

AUGUST,  
1917

PRICE 20 CENTS

# AMERICAN BUILDER

THE WORLD'S GREATEST BUILDING PAPER

*In This Issue*  
MODERN HOME  
EQUIPMENT



# Atkins Silver Steel Saws in Service



## Always on Top

No matter what the job is, or where, there's a better Atkins Silver Steel Saw to fit the need.

Perfect Hang and Taper Grinding are exclusive Atkins accomplishments that enable us to offer you the "Finest Saws on Earth."

Get an Atkins Silver Steel Saw from your dealer. Use it. If it fails to satisfy in any respect return it and get your money back.

*Send ten cents for Carpenter's Nail Apron,  
"Saw Sense," and Monthly Time Books*

**E. C. ATKINS & CO., Inc.**  
INDIANAPOLIS, INDIANA

**"An  
Eveready  
Every  
Time"**

—that's what  
contractors  
say about the



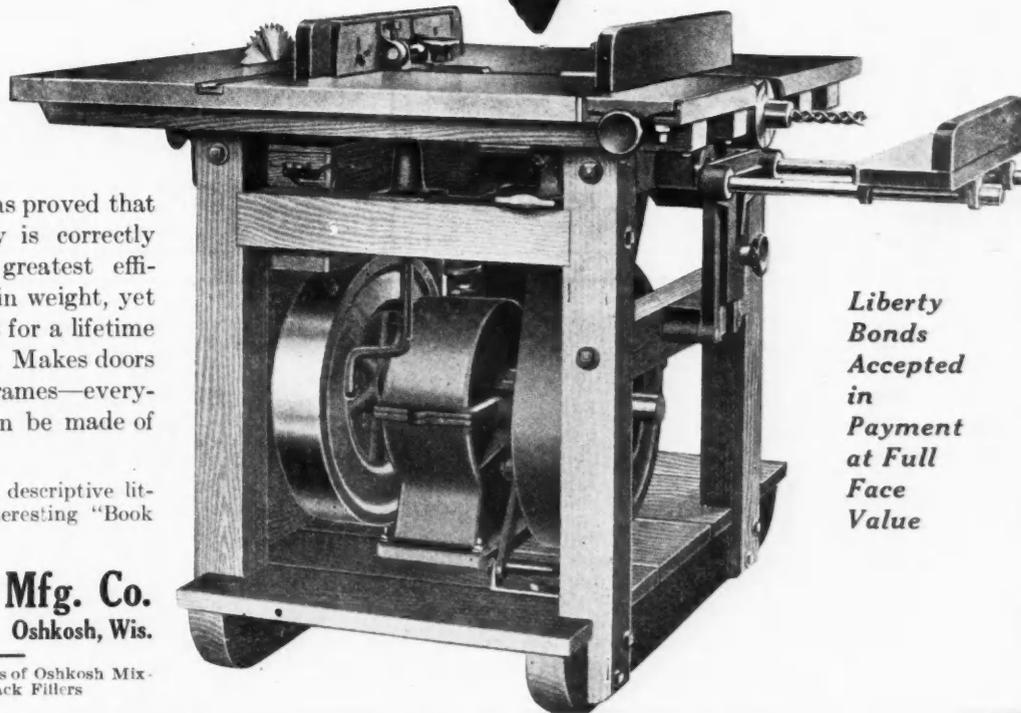
Eleven different operations — two men can  
work on opposite sides of the machine. It  
will pay for itself on one good-sized contract.

OVER 2,000 contractors and  
builders are using the  
Eveready Saw Rig—hustling  
their jobs through quicker with  
it—saving time and labor on every  
contract—eliminating waste on  
lumber.

It's doubtful if any machine ever  
gave such universal satisfaction  
as the Eveready. The most  
practical Saw Rig ever built—a  
planing mill in itself—a quality  
Rig, reasonably priced that  
merits your special consider-  
ation.

## OSHKOSH EVEREADY SAW RIG

Joints, bores, grinds, sands,  
jig saws, rabbets, bevels, mitres,  
rip saws, cross cuts,  
tenons.



Experience has proved that  
the Eveready is correctly  
designed for greatest effi-  
ciency: light in weight, yet  
strong—built for a lifetime  
of hard usage. Makes doors  
and window frames—every-  
thing that can be made of  
wood.

Write today for descriptive lit-  
erature and interesting "Book  
of Evidence."

**Oshkosh Mfg. Co.**  
83 Amber St. Oshkosh, Wis.

Also manufacturers of Oshkosh Mix-  
ers and Back Fillers

*Liberty  
Bonds  
Accepted  
in  
Payment  
at Full  
Face  
Value*

## Are You a Careful Buyer?

If so, you realize how important a consideration is a manufacturer's reputation. In a field where competition is close and there are many first class equipments for sale, the manufacturer with a well established reputation stands foremost. The Crescent Machine Company has given complete satisfaction to customers—we have never been obliged to take back a single machine because of inefficiency. We **know** our equipment is trustworthy and that it will bring satisfaction.

Here is our Universal Woodworker which will give your shop practically all the facilities of a planing mill. This means real money for you. Four men can use this machine at one time without inconvenience. Here is what it does: Band Sawing, Cross Cutting, Ripping, Resawing, Panel Raising, Grooving, Disc Grinding, Sanding, Jointing, Sawing, Boring, Tennoning, Dadoing, Knife Grinding and Mortising.

Send for our  
143 page Catalog  
on  
Crescent  
Woodworking  
Machinery



The Crescent Machine Company  
224 Main Street, Leetonia, Ohio



### —a really practical Carpenter's Hand Planer

—bench or pedestal—with or without motor

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

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



### SUPERIOR HOLLOW CHISEL ELECTRIC MORTISER and Multiple Speed Boring Machine

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

WARREN W. MORSE  
Hopkins, Minn.

### COMPLETE OUTFIT 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.

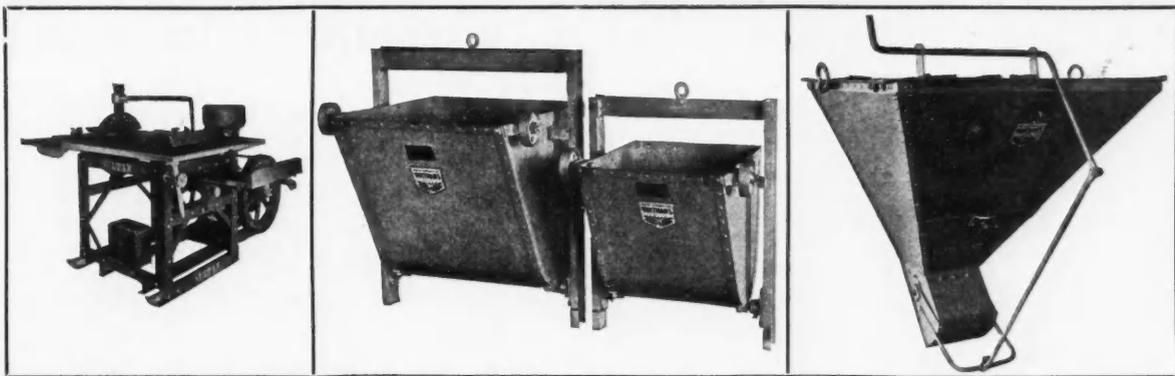


Write for catalogue showing full line of Wood Working Machinery for Carpenters and Builders. Also Bargains in second hand Machinery.



CHICAGO MACHINERY EXCHANGE

1215-1223 WASHINGTON BOULEVARD  
CHICAGO, ILLINOIS



## SULTAN FOR SATISFACTION

### Sultan Portable Saw Rig Outfit

Find out about this time and labor saver—money maker. Don't give out your mill work—let the Sultan do it for you and save the profit for yourself. A Sultan will do the same work quicker, better and at less cost. Sultan Saw Rigs are exceptionally strong and rigid yet light enough to be easily portable. Made from the best material throughout and carefully constructed so as to be absolutely dependable under all conditions. Made in three sizes—six styles—one of which will just fit your particular business needs in size as well as price. Many exclusive features fully described in our new catalog.

WRITE FOR CATALOG  
ON COMPLETE LINE OF  
SULTAN EQUIPMENT

### Sultan Roller Type Concrete Buckets

represent the most scientific construction in buckets now in use. When in a dumping position, they lean with the rear of the bucket at a greater angle than the trough of the bucket which makes them self-cleaning, thus eliminating what has been of so much worry to the contractor. Sultan buckets are equipped with roller wheels to assist in the dumping position and constructed of heavy plate. They are thoroughly well made and hot riveted, which goes to make remarkable lasting qualities. These buckets have met with great favor—thousands of them in use today are rendering perfect service. Before you buy it will pay you to investigate them.

**Whitman Agricultural Co.**  
7304 South Broadway

### Sultan Vertical Back Receiving Hoppers

are of the very latest design constructed on heavy plates, powerfully riveted together with a waterproof gate, which insures their holding concrete without spilling. We manufacture these hoppers in 8 sizes so that there is a size to meet the demand of all contractors, from the very smallest to the largest. They are excellent in workmanship and finish—you will find the prices attractive. Every piece of builders' equipment is carefully tested and inspected before leaving our factories, and squarely in back of every Sultan Product is our strong guarantee that has made Sultan machinery so predominant in the building field.

ATTRACTIVE PRICES  
AND FULL DETAILS  
IN OUR NEW CATALOG



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

## For Your Saw Rig Huther Bros. Dado Head

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

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

Ten days' free trial at our expense.

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



Patented Dec. 30, 1913.



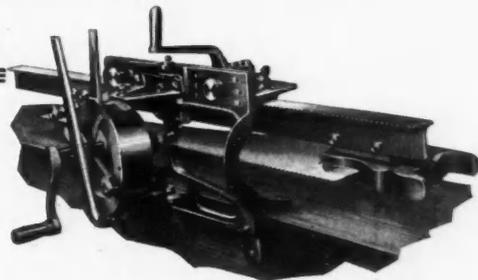
Showing position of cutters on mandril.

Our No. 34 Catalog sent on request, describes full line of tools for saw rig.



Grooves cut with Huther Dado Head.

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



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

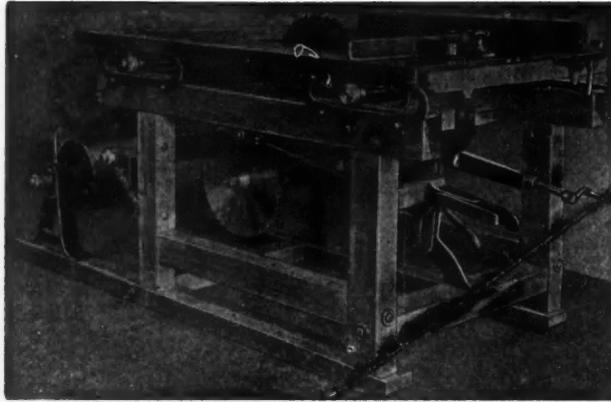
The Keil will file any hand-saw—stiff or limber back—with teeth numbering from 4 to 12 teeth to the inch. It operates in such a manner as to correct all irregularities—all cutting points are set in perfect line, all teeth are made the same length.

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

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

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

**Keil-Dedlow Mfg. Co.**  
Plainview, Nebr.

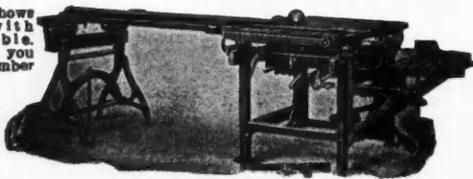


**NOW IS THE TIME TO GET A  
BEACH  
DOUBLE ARBOR RIP AND CUT-OFF MACHINE**

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

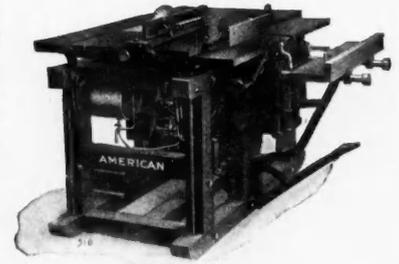
**BEACH MFG. CO., Montrose, Pa.**

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



**A Permanent Investment**

You're not buying a woodworker for this month or this year. You're putting good money into it as a permanent investment that will pay you good dividends. In the



**“AMERICAN”  
WOOD-WORKER**

You'll get all the different functions that any woodworker can give you—and more than many of them offer—with the important addition of “American” quality, which makes for long service, big output and low upkeep cost.

See Bulletin 67

**American Saw Mill Machinery Co.**

1360 Hudson Terminal, New York City



**SILVER'S NEW WOODWORKING MACHINES**

SAW TABLES, JOINTERS, SWING SAWS, BAND SAWS—

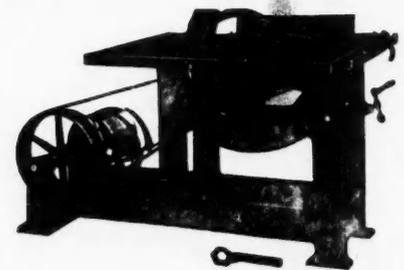
Tools of good honest construction, newest improvements and conveniences; patterns fresh from the designers.

Jointers, 8, 12, 16, 20, 24-in. Band Saws, 20, 26, 32, 36-in. Swing Saws, 6½, 7, 7½, 8-ft.

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

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

**The Silver Mfg. Co.** 345 BROADWAY SALEM, OHIO



1853 **Buck Bros.** 1917



Fine Beveled Edge Shank and Socket

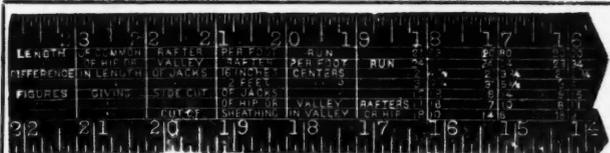
**Chisels**



**Tang and Socket  
Butt Chisels**

Plain and Beveled Edges  
Send for illustrated Catalog

**Buck Bros., Millbury, Mass.**



**NICHOLLS FRAMING SQUARES**

Gives all lengths and cuts of all rafters for sixteen pitches of roof

The ORIGINAL and MOST COMPLETE

square on the market today  
Send For Our Little Book Explaining This Rule

**NICHOLLS MFG. CO., Ottumwa, Iowa**

# FAMOUS

WOODWORKING  
MACHINES  
MAKE  
BUSINESS

## BETTER than usual



The business of war is extraordinary. It is not usual. Trade may be better or worse—but with Old Glory in the back-ground of practically every transaction, many business people have awakened to a new sense of service, and Trade takes on more than usual Romance. It is a man's duty to make a profit in order that his community and nation may gain a direct asset. It is increasingly difficult to evade such questions as "Why do I continue to do business without good power machines?"—with Old Glory daily reminding one of his national duty to make his business **better** than usual. Are **you** making a good profit? How do you know that hand work, on many operations, is superior to fast machine work? Have you earnestly investigated this matter of operating woodworking machine to save time, labor and material—and do better work? Are you willing to get down to brass tacks on it **now** by sending the Better Business coupon right away?

**The Sidney Tool Co.**  
Sidney,  
O.

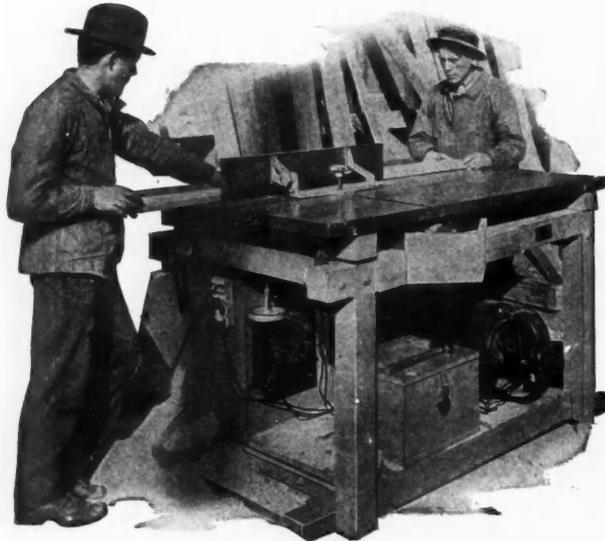
**BETTER  
BUSINESS  
COUPON**

The Sidney Tool Co.,  
Sidney, Ohio  
Gentlemen: Send me Catalog No. \_\_\_\_\_  
and Bulletins on Woodworking Machines  
I am interested.

Name.....

Address.....

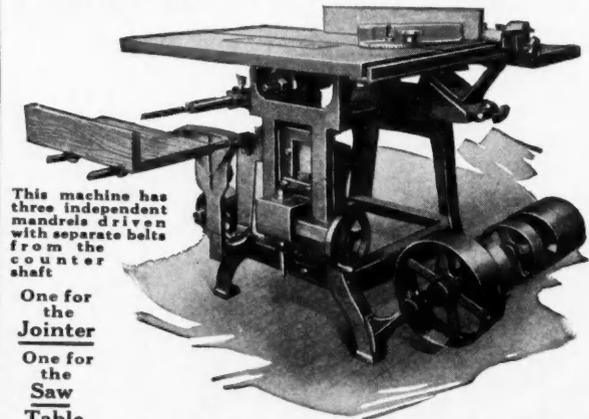
# C. H. & E. PORTABLE SAW RIGS



Eight Complete Sizes Portable Saw Rigs.  
Write for Catalog

C. H. & E. Manufacturing Co., Inc.  
322 Mineral Street Milwaukee, Wis.

## The "Standard" Contractors' Universal Woodworker No. 1



This machine has three independent mandrels driven with separate belts from the counter shaft

One for the  
Jointer  
One for the  
Saw  
Table

One for the  
Boring  
Attachment

Abernathy, Texas, Feb. 12, 1917.  
Standard Machine Tool and Supply Co.,  
Kansas City, Mo.

Dear Sirs:—I looked over several catalogues of woodworkers before I selected the No. 1 "B," but I thought when I selected it that it would be the best and handiest machine, and after using it for 3 months I am of the same opinion, for it sure is all right and does fine work.  
Yours truly, H. E. RANTZ.

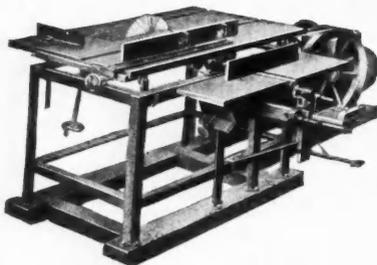
### Five Machines at the Price of One

8" joints, rip saw table, cut off saw table, boring attachment, drum sander, emery grinder. Does planing, jointing, rabbeting, moulding, gaining, dadoing, ripping, cutting off, mitering, boring, routing, grinding, sanding.

Write for catalogue and prices on our full line of up-to-date wood-working machinery.

Standard Machine Tool & Supply Co.  
First and Main - Established 1896  
Kansas City, Mo.

Allow the "HERCULES" To Cut Costs



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

Write us for  
Bulletin "A"

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

## Stop Looking—and Listen

Cut Out Hard Labor with the

### WALLACE BENCH PLANER (Motor or Belt Driven)

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

Send for Circular

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



4-inch Knives  
Weight 50 lbs.  
Portable

## Miller's Lock Mortiser TWO MINUTES

Will cut an opening in a door for a mortise lock  
IMPROVED AND UP-TO-DATE  
cuts true in any kind of wood for any size lock from 1" to 1 1/2" thick. Easy to operate; durable in construction. Builders use it everywhere.



Sent subject to trial.

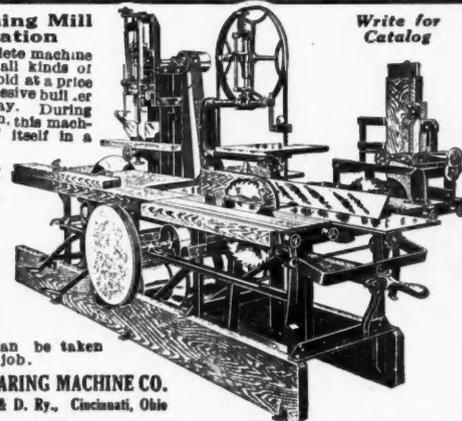
A. W. Miller Mfg. Co.  
Riverside, Calif. Cincinnati, Ohio  
Our Butt Mortiser and Rule Gauge for 75c., Postpaid

## Parks Planing Mill Combination

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



# TYPEWRITER SENSATION! \$2.50 a Month Buys a VISIBLE WRITING L. C. SMITH

Perfect machines only of standard size with keyboard of standard universal arrangement—has Back-spacer—Tabulator—two color ribbon—Ball Bearing construction—every operating convenience. **Five Days' Free Trial.** Fully guaranteed. Catalog and special price sent **free.**

H. A. SMITH, 300—231 North Fifth Avenue, CHICAGO, ILL.

## HERE IS A GOOD TEN CENTS WORTH



SYRACUSE TWIST DRILL COMPANY

This nail set will hold its edge twice as long as an ordinary nail set. It is made of the best steel—is carefully tempered, accurately cupped and tested on steel. You will always use it. **NO-ROL**—a square-shaped nail set, so made to prevent rolling, sells for 12c. **SYRACUSE, NEW YORK**

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

# 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 rust—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



**Bits That Back Our Claims**

**LEBANON "Z" TWIST AUGER BITS**

Why turn your bit 50 times when 20 turns will do the work? Isn't this elbow effort worth saving? And think of the time saving.

Lebanon Bits show a saving of 60 per cent over the ordinary bit. The special Tungsten steel bits with the famous "Z" twist easily walk through heavy joists without difficulty, and leave chipless holes behind them. Furthermore, they cannot clog.

Let us send you our pocket catalog, or inquire of your dealer.

**The Lebanon Machine Company**  
LEBANON, N. H.

New York: A. Z. Boyd & Co., 126 Chambers St.  
Chicago: E. B. Standart, 59 West Lake St.

TRADE MARK: LEBANON EFFICIENCY TOOLS

89-27

## "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.



Most of You Mechanics Use

# DISSTON SAWS AND TOOLS

Do You?

Ask any hardware dealer what saw the mechanic prefers and the chances are he'll tell you the DISSTON. Most mechanics DO use the Disston—a recent investigation again proved that fact.

The endorsement of the majority of skilled artisans, men whose livelihood depends on tools, ought to be a pretty safe guide.

The chances are more than even that you use the Disston now; but if you don't, try them next time.

**Henry Disston & Sons, Inc.**  
Philadelphia, U. S. A.

BRANCHES:

Chicago  
New Orleans  
Bangor  
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Memphis  
San Francisco  
Portland, Ore.  
Cincinnati

Seattle  
Vancouver, B. C.  
Sydney, Australia



Canadian Works: Toronto, Canada

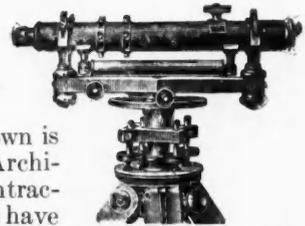
Try a "WHITE" Level  
For 10 Days---FREE



Use it for ten days on your own work in your own way. We let you be both judge and jury. After you have worked and lived with one of our convertible levels for ten days you will either like it or dislike it. If you decide against the level, simply box it up and ship it back and we will take it good naturedly. Circular tells all—ask for it.

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

It pays  
to be sure



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

Send for Catalog TODAY



**KOLESCH & COMPANY**  
138 Fulton Street  
New York

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.

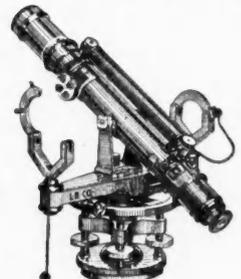
Made in several sizes

The Level For You

when locating lines and levels for streets, buildings, drains, walls or any leveling work where the stations are not more than 300 feet apart—is our No. 401 Architects' Level (illustrated).

Only \$50.00

for this instrument magnifying 22 diameters, exceptionally fine lens system, horizontal circle reading to five minutes—dust guard, sun shade, dust cap and improved spiral motion for focusing. Write for detailed description.



**The L. Beckmann Company**  
500 Adams Street  
Toledo, Ohio

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

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

Price, only \$24.50, cash with order.

Money back any time it fails to satisfy you.

**H. P. DIDRIKSEN**  
COLUMBUS, OHIO  
1826 Summit Street

**From Level to Transit in a Few Seconds**

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

For Builders, Contractors and Architects

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

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

**The FOX**

**Floor Scraper Blades**

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

**Fox Supply Co.**  
Dept. A Brooklyn, Wis.

We make blades for any make of scraper

**SOLVE YOUR LABOR PROBLEMS**

By Surfacing Your Floors

**"The American Universal Way"**

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

**FIVE DAYS' TRIAL**

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

**FREE to YOU—For 10 Days**

**The Triple "A" Spring Driven Floorsmoothen**

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

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

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

**Stop Making "Borderwork"**

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

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

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

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

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

100 Lafayette St., NEW YORK

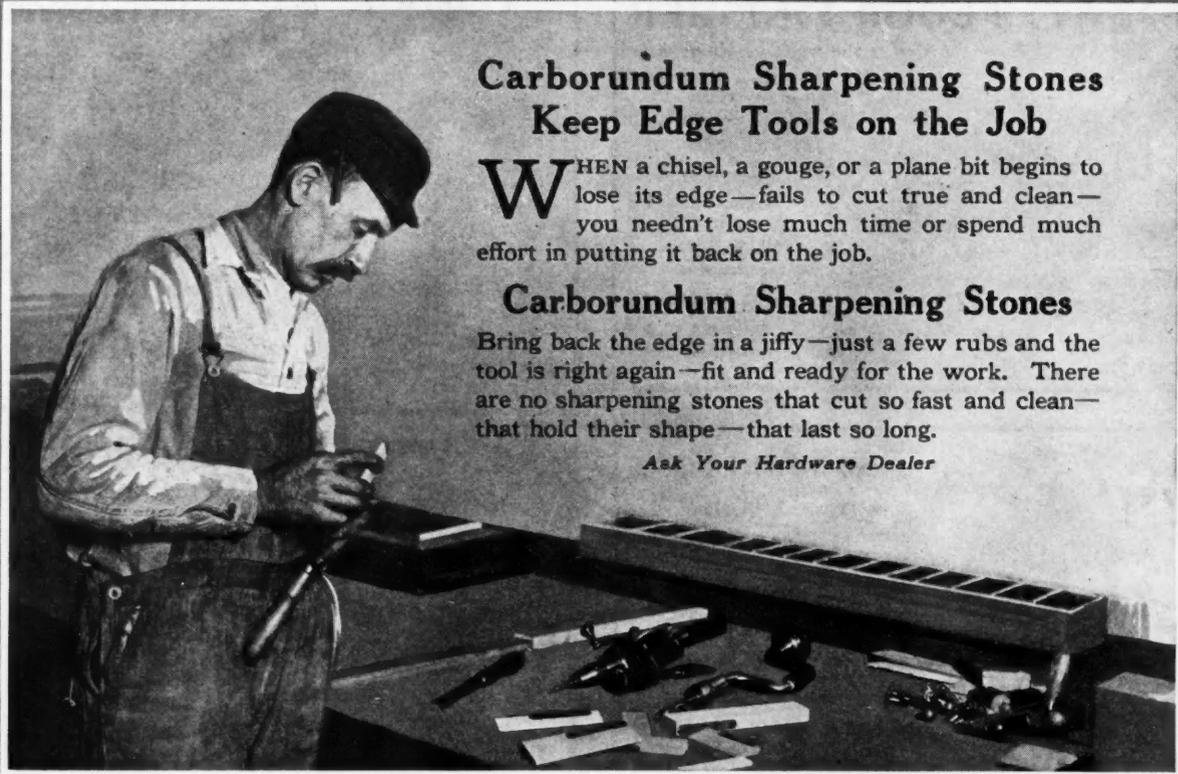
**THE JAMES SWAN COMPANY, Seymour, Conn**

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.

TRADE MARK



### Carborundum Sharpening Stones Keep Edge Tools on the Job

**W**HEN a chisel, a gouge, or a plane bit begins to lose its edge—fails to cut true and clean—you needn't lose much time or spend much effort in putting it back on the job.

### Carborundum Sharpening Stones

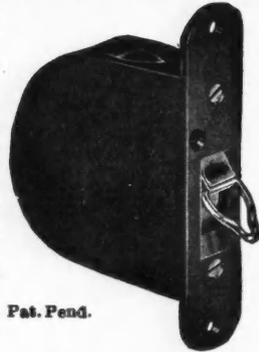
Bring back the edge in a jiffy—just a few rubs and the tool is right again—fit and ready for the work. There are no sharpening stones that cut so fast and clean—that hold their shape—that last so long.

*Ask Your Hardware Dealer*

**The Carborundum Company, Niagara Falls, N. Y.**

New York Chicago Boston Philadelphia Pittsburgh Grand Rapids Cleveland Milwaukee Cincinnati

### Caldwell Sash Balances Uniform Mortises



Pat. Pend.

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

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

**W**HY 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

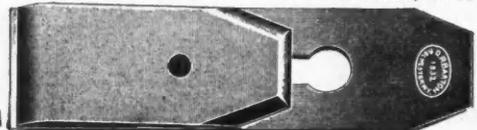
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Q. R. BARTON  
1832  
ROCHESTER N. Y.

## 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 unequaled, keen, hard, smooth-cutting edges. Barton Tools last a lifetime and give satisfaction to the end. Ask your dealer to show you our tools or send direct for catalogs and free story book—True Stories. Specify "Carpenters Catalog."

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



### A POPULAR PRICED STEEL TAPE

## LUFKIN "BANNER"

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

Measuring Tapes, Boxwood and Spring Joint Rules  
*Send for Catalog*

**THE LUFKIN RULE CO.**

Saginaw, Mich. 106 La Fayette St. New York





# V. & B. TOOLS

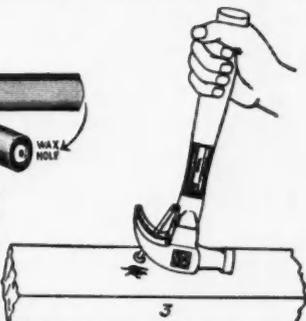
## Vaughan Vanadium Nail Hammer



No. 41½—16 oz... \$1.50 each  
No. 42 —13 oz... 1.50 each

**The Toughest, Strongest Hammer Made.**

Wax-Hole in the end of the handle for waxing nail to be driven into hard wood.



Our Non-slip Claw will firmly grip the shank of the nail.



### SQUARE HEAD NAIL SET

Will not roll. Cup Pointed. Guaranteed. Price, 15c each.

### ALL STEEL WOOD CHISELS



For prying and ripping. Can be used with a hammer.

½	¾	¾	1	1¼	1½
\$0.65	\$0.70	\$0.80	\$0.90	\$1.00	\$1.10 each

If your dealer cannot supply you, send us his name with your order. Money back if not satisfied.

**VAUGHAN & BUSHNELL MFG. CO.**  
Makers of Fine Tools  
2914 Carroll Avenue CHICAGO

## C. G. HUSSEY & CO.

Pittsburgh, Penna.

### MANUFACTURERS OF COPPER

In Sheets, Plates, Rolls

**CORRUGATED COPPER CONDUCTOR PIPE**

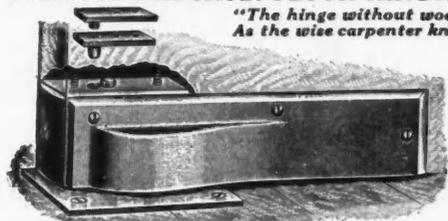


Copper Nails, Copper Rivets, Conductor Pipe, Eaves Troughs, Elbows, Shoes, Mitres, Soldering Coppers, Gaskets, Etc.

## Say Shelby "CHIEF"

When You Talk About FLOOR HINGES

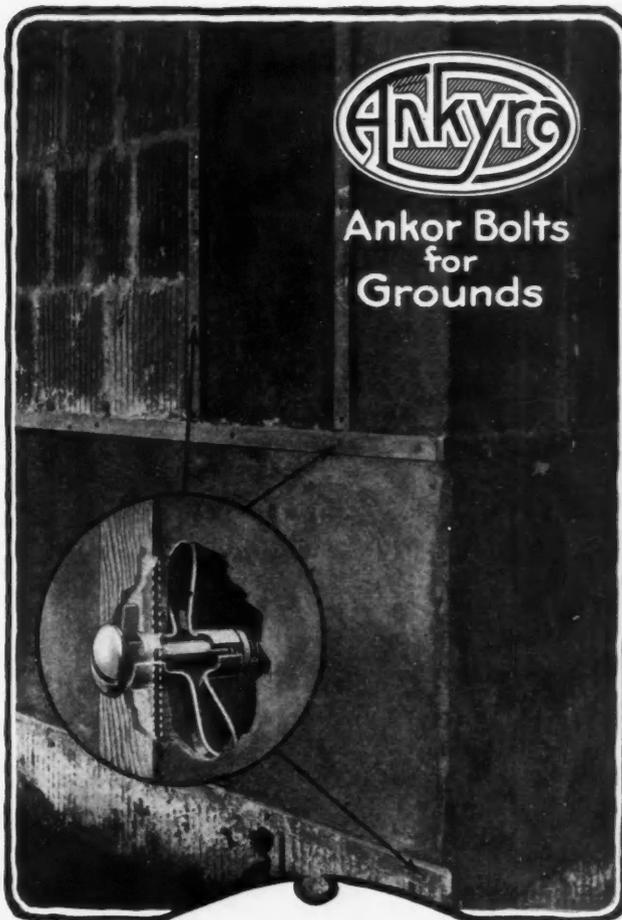
*"The hinge without woes,  
As the wise carpenter knows."*



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



## Ankyra Bolts for Grounds



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

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

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

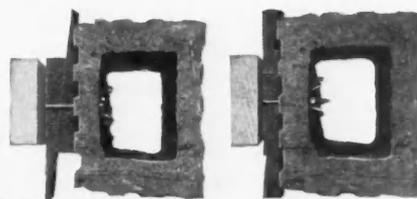
We will send the **Ankyra** booklet and sample bolts without obligation. You have only to write.

**Ankyra Manufacturing Co.**

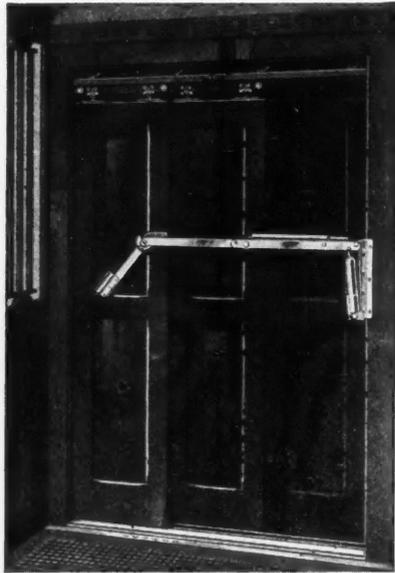
151 Berkley Street

Wayne Junction

PHILADELPHIA



# IDEAL ELEVATOR DOOR HARDWARE



## Swift — Silent — Safe

A substantial and effective utility for office buildings, hotels, hospitals, apartment buildings and other edifices where elevators are used.

### Ideal Ball Bearing Elevator Door Hangers

Run easily and noiselessly. Protected from dust and dirt. Adapted to single doors, two-speed, three-speed or combination elevator doors, doors in pairs. Discriminating architects recommend them.

### Ideal No. 743 Elevator Door Closer

Prevents accidents by instantly closing the doors. Operate silently. Removes responsibility from elevator conductor.

A Unit of the famous R-W Line



If you are interested in elevator doors, do not fail to write for specific information and prices on the R-W Ideal line of Elevator Door Hardware.

SAN FRANCISCO  
LOS ANGELES  
NEW YORK  
CHICAGO

## Richards-Wilcox Manufacturing Co.

AURORA, ILLINOIS, U.S.A.

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

"A hanger for any door that slides"

PHILADELPHIA  
MINNEAPOLIS  
BOSTON  
ST. LOUIS



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 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.



## Do this for your client

Give him a garage door hanger set that will make the operation of the garage doors an unconscious act. That is, so equip his garage doors that they will open so easily, quietly and quickly that the doing of it is out of mind—automatic. In other words, give him a Topping Garage Door Set.

**THIS WILL PLEASE HIM BECAUSE—**Garage doors can

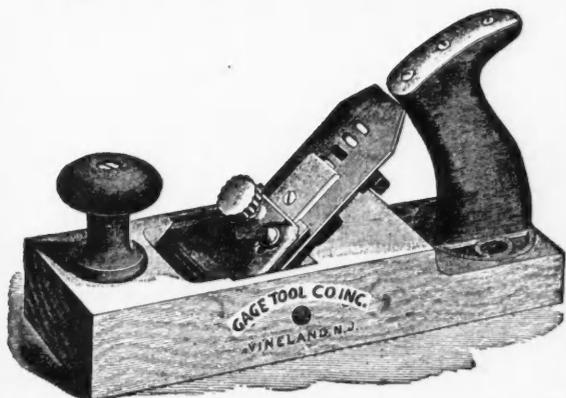
be noisy. They can stick and cause annoyance. They can be such a nuisance that your client will say unpleasant things about your workmanship. Topping Garage Door Hanger Set is easy to operate and simple in construction. It is a garage set that is sure to satisfy your client because—

- (1) It allows the use of the full door opening without risk or damage to car or door.
- (2) It enables the doors to be left wide open without danger of swinging or blowing shut and without needing propping open.
- (3) It needs no run-way extending beyond the building on either side.
- (4) It allows the doors to be perfectly weathertight when closed.
- (5) It enables the Owner, Chauffeur, etc., to enter the garage without opening the whole door.
- (6) It allows the door to be easily and quickly opened or closed at all times.
- (7) It is so simple that the hanger cannot get out of order, stick and refuse to operate.
- (8) It automatically locks open and automatically locks closed.
- (9) No damaged fenders and broken headlights where this hardware is used.

All necessary hardware furnished complete with each single set for one pair of doors. Full instructions for fitting are included.

**Safety Door Hanger Company**  
308 Topping Bldg. Ashland, Ohio

## Gage Self-Setting Planes



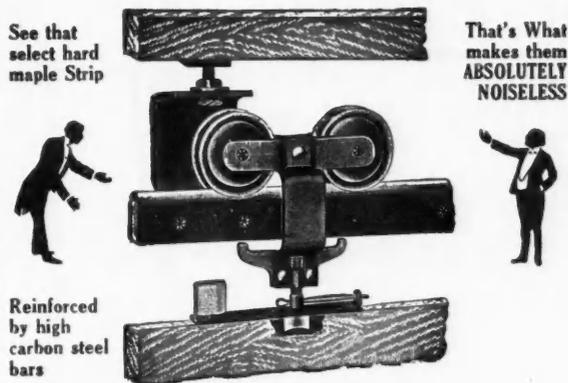
### Announcing Change of Ownership

On April 17, 1917, John P. Gage, proprietor of the Gage Tool Co., sold out all his interests in the company to Philip J. Leavens. The quality of the Gage planes will be maintained and improved. A new list, dated May 14, 1917, has been made, superceding all previous lists for both planes and repairs.

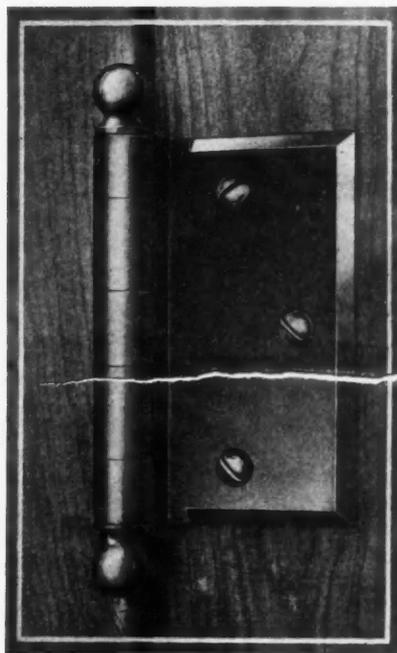
Write us today for full information on Gage Self-Setting planes and ask for our new price list.

**GAGE TOOL CO., Inc.**  
VINELAND, N. J.

## Dix Noiseless Door Hanger



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



## McKinney Wrought Steel Half-Mortise Butts

No. 2745

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

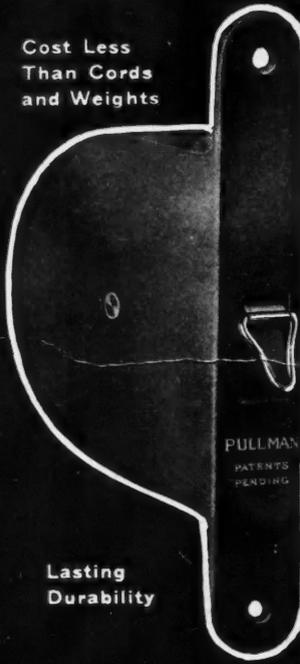
The rich finish and beauty of design of this half-mortise butt insures perfect harmony with the finest finishing hardware. It can be made reversible for use on either right or left hand doors by simply unscrewing the slotted tip at the bottom of the butt, reversing the pin and inserting the tip in the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

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

**McKinney Manufacturing Co.**  
Pittsburgh, Penna.

## Pullman Unit Sash Balance

Cost Less Than Cords and Weights



Lasting Durability

Made of Steel

Practically Noiseless

Easy to Install

Approved by Architects and Fire Underwriters

Write today for Catalog with Blue Prints and learn why you can save money.

**Pullman Mfg. Company**  
10 Industrial St., Rochester, N. Y.

**Pullmanize Your Windows**

QUICK ACTING  SELF LOCKING

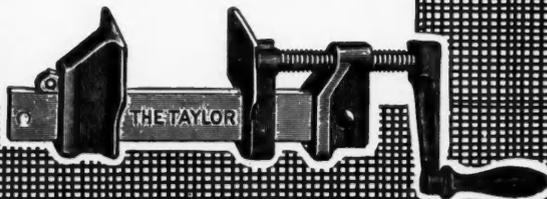
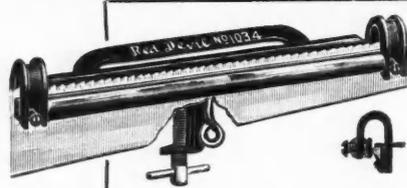
## Clamps

**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.

### "Red Devil" Carpenter's Adjustable Saw Vise

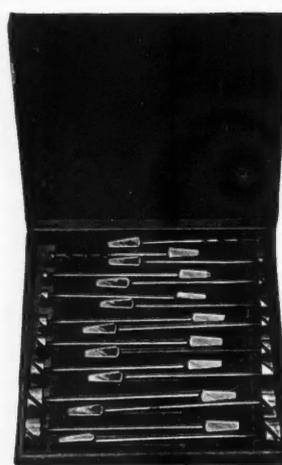
*Saves Your Saw—Pays for Itself*

Solid steel—noiseless rubber jaw—eccentric lock. Instantly clamped anywhere or folded into tool kit. Files hand or rip saws. Sample \$1.10, Style No. 1034. Tool literature free.

SMITH & HEMENWAY CO., Inc.

106 Coit St., Irvington, N. J.

## "A Bit of Utility"



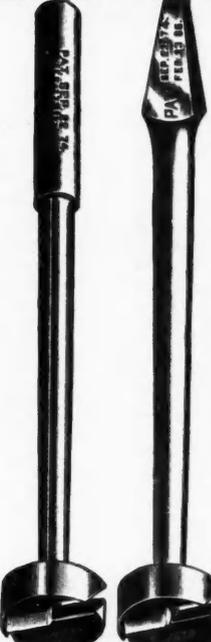
*We can offer something SPECIAL in the way of PRICE. Write for catalog and particulars.*

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.

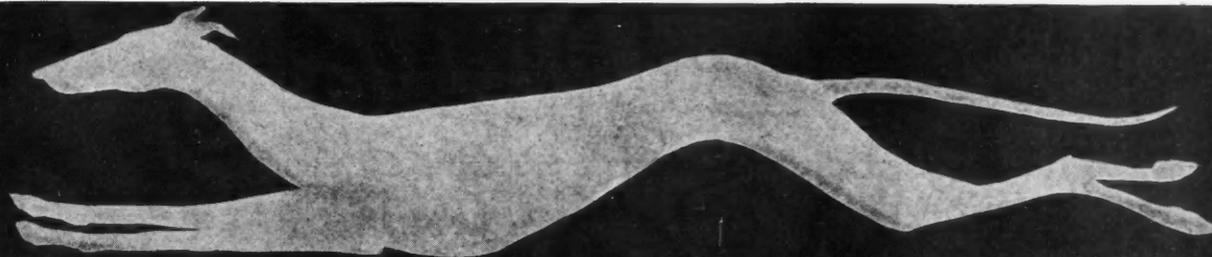
**Unequaled for Delicate Work**

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.



# GREYHOUND SAWS

## Speed—Toughness—Easy Running

If you want a saw with the above features and one that will hold its set and sharpness longer than any other good saw, buy the Geo. H. Bishop Co.'s Greyhound Saw.

### 30 Days' Free Trial

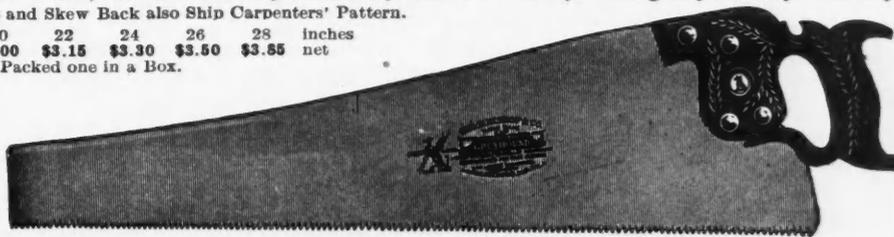
We are so positive that the Greyhound will satisfy you that we offer it on 30 Days' Free Trial. During that time use it on all kinds of wood. If it does not run easier, cut faster than any other saw you have ever used, we will gladly refund your money.

Prices: Made in Both Straight and Skew Back also Ship Carpenters' Pattern.

Length,	18	20	22	24	26	28	inches
	\$2.85	\$3.00	\$3.15	\$3.30	\$3.50	\$3.65	net

Packed one in a Box.

**Geo. H. Bishop  
& Company**  
Lawrenceburg, Ind.



## DIETZGEN Instanto Ink Remover

removes Waterproof Black Drawing Ink from tracing cloth *in an instant*—cleanly and effectively.

The ingredients of "Instanto" positively cannot injure the tracings.

**50c** will bring trial bottle, prepaid. Convince yourself of "Instanto" superiority.

**EUGENE DIETZGEN CO.**  
Manufacturers

CHICAGO NEW YORK SAN FRANCISCO  
NEW ORLEANS PITTSBURGH PHILADELPHIA

## Carpenter—Contractor— Builder and Material Dealer

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

## WINDOW and DOOR SCREENS

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

—ADDRESS—

**Standard Screen Company**

1856 Hastings Street, CHICAGO, ILL.

## Carpenters, Builders, Attention!

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

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

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

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

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

**JOS. L. A. BARNETT & CO.**  
CEDAR RAPIDS, IOWA



*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.

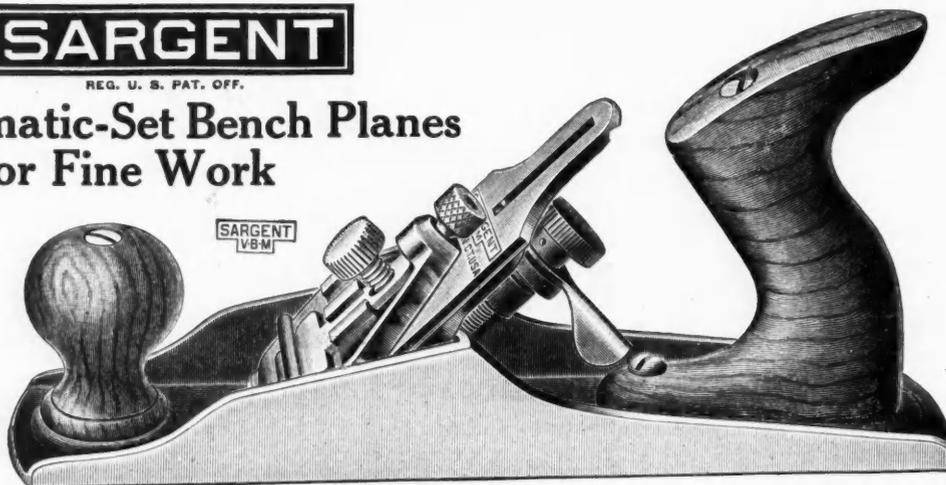
The RED Nailer for 3d galvanized No. 13 gauge 1½-in. wire nails. The regular price is \$7.00 but if you order from this ad, we will send it prepaid parcel post for \$5.00. This offer is liable to be withdrawn, so act now.

**PEARSON MFG. CO. - ROBBINSDALE, MINN.**

**SARGENT**

REG. U. S. PAT. OFF.

**Automatic-Set Bench Planes  
Best for Fine Work**



Sargent Automatic-Set Bench Planes are best by trial and by the recommendation of America's best mechanics. They will do work requiring a finer degree of accuracy than any other plane on the market.

These Planes are made in six sizes with both smooth and corrugated bottoms.

The great interest in these Planes on the part of tool-users shows that the advantages and points of superiority—solidity, compactness, simplicity, ease of adjustment and, most of all, the automatic-set feature—are apparent to mechanics.

Catalog of Planes, with full information about these Automatic-Set Bench Planes, will be sent free on request.

**SARGENT & COMPANY**

51 WATER STREET

NEW HAVEN, CONN.

**GET GOLDBLATT'S  
TOOL CATALOG  
and save money**



It Pays to Buy Direct from the Makers

**Tool Bags, Valise Shape**

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

**Goldblatt's Plasterer's Hawks**

Made of selected soft wood; 5-inch dovetail; 6-inch handle; weight about 1 1/2 pounds. Stationary handle, 75c; Patent Screw handle, \$1.

**Guaranteed Plumb Rules**

Three styles. \$2.40, \$3.00 and \$5.00.

**Goldblatt's Tile Markers**

Most practical and best Plasterer's Tile Marker made. Price, 40c.

**Goldblatt's Plasterer's Brushes**

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

**Goldblatt's Plasterer's Trowel**

No. 1-F—Finishing Trowel, made of 22 or 24 gauge best trowel steel, highly polished and etched. Mounting extends within one inch of each end of blade and has ten large rivets. Three sizes 11, 11 1/2 and 12 inch. Low, medium and high mounts. Price, \$2.00.

OUR MOTTO: BETTER TOOLS AT LOWER PRICES  
Write for Illustrated Catalog and SAVE MONEY

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

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

*Northwest*  
**BUILDING MATERIAL EXHIBIT**

1917

What are you going to build this year?

- A Garage?
- A Bungalow?
- A House?
- Apartments?
- A Church?
- A Hotel?
- A School?
- A Hospital?
- A Factory?
- A Skyscraper?

**LOOK  
Before You Build**

**EVERYTHING**

that enters into building construction, including heat, light, ventilation, decoration—as well as the materials that make the structure and the methods of application—for a little job or the biggest building—is on free view at the

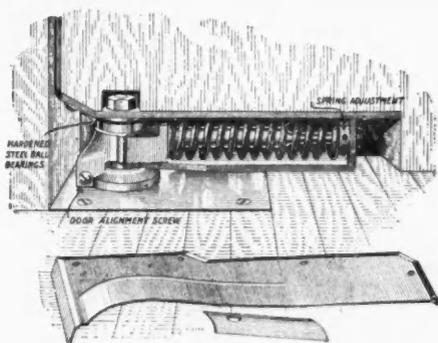
**Permanent Building Exhibit**

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

**200 Exhibits on One Big Floor**

It's FREE to See

**Northwest Building Material Exhibit**  
Entire Fourth Floor, First National Soo Line Bldg.  
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**Architects, Contractors and Builders:**

This is the modern, up-to-date serviceable FLOOR HINGE for you.

**The "STANDARD" Pantry Check**

for the double-acting doors. It is mechanically built—easily installed—and has that easy swing—no slamback—knocking everything down it meets—breaking dishes—hurting children—house pets—causing troubles too numerous to mention. Looks just like a surface floor hinge but has that all-important feature: Checking Mechanism combined. It controls the door at all times, closing slowly and stopping it at dead center without jar or noise.

The "STANDARD" is the safest and most noiseless hinge you can use. Have been on the market for years. Are **positively guaranteed**. Costs less than others. Write for literature on the "STANDARD" line of floor hinges.

**The Standard Manufacturing Company**

**Shelby, Ohio**

—The key to Confidence



**"Safety First"**

**SCAFFOLDS**

Assure absolute protection to yourself and your workmen. You cannot fall off. They can be attached as fast as one man can hand them to another man, as there are no holes to bore or nails to drive. It is not even necessary to have your building sheeted. Equipped with tool shelf. Folds up flat for storing.

Write for catalog and trial proposition.

**John Faragher, 811 So. Brooks St., Madison, Wis.**

**PARK STEP FORMS**

—make step building easy!



Cuts your cost of production in half. Easily adjustable to any dimension, shape or pitch of flight.

Once assembled, the Park Form needs only adjustment.

The Park Edger is made of the best bronze and is especially fitted for this work.

Write today for our Catalog.

**H. L. PARK CO.**  
Reading, Mass.



**SILVER LAKE A Sash Cord**

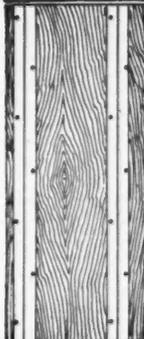
The Best Cord adds nothing to the cost of a house, is guaranteed to wear twenty years, and your client is saved the annoyance and expense of replacing broken cord. Made in all sizes to fit all pulleys. Silver Lake A is printed on every foot of cord. Guaranteed full lengths.

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

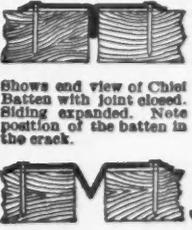
**SILVER LAKE CO., Newtonville, Mass.**



**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 battens. 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.



## There's Money in Building Store Fronts

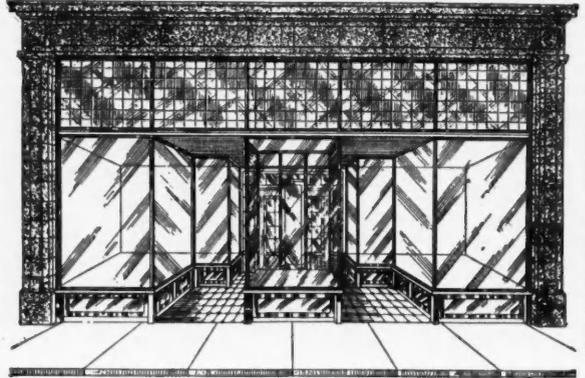
Thousands of contractors throughout the country are making money at it. So can you. We help you sell and we sell direct to you. "Desco" is simple to order and by using it you'll cut the cost of installation. Made of solid, heavy-gauge copper; corner and division bars are strongly reinforced with channels. Glass rests against creosote-dipped cypress blocks (a cushion). Before bidding on another job get "Desco" details and prices.

### Detroit Show Case Company

491 Fort Street W. : : Detroit, Michigan

**Desco**  
METAL  
STORE FRONTS

28 Years of  
Experience



## The Easiest Way

to make money is to save it. ZOURI Construction and Service has done this for other contractors and can do it for you.

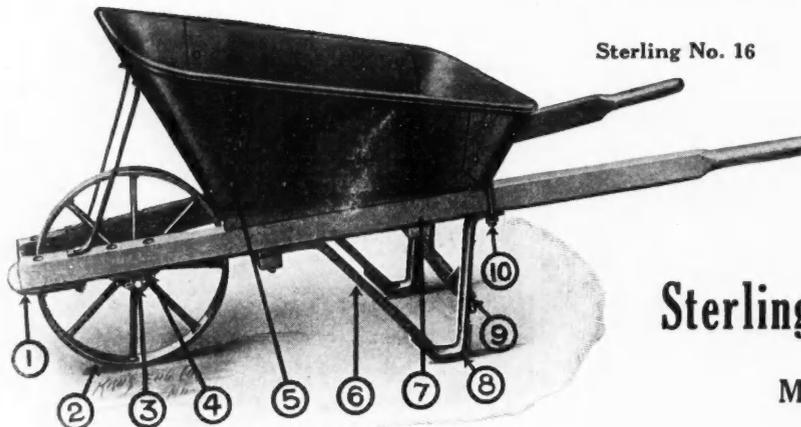
*Send for Catalog Today*

**Zouri Drawn Metals Co.**  
1803 East End Ave., CHICAGO HEIGHTS, ILL.

## Common Sense Dictates Every Feature of Every *Sterling* Wheelbarrow

1—Malleable Wheel Guard. 2—Heavy Broad Faced Tire. 3— $\frac{1}{2}$ -inch Cold Rolled Steel Shaft. 4—Malleable Dust Proof Brackets. 5—Double Cornered Trays. 6—Heavy Channel Steel Legs with Flat Rest. 7—Clear Maple Handles. 8—Heavy Leg Shoes. 9—Riveted Leg Braces. 10—Patented Handle Clamps.

These are the notable exclusive improvements which make Sterling Barrows different and better. Ask any successful contractor.



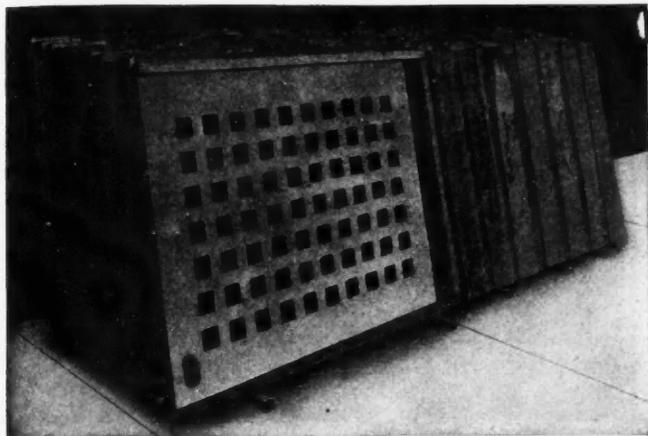
Sterling No. 16

*Write today for Catalog No. 19  
and Form Clamp Booklet*

**Sterling Wheelbarrow Co.**

(WEST ALLIS)

Milwaukee, Wisconsin



## Labor is Scarce!

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

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

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

ASK FOR CATALOGUE 16-L

### American 3-Way Prism Company

Manufacturers of Prism Products, Sidewalk Doors, Coal Hole Covers

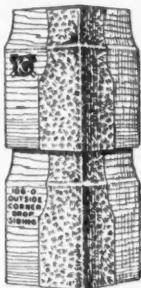
Main Office and Factory: LA PORTE, IND.

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

### These Points—

Weather-proof and Permanent—Take and Hold Paint—Give Better Appearance—Save a Lot of Work.

These are reasons enough for any carpenter, contractor or builder. But, we might add that they are more economical, too. Millions in use today. Give them a trial on your next building job.



### KEES Metal Corners for Drop Siding

Do away entirely with openings that are usually left when corner strips are nailed over the siding. Made of galvanized iron. Treated to take and hold paint or stain.

Weather-proof. Permanent. Labor-saving. Just one of the KEEES line of up-to-date metal building aids.

Write for FREE Samples

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## House Moving Pays Big

IN every town and city throughout the United States there is a remarkable opportunity for a good, live wide-awake man to engage in the house-moving business. I don't care if there are one or more house-movers in your town now. I can show you how to

### Clear \$100 to \$300 On a Job

With the plan I have to offer you, you can get the business in spite of any and all competition; besides, I can show you how to develop your business in a profitable, money-making way that other house-movers don't think of. Write me today. Ask for catalog (B) and full details of my unusual proposition.

E. W. LA PLANT, President

LA PLANT-CHOATE MFG. CO.  
620 Eastlark Court, CEDAR RAPIDS, IA.

FREE Magazine for house-movers or anyone interested. "Successful House-Moving Contractor." Write today.



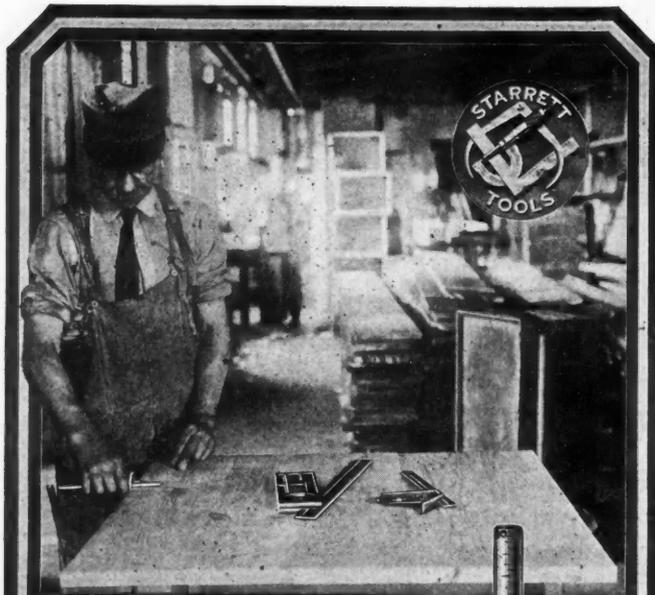
# Linclad

## SHINGLE NAILS

Made for wood, asphalt and asbestos shingles in both cut and wire styles. All standard sizes carried in stock for prompt shipment.

Write for Samples and Prices

W. H. MAZE COMPANY  
PERU, ILLINOIS



## Laying Out Work

Everyone who lays out work knows the importance of doing things right. You use accurate, well-designed tools to insure good results. All

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

are made for the single purpose of making accurate work easy. In addition to that the Starrett line offers you a "tool for every job".

Catalog No. 216 will help you pick the Levels, Scrapers, Dividers, Stair Gages, Scratch Gages, Combination Squares, Combination Tools and others that you need for work that must be right.

The L. S. Starrett Co.  
The World's Greatest  
Toolmakers  
Athol, Mass.

42-704



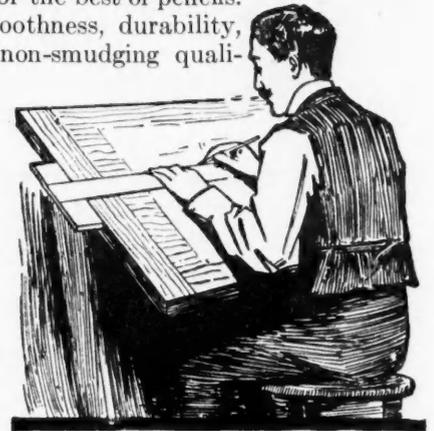
# VENUS 10¢ PENCIL



USE VENUS perfect pencils *yourself*, and provide them for your draftsmen, stenographers, and all who have need for the best of pencils. Observe the smoothness, durability, uniformity and non-smudging qualities of the leads.

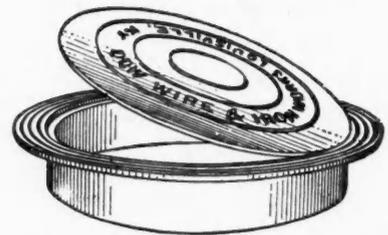
Specify *VENUS* and look for the distinctive finish!

