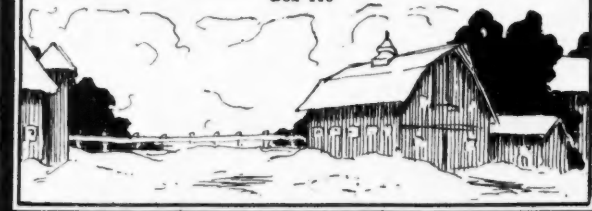
When talking barns to him, suggest the
**Buckeye Stalls, Stanchions
and Litter Carriers**

They are simple and accurate, easily assembled, and "built for the cow".

You will please your customer, and eventually his neighbor if you can build your barns to produce more profit. Our new catalog will show you how. Send for it and our agency proposition.

MAST, FOOS & CO., Springfield, O.

Box 110



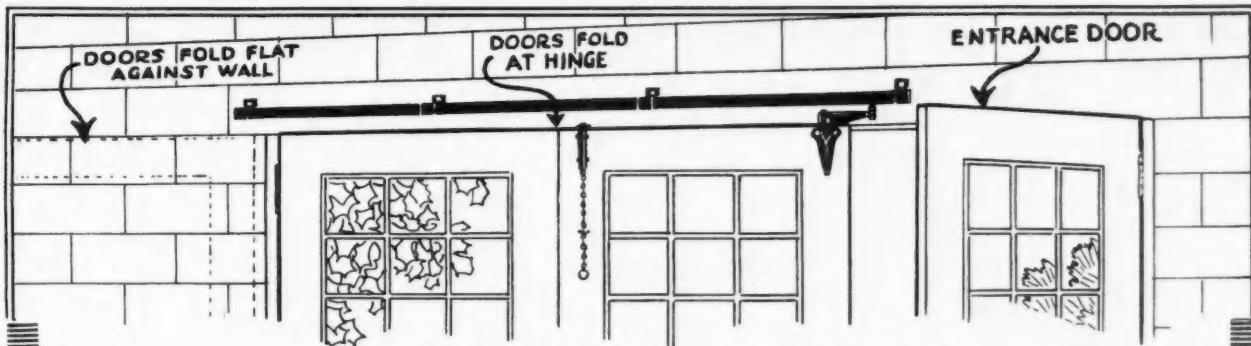
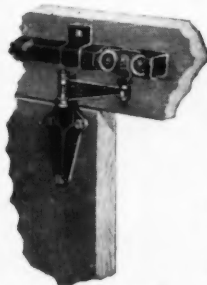


Illustration above shows 3-door plan—3d door used as separate entrance door.



Doors Closed

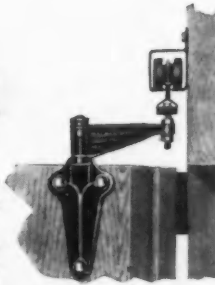
WAGNER CLOZTITE HANGER

For Folding-Sliding Doors

The Ideal hanger for garage doors—also adapted for barns, sheds or other buildings having openings of any width where total weight of doors does not exceed 600 lbs.

The Wagner Cloztitle Hanger solves the big-doors-in-little-space problem. By the use of this hanger two or three doors are hinged together and operate as one door. When open, the doors fold up compactly and are entirely out of the way. When closed, the door fits just as snug and tight as an ordinary hinged door in your home, making it dirt-proof, storm-proof and water-proof.

Doors are hinged together and hung to the jamb, being supported at the opposite side by one Wagner Cloztitle Hanger operating in Wagner self-cleaning, dirt-proof track. In four, five or six door openings, two hangers are used—one hanger for each set of two or three doors hinged to either side of jamb.



Doors Open

Saves Space—Works Easily—Fits Tight

The great advantage of this hanger is that very little clearance room is required—not more than the width of one single door, usually about 30 to 35 inches. By putting the track on the outside, no clearance room whatever is required. The hanger and track work just as efficiently on the outside of buildings as on the inside. No sagging no chance for trolley to come off track, no sticking of doors.

Wagner Cloztitle Hanger is simpler, stronger, easier to attach than any other hanger or device designed for folding-sliding doors. It has a decided advantage over the extended track or adjustable bracket method in that it

is much simpler and there are no adjustments to get out of order. There is less strain on the track and brackets, for the track is fastened directly to the wall at all points the same as for ordinary sliding doors. When attaching there is no complication or difficulty adjusting brackets. It has a simple vertical adjustment that cannot get out of order.

The Wagner Cloztitle Hanger is simply and substantially constructed of malleable iron. Has roller-bearing trolley wheels and the hanger bolt revolves on a heavy-duty ball bearing swivel, insuring silent and easy operation of the doors at all times.

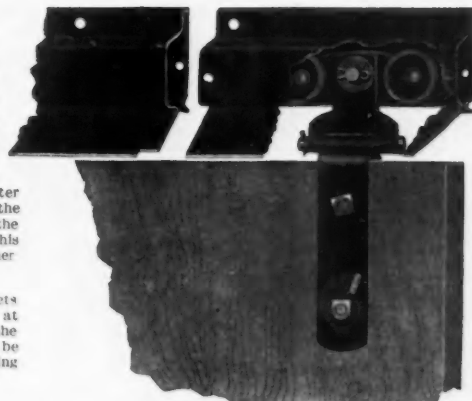
WAGNER EVER-TIGHT TROLLEY TRACK

For Exterior Use on Any Building



The Wagner Ever-Tight is absolutely the "weather-proofest" track ever designed. The illustrations show at a glance the great advantages of this improved type of track. Instead of being formed entirely of one strip of sheet steel, the Wagner Ever-Tight is made of two pieces of steel securely riveted together at the top with one part overlapping the other. This forms a continuous bracket that serves to hold the track securely at every point and at the same time keeps rain from driving in between track and building. To still more completely shed rain and prevent snow and sleet from driving in under track, we have designed this track so that the outer piece extends out over the top of door to deflect rain and make the track absolutely weathertight. Gives complete protection to the hanger and under side of track as well as the top of the door. This track is constructed on the self-cleaning principle, same as all Wagner Tracks.

The two parts are securely riveted together with 1/4-inch rivets every 12 inches, the outside piece overlapping the inside piece at the top with the edge of metal, so that it will be forced into the wood, making an absolutely tight connection. This track may be used with a great many of the best types of Wagner roller-bearing hangers.



WAGNER HANGERS MEET EVERY NEED—ASK YOUR DEALER

Leading hardware dealers sell the Cloztitle and other Wagner Door Hangers and Tracks. In the Wagner line you'll find the right type of hangers and tracks for garages, barns, warehouses—every purpose. Your dealer can supply you. Ask for and insist upon having Wagner Hangers and Tracks.

Write today for illustrated folder on the Wagner Cloztitle Hanger. Shows plans and arrangements for 2, 3, 4, 5 and 6 door openings of any width.

WAGNER MFG. CO.


Dept. M.

Cedar Falls, Iowa

Carpenters And Builders!

LOUDEN

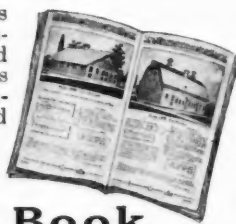
**Will Help You
With Many Plans
Of Money Value**



WM. LOUDEN
Barn Specialist, Originator of Modern Barn Equipment

Our service organization, the greatest of its kind in America, is under the direction of Mr. Wm. Louden, for fifty years the recognized leading authority on all barn building and equipment problems. It is composed of architects and draftsmen who are specialists in barn building. These men will advise you, offer suggestions and preliminary sketches without charge. If you wish complete working plans and carpenter's specifications we can furnish them at a nominal cost.

Louden Service enables you to approach your prospect with expert advice and definite plans that meet his individual needs, which impress him favorably and which he will appreciate.



Louden Barn Plan Book

**Sent Carpenters and Builders
Postpaid—No Charge—No Obligation**

It is not a catalog, but the most valuable book of exclusively barn building information ever written. 112 pages of expert information on grading, drainage, concrete work, framing, strength of materials, lighting and ventilating, size silo to build and where to place it, together with 74 representative plans of cattle and horse barns, hog houses and other farm buildings, with full description and estimated cost of each. Write for this book.

Write also for the Loudon Barn Equipment catalog, 224 pages, illustrated. Shows the full Loudon line of labor-saving equipment, including Stalls and Stanchions, Feed and Litter Carriers, Hay Unloading Tools, Water Bowls, Horse Stable Fittings, Animal Pens, Ventilators, Cupolas, Power Holsts, Barn, Door Hangers, Garage Door Hangers—"Everything for the Barn."

We will start things for you if you will send us the names of farmers who are likely to build or should build.

Address all correspondence to main office:

The Loudon Machinery Company
(OVER 50 YEARS IN BUSINESS)

5515 Court St., FAIRFIELD, IOWA

Branches: St. Paul, Minn. Albany, N. Y. Chicago, Ill.

The Loudon Machinery Co.,

5515 Court St., Fairfield, Iowa

Please send me full information on your Barn Building Service to Carpenters, also books checked below.

☐ Loudon Barn Plans. ☐ Loudon Catalog

My Name.....
P. O..... State.....

Bumper Crops & High Prices Insure Farm Building Activity

(Continued from page 79.)

Following shows area, yield per acre and production in bushels of the leading crops:

	Area	Yield per acre	Production
Winter wheat	27,430,000	15.2	418,070,000
Spring wheat	18,511,000	12.6	232,758,000
Corn	119,755,000	26.4	3,159,494,000
Oats	43,572,000	36.4	1,587,286,000
Rye	4,102,000	14.7	60,145,000
Barley	8,835,000	23.7	208,975,000
Ka. .r corn	5,153,000	14.7	75,866,000
Potatoes	4,490,000	100.8	442,336,000
Sweet potatoes	953,000	91.4	87,141,000
Hay, tame	53,516,000	1.49	*79,528,000
Hay, wild	16,472,000	.94	*15,402,000
Flaxseed	1,809,000	4.7	8,473,000

*Tons.

Cotton production this year is estimated at 10,949,000 equivalent 500-pound bales. Tobacco yield is given as 1,196,451,000 pounds; sugar beets, 6,237,000 tons; beans, 15,701,000 pounds; onions, 13,544,000 bushels, and cabbage, 502,700 tons.

The apple crop was 58,203,000 barrels; peaches, 45,066,000 barrels; pears, 13,281,000 bushels; cranberries, 245,000 barrels, and oranges, 12,832,000 boxes.

Record Prices Paid for Live Stock in 1917

At the annual meeting of Swift & Co. stockholders, Edward F. Swift, vice-president, stated that it had been a year of abnormally high prices in general and record prices had been the rule in the live stock market.

The highest prices paid for live stock in Chicago, together with the dates on which they were paid, were as follows:

	Date	Price per cwt.
Cattle	Sept. 19	\$17.90
Hogs	Aug. 21	20.00
Sheep	May 12	16.00
Lambs	May 17	20.60

These prices, however, were for choice lots that topped the market on the respective dates. The actual payment per hundredweight by Swift & Co. at all plants for live stock for the fiscal years 1915, 1916 and 1917 were as follows:

	1915	1916	1917
Cattle	\$7.10	\$7.21	\$ 8.66
Hogs	7.09	8.49	12.89
Sheep and lambs	7.85	9.16	12.79

Pay More for Live Stock

"As a result of these high prices of 1917, we paid over \$455,000,000 to live stock raisers during the year, an increase of \$141,000,000 over 1916," said Mr. Swift.

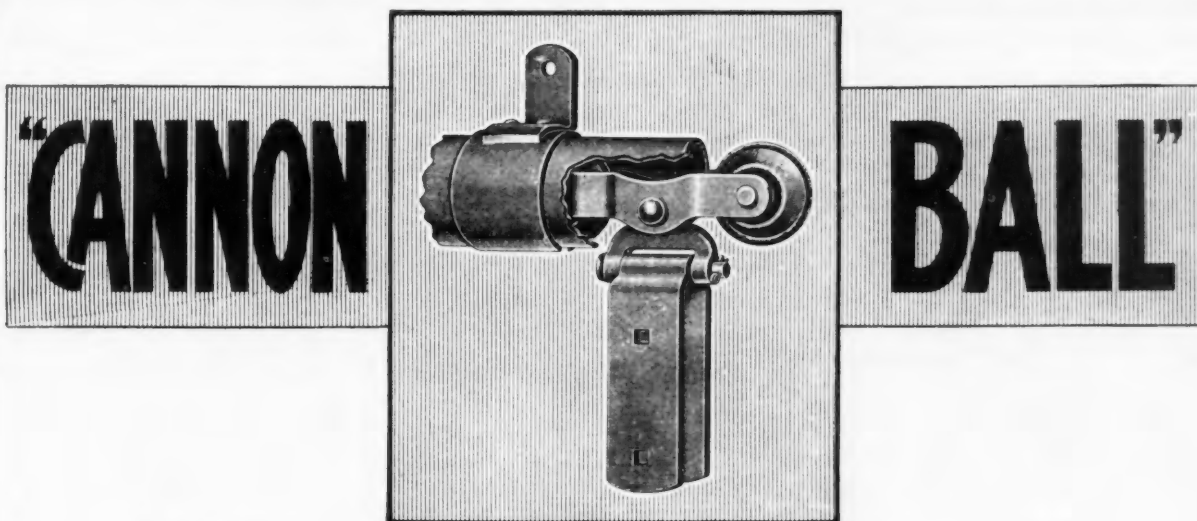


After-the-War Home Building

"GREAT Britain will erect within the first two years after peace half a million or more houses for workingmen, to relieve congested conditions now existing, especially in industrial centers." Such is forecast in the report of an American consul at London recently received by the State Department.

"One of the most important questions in Great Britain for several years past, and one which has assumed political prominence at many electoral cam-

(Continued to page 172.)



The Best "Buy"

The simple construction and the wonderful durability of the Cannon Ball Hangers, plus their established reputation, make them an almost self-selling line.

You do not have to do service work after installing Cannon Ball Goods—once up, they are there to stay and satisfy.

Time, weather and wear have little effect on a Cannon Ball Hanger.

In the Cannon Ball Line there are Hangers and Track which will fit every conceivable need, so far as is concerned the hanging of doors for houses, barns or garages.

Our booklet tells an interesting story—send for it—it shows the complete line with description and full information. If you are interested in garage door hangings, mention it and we will send you details of Cannon Ball Hangers for that purpose.

If you want profits, plus satisfied customers, send for a catalog of the easiest selling line of Door Hangers in America—**Cannon Ball.**

HUNT-HELM-FERRIS & COMPANY

59 HUNT STREET, HARVARD, ILL.

After-the-War Home Building

(Continued from page 170.)

paigms, is that of the housing of the working classes. This subject is now being taken in hand by a departmental committee appointed by the government. It is admitted by the board that 500,000 houses are now urgently wanted, but other authorities, estimate that not less than 1,000,000 houses are necessary, costing \$1,216,625,000.

"On the question of finance, government aid has been promised. In the meantime a grant of \$97,330,000 has been asked for by some housing organizations. The government in November, 1914, decided in favor of a free grant from the exchequer, as well as loans, to permit of local councils charging customary interest without incurring loss; and while that policy is still in force it has, so far, only affected certain munition areas.

"It is recognized that overcrowding has been one of the causes of industrial unrest, especially in districts where war work is particularly heavy; and that bad housing has led to high infantile mortality, notably in the northern industrial centers. In three Scottish districts there is immediate urgent need for accommodation for 100,000 workers.

"Since 1906 there has been a decrease in the building of houses for the working classes. With the outbreak of war practically a complete cessation of small house building set in, except in munition areas.

"It is reported as certain that at an early date government approval will have been granted to plans involving the erection of not less than half a million houses within the first two years after the conclusion of the war, and that, in order to prevent rents being higher than in pre-war times, financial assistance will be substantially provided."



Repairing and Modernizing the Farm House

(Continued from page 81.)

life pleasant and attractive to all members of the family.

Such simple water works as outlined may be easily extended later to include a bathroom with all modern plumbing fixtures, a laundry in the basement with stationary tubs and power driven washing machine and wringer.

Kitchen Conveniences

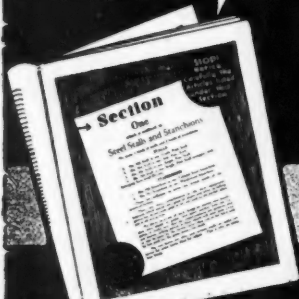
The modern kitchen is light and well ventilated. It is supplied with a good cooking range, a sink with hot and cold water. There is an ice box within easy reach and the cellarway opens from the kitchen and leads down with easy steps to a good storage cellar for household supplies.

There is a good-sized kitchen table and conveniences for pastry making. There is a pot cupboard only a step from the cooking stove, and there are proper re-

(Continued to page 174.)

**Lumber Dealers!
Contractors!
Builders!**

**Write for
this
Valuable
Book**



You can find what you want in the Franklin Catalog. It is classified in such a way as to make ordering easy. Your "reference shelf" is not complete without the Franklin Book. Write for it today!



Before You Recommend ANY Barn Equipment—Know Franklin

Compare it point by point with other standard lines; apply to it the most rigid tests; judge it by the highest standards of barn equipment values.

When you've done those things you'll recommend Franklin Equipment for the barns you build—because you'll recognize its extreme simplicity, strength, and economy.

The Franklin Line is Easy to Sell—Practical—Complete

It's the best for you to push because it is the easiest to install, it is strong, it is standardized.

It's extremely simple, yet you can't find a more complete line anywhere, or one easier to understand. It's easy to sell, because there are

- Only 4 types of stalls—in one size of tubing
- Only 2 types of stanchions
- Only 1 type of steel pen for each purpose
- Only 3 types of litter carriers
- Only 2 types each of feed carriers, feed trucks and milk can carriers.

Insist upon Franklin equipment in the barns you build. It will establish a reputation for you and bring new business because Franklin Equipment "makes good."

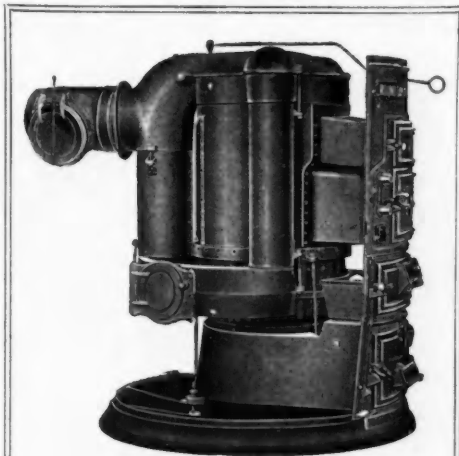
Send us the names of farmers who expect to build or remodel barns, giving the number of cows, horses calves and bulls. We'll work with you to clinch the barn-building contracts.

But above all, write for the Franklin Book—Now!



**Franklin Barn Equipment Co.,
301 Franklin St.,
Monticello, Iowa**

Demand The Proof of Round Oak Supremacy!



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 also guarantee 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.

WE claim the Round Oak Moistair Heating System to be the most Healthful, Economical and **PRACTICAL** Heating Plant manufactured. Furthermore—

We have backed our conviction with another \$50,000 Advertising Appropriation—for the purpose of re-asserting our claim to the general public and enabling you to further cash in on it—**BUT—**

We do not ask you to take our unsupported word for it, Mr. Merchant. Demand the proof! Write for it! It will prove both interesting and convincing. It will explain why both public and trade show increasing preference for the



Also manufacturers of the Genuine Round Oak Stoves, Boiler Iron Ranges and Combination Coal and Gas Ranges.

ROUND OAK Moistair Heating System

The Only Heating System That Automatically Ventilates and HUMIDIFIES

Burns all fuels, insuring abundant warmth and comfort in all weather—floods home with warm **MOIST** air, free from dust, gas, smoke. Durable, trouble proof, simple in operation—and vastly more economical for the reasons listed in the panel.

A Perfected Heating SYSTEM Backed by 47 Years Successful Experience

We believe, our 1918 National Advertising is more forceful, attractive and creative of demand, as well as the Local Sales Helps by which it is reinforced.

Sales and profits urge that every dealer not already capitalizing on Round Oak Plan and Round Oak Supremacy should write immediately for full details.

Send
Coupon Now



The Beckwith Company

ROUND OAK FOLKS

132 Front St., Dowagiac, Mich.

Established 1871

Also manufacturers of the Genuine Round Oak Stoves, Boiler Iron Ranges and Combination Coal and Gas Ranges.

Sales Plan Coupon

The Beckwith Company, Round Oak Folks,
132 Front St., Dowagiac, Mich.

Gentlemen:

Without obligation, please send us full details of your 1918 plans for increasing local sales of Round Oak Moistair Heating Systems. Also please include catalog prices, terms, etc. Very truly yours,

Name _____

Address _____



JOHNSON'S FREEZE-PROOF

Prevents Frozen Radiators

THE only way you can be positively sure that your radiators won't freeze up is to use a non-evaporating anti-freeze preparation. You can never be sure of alcohol or any other product which evaporates with the water.

Does Not Evaporate or Steam

Johnson's Freeze-Proof does not evaporate with the water. One application is sufficient for the whole winter unless the solution is weakened by leakage of the radiator or hose connections—or by boiling over.

Absolutely Harmless

Johnson's Freeze-Proof does not injure rubber, cloth, packing or metal of any kind. It does not rust or corrode metal. There is less rust with Johnson's Freeze-Proof than there is with water alone or with a combination of water and alcohol.

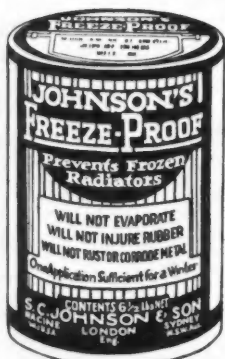
Raises the Boiling Point of Water

The boiling point of water is 212°. The boiling point of alcohol is 131°. The boiling point of Johnson's Freeze-Proof and water is from 225° to 250° depending upon the amount of Freeze-Proof used.

Economical and Easy

Johnson's Freeze-Proof is the most economical anti-freeze compound on the market. It is very easy to use—simply dissolve in water and pour into the radiator. One package is sufficient to protect a Ford to 5° below zero; for large trucks use two packages to protect to 5° below zero, and three packages to protect to 20° below zero.

Insist upon your dealer supplying you with Johnson's Freeze-Proof. It is readily procurable as practically all jobbers have it in stock. Johnson's Freeze-Proof is put up in packages containing 6½ lbs. net which retail at \$1.50 each in U. S. A.



If your dealer cannot supply you we will fill your order direct by prepaid Parcel Post to all points in U. S. A., East of the Rockies. Use attached coupon.

S. C. JOHNSON & SON, Dept. ACB 2
Racine, Wis.

-----USE THIS COUPON-----

S. C. JOHNSON & SON, Dept. ACB 2
Racine, Wis.

I enclose \$1.50 for which please send me prepaid one package of Johnson's Freeze-Proof, enough to prevent 3½ gallons of water from freezing at 5° below zero.

Name.....

Address.....

City and State.....

My Dealer is.....

Repairing and Modernizing the Farm Home

(Continued from page 172.)

ceptacles for holding flour and other kinds of materials, besides suitable jars for spices, teas, coffee, etc.

The farm kitchen should be large enough to hold a dining table to serve meals when extra help is employed.

It should have a rear or side wash room for the men to save tracking dirt into the kitchen.

Farm Bathroom

A bathroom in a farm home is a great luxury. Boys and girls hesitate to leave the farm and go to the city when they have such modern conveniences and comforts at home.

The necessary furniture consists of a bathtub, wash stand, closet, a mirror and an outside window. Usually the mirror is placed in the door of the medicine cupboard, which may be built into the wall.

The floor of the bathroom should be either tiled or covered with linoleum. The fittings of a bathroom should be of white porcelain enamel ware. The price is governed by the size, weight and quality.

A total bathroom outfit may be bought for \$75 and the work of installing is not necessarily expensive. A five-foot bath tub seems to be the most satisfactory size. The connections are all made to screw together, so that the old hand labor, commonly called plumbing, is now done in the factory before the articles of bathroom furniture are shipped.

The usual place for a bathroom is over the kitchen, so the principal lines of pipe follow directly down from the bathroom thru the kitchen and into the laundry. This saves expense. Also, the supply pipes and waste pipes work better when connected up in this way.



One-Register or a Pipeless Furnace

(Continued from page 83.)

business. It threw the heated air into the building and at the same time sucked out the cold air. In other words, it provided circulation.

If you are not an expert on heating devices, you will undoubtedly have a lot of questions in your mind. The writer had, but he had an advantage over you—he asked them of men who are experts, and got the answers. They are now passed on to you.

"How," one man was asked, "can a house, say one and a half stories high, containing six rooms, be heated from one register?"

Then it was explained. No attempt will be made to quote the expert literally, but here is what he said, in substance:

The modern house is open. That is, there are practically no rooms on the first floor, with the exception of the kitchen, that are shut off from the others. This is necessary to make a pipeless furnace efficient. Bedrooms are shut off, but usually only at night. Every-

(Continued to page 176.)

DEVOE *Interior Finishes*

For every interior surface there is a DEVOE paint, varnish, stain or enamel. Each is prepared to render unusual service and each bears the DEVOE Guarantee of Purity and Satisfaction.

VELOUR *Finish*

A high quality oil paint that dries with a soft, flat, velvety, water-color effect. May be applied effectively to plaster, woodwork, wallboard, canvas or burlap; also to steam and hot-water radiators. Can be washed with soap and water and is guaranteed durable and sanitary. In twenty-one beautiful tints.

MARBLE *Floor Finish*

A transparent, hard-drying varnish made to resist the constant wear and tear that all floors and stairs receive. Preserves the beauty of natural wood floors. Will not scratch white or show heel marks. Dries over night. Ideal for vestibules because it is not affected by sudden changes in temperature.

ANTIQUE *Wood Stains*

Penetrate deeply and dry clear. A number of attractive Mission (lusterless) effects can be produced with these stains on floors, woodwork and furniture. A finish of walnut, mahogany or Oaks can be closely imitated by using these stains on any wood and may be finished with DEVOE Hard Wax Polish or DEVOE Marble Floor Finish, if desired. These stains will not raise the grain of the wood.

HOLLAND *Enamel*

A high-grade oil enamel made with French Zinc. Contains no varnish gum. For use wherever a hard, porcelain-like interior finish is desired. Will not turn yellow or crack. Can be scrubbed with soap and water and is absolutely sanitary.