17 Degrees:  
6B softest to 9H hardest and also hard and medium copying.



**FREE!** This trial box with five VENUS Drawing Pencils, Holder and VENUS Eraser sent free. Write for it.

**American Lead Pencil Co.**  
212 Fifth Avenue, New York  
and Clapton, London, Eng.



## BUILDERS' IRON WORK

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

**DOW WIRE & IRON WORKS (Inc.)** 215 Buchanan St. LOUISVILLE, KY.

## Wire Window Guards



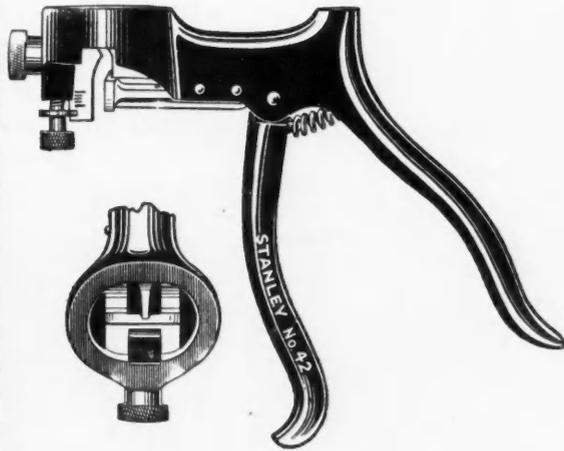
Counter Railings  
Elevator Enclosures  
Tubular Hand Rails  
Brass and Bronze Work

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

**The Cincinnati Mfg. Co., Cincinnati, Ohio**

**Stanley  
Tools**

**STANLEY "PISTOL GRIP"  
ADJUSTABLE SAW SET No. 42**



This Saw Set embodies several unique and important features not heretofore seen in tools of this description.

The shape of the Body and Handle enables the user to operate the tool with great ease and with the least possible exertion, and the saw is held firmly against the gauge while the tooth is being set.

It can be readily adjusted by means of the knurled thumb screw to give a greater or less set to the teeth of the saw, according as the saw is to be used for coarse or fine work. As the anvil or part against which the plunger works is graduated, the same adjustment can be easily obtained for duplicate work.

The tool is so designed that the saw teeth are in plain view, which enables the user to quickly adjust the tool to be set.

The plunger and anvil are made of tool steel—hardened and tempered. All parts are carefully machined and interchangeable.

The tool is given a fine black finish.

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

**FRESH AIR AND PROTECTION!**



**The Ives Window  
Ventilating Lock**

A Safeguard for Ventilating Rooms, allowing windows to be left open at the top, the bottom, or both top and bottom, with entire security against intrusion.

*Descriptive circular mailed on application.*

**THE H. B. IVES CO.**

SOLE MANUFACTURERS

NEW HAVEN - - - CONNECTICUT

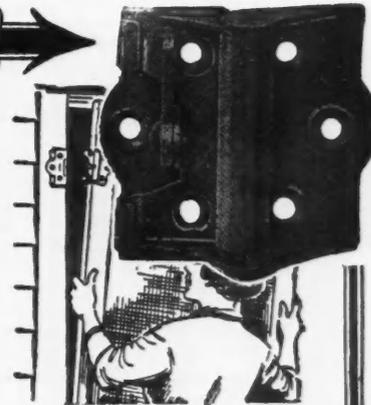
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Just the hinge your clients have been looking for. Once installed, the Jiffy Hinge enables the housewife to put up or take down the screen doors or windows without the use of screws or tools of any kind.

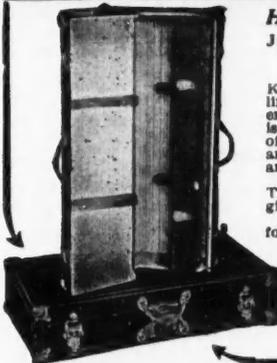
Ask Your Dealer to Show You a JIFFY HINGE

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.



**Carpenter's Tool Trunk**



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

It can be carried anywhere—like a suitcase. Keeps your tools in good shape, and lasts a lifetime. Made of basswood, covered with enameled steel. Has a steel binding, and is lined with paper. Locks and bolts are of brass. Contains drawer for small tools and an arrangement for holding steel square, level and three saws. Size 32 inches. Price \$7.00. If your dealer doesn't handle this "Handy Tool Trunk", we will credit you with \$6 for giving us his name when you order your chest. Simply send us his name and your check for \$6.50 and we will send you chest at once.

**F. ENDEBROCK  
TRUNK CO.**

1417 South 14th, ST. JOSEPH, MO.

**If You Need a Tank be  
Sure It's a Caldwell**



The construction of every Caldwell Tank adheres strictly to scientific principles.

A Caldwell Tank built of cypress by Caldwell methods is an unbeatable combination.

Both material and workmanship mean durability and satisfaction. We Erect Anywhere.

Send for Catalogue

W. E. CALDWELL CO., Inc.  
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*Caldwell*  
TANKS  
AND  
TOWERS

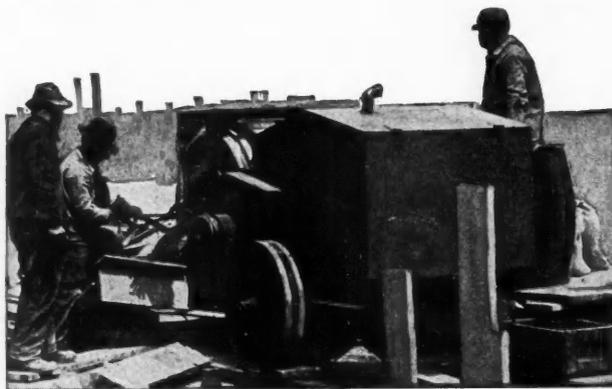
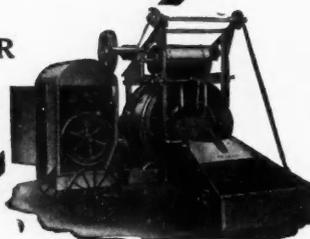


**Knickerbocker  
Built for  
SATISFACTORY  
SERVICE**

**— Gives It**

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

**THE  
KNICKERBOCKER  
COMPANY**  
525 Liberty St.,  
Jackson,  
Mich.



**DANDIE  
MIXERS**

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

Here is the Big Value light mixer—not the cheap-built, low-priced mixer, but the light mixer built to stand up and built in big quantities to keep down the price.

It is the right mixer for the big contractor who needs light machines to supplement his big capacity mixers, and of the contractor who does general work and demands a reliable, strongly-built mixer at a medium price.

Building these mixers in big quantities and standardizing every part the price is kept down and the quality kept up. This is why Dandie Mixers are the big value of the industry. Write today for special booklet.

**KOEHRING MACHINE CO.** MILWAUKEE WISCONSIN

**Ask the man who owns  
a Blystone!**

THERE are over 2500 Blystone owners throughout the country who are satisfied users. Here's what one owner says:

"Our Blystone does better work than any mixer I have ever seen. Could not suggest an improvement." T. E. WILSON, Edgerton, O.

Invented by a concrete contractor, the Blystone is absolutely original in design and operation. Look one over before you buy a mixer.

**BLYSTONE MANUFACTURING CO.**  
817 Carpenter Street Cambridge Springs, Pa.

Write today for our  
Catalog



**Brick Houses AND HOW TO BUILD THEM**

Containing 219 (8 x 11 inch) pages illustrated by over 800 designs and details of brick house construction, beside perspective views and floor plans of 82 brick houses with estimates of cost construction and miscellaneous data about the use of brick from its manufacture to its placing in the building, included ornamental brick and tile work, sewer construction, fireplaces, brick veneer construction, arches, cements and mortars, how to estimate the cost of brick construction, etc., etc. A valuable book for the home-builder as well as to the builder and brick-layer.

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**American Builder**  
1827 Prairie Avenue Chicago, Illinois

## New Improvements and Inventions Enable Great Speed and Big Output in a Light Weight Compact Mixer

500 cubic yards in 45 hours

The Delos Engr. & Eq. Co., Prairie du Chien, Wis., writes:—

"We put in 500 cubic yards in 45 hours actual time with your Light Ten-Sack Size Mixer—yet we found it equally handy on the small jobs."

It's a Great Mixer for All Size Jobs



**A NEW SPEED KING**

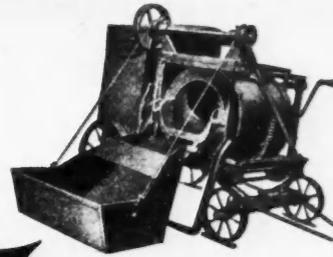
### See this New Model, Light Weight Sack Size Concrete and Mortar Mixer

All users agree that it is the handiest and most practical outfit yet designed. You get the capacity of a big machine packed in the dimensions of a small one—the advantage of light weight for easy moving, but full sack size capacity and wearing qualities that compare with any machine regardless of price.

Sizes 3½—5—7—10 cubic feet

Get our Prices and Terms

**Republic Iron Works**  
Box 445 TECUMSEH, MICH.



LIGHT "10" Loader Outfit

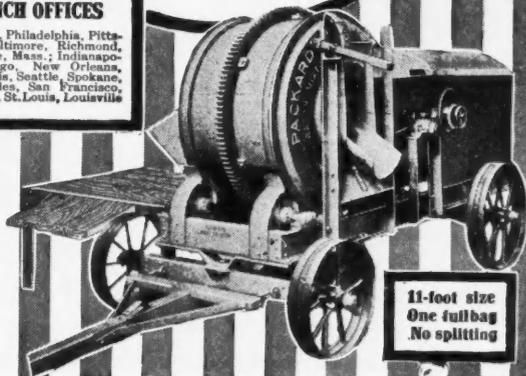
## Packard Easy Cleaning Low Charger

Specially made for fast work handling stiff concrete for Curbs, Sidewalk Work and Foundation Work. Hinged Low Loading Platform, only 24 in. high. Patented High-Speed Mixing and Discharge Action. **Mixes Mortar and Plaster.** Built of Steel. Light, Strong, Durable. 2 Sizes—6 and 11 ft. Power loader or batch hopper if wanted. Sold on the "Money Back" plan—cash or easy payments—price astonishingly low. **Prompt Delivery from Stock.** Investigate now. Write, phone or wire nearest branch office for full information on this mixer, also on Grouters, Pavers, Hoists, Pumps and Back Fillers.

The American Cement Machine Co. Inc.  
Keokuk Iowa  
THE 300,000 HP ELECTRIC CITY

**BRANCH OFFICES**

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



11-foot size  
One full bag  
No spilling

## Put a SHELDON Concrete Mixer to Work on Your Next Concreting Job at My Risk



**\$11.50 Up**

DON'T send me one cent. Just put your money in your own bank. Try a Sheldon on your next job entirely at my risk. Send for the style Sheldon Mixer you need today. When it arrives put it to work. Give it the toughest test you can think of. Keep track of the amount and kind of work it will do. Keep track of what it saves you over hand mixing. Then at the end of 30 days if you think you can possibly get along without it, ship it back. That's my no-string, free trial offer in a nutshell. Accept it today.

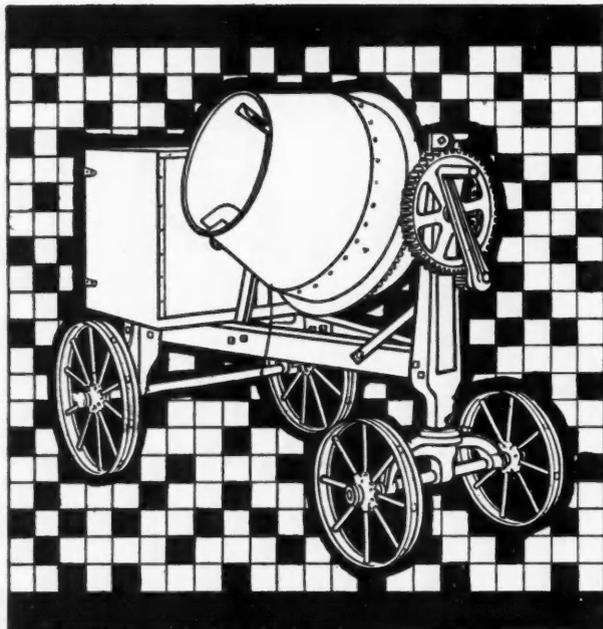
### Don't Pay \$200 to \$500 for a Mixer

You don't need to. The Sheldon will do just as good work for 1/10 to 1/20 the cost. The Sheldon will mix 2½ cubic feet (2 wheel-barrow loads) to a batch. Will keep one to six men busy. Will save the labor of one to three men. Pays for itself on your first small job. Thousands in use.

**Write for Catalog and Special Offer**

Let me show you what the Sheldon is like. My catalog will tell you a lot—but nothing like putting a machine to actual work on your next concreting job. Take me up on my offer today. Address GEO. C. SHELDON, President

SHELDON MFG. CO. Box 5003G, Nehawka, Neb.



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

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

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

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

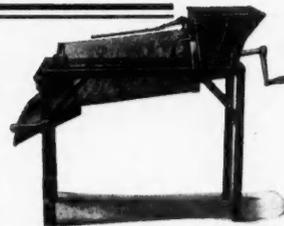
**The Cement Tile Machinery Co.**  
45 Rath St. Waterloo, Iowa

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

**Most Mixer Value Per Dollar Invested**

*The low priced, highly efficient*

**Baby Grand Mixer**



Grand Sand Sifting Machine

saves labor and time. With one of these machines the small contractor can quit his slow and uncertain hand mixing—without spending a lot of money for equipment.

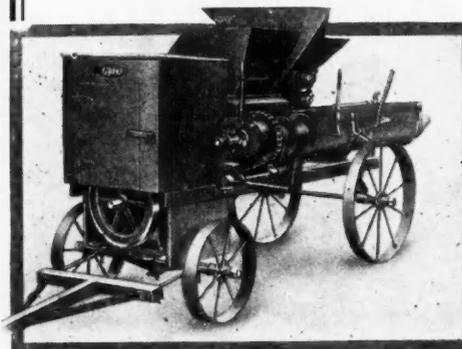
An ideal machine for block, brick, sidewalk, foundation, bridge or building, culvert work. Can be moved easily—wide-tired steel trucks. Equipped with special water-cooled 2½ h. p. gasoline engine. All machines guaranteed and sold under three days' free trial, anywhere in the United States.

**The Grand Sand Sifting Machine**

will pay for itself many times over in the saving of labor alone. This machine sifts sand, wet or dry, and does its work quickly and thoroughly in one operation. The entire machine is of metal construction, very simple, no gearing to wear out and no complicated parts to get out of order.

*Send for descriptive matter*

**Hall-Holmes Mfg. Co.**  
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**Ready for the Draft?**

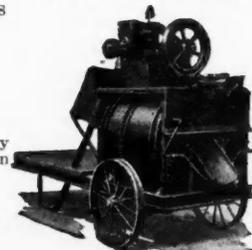
The army draft is taking thousands of men—the building of camps is using thousands more. Your shortage is solved only by the mixer that needs less men.

**End Discharge ARCHERS**

do more work with fewer men than any other machine. Saves from 3 to 5 men in every gang.

*Ask us to prove this to you.*

**ARCHER IRON WORKS**  
2438 W. 34th Place, CHICAGO



**CONCRETE PORCHES**

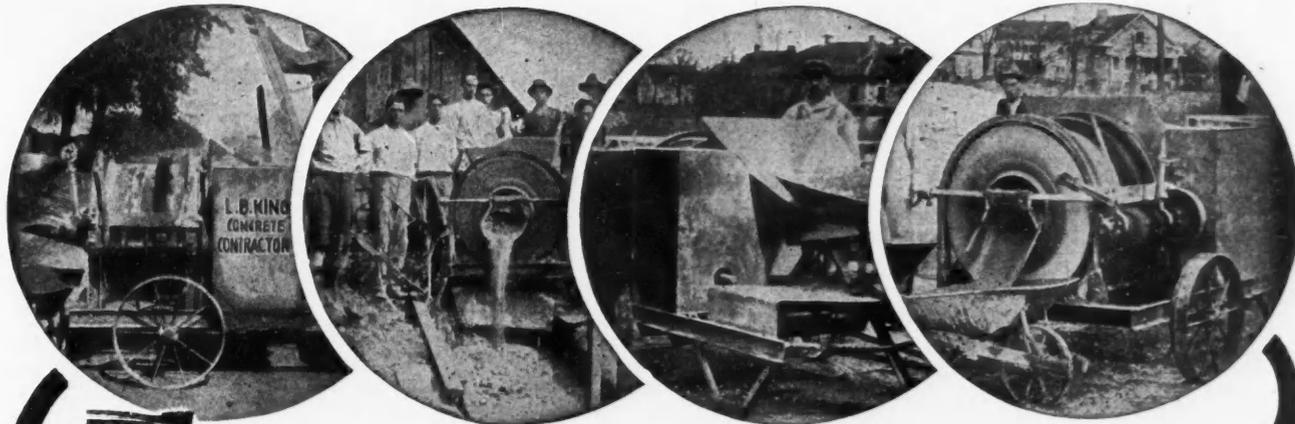
**—and Really Profitable**

**ATTRACTIVE EVERLASTING INEXPENSIVE EASY SELLING**

Here is something for big profits, quick turn-overs and easy sales. This mold outfit doesn't cost much—the profit on two porches will buy it. Besides making porch blocks it makes blocks for Chimneys, Piers, Posts, Ornamental Fences, etc. Be the porch builder in your town. Our Ornamental Mold Bulletin gives full information. Get it.

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

**MOLDS SOLD ON 15 DAYS' TRIAL**



*Always on the Job--*

## “Little-Devil” Mixer

*A Bigger, Better Mixer for the Same Money*

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

### Chicago Builders' Specialties Co.

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### 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

Municipal Engineering & Contracting Co.

Main Office: Railway Exchange Building, Chicago  
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“Concrete for Permanence”

# EUREKA

A Complete Line of  
Batch Mixers, Continuous Mixers,  
Mortar Mixers and Hoists

**EUREKA MACHINE CO.**  
103 Handy Street LANSING, MICH.

### Capacity---Economy

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

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

INVESTIGATE TODAY

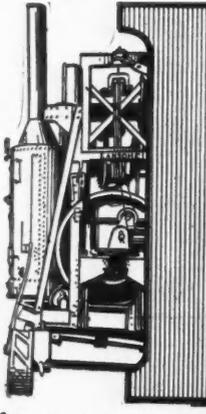
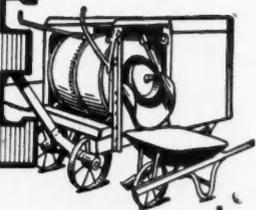
**Frank Mfg. Co.**

241 Century Bldg.  
DES MOINES, IOWA



Inside View. Showing Door for Unloading

# RANSOME

Registered U. S. Patent Office

*Well Mixed Concrete for Permanence—Ransome for better mixing*

(Member National Association Mixer Manufacturers)

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

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

Factories: Dunellen, New Jersey and Reading, Pa.

## DUNN CONCRETE MIXERS

**A Size and Style for YOU**

Don't guess on the mixer question. Buy a DUNN and be sure, safe and satisfied. We have spent thousands in making the Dunn positively the most efficient and economical mixing unit on the market for the building contractor. We have equipped it with time-and-labor-saving features galore—and we will back our guarantee of satisfaction with every cent of our money. And the price? Remarkably low for a real concrete mixer. Write for the Dunn Mixer bulletin and get our proposition. Agents wanted.

**W. E. DUNN MFG CO.** **415 14th St., Holland, Mich.**



### SOLD ON 15 DAYS' TRIAL



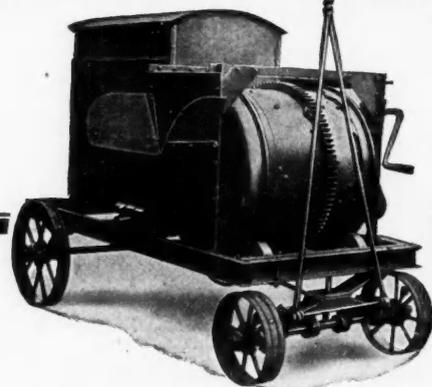
## It's Free!

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

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

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

## LANSING No 5



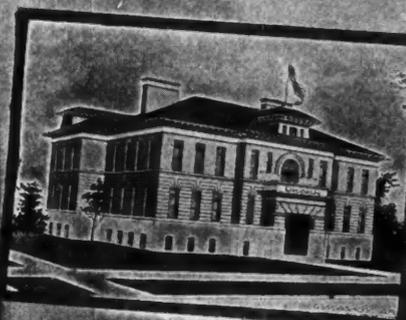
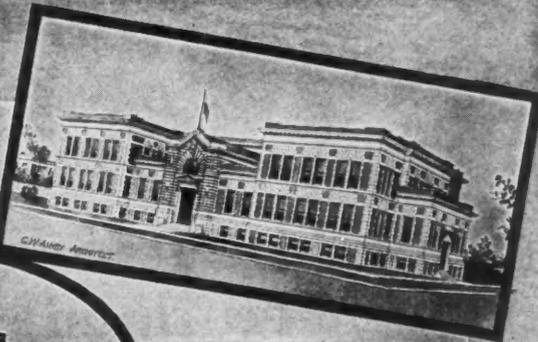
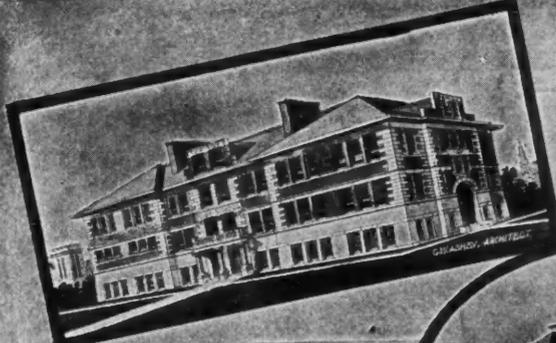
**Designed for the Average Builder**

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



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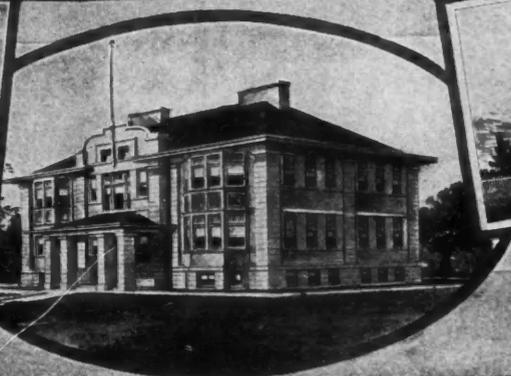
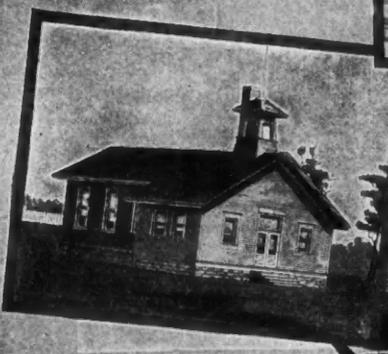
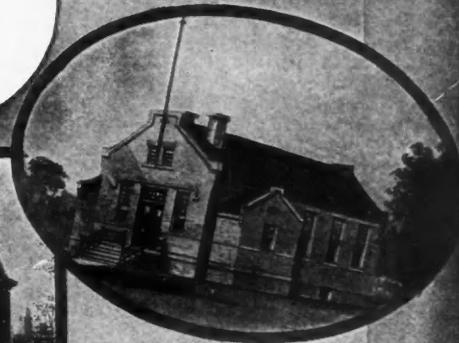
Designs of Schools & Libraries

display a composition of utility, durability and good, pure architecture without any "gingerbread." No buildings are too large or too small for our personal and prompt attention.

We develop your own ideas into a practical set of plans and specifications which can be executed to the smallest details into a building that can be built within your means and to your entire satisfaction.

*Correspondence Invited*

G. W. ASHBY, Architect  
512 Medinah Building  
CHICAGO



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

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

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

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

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

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

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

### Big-an-Little Specifications

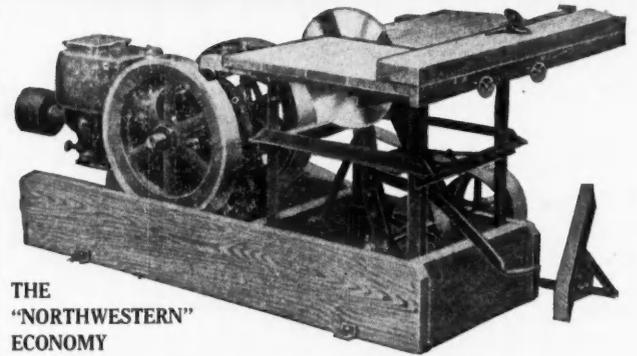
Capacity 5 to 6 ft. per batch. Drum 34-inch diameter, 30 inches deep. Discharge controlled by gears. Trucks ail steel. Wheel 18 inch diameter—48 inches over all. Standard guage trucks with 20-inch by 24-inch wheels if desired. Engine 3 H. P.—Jaeger Engine. Best that can be produced. Weight 1700 lbs.

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

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



## New Saw Rig



THE  
"NORTHWESTERN"  
ECONOMY

## THREE SIZES

With or without the famous "Northwestern" Engine. New saw rig efficiency, high speed and safety. Many attachments sold separately. Add them as you see fit.

*Write for Folder No. 4 Giving Full Specifications*

**Northwestern Steel and Iron Works**  
"The House of Good Service"

Capital Stock, \$200,000.00

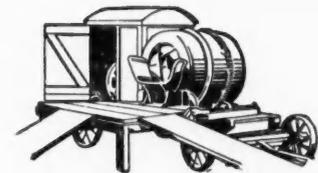
Eau Claire, Wis.

## "NORTHWESTERN"

Ask for Bulletin No. 36 on Engines, Hoists, Mixers, Tile and Culvert Forms

## "THE STANDARD" Low-Charging Concrete Mixer

Cuts Costs—Increases Production



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

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

*Ask for Catalogue No. 44*

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

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# WONDER BUILDERS' EQUIPMENT

Meets War Time needs in Quality, Speed and Efficiency at "Live and help live" price. Nation wide reputation backs your choice of the WONDER and our quantity production and sales make the price a profit-sharing proposition.

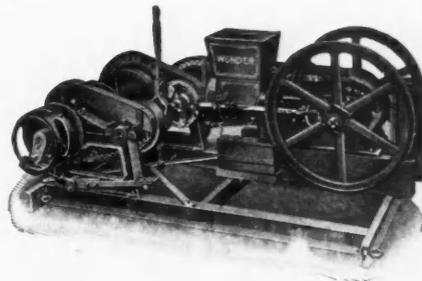


## THE WONDER JUNIOR Concrete Mixer

This is the machine, the original model of which displaced the mixing board and opened a new source of profit for the building contractor. It is "The Small Job Money Maker" of the WONDER line, specially adapted to the small jobs every builder can do with great profit—foundations, sidewalks, drives, cisterns, etc. Easily portable, easily operated, easily kept clean. Just the right capacity—3 to 4 Cu. Ft. per batch. Simple, strong, dependable. Can be taken into buildings, handled on elevators and used in cramped quarters. Mixes mortar as well as concrete. 2 H. P. Wonder gas engine—economical—requires little attention—removable for other work. Most value per dollar of investment you've ever seen in a mixer. *Get in touch with it.*

### For Larger Capacity And Larger Profits

Take Model 15 with Folding Track Loader. Output equal to any job you'll meet. Loads at ground level—a *real* low charging mixer, *standardized* upon by many leading contractors and engineers for the one big reason that it's the *most profitable*. It's just as important to you to "Buy Right". Know WONDER Superiority as these big concerns know it *if you want to make money* as they make it. Send for the facts before you decide on any mixer. Built in sizes of 5 to 6, 7 to 8 and 10 to 11 Cu. Ft. per batch.



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

## WONDER BUILDERS' HOIST Single Reversible Drum Reversible Elevator Sheave

Specially adapted for building contractors in handling sundry materials by elevators. Hoisting drum and elevator sheave independent of each other and can be operated in either direction. Chain driven; engine and hoist quickly disconnected and engine can be used as independent power unit. Provided with ample braking facilities and safety guards. Built in sizes 5-7-9 H. P. Easily portable, ruggedly built, efficient, moderate in price. Two driving sprockets furnished, permitting two line speeds and load capacities with same outfit at no added expense. We can furnish complete outfits, including hoist and Single or Double Cage Elevator.

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## Waterloo Cement Mach'y Corporation

103 Vinton St. : : Waterloo, Iowa

NEW YORK

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## Tell your customers that Johns-Manville Heat Insulation cuts down coal bills

If more of your customers learned the distinction between heating cellars and heating their living rooms, they could make a ton of coal go farther—and keep their houses warmer. The heat lost by direct radiation from pipes and heaters can be saved, at small outlay, by Johns-Manville Heat Insulation, and the investment yields handsome returns.

So urge your customers, in their own interest, to let you provide for proper heat insulation. And then come to us for recommendations of materials and methods. We'll supply the facts without bias—not only because that's our business principle, but because the Johns-Manville line is so standardized that it includes an efficient insulation for every type of service.

Let us take the load from your shoulders and handle all the details. The simplest solution of your problem is to put it up to the nearest Johns-Manville branch.



# Johns-

# Every Building in your town is a prospect for Johns-Manville Asbestos Roofing

Both in construction and on their service record, established in hundreds of notable installations, Johns-Manville Asbestos Roofings meet every roofing requirement. They guard against communicated fire, and effectively resist time and the elements—yet over years of service they cost their owners practically nothing for upkeep.

When you become a dealer for Johns-Manville Asbestos Roofing, your market lies at your very door. And with the co-operation of our sales and advertising plan, you'll find that market an ever-growing one, each sale building prestige for your roofs and two profits for you—one on the sale and one on the application.

These roofs have brought big business to dealers all over the country. Why not ask for details of our generous dealer proposition, and go after the profits yourself? Our nearest Branch will answer your questions completely.

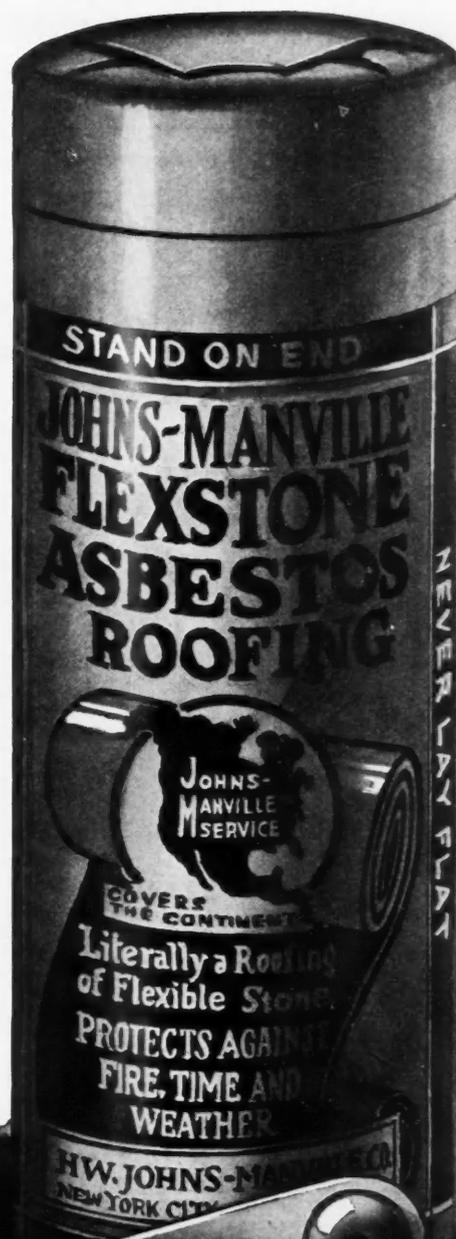
Johns-Manville Flexstone Asbestos Roofing for sloping roofs, Transite Asbestos Shingles for residences. Write for booklets.

\* \* \*

*Johns-Manville Asbestos Roofings are examined, approved and labeled by the Underwriters' Laboratories, Inc., under the direction of the National Board of Fire Underwriters.*

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

*10 Factories  
Branches in 55 Large Cities*



# -Manville



**STUCCO** is the ideal finish for the artistic home. It is also an economical finish, if properly compounded and rightly applied on a *background that will hold it securely*—that will *not* allow it to break away from its fastenings and crack.

Bishopric Board is the *one* background that, *in actual use*, has fully met these requirements—and it *cuts the cost* twenty-five per cent. It's a scientific combination of building principles as old as the pyramids.

Bishopric Board is made of dove-tailed lath that *clinches the stucco*; the lath are creosoted to preserve them, imbedded in asphalt-mastic, which is a perfect protection against vermin and dampness, and backed by heavy fibre-board through which neither sound, heat nor cold can penetrate.



Let us send you free samples and our book "Built on the Wisdom of Ages." It illustrates homes, apartments and buildings of all kinds using Bishopric Board. It contains scientific tests with letters from architects, builders and users; and it gives facts and figures to prove that Bishopric Board is both the best and the most economical background made for the stucco-finished house.

**The Bishopric Manufacturing Co.**  
903 Este Ave. - Cincinnati, O.

Residence of W. P. Rogers,  
Dean, Cincinnati Law School  
Lowe & Bollenbacher, Architects,  
14 E. Jackson St., Chicago, Ill.



## Use the American Builder Information Exchange Handy Form

**L**AST month we offered for the first time, our Information Exchange service, and have been very busy since digging up the information requested by hundreds of builders all over the country.

Evidently our readers have a lot of work in prospect, and they recognize what a saving it is to have us pass the word along and look up all needed information for them. This is a case where one postage stamp does the work of fifty, and does it better.

This handy form for information regarding your contract requirements is presented again in this issue. Turn right now to Page 66 and see what this is.

If you have a contract, or are figuring on a contract for any type of building, no matter what its construction or special requirements, you will find this form so arranged that a few check marks on it here and there will cover the case perfectly. A letter about the job isn't necessary. Check over the blank form

and send it to the AMERICAN BUILDER Information Exchange, 1827 Prairie Ave., Chicago, and full information will come to you promptly regarding all of the specialties, materials and equipment you will need for this job.

The publishers of the AMERICAN BUILDER have always been ready to assist builders by referring them to reliable concerns dealing in any commodity desired; and this service has been appreciated in the past. Now, however, the proposition is systematized and broadened in its scope so as to have a special value.

We want our readers to feel free about calling on us for this information. We can get quick action for you, and often save you money, time and bother.

Turn to Page 66 and make use of this form on any contracts you have coming thru, or are figuring on.

Yours fraternally,

Editor AMERICAN BUILDER.

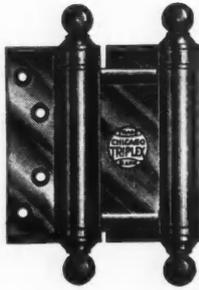
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TRADE  
**CHICAGO**  
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**SPRING HINGES  
A SUGGESTION**

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



**Chicago "Triplex"  
Spring Butts**

offer this advantage to you. The appearance, durability and finish of this article are unsurpassed, and in consideration of prices that are conservative in respect to value, the up-to-date builder cannot afford to risk his reputation for goods that are unsatisfactory.

Send for Catalogue C 32. It illustrates and describes the most complete line of Spring Hinges manufactured.

**Chicago Spring Butt Company,**

CHICAGO

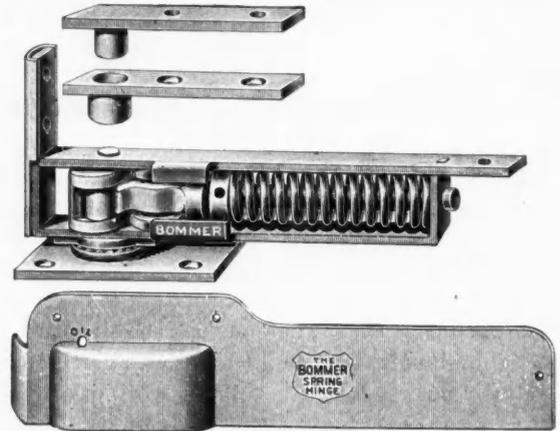


NEW YORK

**BOMMER**

**Floor Surface Spring Hinge**

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



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

Your Hardware Merchant Can Supply Them

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



Rufus D. Wood, Architect, Pittsburgh, Pa.

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

**Cabot's Cresote Stains**

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

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

**Cabot's Stucco Stains**

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

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

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

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

**Worth Much to You**

**Morrill  
Saw Set**



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

**CHAS. MORRILL**

84 Lafayette Street  
NEW YORK

**BUILDERS' HARDWARE**



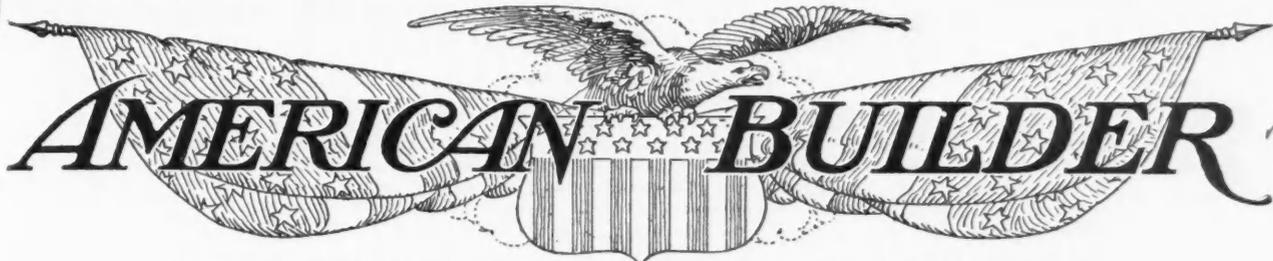
No. 546—1 1/2 in. Ant. Cop. Fin. Spring Hinge. Per set. . . . . \$1.10  
Weight per set, 4 lbs.

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

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

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

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One year, \$2.00; six months, \$1.00; payable always in advance.  
Single Copies, 20 cents. Canadian Subscription, \$2.50. Foreign Subscriptions, \$3.00.

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Furnished on application. Advertisements, to insure insertion, should reach our Chicago office not later than the 15th of the month preceding date of publication.

**PROTECTION FOR OUR READERS**  
The publishers of the AMERICAN BUILDER reserve the right to decline any advertising they believe is detrimental to the interests of its readers; to edit advertising copy and to change or eliminate any statements that reflect injuriously or cast discredit upon other building products, machinery, equipment, supplies or tools.

Be sure in writing to advertisers to say: "I saw your advertisement in the AMERICAN BUILDER."

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VOL. XXIII

August, 1917

No. 5

**Buildings and Still More Buildings for Uncle Sam**

WASHINGTON dispatches tell of extensive defense works along the Atlantic and gulf coast to guard against possible enemy attacks by sea or air. Plans have been drawn for twenty coastal air stations to be established at various unannounced points, and great quantities of lumber for their construction will be required. In addition a number of powder houses, which are in reality to be ammunition stations, will be located at strategical places on the seaboard.

Coastal air stations will each be a small city, built somewhat along the lines of cantonments, except that timbers used will be heavier and the form of construction more permanent. Besides living apartments for the men, there will be hangars for the airplanes and seaplanes, mess and cooking quarters and out-buildings. Approximately 10,000,000 feet of lumber will be needed for each of these stations.

Powder houses will call for about 400,000 feet of lumber each, including timbers for slips and wharves.

The committee on storage of the Council of National Defense is also devising plans for a series of immense warehouses for the army, to be built, both in this country and in Europe. A warehouse 100 feet by 1,000 feet, sufficient in size for the storage of food for

32,000 men, is suggested in connection with each cantonment in the United States.



**Fame, the Fleeting**

THE thought presented below (courtesy of the *American Magazine*) has a special force and timeliness right now to every advertiser—and we are all of us advertisers of one sort or another.

**How the World Empties and Fills**

Twenty-one years ago Coxe's Army marched to Washington. All the papers were full of it. Mention Coxe to anybody over thirty-five years old and see the understanding in his face. Know Coxe and his blooming army? Well, I should say so! Now try Coxe on men and women in the twenties. Just try it. It will open your eyes. Coxe? Who the blazes is Coxe? Looks of confusion and ignorance.

Coxe, you see, quit advertising. That is, the Coxe publicity ceased. And the world has filled up with people who never heard of him. Millions and millions of them. That is the way with some advertisers. They speak up a few times and then go back to their factories. There, by George, we've told 'em! And then old Father Time begins to work. And the undertaker. And the parson armed with a marriage license. And the baby carriage. And rheumatism. And, first you know, the world is peopled with new bosses, new buyers and new housekeepers who never heard of you. Incredible! What!—never heard of *me*? No, never heard of *you*! Sorry to disappoint you.

Man is provided with a great big ego. If he didn't have it he couldn't stand it to live. Without an ego he would

(Continued to page 122.)

## “War Cities” to House New National Army Being Rushed to Completion

**CANTONMENTS EXPECTED TO BE READY EARLY IN SEPTEMBER—SOME SMALL ONES NOW FINISHED—“ALL THE COMFORTS OF HOME” PROVIDED FOR UNCLE SAM’S TROOPS IN TRAINING—BIG BUILDINGS ERECTED IN AN HOUR AND A HALF—CONSTRUCTION FEATS UNEQUALLED IN WORLD’S WAR HISTORY—HUNDREDS OF TRAINLOADS OF LUMBER AND OTHER MATERIALS QUICKLY CONSUMED BY THOUSANDS OF CARPENTERS—HOW A MISSISSIPPI SOUTHERN PINE TREE BECAME PART OF COMPLETED BUILDING AT CAMP TAYLOR LESS THAN A WEEK AFTER IT WAS CUT FROM THE FOREST—“MUSHROOM CITIES” WHICH ARISE OVER NIGHT**

**I**N September, the new national army of 500,000 to 1,000,000 men begins training at a score of camps where now thousands of workmen are raising a mighty din with hammer and saw hurriedly putting together a multitude of buildings, big and small, which shall constitute our “war cities.”

Contractors and army engineers estimate that at the present rate of progress it will be possible to have the essential portions of these cantonments ready for occupancy early in September, thus completing on schedule time the greatest building undertaking ever accomplished by a nation within a period of two months. Each cantonment will house 40,000 to 50,000 men.

The magnitude of the task now in progress may be understood when it is stated that each major cantonment, of which there are to be sixteen in addition to a number of smaller camps, the latter principally for National Guard mobilization, necessitates the construction of 1,500 or more buildings, many of them large two-story barracks quarters. Practically 50,000 carpenters and other artisans have been recruited for this

service, and normal building operations in many cities in the vicinity of camp sites have been virtually suspended for the time being, workmen being taken off half-finished structures and called into the emergency service of the Government. In spite of the many men now engaged, the constant cry is for more and more carpenters, and cantonment contractors are scouring the country to increase their crews. Many would double the force now engaged if they could find men.

Twenty buildings a day, on an average, are being completed at each cantonment, and it is hoped to increase this number to 30.

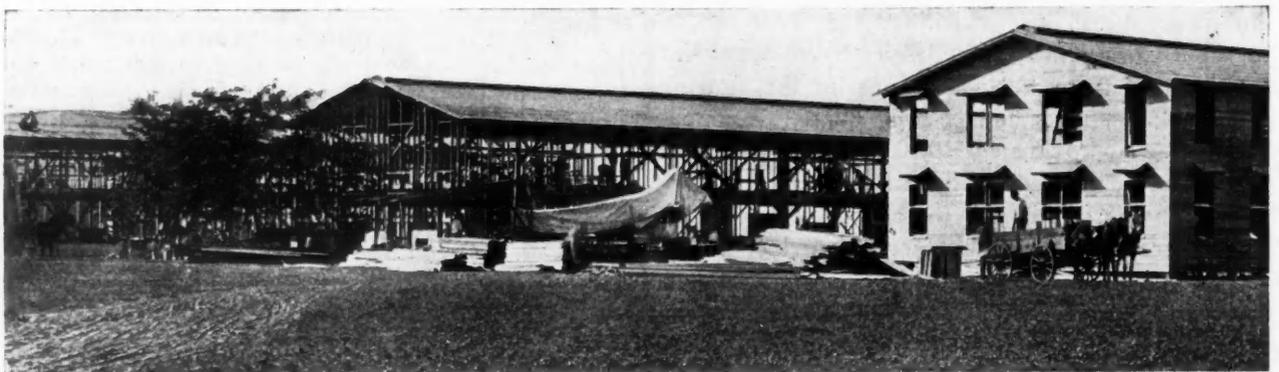
Altho Sunday work has generally been thought unnecessary heretofore, it is expected to be put into effect shortly.

At Camp Travis, Fort Sam Houston, Texas, the other day, a big barracks structure rose from the ground in exactly an hour and a half by the watch, and a similar record was made at Camp Taylor, Louisville, Ky., in an efficiency test.

At Louisville one of the administration buildings is said to have been built partly of lumber cut from a



Section No. 1 of Louisville, Ky., National Army Cantonment, Showing the Administration Buildings Which Are Now



Close Up View of First of the Buildings at Camp Taylor, Louisville, Ky. Style of Buildings and Method of Construction

Mississippi pine forest less than a week before. The trees were felled and went thru the mill Saturday, were kiln dried Sunday, loaded Monday on special cars commandeered by the Government, rushed to Louisville at almost passenger schedule time, and when the carpenters at Camp Taylor laid down their tools at the end of work the following Saturday men were moving desks and other office paraphernalia into a house which had been part of the forest six days previously.

Astonishing sights greet the visitor to one of these cantonments.

Camp Taylor, situated three miles southeast of Louisville, just beyond the suburbs of the city, is pitched in the heart of a beautiful rolling country affording one of the most ideal of all the sixteen sites.

### Handling the World's Biggest Lumber Order

Fifty to 70 carloads of Southern yellow pine are consumed daily in the building operations at the camp. The major portion of this lumber is furnished the Government under a special arrangement made with the Southern Pine Emergency Bureau, a war organization with operating headquarters in New Orleans which represents the entire yellow pine industry as distributing agency in handling Government business. Thru the Bureau's efforts the Government has been enabled to obtain in record time and at prices even below those prevailing in the domestic market much of the lumber now being used in cantonment construction at various points in the United States. The Bureau,

by means of stock sheets showing lumber on hand at various mills in many parts of the South, is able to place orders nearest points of destination, thus insuring promptest deliveries and shortest hauls, and also minimum freight charges.

For instance, in the case of the Louisville cantonment, principally Alabama, Mississippi and Florida mills were given the order. When the Little Rock, Ark., cantonment order was filled, it was placed with the Arkansas mills. Other cantonments which have so far been provided for by the Bureau include: Chillicothe, Ohio; Des Moines, San Antonio and Fort Riley, Kan. All of this lumber has been delivered in record time.

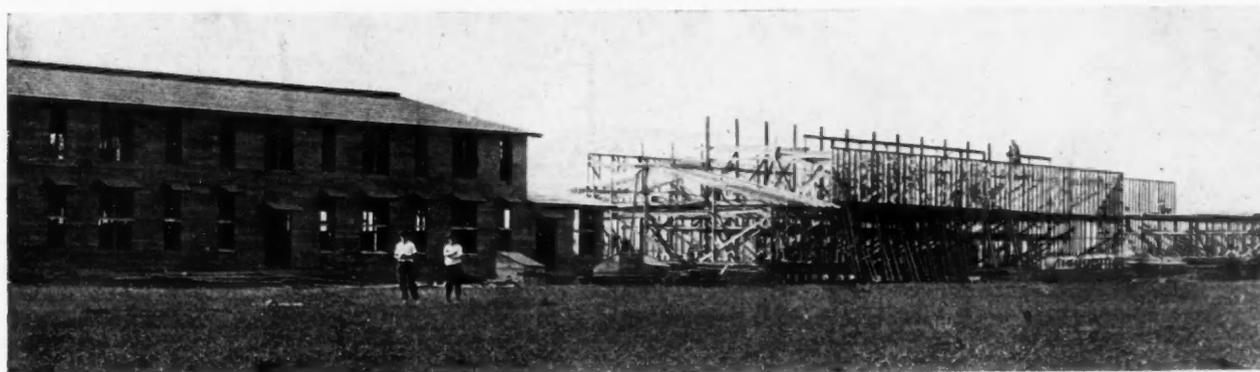
When the order for the Louisville cantonment arrived, it was late Saturday afternoon. The Bureau's force immediately brought the long-distance telephone into service, got in touch personally with the director of every available mill, worked thruout Saturday night, all day Sunday and until late Sunday night, when the last part of the order was placed. By early Monday morning, notwithstanding the Sunday holiday, some of the lumber had been loaded on cars and was being rushed to Louisville.

Normally, it would have required weeks, if not months, to place a volume of business of this size, especially when it came almost simultaneously with orders for a large part of materials for San Antonio and Fort Riley, not to mention several million feet, which was sent to Leon Springs, Texas.

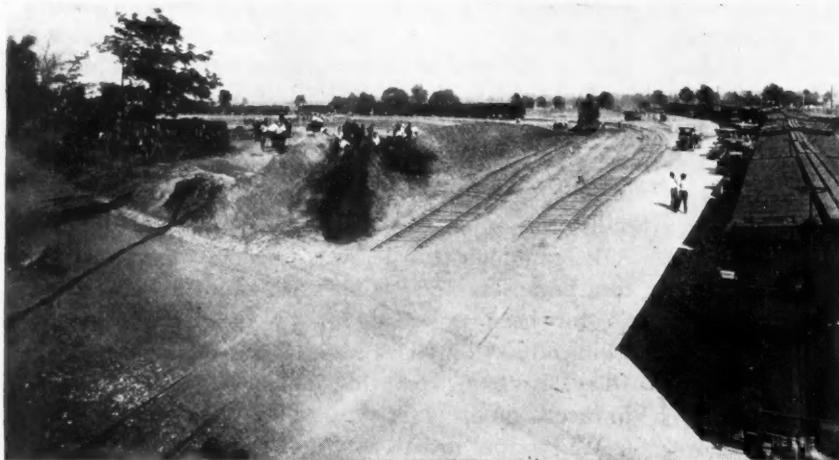
Thru this co-operative work of the mobilized re-



Being Used as Headquarters for the Building Contractors and Army Engineers Engaged in Building the Cantonment.



Are Typical of All the Sixteen Cantonments for the National Army. About 26,000,000 Feet of Lumber Required for Each Camp.



Railroad Tracks Are Run Directly Into the Cantonment so That Building Materials Are Unloaded From the Cars Right on the Building Site.

sources of the southern pine industry, it has been possible for the War Department, in spite of the tremendous demands it has made on the lumber trade in recent weeks, to be insured of an adequate supply of properly graded and standardized materials and greatly facilitate the construction of the sixteen "war cities," as well as the general barracks camps elsewhere.

Lumber received at Louisville is unloaded almost as fast as it arrives, the sidetracks being cleared of empty cars at night to make way for new trains to arrive in the morning from the South.

#### Busy Scenes at Headquarters

From the storage tracks the visitor is hurried up a dusty road filled with auto trucks and other cars, to the administration buildings near the center of the cantonment, passing enroute numbers of barracks in course of construction. Here are the headquarters offices fitted up for the use of the clerical forces employed by the contractors and for the army officers and special attaches of the War Department co-operating in the work.

A big American flag flying in front of the central structure proclaims it headquarters for an army reservation. Inside those buildings scores of men are at work at improvised desks which consist of merely rough board tables, going over plans, checking bills of lading, making out payrolls for the workmen, and

attending to the thousand and one details incident to such a gigantic undertaking. Near by a steam roller is being used on a stretch of the 12 miles of macadamized roadway which will comprise the streets of the encampment city. A number of automobiles are parked a few feet away, and men are hurriedly coming and going, the increasingly familiar khaki mingling with civilian dress.

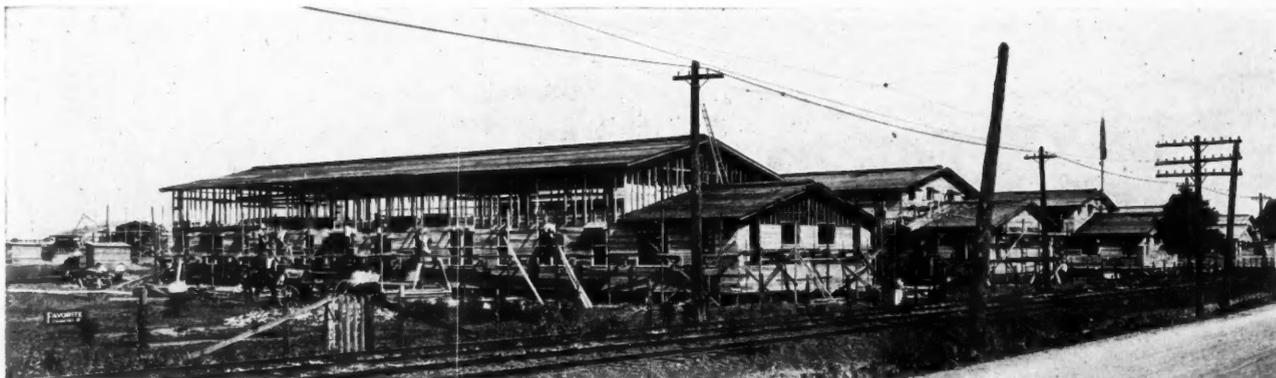
From this high point one may get a very general view of the cantonment. To the north and south, as far as the eye can see, a multitude of buildings is being erected,

until far in the distance encroaching hillsides shut off the wonderful sight. Some buildings are completed, others just started or in various stages of construction. They are pitched here and there in groups over the grounds, apparently in haphazard fashion; yet so thoroly have the plans been worked out that when it is all done the whole will present a symmetrical and expertly conceived engineering marvel. If the visitor returns to the same spot a few hours later he will find great buildings erected where he now sees only the foundation being laid.

This camp site proper occupies an area some two miles square. Near by 50 acres have been set aside as a remount station, while farther to the rear, for a distance of some five miles, is the artillery range. Here the big guns will be tried out, the wooded hillsides affording an excellent opportunity for training under conditions simulating, as near as can be done, those prevailing along the battle front of Western Europe.

Cantonments are laid out in groups of buildings, each called a "unit," the general design being prepared by Harlan P. Kelsey, who is one of the experts called on by the War Department to aid the Government in the present emergency. These units each comprise structures sufficient for the complete living quarters for

(Continued to page 98.)



This Is a Building Job Bigger Than the Panama Canal. The Sixteen Army Cantonments Require 64,000 Carloads of Building Materials. Their Cost will Be About \$40,000,000.

“When a man loses faith he fails”

THE MAN FROM THE LUMBER YARD

These are the days of big things. Some of our readers may not measure up to their opportunities; all can if they will. Study this letter. It may help you. —Editor.

IT DOES everyone good to get away from the grind. I went into our editor's office the day after the Fourth of July to learn his idea of the "burning question" that I should discuss in my August letter. He was gone on a three-weeks vacation.

I don't know where he was; don't know if he had good eats and good fishing; don't know if the babies and bedbugs kept him awake; but I do know that he will come back with a better viewpoint of life and everything in general.

Blind Hardware Dealer

Every chance I get I go away from the office and talk to people. Sometimes I find veritable asses.

I met a man in a southern Wisconsin town last week who belongs to that class. He owns an exceptionally good hardware stock. It was left to him by his father, who died several years ago. With the stock there was acquired a good salesman who kept the business moving.

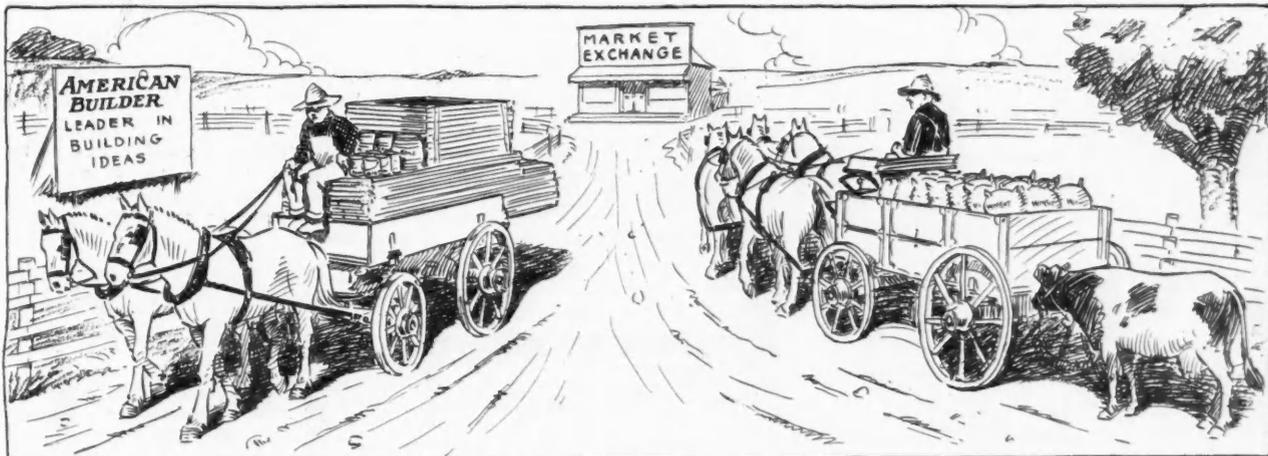
As I presented my card, I told him I didn't have anything to sell him, but was interested in learning of the building outlook. With a sickly effort to be humorous, he said: "There ain't no such animal. Any man would be a fool to build now."

There were two prosperous looking farmers in the store making small purchases at the time. Both looked and listened. I drew them into our talk and learned that the acreage under cultivation in that section promised an average return of over \$50 per acre. I also learned that counting full wage and cost of seed, \$20 would more than cover the cost of planting and tending; also that \$10 would more than cover the interest on investment of land and depreciation on equipment.

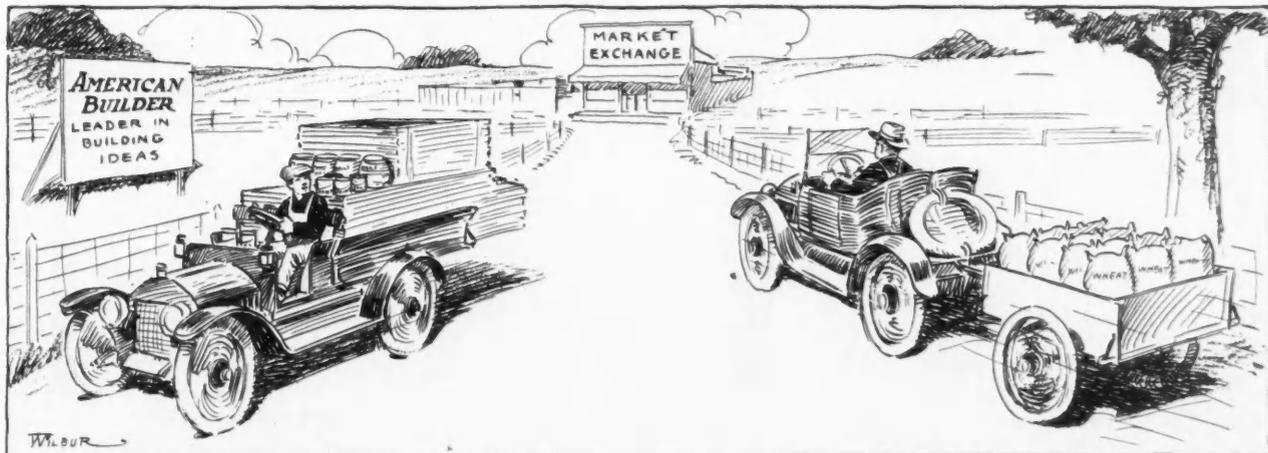
One farmer had 180 acres under cultivation and the other 135 acres.

I gradually got around to the subject of improvements that they contemplated making.

(Continued to page 126.)



In 1900 it Took a Very Large Load of Produce to Pay For a Load of Lumber.



In 1917 a Small Load of Produce Pays For the Same Quantity of Material.

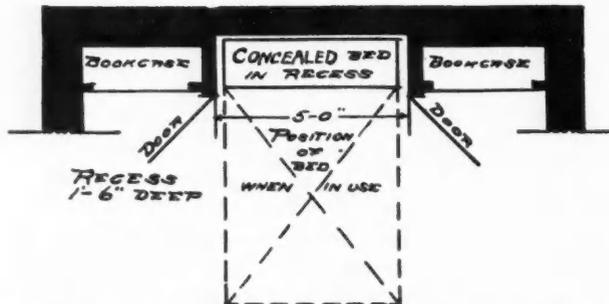
Our artist gives a picture that should convert any one disposed to pessimism on the building question.

## Equipping the Home De Lux

PROGRESS, THE DOMINATING SYMBOL OF AMERICANISM, IS EVIDENT TO A MARKED DEGREE IN THE EQUIPMENT OF THE MODERN HOME—THE PROGRESSIVE AMERICAN WANTS COMFORT AND CONVENIENCE IN HIS HOME—THE PROGRESSIVE BUILDING EQUIPMENT DEALER, CONTRACTOR AND BUILDER MUST KEEP PACE WITH HIS DESIRES

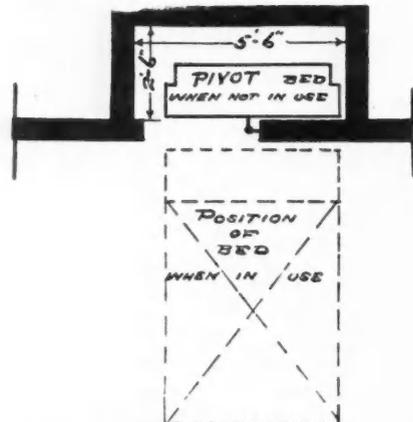
THESE was a time, not very far back, when the man who wished to rent or sell a house could avoid a great deal of descriptive discourse by simply stating, "This house has all of the modern conveniences." His meaning was reasonably clear without further explanation. Just at the present time—thank Progress for it—this statement is rapidly passing out of use. Certainly the house of today which could boast all of the modern conveniences would be a wonderful house.

There are several factors which have contributed to the development of home equipment. In the first place, the demand for the various articles of home equipment which have been placed on the market during recent



This Space-Saving Idea Consists in the Construction of a Combined Direct-Drop Bed Recess and Book Case Which Would Be Very Attractive in a Living Room Nook or in the Den. The Bed Requires Only 7½ Square Feet in Its Recess.

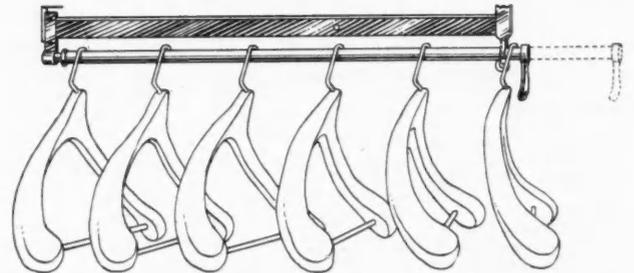
years was a powerful stimulant in causing their manufacture to be attempted. In the second place, methods of manufacture which are employed today make it possible to produce equipment and sell it at a reasonable price, which would be im-



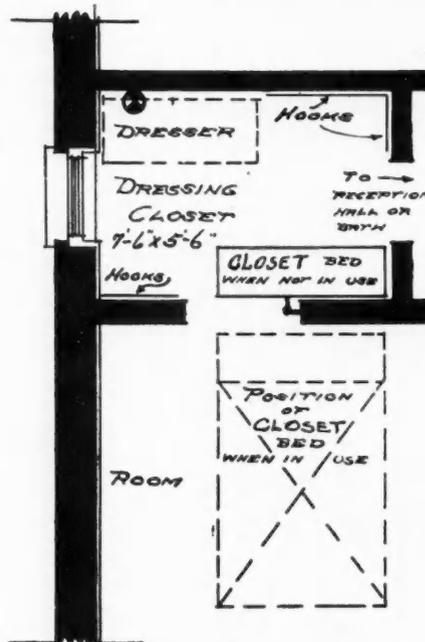
Here Are Three Suggestions for the Application of a Pivoted Bed. The One on the Left Indicates the Minimum Size Closet for Installing a Full-Sized Pivot Bed. The Center Plan Shows a Maximum-Convenience Dressing Closet Into Which the Pivot Bed Is Swung When Not in Use; There Is Room for the Dresser and Hooks May Be Placed Along the Walls. The Scheme on the Right Indicates How the Sun Parlor May Be Utilized as a Sleeping Porch by Means of a Pivot Bed.

possible under less favorable conditions. In the third place, there are able men in the home equipment industry whose experience and ability have guided this development in the successful course which it has taken.

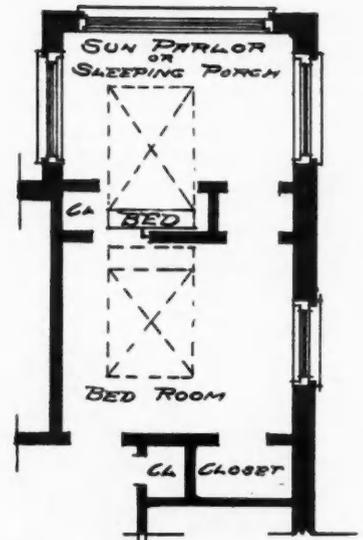
It might be well, at this time, to point out the firm foundation upon which the success of home equipment business is built. In a word, it is "service." Altho the term "home equipment" as we use it here does not take its literal meaning, it still covers a very broad field—we use the phrase to designate those articles of home equipment which require either slight or extensive installation work and those which, because of the nature of their application, must be handled at some stage of the route from raw material to every-day use

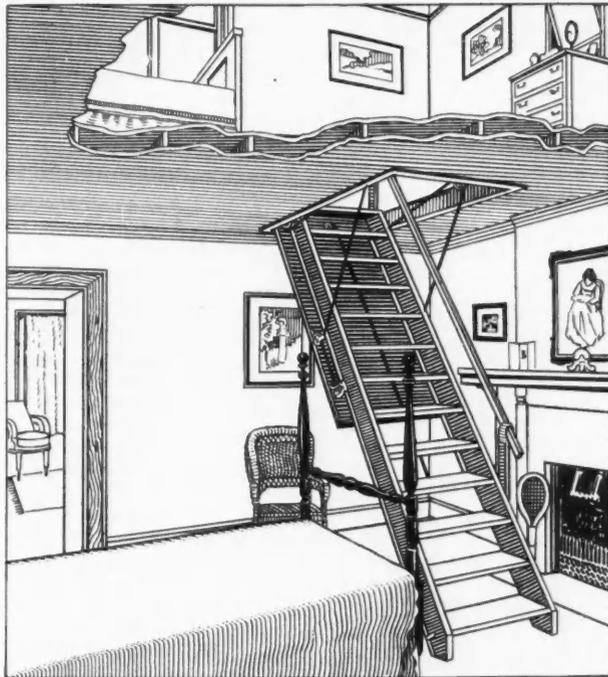


A Fixture of This Sort Gives the Closet Its Maximum Capacity Without Danger of Wrinkling the Clothes. The Telescoping Rod Slides Out so That Clothes May Be Easily Removed. The Fixture Is Applied to the Bottom of a Shelf or to the Door Frame at the Front and a Ground or Rail at the Back.



by "the man on the job"—the reader of AMERICAN BUILDER. The success of this sort of home



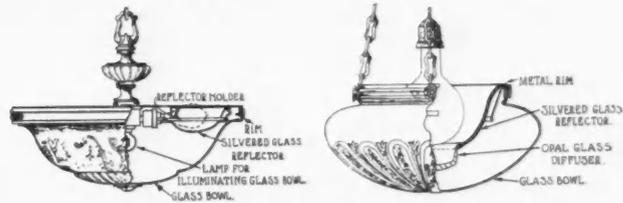


The Space Which the Stairway Would Occupy Is Very Often Serviceable to Better Advantage in Some Other Way. The Movable Stairway Is Very Easy to Operate, Is Strong and Neat in Appearance and Saves This Valuable Space. Its Use is Quite Often Absolutely Necessary.

equipment, we say, is founded on service. This means that the man who installs the equipment is a reliable man, ready to stand back of his work. This means that the manufacturer who produces the equipment is a reliable firm, ready to stand back of the man who makes the installation. This means satisfaction for



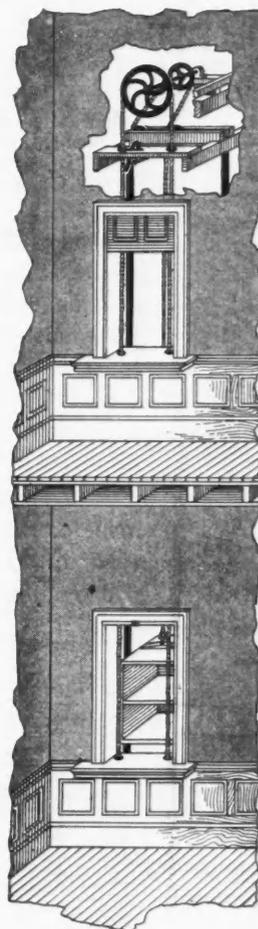
A Particularly Pleasing Wicker Luminous Fixture. The Soft Color Diffusion Thru the Bowl Is Beautiful and the Effective Indirect Lighting Feature Is Also Obtained.



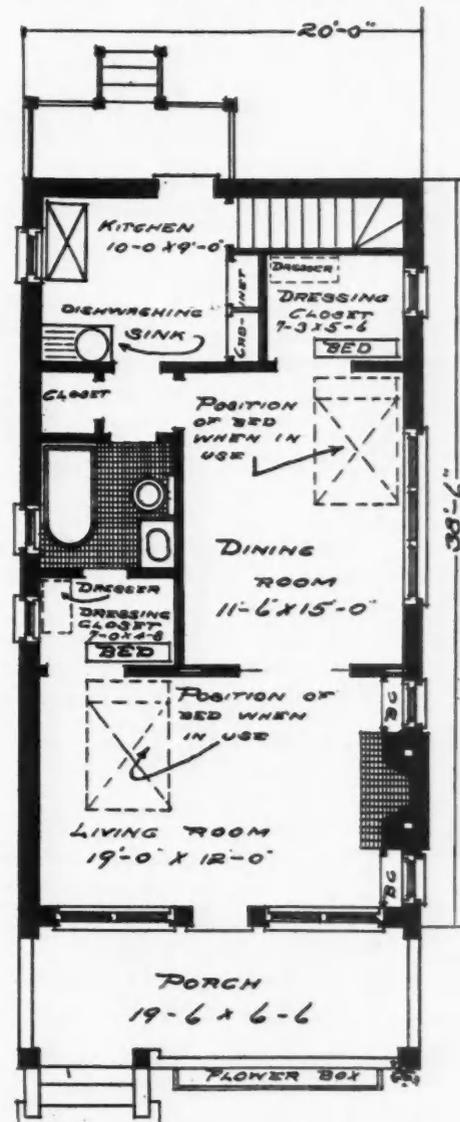
These Views Show Two Methods of Applying the Illuminated Bowl Indirect Lighting Principle. The Fixture on the Left Has a Small Lamp Which Illuminates the Bowl, While the Principal Lights Are Placed Horizontally Above It. The Illumination in the Other Fixture Is Furnished Entirely by One Light, a Diffuser Being Used to Illuminate the Bowl.

the home owner and every possible assistance rendered the installation man or firm.

It is a notable fact that practically every manufacturer who is interested in the production of home equipment which must be installed by a contractor,



The Hand-Operated Dumb Waiter Is a Necessity in the Larger Home and Apartment House and It Is a Great Convenience in Almost Any House, Especially When More Than One Person Assists with the Housekeeping.

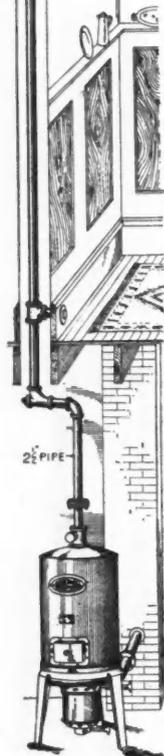


Plan of a Model Bungalow in Which the Dining Room and the Living Room Are Also Used as Bed Rooms by Means of Pivot Beds. Two Dressing Closets Are Included in Which the Beds Are Swung When Not in Use. Every Convenience of a Five-Room House Is Obtained.

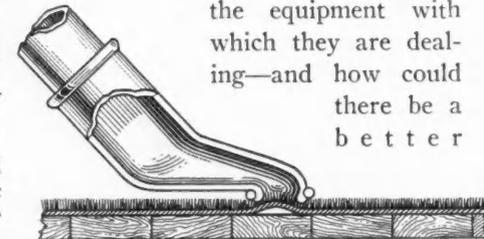


builder or building equipment dealer has a carefully managed engineering department devoting its entire time to the solution of installation problems in behalf of their installation agents. Incidentally, it is

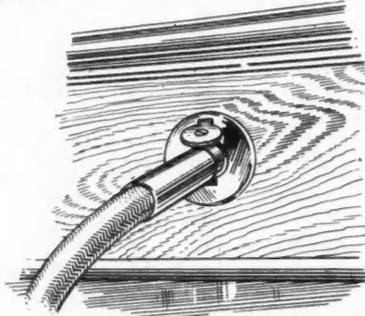
reasonable to suppose that the trained men who are employed in this work are at all times on the alert for possible improvements which may be made in the equipment with which they are dealing—and how could there be a better



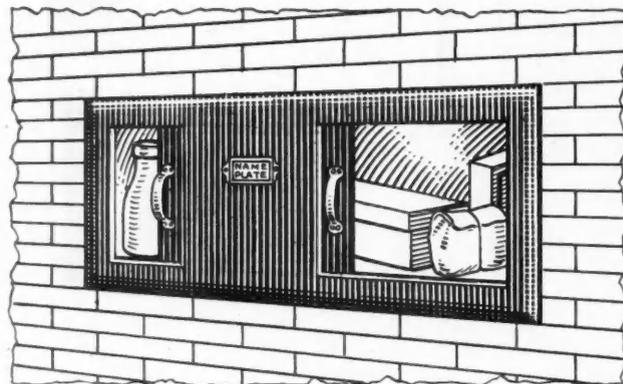
A Modern Vacuum Cleaning System Installed in a Residence. The Cleaner Is Electrically Operated and May Be Started from the Upper Floors.



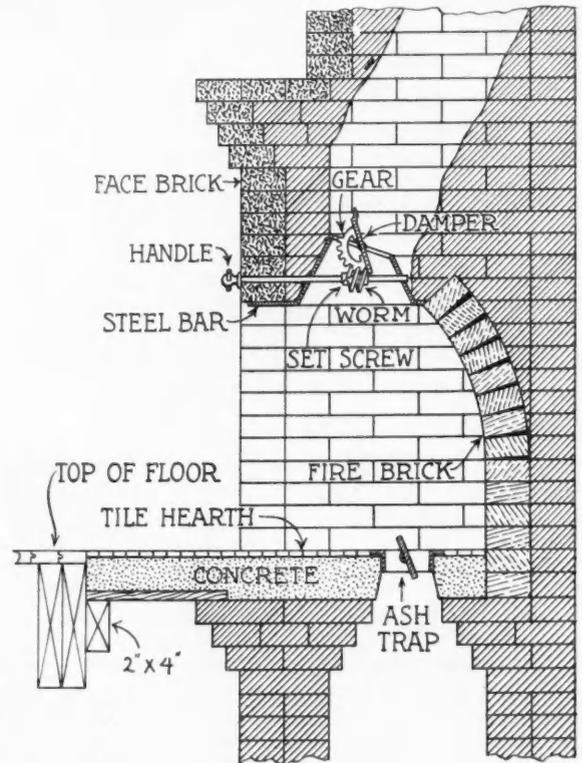
This Vacuum Cleaner Tool Is Designed Especially to Clean Rugs and Carpets Without Damaging Them. The Throat Opening Is Large, Reducing Pressure on the Rug. A Bumper Chord Protects Furniture and Woodwork.



A Considerable Loss of Efficiency Is Encountered When One of the Inlets of the Vacuum Cleaning System Is Left Open. To Avoid This Loss, Inlets of the Type Shown Here Are Used. They Close Automatically When the Plug Is Withdrawn.



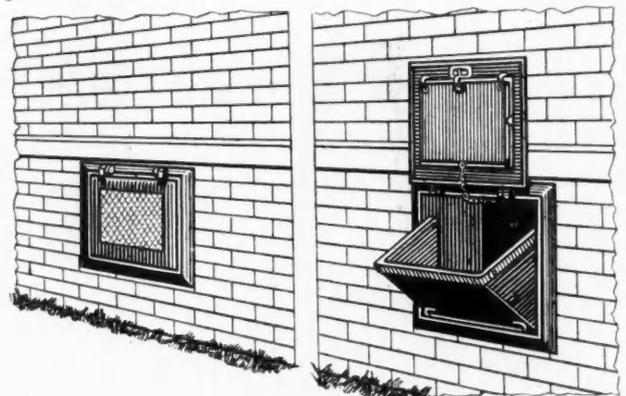
This Automatic Wall Receptacle Is Automatic in That When an Article Rests on the Bottom of the Cabinet the Outer Door Cannot Be Opened. Simply Removing the Article Thru the Inner Door Unlocks the Outer Door.



Section of a Brick Fireplace with Tile Hearth Placed on Concrete, Showing a Modern Worm and Gear Damper. The Damper Is Opened or Closed by Turning the Handle. No Soot Gets on the Hands or Clothing.

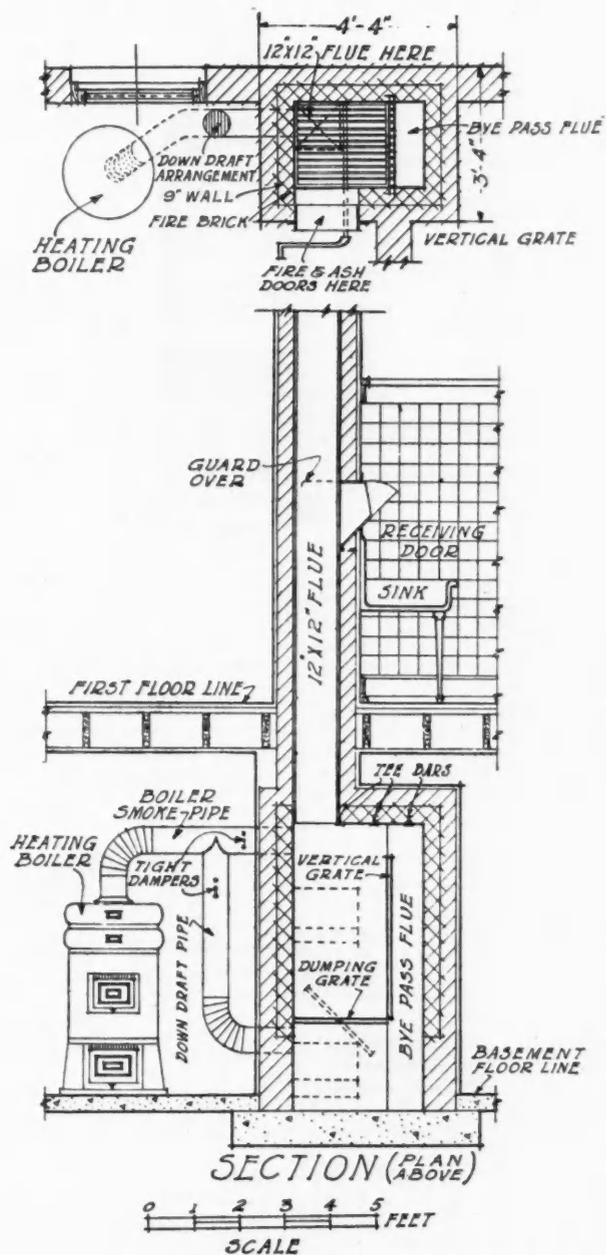
method of developing a product. Manufacturers maintaining these departments urge their agents to take advantage of the service. By doing so, two things are accomplished: The agent is enabled to make the most satisfactory installation possible and the engineering department is able to study the adaptability of their equipment and quickly discover and remedy any deficiencies which might exist.

A necessary and interesting branch of home equipment work is that of developing methods of saving space in the home. With the increasing cost of land and building, equipment which will successfully make



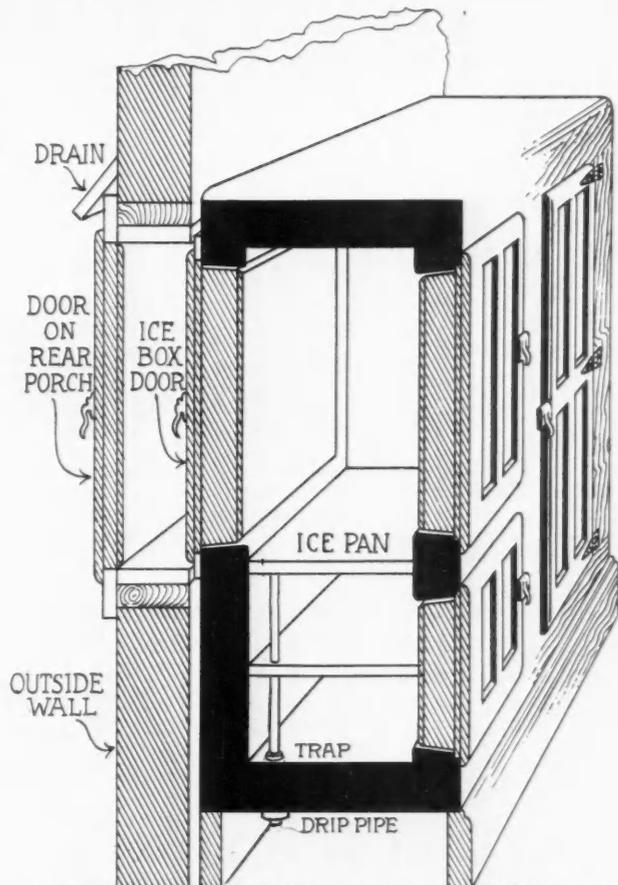
No Home Owner Cares to Have a Battered Basement Window Marring the Appearance of His House. He Must Install a Coal Chute to Avoid This Possibility. The Door to This Chute Locks Automatically When It Is Closed and It May Be Unlocked By Pulling a Chain or Cord Extended to Any Desired Part of the House.

one square foot serve for two, finds a ready reception among home owners. With this idea in mind the disappearing bed has been developed. By its use the space which ordinarily is unused in the bedroom during the day is saved. Because the bed is concealed during the daytime does not infer that it must be a small sized or flimsily constructed bed. As a matter



**SUGGESTIONS FOR MODEL "A" (1 FAMILY)**  
 THE HEATING BOILER IS NO PART OF THE INSTALLATION, BUT WHERE POSSIBLE, SMOKE PIPE IS DOWN DRAFTED UNDER GRATES WHERE SHOWN.

This Drawing Shows the Method of Installing a Garbage Incinerator in the Chimney of a One-Family House. The Chimney Above the Incinerating Chamber is the Same as It Would be For the Heater, Except That the Receiving Door Is Placed in It at the Kitchen. The Special Incinerator Grates Consist of One Stationary Vertical Grate and One Horizontal Dumping Grate. The Incinerating Chamber Is Lined with Fire Brick. The Refuse Burns Because of Its Own Combustibility and Is Ignited From Above When the Chamber Is About Two-Thirds Full. The Ash Remaining Is Odorless and Harmless.

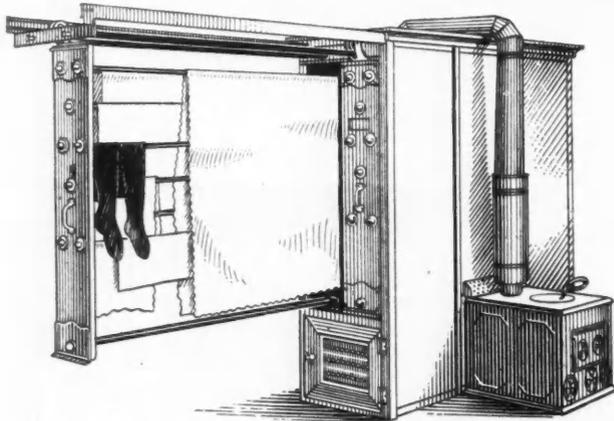


Cleanliness Demands That the Iceman Stay Out of the Kitchen on Muddy Days, so the Refrigerator Is Designed to Make It Unnecessary for Him to Come in at Any Time. The Outside Icing Refrigerator Has Come Into Great and Well-Deserved Popularity and It May Be Recommended with Confidence to Any Prospective Home Builder.

of fact, the disappearing beds on the market today are very carefully constructed and are substantial and serviceable. During the day the bed is concealed in a wall recess, in a closet or in a ceiling receptacle. One well-known type of disappearing bed is pivoted to the jamb and threshold of a standard closet door by means of a simple mechanism which permits it to swing thru the doorway and be easily lowered for use. Another type is constructed in such a manner that when it is folded up it may be very easily moved about on the four casters which are fitted in the supporting frame. The bed which is concealed in the ceiling receptacle is raised into place by four cables which are wound on a drum, which, with its operating mechanism, is placed at some convenient place in the wall of the room.

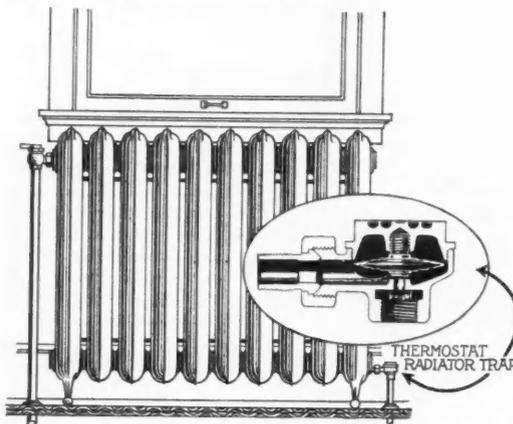


The Ordinary Above-Ground Garbage Can Is an Unlovely and Unsanitary Article. When a Garbage Can Is Necessary, It Seems That the Extra Expense of Using One of the Above Illustrated Type Is Wholly Justified.



One of the Modern Conveniences of the Laundry Is a Clothes Dryer of the Type Shown Here. Drying the Clothes Is, by Its Use, Independent of the Weather. The Heater Burns Wood or Coal. The Racks Are Built to Hold a Maximum Quantity of Clothes.

Another effective saver of space is the movable stair, which is framed into the upper floor above a hall, bedroom or at any convenient place.



This Is a Radiator with Its Inlet Valve and Trap as Used with the Vapor System of Heating. The Vapor Comes Thru the Pipe on the Left and Into the Radiator, Passing Thru the Inlet Valve at the Top of the Pipe. The Vapor Drives the Air Ahead of It as It Passes Thru the Radiator Until It Reaches the Trap at the Top of the Pipe on the Right. The Inset Shows the Trap in Detail. Vapor Surrounding the Diaphragm Causes It to Expand, Closing the System. This Thermostatic Action Delivers Heat Only as It Is Needed, Resulting in Economy.

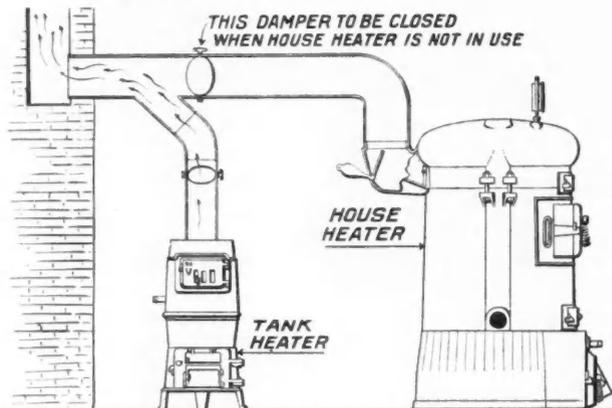
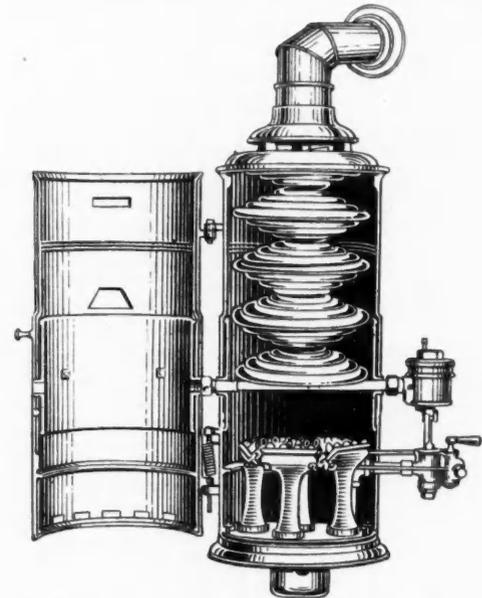


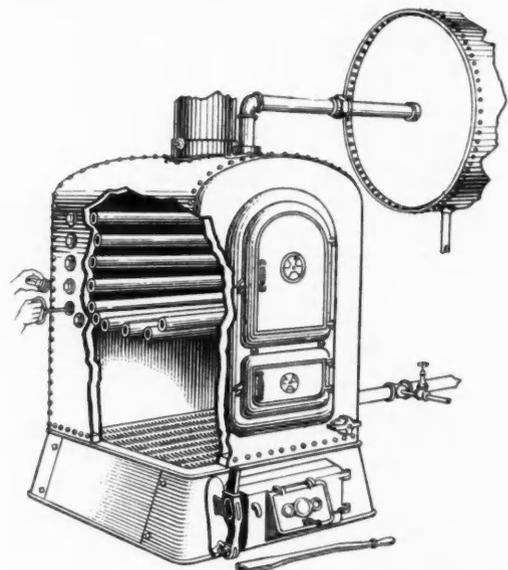
Chart Showing Correct Flue Connection for Laundry Stoves and Tank Heaters.

The saving of space has even been carried so far as to provide fittings for a maximum storage of clothes in small closets.

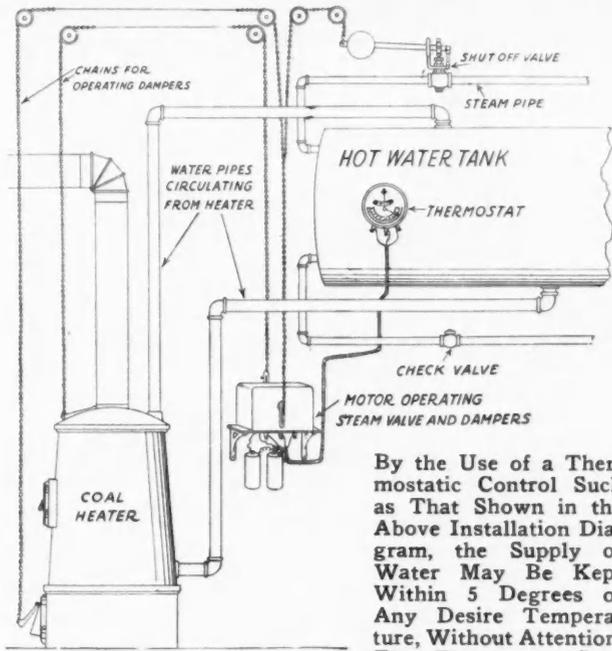
Some notable work has been done in the field of home lighting. Not only have successful results been



The Automatic Gas Water Heater Gives a Supply of Hot Water at Any Time It Is Desired and Yet the Heater Does Not Consume Gas Continuously, Except for the Very Small Amount Consumed by the Pilot Light. When the Water Is Turned on at the Faucet, the Gas Is Automatically Turned on at the Heater, the Pilot Light Ignites the Gas and the Water Is Heated as It Passes Thru the Copper Tubes Above the Burners.

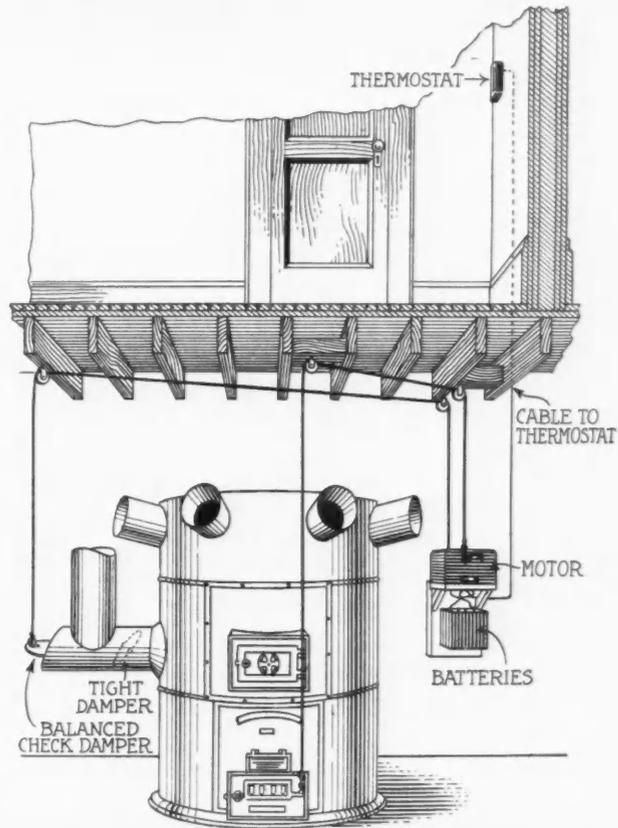


A Garbage Burning Water Heater Serves a Dual Purpose in That It Disposes of Household Waste in a Most Satisfactory Manner and at the Same Time Provides an Economical Method of Heating the Water for the Laundry, Bath and Kitchen. The Refuse Is Supported by Water Tubes and the Coal Fire Is Below These Tubes; the Water Is Spread Out in a Thin Sheet in the Double Casing of the Heater, so That Little Heat Is Wasted.



By the Use of a Thermostatic Control Such as That Shown in the Above Installation Diagram, the Supply of Water May Be Kept Within 5 Degrees of Any Desire Temperature, Without Attention. The Thermostat Controls the Motor Which

Operates the Heater Dampers and Steam Valve.



A Heat Regulating System Is Not Only a Great Convenience, But It Is Also an Investment in Economy. The Above Illustrated System Consists in a Controlling Thermostat Placed at a Point of Representative Temperature in the Rooms Above, Connected with a Magnetically Controlled Spring Motor, in the Basement, by Three Wires. The Motor Is Set in Operation Whenever the Temperature at the Thermostat Becomes Slightly Above or Below the Set Temperature. The Motor Cranks Turn One-Half Revolution in Either Case, Actuating the Heater Dampers.

used to prevent accidental loss due to carelessness in allowing the inlets to remain open when not in use.

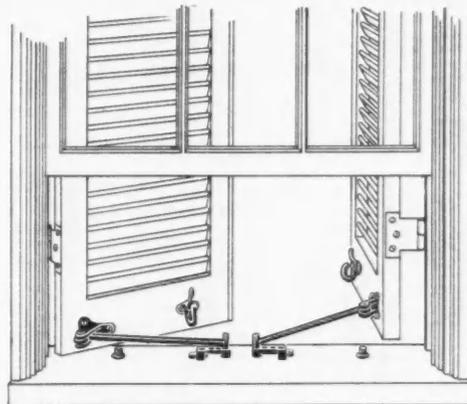
obtained in the production of beautiful lighting fixtures, but the subject has been taken up from the standpoint of efficient and effective light distribution—making every bit of electrical energy consumed yield its full share of useful light.

For the reduction of labor in maintaining cleanliness in the home, the vacuum method of cleaning has been developed. Permanently installed vacuum cleaners are electrically driven, the cleaner being in the basement. The system may be put in operation at any time by pressing a switch in one of the rooms above. Special cleaning tools have been devised which clean without injury to the rugs or carpets. Safety inlets are

## Hardware for the Popular Casement Window

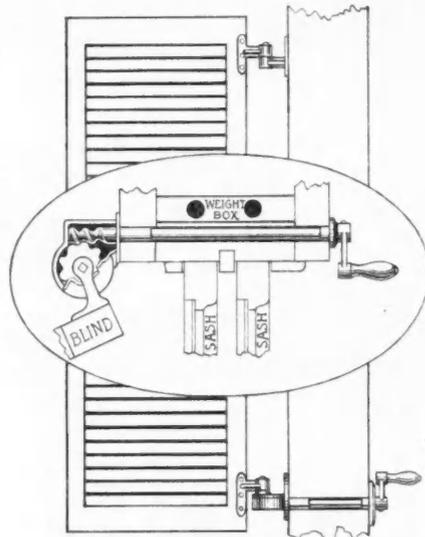
THE popularity of the casement window has been marked during recent years. There is much to recommend its use and there are certain parts of the modern house where the casement window seems to be the only type of window which fills the need. Fundamentally, it is an attractive type of window judged by its appearance, there being a certain graceful effect which is evident, especially when the window is swung partially open. Backing up this quality, the casement windows may be used to provide very large lighted areas without, in any way, cheapening the appearance of the wall in which they are set. Of course, there are advantages other than those of appearance. The casement window furnishes perfect ventilation, is easily adjusted and is simple and, therefore, easy to install correctly.

The successful use of the casement window depends largely upon the hardware which is used in connection



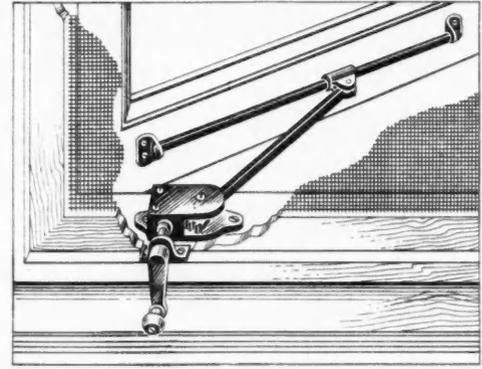
This Shutter Fastener Holds the Shutter Firmly in Position and Makes It Unnecessary to Lean Out of the Window to Close the Shutters.

with it. Perhaps the first requirement which is felt is that the window be equipped with some sort of an



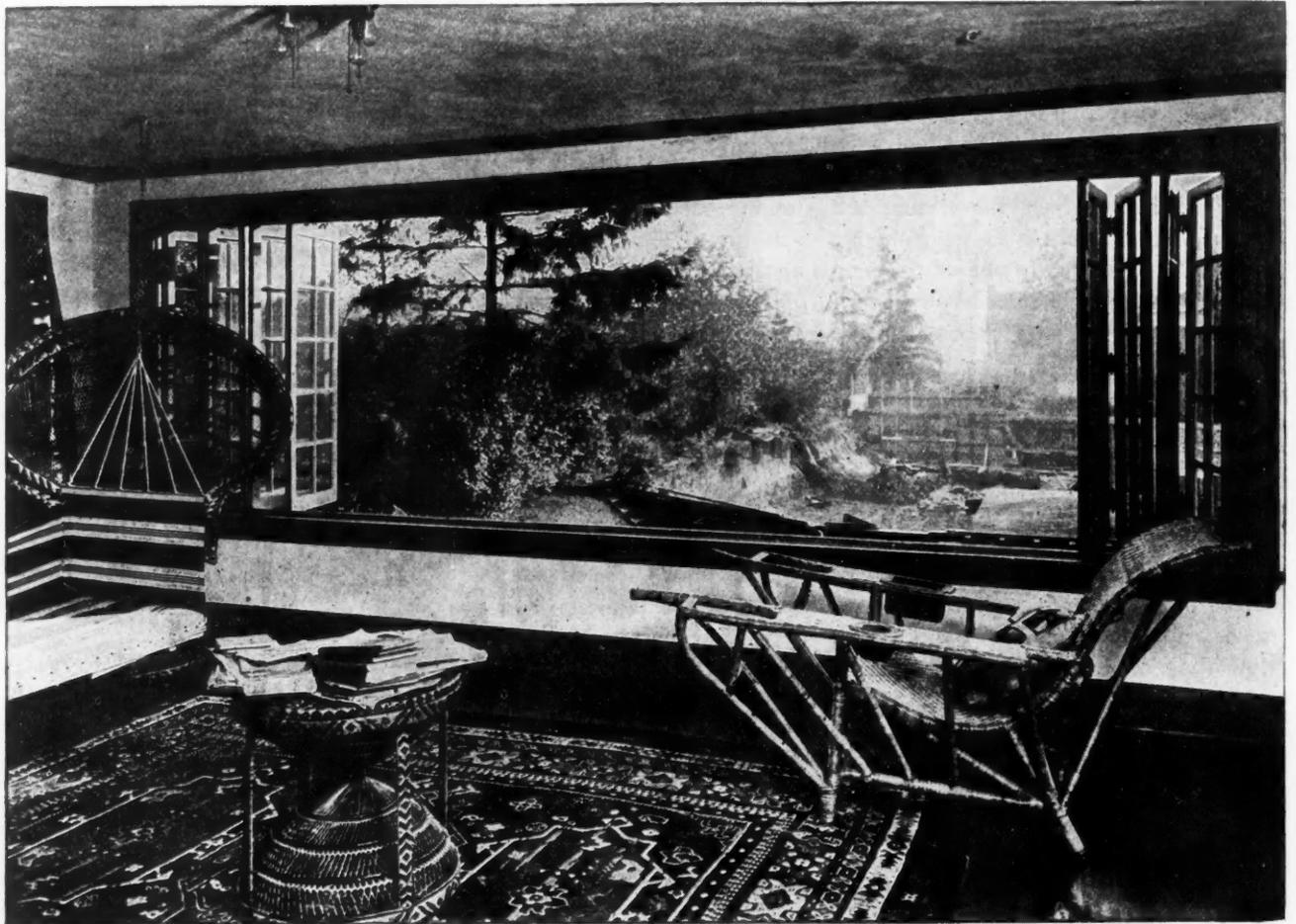
When This Spiral and Gear Operated Shutter Adjuster Is Used It Is Not Necessary to Even Open the Window to Make the Adjustment of Shutters.

adjuster which will hold it securely, without rattling or possibility of slamming open or shut, in any position at which it might be set. There are a number of adjusters on the market which accomplish this thing successfully. Since casement windows are made



The Outward Opening Casement Window Must Have the Screen Placed on the Inside of the Frame. An Adjuster Which May Be Operated from the Inside of the Screen Is Almost a Necessity.

to open both out and in, adjusters must be designed which will operate each of these. The most common type of adjuster consists of some arrangement whereby a rod or arm is extended between the sash and the casing or sill, hinged at one end and held by friction in an adjustable position at the other. There are several special types, differing principally in the manner of their operation. Shutters, used extensively on houses of the Colonial type, also require adjusters.



The Bright, Cheerful Atmosphere of This Sun Porch Owes Much to the Wide Opening Across the Front. Such an Opening Is Made Possible by the Use of Special Folding Casement Window Hardware. This Sun Porch Is in the Residence of Henry Dickinson of Seattle, Washington; J. S. Cote, Architect.

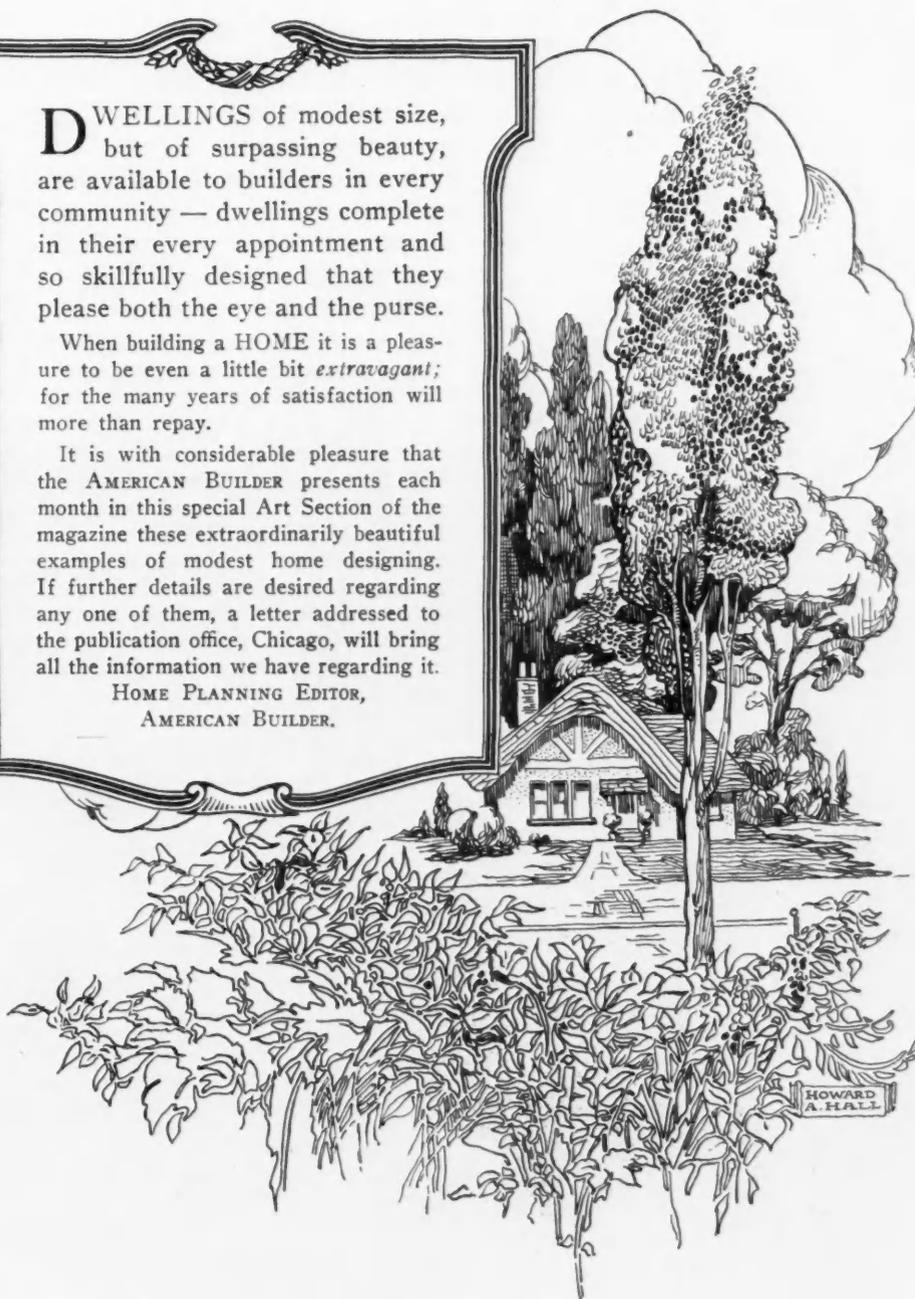
# A PORTFOLIO *of* BEAUTIFUL HOMES

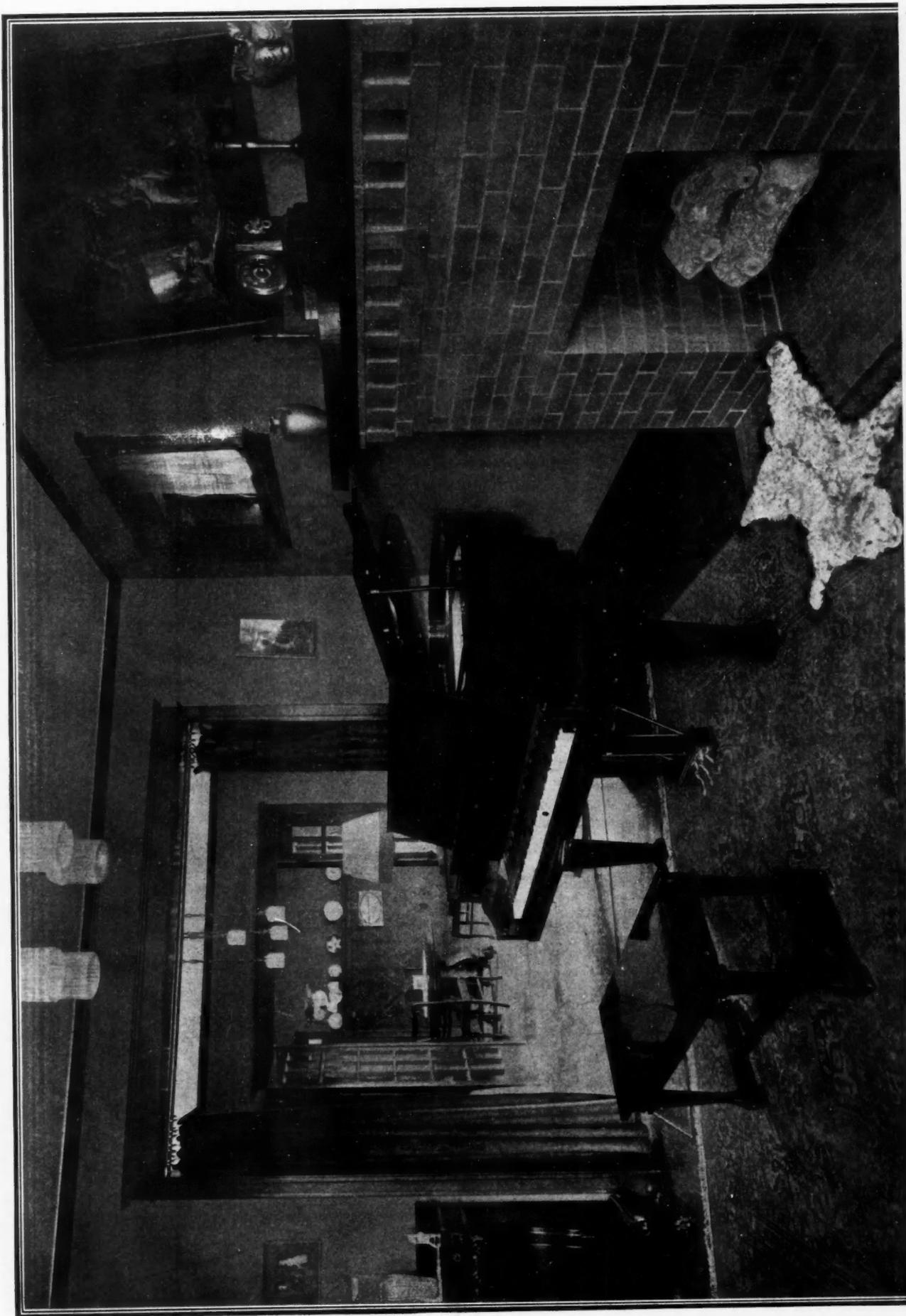
**D**WELLINGS of modest size, but of surpassing beauty, are available to builders in every community — dwellings complete in their every appointment and so skillfully designed that they please both the eye and the purse.

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

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

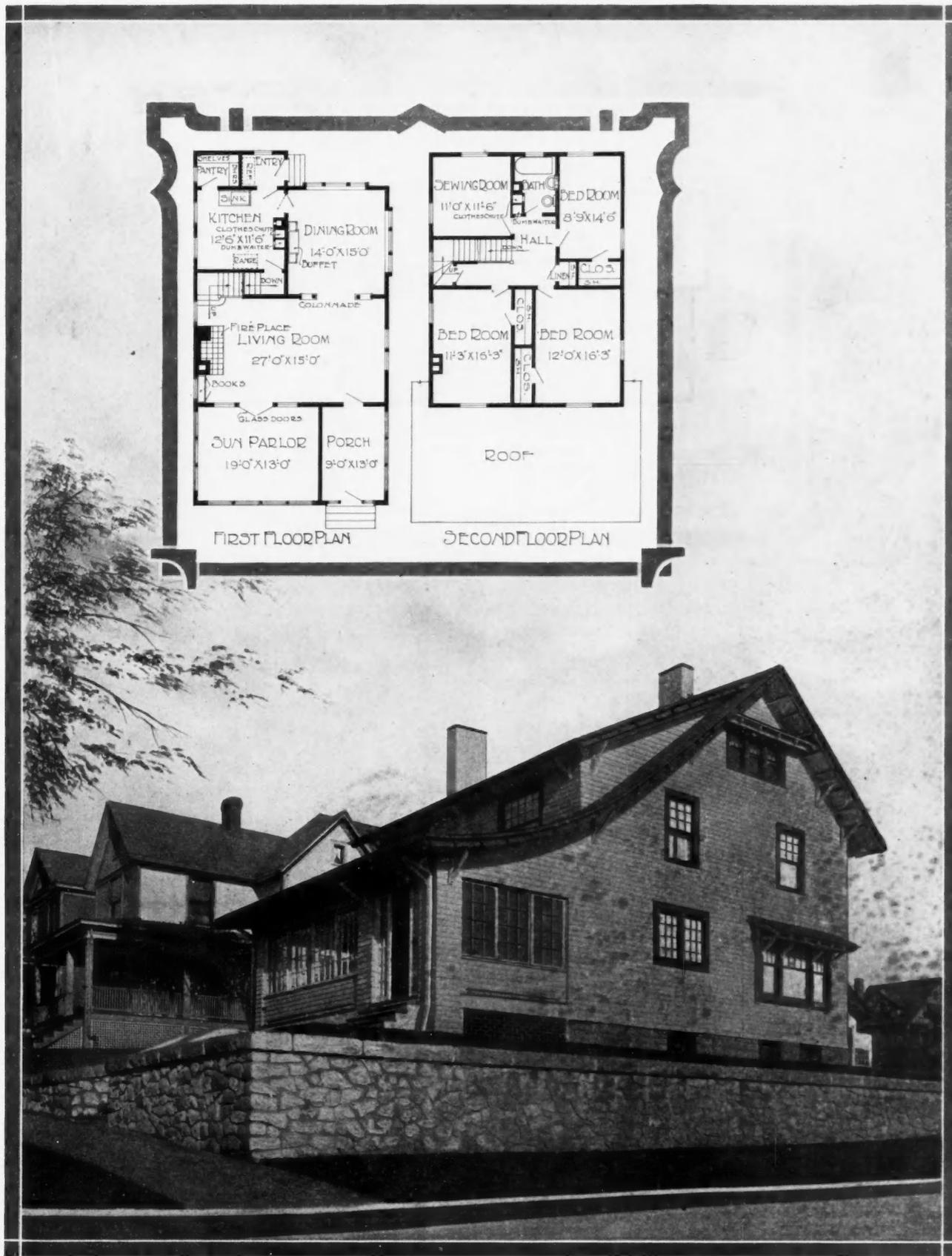
HOME PLANNING EDITOR,  
AMERICAN BUILDER.



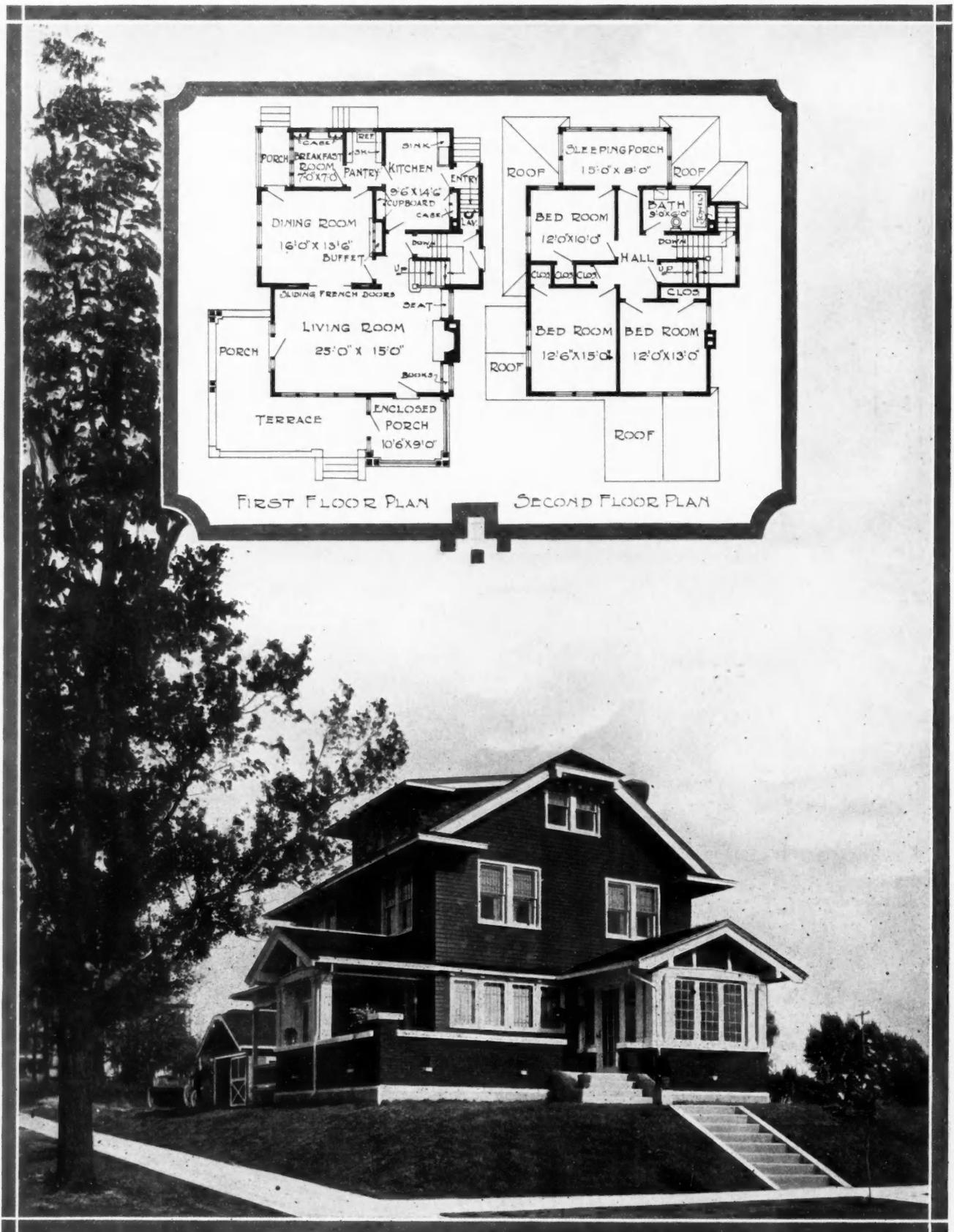


The Modern Home Even of Moderate Size, Because of Its Open Arrangement, Can Present a Vista of Considerable Impressiveness. Here is a View Across the Front of a House From Living Room Thru Reception Hall to Dining Room.

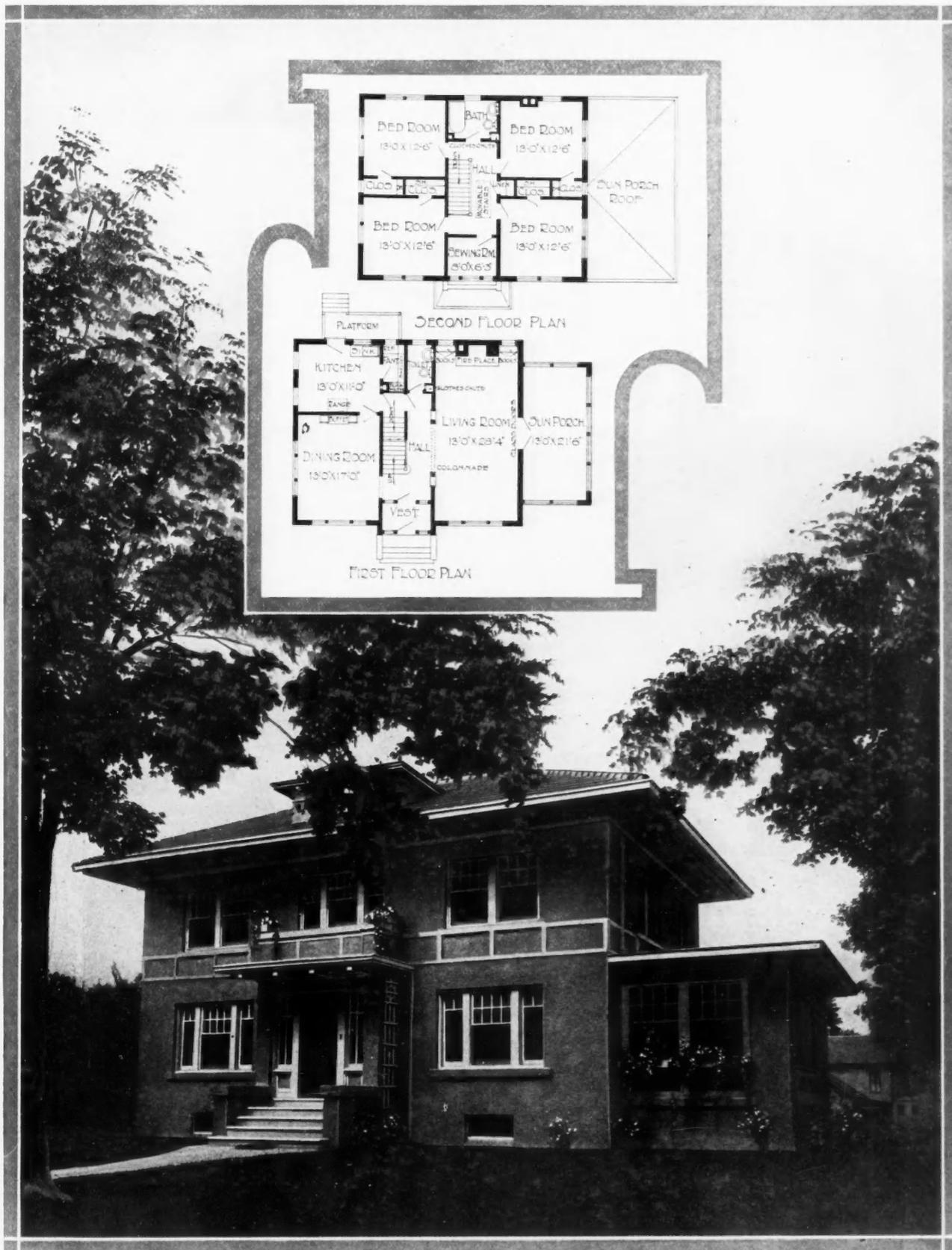
The Modern Home Even of Moderate Size, Because of Its Open Arrangement, Can Present a Vista of Considerable Impressive-ness. Here is a View Across the Front of a House From Living Room Thru Reception Hall to Dining Room.



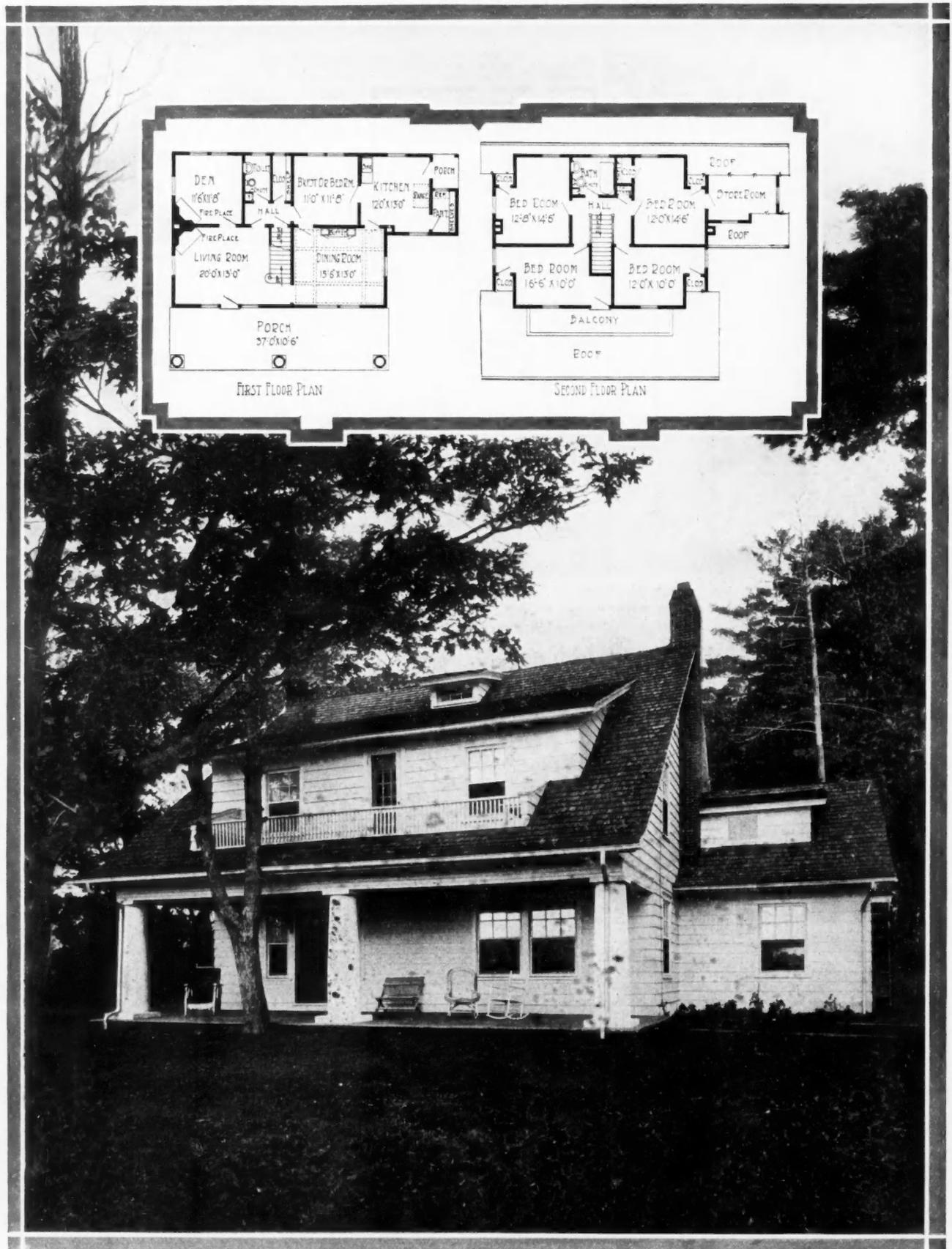
**FRAME HOUSE WITH UNUSUAL TREATMENT OF ROOF DETAILS.** This residence was built at East Liverpool, Ohio, at a cost of \$6,600, following the design of Cassius M. Metsch, Architect. The long curve of the forward roof surface drops down below the pitch angle of the rear roof surface, which requires the large dormer roof to produce a perfect balance; the dormer, thus constructed, finishes out the second floor rooms in full height. The house is 28 feet by 45 feet and contains eight large rooms, especially well arranged.



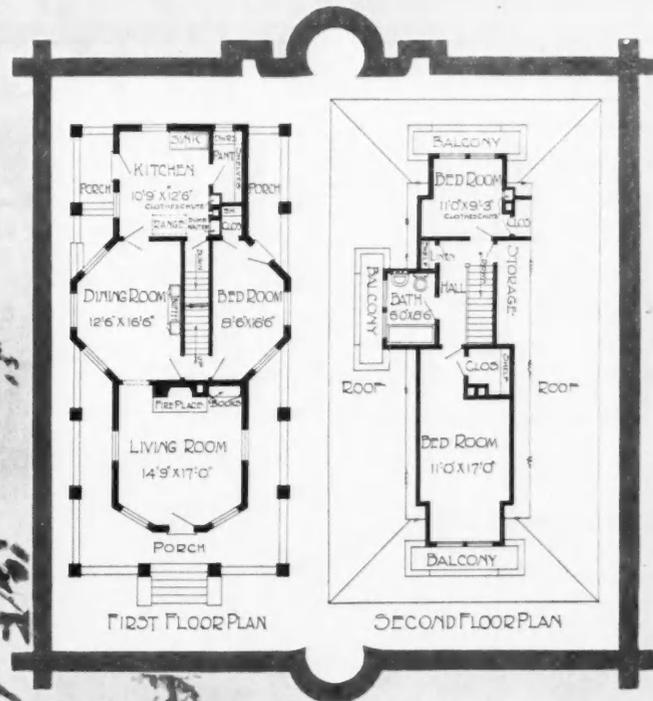
**WELL ARRANGED HOUSE WITH BRICK AND CONCRETE TERRACE.** The residence shown above is built at Middletown, Ohio. The design is by C. E. Oeden, Architect. An attractive feature of the exterior is the treatment of the porch, terrace and sun parlor. Face brick with white copings are used in the porch and terrace walls and the floor is of concrete. Notice the large living room and the dining room, kitchen, pantry and breakfast room arrangement on the first floor. A large sleeping porch is provided on the second floor.