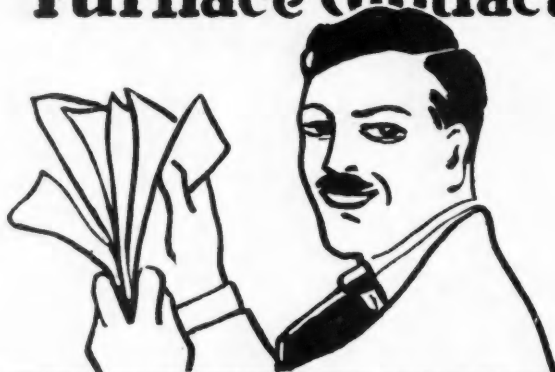


DEVOE

*The oldest paint manufacturing concern in the United States.
Founded in New York in 1754*

DEVOE & RAYNOLDS CO., Inc.
New York Chicago

Furnace Contracts



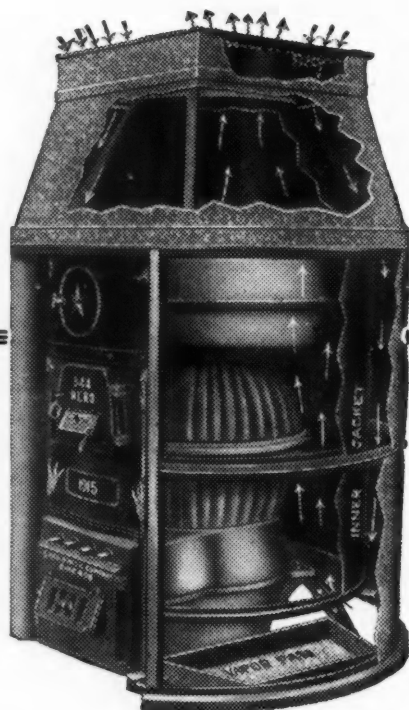
You can pile up a nice profit without interfering with your regular business by taking up our Agency Proposition for installing

Hero Pipeless Furnaces

They are easily and quickly installed; they are the simplest, most practical furnaces for heating homes, stores, or halls; they represent an economy in installation as well as "First Cost;" and they are sure to give complete satisfaction to users.

Chas. Smith Company

57 W. Lake Street Chicago, Ill.



One-Register or Pipeless Furnace

(Continued from page 174.)

one nowadays, who values his health, sleeps in an airy room.

Warm air rises and as it rises it forces the cooler air towards the floor. When the heated air hits the ceiling it does not stop, but continues to wherever it can find air colder than itself. It continues its pursuit of its chilly brother until it, itself, becomes cold, or rather less warm, and then it starts to descend.

This continuous stream of heated air eventually drives out the colder air and heats the room. That's one room.

"How," the prober continued, seeking defects in the system, "can this furnace heat any part of the house except the room that contains the register?"

Now what follows is the scientific basis upon which is founded the success of the pipeless furnace.

The pipes which carry the heated air from the ordinary type of furnace to the rooms above are usually 10 inches in diameter. The area of a 10-inch pipe is one-half a square foot. One of these pipes leads to each room that is to be heated. Thus, all the heat that can be introduced into a single room thru a pipe of this character must come thru this small opening.

In contrast, the area of a doorway in an ordinary home is 17 square feet, and thirty-five times as much as a pipe opening. A double door is twice as large and if there happens to be colonnades, or no doors, there is just that much more area for the induction of heat. Thus instead of carrying the heat into a room thru a small pipe you carry it in thru the door openings. Or, rather, you don't carry it in, but it goes in whether you want it to or not.

In the house taken as an example—six rooms, one story and a half—40 per cent of its area is basement, 40 per cent on the first floor and 20 per cent on the second. These proportions, of course, differ in different types of buildings. The percentages in individual cases are easy to figure. But taking the one mentioned, by eliminating pipes in the basement, 40 per cent of the heat produced is saved, with a consequent saving of 40 per cent in fuel to obtain the same degree of heat where heat is needed.

There is another advantage, too, which will appeal to those living in small towns or in farm homes. The basement, or cellar, is the family cold storage warehouse. In it is stored the things which to be preserved during the winter must be kept cold.

Water pans in the furnaces are so arranged that the air returning to be heated passes over the water. As this water is heated to different degrees, depending upon the intensity of the fire it is constantly vaporizing. This vapor purifies the returning air, taking from it particles of dust and killing the germs. It also provides the humidity necessary in a properly heated house. Manufacturers have found upon investigating

(Continued to page 178.)

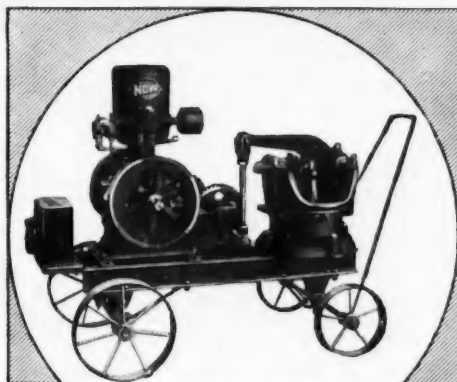


Figure 335—Novo Diaphragm Pumping Outfits, either skid or truck mounted in several sizes, single or double pumps.

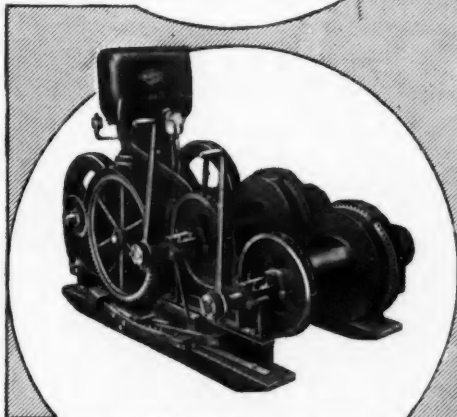


Figure 172—Novo Hoisting Outfits for every hoisting job requiring less than 20 H. P. These reliable hoists are built in various sizes and types.

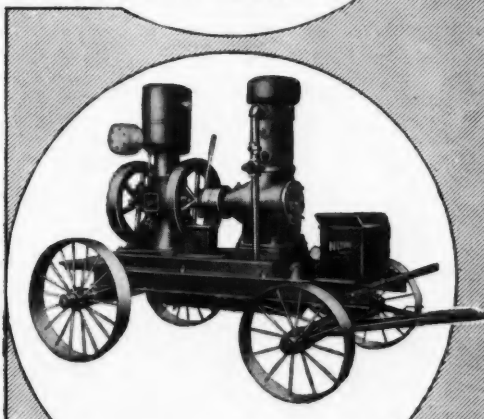


Figure 276—Novo Air Compressors cover a wide range of sizes from 1 1/2 H. P. to 15 H. P. machines up to the 15 H. P. 80 cu. ft.

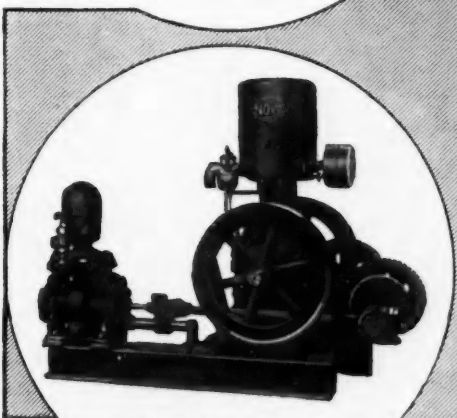


Figure 14139—Novo Pumping Outfits have stood the most severe tests. Novo Power Pumps are noted the world over for reliability under all conditions.



Standardized By the Nation!

THE superiority of Novo Standardized Power has been proved so thoroughly to contractors everywhere that it is now the accepted standard of power throughout America.

The large line of Novo Outfits, including hoists, saw rigs, air compressors, and pumps, enables a contractor to adopt one power—Novo Power—the handiest and most economical power for every kind of work. For these reasons 85 per cent of the mixer manufacturers equip their mixers with Novo Engines.

One man can take care of a large number of Novo Engines and Outfits. Besides, there is no expense for steam engineers, no trouble from boiler regulations, and no need of electricians. When you move a number of light and easily handled Novo Outfits to another job, there are no delays of any kind. You have a complete operating unit ready for immediate work.

If you are not already acquainted with Novo Engines and Outfits, it will pay you to get in touch with us. Write today for our booklet—"Standardized Power."

NOVO ENGINE COMPANY

CLARENCE E. BEMENT, Vice-President and Gen'l Manager
882 Willow Street Lansing, Michigan
Chicago Office, Lytton Building

NOVO STANDARDIZED POWER

MADE IN MILWAUKEE
BOILERS
GILT EDGE
FURNACES
 R. J. SCHWAB & SONS CO.

There's a Gilt Edge System for Every Need

No matter what kind or size of home you are building—some-where in the Gilt Edge line there is a heating system that will heat it "just right". The same applies to churches, schools and stores. Builders and architects who have installed or specified Gilt Edge Heating in their buildings will tell you that they made friends by doing so.

Get in Touch with Us

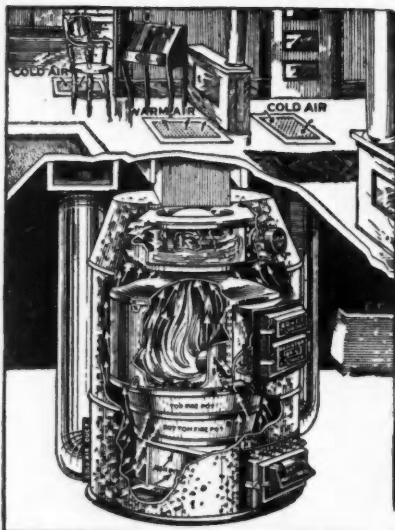
There's an opportunity for you to make money as well as reputation with Gilt Edge Heating Systems. Write for literature and details—telling us whether you are interested in Warm Air, Hot Water, Steam or Vapor Heating.

R. J. Schwab & Sons Co.

273 Clinton St.
 Milwaukee, Wis.



BOVEE'S PIPELESS CENTRAL



HEATING SYSTEM AND OTHER FURNACES

Every home can now have a first-class high-grade heating system in an old house as well as new. Heats as much as three large stoves. Costs but little more than a good stove.

We furnish either our **UPRIGHT FURNACE** for burning hard coal, soft coal or wood; or our **HORIZONTAL FURNACE** with large doors 16x16 inches for burning 4-foot wood or soft coal.

Either style furnace furnished in any size necessary to heat the house.

USUAL SYSTEM WITH PIPING TO EACH ROOM FURNISHED WHEN DESIRED. Write for our three color catalogue, free.

BOVEE FURNACE WORKS

50 Eighth St.

Waterloo, Iowa

One-Register or Pipeless Furnace

(Continued from page 176.)

water pans in furnaces after a season's use, a thick layer of dirt, which when crushed in the hand, separates into tiny particles.

In considering the removal of dust and germs from the heated rooms, there is another interesting fact.

The ceiling of a room in the type of house mentioned is 9 feet above the floor. Midway, or 4½ feet from the floor or ceiling is called the "breathing line." At this line will be found the average temperature of the room. In consequence if a person desires a temperature of say 70 degrees, he will discover that it is warmer at the ceiling and cooler at the floor.

As most people know, the exhaled breath contains the poisons thrown off by the lungs, while the pores of the body are continually doing the same thing. Thus, as the air at the ceiling gradually cools it falls. In falling it gathers particles of dust from the breathing line and below it and carries with it the poisonous gases from the breath and body. These poisons are carried down to the furnace, purified by the vapor from the water pans, and when it returns, reheated, it is practically pure. That a pipeless furnace acts as a sort of an atmospheric sterilizer is claimed by the manufacturers.

There are now being made numerous types of pipeless furnaces, each of which, of course, is the best—if you take the manufacturer's word for it. They vary in the shape of the furnace itself, the size of the hot and cold air chambers, the construction of the register and the placing of the water pans.

One feature of the pipeless furnace which will immediately appeal to the house owner and prospective house owner is the ease with which they are installed. There are no pipes to be run thru the walls of new homes; neither is it necessary to tear out the walls of an old house when a furnace of this type is put in.

The advent of the pipeless furnace has also led to a new method of selling. It is claimed that anyone who can set up a stove can install one of these furnaces. This seems logical, as there are no pipes to be fitted—merely the cutting of a hole for the register, the setting up of the furnace and put in the pipe connecting the two.

The pipeless furnace is making a strong bid for business from the owners of small stores, banks, etc. While it does away with one of the country's most famous institutions, the old-fashioned country store stove, honored in story and verse, it has the advantage of giving the storekeeper additional space in which to transact business.

Now that the pipeless furnace has been added to the many things invention has made "less"—the horseless carriage, fireless cooker, thornless rose, being notable examples, there is still hope that someone may devise a fuelless fire. With coal at its present price and promising to be more costly, let us hope so.

Mueller Pipeless Furnace

Solves Coal Problems

Why? Because it saves 35 per cent in fuel. It heats your whole house comfortably from one register—no pipes or flues. Burns hard or soft coal, coke or wood.

Why? Because thousands of home owners have proved its efficiency and dependability—are keeping their homes warm and comfortable with it today.



60 Years of Experience Behind It

The L. J. Mueller Furnace Company has been building heating systems of all kinds for more than 60 years. It could not afford to put the Mueller name and the Mueller guarantee behind this furnace if it did not do all that is claimed for it.

The Mueller Pipeless Furnace is exactly the same as the old reliable Mueller line, but without pipes or flues. It is made of solid cast iron, with rust-proof triple jacket, substantial fire pot and one-piece radiator and best type grates of triangular duplex pattern.

Just the furnace for old or new homes or buildings with small or partial cellars. Easily installed. Does not heat cellar, preventing storage of fruits or vegetables.



SEND IN COUPON TO-DAY

You owe it to yourself to look into this sure method of cutting your coal consumption without lessening your comfort.