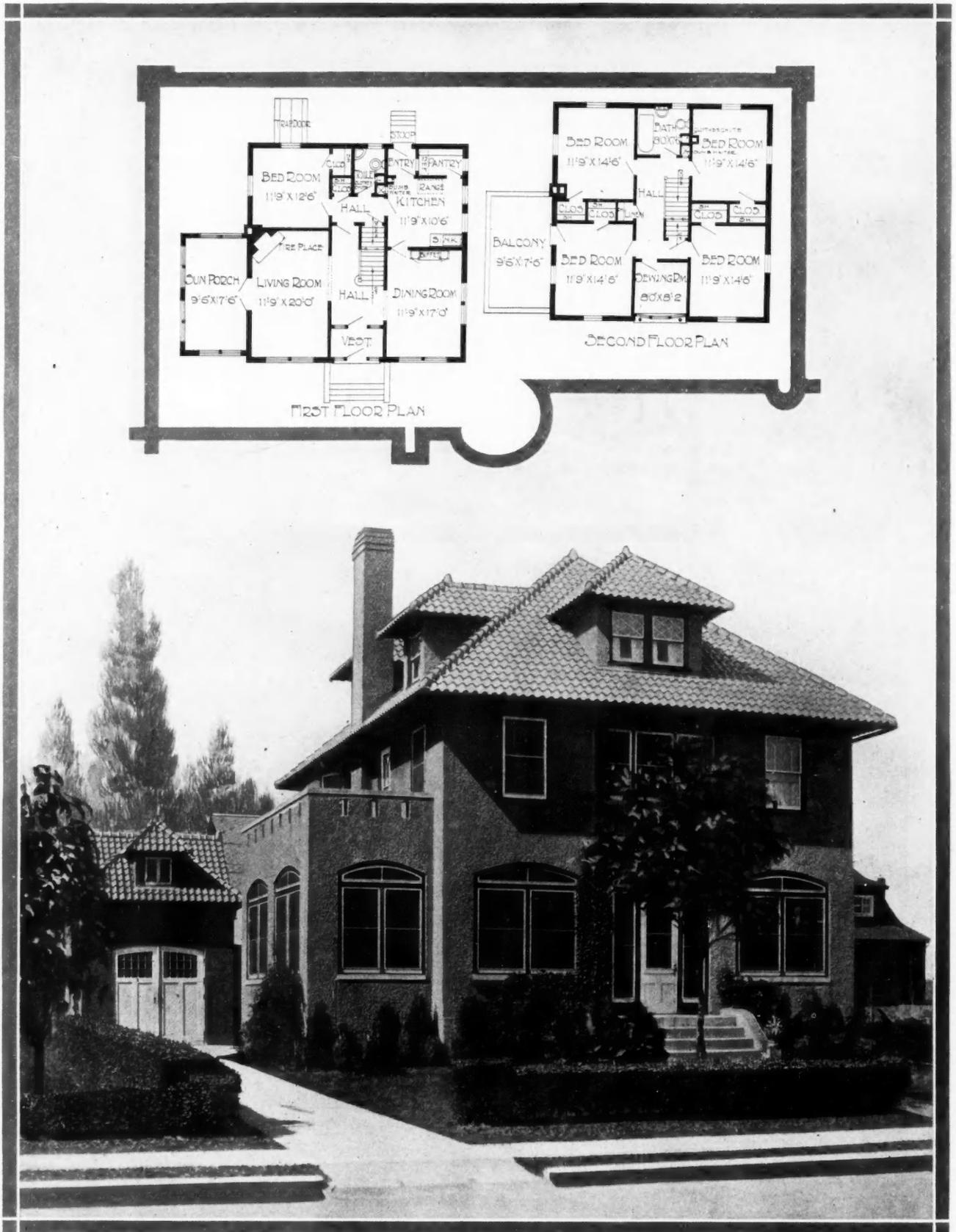
**SQUARE STUCCO HOUSE WITH TILE ROOF.** The design of this house is an example of the excellence of the square-type house especially in regard to the convenient arrangement of rooms. The exterior is very neat in appearance and is well "set off" by the wide box cornice hip roof of tile. In the interior, the living room and adjoining sun porch form the center of attraction. Every requirement of careful design is met in the second floor arrangement. The house is 36 feet 6 inches by 30 feet.



**FRAME HOUSE OF COLONIAL PATTERN.** The homelike atmosphere of the Colonial house is found in this design altho the building cannot be called an example of pure Colonial architecture. The large turned columns supporting the roof above the porch give an air of dignity to the structure. The wide clapboard siding, the large dormer and balcony details are effective in the exterior finish. While there are many interesting features in the house arrangement, particular attention is called to the scheme which provides a fireplace in the living room and den, served by one double-flue chimney. This house is 49 feet by 26 feet, not including the front porch.



**STUCCO COTTAGE WITH CLEVER PORCH ARRANGEMENT.** This well-built cottage, which was designed and built at Manhattan Beach, Long Island, by Franklyn McGrath, is quite different from the ordinary in plan. The rectangular outline of the building is unbroken, yet the plan outline of the rooms is an 8-sided figure. Reference to the inset first floor plan above will show this feature. The high-grade, substantial construction of the building is indicated in the perspective view. The plan calls for a building 26 feet 6 inches by 53 feet 6 inches.



**R**ESIDENCE OF SQUARE TYPE FINISHED IN STUCCO. The tile-roof stucco house shown herewith was built from plans prepared by The Manhattan Beach Cottage Company, Architects. It follows the simple lines of the square type house and thereby provides for facility in room arrangement which is a characteristic of this type of house, but there is enough that is striking in the exterior details so that the appearance is far from the common. The windows, roof surface and dormers aid the general scheme. Notice the garage in corresponding design. A large central hall on each floor forms the basis of the room arrangement. The house is 34 feet by 34 feet.



## Mixing Paint Materials

SAFE RULES FOR WORK—FORMULAE THAT HAVE PROVED SUCCESSFUL.

By **Ralph G. Waring**

Specification Engineer

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

**W**ITH an annual consumption of *ready mixed* paints of 75,000,000 gallons in a year in the United States, it will be readily understood how important has become this particular part of the paint business. For various reasons, however, not over 25,000,000 gallons have fulfilled the functions of genuinely honest paint. Adulteration—impure oils, leads, zincs, reducers—substitute materials for those more expensive and infinitely better; lack of understanding of the principles underlying their use and application of paint; lack or abuse of the proper formulae for mixing—all these factors have contributed toward making a large proportion of mixed paints undesirable for satisfactory work. A few manufacturers with an understanding of the needs of the painting business are succeeding in putting out ready mixed products capable of fulfilling every requirement of a good paint.

In order that the contractor and master painter may run less chance of trouble, however, I am still advocating that the materials be brought to, and mixed on, the job. In this way a check can be kept on material as delivered, with less chance of substitutes, which might prove different from samples submitted for testing, being sent to the job.

Since white lead is our most important pigment it should be of the very best grade and manufacture. All lead should be mixed in a batch-tub and let stand two days before using. This without grinding the lead in anything but raw linseed oil. In breaking up the lead, knock in the top of the keg, pour in a quart of raw oil and with a big, strong paddle use two hands and plenty of "elbow grease" to work the lead smooth. After the first quart of oil is used up, work in a second and so on until the entire batch is smooth and creamy. For the big batch-tub a large galvanized wash tub is the best and handiest. Pour in the lead paste and the remaining raw oil. Let stand 48 hours.

The zinc white or zinc oxide should be broken up

in exactly the same way. The following formula is well suited to general conditions as a priming coat:

### OLD WORK

100 pounds pure white lead.  
25 pounds pure zinc oxide.  
5 pounds barytes or asbestine.  
4 to 5 gallons pure raw linseed oil.  
1 gallon pure turps.  
1 pint japan drier.

Add  $1\frac{1}{2}$  cups benzol ( $160^{\circ}$ ) to each gallon of paint in the pail just before using.

Makes about 8 gallons of paint.

100 pounds of lead bulks  $2\frac{3}{4}$  gallons.

### NEW WORK

100 pounds pure white lead.  
25 pounds pure zinc oxide.  
10 pounds barytes or asbestine.  
6 to 7 gallons raw linseed oil.  
 $1\frac{1}{2}$  gallons pure turps.  
 $1\frac{1}{2}$  pints japan drier.

Add one cup of benzol ( $160^{\circ}$ ) to each gallon of paint in the pail just before using.

Makes 10 to 12 gallons of paint.

### FINISH COATS

100 pounds pure white lead.  
25 pounds zinc.  
10 pounds asbestine or barytes.  
4 to 5 gallons pure raw linseed oil.  
1 pint pure turps.  
1 pint japan drier.

Makes about 8 gallons of paint.

I have recommended raw linseed oil in the formulae because of the fact that this oil will dry thruout the entire thickness of a paint skin and not on the surface first, as is typical of boiled linseed oil. Furthermore, there is entirely too much "Bung-hole boiled oil" on the market at the present time. Such material has never been kettle boiled, but in many cases is a low

(Continued to page 138.)

## The Pipeless Furnace for Country Homes

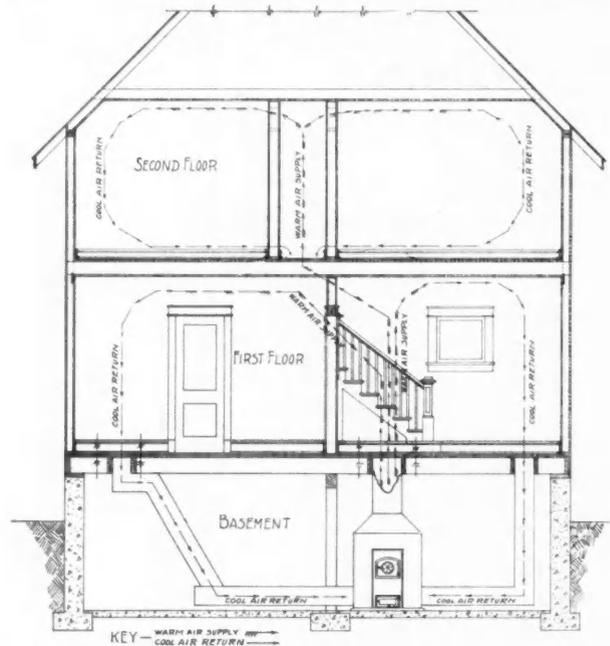
JUST NOW IS THE TIME WHEN COUNTRY HOME OWNERS SHOULD BE ARRANGING FOR THE INSTALLATION OF MODERN HEATERS TO REPLACE THEIR OLD COAL STOVES, WHICH OFFERS CONTRACTORS, BUILDERS AND BUILDING MATERIAL AND EQUIPMENT DEALERS AN OPPORTUNITY TO CONDUCT A WORTH-WHILE BUSINESS EXPERIMENT

**S**UPPOSE you conduct a personal investigation of conditions in your vicinity for the purpose of determining just how much business there is waiting for you which would ordinarily be overlooked. Are you personally acquainted with all of the people in your community who might, at some time, require your services? Are you just a contractor and builder

mate success of your work will depend upon the degree of satisfaction which you are able to give.

The effect of your efforts in a given community is cumulative. This means that if the services which you render or the goods which you sell give complete satisfaction, the subsequent sale of your services or your goods will be easier; but this rule works both ways. You must give satisfaction to attain success and this is one of the fundamental rules—a foundation pier which must support the platform of salesmanship.

If you have never made a systematic effort to develop your ability as a salesman, there is no better time than now to begin. It is as a suggestion along this line that the investigation of building conditions in your vicinity was mentioned. One of the first things which a salesman must do when he attempts to sell his wares in a given community is to analyze the conditions under which he must work. This analysis will include, as the most important determinations, a list of the possible buyers, the personal characteristics of these prospective buyers, the most important reasons why each prospective buyer should invest in what the salesman has to sell and when it is likely that each will be most interested in the particular goods in question. This information is not always obtainable and, in this case, the good judgment of the salesman must be used to determine just how the proposition is to be handled.



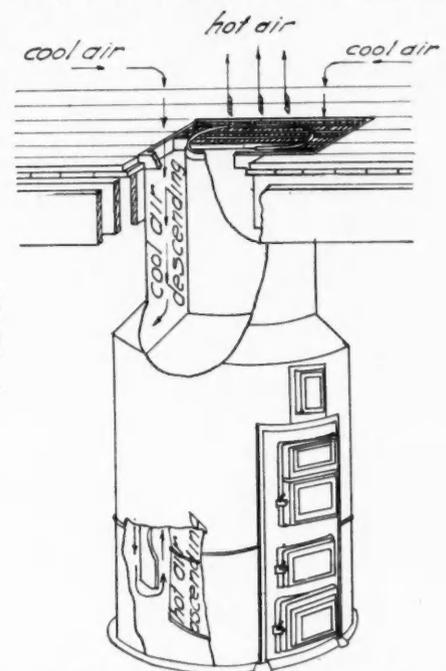
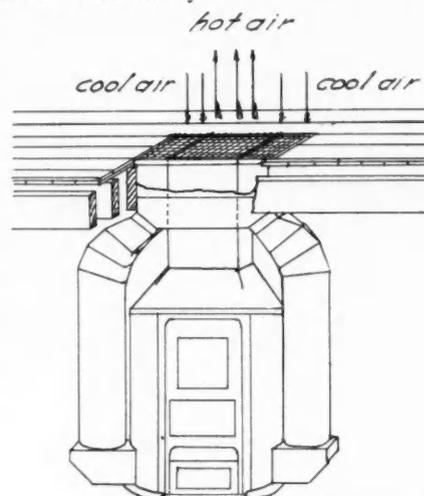
**Cross-Section Thru Two-Story House Heated By Pipeless Furnace, Showing How Warm Air Circulates to All Parts. The Ceiling Register Is Used to Supplement the Stairway for Getting the Warm Air to the Upper Rooms.**

or just an order-filler, or are you a salesman? Perhaps it has never occurred to you that you should be a salesman.

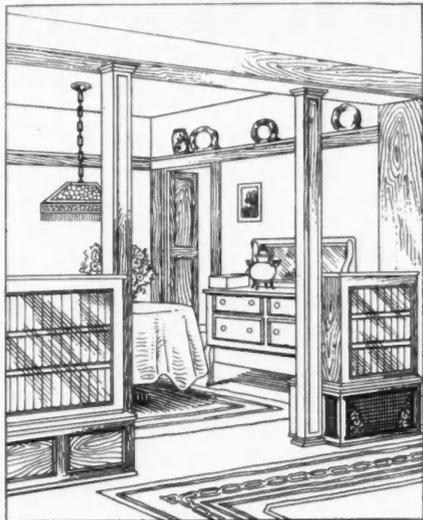
There is not a contractor and builder or a dealer in building materials and building equipment in the world who would not be made more efficient by a thoro study of the principles of salesmanship!

If you are a building material or building equipment dealer, it is very evident that salesmanship must be one of the activities in which your energies are concentrated, because you have goods to sell and your success depends upon your ability to sell them. If you are a contractor and builder you must be even more of a salesman, for you have services to sell and it is quite often more difficult to sell services than it is to sell goods. No matter which you are, the ulti-

The initial effort toward the installation of methods of conducting your business which are based on good sales-

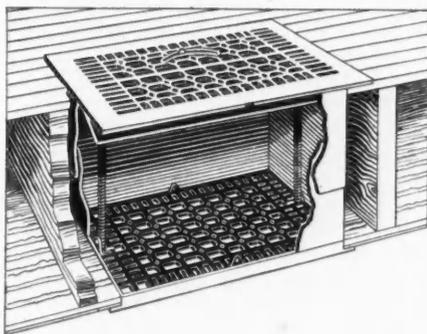


**Two Types of One-Register Furnace. The Hot Air Comes Up Thru the Center, and the Cool Air Returns Thru the Outside Ring. In One Type There are Separate Flues for the Cool Air; in the Other the Cool Air Completely Surrounds the Furnace Casing.**



Combined Hot Air Register and Cool Air Return Built Into a Colonnade. This Puts the Source of Heat in the Center of the House, and Yet Out of the Way.

efficient heating. There are any number of country home owners who still attempt to heat their houses with stoves. You may obtain useful training in salesmanship and at the same time investigate the advisability of adding what should be a very profitable line to your business, revise your list of possible buyers and check up on what you believe general building conditions are in your vicinity in this way: Investigate the field of the so-called pipeless or one-register furnace. Acquaint yourself with the features of this type of furnace and learn the reasons why it is particularly fitted for use in country homes. Figure the cost of installation for a number of cases where various conditions exist, so that the results will represent an approximate estimate which may be used for the benefit of those who might be interested in discussing the subject with you.



Ceiling Register for Warming Upper Rooms. This Should Be Placed Directly Above the Furnace Register. As the Hottest Air Is at the Ceiling, This Ceiling Register Sends a Large Volume of Heat to the Second Floor.

The respect with which all of them are the same—the feature which gives them the name “pipeless” or “one-register” furnace—is the warm air delivery, which is entirely thru one large register placed directly over the furnace, in most cases. The manner of returning the cool air to the bottom of the furnace jacket is a point of difference with the various furnaces of this type. One of the common methods of building the cool air return is to use two sheet metal casings around the

heater, the outer one completely casing the heater from base to head and the inner one extending down to a point a certain distance above the base. A square combined register is used, the circular center part being the warm air face, the remainder being the cool air face. The cool air is drawn down between the two casings and forced up within the inner casing against the furnace firepot and radiator where it is heated and thrown with considerable force up thru the register to be distributed thru the rooms above and returned as it becomes cooler and heavier.

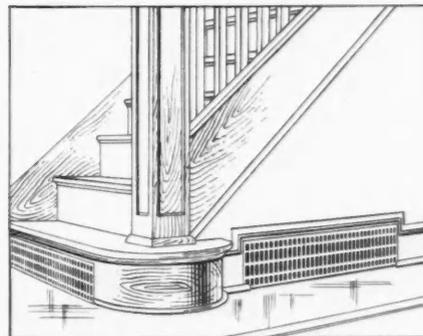
There are other methods of building combination registers. The rectangle may be divided by a straight line into two rectangles, one of which is the warm and the other the cold air register. Some furnaces use a combination register which consists of a large rectangle divided into three parts; the large central part is the warm air register and the two smaller parts are two cold air registers. In case the warm and the cool air registers are entirely separated, the warm air register may be an ordinary metal floor register, a wall register or some special type of register. The cold air register is quite often an oak floor register. There are either one or two cool air faces used. They are placed in the hall, near the outer wall, at the foot of stairs (in case the building is a two-story structure), or at any place which will tend to produce an even distribution of the heated air in the various rooms.

When the warm and cool air registers are separated, this implies a different method of handling the air at the furnace than that mentioned in relation to the combined register. When the cool air is delivered to the furnace from registers separated from the warm air registers, the delivery tubes are brought down to a base box or in some other

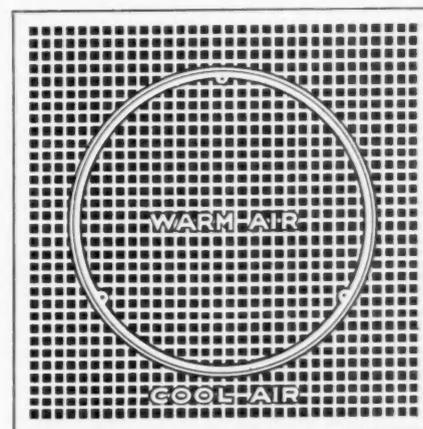
heater, the outer one completely casing the heater from base to head and the inner one extending down to a point a certain distance above the base. A square combined register is used, the circular center part being the warm air face, the remainder being the cool air face. The cool air is drawn down between the two casings and forced up within the inner casing against the furnace firepot and radiator where it is heated and thrown with considerable force up thru the register to be distributed thru the rooms above and returned as it becomes cooler and heavier.

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Cool Air Return Register in Two Positions Under Stair.



Typical Combination Register for Pipeless Furnace. Warm Air Is Sent Up Thru Central Part; Cool Air Returned Around Outside Ring.

(Continued to page 122.)

## The Chemical Closet Solves a Problem

**T**HERE is not a physician, sanitation expert or any other person who has given the subject serious consideration, who will not agree that the unsightly, filthy out-door toilet, whether it be situated in a thickly settled community or on a farm, must be exterminated before human life is afforded the safety which it deserves. The out-door toilet is a menace to health and morals and constitutes one of the discomforts for the existence of which there is no reasonable excuse.

Disease traceable to the out-door closet is mainly the result of polluted drinking water and infected food. Well water is polluted by direct contact and mixture with the germ-laden seepage from the closet vault. Food is contaminated by contact with disease-spreading flies, carrying germs from the out-door toilet to the kitchen and dining room. Occasionally disease results directly from the contact of flies with the person affected.

In playing an important part in the extermination of the out-door toilet, the chemical closet has solved a problem. It has made possible the installation of a sanitary toilet in buildings where water sewer connections are impossible. It has rendered unnecessary the discomfort of the old-time closet, which, during the winter months, became an absolute danger because of

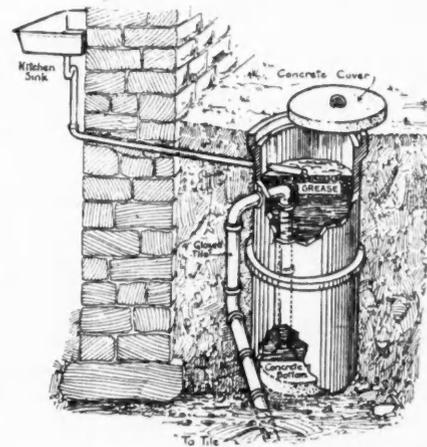


Just Because the Chemical Closet Doesn't Cost Much, Don't Give It a Cheap Place. Provide a Well Lighted and Ventilated Room.

exposure to conditions conducive to the contraction of pneumonia and other such diseases. The chemical closet has been given a thoro test. It has stood the test of service in a great many homes and it has stood the more severe and critical tests of school service and tests conducted by several of the state boards of health.

There are two methods employed to utilize the action of chemicals in rendering human excretia harmless and odorless. One method consists in the use of the commode or cabinet type chemical closet which is, in one sense, a portable outfit. The second method consists in the use of a permanent installed system which consists of a

reduction tank into which the waste is delivered from the toilet directly above. No matter which of these methods is used, provision must be made for the ventilation of the system. When properly installed, either of these two types of chemical closets is practically odorless. The commode type of closet, of course, requires frequent attention; however, since the contents of the removable inner container are odorless and all of the harmful germs have been destroyed by the action of the chemical, the disposal of the waste does not require special care. The means of disposing of the waste from the tank in the alternate system is usually provided at the time of installing the system. Due to the

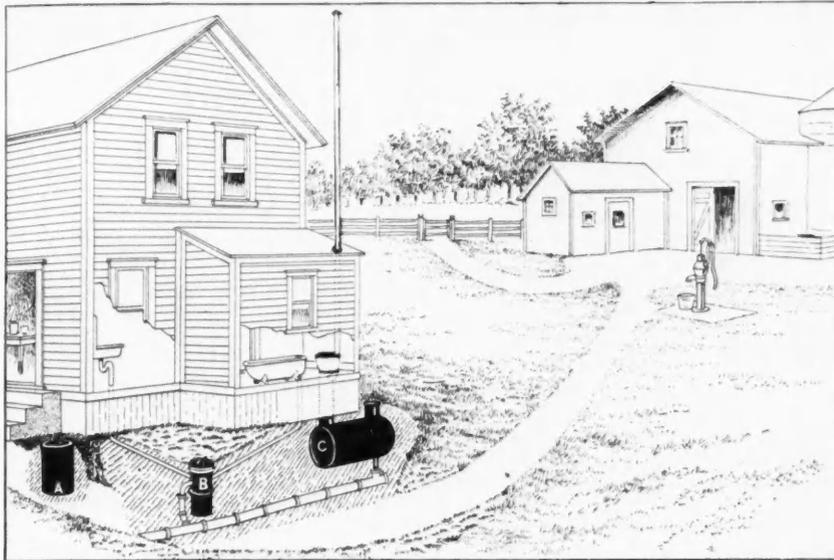


Simple Home-Made Grease Trap Put in Between Kitchen Sink and Line of Drain Tile Completes the Farmer's Sanitary System Where Chemical Closet Is Used.



The Farmer Can Now Enjoy the Luxuries of a Completely Equipped Bathroom and at Very Moderate Expense.

action of the chemical and an agitator, which is always a part of the reduction tank, the refuse is taken from the tank as a liquid. A disposal bed may be provided where the sewage will pass out thru a tile drainage line into a system of open-joint tile where it passes into the soil. A cesspool may be provided where the liquefied refuse is to be disposed of. The contents of the tank may be pumped into receptacles and carried to any desired place of disposal. It is found that certain of the chemicals used for the purpose of purification and reduction of sewage in these closets result, in action, in the production of a fluid which has effective fertilizing value which may be



Cut Open View Showing Essentials of Farm House Sanitation Arrangements. A, Is Underground Garbage Receiver; B, Grease Trap Between Kitchen Sink and Bathtub and the Tile Drain; C, Chemical Closet Tank with Manhole for Cleaning and Drain Cock to Tile Line.

disposal system must be determined before the tank is installed. In case disposal is to be accomplished by the use of either a filter bed or a cesspool, a pipe line must be extended from the tank to the point of disposal. If the pumping-out method of disposal is preferred, either a pipe line to a permanent pump may be installed, a pipe riser may be set up at a convenient point and connected with the tank or one of the tank manholes may be left exposed so that the pump can be inserted.

The system of ventilation which utilizes the draft in the chimney is preferable in this type of disposal plant. In multiple installations, care must be taken to provide ventilating pipes of sufficient size to

utilized on fields or gardens, if desired.

The commode or cabinet type closet consists of an outer casing of sheet metal or wood upon the top of which the seat is placed, a cover being hinged to close over the seat. In some closets this cover is provided with a rubber gasket and in other closets it is purposely not sealed to the seat or cabinet top. The sealed cover is used when the ventilation of the closet consists of a stream of air drawn in thru holes placed near the bottom of the outer casing, circulated around the container and upward to the vent pipe at the rear. The non-sealing cover is used when the down-draft system of ventilation is used. The installation of the commode type of closet is very simple. If possible, the closet is located where a chimney is available. The vent pipe furnished with these closets is usually either 3 or 4 inches in diameter. If connection is to be made with a chimney, a reducer connection is furnished which slides into a 6-inch thimble in the chimney. This method is the most simple and is thoroly satisfactory. In case there is no chimney available, the vent pipe must be extended up thru the roof to a ventilator placed above the highest point of the roof. It is preferable that the pipe be straight, but it is sometimes feasible to place one part of the pipe so that it follows the rafters, which is allowable especially if the angle is not greater than 45 degrees. The pipe is placed horizontally only when connection is made with a strong draft chimney.

When the tank is used, it may be placed in a number of ways. The fundamental requirement is, of course, that the tank be located directly below the toilet. The length of the drop tube which connects the bowl with the tank makes no difference so long as it is over 18 inches in length. The tank may be suspended from the floor joists, mounted upon blocks or a stand placed on the basement floor or buried in the earth. The

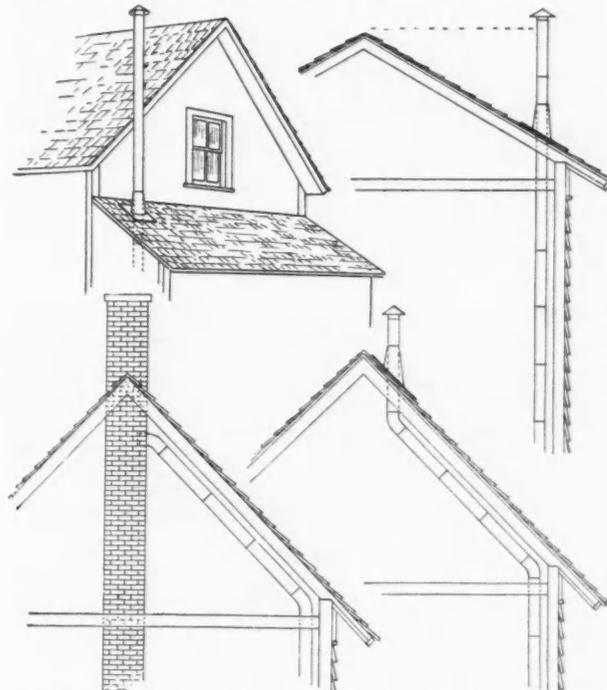
adequately handle the foul air. Manufacturers of equipment of this sort have compiled data which they have available for the use of builders who install their plants. These companies also have engineering departments devoting their time to special cases of sewage disposal. Builders are urged to call upon these departments and are given the advantage of all information which will assist them to thoroly understand the problem.



**Excusable Pride**

"You seem pretty proud since you gave the 25 cents to the patriotic fund."

"Yassuh," replied Mr. Erastus Pinkley. "Talk about doin' yoh bit! I jes' done my two bits."—*Washington Star*.



Every Chemical Closet Fixture Must Be Ventilated to the Roof. Illustration Shows Four Methods of Running Ventilation Pipe.

# 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.

## Rolling Galvanized Iron Doors Save Railroad Cars

On the night of May 10, a bad fire occurred at the Locust St. Pier of the Baltimore & Ohio Railroad at Philadelphia, Pa. An automobile platform, shown in Fig. 1, was enclosed with galvanized iron doors so that the better grade of cars, which were sometimes left on the platform over night, were afforded protection.

On the night of the fire there were six automobiles on this end of the platform, together with a large pile of lumber. The fire was discovered at midnight and when discovered was burning fiercely. Before it was extinguished all of the

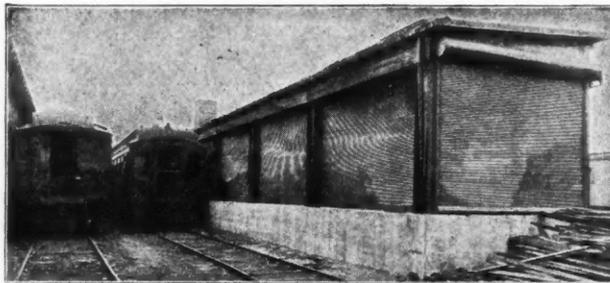


Fig. 1. Exterior View Locust St. Pier, B. & O. R. R., Philadelphia, After the Fire.

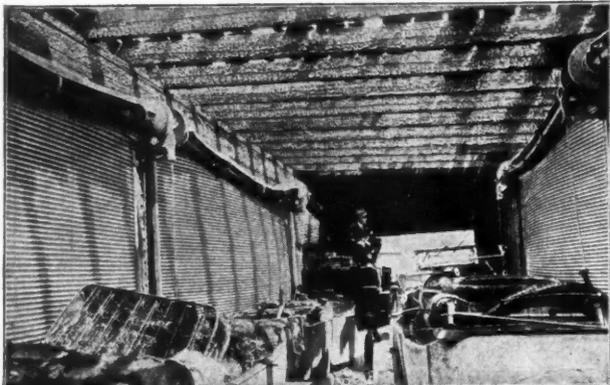


Fig. 2. Showing the Galvanized Iron Doors Still in Service.

automobiles and lumber had been ruined and the entire roof of the platform had been burned.

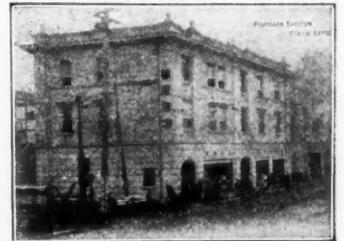
Along one side of the platform there were box cars loaded with other automobiles on three tracks. On the other side were Pullman cars which were stored in the yard. These cars were only 18 in. outside of the rolling iron doors and yet the paint was only slightly blistered and absolutely no damage was done to the cars. It is certain that if the doors had not been there to protect them, the cars would have been totally ruined.

It may be seen in Fig. 2 that the doors remained intact and in position, with the exception that the shaft sagged down about 12 in. in the center from excessive heat, and the malleable iron gears were melted and warped in some cases.



## Automatic Sash Holders in Japan

The popularity of the idea of supporting window sash without the use of sash weights, cords and pulleys is evident not only in this country, but also abroad. The building shown in the accompanying illustration is in Tokyo, Japan. The sliding windows in this building are equipped with automatic sash holders made in the United States. These holders dispense with pocket frames on new buildings and may be installed on any sliding window in an old building.



A Notable Hotel at Tokyo, Japan, of Modern American Construction.

One of the interesting features is that the holder automatically adjusts itself to swelling and shrinking of the sash or frame.

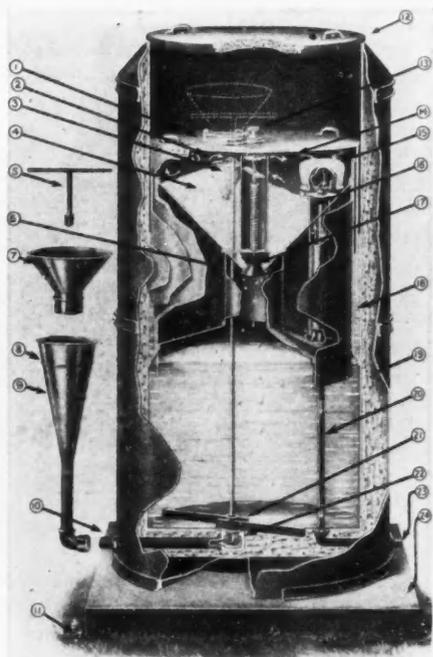


## Automatic Acetylene Gas Generator

A gas generator which is absolutely automatic in its operation and which requires no adjustment of any kind is shown in the accompanying detail view. The feature which immediately attracts attention to this generator is that it is designed to be installed above ground, out of doors, and yet its construction is such that there is no danger of its becoming

rendered useless during the cold weather.

The standard generator is built to hold a charge of 100 pounds of carbide at one filling, altho generators of this type are made to hold larger quantities for special purposes. The feeding valve is very simple in its construction and operation and is really one of the features which is largely responsible for the commendable operation of the machine. The view shows this valve and all of the important features of the entire generator. The thought which has been extended in perfecting the machine is evidenced by details such as the reserve carbide hopper, which makes it possible to release about 5 pounds of carbide by a very simple operation, at a critical time when the main supply has been exhausted. The main supply of carbide is sufficient to supply the average country home with gas for lighting and cooking for from six to twelve weeks.



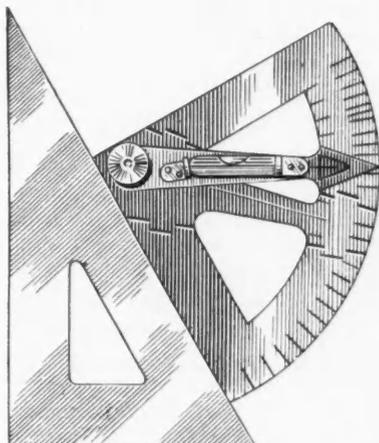
Details of Acetylene Generator.

- 1—Filler cap or hand hole in gas bell.
- 2—Space in which gas is dried.
- 3—Reserve carbide holder.
- 4—Carbide.
- 5—Sprocket wrench for turning agitator and opening outlet valve. (See dotted lines.)
- 6—Isolated space.
- 7—Carbide filling funnel. (See dotted lines.)
- 8—Water line.
- 9—Water filling funnel.
- 10—Residuum outlet pipe.
- 11—Ground level.
- 12—Cover removed when recharging.
- 13—Thumb-bolt or feed pin.
- 14—Top of gas bell.
- 15—Felt filter.
- 16—Pipe which conducts gas from generating chamber.
- 17—Feed valve.
- 18—Oil seal for gas bell.
- 19—Frost proofing. (Insulating material.)
- 20—Pipe conducts gas out of the generator to service pipe.
- 21—Agitator.
- 22—Residuum outlet and water inlet.
- 23—Service pipe connection.
- 24—Concrete foundation.



## Instrument Which Measures Pitch of Inclines

By the use of the small instrument shown in the accompanying illustration, it is possible with a few simple calculations to determine all properties of a given incline. The instrument consists of a quadrant frame with indicator arm pivoted at the center of the arc and fitted with a spirit level. The inner edge of the curve has angular measurement graduations corresponding to each degree of incline from horizontal to vertical. Along the outer edge of the curve figures



The Quadrant Is Marked to Read Off the Slope.

are stamped at intervals which indicate at their respective positions the number of inches rise to each foot of base measurement.

The instrument may be used to find the length of rafters for any roof pitch. The edge of the instrument is placed on the roof in a position similar to that shown in the illustration, and the arm is swung into horizontal position. The arrow will indicate the angle of the roof's pitch and the inches rise per foot run, from which the rafter length is figured by the rule of the right triangle. The frame is made in three parts hinged together so that it will fold into small space.



## Adjustable Wire Clamp for Forms

Every builder interested in concrete construction must, sooner or later, decide upon some satisfactory method of tying his forms. Quality work is dependent absolutely upon tight, carefully aligned and securely locked forms.

The old method of tying the wires together and twisting the wire on the inside of the forms to bring them into place, has the disadvantage that no two of the wires will have the same tension and there is the liability of the wires becoming untwisted. For these reasons the method is expensive, unsafe and undesirable.

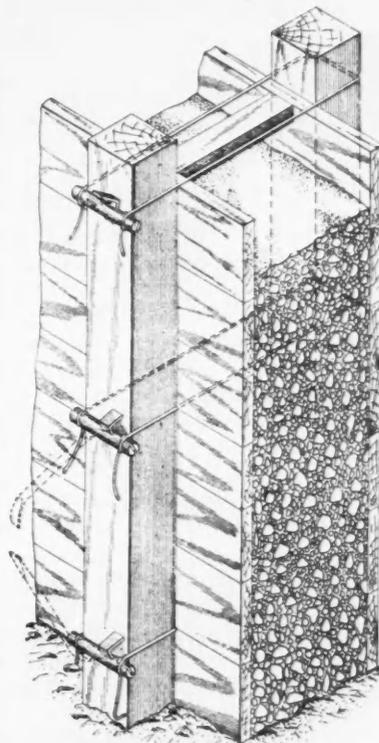
The use of rods to tie the forms together requires the expense of boring holes, the cost of rods with clamps at each end and the further cost of pulling the rods, making this method rather too expensive for ordinary work.

The method shown in the illustration has the advantages that wire is used to tie the forms, careful adjustment of tension is possible, holes do not need to be bored in the forms, the lock is positive and time required to install and remove clamps is very small. In use, the clamp is placed against the studding, the wire is inserted in the slot at each end, the clamp is turned down by means of the handle and the tie is locked by simply dropping the angle into the slot in the clamp.

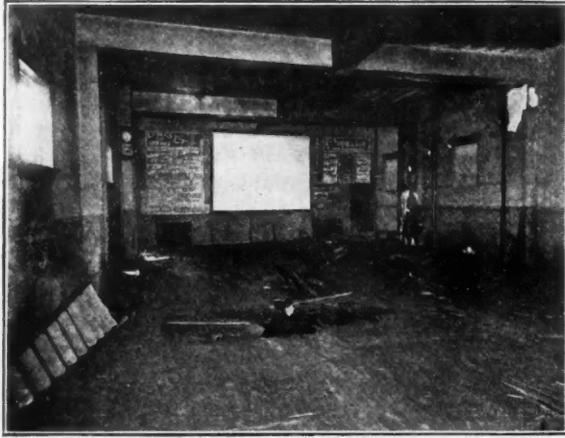


## Metal Lumber Resists Fire Attack

The accompanying illustration, showing a motion picture theater and apartment building at Urichsville, Ohio, which was partially destroyed by fire, is an interesting demonstration of the value of metal lumber as a fire resistive building material. The second floor of the building illustrated was built with metal lumber. The fire started on the first floor, where considerable damage was done. The floor above, however, was unharmed and prevented the fire from spreading beyond the first floor.



Details Showing Form Construction When Clamps Are Used.



Showing Metal Lumber Untouched by Fire.

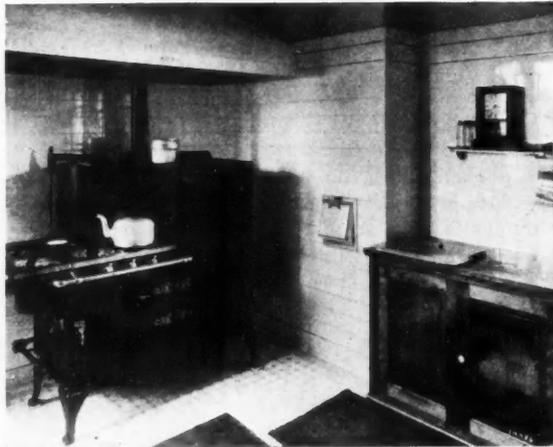
The metal lumber can be worked as easily as wood and takes the place of wood, piece for piece. It gives an economical, fireproof construction and is adapted to any size or type of building.



### Garbage Incineration

Those who are engaged in the design of high grade residences and apartment buildings at the present time must give their attention to a great many details other than those of a purely structural nature. For instance, recent years have found the development of a method of treating house refuse which eliminates the filthy refuse and garbage can, improves sanitary conditions materially and effects a saving of time and unpleasant labor in disposing of this refuse.

The two views below show all that can be seen in the kitchen and basement of the incinerator, which accomplishes these results. Briefly, a chimney is built having hopper doors at points where the refuse may be handily delivered. This refuse falls down the chimney to an incinerating chamber, where it is reduced to a harmless ash which is removed with the heater ashes. A special grate is used and no igniting fuel is required. There are no odors either at the periodical time of burning the refuse or while the chamber is being filled. The material burns from the top of the collected mass, which

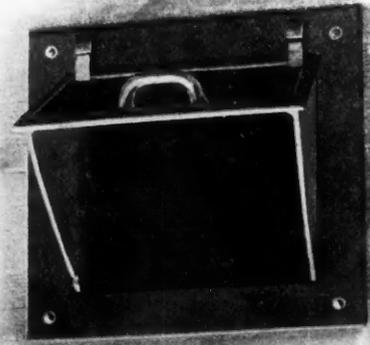


View of Garbage Incinerator in the Kitchen and Below in the Laundry. This Type of Incinerator Is Being Built Into the Best Residences and Apartments.



### Substantial Coal Chute

The fuel chute shown in the accompanying illustration is characterized by simplicity and substantial construction. The chute consists of just four parts, the frame, the chute, the lock and the weight. The door is on roller-bearing hinges and can be opened only from the inside. An extra wide frame on all four sides makes it practically impossible to deface the walls or foundation.

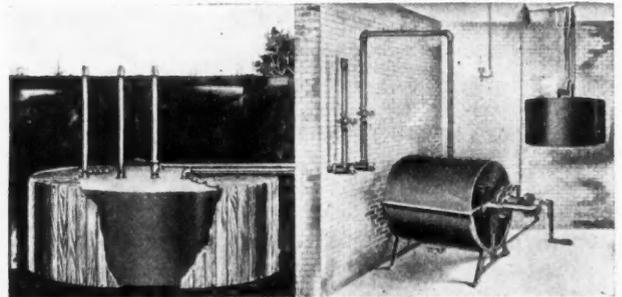


Solidly Built Cast Iron Coal Chute.



### Economical Gas for Lighting and Cooking

The country home owner who feels handicapped by the lack of a supply of gas for lighting and cooking has himself to blame for it. For a number of years it has been possible for country home owners to install private gas systems on their premises, capable of giving service which is just as satisfactory as that of a city gas system. The illustration shows the principal parts of such a system. This plant oper-



Layout of Gasoline Storage Tank and Gas Vapor Generator.

ates on gasoline and the only attention which it requires is the periodical filling of the storage tank and raising of the air pump weight.

Its operation is automatic and safe. When a light or stove burner is turned on the machine is set in operation. When there are no lights or burners turned on, the machine is at rest. There is, therefore, no waste. Referring to the illustration, the part outside of the building is the storage tank and carbureter. All of the gasoline is kept in this part of the machine and no gasoline can enter the building as a liquid. The machine itself is inside of the building, away from the frost. There is no danger if this part of the plant is near the furnace, since its function is to supply air, and it contains no gasoline. The weight is very easily raised by means of the crank and mechanism shown, and the plant will continue to operate automatically until the weight reaches the floor.

# Concrete Construction



## Unique New Type of Fireproof Construction, Using Metal Lath and Concrete

DETAILS OF METHOD USED ON THE NEW TWELVE-STORY BUILDING TO HOUSE THE FEDERAL TRADE COMMISSION IN WASHINGTON

By Zenas W. Carter

Commissioner Metal Lath Manufacturers' Association

THE twelve-story model fireproof reinforced concrete building which is to house the Federal Trade Commission at Washington is rapidly nearing completion at the corner of K and Fifteenth streets. This is the first building ever constructed by the new method used in its construction, and the originator of the plan, Mr. Hewitt Wells of the T-Beam Engineering Company, Washington, is entitled to considerable credit for his ingenuity and the unusual way in which he has used metal lath, reinforcing bars, and cement, in this building, which has enabled the architect, Mr. B. Stanley Simmons of Washington, to specify, and the M. A. Weller Company of Washington to erect such a notable example of modern American building efficiency and at such a great saving in cost of both material and labor.

The very simplicity of the idea accounts for the speed with which this building is being erected, practically one story being poured every five working days.

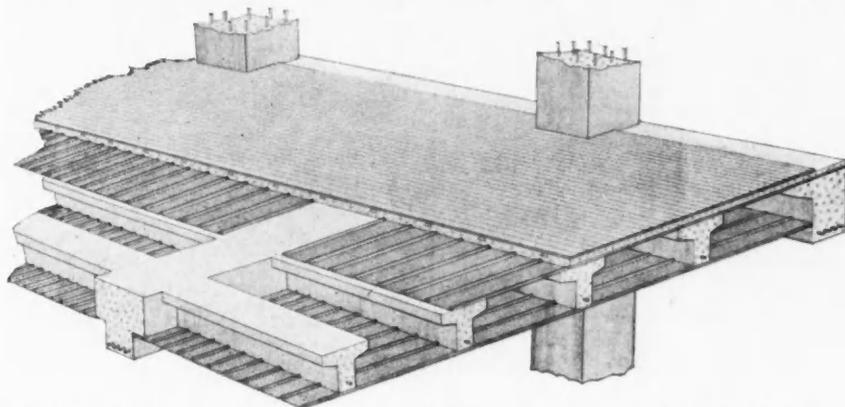
After the wooden supporting framework has been built up similar to that used in all reinforced concrete construction, all of the metal lath for the ceiling is laid directly on the wood forms, this being tied together in the usual manner. On top of this and



View of Ceiling After Removal of Wood Forms. Note Metal Lath for Ceiling Thoroughly Imbedded in base of T-Beams.

correctly spaced, the steel reinforcing bars for the beams have been properly placed, centering 28 inches, and set up the required height above the metal lath to thoroughly imbed them in the concrete beam when it is poured. The workmen then place on top of the lath and in their correct position, special type steel forms made as a cubist might write a figure 5 and its inverted counterpart.

These forms are properly spaced with wood spacing wedges, so that the resulting reinforced concrete beam will span exactly 28 inches on centers. When poured, the concrete forms a T-beam, the base of the "T" resting on the board support previously erected and auto-



This Floor Consists of Reinforced Concrete Tee Beams with Floor and Ceiling Concrete Applied to Ribbed Lath.

(Continued to page 118.)

# The "American Builder" Information Exchange

## Will Help You With Your Contract Requirements

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

clip or tear off here

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

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

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

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

CONSTRUCTION of said building is as checked below:

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

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

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

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

SPECIALTIES, FIXTURES AND EQUIPMENT NEEDED

- HEATING PLANT**
- Warm Air Furnace
  - Pipeless Furnace
  - Steam, Direct Radiation
  - Steam, Blower System
  - Hot Water System
  - Vapor System

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

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

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

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

**AUTOMATIC SPRINKLER SYSTEM**

- SCHOOL, CHURCH OR THEATRE EQUIPMENT**
- Seats, Pews or Opera Chairs.....
  - Blackboards.....
  - Library Shelving.....
  - Bank Vaults and Safes.....
  - Art Glass.....

- FARM BUILDING EQUIPMENT**
- Stanchions for..... cows
  - Stock Pens.....
  - Stalls for..... horses
  - Stock Watering Buckets.....
  - Feed and Litter Carriers.....
  - Cupola Ventilators.....
  - Skylights.....
  - Hay Track and Carrier.....
  - Barn and Garage Door Hangers.....
  - Built-in Cup Elevators for Corn and Grain.....
  - Lightning Protection.....

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

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

Note Here Any Special Requirements Not Marked Above.

Name.....

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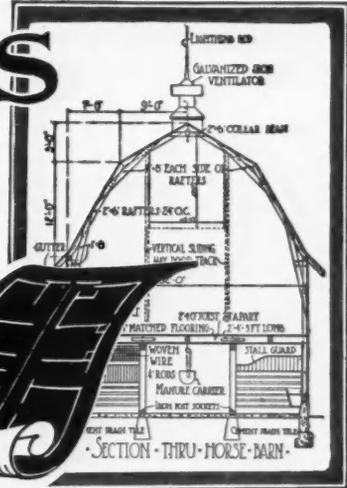
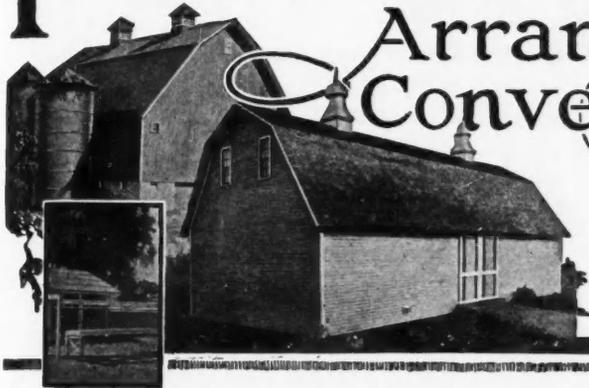
acting as Architects as well as Builders on this job.

Mail the above to

**"AMERICAN BUILDER" INFORMATION EXCHANGE**  
1827 Prairie Avenue, Chicago

# FARM BUILDINGS

## Arranged For Convenience



## The Dairy Barn—Its Relation to the Dairy Industry

By W. L. Weintz\*

**I**N these days of rapid farm development we frequently read of the wonderful results attained by men who have carefully studied conditions as related to the dairy industry. New records for milk production have been established, only to be superseded in a short time by others. Those who formerly ridiculed the idea of intensive dairying as a profitable business are no longer astounded when some enterprising breeder disposes of a single animal for thousands of dollars.

This new interest in dairying is naturally having its effect on farmers, who for one reason or another have failed to secure what they considered proper returns from their investments. Because of soil conditions or the location of the farm, it has been found in many cases that the solution of the problem is to convert a poor farm property into a profitable dairy. This has been done in numerous instances, with the result that

the owner realized more from the same amount of effort and became an independent and influential member of the community as well.

Obviously, the foundation of a profitable dairy business is the herd itself. The stock must be properly bred and cared for to permit intensified milk production. Next in importance to the animals are the buildings and surroundings which complete the establishment. Sanitation is the keynote of any institution supplying the food market, and this requirement should be rigidly enforced as applied to milk products. It is impossible to secure certified milk from animals confined in filthy barns, regardless of any superior breeding and other excellent points found in the cows themselves. We may therefore realize and appreciate the significance of a sanitary building for housing the dairy stock.

A sanitary dairy barn is vastly more than a building having concrete floors with steel stalls and other equip-

ment. The ventilation, for instance, must be carefully determined, especially for those barns in which the animals are confined practically the entire winter. No living creature can long endure breathing foul air, and one must consider that a cow requires abundant fresh air equally as much as food and water. The question of ventilation will possibly appear too complicated to many contractors, but authentic information on this subject is available from sev-

\*Dairy Barn Architect, Ottawa, Ill.



Fig. 1. A Modern Building for Housing Dairy Cows.

eral sources, including the manufacturers of barn equipment. Merely to have a sufficient quantity of fresh air introduced into the building is not enough, for there must be a proper distribution of this air. Consequently this phase of the work must be considered in advance



Fig. 2. Method of Framing Roof Timbers.

of building operations, and the live contractor will post himself on modern authorities.

The floor plan arrangement of the barn is worthy of much more time and thought than is usually given it. When one considers that a poor arrangement may annually cost several hundred dollars in the increased labor required to care for the stock, it is evident that a little more care at the time of building would have been amply justified. The location of feed bins, etc., are points which the average builder does not deem of sufficient importance to require special planning; yet with a few minutes expended in this direction he may save his client valuable time which could otherwise be given to other duties.

The type of roof for a building of this kind is sometimes difficult for the contractor to determine, especially if the farmer owner has no particular preference in the matter. One very essential feature is to have plenty of free space for mowing hay; every farmer who has worked in the hay mow on a hot day appreciates a clear mow, which facilitates operations. As a result of this practical requirement, the roof is preferably of

the self-supporting type of construction. This eliminates all heavy timbers, nothing larger than two-inch material being utilized; a saving in lumber can be effected and most carpenters are able to frame a barn in less time than would be required for the older heavy frame method. Figure 2 illustrates the upper or hay mow floor of a barn, showing the roof trusses which support the rafters and roof frame. It will be noted that ample hay space is available after the false work has been removed.

The hay doors should not be too small for efficient working purposes. Remember that all haying tools and equipment have been greatly improved and perfected in recent years, thereby enabling the farmer to handle larger loads and complete the work in shorter time. Hay forms an important part of the dairy cow's ration and, as mentioned before, labor in the barn must be reduced to a minimum, thus requiring proper facilities for storing all feed.

The value of good light in abundance can scarcely be realized unless one has seen an old barn converted into a modern building, by adopting present methods and ideas. Plenty of windows will furnish natural light, which aids in doing the chores and is of direct value to the stock. Also, the disinfecting properties of sunlight are essential in keeping mangers and gutters clean and sanitary.

From this brief statement of conditions it is evident that the dairy barn must necessarily be conveniently arranged, thoroly sanitary and properly constructed in order that the herd may show proper returns. This is an age of specialists, and farmers are desirous of getting men with ability and experience to build their new barns, just as the manufacturer requires a competent man for each of the several departments of his plant. A contractor making a specialty of building barns will soon create a name for himself, and whether this is favorable or otherwise depends largely upon the skill and ingenuity he shows in constructing practical barns adapted for the particular needs of each owner.

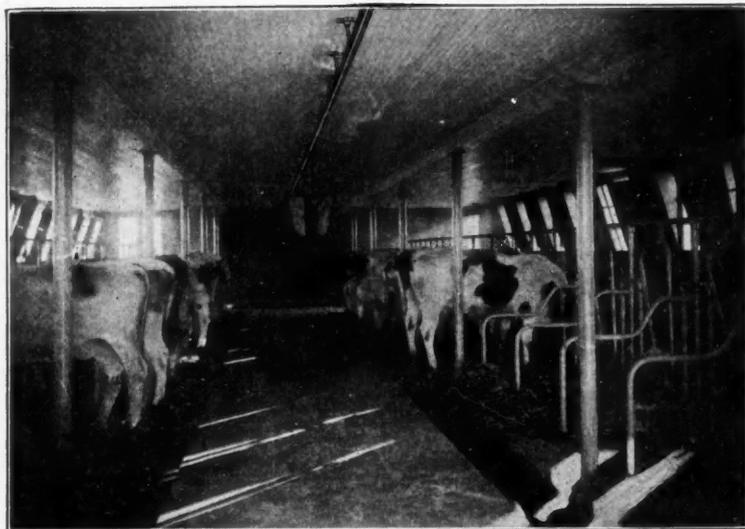


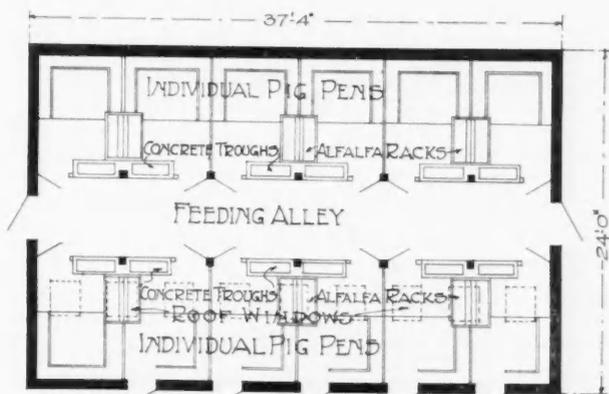
Fig. 3. Interior of Practical Dairy Barn.

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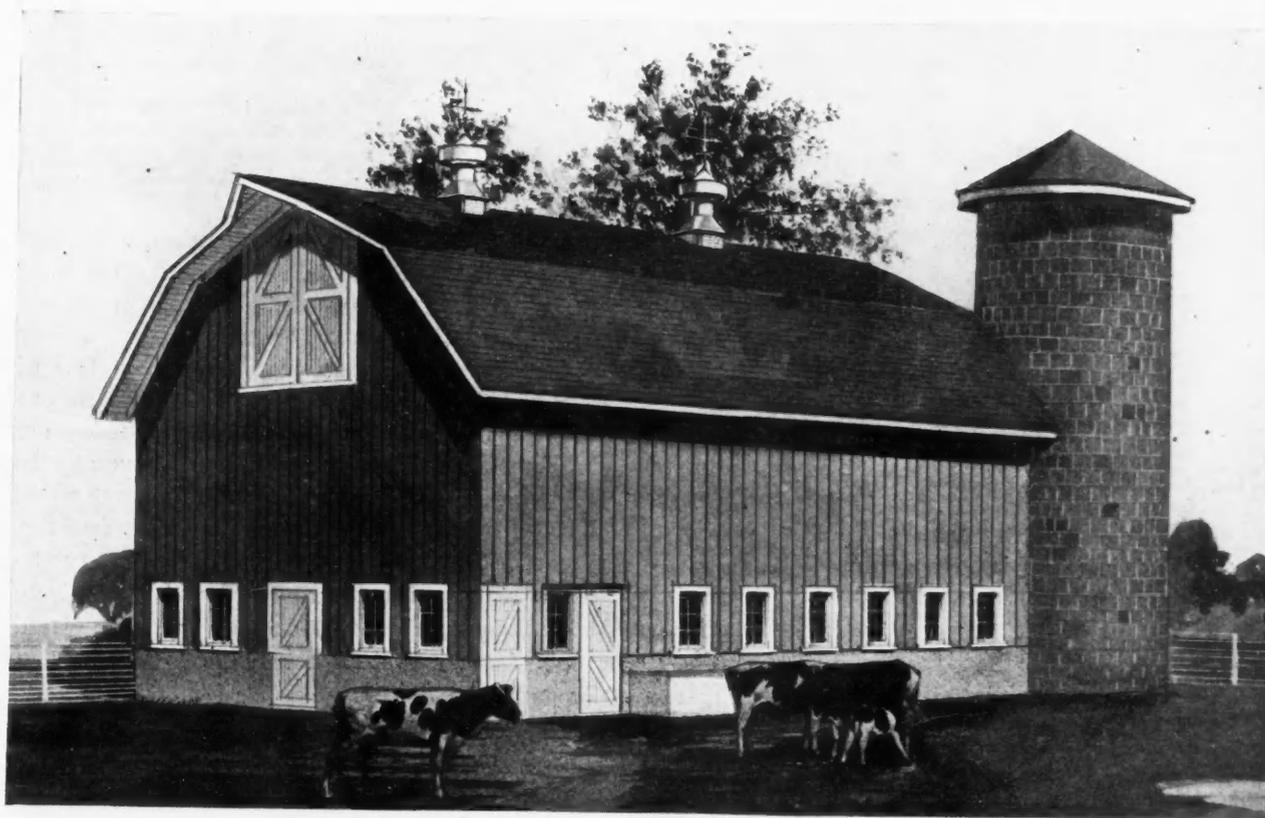
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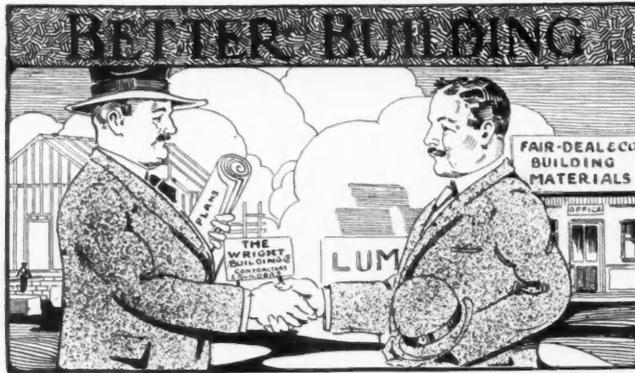
**WINTER HOG HOUSE OF CONCRETE BLOCKS.**  
Here is a Permanent, Well Built Farm Structure of Hollow Wall Concrete Blocks. It Is Lighted by Nine Roof Windows and Four Monitor Sash. Twelve Pens for Brood Sows Are Provided.



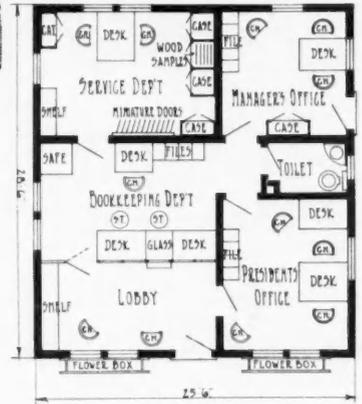
Floor Plan of Dairy Barn Illustrated Below.



**A BARN FOR TWENTY-EIGHT COWS.**  
This Barn, Size 36 by 64 Feet, Has a 4-Foot Concrete Foundation Wall. One of the Silos Is Built of Clay Tile; the Other Is to Be Added Later. Large Hay Storage Is Provided Under the Gambrel Roof.



*Dealer-Contractor  
Good-Will Best  
for Building*



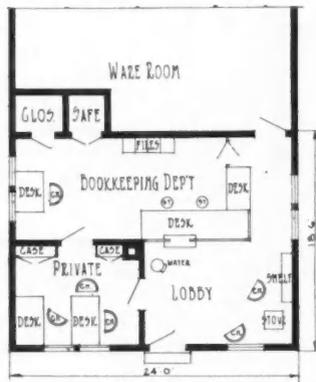
## How to Arrange the Lumber Office for Business

By H. R. Isherwood

THERE is no better advertisement for the retail lumber dealer than a well arranged and neatly designed office, properly kept. It inspires confidence and promotes the building business by furnishing a favorable place in which to consult with contractors and perspective builders.

"Service" is the keynote of the most successful merchandising today in the builders' supply field—just as it is in others; and if service is to be rendered easily and naturally the yard office must be arranged for it. Proper facilities and equipment must be supplied.

I know of yards where they are selling entire house bills and barn bills to what would otherwise be small "drib trade," all because of the modern building ideas—including often complete building plan service—which these yards are prepared to furnish.



Floor Plan and Front Elevation of Very Attractive Lumber Yard Office Suggested by the Author. Notice the Facilities Offered Contractors and Home Builders for Consulting.



The fact is, they are more than "prepared to furnish" these helpful ideas and suggestions; they have arranged their offices so invitingly and have made their stock of plan books, catalogs and building material samples so easily gotten at that the building contractors and their farmer customers just naturally come in and get this building inspiration without having to ask for it.

Service is the recognized foundation of successful merchandising, and to render service you must have the proper facilities and equipment. The lumber office

is the most important to begin with, as that is where service begins. The dealer, whose office is properly arranged and equipped to render up-to-the-minute service to create the sale of his materials with his patrons, is increasing profits as well as volume. Service is not only important in developing the order for the sale, but should be rendered equally until delivery of materials and settlement is received.

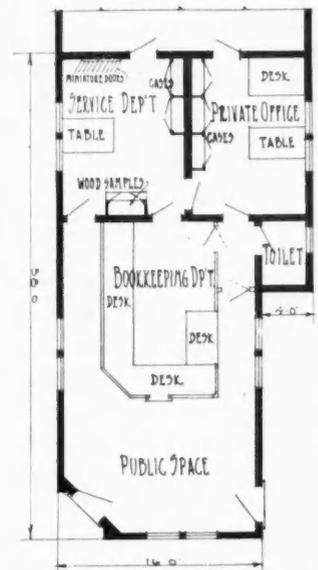
Too many dealers, I believe, will have to admit that they are poor

preachers, as they do not practice what they preach in and around their place of business; their lumber offices are a discredit to the retailer and the lumber industry.

The plans shown here are only a few of the many we have designed. In each one the features of the modern office today are embodied—floor space as a rule governs. In all cases I advocate a manager's private office,

as I consider it one of the most important features. Where space does not permit both, the service department features can be combined with the private office. All desks, tables and furniture should be placed not only for the dealer's convenience, but for that of his patrons.

The bookkeeper's desks are designed and arranged with every convenience, and in each plan you will note portions of these desks with flat top standing height. This is of great importance in figuring and settling with patrons—as settlements and sales can be



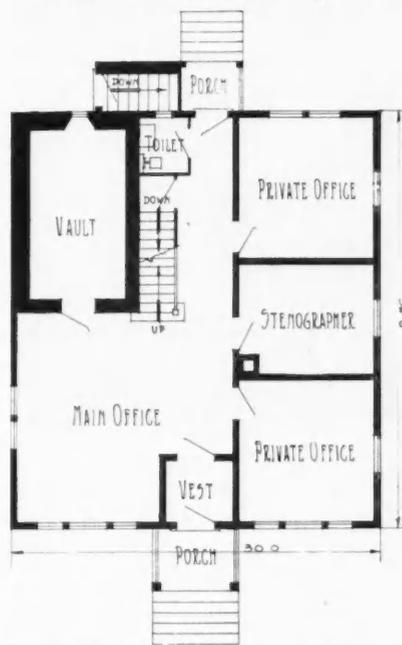
Long and Narrow Office Space to be Set Alongside of Driveway to Lumber Yard.

# Dealer Service to Contractors and Builders

made more quickly, easily, and satisfactorily if you can face your patrons without any obstruction or bars between you and them.

Consider your predicament trying to make a sale or settlement, "and you behind the bars." The flat top is also very convenient for the yardman in studying blueprints.

The private office is of great importance in making sales and settlements, and for the use of contractors who appreciate privacy.

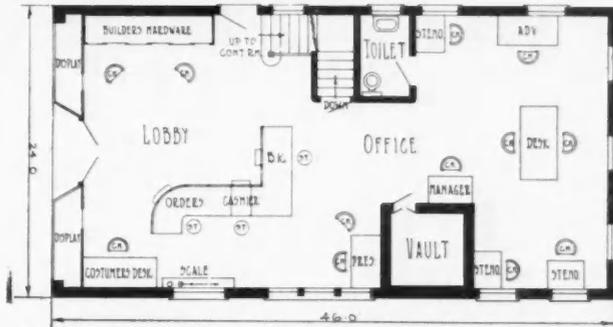


Arrangements of Yard Office of Kellogg Bros. Lumber Company, at Grand Rapids, Wis. A Building 30 by 34 Ft., and Providing Excellent Accommodations for the Service of Customers.

Sales can be made easier, more quickly and more satisfactorily, both to you and your customer, as you both feel free to express yourselves as you wish, which you wouldn't if in the presence of others.

Grievances and kicks on bills and material should not be permitted in the

presence of others. In most cases it gives the complainant the advantage, as you will give in quicker in the presence of others than you would if in a private room, and those present are apt to become inspired

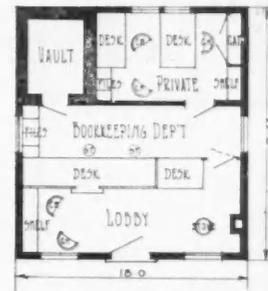


Proposed New Office Layout for C. Starkweather & Son, Inc., Building Material Dealers, of Beaver Dam, Wis. This Plan has Been Under Careful Consideration for a Number of Years, and has Been Revised Several Times. It Deserves Careful Study.

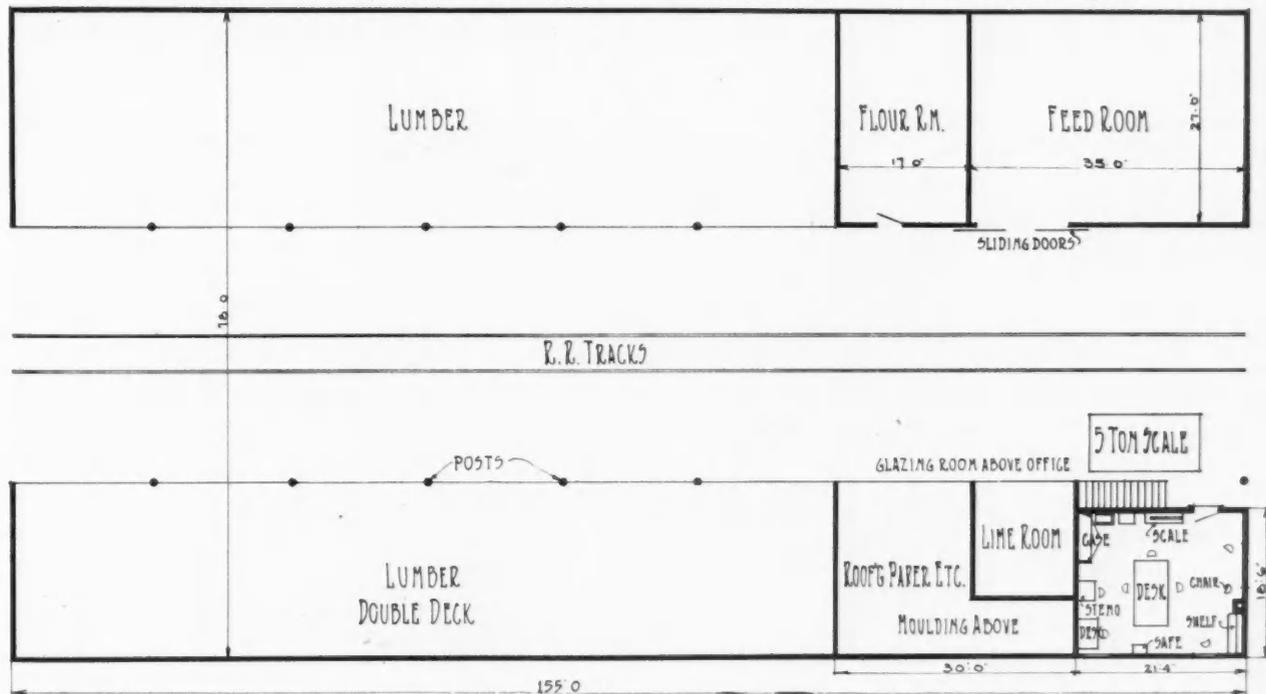
and use the same tactics, resulting unsatisfactorily both to you and your customer.

The lumberman's private office or service department is often used to advantage by extending an invitation to the contractors, putting it at their disposal so that they may bring in their customers and have access to your plans and reference books, blueprints, samples, and other information.

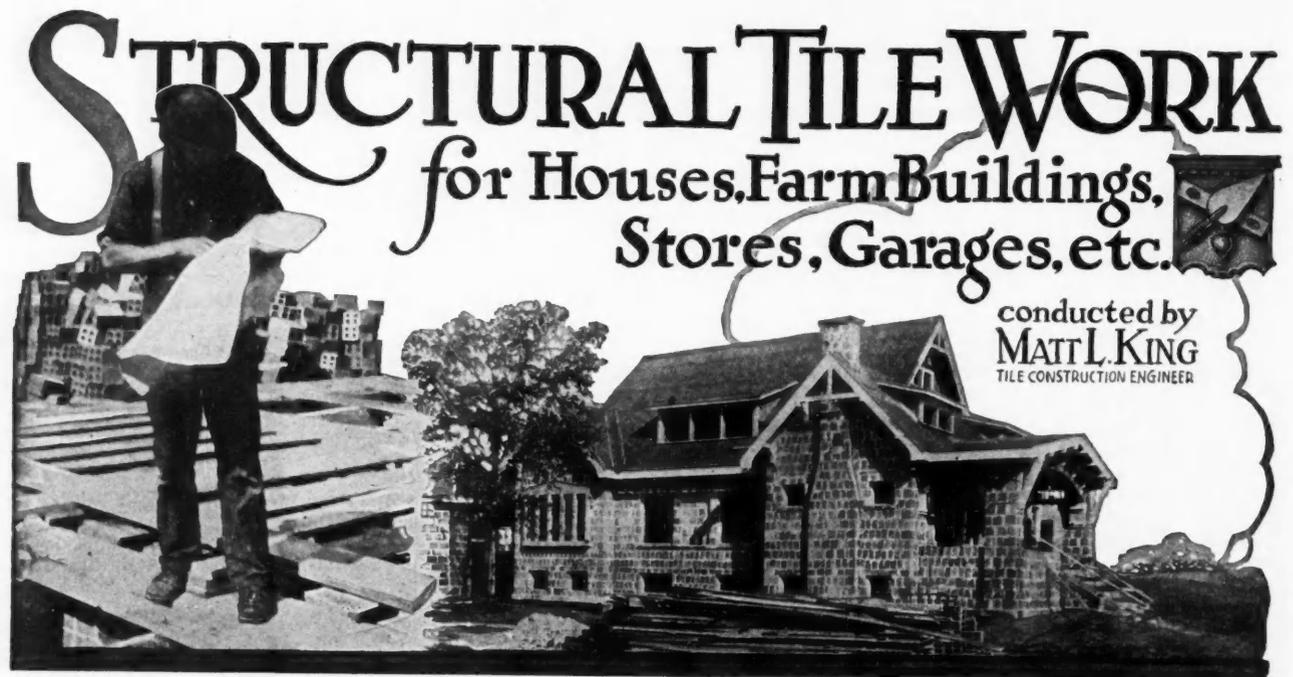
The retailers of today have a wonderful opportunity to bring their places of business up to the standard; the AMERICAN BUILDER is making a careful study of the needs, and gathering ideas from all parts of the U. S., and upon request from any dealer—with rough drawings and measurements of present office or location—will furnish various suggestions not only for floor plan and equipment, but also for exterior designs.



Suggestion for Small Office to Give Large Accommodations. Note Private Office Easily Reached for Consulting.



Layout of Office and Storage Sheds of the Wilbur Lumber Co., at Honey Creek, Wis. A Very Practical Arrangement. Total Space is 155 by 78 Ft. The Office Room is 21 Ft. 4 In. by 18 Ft. 6 In.



## Fooling the Wiseacres

SOME NOVEL BUILDING AND TILE ENGINEERING PRINCIPLES ARE WORKED OUT WHICH GIVE DEXTER, MO., A PERMANENT LOW-COST COMMUNITY AUDITORIUM

By Matt L. King

**D**EXTER, Iowa, has a hundred or more less than one thousand inhabitants. That is, it is distinctly inside of the thousand mark. It is surrounded by mighty good farms and some of the gardens in town are as big as the farms in other countries. The only factory of any significance in the town is the canning factory.

This is simply mentioned in order to emphasize the fact that it is a typical rural community. This leads up to the principal fact that I want the readers of the *AMERICAN BUILDER* to get thoroly fixed in their minds, that is, Dexter is a thoroly respectable, moral community of ordinary mortals.

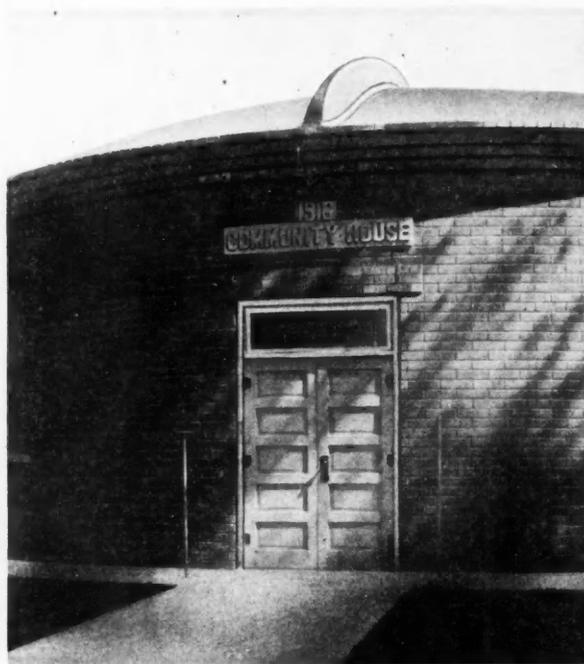
Two proofs for the morality and respectability of the town are as follows: First is the fact, as we have already established it, that it is a rural community. That is positive proof of its morality, because, I myself, was raised in that kind of a community. Further proof is that I lived in Dexter a few weeks last fall, stopping at the Dexter hotel, and found it and the com-

munity entirely congenial.

Now if it is thoroly established that Dexter is a desirable community, we will go to the next point. A few years ago, in spite of this habitual respectability, they decided there should be a revival service held in town just to demonstrate that they were not letting good enough alone. Billy Sunday was not called upon; the job was not worthy of his talent. That is, it wasn't a hard enough job for him. Other places needed him worse. However, they had a Billy Sunday tabernacle—sawdust, rough plank seats and all.

So near as I have been able to learn the services were not a howling success, simply because there was not a whole lot of room for improvement. Consequently, nothing to howl about. However, before the evangelist was allowed to pass on to the next job, the people had found that they enjoyed getting together.

The result was that they kept on getting together at the tabernacle as long as it stood. The arrangements had been made for only a



This Door Will Welcome in the Good Folk of Dexter, Mo., for the Next Fifty Years.

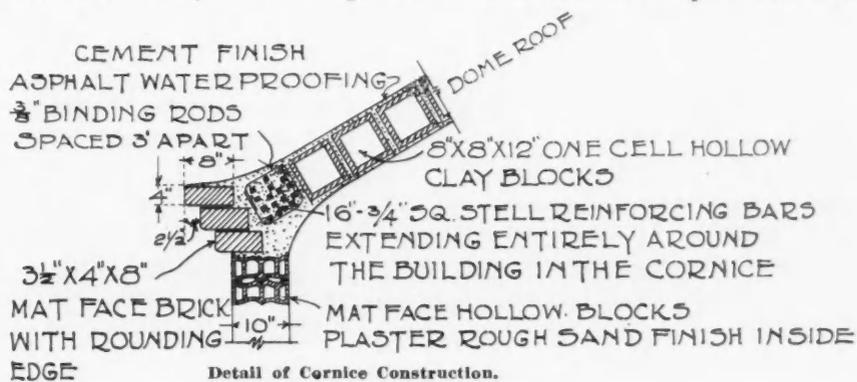
temporary building, and therefore the time came when they were deprived of this meeting place. When the tabernacle was torn down there was a distinct loss felt in the community, which never was filled until last summer.

About a year ago, a preacher, a lawyer, a doctor and a building material dealer, together with a representative of two other local professions, were appointed as a building committee for the Dexter Community House. They had in mind a building 60 feet wide and 100 feet long, that would look a good deal like all the other cracker-box shaped store buildings in town. No reflections on the stores in Dexter, but I don't know how else to describe the monotony of buildings put up without reference to each other, that are in every town that has been built up under such an environment.

The only thing which was to be out of the ordinary in this building was that the roof was to be of the so-called self-supporting type. That is, there were to be no pillars or posts under it to interfere with any activities in the building, whether it were Chautauqua lectures, a stock show, union church services or a basketball game. It was not a serious job to plan such a roof; but as readers of the AMERICAN BUILDER we all know that we are generally up against the question of cost.

In fact, a very large percentage of our work includes

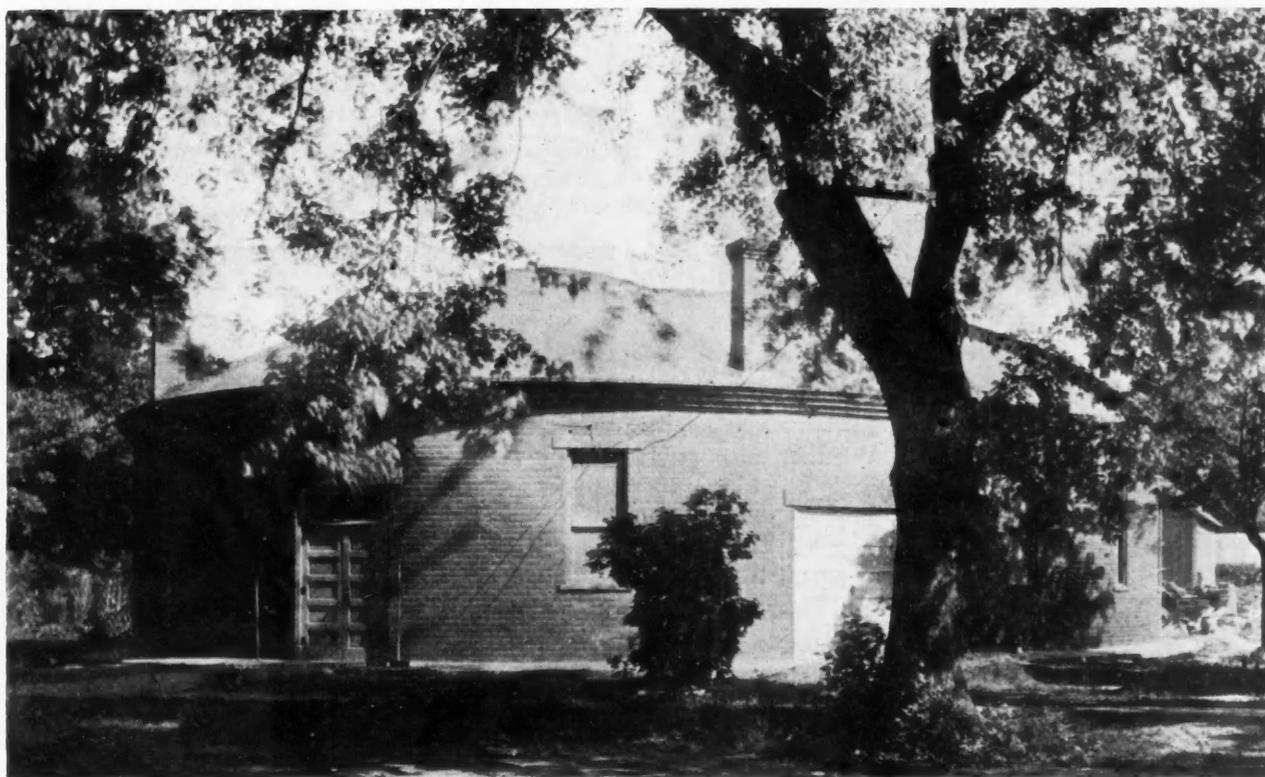
economy as the vital factor. That's why we are being forced into permanent construction. It is the only economical construction there is. The point here was to build a 60 by 100 permanent fireproof roof economically—in fact, cheaply. When you are planning to build for a man, and he says the building must be built economically, you don't know what he means unless you know the man, or until he puts it into definite figures. In this case I had to squeeze the bird



off of every dollar.

The lot was a good, big, central lot, with a bunch of big maple trees in front. After looking the job over I decided it was the right place for a young "Mormon Tabernacle." No Mormons, you understand; just the tabernacle. So we planned on an elliptical building 70 feet wide in the center and 100 feet long, giving more desirable seating space in the center and reducing the undesirable seating space in the

*(Continued to page 110.)*



**The Dexter Community House Is an Ellipse in Plan—70 by 100 Feet. The Roof Is a Shallow Dome—All Tile Construction.**

## Hollow-Tile Floors for Residences

AN ARCHITECT'S ADVICE TO AN OWNER—AND WHAT THE CONTRACTOR LEARNED FROM IT

By J. J. Cosgrove

**Y**OU may do as you please about the other floors of the building, but if you will be guided by my knowledge, judgment and experience, you will build the first floor of hollow tile.

It was an architect of national reputation and standing who spoke, and the advice he was giving was to a client for whom he was designing a home—a large and beautiful home—in a northern city.

"Nobody need tell you that the winters in this locality are cold. You know that of your own experience. Now, whether a building—a home—in a cold climate will be warm and comfortable in winter or cold and uncomfortable during more than half the year, will depend on how it is built and equipped.

"Did it ever occur to you that as the floors of a building are, so is the building? If the floors are cold,



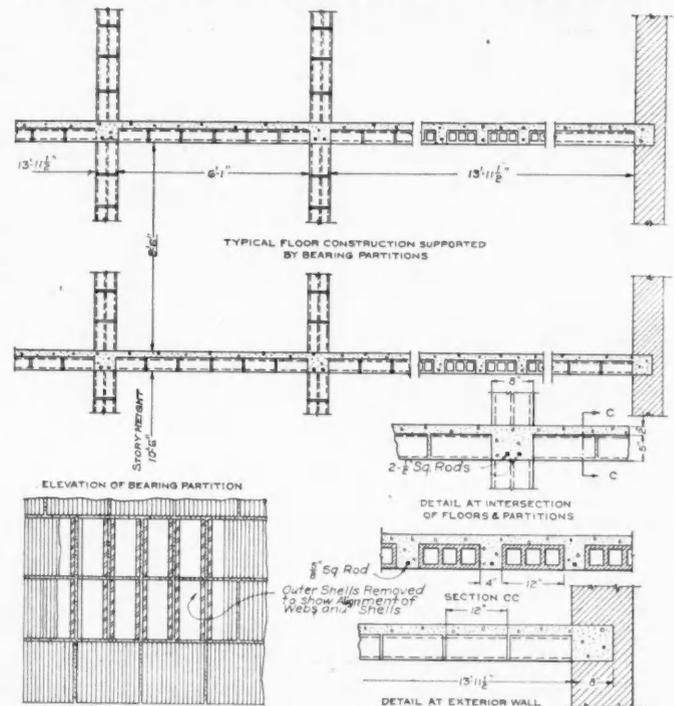
Placing Hollow Tile on 2 by 10-Inch Plank Centering. Note That Solid Centering Is Not Required.

no matter what kind of a heating system you might have, the inmates will feel cold. Whether they stand or sit the chill from the floor will creep up around the ankles and no amount of artificial heat will take away the feeling of discomfort.

"Now, cold floors can be prevented by putting in a form of construction which is comparatively light, is hollow and at the same time enclosed so the cold cannot strike thru the walls from the outside and chill the entire floor surface.

"There is another reason, and a good one, too, why a light, fireproof combination first floor is desirable. No building is erected these days without provision

being made for a general heating system with the boiler or furnace located in the cellar. In the cellar is stored coal, wood, boxes, barrels, and combustible materials of all kinds. If, then, fire should ever start in the



Details of Hollow Tile Concrete Floor.

cellar where all this inflammable material is stored, and has a combustible first floor to feed upon, the flames would soon spread to all parts of the building, completely destroying the contents. A combination concrete and hollow tile floor on the other hand, will confine the flames to the cellar and no great damage will be done.

"At a trifling extra cost, then, you secure both safety



Combination Fireproof Floors Ready for 4-Inch Concrete Joists and 2-Inch Concrete Top Coat to be Poured. Note Bearing Partition of 10-Inch Tile Laid on End. A Layer of Building Paper Will Keep Concrete From Running Down.

and comfort. What is your decision?"

It was the contractor's first floor of hollow tile, made necessary by the owner's conversion to the architect's views; and he felt slightly timid as all persons are liable to when called upon to do something new for the first time. But he was determined to be successful. If this architect felt so strongly on the subject, he reasoned, others must, too; so the number of architects and owners who would insist on similar forms of construction would be constantly on the increase. Trained as a carpenter, he would have preferred the materials he was accustomed to; but he realized it was the profit he was in business for, and he would have to keep evolving with the building industry if he was to reap his share of the profits.

His first move was to send to all the manufacturers of hollow tile for their catalogs, and for instructions how to estimate on, support the floor while green, and lay it in the best and most satisfactory manner. The simplicity of the construction set him wondering, after he had read their replies, why the system had not been generally adopted long, long, ago: and his timidity left him, confidence taking its place in proportion as his knowledge grew, of what to do and how to do it. The centering which he dreaded as a difficult task, proved to be nothing more than a grid of eight or ten-inch planks spaced 16 inches from center to center, supported at the required height, and running from one bearing wall to another. On these planks were laid hollow building blocks, end-to-end, with a space 4 inches wide between courses. These 4-inch spaces



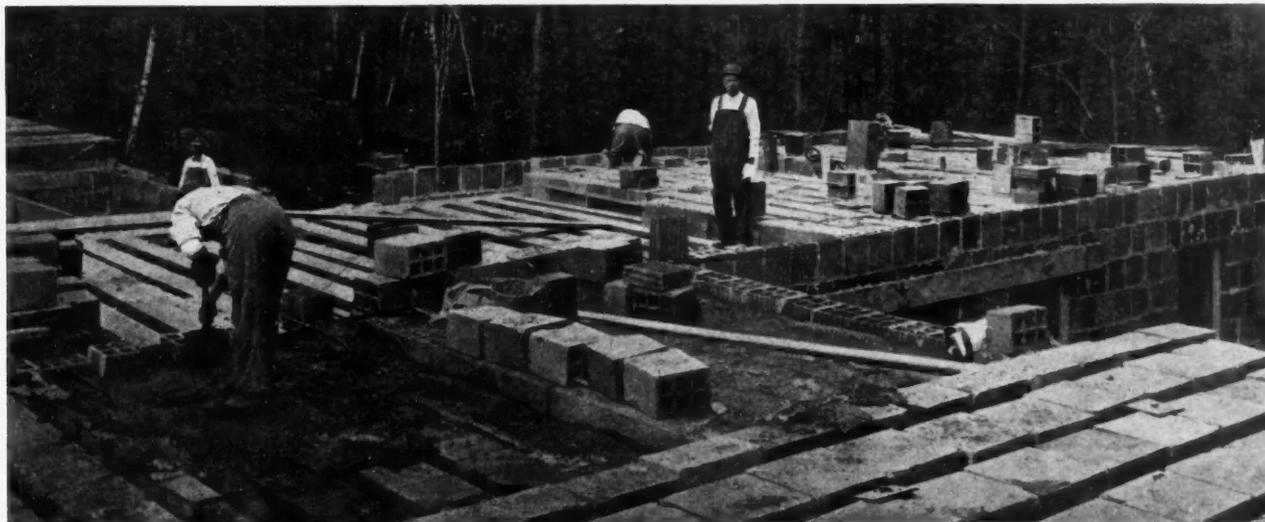
Hollow Tile Bearing Partitions in a Modern Residence.

later were to be occupied by reinforced concrete beams to carry the weight of the floor itself, and the live load it would have to bear in use.

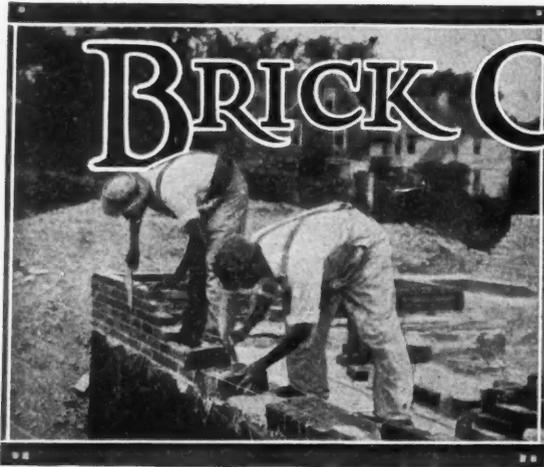
When all was said and done, it was these reinforced concrete beams which required the most skill and knowledge in building, for upon their design and strength depended the strength and stability of the floor. Concrete, as he very well knew, possessed but little tensile strength, or resistance to being torn apart. A beam of concrete four inches wide and several inches high and spanning the distance between bearing walls would hardly sustain its own weight. It would certainly fail and go crashing to the cellar below if a man were to walk across it.

But if a rod of steel is bedded in the concrete beam, the rod being close to the bottom of the beam at the

*(Continued to page 123.)*



Beginning the Work of Filling in the Concrete Between and Over the Rows of Hollow Tile for the Floor.



# BRICK CONSTRUCTION

## for Modern Carpenters and Builders



### Face Brick Over Tile The Best Way to Build a House

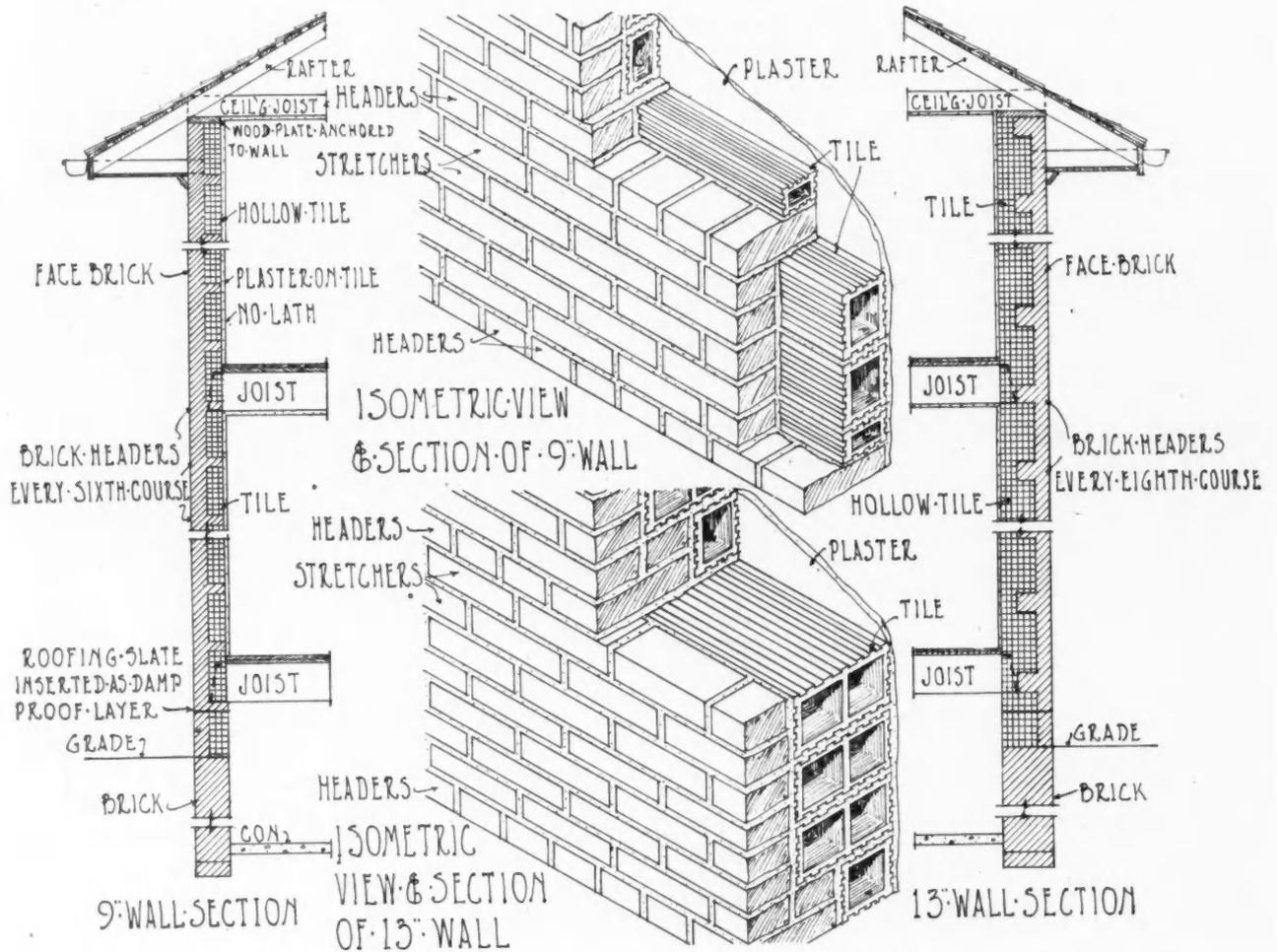
IN many respects, the most satisfactory construction for residences is face brick backed with hollow tile. This costs somewhat less than solid brick, besides being better insulated from heat and moisture. The air spaces in the tile are effective insulation.

In exterior appearance, this is a brick house, and as such, offers the architect and builder choice of the complete range of beautiful soft color effects of the

modern rough texture face work. Colored mortar joints add to the attractiveness of the bond.

For strength and durability this construction is on a par with solid brick, yet weighs considerably less.

The details show the method of bonding between brick and tile by means of brick header courses. A course of roofing slate is laid in the wall above grade line to prevent dampness from crawling up thru the mortar joints. Plaster can be applied directly to the face of the tile without fear of staining.



Details of 9-Inch and 13-Inch Combination Face Brick and Hollow Tile Wall Construction.



Our Suggestion for Building a New Brick Porch on the Gatch Residence. Notice How It Adds to the Size and Impressiveness.

**How Shall We Modernize This Fine Old House?**

**M**R. H. E. GATCH, of Greenfield, Iowa, wishes to take advantage of our offer to show our readers how any good old frame house would look



Residence of H. E. Gatch, Greenfield, Iowa, Which He Wants Modernized.

with a new brick porch. He proposes to raise his house 16 inches on a concrete block foundation. This will give it a more modern look, and the substantial brick porch of simple lines to take the place of the fret work piazza will work a wonderful change in the general appearance of this place.

It is surprising what a hundred dollars or so invested in this way will accomplish.

The detail shows the dimensions and the simple method recommended for handling this job, and the re-touched photograph illustrates the general appearance when the work shall have been completed. A 9-inch wall of good looking face brick extends from

the grade up to a stone coping, making the elevation 3 feet 2 inches. The column piers are 13 inches square. Heavy wood columns slightly tapered of a square paneled design support the roof. This is finished with boxed cornice to harmonize with the simple style of the house.



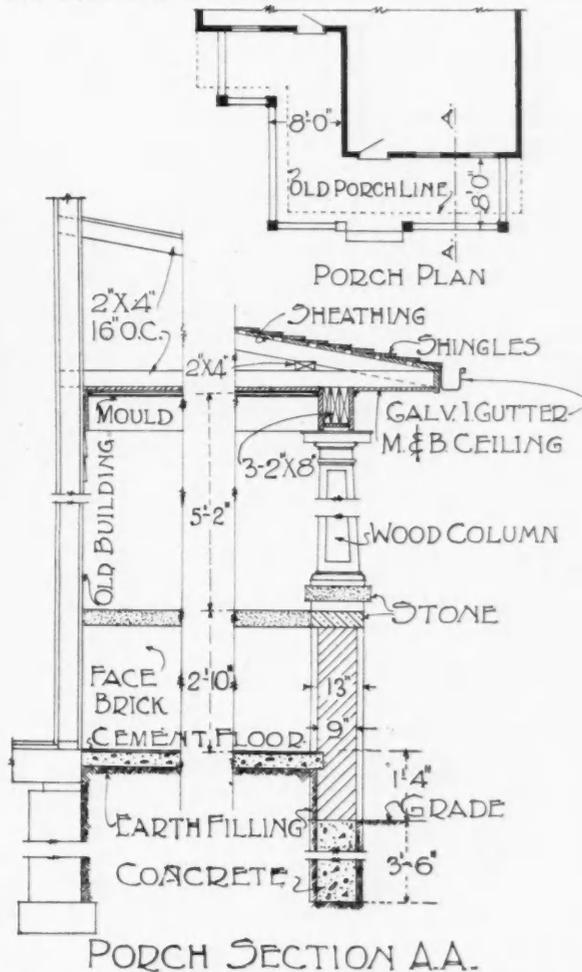
**Another Argument for Farm Granaries**

One of the biggest corn deals in Central Illinois history was completed when W. R. Turpin, of Decatur, paid a farmer \$19,586.23 for delivering 12,800 bushels of corn at the Turpin elevator. The price was \$1.53 a bushel.



**New Stanley Works Building**

The Stanley Works is putting up a seven-story factory building to be used in connection with its New Britain, Conn., plant. This building is 65 feet wide and 210 feet long, and will be provided with all the most modern manufacturing equipment and facilities. It will be ready for manufacturing purposes about November 1. It is alongside of and exactly like the manufacturing building the Stanley Works erected about a year and a half ago.



Floor Plan and Construction Details for the Remodeling of Front Porch Residence of H. E. Gatch.

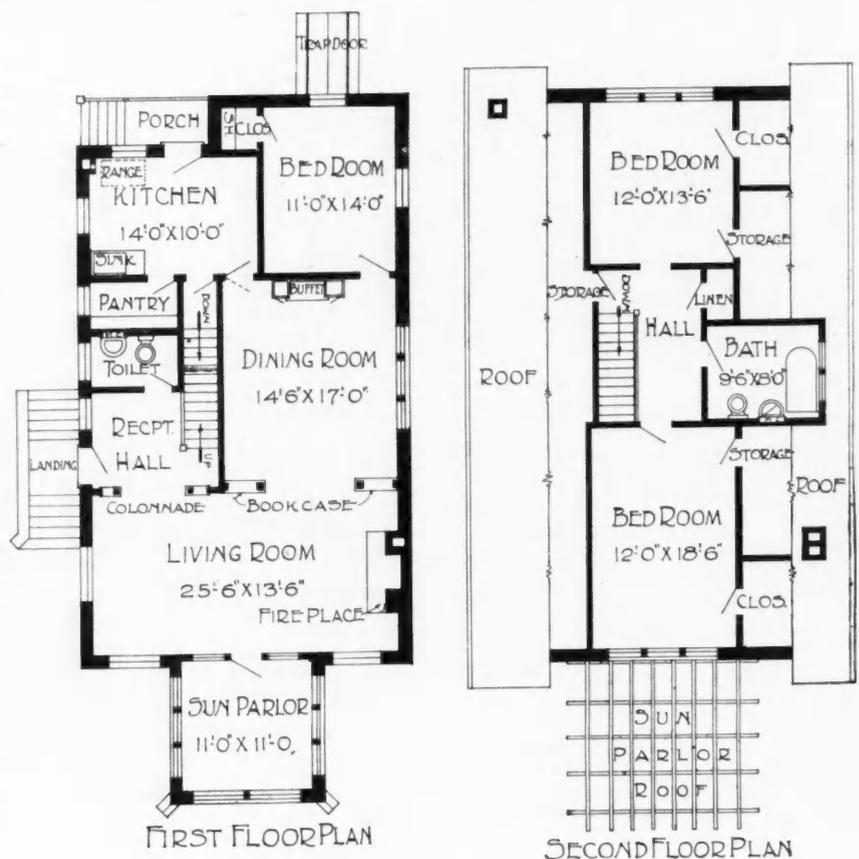


Face Brick House of Six Rooms Arranged to Furnish Every Possible Convenience and Independence Between Different Parts of the House. Sun Parlor Roof Treatment Helps Materially to Beautify the Exterior. Wood Trim Is Stained Brown to Produce Rustic Effect.

### Face Brick House with Pergola Roof Sun Parlor

The house shown in the above perspective view is a very substantially built structure. The walls are of face brick and white concrete coping and sill slabs are used. The wood trim is stained brown, giving the house a pleasing rustic appearance. The sun parlor with its pergola roof is a most attractive part of the house. The brick in the walls are laid in common bond and a decorative effect is obtained by the use of a soldier course at grade and one just above the windows.

The entrance to the house is at the side, where there is a stoop with concrete steps leading toward the street and back toward the rear of the house. A rear porch is built into one corner of the house. The side entrance leads into a reception hall from which the living room, the first floor toilet and the stairs to the second floor are reached. This arrangement furnishes privacy and convenience in that the second floor may be reached without passing thru any of the first floor rooms. The colonnade is placed between the reception hall and the living room. A bookcase colonnade divides the living room and the dining room, these rooms being arranged on the "L" plan which is so popular when these rooms have a cased opening between.



First and Second Floor Plan of Above House. Size, 28 Feet by 48 Feet.

### Brick House with Side Entrance

There are two things which nearly everyone who is interested in building a home wishes to have included in the design of his house. These are a sun porch or parlor and a sleeping porch. The house illustrated on this page is interesting in that it includes both of these in addition to several other features which are commendable.

This house is a brick veneered building and has the characteristic neat appearance which is associated with soft texture walls of pleasing graded colors contrasted with pure white trim. The shape of the house is somewhat out of the ordinary, which requires a considerable amount of skill in designing the roof. By a combination gable and hip and valley arrangement of the roof, the exterior appearance of the house is made pleasing in every way. The buttressed corners of the sun porch give an appearance of solidity which just balances the larger part of the house to the rear.

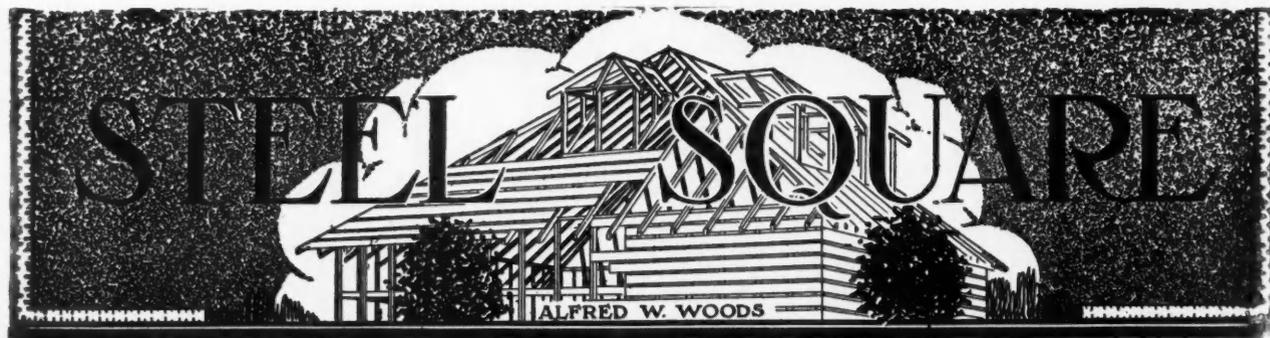
The side entrance into the house is by way of a small vestibule which connects with the living room and the dining room. There are French doors between the living room and the sun porch.



First and Second Floor Plans of House Shown in Perspective Below. Size 44 Ft. by 24 Ft.



Beautiful Face Brick Residence Which is Somewhat Out of the Ordinary in Its Exterior Appearance. Attention is Particularly Called to the Clever Manner in Which the Roof Has Been Worked Out. Soft-Colored Walls With Contrasting White Trim Produces an Atmosphere of Cheerfulness.



## Problems of Roof Framing Solved

THIRD ARTICLE—THE USE OF THE STEEL SQUARE IN RELATION TO CIRCULAR MEASURE AS APPLIED TO MITERS, SIDE CUTS OF JACK RAFTERS, ETC.

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

WE come now to that part of our subject that tries the ingenuity of most carpenters—that of knowing how to intelligently apply the steel square to obtain the various cuts that enter into the roof.

The square, or right-angle, cornered building is universally used for all classes of buildings; and, while it is considered the easiest of all angles to frame, it is very misleading and has done more to throw the carpenter off his guard than anything else. This is simply because its fundamental rule is based on the 45-degree angle. Consequently, as the square corner is the same as the 90-degree angle, the reading is the same from either way. That is the reason that even amounts taken on the blade and tongue of the steel square give the miter for the square corner, either side of the square giving the angle, because it is at the half way or centralizing point between either plate. This is shown in Fig. 6. The miter for any angle may be obtained inside the quadrant of 90 degrees, and may be had by taking either of the two angles that complete the quadrant; as, for instance, either 30 or 60

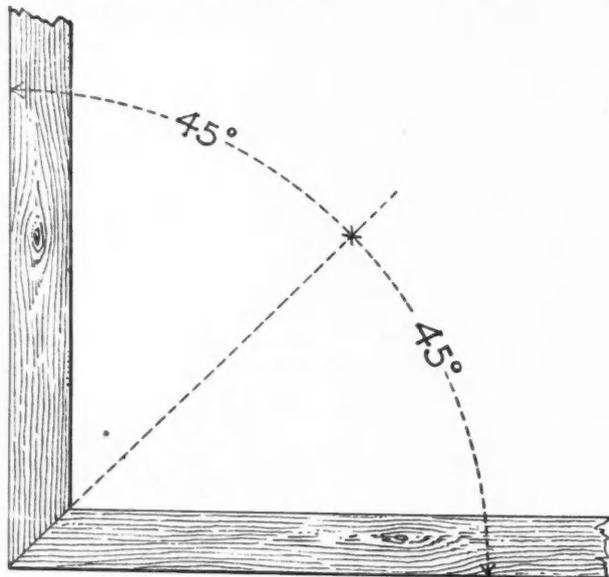


FIG. 6.

degrees gives the miter for the equilateral triangle, as shown in Fig. 7. The figures for the 60-degree angle, 12 and 20  $\frac{19}{24}$  give it, or 12 and 6  $\frac{11}{12}$ , the figures for the 30-degree, give the same thing. The blade gives it in the former and the tongue in the latter.

What is true of this is true of any miter, but we

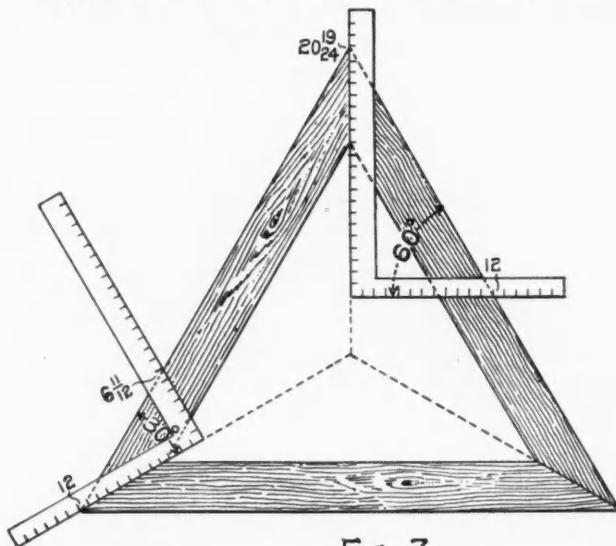


FIG. 7.

will not enter into this phase of the subject further at this time to explain the "whyfores," because it is a subject not readily grasped, and we would be accused of getting up in an aeroplane clear above the heads of our friends, when we could just as well stay nearer the earth; but these are facts just the same.

In the miter for the square corner the angles that form the quadrant are the same, namely, 45 degrees, and that is the reason why either side of the square gives the miter. They centralize; in other words, one angle does the business. Say, did you ever notice that one angle or set of figures taken on the steel square will give all the cuts for a one-half pitch for a square-cornered hopper, for either miter or butt joint? Take your square and try it. Take 12 on the tongue and 17 on the blade and the cut will be found on the tongue for all of the angles. This is simply because the  $\frac{1}{2}$ -

(Continued to page 108.)

## After Twenty Years

By T. F. Ryan

General Contractor, Laurel, Nebr.

**I**F prospective buildings could now be seen as they may be after twenty years have passed, in the majority of cases many changes for better construction would be made.

The uncertain outcome of theoretical knowledge and errors of ignorance or inexperience are presented to us with convincing clearness by the passing of time.

Every old building may teach us a valuable lesson, both as to what to do and what not to do, as quite often things are done and that, too, at considerable expense that tend to shorten the life of the building and lessen its value.

Last summer, in repairing a church at Coleridge, Neb., the folly of embedding woodwork exposed to moisture, in lime mortar, was impressed upon the writer by several days spent in crawling about in almost inaccessible places to patch up and repair sills, joist, and the lower ends of studding.

The church, consisting of a main part 36 by 44 and a tower 11 by 11, was built some twenty years ago, the foundation being made of "nigger heads" gathered from the prairie nearby. These were laid up in lime mortar.

The uniformity of the mortar showed care and experience on the part of the tender. The bonding of the wall and its facings were also above the skill of the average mason, altho the architect's level used showed their southwest corner to be 3 inches low, some of which may have been caused by settling, as the rainfall from the eaves and

the drainage from several adjoining lots ran along this side close to the foundation.

The sills were 2 by 6's laid flat, the foot of the studding being toe-nailed to them. The joists were 2 by 10's well spiked to the studding and sills.

On the sides, the masonry of the foundation was carried up between the joists to the floor, completely embedding the ends of the joist and all but the outside of the sill, in mortar. On the ends, the foundation was also carried up to the floor, the edge of the sill and the side of the first joist at each end being banked in mortar.

The highest point of ground was at the southwest corner. Here, on the outside of the wall, the bottom of the sill was only 2 inches above the dirt, and on the inside about 10 inches. From here there was a gradual slope around the building to the northeast corner, where the foundation was 29 inches high.

When the church was first built, two ventilators 4 inches in diameter, were made in the walls of the main part, one at each end. Later, upon the addition of a furnace, a door was cut in the east end and a coal window in the south side. The tower had three exposed outside walls and an inside cross wall. There

was no ventilator of any kind in the walls of the tower.

Last summer the congregation desired to add a basement. The church had to be raised 30 inches, but before this could be done every joist along the south side, with the exception of three at the coal window,



Decided to Get Some Good Books on the Subject: "No More Bum Jobs to My Credit."



had to be reinforced with long splices. The entire sill was replaced, tho a short section at this same window was not entirely rotted away.

At the tower a new set of sills and joists had to be put in and the foot of every studding had to be repaired with a splice, in fact the floor was at the point of collapse.

Wherever woodwork touched mortar, decay had begun, and it varied from a dry, powdery rot to where the sills were entirely gone, and not over 10 per cent of the original strength of the joist left. This rot was the worst where there was the most moisture, the least ventilation, and where the woodwork was nearest the soil. Had the joist and foot of the studding not been embedded in the spongy mortar they would not have been rotted, possibly excepting the under side of a few at the southwest corner, because they were all practically sound where they were not covered with mortar.

The dimension material was all clear soft pine of



Several Days Were Spent in Crawling About in Almost Inaccessible Places.

excellent quality. Had it been the sappy, mixed and Norway pine used today, the floor along the south side and at the tower would have fallen, perhaps, years ago.

The roof where the tower joined the main part, was not waterproof, and the rain ran down along the partition on the inside clear to the floor and soaked thru this to the cross foundation wall below, spoiling the plastering and decorations, also hastening decay in the mortar-embedded woodwork.

The roof was not made strong enough, the ridge in the middle had sagged down several inches, on each side there was a hollow where the main ties or collar beams were fastened to the principal rafters, at the eaves the sides bulged out like those of a boat's.

If the mechanics who built this church were to come back and look at it today, they would learn something, and that something so thoroly that practical use of it would be made in building a better structure now or any time in the future.

(Continued to page 142.)

### A Kitchen Case and Buffet

Designed by Ralph W. Ermeling, Architect

**T**HE modern up-to-date housekeeper studies efficiency in her work as thoroly as the men folks do in their lines of business. She is a kitchen specialist and general manager of the house. Anything that is convenient, saves unnecessary labor, and which adds to the appearance and beauty of the home, is welcomed.

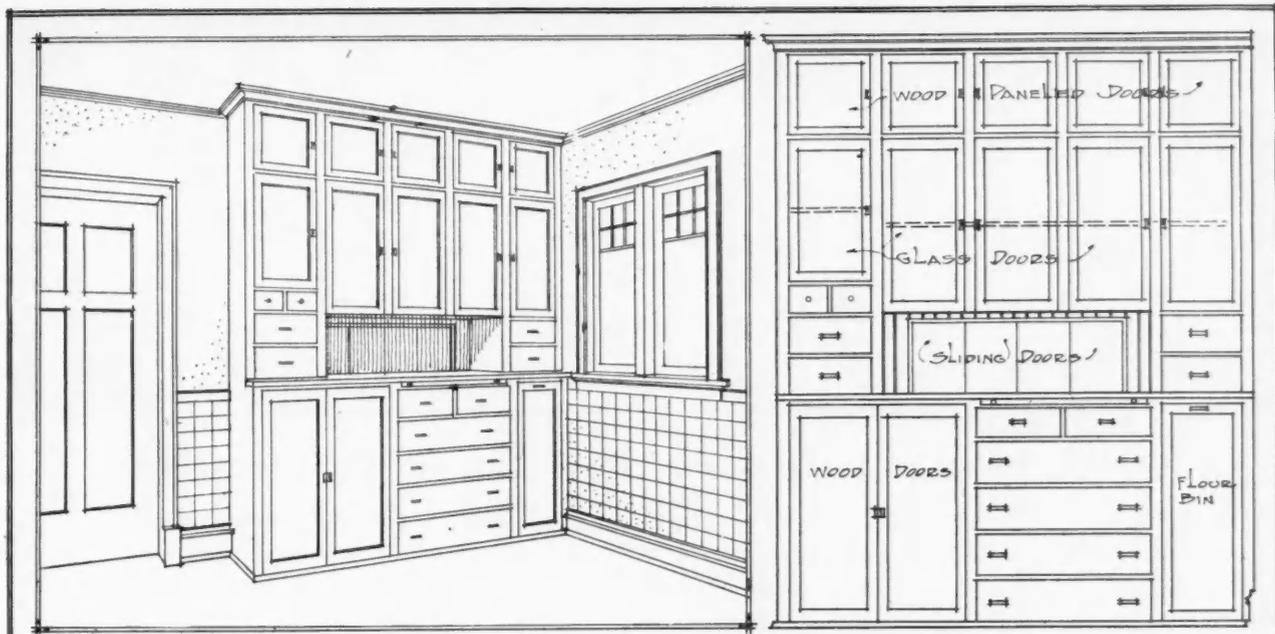
The double device shown here provides a necessary kitchen utility and dining room cabinet or buffet connected by an opening large enough for a service pass for serving and clearing away dishes. The sliding doors which separate are placed in the wall and are carefully designed as a part of the case work.

Some housekeepers find it more convenient to keep their edibles in cases in preference to the old-fashioned pantry. This kitchen cabinet has been generously designed with this use in mind. There is a storage space at the top, free from dust, behind well fitted doors. Below that are glass doors protecting the more

often used supplies and dishes for serving and cooking, all in plain sight for instant inspection. The interior of the case is carefully finished in ivory enamel for light and for sanitary reasons. Drawers at the sides provide a place for special articles of food most easily kept in drawers, and between them is a large open space as a handy resting place for kitchen utensils used in cooking and for dishes ready to serve. The lower part of the case has a tilting flour bin, disappearing breadboard, drawers for miscellaneous storage and two doors which open full width to make it easy to get at pots, pans and kettles.

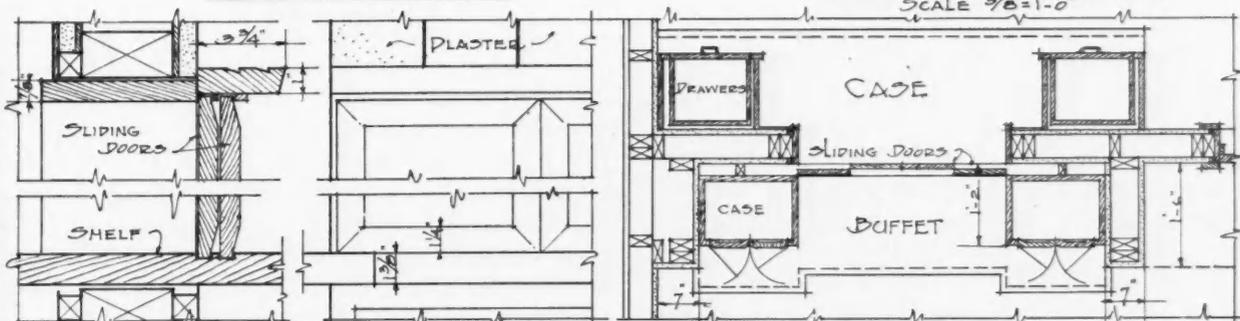
The dining room side is furred out for the depth of the buffet and that side of the room is carried across on a plane with the front of the sideboard over the door, using a continuous trim at the door height. This gives a feeling of architectural solidity to the room and the plastering flush with the face of the buffet gives a pleasing and somewhat unusual effect.

The base of the buffet consists of linen and silver drawers in the center and two solid wood doors in front of shelves at the sides. The central space above the top shelf over the drawers is set back to the partition wall. Over the sliding doors is a plate rail and back of it the plaster wall is subdivided into squares, tinted and given a Tiffany finish. At the sides are two cases, the lower part closed by solid doors at the front, and with art glass doors over. For those housekeepers who wish to keep some of their more valued chinaware exposed to view in the open, the space under the cases with art glass doors might be left open with the corner support simply left in to stiffen the case.



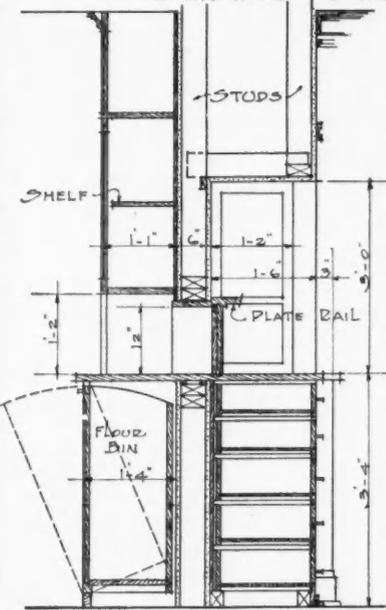
- PERSPECTIVE -

- KITCHEN CASE -

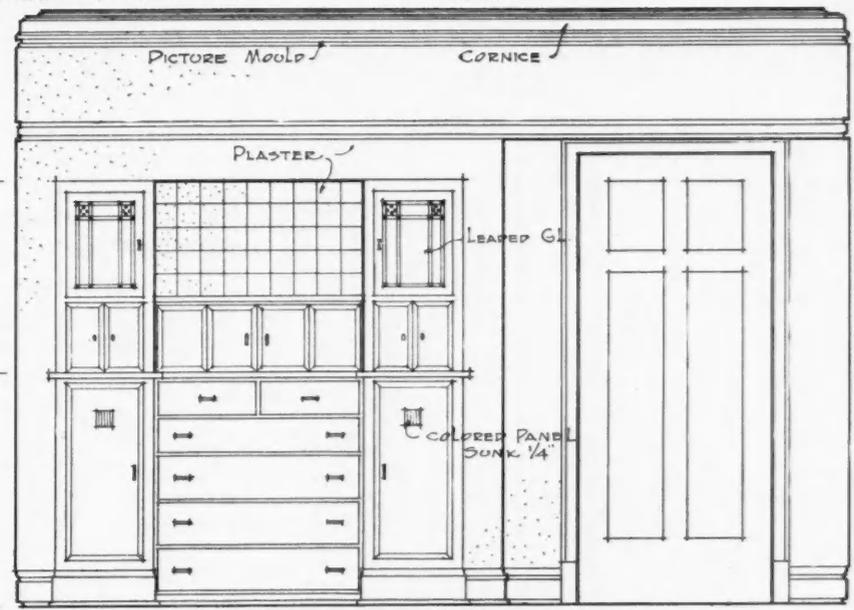


- SECTION - AND - ELEVATION - OF -  
- SLIDING DOORS - SCALE 1/2"=1'-0"

- PLAN -  
SCALE 3/8"=1'-0"



- SECTION -  
SCALE 3/8"=1'-0"



- ELEVATION - OF - BUFFET -  
SCALE 3/8"=1'-0"

# 'A' KITCHEN CASE AND BUFFET

Details of a Commodious Cabinet and Sideboard to be Built Into the Wall Between the Dining Room and the Kitchen. Designed by Ralph W. Ermeling, Architect.



## Noon Hour Talks by the Boss Carpenter

### Talk No. 61—Farm Series No. 2—Design of Modern Granary (Continued)

THE BOSS TELLS HOW TO FIGURE THE SIZES OF TIMBER TO USE IN THE CORN CRIBS AND ROOF

“WHEN we stopped last time,” said the Boss, “we had finished the calculation for the grain bin shown over the driveway in our granary shown in Fig. 2A. We show this figure again so that we can use it in this talk to finish our calculations. This time we will begin by figuring the size of the studding which is to form the side walls of the outer corn cribs and resist the buckling due to the outward pressure of the ear corn in these bins.

“A glance at the figure will show that the real danger of failure will be in the long studs of the outer walls of the building rather than in the shorter and heavier studs at the sides of the driveway. If we find the proper size of the outer studs, then the shorter and larger studs will surely be safe in the driveway side.

“As we stated in our last talk, the lateral pressure on the sidewalls of corn cribs filled with ear corn is said to be about 1,500 pounds, as the total pressure on a strip of wall 1 ft. long and 20 ft. high, while for a depth of 10 ft. this total pressure will be about 400 pounds. Also, 20 ft. is as high as will be needed on the ordinary farm. In this case the studding in the

outer walls is about 18 ft. long.

“Since these studs are spaced 2 ft. apart on centers, we will be on the side of safety if we consider that the total outward pressure on one stud is  $2 \times 1,500$ , or 3,000 pounds, and that the pressure is distributed in the shape of a triangle along the length of the stud. That is, it is nothing at the top plate and greatest at the bottom of the stud.

“If we use the same principle that we used in finding the size of the studding in the sides of the grain bins, we will consider that the entire pressure of 3,000 pounds carried by one stud is concentrated at a point about one-third the distance up from the floor, or 6 ft. up. The next step will be to find the amount of this total pressure carried by the upper plate and by the studding sockets. Taking moments about the lower end of the stud, we find that the upper plate holds  $(3,000 \times 6) \div 18 = 1,000$  pounds. This leaves  $(3,000 - 1,000) = 2,000$  pounds as the lateral pressure felt by the studding socket.

“As previously explained, this would make the greatest bending moment in one of these studs without the 2x6-inch ties come at a point about 6 ft. up from the lower end of the stud. Approximating the value of this bending moment by assuming that this lower 6 ft. is acted upon by a uniform pressure of 250 pounds per foot of height, we would have:

$$M = (2,000 \times 6) - (250 \times 6 \times 3) \\ = 7,500 \text{ ft. lbs. or } 90,000 \text{ in. lbs.}$$

“If No. 1 common yellow pine 2 in. thick, having a bending strength of 1,000 pounds per square inch is used, we will fill in our formula for strength in bending as follows:

$$\frac{1,000 \times 1/12 \times 2 \times h^3}{(h \div 2)} = 90,000 \\ h^2 = 270 \\ h = 17 \text{ inches}$$

“This would be the value for the width of the studs

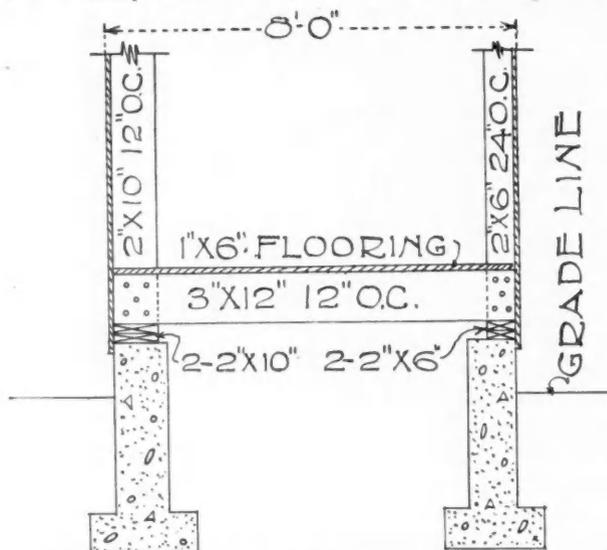


Fig. 2B. Framing For Wood Floor in Corn Cribs.

if they were spaced 2 ft. on centers as shown and had no support from the cross-ties. Altho experience has shown that 2x6-in. studding as shown in Fig. 2A will give the needed strength when tied with 2x6-in. ties at every second stud, the calculations indicate that either a heavier studding should be used or a closer spacing of the 2x6-in. studs in the outer walls. For the sake of rigidity, it would be well to use a 12-in. spacing for these studs if 2x6-in. stock is to be used. It is difficult to calculate the effect of the cross-ties and the stiffness given to the wall by the siding, but from the calculations shown above they evidently play quite an important part.