L. J. Mueller Furnace Co.

Makers of Heating
Systems of all kinds
since 1857

218 Reed Street

Milwaukee,
Wis.,

U. S. A.

L. J.
Mueller
Furnace Co.
218 Reed St.
Milwaukee,
Wis., U. S. A.

Gentlemen:—
Without obligat-
ing me in any way,
please send me your
catalog fully describ-
ing and illustrating the
Mueller Pipeless Fur-
nace.

Name

Address

City

State

HOLLAND

Quality First

Every Customer a Warm Friend and Booster for Holland Service is our plan and hope. Our large growth has proved the success of the Holland Furnace. Holland Quality has stood the severe test of fire and time.

It pays to buy a Holland Furnace—The Furnace—without any bolts or rivets that come in contact with the fire—with all equally heated joints—built entirely of first-grade cast iron, the most lasting material known for transmitting heat and for standing the test of fire.

Write for catalog.

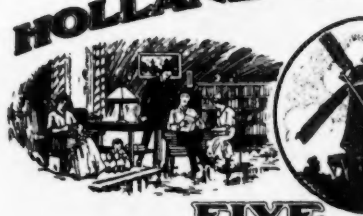
World's Largest Installers of Furnaces

Holland Furnace Co.

Main Offices: Holland, Michigan

Factories: { Holland, Michigan
Cedar Rapids, Iowa

HOLLAND FURNACES



HOLLAND SE
FIVE
HOME COMFOR

This is to Certify, That HOLLAND
installed for _____
City _____ *State* _____

to give heating
have been run at
our contract date
And further, that
smoke pipes, are hereby
workmanship for a pe

HOLLAND FURNACE COMP

OUR OUTPUT HAS DOUBLED EACH YEAR

A Convincing Testimonial of Quality



WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

FURNACE

Service—Success

Holland service is a day and night service. Heats all the time. Coal bills cut in half. Burns any kind of fuel.

The secret of the Holland success is the secret of good materials, right designing, and honest construction. Holland users are Holland boosters.

Write for catalog.

Get Our Expert Advice

Every Contractor should investigate. Big profit making proposition.

Our experts help you sell and install the Holland Furnace. Big profits can be made. Our Heating Engineers will send to you free detailed plans and specifications, prices, etc., covering the entire heating equipment of any job. Send rough sketch and dimensions.

Our service is FREE. Write us today.

World's Largest Installers of Furnaces

Holland Furnace Co.

Main Offices: Holland, Michigan

Factories { Holland, Michigan
Cedar Rapids, Iowa

MAKE WARM FRIENDS

SERVICE BOND



YEAR
T INSURANCE

FURNACE Number _____
Street _____

_____ is fully guaranteed
service in all of the rooms to which pipes
according to the specifications and terms of
_____ 191 _____

I, _____, of _____, hereby
guarantee the Holland Furnace, including all parts except the
guaranteed against all defects in both material and
and of Five Years from date _____ 191 _____

HOLLAND FURNACE CO.

By _____

GENL. MANAGER

ANY, HOLLAND, MICHIGAN

CH YEAR for 10 YEARS



WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

National "Own Your Home" Movement

(Continued from page 83.)

ownership. It lies with you whether the money these save now goes into useless luxuries or toward home ownership, which will safeguard national prosperity.

There is no good word to say for renting. A nation or city dominated by landlords goes down hill, and it is undoubtedly true that the tendency in cities is toward renting rather than ownership. But no chronic renter ever becomes a power in his community. In farming districts tenant farms are as different from those worked by owners as night is from day. The rented section of any city sooner or later assumes a second-hand aspect. Deterioration sets in; the property finally reaches a point where it no longer produces revenue. The buildings are boarded up and remain unused, and finally are removed to make way for cheap business buildings, which may even alter an entire section of a city for the worse, and which, under other circumstances, could just as well be made to occupy property less favorably situated for dwelling purposes. In this way well-constructed, useful and valuable buildings are often destroyed and are replaced by structures which further damage the neighborhood for residence purposes. This constitutes a serious economic loss to the community. In these days of conservation we must realize that we are neglecting an important duty to our country if we fail in measures to stop this

process of destruction.

A rented house is never kept up to the pink of condition by a landlord, and the tenant usually shows no ambition in that respect. Additions, improvements, repairs, cleaning up, painting, fixing up, individual enthusiasm, are always below the desired point. All these things, translated into dollars and cents, have an influence on the welfare and prosperity of a community. They form a few of the reasons why every progressive business man and progressive citizen should support the National "Own Your Home" movement by seeing that it receives local expression in his town or city.

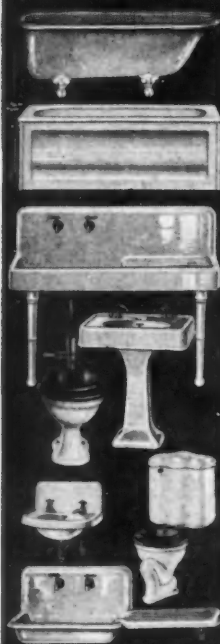
No Time Like the Present

For reasons stated before, and also because lots and building material will never be as cheap again, now is the time to encourage the "Own Your Home" movement. After-the-war reconstruction will divert building material elsewhere, making it more scarce and higher in price. Now, then, is the time to build. Furthermore, should a man of family elect to go to war, owning his home would leave his family cared for. His arrangement with the government would permit that, and safeguard them in case of his death, instead of leaving them at the mercy of the landlord.

The final argument in the favor of conducting an "Own Your Home" movement now is that it is, first

(Continued to page 184.)

CONTRACTORS—BUILDERS—CARPENTERS DO YOUR OWN PLUMBING-HEATING



Our New Hardin Easy Method

Any handy man with a few ordinary tools can easily install our plumbing or cut-to-fit heating outfits—this new, simplified method with our plain plans and instructions and save one-half. This new method is perfect, simple and easy. You save the high cost of skilled labor and save all unnecessary material.

This New Cut-to-Fit Easy Way

Send for our valuable, big, complete Handy Man Book-Catalog, showing and describing over 10,000 different plumbing and heating fixtures and supplies with separate wholesale discount sheet applying to same.

This big book explains and shows our new Hardin simple method. Shows you how easily you can install any kind of hot air, water or steam heating plant or plumbing outfit our new, original, practical, Cut-to-Fit easy way. (No loss or waste).

It helps you select the proper fixtures and has many pages of practical plans, diagrams, sketches, elevations, etc., showing you just how to do the work from start to finish—this new, original, practical Hardin easy way.

Every carpenter, contractor and builder needs this free, big, valuable Handyman book-catalog.

Write today

Hardin-Lavin Co.

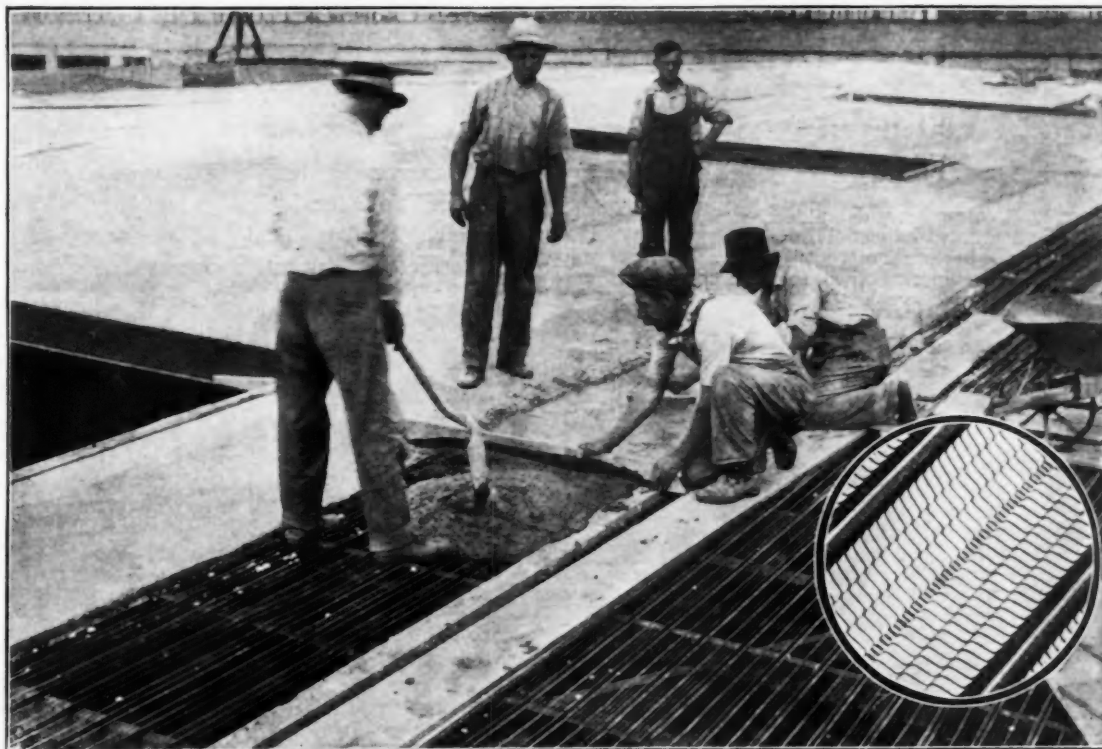
40 years at
4532-42 D Cottage Grove Ave., Chicago



Hardin-Lavin Steam
or Hot Water Boiler



New Hardin-Lavin
Radiator Furnace



Our picture shows the use of Ribplex in the roof of Building No. 2 of the Foster Machine Co., Elkhart, Ind. It was also used to splendid advantage on their other buildings shown in the background.—J. C. Bontrager of Elkhart, Indiana, Contractor.

RIBPLEX

Meant a big saving in labor and materials in the roofs of the Foster Machine Company's buildings at Elkhart, Ind.

The tough metal sheet, rolled in our own plant, especially for Ribplex, is formed into strong, rigid ribs with Expanded Metal between. This gives an excellent bond and forms

A Splendid Reinforcement

for concrete or plaster not only in roofs but in partitions, floors, ceilings, and side walls as well.

For roof construction, Ribplex offers the advantages of fire resistance, light weight strength and permanence, at a cost comparing favorably with that of less substantial inflammable constructions.

Ribplex permits thinner walls and partitions—lighter roofs that saves space and supporting structure.

Ribplex is self-furring, requires little or no centering and is easily put in place—that means saving in time, labor and materials.

Ribplex construction is strong, fire resisting

and as lasting as the concrete itself—that means permanence.

Standard six rib plates 24 inches wide with ribs $\frac{3}{4}$ inch deep are carried in stock at the Berger Factory and Branches in lengths 6 to 12 ft. gauges 24, 26 and 28—that means prompt shipment.

Investigate Ribplex for the buildings you are planning; ask us to send you an actual sample with complete information. See Sweet's, Page 216 and write Dept. K. A. B.

The Berger Mfg. Co., Canton, Ohio

Branches: Boston New York Philadelphia
Chicago St. Louis Minneapolis San Francisco



Export Department:
Berger Building, New York City, U. S. A.

Buckeye Service Sells

Buckeye Ventilators For You

Contractors and builders may avail themselves of the best skill of ventilating engineers when they sell Buckeye Ventilators. Expert advice is always at the command of the Buckeye agent. Besides

Buckeye Ventilators

are the easiest to install, being simply bolted to the rafters, and are the most scientific because the foul

air is led out by broad curves—not asked to go around sharp angles. Exclusive territory and good profits to the wide awake man who will sell ventilation as well as buildings.

Write us for our proposition. See how simple and fair it is, how much we will assist the contractor, and you will find it will pay to close with us, for our plan protects the contractor and the dealer in every particular. Write us today. Get a copy of our handsome Ventilator Book. It will help you sell ventilators and make more profit.

The Thomas & Armstrong Co., 126 Union St., London, Ohio



5 Distinct Models 5

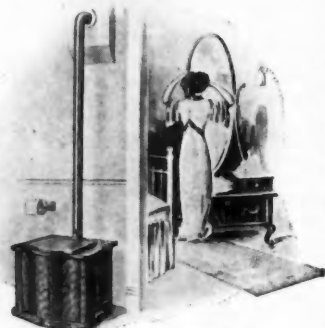
Indoor, Sanitary, Odorless Chemical Closets

With our line you can fill the requirements of any home or public building. No water or sewer connection required.

Write today for agents' proposition.

Automatic Chemical Closet Co.

1417 Washington Ave., N. Minneapolis, Minn.



Model No. 10. Our Staple Seller

Mr. Builder: Increase Your Income Right Now—This Month

Here's something right in your line—a Chemical Closet that you can sell to a home builder cheaper than a wooden privy and make a bigger profit for yourself. Here's something you can sell at odd times or turn over to your son or your foreman to sell.

RO-SAN Chemical Closet

An absolutely sanitary, odorless indoor closet that may be placed anywhere in the house. Abolishes the germ breeding out-door vault. A comfort and convenience when there is no sewer connection. Germs killed by chemical. Easily emptied as the ash pit of a stove.

AGENTS WANTED

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.

ROWE SANITARY MFG. CO.
902 Rowe Building Detroit, Mich.
Ask about the Ro-San Washstand. Hot and cold running water without plumbing.



National "Own Your Home" Movement

(Continued from page 182.)

of all, educational. The groundwork begun now will mean that your locality will reap its reward the sooner.

If there is no "Own Your Home" movement as yet under way in your city, take the initiative by getting it under way. Undertake to form a local "Own Your Home" committee, which can co-operate with the national one. Your local "Own Your Home" committee should include, if practical, the leading banker, architect, contractor, real estate operator, lumber dealer, brick dealer, cement contractor, masonry contractor, paint dealer, plumber, decorator, insurance agent, furniture dealer, the principal of your leading school, a member of the Women's Club or similar organization, and the editor of the leading newspaper. You will observe that all these fields will gain from a stimulation of the "Own Your Home" movement in your city. If at all practical have the advertising manager of any local firm act as advertising adviser.

Tie Up with the National Movement

National advertisers of lines having to do with home construction and equipment are being asked to co-operate with this movement by carrying the official emblem and slogan of the movement, a bungalow with the words: "Own Your Home." "Ask the Committee in Your Town." Your committee members should carry this emblem and slogan on all their letterheads and advertising matter. You will find that people will be interested and will soon be asking YOU how they can Own Their Home. Have the committee headquarters ready. Establish them permanently, with a paid attendant, who will answer all questions intelligently. Many cities have financed the overhead expenses of "Own Your Home" committee headquarters by having these contain little exhibition booths showing the product of business houses selling building material or equipment, whether members of the committee or not. This is just a suggestion as to how the expense may be met. In some cases the "Own Your Home" committee has delegated a regular Citizens' Committee to canvass the city for the funds required to carry on a local "Own Your Home" campaign successfully. The cost of this, you will find, will range from \$500 to \$3,000, depending on the size of the city and the scope of the campaign.

March, April and May, 1918, National "Own Your Home" Campaign Months

The national movement will be at its height during the months of March, April and May. People will be talking, thinking and acting on the "Own Your Home" idea then as never before. A campaign in your city in support of this national movement, and tying up with it, would help tremendously. It could take place any time during the three months indicated, and might wind up, if at all practical, with an "Own

(Continued to page 186.)

CARPENTERS

One Man In Each County—\$5000.00

This is a new business of great cash opportunity to Carpenters; 1,000 men are already appointed to county agencies. One man has averaged over \$100.00 per week above all expenses for nine months. Others who have started since are beating this record. The money-making possibilities are **unlimited**. Carpenters are just the men we want. You can make over \$5000 in your county this year—**cash**. No risk. No investment of a lot of money required. Exclusive territory **FREE**. Profits start first day. **You can make \$100.00 next week**. Write for complete free information. Secure your county **now**. This invention is absolutely needed and is **WANTED IN EVERY HOME**.

The Shafer Ventilated Chemical Indoor Closet

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. Misenar, (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.

SEND NO MONEY—AGENT'S OUTFIT FREE

No order required to start. Order book, business cards and prospectus with exclusive agency contract **FREE**. Co-operation, advertising, assistance. **Business supplies capital.** We teach you how to make amazing success. Permanent business—all or spare time. Secure your county under exclusive agency contract now—**free**. Don't delay. Write us a letter or postal card, giving your name, address, and the name of your county, and mail it today. No previous experience necessary or required. You can make this success. Your profits will start the first day. Make \$100.00 a week—\$5000 a year commencing **NOW**. Risk a stamp to get complete, proved, reliable free information. **This is your part—DO IT RIGHT NOW.**



The Shafer Mfg. Co.,

503 Colton Building
TOLEDO, OHIO

National "Own Your Home" Movement*(Continued from page 184.)*

Your Home" week, which the local "Own Your Home" Committee could make a gala affair.

The National "Own Your Home" Committee Is at Your Service

The national "Own Your Home" Committee stands ready to co-operate with every city desirous of having a local "Own Your Home" campaign. All that it asks is that the local campaign be purely educational, and not further any particular business, to the exclusion of others, as this would cause it to appear in a bad light and lessen its effectiveness. The idea behind the "Own Your Home" movement is too big to be confined to any particular branch of business which may be benefited by it. Rightly conducted, a local "Own Your Home" campaign will stimulate immediate and permanent activity in all directions and further community welfare and local prosperity generally along the soundest possible line—that of home ownership. Address the National "Own Your Home" Committee,

Bartholomew O'Toole, Chairman, 72 West Washington street, Chicago.

**Industrial Housing Problems***(Continued from page 86.)*

they may be misused or overcrowded. This far outweighs its advantages.

The old style of mill boarding house or hotel taking in a large number of employees has gone somewhat into disfavor. Under proper regulations this is a much better method of housing than in boarding houses or by allowing the families to take lodgers, but it is difficult to popularize it among the men. It will generally be found that the single worker prefers to lodge with a private family if he can possibly do so, but if this is impossible or if he is prevented by the owner and can be induced to take up his quarters in a large boarding house, he can be very comfortably housed at a very moderate cost. One that we have recently built takes care of sixty men at a charge of \$1.50 per man per week. This building has a large dining room and

(Continued to page 188.)

TRY A "WHITE"

Before You Buy It

**Try it for 10 days
at our expense**

**Always ready as
a Level or
Transit**

**Accurate
Durable
Not high priced**

Remember, after trying a "White" Convertible Level, if you don't pronounce it the best instrument of its kind you have ever seen or used, we will without quibble or question take the Level back and expect to pay the express charge both ways.

In simple justice to yourself you cannot afford to pass up this unusual, liberal offer to try a "White" Level without cost or obligation to you. Every contractor and builder should realize the importance and fairness of this free-trial opportunity, and write at once for prices, circulars, etc.



David White Company
419 East Water Street Milwaukee, Wis.

The New Improved Comfort Indoor Closet Odorless-Sanitary-Germ-Proof

BUILDER and CARPENTER AGENTS WANTED Earn \$60 to \$100 Weekly

We have a wonderful proposition for Builder and Carpenter Agents. We want one in each territory to be our representative. No experience necessary. You can work all or spare time. Your profits are large and there is no limit to what you can earn if you're a hustler. The Comfort Chemical Closet is a quick seller. Every home with an outside closet is a prospect. There is no limit as to how much you can make—we have representatives making from \$1200 to \$5000 a year. We assign you territory to work in and protect your rights in that territory. We have several carpenter agents who are making good as our representatives. Why not be one of them? Act at once. Write today for full particulars on Agents' Free Demonstrator Offer and Catalog.

A HOME NECESSITY—Odorless, Sanitary, Germ Proof

Every home without sewerage needs a Comfort Indoor Closet. No plumbing or running water is needed. The ventilation of the Comfort Closet is perfect, allowing no odors whatsoever to escape into the room. It is very simple to install the Comfort Closet in any room in the house. So simple in fact that anyone can install by following the directions which we furnish with each closet.

The Comfort Indoor Closet is guaranteed for one year but will last a life time. We have in our files hundreds of letters from satisfied users of Comfort Indoor Closets. There are 10,000 now in use. The Comfort Closet is the best in every respect that money, brains, material and workmanship can produce. If it could be bettered or improved we would do so.

U. S. Health Bureau Approves

Says:—"Chemical Closet complies satisfactorily with requirements of sanitary system." Abolish cold outdoor closets. Put a warm Comfort Toilet in your home, a guarantee of healthy, sanitary conditions. The best medical authorities in the country today advise its use. Has all the latest improvements. Germ-life killed by chemicals. Emptied once a month. Needs no other attention. State Boards of Health endorse it. Third successful year.

What Others Are Doing— You Can Do

Made \$50 Daily for 5 Days Am meeting with good success selling Comfort Closets. Spent one day last week and took eight orders. This week out for five days took sixteen orders and twenty additional orders for future delivery. In about ten days have taken orders for nearly 50 closets which I consider good for a beginning. The sample closet I received from you is giving excellent satisfaction." S. Q. Rohrer, N. Dak.

Ordered 300 Closets in 3 Months "Enclosed please find draft which will cover payment for another 150 closets. This makes 300 we have ordered from you in the last three months. They are giving very good satisfaction and we find the business a very profitable one. We are establishing many sub-agents who report good sales." Koester, Milwaukee, Wis.

Selling 2 Years—Over 100 in Home County "As you know I have been selling your closets successfully in this county for nearly two years and have sold a great many. I have placed over one hundred closets in this county alone, and they are giving universal satisfaction. Your treatment of me has always been good and it has been a pleasure to work for your company." Wheeler, Mich.

This is the best closet offer made. There is a big demand for them. Every one knows about them and wants one. Sales easily made. Write NOW for Agents' FREE Demonstrator Offer and Catalog. Be the first in your territory—act NOW.

Comfort Chemical Closet Co.
302 Factories Bldg. Toledo, Ohio



30 DAYS' FREE TRIAL PRIVILEGE
If after 30 days' trial the Comfort Indoor Closet does not do all we claim, it can be returned and the purchase price will be cheerfully refunded.

Industrial Housing Problems

(Continued from page 186.)

kitchen, etc., board being furnished at moderate cost.

The good points of the boarding house for fifty to sixty men are that one efficient married couple with three servants can run the place without difficulty. A higher type of tenant is required to handle a proposition of this kind, but they can be secured fairly readily. It is easier to arrange for proper inspection and supervision, as in most cases, these are run as "company houses."

A boarding house for more than sixty is a big proposition to be handled this way, and would have to be run like a hotel with a manager and regular hotel staff.

In London (England) and in Liverpool, the Rowton House Trust and other organizations have been operating hotels for five hundred or more single men successfully for many years, but up to the present time none have been built in American manufacturing centers.

The Manufacturers' Local Needs

The industrial manager at this point may well stop in bewilderment, not knowing how to proceed next, what size and type of house he needs to choose from this list being quite a puzzle. On this point it is impossible for any expert to offer advice until his local needs are accurately determined, and to do this the only safe way is to institute a careful survey of the

housing conditions and needs of his locality. It is very difficult to persuade him to do this, as each man thinks he knows just what his present conditions and needs are—whereas, in point of fact, his guesses are often wide of the mark. The first and only impulse of many men is to build as many six-room houses as he can, adding, perhaps, a few seven and eight-room houses for good measure. Until he knows the number of married couples without children, he does not know how many small houses or apartments are needed. If he doesn't know the number of unattached single men, he doesn't know how many lodgers must be taken care of—and unless he has facts before him as to the present habits and environments of those men he doesn't know whether in his town the lodger evil is the moral and social menace that the social reform alleges it to be. He must know, too, the size of the different families with children, whether they are properly housed at present, and must have some facts before him on birth rates, death rates, sickness and infant mortality, etc., compared with other cities, before he can be sure that his town needs improvement and what improvement it needs.

The only way of getting these facts is by a careful survey by an expert at this sort of work.

Suiting the House to the Needs of the Occupant

There should be in every home enough bedrooms for the parents and the children of either sex to sleep apart. A good-sized bedroom should be provided for parents (and infant children), and two smaller bed-

(Continued to page 190.)

LAST TWICE AS LONG BECAUSE THEY'RE TWICE AS STRONG.



FOUR-IN-ONE MULE-HIDE SHINGLES

Offer opportunities for contractors to use Asphalt Shingles with a considerable saving over the individual type, being in strip form, four shingles in one piece, there is a saving both in nails and labor, which makes it a very interesting proposition for contractors to push asphalt shingles. This is altogether aside from the fire resisting properties and attractive appearance which asphalt shingles give to any building.

Samples furnished on request.

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ROOF SLATE

Of every kind. Black—also the varying delicate shadings and rich tones of Red, Green and Purple—clear and in mottled effects.

Structural Slate — Slate Blackboards

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Quarriers of Slate

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From Factory to You

with the greatest speed and safety.

Use G. F. T. Roofing Slate

Make the first cost the last cost.

Absolutely no risks. Nature's own roofing. Its use neither new or experimental. Fire, storms, snow, ice, rust, etc. cannot harm this Genuine Franklin Tunnel roofing. Write for our catalog.

Slatington Slate Co., Slatington, Pa.





The PERFECT MATERIAL

BAYONNE Roof and Deck Cloth contains all the advantages found in other materials and eliminates their disadvantages.

BAYONNE is Wear and Weather-proof. It is impervious to the elements; it will stand constant walking upon.

BAYONNE is easy to lay. Saves paint, time and labor. Is laid on dry boards and painted afterwards to conform to any desired color scheme.

BAYONNE will not crack, peel or scale. Always retains its smooth, neat appearance. Can be kept perfectly clean by sluicing with water, like cement.

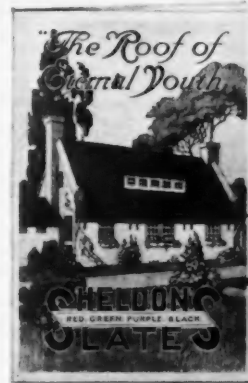
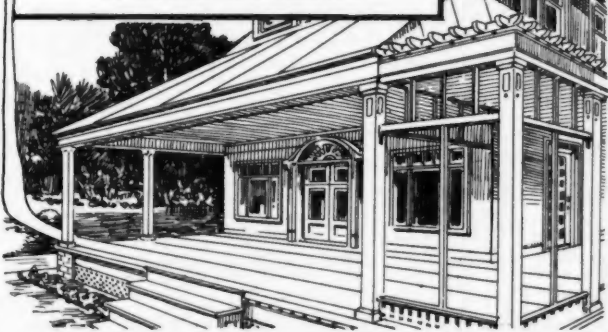
Satisfaction is assured when **Bayonne** is used. Specify it to be certain of the job measuring up to your high standards.

Let us send you our Sample Book N and booklet giving opinions of builders. We feel certain you will find them most interesting to peruse.

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**SUN PARLORS,
PLAZA FLOORS
and ROOFS**



*This
Book
Gives the
Real
Facts
about*

SHELDON'S SLATES

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WHETHER you are an owner, a builder, or a roofer, it is up to you, in these times, to investigate roofing values searchingly.

When artificial roofings are represented as "equal to slate" and "as attractive as slate," why not get the *real thing*—Sheldon's Slates?