"The size of the roof rafters may be found by assuming a wind and

snow load of say 30 pounds per square foot of roof and finding the load carried by a rafter between supports. The longest length of rafter in this case will be found between the wall plate and the plate over the grain bin. This length is about 10 ft. In the calculations the length of the projection of the 10 ft. down onto a horizontal plane at the top wall plate will be used. This length will be the same as the width of the corn cribs, or 8 ft.

"Since these rafters are spaced 2 ft. apart on centers, the load carried on the projected length of rafter will be  $8 \times 2 \times 30 = 480$  pounds. If these rafters are of yellow pine 2 in. thick and a unit working strength in bending of 1,000 pounds per square inch is used,

with a value of  $M = \frac{1}{8} W l$ ,  
(Continued to page 136.)

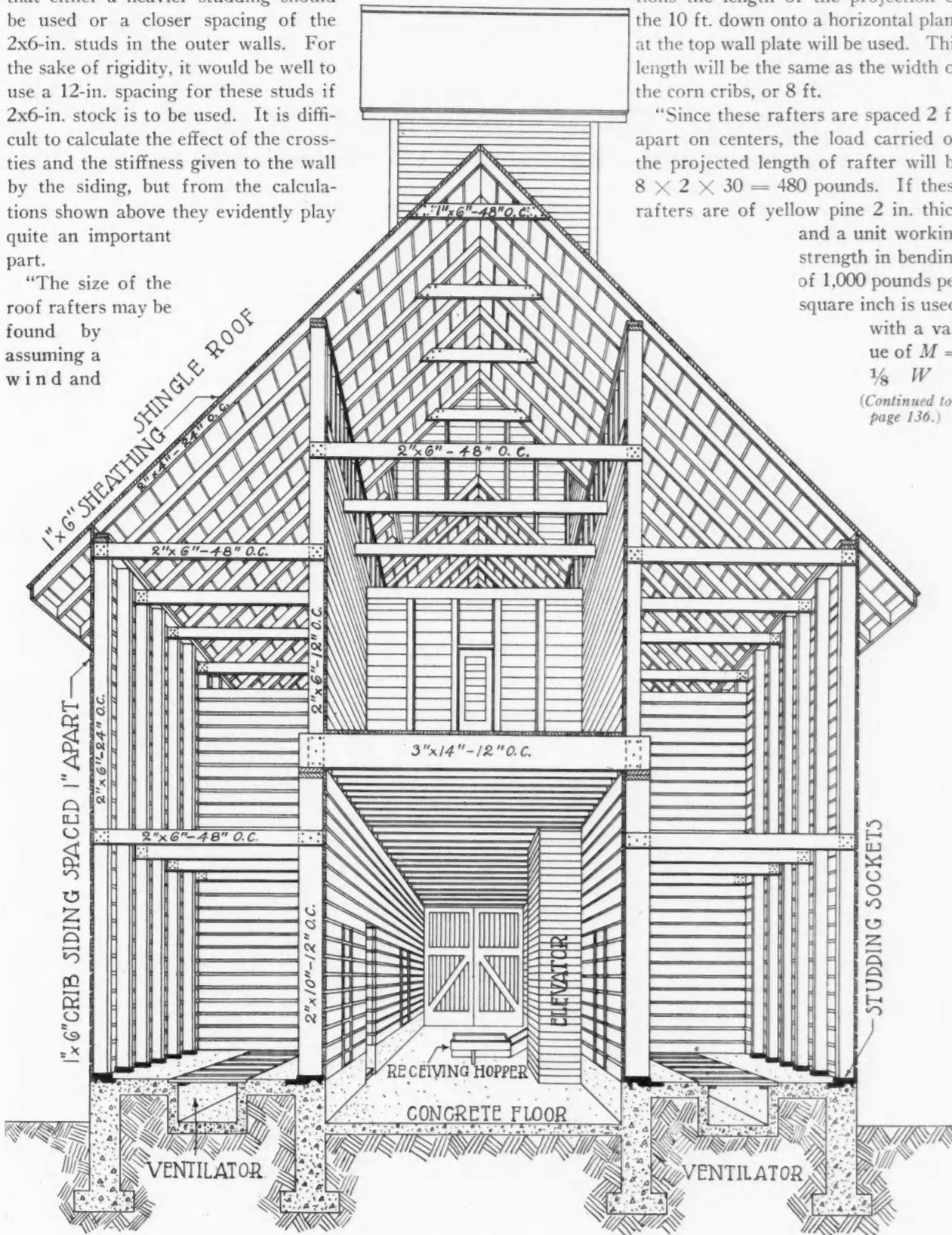


Fig. 2A. Section and Interior Perspective of Grain Storage Building, Showing Details of Framing.

# 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**

## Wants "The Boss" in Book Form

Alameda, Calif.

To the Editor:

Before closing would offer a suggestion. The series of articles "Noon Hour Talks by the Boss Carpenter," if published in book form, indexed, etc., would make a valuable text book for practical men. The simple, human language used in the writing of these articles has made them very appealing to practical men who haven't enjoyed college educations and a training to enable them to flounder thru a lot of printers' ink and complex formulae to get the "meat out of the nut" so clearly as is done by the writer of those articles.

D. A. DAMKROEGER.



## Some Pointed Comment Build NOW!

To the Editor:

Adams Center, N. Y.

In your editorial in the July issue of the AMERICAN BUILDER (Are Building Prices High?), you quote that 25 bushels of wheat will buy a Liberty Bond; against 50 bushels one year ago; and a silo for 400 bushels against 800 bushels

one year ago. That is all right; but where is the farmer with the wheat or corn? They sold to the speculator long before the price went soaring, as they did not have the facilities for storing or the finances to hold.

And the prices would never have reached the point they did if the farmers could have held their produce.

It is the speculator that can own the farm—build the barn and silo. And as I see it there is only one way for the farmer to do and that is to organize not only locally but make it a national issue and do away with the speculator. We have no use for him; he has got us into too much trouble already.

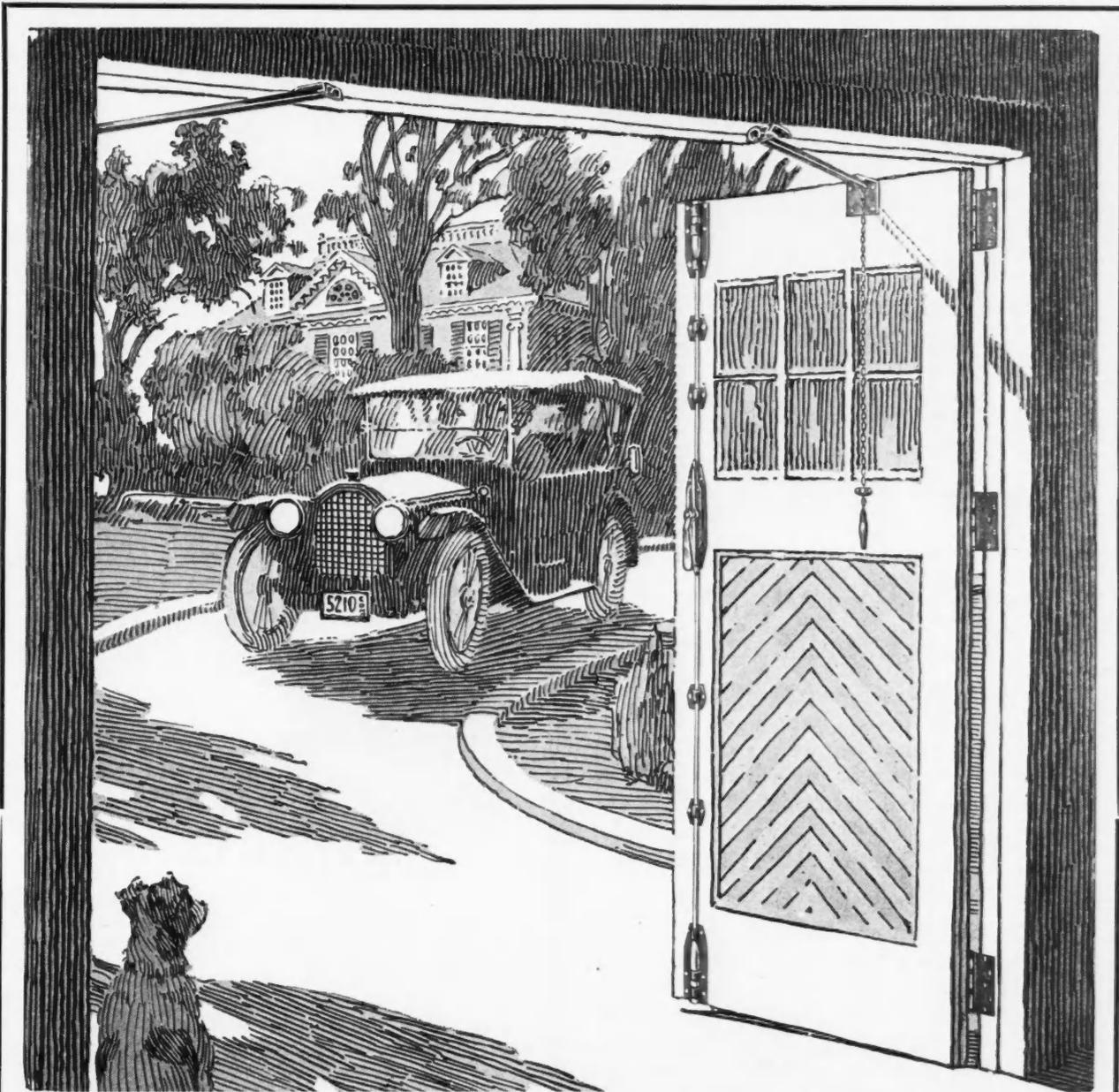
As to the other editorial, "Keep on Building," I will agree with you on this point. It will be years before the price of building material will be cheaper than at the present time, and if the farmers organize and the speculators have to look for new fields, may the Lord help the man that has to build then. So build now while you can.

A. M. SANFORD,  
Contractor and Builder.

(Correspondence Department Continued to page 88.)



Navajo Indian Boys Learning the Carpenter Trade at Navajo Training School, Ft. Defiance, Arizona. Their Instructor, Mr. J. R. Cutting, Stands at the Extreme Right.



**W**HEN you equip a garage, select hardware that is certain to give satisfaction. Pick the product of a manufacturer who will furnish you with what you require, and who has attained a reputation for excellence.

## Stanley Garage Hardware

is designed especially for garage purposes

The STANLEY Garage Door Holder No. 1774, holds the door firmly open when the car is entering or leaving. STANLEY Hinges, STANLEY Butts, STANLEY Bolts should also be included in your order. Any first-class

builders' hardware store man carries the complete Stanley Garage Hardware line in stock.

You will find it to be what you require and the garage owner will find it satisfactory despite the hardest usage.

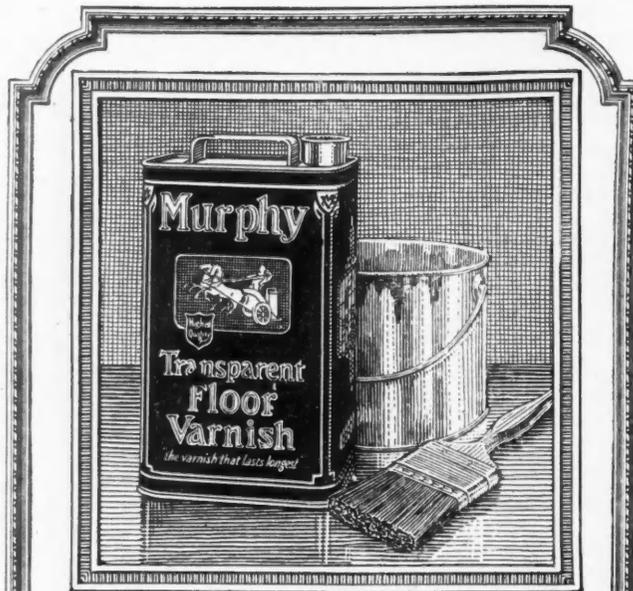
*Our book on Stanley Garage Hardware will be sent on request. Write for it today.*

### THE STANLEY WORKS

New York: 100 Lafayette Street

New Britain, Conn., U. S. A.

Chicago: 73 East Lake Street



The can that insures the job

## Why not go the whole way?

In some lines of merchandise it may pay to compromise—to use the second-best. This may be so; but we are sure you will agree that there is no place in your business for a second-rate varnish.

## Murphy Varnish

*“the varnish that lasts longest”*

is the kind of varnish on which to build a permanent business. It is true for us and we believe it is true for you. Poor varnish is a snare and a delusion for all concerned. Let us teach the public to have none of it. We do our part by making “the varnish that lasts longest” and by telling the public—your customers—the facts about it in our national advertising. That makes your part easy.

Send for further information about our products.

## Murphy Varnish Company

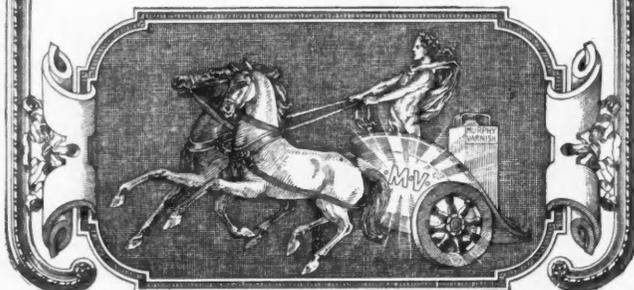
*Franklin Murphy, jr., President*

Newark New Jersey

Chicago Illinois

Dougall Varnish Company, Ltd., Montreal, Canadian Associate

A N A



WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

## Advocates Concrete Block Houses

Perry, Noble County, Okla.

To the Editor:

As a suggestion: While they have got lumber and other building materials so very high—wherein \$3.00 only goes to where one dollar went—turn your plans for AMERICAN BUILDER to cement block houses. Time will turn it that way after a little, anyway, for you will get a better house and cheaper than houses built of lumber.

C. HARRIS MILLER.



## A Modern Minnesota Home

To the Editor:

Ihlen, Minn.

I also enclose photo of myself and men as we are about to complete this new home for E. G. Wilson, of Ihlen, Minn.



Carl Ring and His Gang on the Job.

This is strictly modern. He has his own sewage and lighting system. The interior trim is of plain red oak.

I have taken your magazine off and on for years and find I cannot do without it.

CARL E. RING.

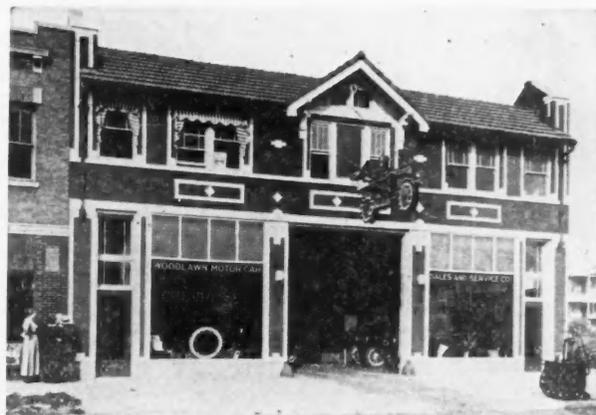
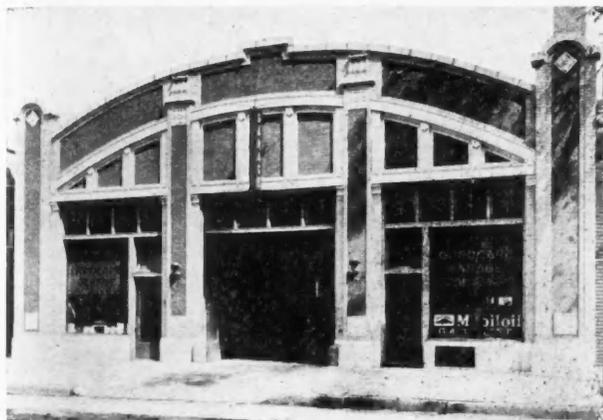


## Hemlock Men Make Quick Work of the Rockford Camp

Rockford, Ill., July 15.—Work is being rushed here on the cantonments to be used for the National Army which will be quartered here, and the lumber requirements are estimated at nearly twenty-five million feet. The entire lumber handling portion of the work is being cared for by the newly organized Hemlock Manufacturers Emergency Bureau and which is sending out orders to the Wisconsin and Upper Michigan mills by telegraph as lumber is needed. The first order was received by the bureau June 27, and the first cars arrived June 30, and July 1, while other orders since placed are being handled with equal expedition.

The Emergency Bureau was formed at the request of the War Department, for the joint handling of the entire lumber phase of the cantonment building, and the executive committee includes Edward Hines of Chicago; A. L. Osborn, Oshkosh; H. L. Butts, Park Falls, Wis.; G. S. Curtis, Chicago; M. P. McCullough, Schofield, Wis.; J. F. Halpin, Chicago, Ill.; O. T. Swan, Oshkosh, secretary. The Bureau is composed of manufacturers in the northern Hemlock and Hardwood Manufacturers Association territory, tho not confined to members of that Association.

The Hemlock Emergency Bureau was organized on a week's notice, including in that time a trip of the committee to Washington to close arrangements for prices on the hemlock to be furnished.



# GARAGES

built with

# MIDLAND TERRA COTTA

are the most popular with the motorist because their cleanly, snappy appearance suggests modern business methods and the best of service.

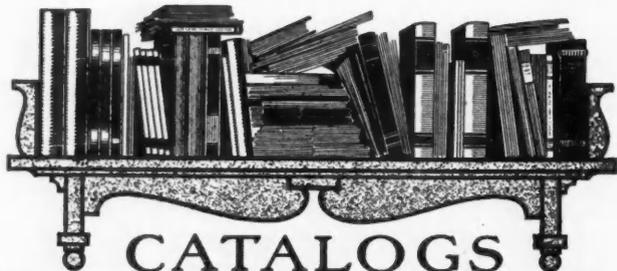
OUR NEW BOOKLET, "Midland Terra Cotta," is a valuable aid to the Architect, Builder, Contractor. A copy is yours for the asking.

## MIDLAND TERRA COTTA CO.

1515 Lumber Exchange, Chicago



WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER



## CATALOGS BULLETINS & BOOKS RECEIVED

The following literature, dealing with subjects of interest to builders, has recently been sent in.

"Concrete Grain Bins and Elevators" is the title of a 16-page bulletin, 6 by 9 inches, published by the Portland Cement Association, 111 West Washington street, Chicago, Illinois.

Facts on farm building ventilation are presented in a concise manner in a circular of the Anderson Manufacturing Company, Des Moines, Iowa.

"Experimental Building Science," by J. Leask Manson, is a book of 210 pages, 5½ by 8¾ inches, arranged as a text book dealing with the scientific treatment of building problems, published by the Cambridge University Press, England, and being distributed in this country by G. P. Putnam's Sons, 2 West Forty-fifth street, New York City.

"Evolution" light weight bath tubs, manufactured by the Wheeling Sanitary Manufacturing Company of Wheeling, W. Va., are illustrated and described in a 20-page booklet, 8 by 10½ inches, which is a supplement to their Catalog D.

Refrigerators for residences, manufactured by the McCray Refrigerator Company, Kendallville, Ind., are described and well illustrated in their catalog No. 93, a book of 52 pages, 7½ by 10 inches.

Ashley system of sewage disposal without sewers is carefully explained in Booklet 2, 32 pages, 7 by 10 inches, by the Ashley House Sewage Disposal Company, Sanitary Engineers, of Morgan Park, Cook County, Ill.

"Private Water Systems" is the subject of a 30-page booklet, 6 by 9 inches, which illustrates and describes the water systems for places not having city or community service, manufactured by the Milwaukee Air Power Pump Company, 886 Third street, Milwaukee, Wis.

One-register pipeless systems of sanitary heating and ventilation are presented in the loose-leaf catalog of the Standard School Heater Company, Chicago, Ill.

"Eye Comfort Fixtures for Indirect Lighting" is the title of Catalog E, 60 pages, 8 by 10 inches, of the National X-Ray Reflector Company, 235 West Jackson boulevard, Chicago, Ill.

The stationary electric vacuum cleaners manufactured by the B. F. Sturtevant Company of Canada, Ltd., Galt, Ontario, are illustrated and described in a 20-page catalog, 8 by 11 inches.

"Russwin" window hardware is presented in a 32-page booklet, 6½ by 9¼ inches, of the Russell & Erwin Manufacturing Company, New Britain, Conn.

Automatic methods of temperature regulation are presented in a 20-page booklet, 3½ by 6 inches, published by the Honeywell Heating Specialties Company, Wabash, Ind.

The Novelty pipeless furnace is described and illustrated in a circular of the Abram Cox Stove Company, Philadelphia, Pa.

Gas water heaters are described and illustrated, installa-

(Continued to page 92.)

*When service is a factor it pays to demand a material of known value and enduring quality.*

# Apollo-Keystone

## COPPER STEEL

### Galvanized Sheets



represent the highest standard of manufacture and assure the user the utmost of satisfactory service and resistance to rust. When you are paying the price of good galvanized sheets—you should be getting APOLLO-KEYSTONE. Actual time and service tests have proved the superiority of copper steel sheets. Demand Apollo-Keystone for Roofing, Cornices, Spouting, etc.

## American Sheet and Tin Plate Company

GENERAL OFFICES: Frick Building, PITTSBURGH, PA.

DISTRICT SALES OFFICES:

Chicago Cincinnati Denver Detroit New Orleans New York Philadelphia Pittsburgh St. Louis  
Export Representatives: UNITED STATES STEEL PRODUCTS COMPANY, New York City  
Pacific Coast Representatives: UNITED STATES STEEL PRODUCTS COMPANY, San Francisco, Los Angeles, Portland, Seattle



and it is a roof covered with—  
**RED CEDAR SHINGLES**

*"Durability is the Essence of the Contract!"*

Mr. Carpenter, that phrase is written into every roof made of Red Cedar Shingles—Not a "passing show," not an artificial imitation, but, on the contrary, nature's finest sterling product, every shingle a splendid piece of lumber good for years and years of wear and sturdy service against the elements of old Father Time. When you give your client a Red Cedar Shingle Roof you give him the best there is in the world.

**A Guarantee of Grade and Quality**



You should take advantage of the fact when you buy Red Cedar Shingles that the West Coast Lumbermen's Association is inspecting the grade and manufacture of 50 of the leading mills.

*This is the identification mark of all Red Cedar Shingles that pass inspection.*



**Sample Shingle FREE — Building Books FREE**

Write address below and get sample of a Rite-Grade Red Cedar Shingle—FREE. Put "X" in square against books you want:

- Farm Buildings:** Some important suggestions for Carpenters in this book.
- Bungalow Book:** Twelve very pretty bungalows with floor plans.
- Distinctive Homes:** Twelve fine American homes, with floor plans.

Name.....

Address.....

Shingle Branch.....

**WEST COAST LUMBERMEN'S ASSOCIATION**  
 426 Henry Building Seattle, Wash.



Note the great stiffness and rigidity of Rib Lath  
Sheets shown are 8 feet long

## This Metal Lath Saves Work and Time

Owners today are insisting on modern homes of **strong, permanent construction**. By using our metal lath products, you can supply such structures, and at the same time save the owner's time, material and labor expense.

Use **Hy-Rib** and **Rib Lath**—and you save forms, stiffening channels and labor. Two coats of plaster can be used instead of three. This metal lath is so stiff and rigid that supports may be placed a greater distance apart, saving in the cost of supports and the labor and time necessary to attach the lath. Moreover, streaked and cracked plaster is prevented.



Hy-Rib furnished in four depths of ribs and various gauges

### HY-RIB

A steel sheathing, stiffened by rigid deep ribs. Manufactured from a single sheet of steel. Its use is decidedly simple. The easily handled sheets are fastened to the supports and the plaster or concrete applied. No forms, stiffening channels nor wiring required.

Begin now to build with Hy-Rib and Rib Lath. The line is complete, including Diamond Lath, Channels, Studs, Corner Beads, Base Screeds, etc.

Write today for free copy of Hy-Rib Handbook, with specifications, tables, illustrations, etc. Very valuable to builders. 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. Saves time, labor and material in erection.

## Trussed Concrete Steel Co.

YOUNGSTOWN, OHIO

Representatives in Principal Cities



## Catalogs, Bulletins and Books Received

(Continued from page 90.)

tion diagrams are shown and other useful information is given in the 32-page catalog and handbook, 6 by 9 inches, of the Humphrey Company, Kalamazoo, Mich.

**Eureka water pumps and water supply systems**, manufactured by the Bishop-Babcock-Becker Company of Cleveland, Ohio, are presented in their Catalog B-33, 64 pages, 5 by 8 inches. Operation is by electricity, gasoline engine, water pressure or hand.

**Bohn Syphon System refrigerators** are illustrated and described in the attractive Catalog 18 of the White Enamel Refrigerator Company of St. Paul, Minn.

**Medicine cabinets, bath and toilet room fittings** bearing the "White Steel" label of the "White Seal" Sanitary Furniture Company, Grand Rapids, Mich., are listed in their plate book and shop number index, a booklet of 26 pages, 9 by 11½ inches, illustrated.



## New Hand Book on Clay Products

The immunity of vitrified pipe from chemical attack and its economy in this era of war prices are themes emphasized in a handsomely illustrated booklet issued by the Sewer Pipe Manufacturers' Association; John L. Rice, Field Commissioner, Second National Building, Akron.

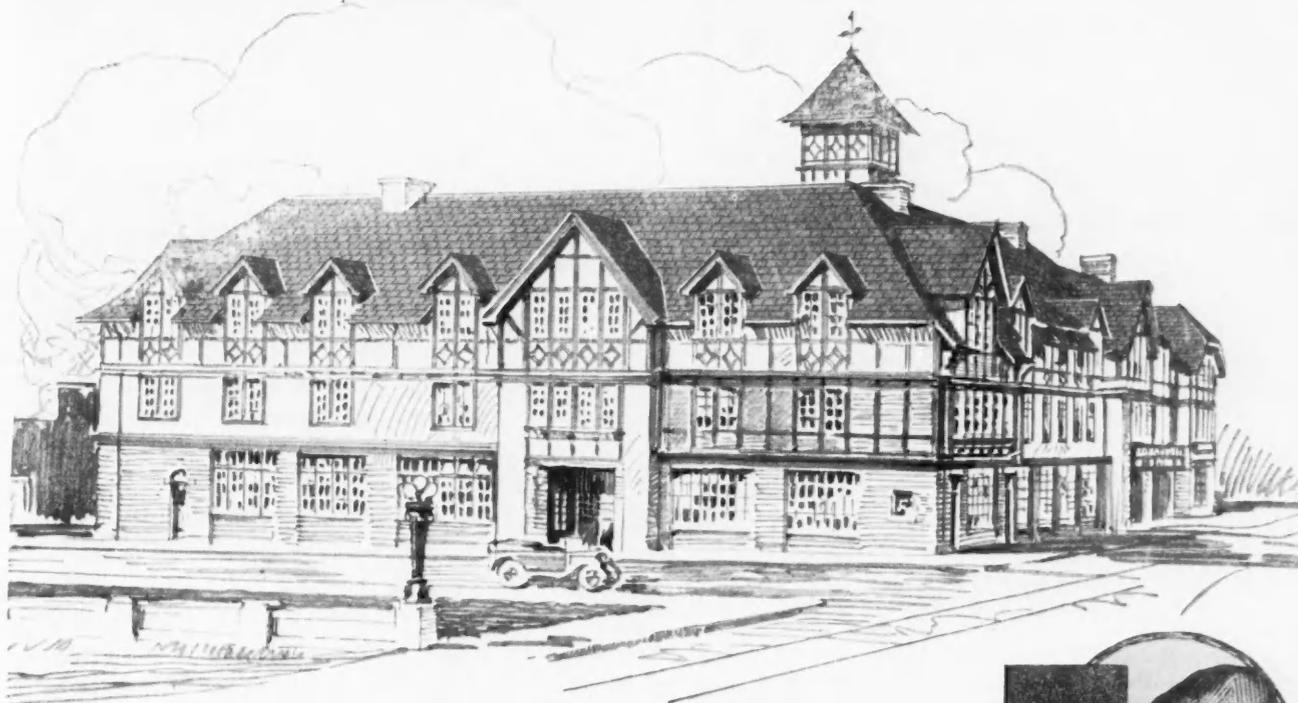
The title of the booklet is "Clay Products for Building Construction." Concise, but exact specifications for laying



The Proper Way to Lay Tile.

building drains of vitrified pipe are a valuable part of the text. The manufacturers realize that the crucial question with respect to this form of drain is the question of correct installation. A formula is furnished by which the proper sizes of drain may be readily computed. There are drawings showing the approved method of stack connection and of anchoring the clean out to the cellar floor. Emphasis is placed upon the perfect alignment of pipe and the thorough compacting of the support. Caulking of joints with oakum is prescribed before the application of the joint material.

Safeguarding of buildings against fire by use of vitrified flue lining and the use of vitrified wall copings are among the other topics treated.



# They Appeal to the Majority

Because of their beauty, Neponset Twin Shingles are popular with people who can afford to pay twice their price. The man with a moderate income can buy no more economical shingles, because of their great durability and fire-resistance.



# NEPONSET TWIN SHINGLES

Slate-Surfaced, Fire-Resisting  
(Patent Applied for)

have been termed "The Roofing Development of the Twentieth Century." If you want to know more about this popular roofing from the standpoint of profits, fill out and mail the coupon. Remember, to be known as the Neponset in your town means a substantial big-paying roofing business. Are you interested? Then write without delay.

**BIRD & SON,** Established 1795 Dept. C, E. Walpole, Mass.

New York Chicago Washington Canadian Office and Plant: Hamilton, Ontario



Look for this trademark on all Shingles, Roll Roofings, Wall Boards and Building Papers. There is one meeting every requirement and purse—all guaranteed by us.

Bird & Son, Dept. C, E. Walpole, Mass.

Please send me information about Neponset Twin Shingles and Neponset Wall Board. Also a copy of your book "Repairing and Building." This request does not obligate me in any way.

Name.....

Address.....



## NEWS OF THE FIELD

### National Lumber Manufacturers Elect Officers

The National Lumber Manufacturers Association at its annual meeting has re-elected Robert H. Downman of New Orleans, president of the Association.

Other officers elected were: R. B. Goodman, Goodman, Wis., first vice-president; John H. Kirby, Houston, Tex., second vice-president; A. L. Paine, Seattle, Wash., third vice-president, and John W. Blodgett, Grand Rapids, Mich., treasurer. Since Mr. Downman, owing to his urgent duties as chairman of the Lumber Committee of the Council of National Defense, will not be able to devote his personal attention to association work, it was decided that Mr. Goodman should serve as acting president and chairman of the Executive Committee during the remainder of the year. R. S. Kellogg was elected secretary-manager of the Association, and arrangements were made to relieve him of his duties as Secretary of the lumber committee in Washington in order that he might return to Chicago July 1.

E. A. Sterling tendered his resignation as manager of the Trade Extension Department in order to take advantage of new opportunities and connections in the East.

A plan of reorganization of National Association activities submitted by Mr. Goodman was approved. This plan will be supported by an assessment of three-quarters of a cent per thousand feet to take effect July 1.

General committees were created as follows:

Trade Extension Committee with John W. Blodgett.

Legislative Committee, F. G. Wisner, chairman.

Market Conditions Committee, Edward Hines, chairman.

Secretary's Committee, R. S. Kellogg, chairman, and the secretaries and assistant secretaries of the affiliated associations.

Pacific Coast Committee to consist of the presidents, secretaries and national directors of Pacific Coast Associations.



### Lumber for National Army Cantonments

Washington, D. C., July 15.—The war department announced that the contract for constructing cantonment buildings at Des Moines, Iowa, has been awarded but it is not decided what species of wood will be used there. The Douglas fir people are anxious to divide the contract with the southern pine manufacturers, but it is not definitely settled.

The best judgment of lumbermen here is that the contractors will purchase lumber for the other cantonments as follows:

Atlanta, Ga., through the Georgia-Florida Saw Mill Association; Columbia, S. C., Annapolis Junction, Md.; Wrightstown, N. J., Petersburg, Va.; North Carolina pine.

Aphank, Long Island, North Carolina pine and spruce.

Ayer, Mass., spruce and probably some North Carolina pine.

Fort Sam, Houston, Tex.; Fort Riley, Kan.; Little Rock, Ark.; Louisville, Ky., and Chillicothe, Ohio; southern pine.

Rockford, Ill.; hemlock. Battle Creek, Mich.; hemlock.

American Lake, Washington, Douglas fir.

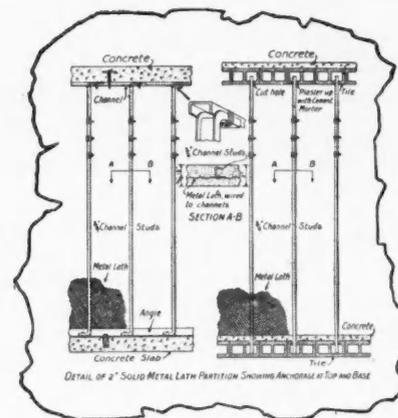
## "Kno-Burn" and Plaster Partitions Barrier to Fire



The original wood partitions in this building were destroyed by fire. The new partitions are solid plaster on "KNO-BURN."

The detail shows how "KNO-BURN" Expanded Metal Lath can be used effectively in solid plaster partitions

### DeWitt Apartments Syracuse, N. Y.



## North Western Expanded Metal Company

Members of the Association Metal Lath Manufacturers

903 Old Colony Building, CHICAGO, ILL.



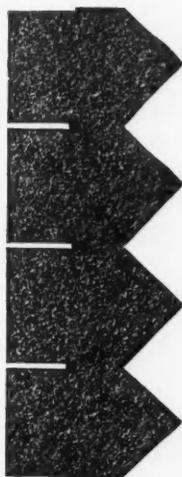
*FLEX-A-TILE Reversible Slab  
Laid in American Shingle Style*

# 2 Styles in 1

*Lay Either End to the Weather*

**G**ENUINE FLEX-A-TILE Asphalt Shingles in another, unique style—a slab of four FLEX-A-TILES in one, made so that either end can be exposed, to suit the taste of the builder. Diamond style at one end and square American Shingle style at the other. First—decide on FLEX-A-TILE Asphalt Shingles for their permanent beauty, durability, ease-of-laying and time-weather- and fire-resisting qualities. Then—place your order for

## FLEX-A-TILE Reversible Slab Asphalt Shingles



**Immediately.** There is no need to select the style of shingle until later; then, whichever style is chosen by the builder—diamond or square American shingle—you will be prepared with FLEX-A-TILE Reversible Slabs. Besides these two standard styles, many ornamental effects may be obtained by alternating the positions of the shingles.

This new slab style of FLEX-A-TILES saves 50% in time and labor of laying; 35% in freight; and 38% in nails. Comes in either rich red or deep green, fadeless, natural-stone surfacing. Can be used equally well on new work or over old shingles. Write now for samples and prices.

### The HEPPE-SNELSON ROOFING CO.

Factories: Minneapolis, Chicago and in New Jersey  
Dept. H 1010 Kilbourne Avenue Chicago

*FLEX-A-TILE Slab Shingles, No-Tar Asphalt Paint, Other Guaranteed Heppes-Nelson Products*

**DEALERS:** A few territories are open for live dealers. Write us for proposition.



*FLEX-A-TILE Reversible Slab  
Laid in American Diamond Style*



Architects: Shiner & Appel, New Haven, Conn., for Raymond Sarles, New Haven. 24" Gray "CREO-DIPT" Stained Shingles on side walls. Also "CREO-DIPT" Stained Shingles on roof.

## In Building New or Reshingling

roofs and side walls, you can create more charming effects and save time and muss of staining-on-the-job if you specify

## "CREO-DIPT" STAINED SHINGLES

For artistic and protective value, these shingles stand alone. Their beauty of colors is protected against fading, wear and tear of sun and storm by our **exclusive process** of creosoting and staining.

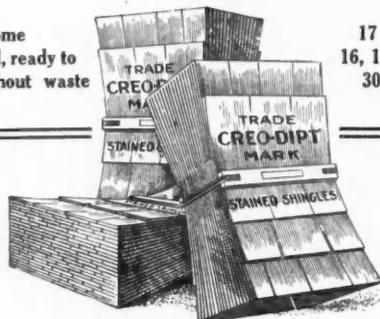
Sawed from live cedar—thoroughly seasoned—no waste. Creosoted against dry rot, worms and weather. "CREO-DIPT" Stained Shingles are not to be compared with "job stained" or "patent" shingles, yet they cost less than staining on the job.

*Write for our sample colors on wood and book of "CREO-DIPT" Homes. Also ask about "Thatched Roofs".*

### CREO-DIPT CO., Inc.

1028 Oliver St.  
N. TONAWANDA, N. Y.

They come bundled, ready to lay without waste



17 Grades  
16, 18, 24-inch  
30 Colors

### Blaw-Knox Company Formed

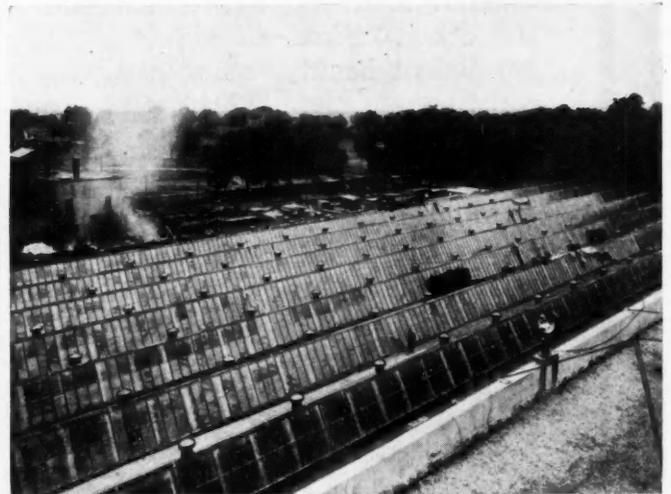
The consolidation of the Blaw Steel Construction Company and the Knox Pressed & Welded Steel Company is announced. The new company will be "Blaw-Knox Company," with executive offices in Hoboken, Pennsylvania, general offices in the Farmers Bank Building, Pittsburgh, Pa., branch offices at New York, Chicago, Boston and San Francisco and works at Hoboken and Wheatland, Pa. The personnel of the two organizations remains unchanged.



### Another New Building for Colt's Arms

Since the erection last fall of the big four-story manufacturing building for The Colt's Patent Fire Arms Co., the rush of Government orders for army revolvers has made it necessary for this company to add nearly three more acres of floor space. The construction of the new building is being handled by the Aberthaw Construction Co., of Boston, the same contractors who erected the former building on schedule time.

The contractors will complete the new building before the middle of this month (July). The building is a one-story



Skylight Roof of New Colt Building.

structure, covered by a saw tooth roof. The bay spacings are about 21 feet each way. The sawtooth roof runs lengthwise of the building so that the glass area is exposed to a northerly light. The sawtooth framing is structural steel supported on round steel columns, there being some 260 tons of structural steel used. Outside columns and the floor which are of reinforced concrete, call for 350 tons of reinforcing steel. Heavy reinforcement is necessary in the floor on account of bad ground conditions. Over 220,000 brick and 10,000 square feet of steel sash will be used for the outside walls. Metal windows are already in place in the sawtooth roof.



### Cornell Wood Products Service Dividend

A "Service Dividend" to all office employes of the Cornell Wood Products Company, who have been in the service of the company for a year or more, was announced recently by C. O. Frisbie, president of the company. The announcement was made by personal letter to all employes entitled to the dividend.

"We are a young company and we want our employes to grow with us," said Mr. Frisbie. "That's why we are declaring this 'Service Dividend' today. I believe in the saying that 'a rolling stone gathers no moss' and, in my opinion, a young man starting out in life will do better in the long run if he gets a job with a good company and sticks to that company, growing up with it."



## Tear Off the Old Shingles— Put On Asbestos

When a shingle roof starts to “break up” it is really cheaper to tear it off entirely than to continually patch, patch, patch year after year. Better to burn up the old wood shingles and put on a roof that will not burn—cheaper in the end for the owner—more satisfactory for the builder.

### AMBLER Asbestos Shingles

*The Roof that is as Permanent as the Foundation*

is easily best every way from the standpoint of architect, builder and owner. Best for factories, best for office buildings, best for public buildings and best for homes.

Amblor Asbestos Shingles are composed of Portland Cement reinforced with long, strong asbestos fibre—just as steel rods reinforce a wall. They come in many designs and three colors: Newport Gray, Indian Red, and Blue Black. Painting as a preservative is never necessary—and they are fireproof, weather-proof, timeproof and **REPAIR PROOF.**

*Write for more facts, samples and prices*

#### KEASBEY & MATTISON COMPANY

Dept. B-1 AMBLER, PA.

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

*Everything in Asbestos*

## "War Cities" Being Rushed to Completion

(Continued from page 40.)

2640 men, a war strength regiment. Barracks are screened, electric lighted, and will be provided in winter with stove heat. They are two-story in height, and provided with all necessary bathing and sanitary arrangements. Units also embrace cooking and mess quarters, and some minor outbuildings.

The different units are separated from one another by a sufficient distance to insure isolation in case of fire or disease.

### General Features of Buildings

Each cantonment comprises about 1,500 unpainted timber structures of the simplest possible character. A few buildings used for storage and as garages and power plants will probably be metal-clad, and possibly corrugated iron siding and roofing may be employed for them. Where the buildings are supported on posts more than 15 in. above the surface of the ground and it is possible to keep the ground below them free from inflammable rubbish, the sides are not boarded down to the ground, which is done where the clearance is less than 15 in., except in the South, where it is necessary to omit this precaution against fire on account of the greater importance, from a sanitary viewpoint, of permitting a free circulation of air below the floor.

The typical company barracks will be a two-story structure built of wooden frame covered with matched

boards. The roofs will be covered with prepared roofing. They will be well ventilated with flues, lighted by electricity, heated in the North by steam and in the South by stoves, the latter arrangement being similar to that in force in the housing of Canadian regiments. Each will have a kitchen and mess hall. It is proposed to jacket the stoves so as to increase the circulation of air, and to carry the stove pipes directly up thru the second story and roof. Drums will be installed in this stove pipe, with air jackets around them, for heating the second story. The smaller buildings in the South will probably be heated by small direct radiating stoves. In the northern cantonments it is probable central heating stations will be built and the buildings warmed by radiators.

The barracks for the men are two-story buildings, 43 ft. wide and of different lengths, depending on the number of men to be accommodated. At one end is a single-story kitchen, with a pantry and a sleeping room for the cooks. A long counter separates the kitchen from the mess hall, where all the men living in the barrack will eat. In the center of the first floor is a company hall with doors leading out on each side of the building and a stairway thru the floor above. This company hall separates the kitchen from the first floor dormitories. It was originally proposed to have the men sleep in double-deck bunks, such as are used in college fraternity houses and on large construction

(Continued to page 100.)

## Any Plan Gives the Same Good Result

No matter what style of house, there is a Beaver Board plan that will fit it. This knotless, crackless, manufactured lumber is made in such a variety of sizes and can be planned in so many different styles of paneling that it can be both suitably and attractively arranged for any style or kind of building.

It is this great variety of effects all without the dangers and unsightly cracking of plaster that has made Beaver Board walls and ceilings so popular.

Look at the rooms in the plan opposite. See how the different rooms have been appropriately treated. Some with heavy paneling, and others so arranged and decorated that the paneling is not at all noticeable.

### Let Us Help You Get Results Like This

No matter what kind of building, whether house, store or office our Department of Design and Decoration will gladly prepare suggestions and estimates. This service is absolutely free. We would like to tell you how we have helped others. We can surely help you, too. Write today.

#### THE BEAVER BOARD COMPANIES

138 Beaver Road Buffalo, N. Y.

Branches in Boston, New York, Baltimore, Cleveland, Detroit, Chicago, Minneapolis, Kansas City, San Francisco

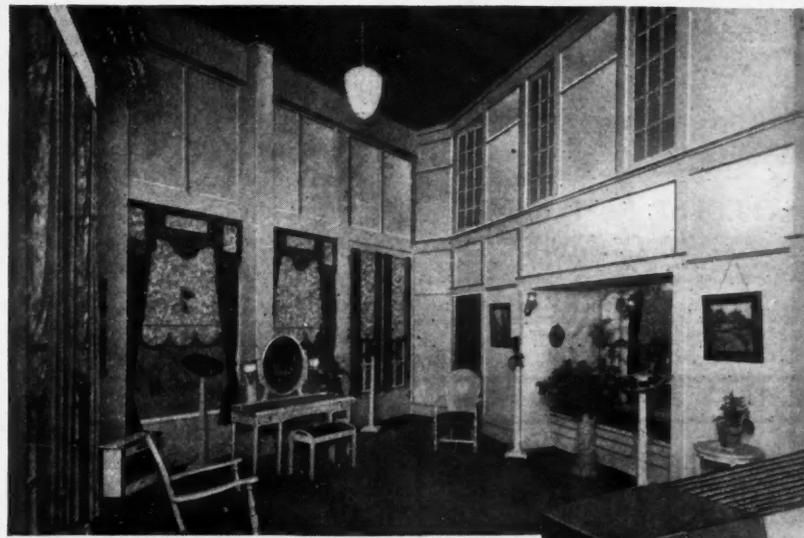
Manufacturers also of Beaver Greenboard and Beaver Blackboard. Distributors in Principal Cities. Dealers Everywhere

# BEAVER BOARD

FOR BETTER WALLS & CEILINGS

The advertisement features three black and white photographs of interior rooms, each showcasing different applications of Beaver Board paneling. The top photo shows a kitchen area with a counter and cabinets. The middle photo shows a dining room with a round table and chairs. The bottom photo shows a living room with a sofa and a fireplace. To the left of the photos is a logo for 'BEAVER BOARD' with a beaver head and the text 'PURE WOOD FIBRE'. Below the logo is a small text box.

You can't expect Beaver Board results unless this trademark is on the back of the board you buy.



## Easily Applied Exceptionally Satisfactory

**B**UILDERS and contractors who have used Cornell-Wood-Board have found it the easiest to apply, and by far the most satisfactory to both the customer and themselves. There is a big reason for this.

Cornell-Wood-Board has several distinctive features over other materials of this nature, the most important being that it is *heavily sized throughout*, each fibre being subjected to a special treatment in the process of manufacture. This treatment results in a greater degree of satisfaction than has been given by any other board. It is stronger, stiffer and more moisture resistant than any other. It takes any kind of paint or kalsomine perfectly.

We want you to try Cornell-Wood-Board. Our Department of Design will draw panel suggestions with cost estimates if you will send dimension sketches or blueprints. This service obligates you in no way. Send us your name and address and we will mail you a Cornell carpenter's pencil.

*In writing please address Department  
T3 and mention the American Builder*

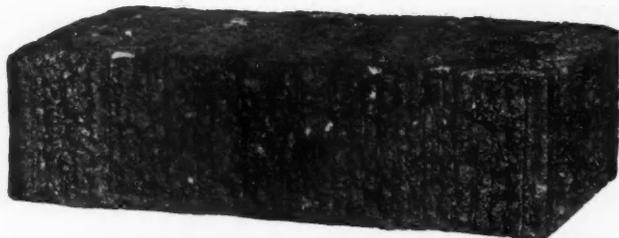
**CORNELL WOOD PRODUCTS CO.**

C. O. FRISBIE, President

173-175 West Jackson Boulevard

Chicago, Ill.

# Cornell-Wood-Board



### ALLIANCE MULTI-COLOR RUFF BRICK

EXCEL ALL OTHER BRICK as to beauty of coloring. The chromatic scale of colors runs through the beautiful rough-texture faces, most of the individual brick showing on the face of each brick three or four or more of the seven primary colors or their shades—gun-metals, wines, chocolates, browns, ex-blood reds, blue tones and multi-colors.

Mr. Dealers: If you want the best seller among the many brick made today ask for the agency for Alliance Multi-Color Ruff Brick—beautiful rough-texture and all the colors of the rainbow. Samples and prices on request.

The ALLIANCE BRICK CO., 25 South Linden Ave., Alliance, Ohio

### Shackelford Brick and Hollow Tile

Made of Iowa's Best Shale

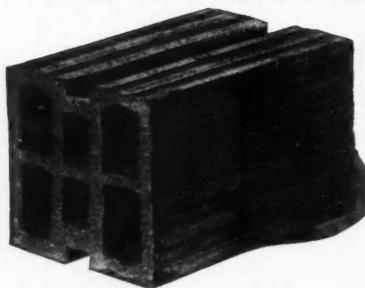
Shackelford common brick and hollow tile are made of Iowa's best shale, and always give entire satisfaction. They are in wide demand throughout the Central West. We would be glad to have your inquiry.

**Our Lumberman's Special** is a brick that hundreds of lumber dealers are carrying to decided advantage. If you carry chimney and foundation brick get in touch with us at once—we have something of interest for you.

SHACKELFORD BRICK CO., Des Moines, Ia.

### "HEAVY DUTY" INTERLOCKING TILE

The STRENGTH of BRICK and the DRYNESS of TILE are combined in Vigo American Heavy Duty Interlocking Tile to make a BETTER wall than solid brick and at two-thirds the cost.



We also manufacture Fire-proofing, Building, Arch, Partition and Drain Tile, Hollow Brick and other shale products. Send for our literature.

VIGO-AMERICAN CLAY COMPANY  
7th and Ohio Sts., TERRE HAUTE, IND.

### "Practical Homes"

A Plan Book Containing Thirty Plans and Elevations of Houses

Built During Past Three Years

This selection includes all prize-winning and mention designs from National Building Show, New York, Competition . . . . **\$1.00** Postpaid

S-A-F-E, 356 Leader-News Bldg., Cleveland, O.

(Continued from page 98.)

work, but the medical advisors of the Secretary of War reported so strongly against this that ordinary metal cots will probably be used and the size of the buildings has been increased to furnish the necessary space. The first story is 9 ft. high from the floor to the bottom of the beams of the second story. The second-story of the larger barracks is divided at the center by a hall reached by the stairway from below and the sleeping room of the first sergeant. On each side are two dormitories, or four in all on this story. The dormitories are separated by partitions so that the men in each are comparatively isolated from the others, which is considered desirable by the army medical department.

There is a ventilating opening running the length of the building to which vertical vent ducts run from the floor below. The building has a large amount of window area, and the sash can be slid to one side to secure ventilation. The lavatories for both officers and men are small detached buildings.

The officers' barracks vary considerably in size and shape. Some are long, single-story buildings with a kitchen at one end, then a mess room, and then a long hall down the center with rooms measuring 10 ft. 6 in. by 8 ft. 4 in. opening off it on either side, and an office at the further end. Other barracks are small single-story building with a kitchen, mess room, and two to four individual rooms, the largest about 10 ft. square. Other buildings are two stories high, with larger rooms shared by two officers, an office, mess room and kitchen. A few of the officers' barracks have no kitchen and mess room.

#### Germ Tabooed at Cantonment

From the standpoint of sanitation and health conditions, the cantonments will be ideal places for the soldiers. Methods followed in the installation of sanitary service at Camp Taylor, Louisville, are typical of those elsewhere. Here the work is in charge of Captain L. R. Poust, sanitary inspector attached to the United States Medical Department.

Since work began on the first cantonment building, Captain Poust has been draining the hollows with ditches, burning up huge piles of brush and rubbish, filling in stagnant holes and breeding places for mosquitoes and flies, and directing the installing of baths and lavatories for the soldiers who will occupy the barracks.

Wherever a dangerous condition has been detected the work of neutralizing has been started without loss of time.

A large force of men is at work on the draining ditches and sewage system. The ditches are cut into the soil sides sloping inward. The banks on the top are shaved of all growths, such as weeds and underbrush, to prevent them from growing and hanging over into the running water and interfering with the

(Continued to page 102.)

## Do *Your* Bit Against Slacker Building

**WAR-TIME** thrift means judicious expenditure, not stagnation. With America carrying the burden of finance and supply for half the World, hysterical hoarding, which invites depression, is dangerous and treasonable.

**CONTRACTORS**, a national responsibility rests upon YOU, to teach your patrons, the public, how they can afford to build and to build **THIS YEAR**.

You can do this by educating them to use materials that are least affected by war prices.

## Vitrified Clay Pipe

*"THE PERMANENT PIPE"*

for building drains, triumphs over every test of service. Its cost, in contrast to the cost of metal, represents a distinct and welcome saving.

Correct installation is important. Our booklet "Vitrified Clay Pipe" tells how to install for the best results. Write for it.

Metal is war material. Use it where it is supreme—to win the war. Use Vitrified Clay Pipe where it is supreme, for drainage and sewerage that defies corrosion, decay and the tooth of time.

Price, Permanence and Patriotism all demand Vitrified Clay Pipe building drains and sewers.

**THE SEWER PIPE MANUFACTURERS'**  
**ASSOCIATION** SECOND NATIONAL BLDG  
 JOHN L. RICE FIELD COMMISSIONER AKRON, OHIO

(Continued from page 100.)

draining process. These ditches will be kept in this condition at all times to keep the drainage perfect.

Wherever a stagnant pool is found oil is poured on the surface to kill the larvae of the mosquitoes.

In connection with each barrack there will be one lavatory. The floors of these are being laid in concrete. At one end will be the toilets and at the other end shower baths.

The arrangement of these buildings has been worked out to insure as much convenience as possible. Where two large barrack buildings are put up, a space is left in between wide enough for two lavatories, with the entrances facing the steps leading up to the doors of the barracks on either side. Sewage pipes will connect each lavatory with the main sewage system running beyond the cantonment.

While the soldiers are in training, all rubbish will be gathered in sealed cans, proof against flies, and afterwards destroyed. The solid slop from kitchens and mess halls will be turned over to hog raisers.

The water flowing into the camp is absolutely pure.

#### Bigger Job Than Panama Canal

Even the Panama Canal and the New York subway seem rather simple compared to the size of the construction job the United States Government has taken on its shoulders in the building of the sixteen cantonments. The task is absolutely unique in construction history, nothing just like it ever having been attempted

before. To make sure that it is done with the maximum of efficiency, the minimum of expense, and what is more important, on time, the Government has enlisted the voluntary services of nationally known experts thru the Council of National Defense—engineers, contractors, landscape architects, and town planners, material men, draftsmen and the like.

Each cantonment will be virtually a city in itself, with streets, blocks, sewers, electric lights, railroad yards, water lines, garbage incinerators, and the like, in addition to the hundreds of buildings required.

In the construction of the Panama Canal the Government expended about \$40,000,000 a year; for the cantonments fully as much probably will be expended in a quarter of the time.

Each cantonment will require about 4000 carloads of material, it is estimated, assuming that all the material must be brought to the site by rail. This makes a total of 64,000 carloads for the sixteen cantonments proposed.

The first step in the construction of a cantonment has been the selection of a site.

The site determined upon, the next step is for sanitary engineer, a town planner, and an army officer representing the commanding general, to meet on the ground, where they will inspect the location, look into the possibilities, estimate its difficulties, and then proceed to have a survey made in the quickest way possible.

(Continued to page 104.)



### Build With Belden Brick

—On the basis that brick houses make for a higher standard of construction and therefore more good work and more profit to you.

—With the knowledge that once you are familiar with brick construction that you can make more money building brick houses than any other kind.

—With the absolute conviction that "Belden Brick" represent the biggest value you can buy and that we are prepared to give you the kind of service you want.

We appeal to you to investigate carefully brick house construction.

#### Direct from the Manufacturer

We have dealers in hundreds of cities and towns in the United States and Canada at the present time. We ask you to write for samples and prices and the name of our nearest dealer. Belden Brick are made in five modern factories and come in all colors, shapes and sizes, and in most textures, rough and smooth. We have the very brick you are looking for, be it house, bungalow, garage, theater, store, bank, church, school, library or office building.

**THE BELDEN BRICK CO.** Est. 1888 **Canton, Ohio**

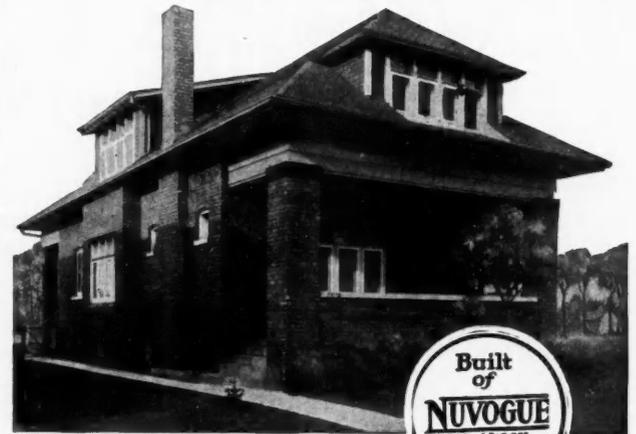
Five Plants at Canton, Somerset, Uhrichsville, Port Washington

-----USE THIS COUPON NOW-----

Belden Brick Company, Canton, Ohio  
Gentlemen:—We are favorable to the use of brick for many purposes and would like to know more about your product. We are figuring on building (use this line if anything definite).....

We buy thru (give name of dealer).....

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



Drop us a line and tell us what you are figuring on building this Spring

HUNDREDS of progressive contractors are finding that brick construction is as easily handled as frame; and it has many advantages—the principal one is, that it gives your client a more permanent home and relieves him of the continual expense of painting and upkeep.

Then we will tell you how "Artfashioned" Brick can be used to advantage

Artfashioned Brick are made in a wide range of colors and textures. There is a Nuvoque Brick for every style of architecture—from the modest bungalow to the best building in town.

You can get "Artfashioned" Brick from your Local Dealer

We have hundreds of lumber dealers in the Middle West now handling "Artfashioned" Brick. If your local dealer does not carry our 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!**



Hy-tex Store Front, Saint Louis

**Hy-tex**

The Standard of Quality in Brick

A good store front, with ample space for window display, is a merchant's best and cheapest advertising. Brick not only makes a beautiful and attractive store front, but has the added advantage of durability, fire-safety and real economy.

The American Builder is showing you how to work with brick; and any Hy-tex office is ready to co-operate with you.

**Hydraulic-Press Brick Company**

Saint Louis

Branch Offices: Baltimore, Chicago, Cleveland, Davenport, DuBois, Pa., Indianapolis, Kansas City, Minneapolis, Omaha, Philadelphia, Roseville, Ohio, Toledo, Washington

*Largest Manufacturers of Face Brick in the World*

**Send for these Booklets**

"Hy-tex Brick" tell you the many advantages in building with brick, and something about the completeness of the Hy-tex line and the benefits you can derive from Hy-tex Service.

"Suggestions for Small Hy-tex Homes"—shows the possibilities of brick in small homes. It is illustrated with perspectives and floor plans of small brick houses.

**Mail the Coupon NOW**

Hydraulic-Press Brick Co.  
St. Louis, Missouri

Send me "Hy-tex Brick" and "Suggestions for Small Hy-tex Homes."

.....

.....

Name.....

Street.....

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



## Build with Beaver Brick

Beauty and permanence of construction can be obtained with this brick at a cost but slightly greater than for frame.

Well burned face brick is universally recognized as the most beautiful and durable building material in existence, and the advantages of brick construction are many.

¶ Brick homes are practically indestructible. Insurance rates are low and the cost of upkeep such as painting and repairs are reduced to a minimum.

¶ Houses of brick maintain an even temperature at all times. Cool in summer and warm in winter.

Beaver Brick is made in a variety of colors and textures. Beaver Clay, Turkestan Vertex and Volcanic Extreme Rough Texture represent the best in facing brick. Our catalog shows them in their natural colors.

Write Today

BEAVER CLAY MFG. CO., NEW GALILEE, PA.  
SALES OFFICES IN ALL CITIES

WITHOUT OUR ESTIMATE YOU HAVE NO COMPETITION

### The Whitacre-Greer Fireproofing Co.

Manufacturers of  
HOLLOW TILE FIREPROOFING  
and BUILDING BLOCK

Waynesburg, Ohio

Chicago Office:  
538 South Dearborn St.

Pittsburgh, Office:  
7138 Jenkins Building

FIREPROOFING MADE OF PURE FIRE CLAY

## TILE BAK

(Hollow Clay Tile)

Covered with STUCCO or  
HOMESTEAD FACE BRICK

Makes ideal construction for Residences, Schools, Churches,  
Banks, Garages, Theatres, etc. *It's Fire-Proof*  
Send for Descriptive Pamphlets

The Barkwill-Farr Company Nine Modern  
Plants Cleveland, O.

(Continued from page 102.)

sible, calling upon local engineers for assistance and asking for railroad engineering corps.

This survey will have to be hurriedly and perhaps roughly done, but not long ago one proposed site of 5000 acres was surveyed in this way in two days, a record.

The town planner then goes ahead to draw plans for the military town or cantonment, laying it out to conform with the topography of the location and taking into consideration railroad trackage, roads, drainage and the like. Given a site, it is the job of the town planner to distribute the necessary buildings and grounds of a typical cantonment as shown in type plans. Each cantonment will accommodate a military division, a definite number of buildings and areas being needed for each division. It follows, however, that the lay-out of no two cantonments will be alike for no two sites can possibly be alike.

### 26,000,000 Feet of Lumber in Each Cantonment

After the town planner or landscape architect, comes the contracting engineer, as a resident man in charge of construction, holding a major's commission in the army. He must be a man of great executive capacity to put thru the work of erecting the cantonment on schedule time. Contractors and laborers work under his supervision at the enormous task of actual construction.

An idea of the size of this job may be gained from a glance at the material estimate for a typical cantonment. Lumber is the big item, some 26,000,000 ft., or 1325 carloads being the requirement. Roofing nails alone will fill one modern freight car. Crushed stone for the roads will make 812 carloads.

Here are some of the other items: 28,000 squares of roofing, 60 cars; 20 carloads of nails and hardware, 20 carloads of plumbing, 192 carloads of tanks, heaters, stoves, ranges, piping, electrical materials, refrigerators, and the like; railroad material for five miles of track divided into 30 carloads of ties and other timber, 20 carloads of spikes, rails, fish plates, etc., and 114 carloads ballast; 10 carloads of electric light poles, wires, insulators, etc.

(Continued to page 106.)

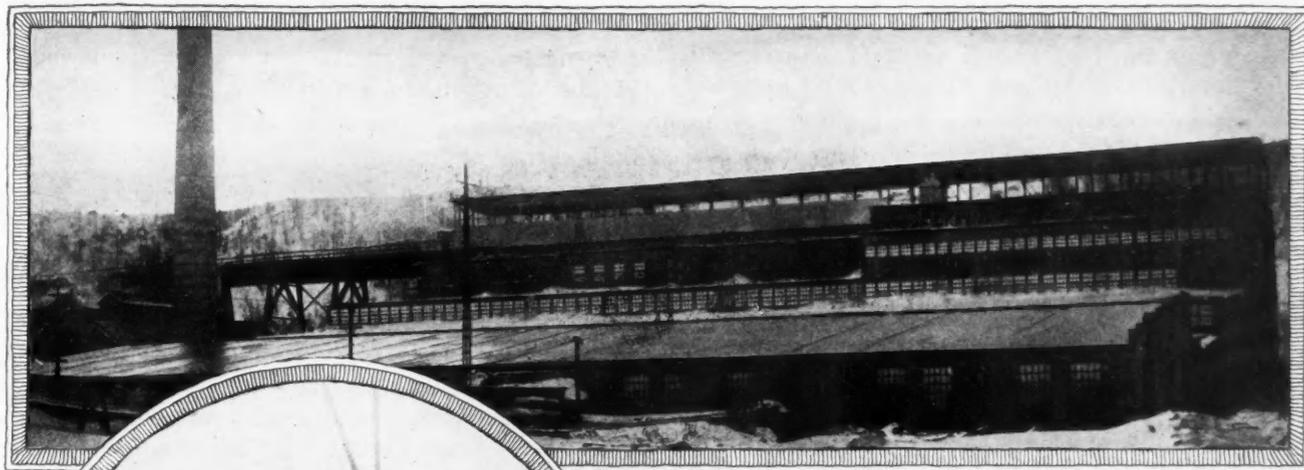
## High Grade Face Brick

Afghan Matt—Afghan Vertical Ruff

**Mr. Contractor:** We have an interesting set of pictures of houses, bungalows and public buildings, built of these beautiful brick, we would like to send you free. Please tell us what you are planning to build this spring.