Sheldon's Slates are *far superior* to any artificial roofing. They are more economical. Cost nothing for upkeep—first cost the only cost. Last indefinitely. Even the manufacturers of prepared roofings admit that they are more *artistic*.

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CON-SER-TEX



This Is Your Opportunity To Make Extra Profits This Fall

Use roofing material that gives service and satisfaction, that costs less than most others, is easy and inexpensive to lay, and that makes a neat and durable surface.

On Repair Jobs or New Buildings

your estimates will be much lower, your profits bigger if you use

CON-SER-TEX CANVAS ROOFING

It is a canvas roofing chemically treated to protect the fiber from mildew, and the detrimental action of the oil in paint. It's water-proof, weather-proof, wear-proof.

INVESTIGATE—samples showing widths, weight, prices and complete details sent upon request.

Wm. L. Barrell & Co.

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Real Fire Protection and Low Cost Hudson Strip Shingles

Hudson strip shingles (in strips of 10x40 inches), can be laid in less than half the time and with two-thirds of the nails required to lay other shingles, as five shingles are handled in one operation. Hudson strip shingles will greatly reduce the cost of labor.

We also furnish the **Hudson Individual Shingles**, 8x12", and **Hudson Wide Spaced Shingles**, 8x14". Hudson Shingles are surfaced with Red, Green or Mottled Crushed Slate. No heavy timbering is necessary. They are a real fire protection, as they do not ignite from falling sparks, and are approved by the National Board of Fire Underwriters. No painting or staining is necessary.

We manufacture a full line of roofing products, Roll Roofings, Asphalt Felts, etc.

Write for Catalog and Samples

Asphalt Ready Roofing Company
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Mortar Colors

Every brick building has mortar joints. In some buildings the joints are wide and take up as much as one-quarter of the entire wall area. Usually architects are very particular to specify the correct quality and color of the face brick, but sometimes fail to mention anything about the Mortar Color. Needless to say this method of doing things is fast becoming obsolete. Architects have learned to specify

Clinton Mortar Colors

They have been the standard for more than a quarter of a century. They have been tested and inspected by the best experts, but Clinton Mortar Colored Joints have shown that they have stood the acid test of time. Clinton Colors are packed and shipped with the greatest of care and shipments can always be made promptly from our large and varied stock.



Write today for our samples and catalog

Clinton Metallic Paint Co.


Clinton, N. Y.

How Many Board Feet in 68 Pieces, 2x4--14?

DON'T figure Lumber by Pencil

Which is shorter, surer, SAFER?—
to figure board feet laboriously by pencil, risking profits on an error—
—OR to take 10 seconds to
find the RESULT in this book,
a copyrighted "short cut" for lumber users. Gives at a glance the number of feet in any number of pieces, at size. Send \$1.50 for this 106-page time saver. Use 5 days—If it's not worth to you three times its cost to you your money will be gladly refunded.

BENJAMIN L. JENKS, Publisher,
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ON 5-day trial - SEND \$1.50 today

CHIEF ALL-STEEL CUPOLA

New-improved, scientifically designed ventilating cupola for all buildings. Up-to-date in design, material and construction. Used and approved on hundreds of farms. Made of heavily galvanized steel with base strongly braced. Can't rust, rot, or blow off. Absolutely storm-proof and bird's-nest proof.

Easy to Install—Sure to Please Your Customers

Chief Cupola saves time and labor installing—base bolts directly to roof and cupola bolts to the base. Only six bolts needed. Meets all requirements—insures adequate ventilation—satisfies all users. Write for full description, prices, etc.

Schrauger & Johnson Co.

430 Walnut Street, Atlantic, Iowa



Industrial Housing Problems

(Continued from page 189.)

rooms, large enough to accommodate two persons each for the other children. All families, of course, are not of the same size, and some larger and smaller houses will be needed; but as a rule it will be found that the larger demand is for the four-room, five-room and six-room houses.

It seems to be a matter of habit in many quarters to build nothing but six-room houses; this is a manifest hardship to those who do not need so many rooms. If a man cannot afford to rent a six-room house and does not need the accommodations and yet finds that the six-room house is the only accommodation he can gain, he has to take in lodgers to help pay the rent. From the social standpoint the lodger is generally considered to be a menace and an unmixed evil. We have found that where we built four-room houses these were often taken up first of all by the employees.

Where houses are built to sell, however, there is not so much demand for the smaller houses and the six-room house is as a rule the smallest house that one can count upon selling without difficulty.

The size of the bedroom should be sufficient to give at least 400 cubic feet of air space per inmate. All bedrooms should open on to a hall and not into each other or into a living room.

Next, there must be provided at least one living room (having an area of not less than 135 square feet), for working, eating, washing and general use. There is much controversy on the subject of separate dining rooms and separate parlors, which add much to the attractiveness of the house but also to its expense, and it is not always possible to provide them for the unskilled laborer.

The foreigner does not use a kitchen, dining room and parlor; what he needs is one large kitchen. It is found that where three living rooms are provided, two of them are invariably used as bedrooms for the lodgers. It is the habit of most foreigners and indeed of many Americans, to live in their kitchens, and this room should be large and well lighted and ventilated.

The toilet room must be planned so that it does not open directly into a living room or bedroom, but off the stairs if possible.

There is no justification at the present day for the existence of the old-style out-closets or privies. Water closets connected to cesspools are sometimes satisfactory, but very undesirable, especially in cities. It is much wiser to figure on the construction of a sewer at the time the house is built, as cesspools, unless properly looked after, are a potential source of danger to the water supply and a menace to the public health.

Some comment will naturally be made on the suggested omission of the cellar. We are told that the family needs a cellar for the storage of coal and canned fruit, and that it costs no more to build it than to leave it out, as the foundation walls are the same in either

(Continued to page 192.)

Provide All Your Buildings With "ROYAL" VENTILATORS



They are best to use on Cattle and Dairy Barns where lots of fresh air is necessary to insure healthy cattle and milk that is free from odors.

Fresh air is the greatest enemy to disease and decay. Hay and grain keep better in ventilated barns. Factories, schools and theaters require perfect ventilation. Supply it with ROYAL Ventilators.

Catalog and particulars on request.
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GET ALL THE PROFIT

Shipped
Ready to
Install

Easy to
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Your reputation and future orders depend upon the equipment you recommend. Don't take a chance. Get the present and future profit by recommending and equipping the barns you build with

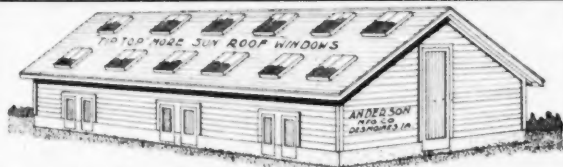
O-K Cupolas

Every one you erect adds to your reputation. They solve the barn ventilation problem and sell themselves. O-K Cupolas are neat in appearance. Bird, storm, rust and rot proof. Made of heavy galvanized steel. Cost no more than the ordinary kind.

Special Prices to Contractors and Builders where we are not represented

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2400 Floyd Ave. Sioux City, Iowa



TO BUILD WELL

Use **TIP TOP** Ventilators and
TIP TOP More Sun Windows

Millions of dollars are lost every year because little pigs are not provided with the benefits of the available light and sunshine. Never before has it been as important as now to make the greatest possible gains with the least possible outlay, especially where production and use of food is concerned. To secure economical animal growth and vigor it is absolutely necessary to have proper ventilation and light.

TIP TOP Ventilators and Windows "do the trick," improve the appearance of buildings; and produce a fair profit to the dealer or contractor. Send today for dealers' and contractors' co-operative plan.



**Anderson
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Des Moines, Iowa



*Eighth Church of Christ Scientist, Chicago, Ill.
Leon E. Stanhope, Architect, Chicago*

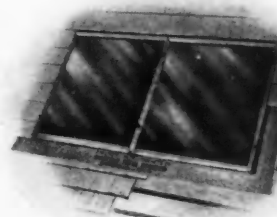
Equipped with Five 24 inch "Globe" Ventilators

NO MOVING PARTS—

"Globe" Ventilators are so made that there are no moving parts and therefore there is nothing that CAN get out of order, and they are of course, silent, as well as absolutely efficient in operation.

So they are particularly suited for use on buildings of all kinds where it would be difficult or inconvenient to reach the ventilator for the purpose of making repairs. Fitted with fire-retarding damper if desired. And they prevent smoky chimneys when used as Chimney Cows.

GLOBE VENTILATOR CO.
Department F
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New and Improved Hog House Ventilation

Send today for complete information and complete architects blue print FREE to American Builder readers.

MONITOR SUCTION VENTILATORS TWIN WINDOWS

remove dampness, dust and foul odors. Only hog house suction ventilators made. Heavy galvanized steel, pivot ball bearing and noiseless. Bird proof.

Monitor twin windows give more than twice average sunlight area over ordinary hog house windows. Heavy ribbed glass, factory furnished, radiates more sunlight and eliminates necessity of dirt and leaf-catching screen.

Contractors—If your lumber dealer does not carry Monitor Suction Ventilators and Monitor Twin Windows. Write us for FREE Architects blue prints of Monitor Hog House and attractive dealer offer.

**Lichty Metal Products
Company**

Waterloo, Iowa



Industrial Housing Problems

(Continued from page 190.)

case. In investigating the contents of laborers' cellars the writer has never found large supplies of food or fuel. The laborer is too poor to buy more than two or three hundred pounds of coal at a time, and never lays in stocks of food in advance; instead of this we usually find in his cellar a miscellaneous assortment of most insanitary rubbish and junk, which is not only undesirable but constitutes a serious fire menace. Statistics show that over 80 per cent of dwelling house fires start in the cellar in such rubbish piles.

The argument that it costs no more is nearly true where sand and gravel soils are encountered, but in clay or other hard digging the extra cost of digging the cellar mounts up considerably. Cellars are not needed for furnaces where the tenant cannot afford the fuel for them but derives his heat from his kitchen stove.

Where the cellar is omitted a space should be left under the floor, ventilated by gratings in the outside walls which can be closed in cold weather.

In houses of this class the tenant usually furnishes his own stove, and as his stove has no hot water front, a system of hot water piping is of no use to him. Some owners prefer to install the stove with water front and hot water piping in spite of the increased cost of the house, but all these things help to put up the cost and the resultant rent to a figure higher than

the tenant can afford. For the same reasons wash bowls in the bathroom, and laundry tubs, tho useful, are not necessities. There should, however, be an enameled iron sink in the kitchen, and a bath tub should be provided even if the tenant has not learned how to use it. There should be a proper supply of running water, pure and fit for drinking, and a water closet connected with the sewer, and a cast-iron enameled bath.

(Continued to the March American Builder)



Installation, Care and Operation of the House Furnace

(Continued from page 87.)

ating surface and the gases will not pass directly out to the smoke pipe. A good draft is necessary to carry the heated gases thru a furnace with a large radiating surface. The radiator may be of steel or cast iron. Steel being riveted is tight against gas and has no cement joints. On the other hand, steel will corrode rapidly if dust, soot and ashes are allowed to accumulate on the surface and the air is damp. Steel furnaces with good care will last for years. Cast iron radiators corrode less rapidly, but have joints which may possibly leak gas. On account of their rough surface they are probably more effective in giving off heat than the steel radiators. The choice is largely a matter of personal opinion.

(Continued to page 194.)



How about F A L L business?

Do you expect a slump during the coming Fall and Winter season? Are you interested in a proposition that would keep you busy every working day of the season? In other words do you want to spend a little more energy now and line up business that will carry you through the dull season?

If so, you will want to find out about

ALLMETAL WEATHERSTRIP

It's a live specialty! Why not work up a fine substantial business with Allmetal Weatherstrip by the assistance of our carefully devised, sure-fire, sales plan. Allmetal Weatherstrip, owing to its simplicity of design, is the easiest to install—it is the best known and therefore easiest to sell.

Allmetal has Uncle Sam's Approval

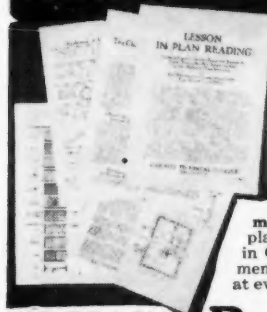
It is the one strip that will not crack, rust, decay or disfigure the woodwork. He has selected it for his defense against leaky, balky windows and high cost of fuel. It is the perfect, the modern, the only strip to use.

We show You how to get quick results

Our short cut methods get live prospects quickly. We give you the benefit of our experience. Supply you with advertising material adapted for your particular purpose. Write—get started NOW!

Allmetal Weatherstrip Company, 230 West Madison St., Chicago

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Send now for this **FREE** lesson which we will send to prove how quickly you can learn Plan Reading by our new easy method. Not a penny to pay for this lesson. Without a good knowledge of plans your opportunities are limited. The man at work doesn't get the chance to study blue prints or to have their meaning explained. **We make the chance for you.** We place in your hands plans used in actual building work by contractors in Chicago and other cities, and you get lessons by men in charge of building work who will help you at every step and make you an expert plan reader.

WE TEACH

Plan Reading

Use and meaning of all the lines. Floor plans and elevations. Reading dimensions. Detail drawings. Laying out work from plans. Practice in reading plans from basement to roof, etc., etc.

Construction

Brickwork, stone work, carpentry, plans and specifications. Every detail explained for residences, office buildings, factory buildings, school houses, apartment buildings, bank buildings, etc., etc.

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Figuring on every kind of building work fully explained. Labor and material. Problems worked out from plans. Practical builders' methods studied from plans and specifications of actual buildings of every kind.