**Mr. Dealer:** Hundreds of good dealers now carry our line. We want more of them. Write us for our dealers' special plan.

**CRAWFORDSVILLE SHALE BRICK CO.**  
Factory Sales Offices in all Principal Cities of Middle West  
CRAWFORDSVILLE, IND.



*Baltic Mining Company Stamp Mill, Freda, Michigan, designed by  
Copper Range Company, Engineering Department*



*Columbus  
Sewage  
Disposal  
Plant,  
Columbus, Ohio.  
Consulting Engineer,  
J. J. Morgan*

## Use Self-Sentering For All Concrete Work

Here are two interesting Self-Sentering jobs. The larger picture is a photograph of the Stamp Mill of the Baltic Mining Company, Freda, Michigan. The roof is of concrete reinforced by Self-Sentering.

The second photograph shows a sewage disposal plant at Columbus, Ohio. Self-Sentering played a prominent part in its construction.

These two widely contrasted installations suggest the adaptability of Self-Sentering. It can be used profitably wherever concrete is used.

# SELF-SENTERING

Self-Sentering is a combined reinforcing and centering — a one-piece steel lath and stud — now used for concrete roofs, floors, ceilings, curtain walls, solid partitions, columns and beam protection in many modern factories, office buildings, warehouses, machine shops, general mercantile buildings, farm buildings, garages, elevator and air shafts.

It can be adapted to any type of roof — pitched, dome, monitor, saw-toothed or flat.

In wood frame buildings of all descriptions, Self-Sentering walls, floors, roofs and ceilings act as effective fire stops, checking flames before they can reach the wood.

Self-Sentering plays an important part in the fireproofing of steel columns and beams. It eliminates costly false work in the construction of concrete steps, stairs and seat risers. It acts both as lath and furring for suspended ceilings.

Self-Sentering bends easily to curved or irregular forms.

For that reason it can be utilized as form and reinforcing for arched floor or roof slabs, silos, tanks, conduits, culverts, fences and railings.

Exacting fire tests have proved that a slab of concrete and Self-Sentering resists stubbornly the hottest fires. This type of construction also withstands the ravages of time, moisture and decay.

It is economical because it does away with temporary wooden forms. Self-Sentering is always a permanent part of the finished building. On any sized job the labor costs are comparatively low. One man can lay the large sheets of Self-Sentering and the concreting is relatively simple.

Self-Sentering, gage for gage, has a greater sectional area than any similar material. It makes a light weight, yet extremely substantial and durable roof, floor or wall which lasts practically forever without need of repair or upkeep.

The "GF Fireproofing Handbook" contains complete information about Self-Sentering in a form which makes it most valuable for the engineer, architect or contractor. Sent free upon request.

**The General Fireproofing Company - - Youngstown, Ohio**



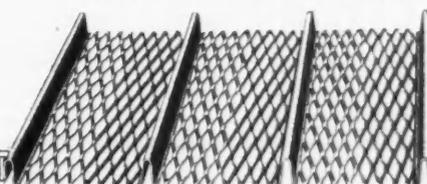
Manufacturers of all types of Metal Lath, Concrete Reinforcements and Waterproofings

Members of Associated Metal Lath Manufacturers

BRANCH OFFICES: New York City, Chicago, Philadelphia, Kansas City, Atlanta, Cincinnati, Buffalo, Utica

The leading dealer in your town sells GF Building Products

*This is a small section of Self-Sentering*



(Continued to page 104.)

Materials for 12,000 cubic yards of concrete will take 70 carloads of cement, 350 carloads of stone and 175 carloads of sand.

The men of the cantonments will sleep in double-deck bunks. This means there will be 37,000 separate bunks, each with its mattress. To transport the mattresses, 125 cars will be required, and the bunks will take 62 more. Water and sewer lines will make 65 carloads each, and 150 carloads of hospital equipment will be necessary. Three carloads of screens are also included in the estimate, as are 20 carloads of construction tools.

Areas of the cantonments will vary with the topography, the minimum being from 1500 to 2000 acres. In addition to the city itself, parade grounds, maneuvering spaces and rifle ranges must be provided.

#### Fire Protection During Construction

The prevention of fire in these wooden cities during construction is a very important matter and stringent regulations have been issued to minimize the risk. All brush, rubbish and dry grass must be burned where building materials are to be stored and for a distance of 300 ft. around all storage yards and building sites.

As soon as materials arrive, water casks and pails are placed where they will be convenient for use in extinguishing incipient fires and a continuous fire patrol is established. As soon as fire apparatus is

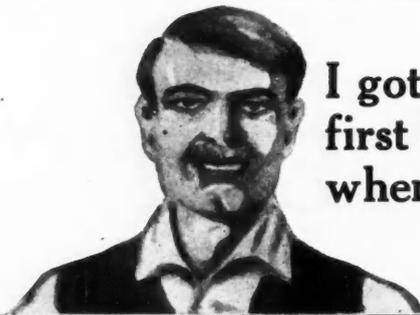
received fire companies are organized.

Among the more important fire regulations during construction are the following:

Smoking is prohibited wherever building construction is carried on or material is stored. Certain areas are designated where workmen may smoke at noon and smoking is permitted in a few buildings where constant watch is maintained.

No open-flame lights, including candles, may be used in buildings and to aid in enforcing this regulation the kits of plumbers, steam-fitters, and such mechanics are inspected before they are permitted on the job. Gasoline furnaces and torches must be kept in tool boxes or shanties outside buildings, and not more than three 5-gallon cans of gasoline are permitted on the job. The use of charcoal for heating soldering pots is prohibited. All tar kettles and lead furnaces heated by wood fires must not be placed within 50 ft. of buildings or lumber.

Boilers and internal combustion engines must be placed in detached iron-clad buildings. Boilers must not be set on wooden frames or platforms, and stacks into which engines exhaust must have screened tops. Power-driven woodworking machines must not be operated in buildings under construction or in sheds within 20 ft. of such buildings. All electric wiring, even for temporary use, must conform to the National Electric Code.



I got my  
first SIMONDS  
when I was—



seven  
years old

Hundreds of veteran carpenters have had a long and profitable acquaintance with Simonds saws. With many, a "Simonds" was their *first* saw and they have never felt disposed to buy any other kind. They know their Simonds *better* than they know their best friend.

There is no saw on the market better than the Simonds and it's doubtful whether there is one as good. We manufacture our own steel to insure high grade quality cutting service, free from flaws.

#### HERE IS A SIMONDS SAW

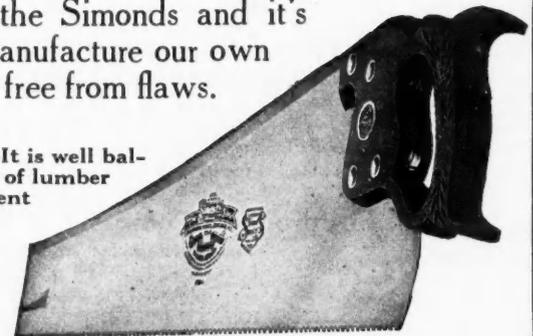
It will hold a cutting edge longer than any other saw made. It is well balanced—well gauged—well toothed. It will slip through a piece of lumber fast and true. If you take delight in having well made, efficient tools you will enjoy a Simonds. You can get this saw at your dealers for \$2.50—or we will send it prepaid at that price. The "best" is the cheapest—Simonds is the best.

**SIMONDS MFG. COMPANY, Fitchburg, Mass.**

5 Factories

"THE SAW MAKERS"

11 Branches



# GODELL PRATT

1500 GOOD TOOLS

## Non-Breakable—It's All-Steel



A strong, accurate Mitre Box is a necessity for anyone who wants to make clean joints and close fits in cabinet or ornamental woodwork. The Goodell-Pratt All-Steel Mitre Box, with its riveted truss-frame steel construction, is unbreakable and everlastingly accurate. It is made in five sizes to take five different sizes of Disston back-saws; the width of the box is always the same, all sizes having a capacity of 10½" at right angles. The saw lever swings 45° either right or left from the center, locking at any angle.

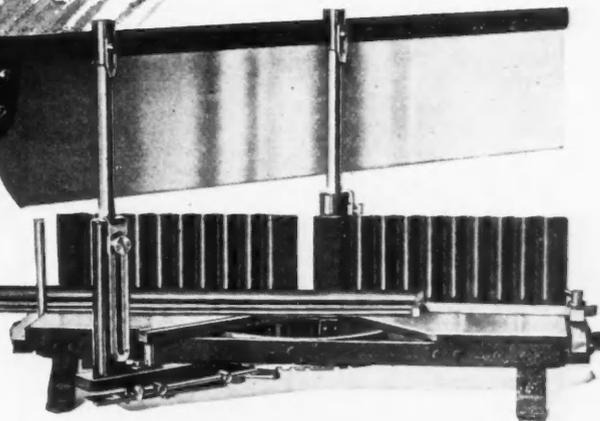
### Partial List of Goodell-Pratt Tools

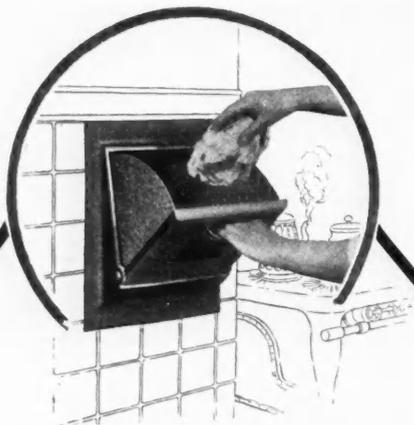
- |         |               |            |
|---------|---------------|------------|
| Squares | Screw-drivers | Bit Braces |
| Drills  | Hacksaws      | Punches    |
| Levels  | Saw Sets      | Lathes     |
| Vises   | Calipers      | Grinders   |
| Gauges  | Micrometers   |            |

*Ask for the Complete Catalog*

Goodell-Pratt Company  
Greenfield, Mass., U. S. A.

*Toolsmiths*





## There Is Only One System of Garbage and Waste Disposal

IT IS THE

# KERNERATOR

The Built-In-the-Chimney

## INCINERATOR SYSTEM

This equipment is designed for the builder who wants to install the cleanest, quickest and cheapest equipment for the complete instantaneous elimination of garbage and waste.

**Cleanest**—because the garbage is burned to cinders by a method that also renders the wastage odorless. Garbage cans and rubbish piles with their flies, vermin and the like are eliminated (as the incinerator is located out of the way in the cellar). All waste including tin cans, garbage, broken crockery—everything that is not wanted, disappears forever through the little door in the kitchen.

**Quickest**—because as soon as waste accumulates it is placed in the hopper door shown above and falls down the flue to the incinerator in the basement.

**Cheapest**—because its first cost is its last. No commercial fuel is required. The garbage "consumes itself" when ignited, as there is plenty of paper, rags and other dry combustible material to burn and to dry out moisture in garbage, which, when dried, is readily combustible and burns to harmless ashes. Garbage haulage is eliminated.

### Consider This, Mr. Contractor

Satisfied clients are your greatest asset. If you show them a way of eliminating all garbage and waste, without a penny of expense other than the nominal first cost, you will have solved for them one of their most disagreeable and annoying problems. No one wants garbage cans and waste piles around their homes. Here is a simple, efficient and economical method of eliminating these intolerable and unhealthful nuisances.

Your buildings will be more desirable than any others in your community. Your clients will be grateful.

Send for our two big books which describe the Kernerator completely and state what users have to say about them.

**THE KERNER INCINERATOR CO.**  
592 Clinton Street, Milwaukee, Wis.

## Problems of Roof Framing Solved

(Continued from page 80.)

pitch is half way between horizontal and perpendicular and the miter is half way from either edge of the hopper. For any other pitch, the miters required partake of the angles formed each side of the pitch, but in the  $\frac{1}{2}$ -pitch the angles are all the same; hence one set of figures taken on the steel square gives all of the cuts.

But we hear some one say, "What has all of this stuff he is giving us to do with the side cuts of rafters and roof framing in general?"

Just this: The same relation between the angles that govern the miter for the angle on which the hip rests partakes of the same parts or angles that we have above mentioned. Now then, taking the side cut for the square-cornered building, it is generally understood that the run of the common rafter and its length taken to scale on the steel square will give the top, or more generally called, the side cut of the jack rafter, which is correct as far as the square corner is concerned, but it does not apply to anything else, because the run of the hip rests at an angle of 45 degrees from that of either the common rafter or the plates. Hence the angles forming it are centralized just the same as for the hopper. Therefore, while the run in this

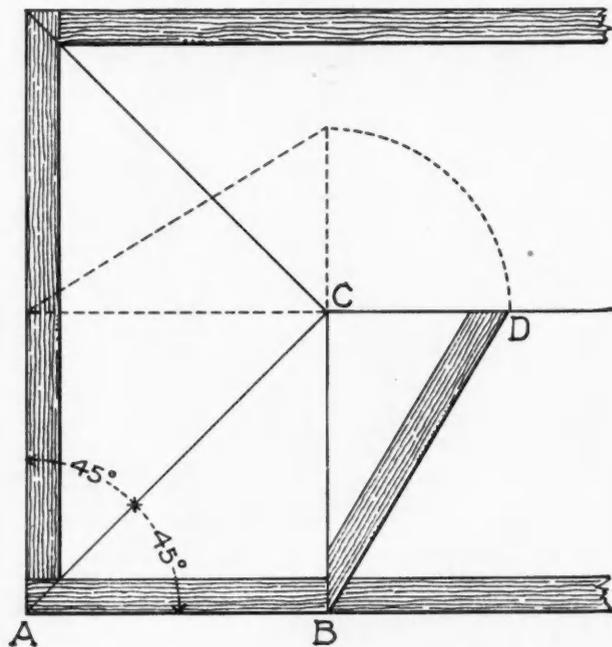


FIG. 8.

case answers for one of the parts to take on the steel square, it is not because it is the run, but because it is equal to the part that should be taken for the general rule that answers for any angle of the corner on which the hip may rest.

What is the part then to take? It is this: Take the distance from the corner to the foot of the first common rafter and the length of the common rafter; the

(Continued to page 110.)

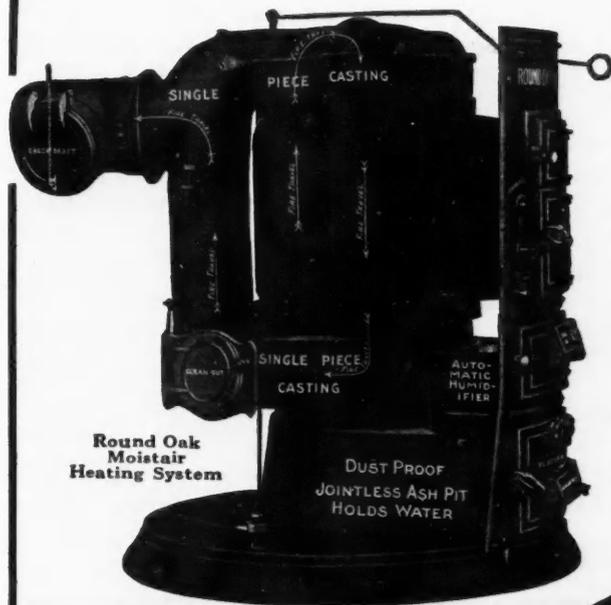
# When You Specify Heating Systems Specify the "ROUND OAK"

Specify it—handle and install it because of the SUPERIOR, more economical and more

healthful service it always renders, and has been rendering for over fifty years.

Distinctive, exclusive feature making for unequalled comfort, health, and economy distinguish this heating system now

**Nationally  
Adver-  
tised!**



Round Oak  
Moistair  
Heating System



Your good judgment is complimented and commended, when you recommend the

# ROUND OAK Moistair Heating System

The Only Heating System that Automatically Ventilates and Humidifies

Burns coke, coal, wood or gas. Floods the home, church, school or other public buildings

with a constant stream of pure warm air, not only fresh but humidified by the patented automatic humidifier—one of many exclusive advantages. Note opposite a few others. More than 60,000 installations and every user more than satisfied.

## Write at Once for Moistair Book

Fully explains the Moistair Heating System; of interest and value to technical as well as laymen—a book every architect, builder, contractor and dealer in America should study. It convincingly illustrates and explains the marked superiority of this modern efficient method of home warming.

## THE BECKWITH COMPANY

102 Front Street (Established 1871) Dowagiac, Mich.  
Makers of the genuine Round Oak Stove

### 5 Star Points

#### of Round Oak Supremacy

**\*Health** Only Heating System that automatically ventilates and HUMIDIFIES.

**\*Comfort** Delivers pure, warm even-tempered moist air, free from dust, gas, smoke—fitted with gas-tight doors and dampers.

**\*Economy** Longest fire travel; all inside casing; improved hot blast Ring; extra deep fire pot; extra large combustion chamber affords perfect combustion; most heat on minimum of fuel.

**\*Convenience** Simple regulator controls entire system. Self-cleaning. Ash pit dust-proof—seamless; fitted with sprinkler. Non-leak door frame cast on—not bolted. Easy to operate.

**\*Durability** Materials used stand highest physical tests. All hinge pieces drilled, not cast. Never a bolt where a rivet will do! Tight fittings guaranteed. Good for generation of service.

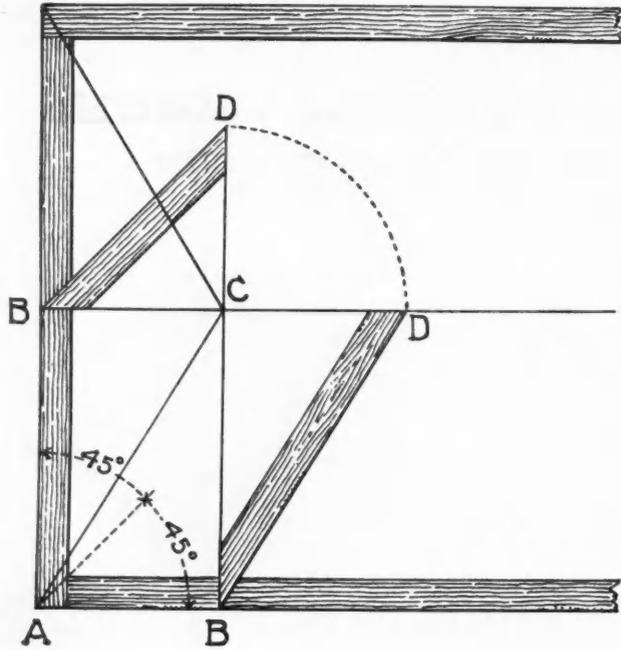


FIG. 9.

cut will be found on the side of the square that represents the length.

In Fig. 8, *A-B* represents the distance that the common rafter rests the corner. (Note, it also equals *B-C*, the run of the common rafter.) Now, if there

was no pitch at all to the common rafter, it would be lying down or level with the plate. Then *A-B* and *B-C* would give the cut to fit against the hip. Either side of the square would give the cut, which of course would be at 45 degrees. Now then, when a pitch is given the roof, instead of taking the run, the length of the rafter for that run must be substituted. After the cut is made, should the peak end of the rafter be cut off and on a line parallel with the seat cut, it would be found that the angle in reference to the last cut mentioned would still be at 45 degrees, or just the same as when there was no pitch given the roof, tho it required a different angle on the square to obtain it on the back of the rafter.

This is a rule that applies to any cornered building or pitch. One side of the roof may be steeper than the other, as shown in Fig. 9, but it makes no difference, except that they must of course be treated separately. In this illustration like letters are used on both sides, and the operation is the same as that given for the preceding figure.

**\* Fooling the Wiseacres**

*(Continued from page 73.)*

corners. Altogether the seating capacity of the building was not reduced and was improved.

By building this way it was a simple matter to design a dome roof with a 10-foot rise in the center. The

*(Continued to page 112.)*

for  
**Store Fronts**

*Don't forget to get a figure on*

**Brasco**

*It's a cinch, you won't get better quality—and we doubt if you'll get a better price. The construction is decidedly more practical—and it costs less money.*

Don't let a job slip by without getting our figure.

*A few good territories open to live dealers.*

*Will outlast them all*

A sash of exceptional merit. After all, wood is the most practical setting for plate glass. It is softer and more pliable than metallic settings. Creosoted wood makes even a better cushion, and it is imperishable. Government tests have proven that creosoted wood is more durable than either stone or granite. That's why a Brasco Front is practically everlasting.

Brasco Manufacturing Co., 1451-5 Michigan Ave., Chicago, Ill.

**COUPON**

Dept. A-81  
Send me, without charge or obligation, a  
Detail Photo of the Brasco System.

# The Murphy In-A-Dor Bed

What it means to you if you are going to build

## ECONOMY

Every Murphy In-A-Dor Bed will reduce the cost of a house from \$300 to \$600. Whole bedrooms are entirely eliminated without any loss in comfort or convenience. The size of a house may be greatly reduced, which is very important with the present high cost of building materials.

## EFFICIENCY

It costs practically as much to build a bedroom as any other room, yet this bedroom is used only 8 hours out of every 24. The old style bedroom is very inefficient. The Murphy-ized room is used 24 hours every day. No waste space, no unnecessary rooms to furnish, heat, light and take care of.

## CONVENIENCE

Convenience in a home is proper arrangement. The Murphy arrangement prepares for the unexpected guest and the growing family without building a number of extra bedrooms. A full size bed is always ready for use at a moment's notice, yet it is perfectly concealed when not in use. The mattress and bed clothing remain on the bed at all times.

## COMFORT

By using the Murphy Bed to eliminate bedrooms no comfort is sacrificed. The bed is just as comfortable as any you ever slept in. Highest grade materials throughout; equipped with Simmons "Non-sag" spring, the best that money can buy.

## ATTRACTIVENESS

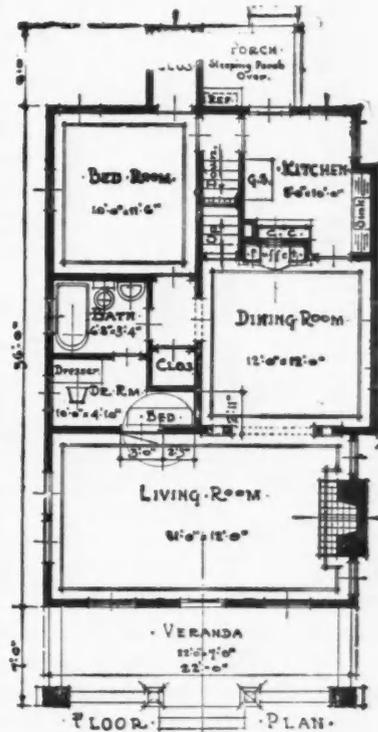
Instead of sleeping in small stuffy bedrooms, the largest best ventilated rooms in the house are converted into sleeping rooms at night. What can be more attractive to the builder of a small efficient home?

THIS bungalow contains only 4 rooms and was built for a four-room price, but it is just as efficient and roomy as any five-room bungalow you ever saw.

¶ One bedroom has actually been eliminated by the MURPHY IN-A-DOR BED installed in a dressing closet large enough to conceal not only the bed but the dresser as well and to furnish adequate room for dressing, hanging clothes, etc.

¶ The bed is perfectly concealed during the day, behind a door only 3 feet wide, but when night comes, in ten seconds' time the bed can be swung out and lowered for use in the living room.

¶ The bed is so easily controlled by spring tension (no weights are used) that a child can handle it with ease.



Floor Plan of Modern 4 Room Bungalow



Living Room of Bungalow Shown Above



10 Seconds Later. Same Living Room Transformed into a Perfect Bed Chamber

The MURPHY IN-A-DOR BED is not new. It has been on the market for several years and there are over one hundred and fifty thousand in use in all parts of the country. It is concealed in an ordinary closet behind a stock size door only 3 feet wide and is the only built-in bed that is perfectly concealed when not in use, as there is nothing suggestive of a bed being in the room. ¶ The bed does not hang on the door but rests on the floor at all times, being fastened securely to the jamb and threshold of the door opening. Consequently the operation of the bed is not affected in any way by the settling of floors, the shrinkage of joists or the warping of woodwork. No mirrors or makeshift furniture are required to conceal the bed, which is always in its proper place, and it is not necessary to roll the bed around the room, thereby marring the floors and woodwork. ¶ By using a sliding door the opening can be closed when the bed is in use. This is not necessary, however. ¶ The Murphy Bed is mechanically perfect and does not get out of order; neither can it close up accidentally. ¶ Used extensively in hotels, clubs, apartments, residences, bungalows and cottages; in fact, wherever a bed is used the MURPHY IN-A-DOR BED is 100% more efficient. Take advantage of this idea and save at least one bedroom. You can save two or three rooms if desired, because the MURPHY IN-A-DOR BED doubles the use of every room in the house except the kitchen. For further information address nearest office:

## MURPHY DOOR BED COMPANY

CHICAGO, ILL.  
830 Westminster Bldg.

CLEVELAND, OHIO  
690 Leader News Bldg.

ST. LOUIS, MO.  
460 Chemical Bldg.

KANSAS CITY, MO.  
390 Glendale Bldg.

TULSA, OKLA.  
13 East Fifth Street

(Continued from page 110.)

dome itself was made of 8 by 8 by 12-inch hollow clay building tile. The blocks were moderately heavy, weighing about 24 pounds and having no partitions. They were made on an 8 by 8 flue lining die. Nine thousand pounds of steel was placed in the cornice as a hoop to prevent spreading of the dome. There were sixteen complete loops of steel extending clear around the roof. All of these were of  $\frac{3}{4}$ -inch square deformed reinforcing bars, all laps breaking joints.

The shape of the roof, that is the form of the curve, was figured out mathematically and laid out graphically. Both methods showing the proper shape to be such that in laying off any radius into tenths the rise of the roof in each tenth was in proportion to the following figures, commencing at the center: 1-4-9-16-25-36-49-64-81-100. This made a very pleasing shape but it had to be something besides pleasing. It had to be like the Dutchman's wife. You know what that was: "H-I for stout!"

The roof had to be guaranteed to stand a test load. It was designed to carry a wind and snow load of something over 50 pounds per square foot, making a total safe distributed load on the roof around 280,000 pounds. I felt perfectly sure that the test would be considered satisfactory and found monotonous long before there were 280,000 pounds of weight piled on the roof. Consequently we said nothing about the

280,000 pounds. Our instructions were: "Go ahead and put on all the weight you want to."

All during the time that the building was being planned and being built there were interesting remarks going about town. It was not surprising that there were people in town who could not see just how it would stand up; but it was interesting to hear the reasons why it would fall down, when it would fall down, and how it would fall down.

Of course some allowed that the air spaces inside the blocks did not have a whole lot of strength. The steel looked pretty strong, but what was to interfere with the blocks dropping right straight thru? There were some who conceded that it would probably hold for awhile, but that it could not stand such an enormous strain very long. It was sure to give way. For proof of this we heard of the old-fashioned sealing wax, which could not be bent quickly, but if one end were clamped in a vise or laid where it would be forced to support its own weight, it would sooner or later bend. Besides the old-fashioned sealing wax was about the color of this tile. Just another similarity tending to show that the tile would give way.

After completing the building the mortar was given about thirty days to set, as it was winter, December and January, and the weather was pretty cold. A car load of sand had been sacked in order to make it con-

(Continued to page 114.)

## Learn to Be a Draftsman and Draw Your Own Plans

By means of these two books the contractor, builder or carpenter can advance by easy steps from the first principles of drafting room practice to the complete work of an architect's office, including drawing to scale, tracing, detailing, lettering, rendering, designing, etc. He can combine the work of the architect and builder. He will learn not only how to plan the structure, but how to lay out the work, specify the materials and finish, make the contracts, and take complete charge. A complete set of plans with every dimension, all sizes of windows, doors, etc., is shown in these books. This serves as a guide as it shows the process from the preliminary sketch to the finished plan.

Radford's "**Mechanical Drawing**" is a book of 272 pages, with 165 illustrations, and a supplement showing perspective views and floor plans of 41 brick, cement and frame residences.

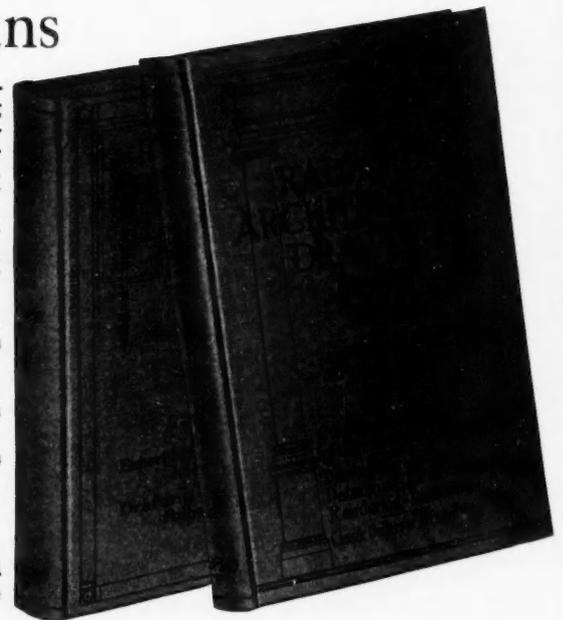
Radford's "**Architectural Drawing**" is a book of 304 pages, with 147 illustrations and a supplement showing perspective views and floor plans of 41 brick, cement and frame residences.

Each book is printed on high-grade paper, bound in cloth, is 6x9 inches and has a beautiful illuminated cover.

### Don't Depend on Another Man's Brains

Develop your own ideas. Be in a position where you can work a customer's hazy suggestions into a tastefully arranged, complete plan, showing all dimensions.

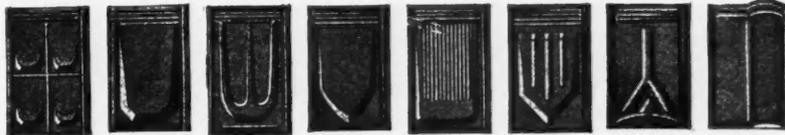
One of these books and a year's subscription to the *American Builder* for only \$2.00, the regular price of the magazine alone. Both volumes and a year's subscription for \$3.00.



**American Builder,** 1827 Prairie Ave.  
CHICAGO

# WALTER'S & COOPER'S METAL SHINGLES

*The  
Shingles  
That  
Last*



*The  
Shingles  
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The Most Complete Line of Designs      The Best Quality Workmanship and Finish  
Made in Painted Tin or Genuine Re-dipped Galvanized Tin

**SOLD AT THE RIGHT PRICE**

May we send you full-size samples and prices?

**NATIONAL SHEET METAL ROOFING CO.** 339-345 GRAND STREET  
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## "SIGNED LUMBER IS SAFE LUMBER"

INSIST ON TRADE-MARKED "TIDE-WATER"

# CYPRESS

LUMBER—BECAUSE IT'S "THE GENUINE WOOD ETERNAL".

AND LASTS—AND LASTS—AND LASTS—AND LASTS

Look for this on every board—

Accept no Cypress without this mark.



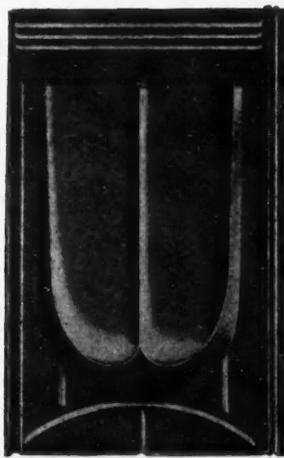
## Winthrop Tapered Asphalt Shingles Only Kind Tapered Like Wood

The Public Likes Them



Many Contractors have discovered what E. S. Lindsay, Contractor and Builder of Parnassus, Pa., found out, as shown in his letter:  
"I am very much pleased with the Tapered Shingles I purchased from you. They seem to appeal to the general public. I would like to have the agency for them." Ask for a sample Shingle.

**THE BECKMAN-DAWSON COMPANY**  
Asphalt Shingles  
Factory: Argo, Ill. 1415 Y. M. C. A. Bldg., Chicago, Ill.



## Edwards Metal Shingles Will Out- last Your Building

**Rot-Proof  
Fire-Proof  
Lightning-Proof**

We want a good, live man to represent us in each locality—to push our surpassing line of Metal Shingles and other up-to-minute metal roofings.

WRITE US TODAY ABOUT YOUR TERRITORY. Our business is growing so rapidly that it is necessary to have an agent in every community. The territory is going fast. One day's delay may mean that some one else will be given your territory. Don't delay. Write today for our special Agents' Proposition.

**THE EDWARDS MANUFACTURING CO.**

"The Sheet Metal Folks"

401-417 Eggleston Ave., CINCINNATI, OHIO

World's Largest Manufacturers of Metal Roofing, Metal Shingles, Metal Spanish Tile, Metal Ceilings, Metal Garages, Portable Buildings, Metal Lockers, Rolling Steel Doors, Partitions, etc. 2

## CORTRIGHT METAL SHINGLES

Make the roof as permanent as the foundation—Use

### Cortright Metal Shingles

Thousands of roofs with Cortright Metal Shingles are just as good today as when they were laid—some of them over 30 years ago.

Cortright Metal Shingles always last as long as the house—without repair cost except an occasional painting.

Cortright Shingles are less expensive to lay than most forms of roofing. Contractors will find Cortright Metal Shingles a good article to push.

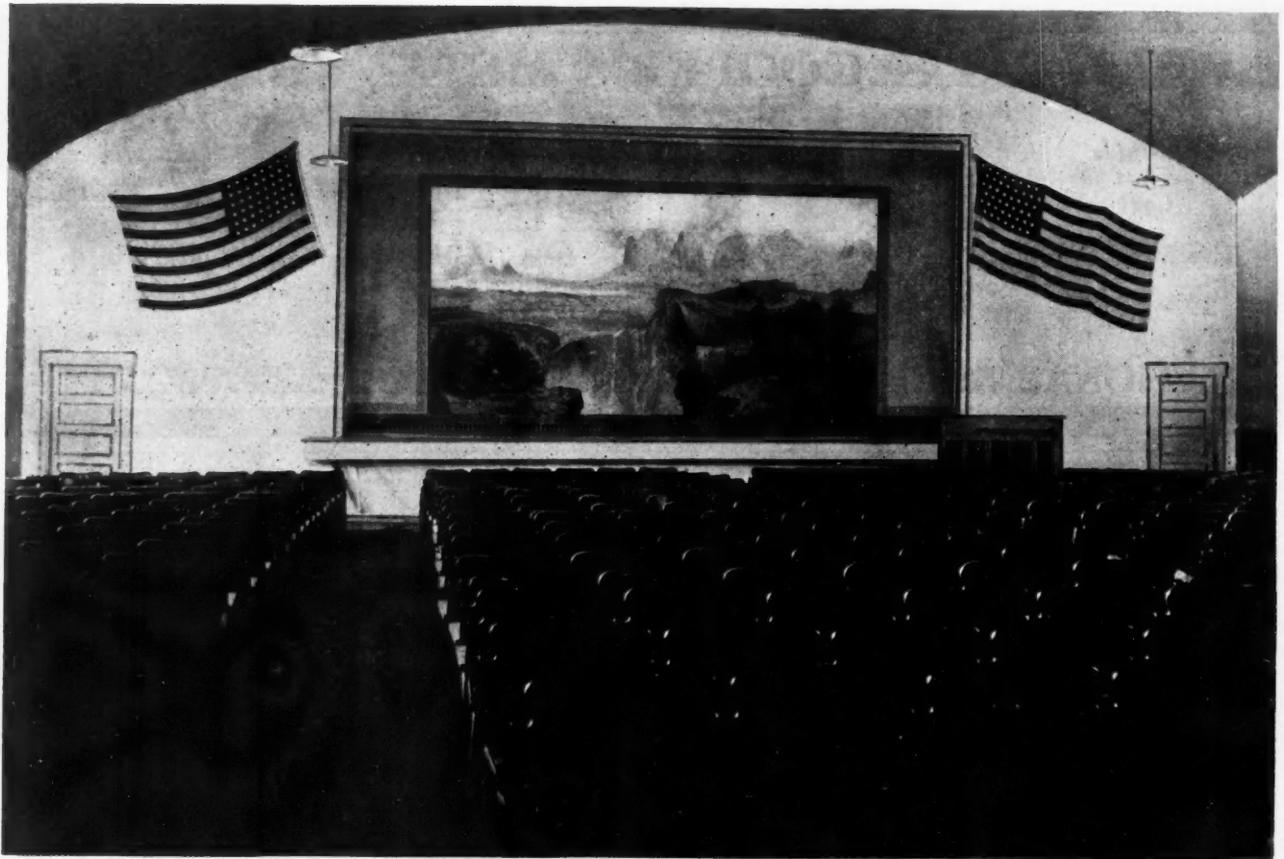
Our proposition covers some advantages of special interest. Contractors should write for it.

**Cortright Metal Roofing Co.**

Philadelphia

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Interior of Community House at Dexter, Mo., Looking Toward the Stage.

## make the next one a **HERO**

***Don't Experiment Further with Your Heating and Ventilating Problems.***

**Hero Pipeless Furnaces** are easily and quickly installed and our agency Proposition gives the Builder a good commission on each sale.

The **Hero Furnace** employs the simplest and most direct method known for the heating and ventilating of homes, stores, halls, etc. There are no pipes to waste heat and room in the basement and a constant flow of warm, fresh air is maintained throughout the house.

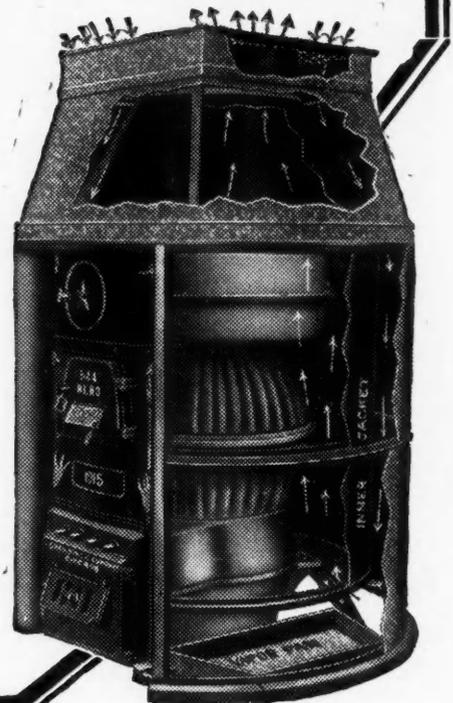
**Hero Furnaces** are Economical, both as to the original price and the cost of installation, and are giving the best of satisfaction to their many users.

*Write us today for details of our agency Proposition and Dealers Prices*

**CHAS. SMITH COMPANY**

180 No. Dearborn St. - Chicago

Northwestern Distributors  
CENTRAL SUPPLY CO. Minneapolis, Minn.



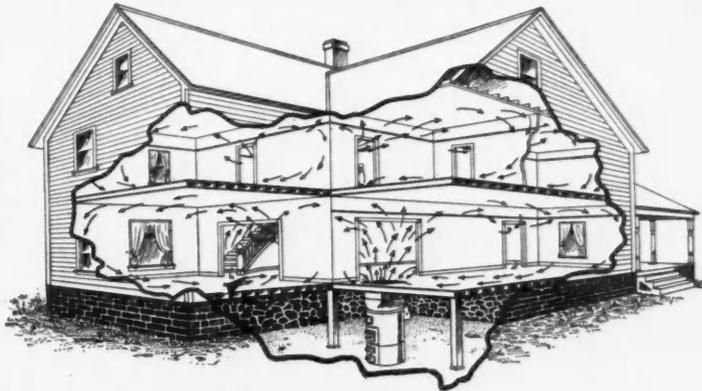
WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

## MUELLER Pipeless Furnace Will Make Big Money for You

The big demand for the **Mueller Pipeless Furnace** has opened a new field of profits for contractors, builders and furnace men. Thousands of dwellers in stove heated homes are having it installed. It is also a practical, efficient and decidedly economical method of heating new and modern homes of medium size.

You can make good money for yourself and insure complete satisfaction to your customers by installing the **Mueller Pipeless** in new and old houses.

The **Mueller Pipeless** is a **real furnace**—of exactly the same construction as the old reliable **Mueller** line, but without pipes or flues. It heats the whole house comfortably, cleanly, economically and dependably from one register. Burns hard or soft coal, coke or wood. Saves 35% in fuel. It is dominating



the "single register" heating field because it possesses the unequalled heating efficiency and fuel economy of the nationally known **Mueller Warm Air, Hot Water, Steam and Vapor Systems**, and has behind it the 60 years' reputation of the **L. J. Mueller Furnace Company**.

Extensive advertising has made the **Mueller Pipeless** well known. Contractors, builders and furnace men everywhere are profiting by the big demand. Get in on this now and get your share. Write at once for our proposition.

# MUELLER PIPELESS FURNACE

**L. J. Mueller Furnace Co.**  
218 Reed St., Milwaukee, Wis.

*Makers of Heating Systems of All Kinds Since 1857*

Consult, free, our expert service bureau on all your heating requirements—Get our estimate on all your heating installations.



## The Great Bell -original Pipeless Furnace

### Father of Them All

We have thousands in use. Sizes, styles and prices to suit all. \$38.00 to \$94.00.

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

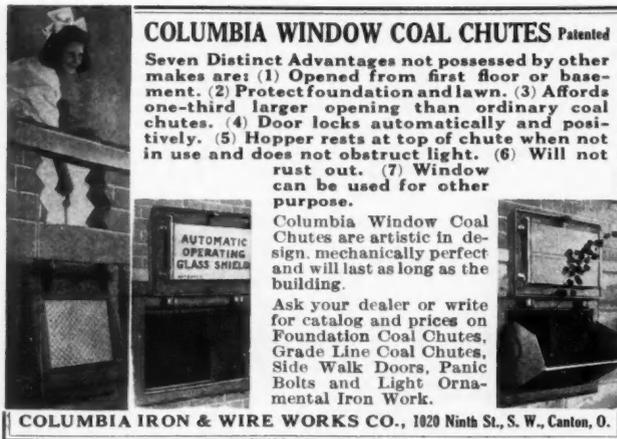
The **GREAT BELL PIPELESS FURNACE** will heat any one or two-story building in the most efficient manner with the least effort and the lowest relative cost. While **Cost** is secondary to **Service** in this furnace, our methods of production and sales have reduced the cost so low that no builder can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

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

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

**American Bell & Foundry Co.**

27 Cody Street, Northville, Mich.



**COLUMBIA WINDOW COAL CHUTES** Patented

Seven Distinct Advantages not possessed by other makes are: (1) Opened from first floor or basement. (2) Protect foundation and lawn. (3) Affords one-third larger opening than ordinary coal chutes. (4) Door locks automatically and positively. (5) Hopper rests at top of chute when not in use and does not obstruct light. (6) Will not rust out. (7) Window can be used for other purpose.

Columbia Window Coal Chutes are artistic in design, mechanically perfect and will last as long as the building.

Ask your dealer or write for catalog and prices on Foundation Coal Chutes, Grade Line Coal Chutes, Side Walk Doors, Panic Bolts and Light Ornamental Iron Work.

**COLUMBIA IRON & WIRE WORKS CO., 1020 Ninth St., S. W., Canton, O.**



**There's none better than the "Best."**

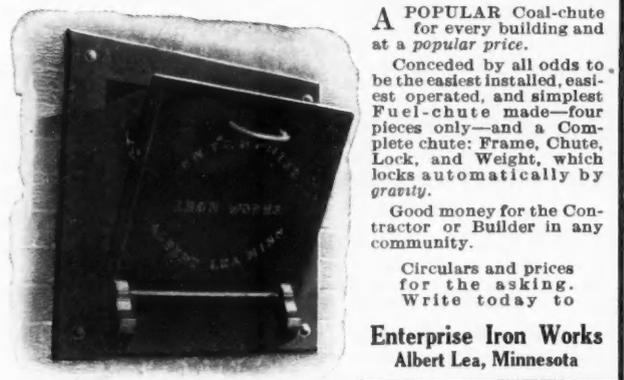
The "BEST" STUDDING SOCKETS are made in three styles—Standard, Partition, and Corner (one size each).

It is rapidly gaining in popularity among builders because it is so simple in design, effective, and so easily and quickly set. It is placed in the floor after the concrete is laid—before it starts to set. A hole at the inner end allows for attaching a bolt rod or wire for reinforcing. Builders are using "Best" sockets for barns, granaries, elevators, houses, garages—all buildings where concrete floors are used. They far surpass timber plates.

Let us send you our descriptive folder and prices on "Best" Studding Sockets

**STERLING FOUNDRY CO., 8 Avenue A, Sterling, Ill.**

## The Enterprise Coal and Fuel Chute



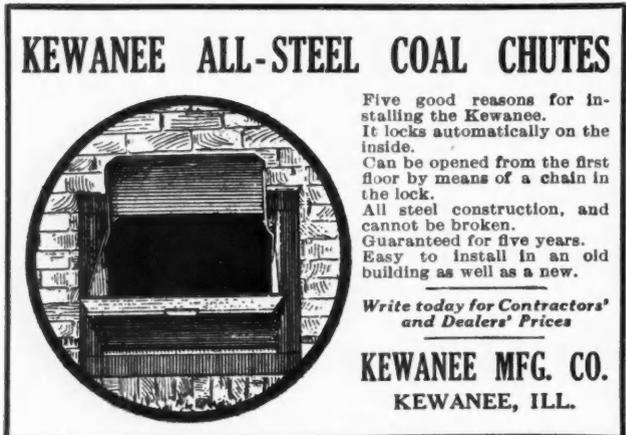
A POPULAR Coal-chute for every building and at a popular price.

Conceded by all odds to be the easiest installed, easiest operated, and simplest Fuel-chute made—four pieces only—and a Complete chute: Frame, Chute, Lock, and Weight, which locks automatically by gravity.

Good money for the Contractor or Builder in any community.

Circulars and prices for the asking. Write today to

**Enterprise Iron Works**  
Albert Lea, Minnesota



**KEWANEE ALL-STEEL COAL CHUTES**

Five good reasons for installing the Kewanee. It locks automatically on the inside.

Can be opened from the first floor by means of a chain in the lock.

All steel construction, and cannot be broken.

Guaranteed for five years.

Easy to install in an old building as well as a new.

Write today for Contractors' and Dealers' Prices

**KEWANEE MFG. CO.**  
KEWANEE, ILL.

(Continued from page 114.)

venient to put up on the roof. This was hoisted and placed near the center of the roof, in order to get the greatest possible test out of the material that was secured for that purpose. The customary allowance of 1/1500 part of the span would have given us 5/8-inch or 3/4-inch allowable deflection. The forms were lowered and the load put on. The instruments showed 14/1000 of an inch.

Of course most of the people in town were optimistic, but on any job it is interesting at times to listen to the croakers. There were several of these who just naturally could not see any reason for its standing up. To make a bad matter worse, a learned professor, who had been born and raised in the town, and who had later studied civil engineering, wished to get on record the last minute, so when the building was ready to test he wrote the local editor explaining that this building was a great inspiration, but poor engineering.

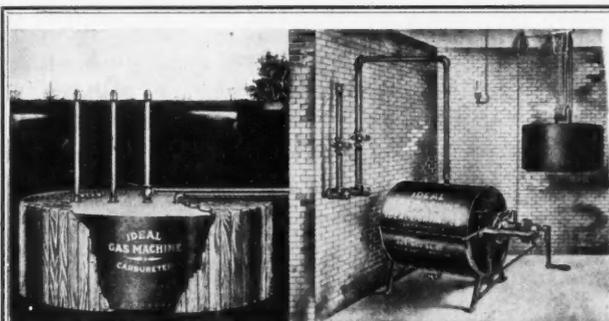
We had gotten the test pretty well along when a letter from the professor was called to my attention, in which he stated that the test loads should be removed from one-half the roof at a time, evidently to represent a severe wind load. The roof was quite flat, having a 10-foot rise in the 70-foot span, so that the wind load sounded like a joke. However, we decided to go the professor one better. Instead of removing the load from south of the center line of the roof, which would have been convenient on account of the hoist being located at the south end, we took the load off from north of the center and piled it on top of the load that was already south of the east and west center line.

This gave us an additional deflection of 4/1000 of an inch. Of course, all's well that ends well, but there is not a reader of this magazine who would not have enjoyed the situation when we were putting on the load a few tons at a time. Most of the trysting places in town, you know the kind I mean—where the surrounding floor is liberally coated with tobacco juice—were abandoned in favor of the Community Building. Obviously the thing could not stand, but the most surprising thing to them was the faith of the few of us, who went inside of the building occasionally to read the instruments.

They were interested in our welfare and consequently followed to within ten yards or such a matter of the door, then they would swing around on about this radius in order to keep their eyes on us poor mortals who were going from instrument to instrument getting the deflection, and were sure to get crushed under the load of sand. You see it was important to see just where to dig for us after the wreck. It would make a very interesting topic of conversation for years to come.

The first meeting held in the building was a Farmer's Institute and Stock Show. I happened to be west

(Continued to page 118.)



### Individual Gas Plants

Here is the surest, simplest, cheapest and most efficient method of lighting and cooking for country clubs, country homes, churches or public halls. Its convenience is readily appreciated by the average person. The country home equipped with an Ideal Gas System will always have an abundance of light (any time of day or night) that is the nearest approach to sunlight of any known method of illuminating.

Gas lighting by our method is the cheapest means of illumination in existence. One barrel of gasoline (about \$15.00) will furnish gas for the average sized family for from six to eight months.

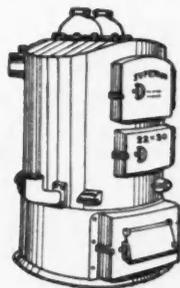
The lighting need not be confined to the house. The system can be run to the garage, barn or any out building. Gas irons, water heaters, gas ranges can be operated by it.

Write us stating your requirements or have one of our representatives call on you. No contract too small for us — none too large.

We have a Special Agency Plan for contractors. Write for prices.

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Successor to  
Ideal Lighting Co., 510-512 W. 3rd St.  
DAVENPORT, IOWA



### The Superior Heating Boiler for Hot Water Vapor or Steam

The Modern Method of heating your residence. Insures comfort in every corner of the house in the coldest zero weather.

It Will Pay You to investigate this Boiler before buying.

Our Estimates and Plans are Free

"A Complete Line of Plumbing and Heating Material"

**DUPLEX MANUFACTURING CO.**

Send for Free Catalog

SUPERIOR, WISCONSIN

Get Our Free Estimate  
For *Hot Water Heat*  
In that new or old house



**\$200.00**

Get Our Proposition and Big Heating Book

**ANDREWS HEATING CO., 1524 Heating Bldg., Minneapolis, Minn.**

#### GOOD PROFIT FOR CONTRACTORS

The Andrews Contractor Plan enables you to net more from the heating price and gives your customers the best system. We furnish free estimates on complete plants ready to screw together. Steel Boilers alone if desired.

The Logical  
**HEATER**  
for  
Small  
Homes



Easily and quickly installed. Effects a saving in coal and eliminates dirt. Produces uniform heat and occupies small space. Nets builder

and dealer generous profit. For economy, durability and superiority there is no heater that can compare with the

### NOVELTY PIPELESS HEATER

The practical heating system suitable for small houses, halls and bungalows. Extremely economical and requires little attention.

### NOVELTY TANK HEATER

The most modern and dependable hot water heater on the market. More hot water—less cost. No rusty or discolored water. Nothing to get out of order. Initial cost of installation small.

Write for Catalogue and Price List

**ABRAM COX STOVE CO.**

Philadelphia, Pa.



(Continued from page 116.)

when this stock show took place and later when the dedication ceremonies occurred. However, on returning I took the first opportunity presenting itself to go to Dexter. It was Saturday night and the high school band concert was scheduled for that evening.

Little need to be said about the appearance of the building. The photographs show for themselves; but it was interesting to go inside and realize that there, in a town of much less than a thousand people, they had an auditorium with a seating capacity of eight hundred. The scenery of the stage is first-class. The wings are roomy and there are five dressing rooms under the stage. There is room on the stage to seat a choir of one hundred voices.

For some reason, not at all plain to me, another revival service was started the following morning. So after the concert the choir leader, who came to town with the evangelist, held a little choir practice. Most of the crowd was gone, but a few of us stuck around, discussing the building. The choir was on the stage and the choir director, with her back to those of us who were in the back of the room, directed the choir in conversational tones, and every word was audible in the back of the building. We remarked on this and were pleased, but it became something of a joke the next morning during the services when she felt called upon to do a little whispered coaching between stanzas. Unfortunately this also was heard by the audience

even to the back seats. It's a real whispering gallery.

So in addition to being a great inspiration, as the professor stated, it was likewise pretty fair engineering. The building is unique. Dexter has something to enjoy and be proud of. It cost, together with the stage equipment, furnishing and moving picture equipment about \$9,000. It is a fireproof structure, 100 feet long and 70 feet wide, and so far as we are able to judge will stand until the material is again subjected to a temperature of at least two thousand degrees.



### Unique New Type of Fireproof Construction

(Continued from page 65.)

matically filling in around the metal lath and reinforcing rod in such a manner that the metal lath is imbedded in the base of the T-beam and is ready and in place for plastering just as soon as the beams have set sufficiently to permit the removal of the supporting bracing and framework.

The steel forms are then removed *upward*, obviating the necessity for delaying the work until the beams have set enough to support themselves and the workmen above. Then, after all piping, wiring, electric outlet boxes, etc., are put into place, another set of sheets of metal lath are laid and tied in place immediately on top of the T-beams, covering the piping, electrical

(Continued to page 120.)

## Clean Air Heater

One Register System  
**Big Money for You**

One installed sells many more. Buy direct from Manufacturer — Save Money — Secure Satisfaction.

- Efficient
- Economical
- Practical

Guaranteed by Two Year Trial Bond.

Write Today for our Special Proposition to Contractors.

MAIL TODAY

Standard Heater Co.  
438 W. Ontario St., Chicago  
Send me your Special Agency Proposition to Contractors.

Name .....

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STANDARD HEATER CO.  
438 West Ontario Street  
CHICAGO



### Before you finish your plans

Look over our catalog and convince yourself of the merits of our coal chut s. You will realize then that your new building would not be complete without them.

## Majestic Building Specialties

The Majestic sanitary garbage receiver is also a necessity of the modern home. It is buried in the ground, absolutely safe from dogs and vermin.

Send for our free catalog describing these and other specialties, Package Receiver, Rubbish Burners, Duplex Store Heating System, etc., etc.

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702 Erie Street HUNTINGTON, IND.



# HOLLAND FURNACES

Make Warm Friends  
Ask Any Owner

Ask any owner of a Holland Furnace. Hear what he has to say about how warm it keeps his whole house—how warm it keeps the floors—what perfect ventilation it provides—how much fuel it saves. Investigate the merits of the Holland Furnace and you will understand why more than thirty thousand owners declare it to be the best and most economical heating plant that can be installed in a home—why it makes friends everywhere.

## Be a Holland "Booster"

You can conscientiously recommend the Holland Warm Air Furnace. You know, because you have given the subject of heating plants close study, that warm, moist air, such as is supplied by a Holland Furnace, is the most healthful heat that can be had. You know that it costs less to install a warm air furnace than any other kind of a heating plant, and is most economical to operate. Our Holland Service Home Comfort Insurance-Bond is the strongest guarantee ever given with any heating plant.

Your recommendation of Holland Furnaces will make friends for you. Not only does a Holland Furnace insure an abundant supply of heat in the coldest weather at the smallest possible cost, but it invariably enhances the value of the house in which it is installed.

### Special Proposition To Contractors and Builders

Free heating plans. Send your floor plans. Holland Furnaces are not installed by dealers. We have our own special representatives who have made a study of the Holland Furnace, and who make a regular business of installing

it. We have a very special proposition which we would like to submit to you. Let us submit this proposition in detail. Mail the coupon for full particulars. This places you under no obligation whatsoever. Just sign and mail the coupon today.

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World's Largest Installers  
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Two Factories  
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HOLLAND FURNACE CO.,  
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I am interested in your Special Proposition to Contractors and Builders. Without obligation to me please send me full particulars.

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## HESS 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.

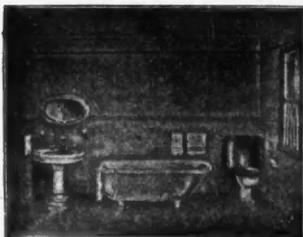
Should be in Every Bath Room. Four styles—four sizes. To recess in wall or to hang outside. Send for illustrated circular.

HESS, 920L Tacoma Bldg.  
CHICAGO

The Recessed Steel  
Medicine Cabinet

Makers of Steel Furnaces Free Booklet

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

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

Small orders are as carefully  
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## Consider Now

the heating of your house next winter. Present prices are lower than they will be in the fall, and orders entered now are pretty certain to be filled. But, later on, there will be a shortage in the supply of heaters, for there is already a shortage of steel and other materials, and mechanics are being drawn away for war purposes so that the shortage of labor will be increased.

We have at present a good supply

of HESS STEEL FURNACES, both for the Pipeless and the separate pipe and register kind. The supply, however, is not equal to the demand of a normal year, and, thus far this year, the sales exceed those of any previous year.

We will be glad to have your inquiries and promise you our best service

Write now for Estimates and  
Plans. Special Rates to Contractors

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**RUNNING WATER FOR THE HOME**

MYERS BULLDOZER POWER PUMP

**Myers Hydro-Pneumatic Pumps and Cylinders**

are designed for use in country and suburban homes but certain styles are also being installed in city residences to furnish soft water for kitchen and bath. They are built in a number of sizes for hand windmill, gasoline engine, electric motor or other power can be used in connection with any type of pressure tank. They pump the air and water through a single discharge pipe thus simplifying and reducing cost of installation. Let us tell you more about these wonderfully handy and labor saving MYERS PUMPS that furnish a satisfactory water supply at a small cost.

BATH ROOM, LAUNDRY, KITCHEN, DAIRY HOUSE, GARAGE, BARN, SPRINKLING, ETC.

Information, catalog and prices to dealers on request.

**F.E. MYERS & BRO. ASHLAND, OHIO.**  
 ASHLAND PUMP AND HAY TOOL WORKS  
 ALBANY - HARRISBURG - MILWAUKEE - CEDAR RAPIDS - ST. LOUIS.

SYSTEM No. 2010  
 Just right for home of 4 to 8 people.



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Hook up with your plumber. Get together and talk over the installation of a

**DEMING WATER SUPPLY SYSTEM**  
 on the next country or small-town house job.

**HERE IS THE PROPOSITION**

You explain to prospective builders of country or small-town houses the advantages of DEMING Water Systems, the sanitary conveniences, etc., selling the prospect the right size for his needs. Your plumber co-operates and makes the installation.

This is your opportunity of picking up an extra profit on house jobs. Investigate. Write now and get the facts on this chance for easy profits. Complete proposition gladly mailed.

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Agencies in All Principal Cities

Tell me how your Water Supply Proposition will help me.

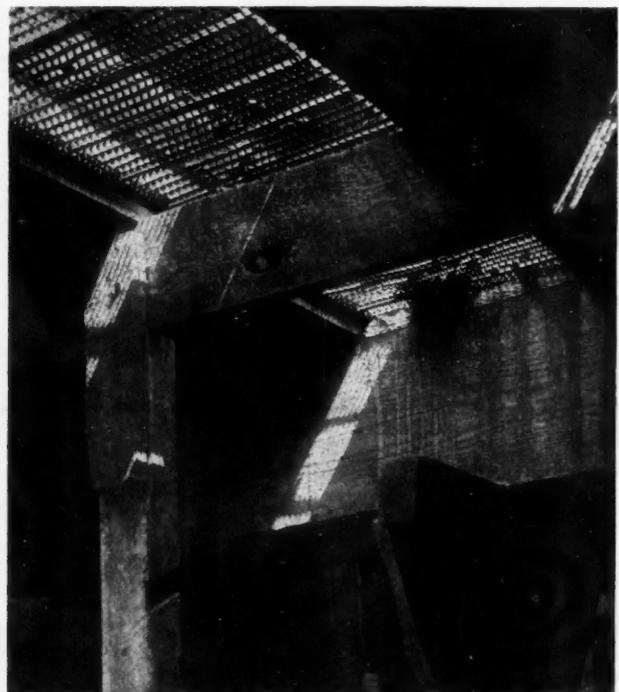
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 Address.....  
 City..... State.....

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

(Continued from page 118.)

work, etc., and a 3-inch cinder concrete floor is poured on top of this, the metal lath giving the proper amount of steel reinforcing to support the floor across the span and at the same time acting as a base to hold the cinder concrete in place.

The great saving in dead weight effected by this method of construction comes thru the elimination of the surplus weight between beams and the saving which the designer claims is made in addition to the elimination of the 25 to 30 per cent in floor dead weight is due to the fact that no useless forms need be left in the structure, and the steel forms used are removed upward instead of downward, thus greatly facilitating the speed of the work.



Close Detail View Showing Wood Boxing For Main Beams and Cross Planking For Base of T-Beams. Metal Lath in Place on Wood Planking Will Imbed in Base of T-Beams and Form Base For Plastering Ceiling.

With the present high cost of reinforcing steel, this new method of using metal lath and practically duplicating wood joist construction by reinforced concrete beams, and the construction in cost, insures this type of construction becoming popular with architects and engineers. Another especially interesting point about this building is the fact that the roof is concrete, poured over metal lath stretched over concrete beams, and the ceiling under the roof is a metal lath suspended type.

The architect and contractors state that the Building Commissioner of Washington, Mr. Morris Hacker, had no hesitation in approving this method, even for this twelve-story building which is now the highest reinforced concrete building in Washington or vicinity, as the lighter load on each floor obtained thru the use of this method concertainly justifies the lighter weight reinforcing structure thruout.

**"Garage with Pergola Features"**

and other suitable things for beautifying home grounds.

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

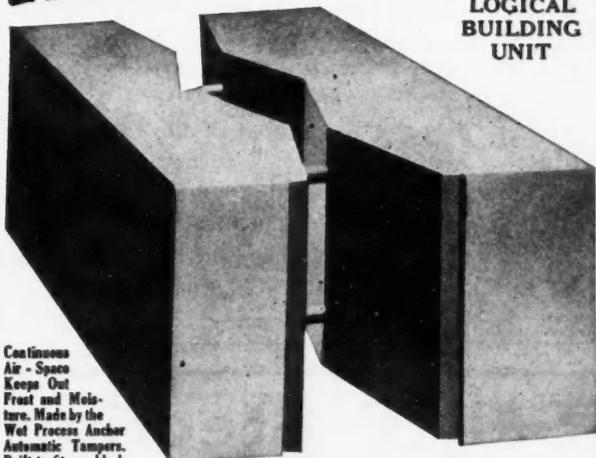


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Chicago Office, 2155 Elston Ave. New York City Office, 6 E. 39th St.