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A complete course arranged for builders and contractors.

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Our Builders' Course gets right down to the things you need to know. And you can get it on easy payments. A small first payment when you enroll—then payments monthly—so small you will never feel the cost. At least send and find out what this course really offers and how you can make more money by learning what we will teach you in a short time.

Learn By Mail Use your spare time at home to learn how to be a better workman, a better foreman or a better contractor. And even after you complete the course you have the privilege of consulting us when you want suggestions. We will always be ready to help you.

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County Agents Wanted

**"Everlasting" Steel Signs and
"Bull-Dog" Lightning Rods**

FARMERS have started a movement to "name the farm." Dead easy for you to sell them our baked-enamel steel letters. Make any name. For barns or home. Arranged together they form a handsome sign with border. Enhance the appearance of any building. Easily put on. Removable if necessary. Last a lifetime. Will not fade. Low price. Get our proposition quick—means big profit for you as County Agent.

"Bull-Dog" Lightning Rods

Protect the home and buildings. \$500 guarantee against damage from lightning. Install them any time. Big chance for sales is when barn is being built, and this extra money you make will be "soft." Some of our agents are simply coining money on our proposition. Don't fail to write for details. Do it today. You'll be glad you did.

THE TOLEDO CABLE COMPANY

6 Davis Building

TOLEDO, OHIO



Include the Refrigerator in Your Plans

The Refrigerator is most important in the modern home or building—and it should be planned to suit—as you plan the building.

Convenience of location—outside icing arrangement—drinking water equipment—exterior finish—and many other features can be arranged for most satisfactorily only when the plans are being made.

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Sanitary Refrigerators

are built in sizes and designs for every type of building from the finest hotel and public building to the smallest bungalow. Any McCRAY can be arranged with outside door for icing from side or rear porch.

Our Free Plan Service to Contractors and Builders

place at your command the services, advice and suggestions of our large staff of expert designers, who have had long experience in planning refrigerators. It saves you time—enables you to include in your plans the refrigerators best suited to the requirements and arrangements of the building.

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McCray Refrigerator Co.

860 Lake Street, Kendallville, Ind.

Salesrooms in all Principal Cities



Installation, Care and Operation of the Home Furnace

(Continued from page 192.)

The size of a furnace is designated by the diameter of its grate. Its rating as given by the manufacturer is usually the number of cubic feet which it will heat to 70 degrees when the outdoor temperature is zero. This method of rating is unsatisfactory, as it does not take into account the construction, wall exposure, and glass surface of the building. A more satisfactory method, already adopted by some manufacturers, is to state the capacity of the furnace as the number of square inches of heating pipe area it will supply. One rule sometimes given is to allow one square foot of grate for every 5,000 cubic feet of contents of the building. Furnaces installed on this basis would usually be too small if soft coal were used as fuel.

Such rules are, at best, good only for rough estimates. A satisfactory warm air system should be carefully designed by a competent engineer, architect or furnace man. The details of such a design are not given here, as they are matters for the architect and engineer and not for the layman. One thing, however, should be remembered; the heating capacity of a furnace is not to be judged by the size of its outside casing. The firepot, grate and radiating surface are the points to be examined. It is not economy to buy a furnace with too small a grate and heating surface and a reliable engineer or furnace dealer will not recommend one.

(Continued to the March American Builder)



The Steel Square as a Price Computer

(Continued from page 97.)

dollars, as required; and since money is reckoned in decimals, we will use the side of the square that is divided in tenths.

Our first purchase is porterhouse steak at 8c per pound. Now, don't get excited; we are perfectly aware that 8 cents will only buy a grease spot nowadays, but we do not want to be forced to put an extension on the square to accommodate the present price.

Now, by letting one inch on the tongue represent one pound and the same amount on the blade 10 cents,

(Continued to page 196.)



Faster Shingling—More Money
Carpenters and Builders! That's what it means when you use a

Sayre Shingling Hatchet
with Positive Gauge—Get One Today!
Gauge is positive—cannot slip. Clamps on with screw—is readily changed. Unequaled for fast shingling. Ask for No. 144 made (with oval head, 169 points) price, prepaid \$2.00. Also with flat head, No. 44. 81 points, milled. Price, \$2.00, prepaid.

J. E. Coates, Prairie Du Chien, Wis., writes: "Never had a tool that I got so much good out of and wouldn't be without one for \$10.00."

We also make a complete line of lathing hatchets. Sayre Shingling or Lathing hatchets are the best your money can buy.

**L. A. SAYRE CO. 8 OLIVER STREET
NEWARK, N. J.**

See That Gauge



SIMONDS HAND SAWS
Have everything which means quality. They are absolutely guaranteed—money back if not entirely satisfied.

For \$3.00
you can get a 26 Simonds Saw any place in the U.S. If not at your Dealers order direct from manufacturer. Carpenter Guide Book free to any reader.

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"The Saw Makers"
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The Leader of All \$3.00
Simonds Blue Ribbon \$3.00 Saw is the best Saw on the market for \$3.00.
Expert workmanship, beautifully carved and polished apple wood handle.
Large hand hole. Simonds special crucible steel.
Buy one today and prove it.

Do Not Forget---Only \$3.00

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Two Kinds of Water Systems—Which Do You Install?

Probably you are familiar with the STORAGE System with its *stale* water which is not fit to drink. Get posted on the **Milwaukee Air Power Water System** which brings water "Direct from the Well" **ABSOLUTELY FRESH**—no stored water. This system has eight other advantages. Write for big **FREE** catalog. **Milwaukee Air Power Pump Co., 886 Third Street, Milwaukee, Wis.**

COMFORT-HEALTH

Do away with the dangerous, unsightly, unsanitary outhouse. Let the children, ladies, elderly folks and visitors enjoy the comfort and convenience of a clean, sanitary, **absolutely odorless** indoor toilet.

WOLVERINE

CHEMICAL TOILET

protects your health, saves your money. A permanent, scientific substitute for the fly-breeding, disease-spreading, water-polluting, foul outdoor closet. No water, sewer or cesspool.

ENDORSED BY HEALTH OFFICIALS.

Easy to install. Costs less than a cent a day upkeep. Pays for itself many times in a year. Price remarkably low. Thousands now in use. **FREE BOOK** tells all. Write today sure.

D-11 Steel Products Co.
50 Main St. Lansing, Mich.

Carpenters and Builders

Our special plan of sales co-operation is helping others to big profits all year 'round. Let us send you complete details of this plan; no obligation. Write today.

Made in all Sizes

Nearly Twice as Strong as Other Wall Boards!

You can apply a third more of Upson Board a day than of soft, punky boards. It works like wood; doesn't pull from the nails. No come-backs!

Better than Plaster for Walls and Ceilings

UPSON PROCESSED BOARD

The Most Dependable Board Made in America

Upson Board is made good to make good. It is not like other Boards! It is stronger, harder, stiffer—holds the record of not one complaint to every 2,000,000 feet used. Write for all the facts.

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Big Profits

—are yours

Grasp this opportunity to make substantial profits.

Every window in your town or city should have the

Bowlus Window Lock

Any Height—No Rattle—Save Fuel—low cost—easy to operate. Make the dollars roll in. Sell these to every home owner.

Write us for information.

U. S. Manufacturing Co.
Springfield, Ohio

THIS IS THE HAMMER WITH THE PEDIGREE

OF COURSE IT'S A

GERMANTOWN MASTER BUILDER

Expert workmen the country round know and use this hammer. The finest possible quality in material, design and workmanship. Octagon shaped handle of second growth hickory, ideal hardness, and a claw that will grip all size nails with a grip that holds. Positively the **only** hammer for the workman who wants the **BEST**. Three sizes, Nos. 745, 11 oz., 746, 16 oz., 747, 20 oz., at \$1.50 each.

Price \$1.50

Germantown Tool Works

PHILADELPHIA, PA.
Branch: 62 East Lake Street, Chicago

Steel Square as a Price Computer

(Continued from page 194.)

then each tenth of an inch on that member will represent 1 cent. Thus the angle is determined, as shown by the insert in Fig. 2, and after preparing the diagram, as shown in Fig. 1, we are ready to apply the square by placing the tongue on the line A-B and slide along this line to the right, and the instant the heel passes the 0 point the calculation begins. Say the purchase amounts to $9\frac{1}{2}$ pounds, we let the $9\frac{1}{2}$ in. mark rest at the point 0, as shown in Fig 2, and it will be found that the angle line passes at $7\frac{6}{10}$ in. on the blade, which represents 76c, and is the answer.

Suppose the price 27c per pound, then the angle would be as shown by the insert in Fig. 3, and by repeating the operation as above described, if there be $8\frac{1}{2}$ pounds in the purchase, the angle line will be found to intersect the blade 22 and $9\frac{1}{2}$ tenths and represents $\$2.29\frac{1}{2}$, which will be the answer.

A farmer sells his land at \$17 an acre and he has 13 acres of it. How much did it bring him? The diagram and answer will be found in Fig. 4.

The banker loans his money at 6 per cent per annum. What will \$1 bring at the end of eighteen years. The diagram and answer will be found in Fig. 5.

And now we come to the loan shark, the 10 per cent per month man, while you wait. The most of us

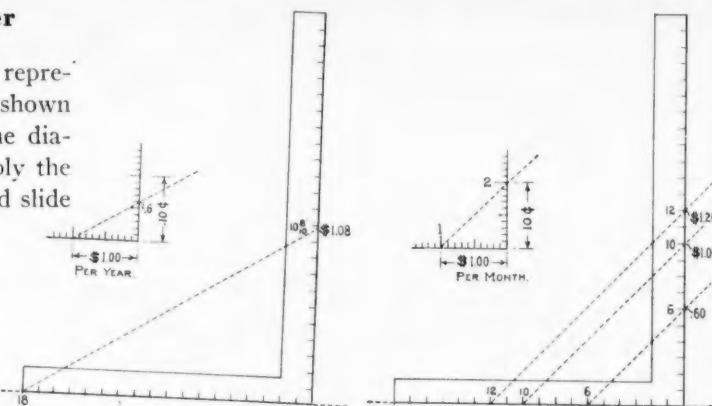
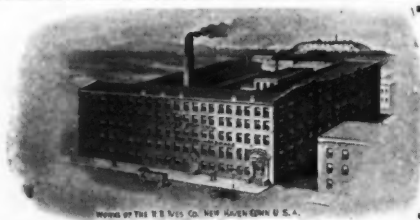


FIG. 5.

FIG. 6.

would not have to wait long until we were done for. In this kind of calculation he (the shark) can slip one over and get by with it on the square. By referring to Fig. 6 will show how it is done. At the end of six months there will be 60c due, at the end of ten months there will be \$1 due, which is equal the principal. At the end of one year there will be \$1.20 due, besides the original dollar—and all this for only one dollar to begin with. Suppose the principal was fifty dollars—but a second operation will hardly be necessary. Fine business.

We were going to figure out how old is Ann, but upon second thought modesty forbids, besides it would not be on the square to tell.



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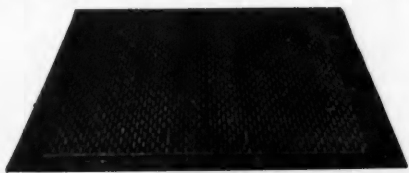
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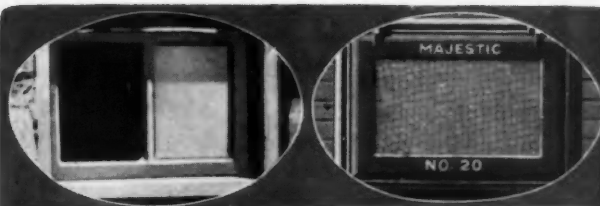
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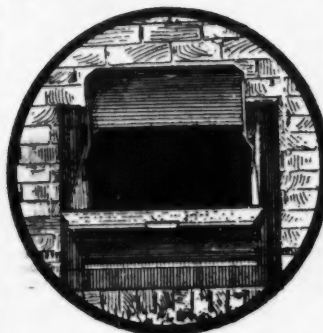
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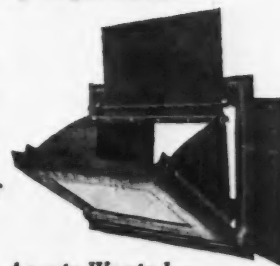
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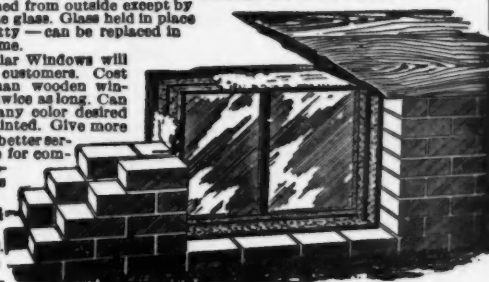


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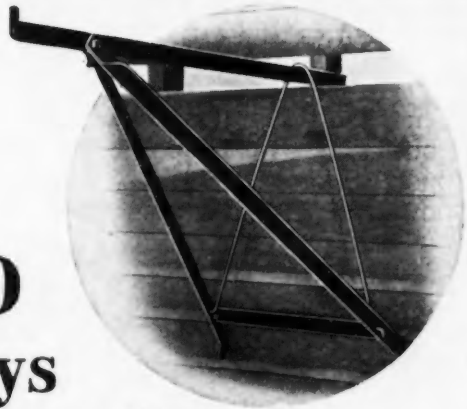
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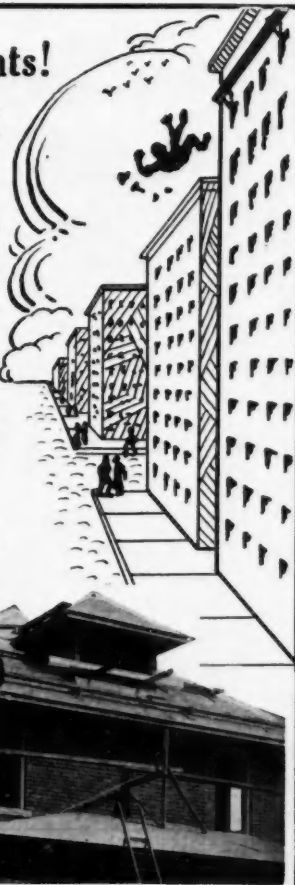
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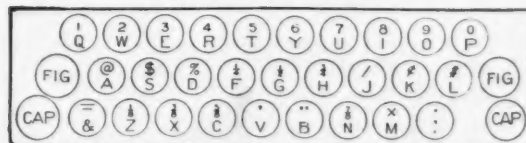
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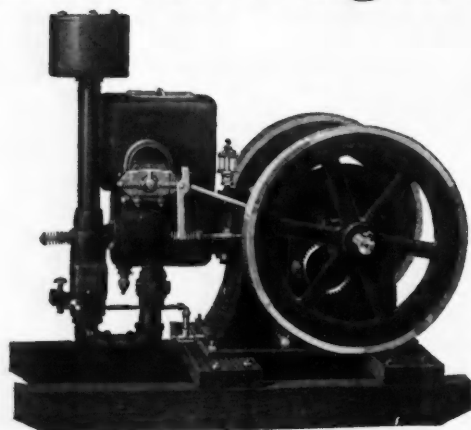
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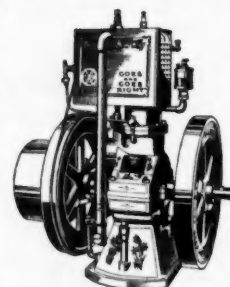
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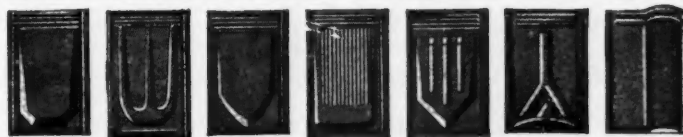
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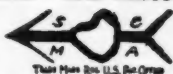
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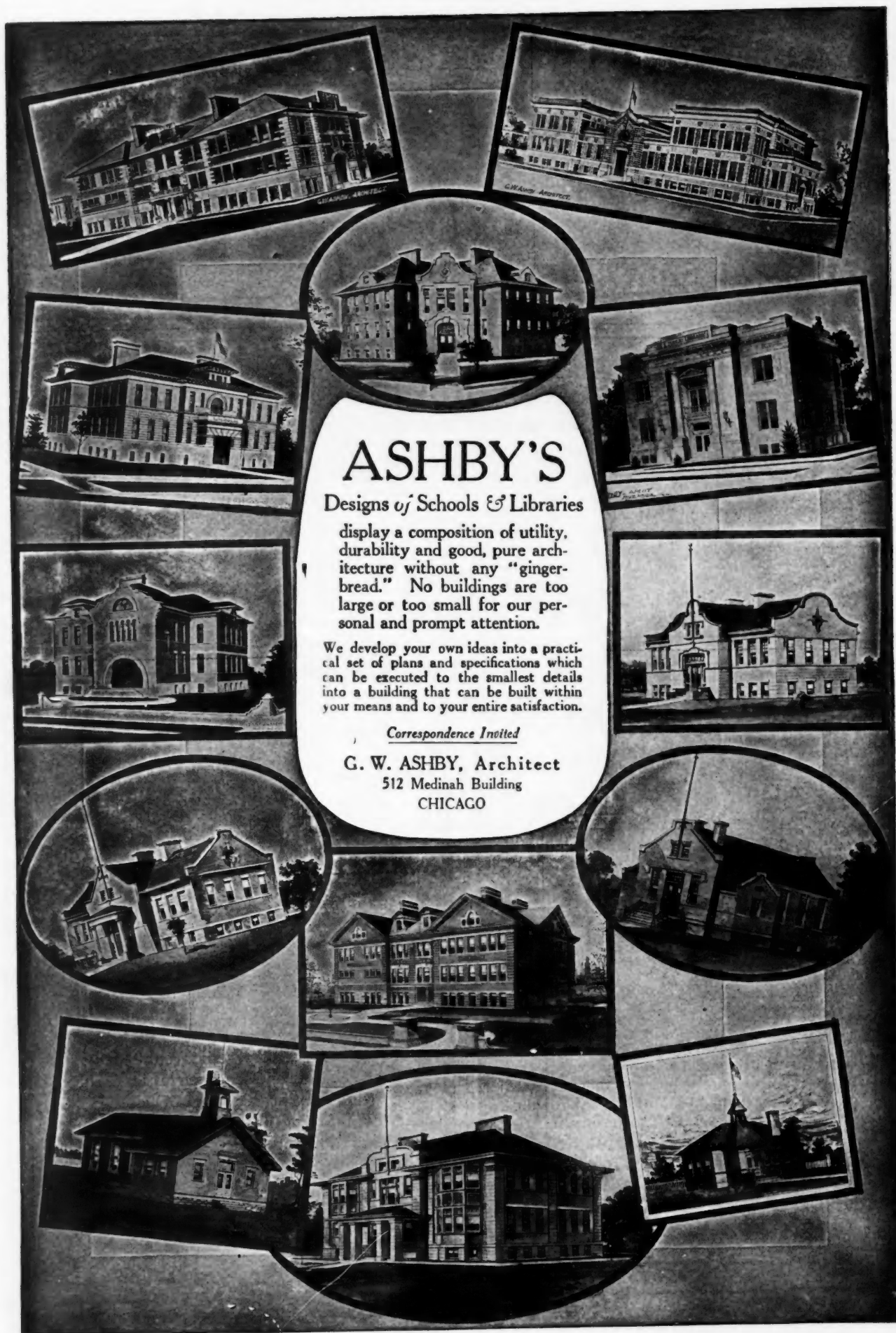


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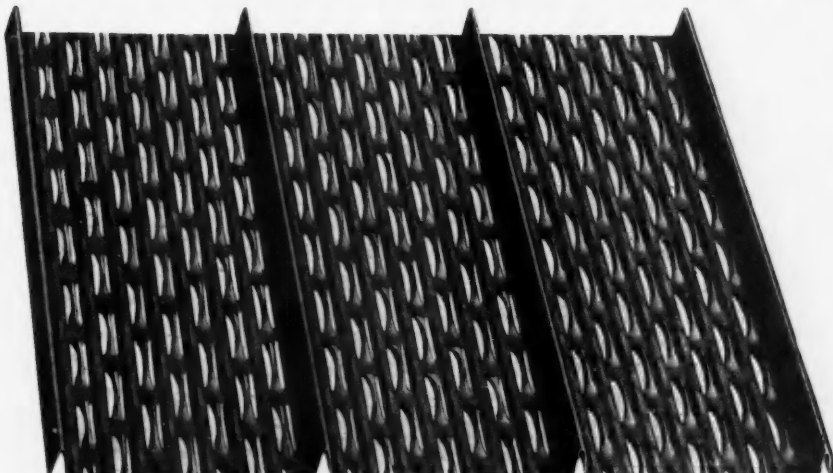
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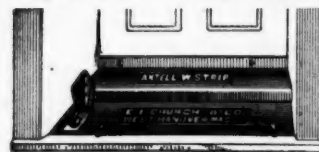
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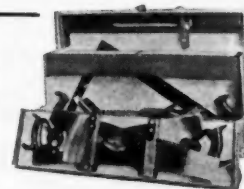
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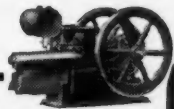
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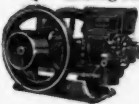
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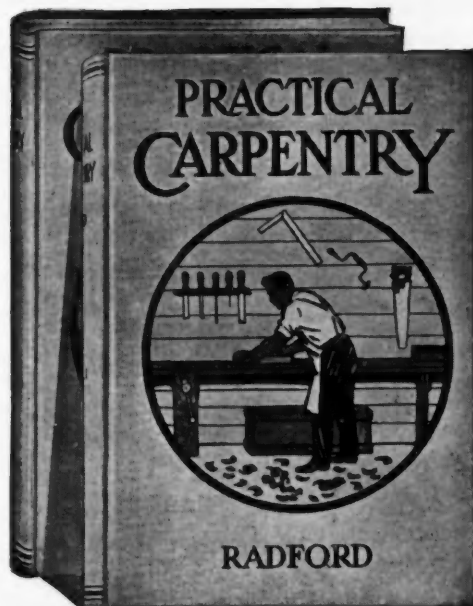
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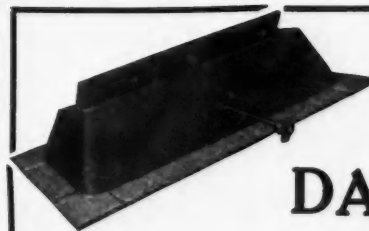
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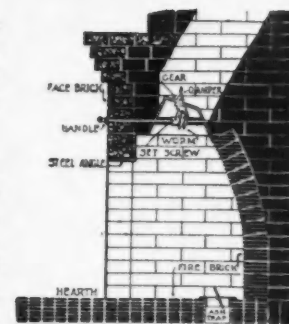
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NOTICE TO ADVERTISERS

Forms for the March number of the American Builder will close promptly on February 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.



Concrete Mixers
Paving Mixers



Portable Saw Rigs
Trench Pumps

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OSHKOSH, WISCONSIN

Dodge & Dodge,
New York, N. Y.

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We urge you to co-operate with us to the fullest extent in extending service in every way possible to Oshkosh owners, bearing in mind that every satisfied user is a booster for the Oshkosh mixer.

If there is any way that we can help you further in giving service to Oshkosh owners, we shall be glad to have your suggestions.

Yours very truly,
OSHKOSH MFG. CO.

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Oshkosh Low Loading Mixer

is getting the most out of his machine. Whether from accident or any other cause your Oshkosh needs attention, let your Oshkosh dealer know and he will fix things right with a minimum loss of time.

Own an Oshkosh Mixer. Four-motion mix, easy loading, quick discharging — a quality mixer in every way.

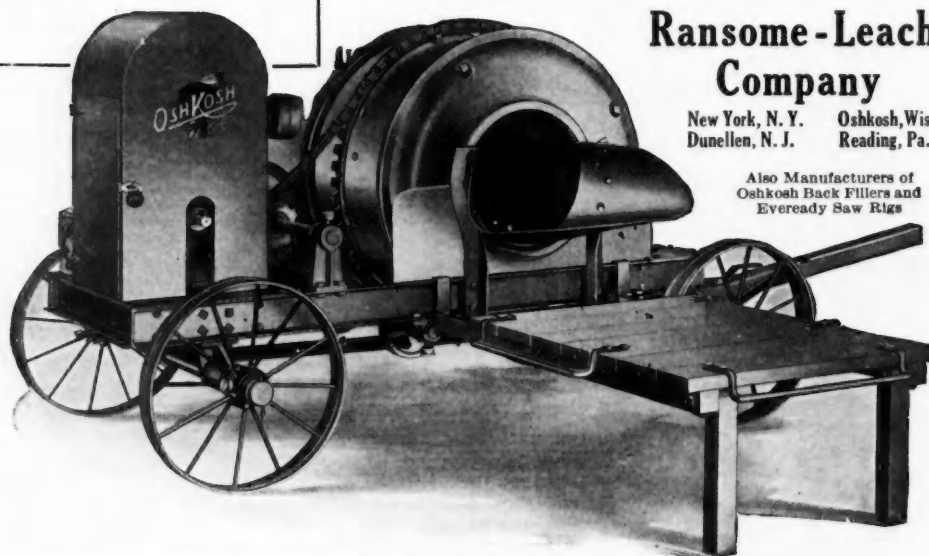
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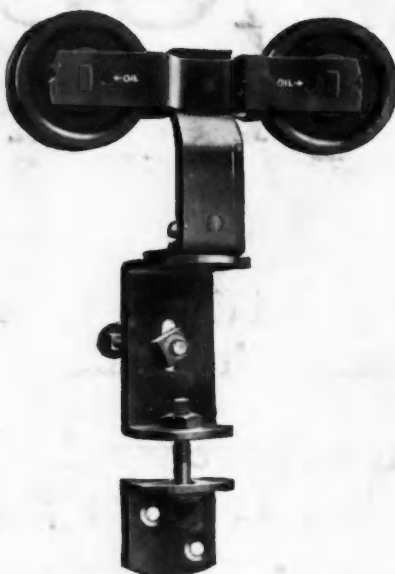
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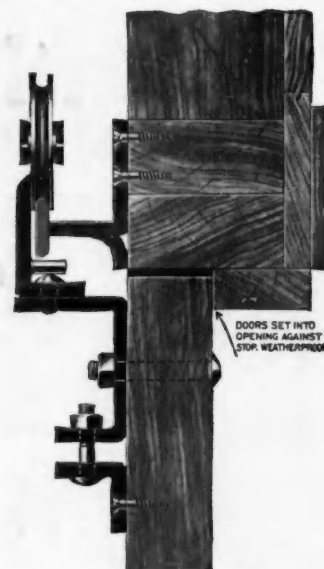
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The Hanger operates on a swivel and turns on the track without sticking or binding in any way.



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