**ANCHOR BLOCKS**

YOUR LOGICAL BUILDING UNIT

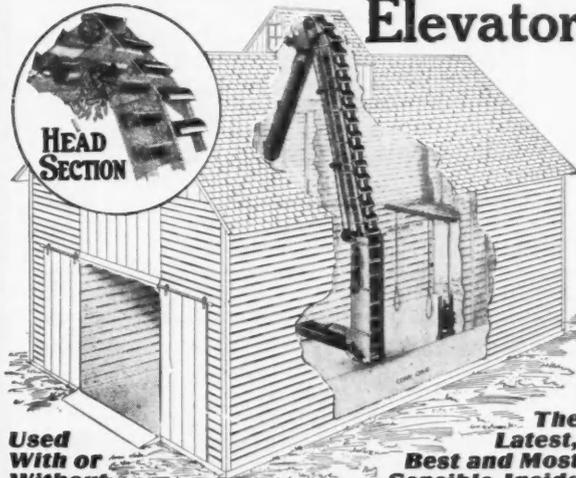


Continuous Air - Space Keeps Out Frost and Moisture. Made by the Wet Process Anchor Automatic Tamper. Built to fit any block machine.

Write for Big Catalog and Special Offer to Contractors & Lumber Dealers

**ANCHOR CONCRETE STONE CO.**  
ROCK RAPIDS, IA.

**Get FREE Plans of this Modern Crib with the Famous National Giant Inside Elevator**



Used With or Without Cupola

The Latest, Best and Most Sensible Inside Machine Ever Invented

Carpenter-Contractors drop us a postal, please, and we'll be glad to tell you how to make big extra profits by recommending and installing our National Giant Bucket Elevators in your crib jobs.

The "National Giant" has more desirable features for you to base your recommendation upon and more sensible features for the FARMER than can be found on any other make of inside grain elevator. Why? Because on cribs 28x38 ft. or less, with half pitch roof, it is not necessary to have a cupola. Saves the farmer money. When cupola is necessary, we can save the farmer from \$15 to \$30 with the National Giant. Ask us why, please. We also save the farmer the cost of digging a pit, and on the length of elevator required. The "National Giant" leaves the corn on the cob, where it belongs; more money in the farmer's pocket.

**Get Full Details of Proposition to Carpenter-Contractors**

Ours is a good proposition for you and the farmer. It will pay you to look into it. It will bring in more business, greater profits for you. One satisfied customer will bring you many more crib jobs. Write us today—we will give you full details and assist you in any way with plans, specifications, etc. Write now for full details.

**Portable Elevator Mfg. Co.,** 854 East Grove St. BLOOMINGTON, ILL.

**No Ice Needed—in Winter Filled From the Outside in Summer**

**The Herrick Outside Icing Refrigerators**

*Most Popular for Modern Homes*

Saves more ice, gives more space in the kitchen and does away with the tracking of floors.

This refrigerator requires no ice in the winter. It is cooled by cold air. The Herrick is so constructed that a compartment may be opened from the outside of the house. Cold air thus enters the opening, forces circulation and keeps the contents of the refrigerator cold and pure.

And we furnish FREE PLANS showing how the Herrick saves a great deal of kitchen space by being built into the wall so that only the front is visible. The housewife will appreciate this saving just as much as the ice-saving feature. And here is another point equally important: The Herrick does away with the annoyances of the iceman's visits to the kitchen and the soiling of the floors by his always muddy feet and dripping ice. Any woman who takes pride in a tidy kitchen will not only be interested in—but will demand the Herrick.

No progressive builder can afford to be without information on this modern convenience. Suggest it to your customers before they suggest it to you. It will add to your reputation as a conscientious, up to the minute builder and will get you more jobs. Write for our free plans and our complete catalog.



**HERRICK DRY AIR SYSTEM REFRIGERATOR**

The Herrick is Approved by Good House Keeping and New York Tribune Institutes

**Herrick Refrigerator Company,**

**Waterloo, Iowa**

### Fame, the Fleeting

(Continued from page 37.)

probably take one look at the moon and go jump in the lake. Now, the best thing that an ego does is to give you a fine feeling if permanence. Of course you aren't permanent, and your better sense tells you so. But Mr. Ego keeps trying to make you *think* you are. What he aims to do is to make you feel comfortable. Nice thing to have around—an ego. You need him in your business. But don't believe everything he tells you. He is the most agreeable and ever-present liar on your premises.



### Hollow-Tile Floors for Residences

(Continued from page 75.)

center and thruout most of its extent, but bent up to near the top surface at the bearings, the tensile strength lacking in the concrete is supplied, and the beam will support a load surprisingly great to those who have not given the matter thought and study.

In building his floor this contractor first placed the plank centering, then laid the hollow tile along them with a space four inches wide between courses. In these spaces he placed the steel reinforcing rods, securing them so they would not become displaced when pouring the concrete. He then completed the operation by pouring all those four-inch spaces full of concrete and allowing the concrete to set before removing the centering.

Combination floors of hollow tile and reinforced concrete beams made in this manner, he learned, can be

designed for any length of span up to 25 feet, and to sustain any reasonable load up to 500 pounds per square foot. The greater the load, of course, the greater the amount of steel required to reinforce the beams; and the wider the spans the deeper the floor and the stronger the beams required to support the floor.

In residence and small building construction it is seldom necessary to make the spans more than 14 feet, for bearing partitions are usually provided, or if there are no bearing partitions then beams carried on columns are constructed at comparatively short intervals, so that floors for such buildings seldom need be designed to carry a live load of more than 150 pounds per square foot. For this purpose one steel rod is all that is necessary to embed in each concrete beam, but the size of the rod will depend on the span in feet the floor will cover, and the load in pounds the floor must sustain.



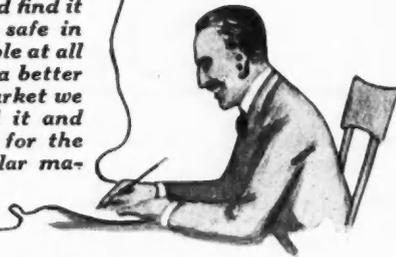
### The Pipeless Furnace for Country Homes

(Continued from page 59.)

way connected with the bottom of the space between the insulated outer casing of the furnace and the heater itself. When the combination register divided into three parts is used, this implies that the cool air is fed to the lower part of the furnace thru two tubes placed close to the furnace casing. In this method of con-

(Continued to page 124.)

Gentlemen:—We have had a Victor Acetylene Generator in constant use for more than three years and find it simple to operate, safe in operation and reliable at all times. If there is a better machine on the market we have failed to find it and are always looking for the best. No more cellar machines for us.



The letters from users tell the story!

Whole reams might be written in booklet, folder or circular, but you who are buying would like to get some idea of how Jones in Kokomo, Indiana, or Smith out in Snohomish, Washington, like the equipment. We will gladly give you the name of the above writer and many others on your request.

Here are a few important facts about the Victor Generator:

It is very easy to install—there are absolutely no adjustments to make. It operates very simply, is fool-proof and cannot get out of order. It is so constructed that an even temperature is maintained winter and summer. Only one body of water is used—nothing to remove when recharging. It is perfectly reliable under all conditions.

#### Send for this:

We have prepared a folder which describes the Victor Outdoor Above Ground Acetylene Gas Generator completely and points out its many advantages. A large diagrammatic photo illustration explains each part fully. Several commendatory letters are included. Just drop us a card and we will send this folder, also our illustrated catalog.

**Moore Brothers Lightning Rod Company**  
MARYVILLE, MISSOURI

## Sell Protection from Lightning

with every building you build,  
and make that extra profit.

Property owners are awake to the terrible Lightning hazard, and most buildings are now protected—sooner or later—from Lightning. Even the Government has at last taken up the subject and warned the farmers of the country especially to protect their property from the Lightning stroke.

The best time to apply Lightning Conductors is when the building is built, and the Contractor or Builder is the logical man to handle the job.

The Shinn System is the only one Bonded to Protect. Ask us how we cooperate with you.

**Shinn Mfg. Company**

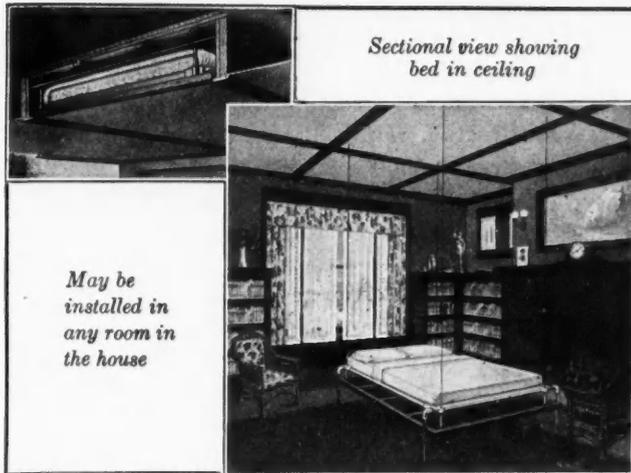
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**Lightning Can't Strike if  
SHINN Gets There First**



Sectional view showing bed in ceiling

May be installed in any room in the house

# SORLIEN CEILING BED

The Sorlien Ceiling Bed takes up no ceiling room, wall or floor space. It is perfectly practical for old buildings as well as new. Any good carpenter can install it, for from 50% to 90% less than any other disappearing bed. The Sorlien sells for \$40.00 F. O. B. Minneapolis.

Write for Sorlien Catalog today.

**Sorlien Ceiling Bed Company**  
410 Sixth Ave. South Minneapolis, Minn.

In every summer cottage you build

—you can install, at a profit, a

## Ro-San Indoor Closet



Every building—home, cottage, store or office—that has no sewer connection needs this modern sanitary indoor closet. Absolutely odorless. Act as our agent—this fixture sells easily to your customers—good Profit. Hundreds of carpenters represent us. We also distribute through builders the

**Ro-San Washstand**  
Provides Running Water, Hot or Cold, Without Plumbing. Every housewife wants one. Convenient, sanitary. Sells readily with little effort. Carry this work along with your regular business. Ask for terms to agents. "We are prepared to ship promptly any quantity of closets. No waiting."

Absolutely Odorless

**Rowe Sanitary Mfg. Co.,** 601 Sixth St., Detroit, Mich.

## Comfort Indoor Closet

Odorless Sanitary Germ-Proof

No Sewer, No Waterworks, No Plumbing Needed  
This modern home necessity is fast taking the place of the unsightly, unhealthy, inconvenient out-house in the back yard. Thousands now in use and all giving complete satisfaction. Can be put wherever convenient in the house. No odor whatever. Gives city convenience in the country or town.

**Cost Less Than Out-House**

Anybody can afford one. Saves those cold night trips out-of-doors. Impossible to get same amount of comfort for the money another way. Sold on 30 days' trial and under sworn guarantee to refund all money if not entirely satisfactory. Send for description and prices today. Be fair to your family.

**AGENTS MAKE BIG MONEY EASILY**

Comfort Indoor Closets sell themselves as fast as people understand about them. Contractors and carpenters are making big money by merely suggesting this closet. Write for details of this exclusive agency offer. Send postal now before somebody else gets your territory.

**Comfort Chemical Closet Co.,** 308 Factory Bldg., Toledo, Ohio



## It's There WHEN You Want It—



The Bessler Movable Stairway is the only stairs that

can be folded up into the ceiling, leaving the lower floor entirely clear. It is designed to do away with the stationary, space-devouring stairway to attics and lofts, as well as to half stories in bungalows. When needed a light tug on

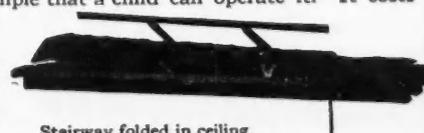
This cut shows Stairway half way up to ceiling. Spring barrels and counter balance do the work. You merely direct it.

a chain brings it down when stairs are easily rolled down the panel on to the floor. When not in use it is swung up into the ceiling out of the way.

IT IS THERE WHEN YOU WANT IT OUT OF THE WAY WHEN NOT IN USE

So easy and simple that a child can operate it. It costs less than a stationary stairway—bear that in mind. And just think of the space it saves in the

valuable lower rooms. Architects, contractors and home builders are invited to get in touch with



Stairway folded in ceiling.

**The Bessler Movable Stairway Co.**  
AKRON, OHIO

## Berger's Metal Lumber

Fireproof and Indestructible

Erected as Easily and Quickly as Wood



BERGER'S METAL LUMBER takes the place of wood, piece for piece. By the aid of erection drawings, furnished by us with each shipment, the material is easily installed. Each piece is cut to fit and marked to correspond with the identification marks on erection diagrams. This material is proof against fire, rodents, dampness and sound; prevents cracking in plastered walls and ceilings and cemented floors; eliminates maintenance costs due to depreciation; and lowers insurance rates.

Send for Bulletin 12 A. B.



**The Berger Mfg. Co., Canton, Ohio**

BRANCHES: Boston New York Philadelphia Chicago  
St. Louis Minneapolis San Francisco  
EXPORT DEPT.: Berger Bldg., New York City, U.S.A.



1-Joist



## "Has it a Built-in Bath?"

That is the first question asked by the woman who goes to look at a new house.

America's foremost built-in bath is the "Viceroy," a notable example of

## KOHLER WARE

*always of one quality—the highest*

The "Viceroy" is of genuine *one-piece* construction; it is enameled all over; the design is beautiful and hygienic, and owing to manufacturing economies it is available for all classes of houses and apartments.

Be sure to choose the "Viceroy." It will be a permanent addition to the attractiveness of the house or apartment you are building.

KOHLER OF KOHLER manufactures first quality bath tubs, lavatories and sinks to suit *all* requirements.

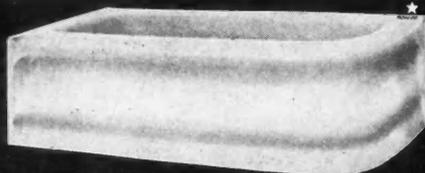
### KOHLER CO., Kohler, Wis.

*Founded 1873*

Boston New York Philadelphia Pittsburgh  
 Detroit Indianapolis Chicago  
 St. Paul St. Louis Houston San Francisco  
 Los Angeles Seattle London

★ The star indicates the location of the KOHLER permanent trademark in faint blue

"Viceroy" Bath—Plate V-14  
 (Patent Applied For and Name Registered U. S. Patent Office)



(Continued from page 122.)

struction, the cool air tubes are really an integral part of the furnace. There are numerous methods of accomplishing the desired result, some of which represent special construction of the furnace and others require simply the installation of special piping for the cool air ducts.

You should become thoroly acquainted with the various types and the manner of installing them. Let your preliminary estimates include a representative case for each type. Armed with these figures and all other data at your command, go out among the owners of country homes and discuss with them the advisability of replacing the old coal stoves with a modern one-register furnace. Keeping, at the same time, other building activities in mind so that when you have completed your interviewing, your notes will include data which will cover the general building situation in your vicinity. However, do not allow yourself to lose track of the application of salesman methods in an attempt to obtain too much general information. Persistence, cleverly concealed, is necessary in making the average sale. Have enough interesting data in reserve so that you are always ready to "come back" in reply to any question which might be asked. The contractor and builder or the building material and equipment dealer must be judged somewhat on a different basis in regard to salesmanship from the man whose only object is to make the sale. It has already been stated that the basis of his business must be satisfaction to the buyer, and when this object is lost sight of the result will eventually be loss of business.

There are many arguments which may be used to support the one-register furnace in preference to the old coal stove. You should suggest the saving of what sometimes amounts to one-half of the coal bill as an item of special interest. The man of the house is interested in knowing that the one-register furnace makes it unnecessary for him to set up and take down the coal stoves every year and that the hard labor of carrying fuel in to the stoves every day is eliminated. The housewife is interested in the fact that the one-register furnace keeps all the fuel dirt in the basement and adds to the useful space in the rooms where the unsightly stoves formerly were situated. It is also interesting to know that the furnace furnishes ventilation as well as heat, that a better distribution of heat is obtained than can be expected from the stoves, that the basement storage is not destroyed because the one-register furnace radiates very little heat into the basement and that this type of furnace may be installed without having the house torn up for a week or two.

You cannot afford to make unsatisfactory installations and you must, therefore, be thoroly acquainted with the limitations of this method as well as with its virtues. The matter comes down to a determination

(Continued to page 126.)

# HORNET MANTELS

The salability of any house is doubled when you show the purchaser the beauty and comfort of

## Hornet Mantels

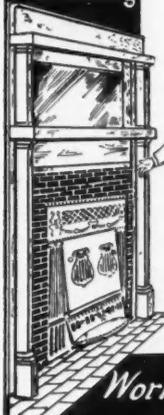
They add 100% to any interior. The model shown here gives an idea of our line and prices. It is offered in selected Oak or Birch, Mahogany finish, Piano Polish. Stands 7 feet high. Note beveled mirror, enameled tile and grate.

**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

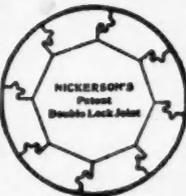


*World's Largest Mantel House*

## THE BEST COLUMNS

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

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



Cinch 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

## TAKE THIS



Fine looking Bookcase Colonnade and put it in the next modern home you build. It is specially priced to YOU—delivered at your station with all charges paid.

This is only one of the many attractive designs we have to offer

**GRILLES  
PARLOR COLUMNS  
COLONNADE OPENINGS  
CONSOLS and  
SIDEBOARDS**

In pleasing variety are listed in our Catalog No. 21.  
Send for it today.

**CHICAGO GRILLE WORKS** Loomis and 21st Sts.  
CHICAGO, ILLINOIS

# UNION METAL COLUMNS

"The Ones That Last a Lifetime"

## For Porches, Pergolas, Interiors

The shafts are galvanized open hearth steel and will not split, check, rot, warp or open up at the joints.

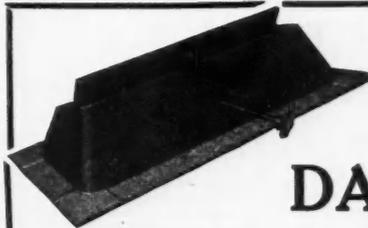
Union Metal Columns are architecturally correct and have been used on thousands of representative buildings.

Ask for Column Catalog 87 and Pergola Book 16-P

**THE UNION METAL MFG. CO.**  
CANTON, OHIO



## Improved Fireplace DAMPERS



Stover Dampers make the building of fireplaces easy. The labor saved by their use reduces the cost considerably.

Catalog 1590-X describes these and other new style dampers in detail, gives valuable suggestions as to fireplace construction and shows a large assortment of other fireplace fixtures.

If you build fireplaces, send for this catalog. *It's free.* We manufacture builders' and household hardware, windmills, feed mills, gasoline engines.

## Stover Mfg. & Engine Co.

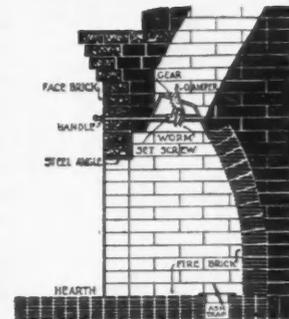
725 East Street

Freeport, Illinois

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

Send us Catalog 1590-X.

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



(Continued from page 124.)

of heat distribution. A good one-register furnace is capable of supplying all of the heated air necessary to keep the house for which it was selected at the desired temperature, provided this heated air finds its way into the parts of the house requiring heat. What sort of house can such a furnace be used successfully in? The answer to this question defines the average country home. Suppose the living room and dining room are connected with a colonnade or a large cased opening; there is, perhaps, a room connecting with the living room in such a manner that allowing the door to remain open will not interfere with the use of this room; the stairs to the upper floor, if there



### WHITNEY CASEMENT WINDOW HARDWARE

#### Builds Profits and Reputation

This patented hardware makes possible a new type of casement window that overcomes all the objections and drawbacks of ordinary hinged casement. Whitney Windows are giving satisfaction in all types of buildings, in all climates, in all parts of the country. They open outward, afford an unobstructed view and perfect control of ventilation, do not rattle or slam shut, are weatherproof when closed.

We manufacture only the patented Whitney Window Hardware and screen fittings — use any style sash you wish. If you cannot get the sash locally, we will quote you on your requirements complete, f. o. b. Minneapolis.

OUR SERVICE DEPARTMENT will help you, without charge, to adapt Whitney Windows to any unusual requirements. Interesting portfolio sent upon request. Special prices to contractors and builders where we have no dealers.

**WHITNEY WINDOW CORPORATION**  
309 So. 5th Street Minneapolis, Minn.

is an upper floor, are open with a hall above, which all of the rooms connect with, and a coal range is used for cooking in the kitchen. If it is not necessary to maintain a high temperature in the second floor rooms and if the bathroom is heated by some special method, such as by a hot water tank connected with the kitchen range or the furnace, the one-register furnace installed in the living room near the dining room will heat the house with satisfaction. The problems connected with the proper location of the furnace are important. In order to give the greatest satisfaction, simple alterations are often advisable in the house interior, which quite often greatly improve the house. The installation of cased openings in place of the old doors, dressing up the stairs so that they may be allowed to remain open and many other such improvements may be suggested, not only because the heating conditions are improved, but also because of the better appearance which is produced.

By your experience in selling these one-register furnaces, you will have built the foundation of a method of conducting your business based on the principles of salesmanship. Do not stop there. Continue your study of this subject until you realize its importance and then you will naturally make what you have learned a part of your methods of thought and your business will testify to your wisdom in making the effort.



#### The Man from the Lumber Yard

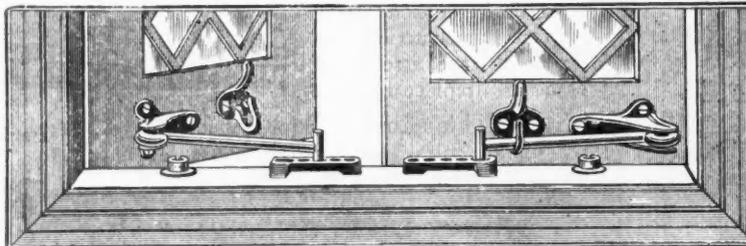
(Continued from page 41.)

One said he had expected to put up an additional silo. The other had been thinking of building an addition to his house that his wife had been asking for the last five years.

But both seemed a little skeptical as to whether it would be wise to build just now.

It was about train time, but the idiocy of this hardware dealer had raised my ire, and I asked the farmer whose wife wanted the four rooms added to her house to go with me over to a contractor I had recently called on.

(Continued to page 128.)



Superior Shutter Fasteners bring shutters back to their own. They make the opening and closing of the shutters a simple task, quickly accomplished. Shutters can be bowed at any angle without danger of being torn off the hinges by the wind. There is an arrangement for locking the shutters back against the house. Shutters lock from outside if necessary. Builders, carpenters, contractors. Let your clients have shutters again. Show them how easy shutters are to handle when they are "Superior equipped." Write us for full information and prices.

**THE G. F. S. ZIMMERMAN CO., Inc., Frederick, Maryland**

#### Shutters Have Come Back!

The old style controlling devices were exceedingly cumbersome, they rattled and banged in windy weather; there was much tugging and lifting to close the shutters, and in stormy weather one had to lean way out of the window to work the shutters and consequently got drenched.

**The Old Way But Here is The New Way**



Mr. Builder! Thousands of homes require just such an equipment as our Sanitary Automatic Dumbwaiter. Easy to install, costs nothing to operate, will last the life of the building. It does away with cumbersome kitchen closets, wall partitions and bother with ropes that wear or get out of order.

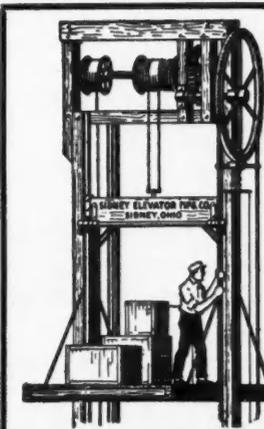
Notice in the illustration its extreme simplicity and the minimum space required. When not in use waiter is situated in an out-of-the-way part of the cellar where it is cool. By a slight pressure of the foot on a button placed in an iron cap, flush with the door the waiter is released and rises automatically into the room.



Waiter proper is made of poplar—odorless and tasteless. The outside is finished in high grade oak. Made in three sizes. Shipped completely assembled ready to install in a few hours' time.

Write for Our Illustrated Bulletin and Prices

**YORK AUTOMATIC DUMB WAITER WORKS** 633-641 West Market St. York, Pennsylvania



**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

**UNI-ELECTRIC** Light and Power for the farm and summer home. Delivers standard 110 volt current. Uses no belts—no batter es. Makes a profitable side line for carpenters and can also be used to furnish light for night work on rush jobs.

**WATERMAN MOTOR COMPANY**  
152 MT. ELLIOT AVE., DETROIT, MICH.

**DUMBWAITER**  
**COMPLETE \$19.50** READY TO INSTALL

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

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

**1/3 SAVED**  
**BUY DIRECT**  
**GET FREE BOOK**

**INSTALL YOUR OWN PLUMBING AT LOW COST**

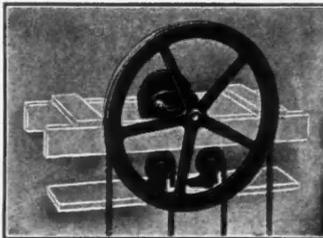


Get our Handy Man Book. Every builder and contractor needs it. Shows new home improvements and everything in guaranteed plumbing and heating supplies exclusively at wholesale prices. Any handy man can install with our free, easy installing plans and instructions with the help of our Service.

**CUT TO FIT HEATING PLANTS**  
Our 40 years' experience enables us to furnish heating plants, CUT TO FIT, bathroom outfits, etc., with new, original, easy installing features, combining quality, economy, simplicity and ease of installation.

Our \$500,000.00 plants behind our guarantee. **WRITE TODAY.**  
**THE HARDIN-LAVIN CO.** 40 years at 4532-42 Cottage Grove Ave. Chicago

**Every Modern Home**  
Should Be Equipped With a Dumbwaiter or a Trunk Lift



Your client will welcome the convenience of a Dumbwaiter or a Trunk Lift in the home.

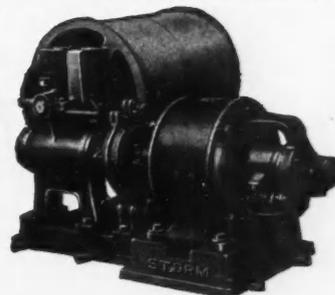
Our Paragon Automatic Lock Dumbwaiter (see illustration) holds the car stationary at any point without the use of a brake

or rope clamp. Works easily and is perfectly safe—the moment operator ceases pulling the rope, either raising or lowering, the car is automatically locked.

**Electric Dumbwaiters.** We also manufacture high grade Electric Dumbwaiters. Equipment is shipped fully assembled, already to be set in position and wired up. The machine illustrated here is our Type "W" with standard worm gear and drum. Furnished in sizes from 100 lbs. to 500 lbs. capacity. Operates at any speed from 75 F. P. M. to 300 F. P. M. on either direct or alternating current—any phase.

**Feel free to consult our Engineering Service**

Storm Company's Engineers are at your disposal. Let them make recommendations for your particular job. Send us your requirements and we will give prompt and accurate information on suitable equipment.



**Storm Mfg. Co.**  
40-50 Vesey Street  
NEWARK, N. J.



**THE COLUMBIA**

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

SEND FOR CATALOGUE  
**J. G. SPIEDEL, Reading Pa.**

**STOP THOSE RATTLING WINDOWS**

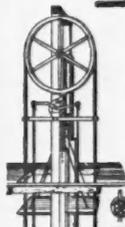
Do away with sash weights, cords, pulleys and pocket frames and save money by using **AUTOMATIC SASH HOLDERS**

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



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

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



**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

## Why Don't You Let Us Help Your Business?

**I**N some localities damp or very wet cellars and basements are so common and dry basements so rare that a builder who is able to guarantee damp and waterproof construction gets nearly all the work.

You can guarantee a cellar so dry that a match can be struck on the inside walls, no matter how much water is outside. The simple secret of complete and permanent dryness is

**MEDUSA**  
WATERPROOFING  
PATENTED

DOES THE JOB ONCE FOR ALL

Advertise yourself as the builder who makes basement foundations and floors waterproof, who builds permanently white, non-staining, non-hair-cracking stucco exteriors, who can build tunnels and subways that will not sweat.

You do not have to learn how to use Medusa Waterproofing. The dry powder is mixed with any good make of cement dry. The paste form is mixed with the gauging water. You work by weight—2 lbs. to each 100 lbs. of cement. There is no trick to it. Results are certain and uniform.

**And the waterproofing you do is permanent. It advertises you year after year.**

**THE SANDUSKY CEMENT CO.**  
Dept. L CLEVELAND

*Use this Coupon to get Full Details*

The Sandusky Cement Co.,  
Dept. L, Cleveland.

Send me your booklets on Medusa Waterproofing and to use it in twenty different ways.

NAME.....

ADDRESS.....

CITY.....

(Continued from page 126.)

We got his figures on the cost of such a job now and the cost it would have been two years ago. It figured about 26 per cent advance.

In view of the fact that the farmer expected to make over \$2,000 more out of his crop this year than two years since, the fact that his added cost would be less than \$400 did not jar him, and he practically ordered the job before he left.

When he had gone I asked the contractor about the hardware dealer. He said: "That blithering lunatic is always spilling the beans."

I knew that there were two other hardware dealers in town, also two lumber yards and three contractors.

I told him they should form a builders' club for the purpose of educating this one dealer if for no other reason.

There is no telling how much devilment a man of that sort will do to a community.

When a man loses faith he fails. When the members of a community lose confidence it stands still. There is this advantage in an association such as the Builders' Club, viz., it gives the insanity that may be present an opportunity to evaporate, and solidifies the sane ideas so they have especial force.

It is a well-known fact that everyone is born short on certain lines. When I slip a cog, and do some especially fool thing, I wonder as to "just how much of a lunatic I am." The difference between me and someone else is that one is more unbalanced than the other.

The most insane thing that can be done in any community is to get panicky, to have someone rock the boat.

Try the Builders' Club as an antidote for such rabies. Show any pessimistic member the cartoon our artist presents with this letter.

### Reputation at Home and Abroad

There isn't one of my readers but covets a good reputation at home. If so, why not give some care to your reputation, in the big world as well as your small world?

Do you know that when you write to an advertiser in the American Builder or any other publication the character of the reply you receive depends to a very considerable extent on what is said about you in the particular mercantile rating book to which the manufacturer subscribes?

As long as cows' tails grow down, not up, and water seeks a lower not higher level, one's credit must be constantly bolstered.

One of my friends in Detroit lost more than his profits on a flat building on which he had taken the contract for completion by April 10 because of his lack of financial rating to which he was entitled and for which he had failed to qualify.

He had the quotation on the boiler and knew it

(Continued to page 130.)



No Building Can Be Better Than Its Roof

No matter how well proportioned a building—no matter how well built—if the roof of that building does not insure absolute protection as well as perfect conformation to type—you would not want to be known as the builder.

## BAYONNE Roof and Deck Cloth

lends itself equally to protection and perfection. Being laid on dry boards, it offers unusual possibilities of painting and finishing afterwards, to obtain any desired effect. Being water-proof, weather-proof and wear-proof, it will resist the ravages of the elements longer than any other roofing material.

Bayonne does not buckle or rust. Fits smoothly into corners like canvas, yet cannot shrink. Can be kept clean by sluicing with water, like cement, yet is the most economical roofing material on the market.

Bayonne is recommended for roofs, sleeping porches, conservatories, piazzas and all places receiving constant wear. Send for Free Sample Book "N."

JOHN BOYLE & CO., Inc.  
112-114 Duane St., 70-72 Reade St., New York City  
Branch House: 202-204 Market St., St. Louis, Mo.



## A roof is as old as it leaks

Patches and repair bills proclaim the age of a roof. Some are worn out at five. RU-BER-OID is often youthful at twenty.

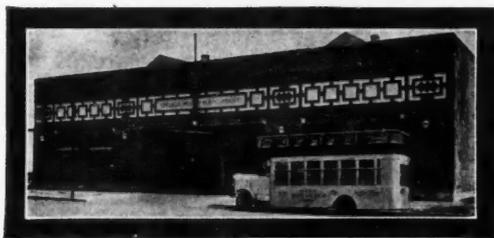
You can afford to pay a little more for RU-BER-OID. It gives such long-life service; it costs so little for repairs.

Ask your dealer to show you RU-BER-OID in Slate Gray, Tile Red and Copper Green.

REAL RU-BER-OID has the "Ru-ber-oid Man" on every roll. He's a guarantee of long wear.

THE STANDARD PAINT CO.  
587 Woolworth Building, New York  
BOSTON CHICAGO

Also makers of Ru-ber-oid Shingles and Impervite Waterproofing for Concrete



Chicago Motor Bus Co. Garage  
The concrete floor hardened and oil proofed with Indurite Liquid Hardener.

## It Makes Floors Better

Flush Indurite Liquid Hardener over a concrete floor, scrub it in with a stiff broom—the result is a hard, wear resisting concrete surface that will stand heavy service. It's remarkably simple and surprisingly inexpensive. Send for a test slab with one end treated with Indurite, try it with a nail.

Indurite makes better floors—garages, porches, stores, schools, churches— or wherever a wear resisting floor is needed.

Indurite is one of the seven C. W. Co. Products. They're all described in The Ceresit Waterproofing. Send for the June-July issue—back numbers too if you like. Write today.

**Ceresit Waterproofing Co. 910 Westminster Bldg. Chicago**

## 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.



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

(Continued from page 128.)

could be had fairly prompt. He had never opened a line of credit with the concern making this boiler, having gotten accommodations at his bank for such purchases.

He got ready for it just as the war scare came on. When he went to his bank for an additional loan to cover the boiler and some other items he was told that they were drawing in their lines of credit rather than extending. He went to the boiler people and they drew his attention to the fact that all transactions had been cash and the further fact that he had no rating.

It was three days before he was able to raise the money for the boiler, and when he did he found that the one boiler in stock suitable to his job had been sold. Because of freight delays it was a month before he got his boiler. This delay threw it beyond the rental period, and on the terms of his contract he was heavily penalized.

#### How is Your Trench

The lack of foresight and preparation on the part of this man cost him (1) many hours of worry and (2) his six months' profits. It is worth it to him if he has learned his lesson.

I find so many of the small builders are not rated in the mercantile books when they can schedule more property than many dealers who enjoy a rating and line of credit that my friends never dreamed of.

Credit is a two-edged sword. If used wrongly for speculation, for cutting prices, for carrying over difficulties where money has been used in dissipation eventually injures the man who enjoyed it as well as those who grant it and the honest men who would not abuse it.

While I will go to any trouble to help a worthy man or firm secure a proper mercantile rating, I

## ROOFING SLATE SINCE 1869

Miners, Makers and Shippers of all Styles and Colors of Roofing Slate. Write for Prices.

### RISING & NELSON SLATE CO.

Main Office: West Pawlet, Vt.

Branch Offices:

1058 Marbridge Bldg., New York City. 4 Post Office Sq., Boston, Mass.  
Office and Yard, 2554 W. Harrison St., Chicago, Ill.

## ROOF SLATE

Of every kind. Black—also the varying delicate shadings and rich tones of Red, Green and Purple—clear and in mottled effects.

Structural Slate — Slate Blackboards

**E. J. JOHNSON, Inc.**

Quarriers of Slate

West 44th Street, NEW YORK

will go to even greater trouble to have a rating which I know is wrong withdrawn.

Don't think that when you once get your name in the book that it will stay there. Nor should you be satisfied to have it remain at the initial figure.

Your brain, your health, your cash capital are all essential, but if you expect to expand you must have the protecting trench of a proper mercantile rating.

If any of my readers want my help on this, it is theirs for the asking. All I want is that they give me exact facts.

#### Silos—Silos—Silos—Silos—Silos

Every ounce of feedstuff that can be manufactured into milk must be saved. Corn is from 10 days to two weeks' late. You know what an early frost would mean to it as a shipping product.

I made a machine trip of about a hundred miles very recently in the Chatsworth-Gibson City-Paxton section of Illinois. While I saw many fine silos, I saw some farms without any such equipment and others where they should have one or more additional.

If the corn is not given a chance to cure many of these farmers will kick themselves for having neglected to provide proper silo space.

The draft is now over. You know the men you can depend on for your fall work. The country contractor can now book all the work he can complete before snow flies.

#### The Balance Sheet

It is his financial profits, as well as patriotic duty, to do this, but each one must keep in mind the figures he must face on Jan. 1, 1918, when looking at his statement of assets and liabilities.

The contractor who bids on any work this fall without knowing the today cost and today supply may get a jar when he looks for his profits.

On all written or verbal bids he should insert this sentence: "This bid is for immediate acceptance only."

On all accepted bids he should cover himself at once in a way that he will know he can lay his hand on the material the minute he wants it.

A little foresight and considerable backbone will

(Continued to page 132.)

## SLATE WE HAVE WHAT YOU WANT

*In Roofing Slate, Slate Blackboards  
Structural and Plumbers' Slate*

SATISFACTION GUARANTEED in QUALITY and PRICE

Ask for Delivered Prices

**J. K. HOWER** Station C Danielsville, Pa.

R. J. KICHLINE, Sales Agent



Your Reputation Demands

**UPSON PROCESSED BOARD**

---the Most Dependable Wall Board

Made in America

Contains no dirty, black materials or cheap, punky "jack pine" fibers.

Write for Samples and Information

THE UPSON CO. Fiber Board Authorities 16 Upson Point, Lockport, N. Y.

LOOK FOR THE FAMOUS BLUE CENTER

**ROOFING SLATE**

---"they were represented to be as good as G F T slate but after we used them we know POSITIVELY that they were NOT AS REPRESENTED. Hereafter we will use G F T slate. We are done with 'Just as Good' brands." This is the experience of all who buy UNKNOWN brands of roofing. Insist on G F T slate. They are the best and cheapest in the end. Price List and Catalogue on request.

Sole Manufacturers  
Slatington Slate Co.  
Slatington, Pa.



**The Roof of Eternal Youth**

**CHELDON'S**

RED, GREEN, PURPLE, BLACK

**SLATES**

Custom made to "fit" your Roof. A wide choice of distinctive Color Combinations. Quality, Price and Service unequalled.

**F. C. Sheldon Slate Co., Granville, New York**

To The Standard Paint Co., New York.  
The Impervite Stucco work is the best job in the County, not a hair-crack in the whole building.  
*Carbon Cement Block Company.*

To The Standard Paint Co., Chicago.  
We tried everything to overcome water seeping through the cellar wall. Are now using the room for pianos and there is no sign of dampness.  
*Bell Brothers Music Company.*

To The Standard Paint Co., New York.  
The pit goes twenty-five feet below water level. It was originally waterproofed with ten layers of tar and felt, which failed. The Impervite system was decided on and a 1/2" inside facing was applied in 1912 and has been absolutely successful.  
*Isaac Hopper Sons, Inc.*

To The Standard Paint Co., Boston.  
We ordered 5000 lbs. of Impervite for plastering several reservoirs. We have had no leaks, we have had no cracks and it has held on a stone wall where we very often had trouble in being able to hold the cement plaster.  
*Frederick & Bradenbaugh.*

No. 1

**Genuine Bangor Slate Roofing**  
(with Certificate)

A blue-black slate of durable and uniform color, and great tensile strength. (See U. S. Geological Survey Bulletin No. 586).

The slate roof is the safe roof, an incomparable protection against conflagration hazards, takes the lowest insurance rate, is architecturally beautiful, stands the test of time as does no other roof.

Costs of all building materials have advanced largely. The advance in slate has been less than any other roofing material. You conserve your client's best interest in service and in cost when you specify Genuine Bangor No. 1 Slate (with Certificate).

**NORTH BANGOR SLATE COMPANY**  
BANGOR, PENNSYLVANIA

**You Can't Go Wrong If You Use Good Old**

**HUDSON**  
ASPHALT ROOFING PRODUCTS  
TRADE MARK

**FOR ANY KIND OF BUILDING**

- Hudson Asphalt Shingles**  
Mineral surfaced Red, Green Mottled furnished in Individual Shingles 8"x12 1/4" and in strips 10"x40" with 5 shingles to a strip. Hudson Strip Shingles can be very quickly laid.
- Protection Brand Roofing**  
Mineral Surfaced; has 6" lap Pat. Nov. 18, 1902. Laid with all nails covered.
- Hudson Brand Asphalt Felts**  
For built-up roofs. For sheathing buildings and reinforcing slate and tile roofs. You will like Hudson Felt. It is pliable; will not dry up or crack, as it does not stick at the butts. You can use every inch of it.

**ASPHALT READY ROOFING CO., Dept. 53, 9 Church St., New York**

Cut out this advertisement and put an X in the  along side of the material you are interested in. Mail it to us and we will gladly send samples.

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

What Solves the Roof Problem  
Best for Cost, Utility, Beauty—



**Asphalt Shingles**  
Red and Green

**STOWELL MFG. CO., Asphalt Prepared Roofings**  
42 Culver Ave., Jersey City, N. J.

# Kawneer



EASY AND CONVENIENT TO GLAZE

**N**O doubt you have had occasion to install a KAWNEER STORE FRONT and have been pleasantly surprised by the ease and speed of the installation.

You may perhaps think that this happened only by chance and that you were simply lucky. Another installation may prove that you will not only make just as good time, but *better* time, being more familiar with our construction than you were previously. Just think what this means to you. *Minimum bother and maximum speed*—and on top of that a fine piece of work.

There is no mystery which makes this possible, merely your good judgment in selecting a store front construction, designed along practical lines; where the word "*simplicity*" means all and everything, because it is scientifically applied to even the minutest detail of its construction.

You need our experience to make that installation on which you are now planning a paying proposition. Permit us to assist you in offering our KAWNEER STORE FRONT CONSTRUCTION. If you wish a copy of our Catalog "H," containing store front details, just detach the coupon and it will be cheerfully sent you.

**Kawneer Mfg. Co., Niles, Mich.**

PIN THIS COUPON TO YOUR LETTERHEAD

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

(Continued from page 130.)

prevent many of our people from having a sinking feeling in the pit of the stomach when they look at their balance sheet Jan. 1, 1918.

There should be the closest co-operation between the contractor and supply dealers.

#### Sand in the Gears

Too much friction and lost motion is caused in the smaller transactions by word of mouth orders.

Jones drops into the Smith Supply Co. and says: "I will want ten squares of corrugated roofing in three weeks." "All right, Bill," is the answer, as Smith answers the telephone. The telephone order is for six kegs of nails to be rushed. Smith rushes the nails and forgets the roofing order.

In three weeks Jones phones over:

"I am ready now for those ten square of roofing."

"What roofing?"

"The ten squares I ordered of you about a month ago."

"I don't remember, but I will see what I can do."

(Smith calls to his helper to find out how he is fixed on corrugated roofing.)

"Sorry, old man, but I have only two squares left. I will order it thru for you at once."

What Jones says is deleted by the censor. There is no need of having sand thrown in the commercial gears—of having two good fellows think that the other chap is a liar—of Jones having to leave that job unfinished an indefinite period.

Even if you don't have order blanks—even if you use plain unprinted paper—you can save trouble and friction by slipping a carbon paper between two sheets and write out your order with all details.

When the supply company has that order there will be very little doubt about your having the material.

It would be well to write on all orders, "Please advise at once that material will be delivered as ordered."

Conditions are going to be worse, not better, and every precaution should be used.

Freight conditions are not good. Especially after the troop movement begins it will be much worse.

It isn't going to do any good to fret and kick. Keep sweet.

#### Age and Tools

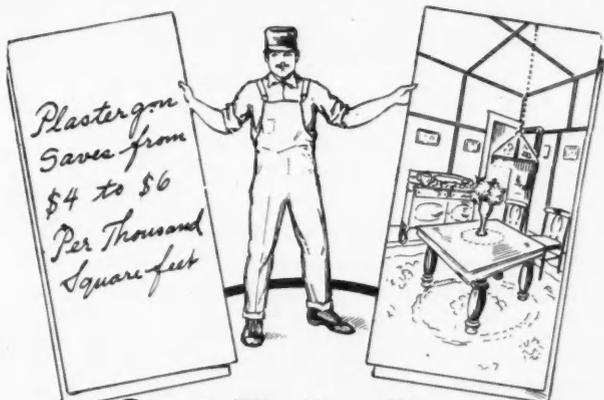
Some men who are as old as I am are going to read this. How old am I?

I am on the producing side of fifty. Which side is that? The side which enables a man to do more every working hour than he could do ten years ago.

I use my head more than I did ten years ago. I use better tools than I did ten years ago. Hence, I don't work as hard for the same results.

There isn't a single reader of this publication but can enjoy the gain in his work, as I have in mine.

(Continued to page 134.)



*Plastergon  
Saves from  
\$4 to \$6  
Per Thousand  
Square Feet*

**Quote The Low Figure  
And Guarantee The Best Job**

That's what any carpenter, contractor or builder can do if he uses Plastergon Wall Board.

**Plastergon Wall Board**

is chemically treated by a special process and cannot shrink. It is water-proof, warp-proof and twist-proof, and, because we size it before it leaves our factory, you can save from \$4 to \$6 on every thousand square feet.

Wall-boarding is the one field that offers year-round, steady work for carpenters, contractors and builders. The opportunity for obtaining contracts is unlimited, practically every building being a prospect.

Waterproof  
**PLASTERGON**  
WALL-BOARD

Write us for full particulars regarding Plastergon and the Sales-creating service we are prepared to render.

**Plastergon Wall Board Co.**  
261 Philadelphia Ave.  
Buffalo, N. Y.



**NO INTERRUPTION to BUSINESS  
WHILE REMODELING!**

CARPENTERS installing partitions, new windows or backgrounds can do a profitable job—in many ways more pleasing to store owners—if they suggest

CAREY  
**Ceil-Board**  
SUPERSEDES PLASTER FOR  
WALLS  
AND CEILINGS

No dirt, no damage to floors or goods, no delay on account of plasterers; business goes forward as usual. You erect a simple frame and cover it with Ceil-board furnished in Golden Oak, Mission or Circassian Walnut. (Also furnished in plain finishes for tinting.) One satisfactory job brings another. Write us for samples and particulars.

**THE PHILIP CAREY COMPANY**  
1021 Wayne Ave., Lockland Cincinnati, Ohio



**Saves 15 to 30 Days'  
Time in Building**

**THINK** what it means to you to be able to go right ahead with your interior finish without having to wait for plaster to dry. But that's not all—there's no running back to refit windows and doors, as the house is free from moisture. And when the last nail is driven, the house is ready for occupancy, free of all odors or dampness caused by new plaster.

But the saving in first cost of building is not the only thing in favor of Compo-Board. First cost is last cost. It cannot fall off, crack or dent and if the wall happens to get bumped with the corner of a table, chair or door knob, when the door is thrown open suddenly, there will be no hole.

The wood core of the genuine Compo-Board is what gives it such great strength, durability, moisture-proof, non-warping and non-shrinking qualities. No other wall board is made with the wood core, so be sure you get Compo-Board when you ask for it.



Sold by dealers in strips four feet wide by one to 18 feet long.

Write for sample and interesting booklet.

**The Compo-Board Co.,**  
5777 Lyndale Ave. N.,  
Minneapolis - Minnesota



**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.

(Continued from page 132.)

If there is a doubting Thomas who reads this, let him write to me of his work and the tools he is using, and I will present him with a year's subscription to the American Builder if I don't show him how to do his job with less work by means of a better tool or machine.

#### Insight Versus Eyesight

I mentioned, in a previous letter, the advantage of being able to look at both the present and the past. There are many advantages in having a good insight.

I have to wear glasses. Without them the printed page is a blur; but my insight is improving. I see many a thing that I didn't see ten years ago.

I don't think human nature has changed in ten years or ten hundred years. In fact, when I read, in the Old Testament, about the people who lived when the world was younger I meet on almost every page persons having the same kinks that you and I have. We wear shoes. They wore sandals. They rode on camels; we have motor cars.

The same narrowness, the same broadness, greed and philanthropy, always have been and always will be. There were over-grasping employers and slacker employes. Conscientious workers and considerate bosses are in evidence today, and could always be found by one of insight.

What is seen on the surface is not always the

real thing.

In no occupation is insight of more value than with the contractor. The great majority of those whom I have met have developed it to a remarkable extent.

#### Multiplied Personality

I know a general contractor in New England that has built up an organization so that it is as easy and safe for him to handle ten different jobs in ten different cities as for some men to handle one.

Some time since I had the opportunity of riding with him from Bridgeport over to New Haven. While I did not ask him pointedly as to the reason of his ability to carry on profitable enterprises at so many different points, I learned the following to be correct:

- (1) He had insight and knew men.
- (2) If he didn't trust a man he didn't give any responsibility.
- (3) When he trusted a man he proved him.
- (4) When he had proven a man he let him alone to handle his job as he saw fit.
- (5) He held each man accountable for net results.
- (6) He had developed a perfect system for specifications, requisitions, reports, etc.

Any ambitious man can approximate these good points if he don't duplicate.

Yours truly,  
The Man from the Lumber Yard.

## Our Free Plans Will Help You—

**Meadows**  
TRADE MARK REGISTERED

Don't figure on any crib or granary without consulting our Free Plans. They will show you how to get greatest capacity at least expense by installing Meadows Inside Stationary Cup Elevators.

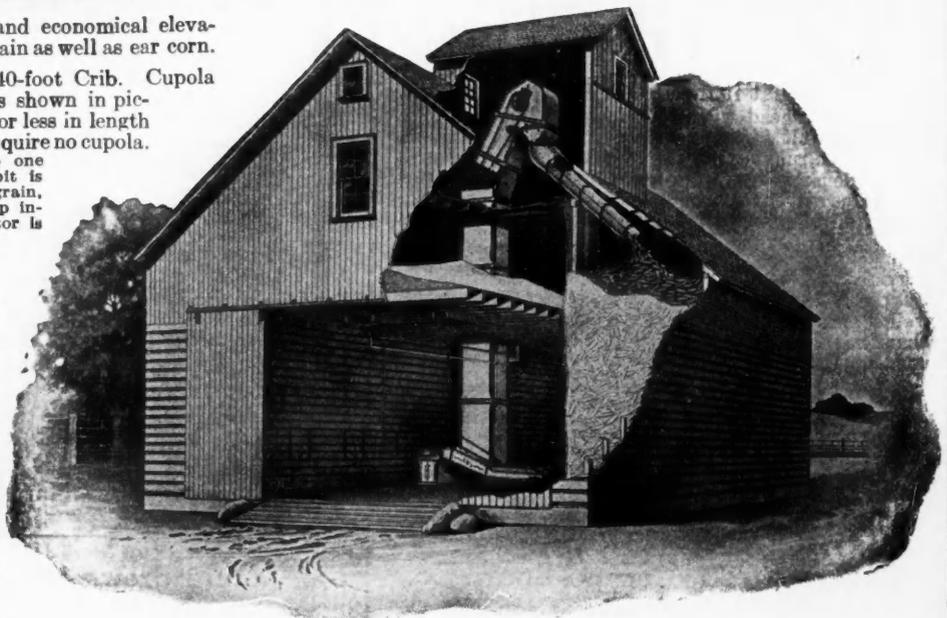
The most convenient and economical elevators, carrying small grain as well as ear corn.

The picture shows a 40-foot Crib. Cupola need not be as large as shown in picture; the cribs 36 feet or less in length with half-pitch roofs require no cupola.

Elevator is confined to one side of driveway. No pit is necessary for dumping grain. Just a hole 16 inches deep into which boot of elevator is set. The wagon jack is entirely overhead, fastened to the joists.

But write in today for our free Crib and Granary plans, catalogs and large posters, telling all about our outfits and their application. Valuable information for the builder, and writing for it obligates you in no way.

**Meadows  
Mfg. Co.**  
Pontiac, Illinois





**THIS IS THE HAMMER WITH THE PEDIGREE**

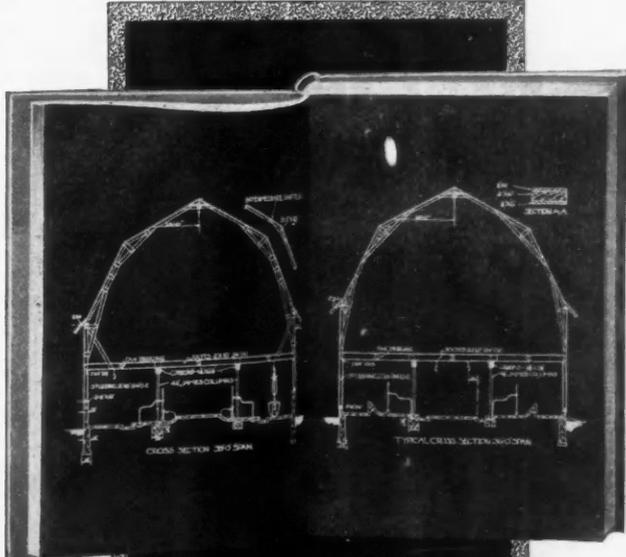
OF COURSE IT'S A

**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



**Bigger Profits For Barn Builders**

**THE EXPERT'S CHOICE FILE**



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

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

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

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

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

**DELTA FILE WORKS**  
PHILADELPHIA, PA.

**Look for This Sign at Your Hardware Store**

"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

**B**ACK your building skill with the scientific knowledge of our barn experts. "The James Way" Book gives the practical, helpful suggestions for better barns and barn equipment. It advises as to the best location. Basing its advice on drainage, ventilation and best distance from other buildings.

**Complete Dairy Barn Information**

From cover to cover "The James Way" is filled with the best, most modern dairy barn facts. Including blue print plans for complete barns, floors, windows, ventilation, etc. Showing **James Barn Equipment** the equipment used by thousands of dairymen and installed by leading builders everywhere

**Write for This Book TODAY!**

Just send us the names of farmers who intend to build or remodel, and for how many cows. James reputation added to your skill will do more to increase your income. Dairymen everywhere know the name "James" to stand for the **best** in barn equipment. Get in touch with us as quickly as possible. We have some barn information that will help you land jobs and **beat competition**. Write us now.

**James Manufacturing Company**  
EB75 Cane Street, Ft. Atkinson, Wis. Elmira, N. Y.



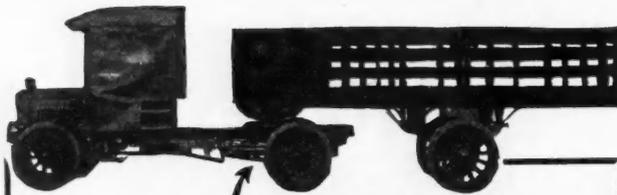
**SCIENTIFIC**

Royal Ventilators are constructed scientifically. They operate efficiently.

The Royal Ventilator will exhaust more air than any other ventilator made. The Double Cone feature makes this possible—a cone in reverse position to the top cone offers a sharp point to the upcoming drafts and consequently *minimum resistance*. You will need fewer ventilators on each job if you use Royals instead of inferior ventilators. Royals are rust-proof, insect-proof and bird-proof. Let us quote you prices and send you our booklet listing "big users" of Royal Ventilators.

Royal Ventilator Co., 417 Locust St., Philadelphia, Pa.

## One-Ton with Three-Ton Efficiency



### The Martin Fifth Wheel

makes possible this combination of a 1-ton Packard and a 3-ton Fruehauf trailer.

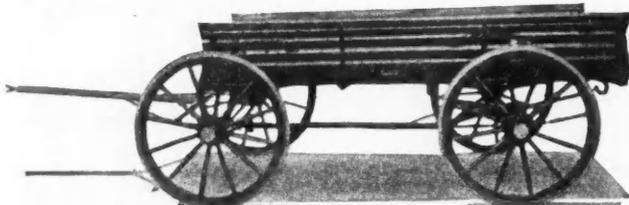
Write for further information

**MARTIN ROCKING FIFTH WHEEL CO.**  
SPRINGFIELD, MASS.

*Hurry it up!*  
*Order!*

**WE CAN** assure you prompt delivery on a Miami Trailer if we get your order in good season. This Miami Trailer was designed and built for *Contractors and Builders*. Body of Ohio Oak, steel lined, double end gate dropping to floor level which permits the hauling of material up to twenty feet in length. Special shock absorbing draw bar which protects your machine from all sudden shocks and vibration. Special constructed chassis that insures perfect trail with car. *The busy season is here* and we are in position to make immediate shipments. Ask for prices and complete description of fourteen different models.

Miami Trailer Company Troy, Ohio



## Design of Modern Granary

(Continued from page 85.)

where  $W$  is 480 pounds and  $l$  is  $8 \times 12 = 96$  inches, then our bending formula will be filled in as follows:

$$\frac{1,000 \times 1/12 \times 2 \times h^3}{(h \div 2)} = \frac{1}{8} W l = \frac{1}{8} \times 480 \times 96$$

$$\text{solving, } \begin{aligned} h^2 &= 17 \\ h &= 4\frac{1}{2} \text{ inches} \end{aligned}$$

It will evidently be safe to use 2x4-in. rafters in this roof spaced 24 in. on centers.

"In localities where there is danger of heavy winds or snows, it would be safer to use 2x6-in. rafters instead of the 2x4-in. stock.

"If it is desired to build a cheaper granary or one in which a timber floor is to be used instead of the concrete one shown, a type of framing for the floors of the corn cribs similar to that shown in the grain bin over the driveway could be used. In such a case the metal studding sockets could be replaced by a sill made by bolting two 2-in. pieces down to the concrete foundation to serve as a support for the ends of the floor joists of the cribs and for the ends of the wall studding to rest upon. The ends of the floor joists should extend across the width of the sills at each end. The outside wall sills could be of 2x6-in. or 2x8-in. stock, while those at the driveway should be of 2x10-in. or 2x12-in. material.

"It is advisable in all cases where wood is to rest on concrete to give the lower piece of the sill a creosote treatment before putting in place. This is to preserve the wood and prevent rot from dampness coming from the concrete. The metal studding socket accomplished this purpose in Fig. 2A by keeping the metal between the concrete and the wood. If it is not possible to dip this wood in a tank containing hot creosote oil, two coats of the hot oil put on with a brush will be better than no treatment at all. If no great amount of dampness is present, this may be all the preservative treatment that the wood will need.

"We will assume that the joists in the floors of cribs in such a building are of yellow pine 3 in. in thickness and of 1,000 pounds per square inch strength in bending. If we assume that the vertical pressure on the floor of these bins, which are 18 ft. deep, is 4 pounds per square inch or 576 pounds per square foot of floor, and that the joists are 8 ft. long and 12 inches apart on centers, then the uniformly distributed load on one joist is  $8 \times 1 \times 576 = 4,608$  pounds. Filling in our formula for the strength of a beam with a uniformly distributed load, we have:

$$\frac{1,000 \times 1/12 \times 3 \times h^3}{(h \div 2)} = \frac{1}{8} \times 4,608 \times 8 \times 12$$

$$\text{solving, } \begin{aligned} h^2 &= 110 \\ h &= 11 \text{ inches} \end{aligned}$$

Since the nearest commercial size of timber will be 12

(Continued to page 138.)

# 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

Would you build a house without a chimney? Chimneys are required to carry off the fumes of fuel and excess heat.

## "GLOBE" VENTILATORS

are required to carry off heated and stale air—to make room for the inflow of Fresh Air. They are necessary for health and comfort.

They are required on every class of buildings occupied by human beings and on barns.

Houses without ventilation are uncomfortably hot in summer and unhealthy in winter. Barns without ventilation are unhealthy for cattle.

It will pay you to send for interesting literature which suggests many sources of new profit for Carpenters and Builders and tells all about "GLOBE" Ventilators.

GLOBE VENTILATOR CO.

Department F  
TROY, NEW YORK



DO YOUR "BIT" and make a bit. There is no better way than to increase food production and conserve food. This may be done effectually by providing animals with air as fresh, clean and wholesome as the water and feed, also with plenty of light.



Push the Sale of  
**TIP TOP Ventilators**

and **TIP TOP More Sun Windows,**

accomplishing this result and thus render valuable service to your customer and the community at the same time make a fair profit. Dealers and contractors ask for our co-operative plan.

ANDERSON MFG. COMPANY  
DES MOINES, IOWA



## GET ALL THE PROFIT

Shipped Ready to Install

Easy to Erect



Your reputation and future orders depend upon the equipment you recommend. Don't take a chance. Get the present and future profit by recommending and equipping the barns you build with

## O-K Cupolas

Every one you erect adds to your reputation. They solve the barn ventilation problem and sell themselves. O-K Cupolas are neat in appearance. Bird, storm, rust and rot proof. Made of heavy galvanized steel. Cost no more than the ordinary kind.

Special Prices to Contractors and Builders where we are not represented

Write for full particulars on this and other money-making specialties

**Phillip Bernard Co.**  
2400 Floyd Ave. Sioux City, Iowa



## PERFECT LIGHT AND VENTILATION

Are two things that every contractor and builder likes to guarantee his clients. And he can do this by specifying Willis Skylights and Ventilators. They are made of the very best sheet metal obtainable, combined with honest skilled workmanship.

## YOU WILL RECOGNIZE THESE AS VALUABLE FEATURES

The skylights have the greatest glass area—give perfect light. Any carpenter with a hammer and screwdriver can erect them. No putty, nor solder required.

The ventilators are storm and bird proof. Neat and sturdy in construction and give an abundance of fresh air.

The Willis line of sheet metal building products is complete. Our large catalog is interesting. Sit down and write us.



DEPT. "B"  
**WILLIS MFG. CO.**  
GALESBURG—ILL.

(Continued from page 136.)

in. in depth, we will use 3x12-in. joists for these floors.

"If the joists are extended across the sills the ends can be spiked to the vertical wall studs and serve as ties to hold the ends of the studs in place to prevent the walls from spreading. Fig. 2B shows this detail. The floor boards may be of 1-in. material laid with tight joints.

"The driveway in such a building could have a hard earth floor or a concrete floor, as in Fig. 2A.

"The concrete floors shown in Fig. 2A are 4 in. in thickness and laid on a cinder fill or on earth tamped solidly in place. The concrete foundation walls extend around the entire building except at the ends of the driveway. These walls are 12 in. in thickness.

"The concrete footings are 12 in. in thickness and 24 in. wide at the base. In this case they are located 3 ft. below grade, but should extend below frost line in localities where it freezes deeper than this.

"A mixture of 1 part Portland cement, 2½ parts clean sand and 5 parts of screened gravel or crushed stone will be suitable for concrete for this purpose. If a finished floor is desired, a layer of 1 part cement to 2 parts sand, 1½ inches thick, should be placed on the top of the concrete surface before it has thoroly set. If this top layer is placed after the main body of concrete has hardened, the old concrete should be cleaned off, thoroly roughened and wet down before the new concrete is laid."

## Mixing Paint Materials

(Continued from page 57.)

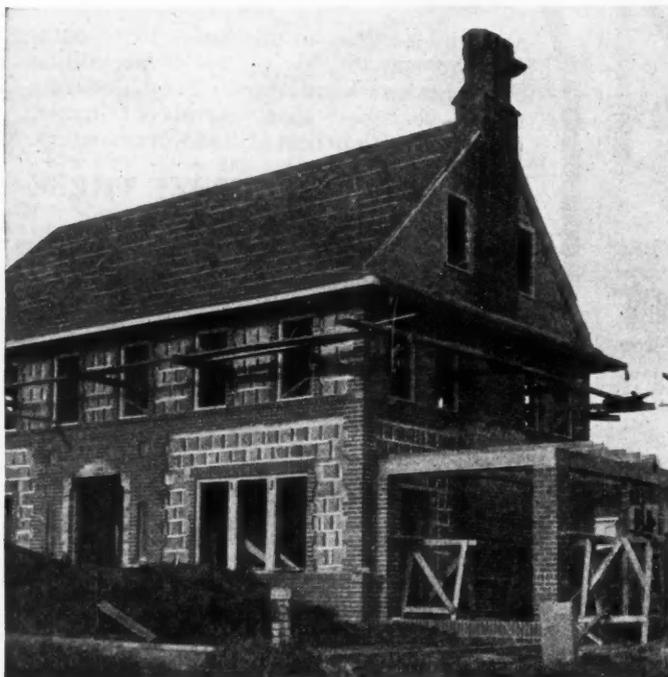
grade, dark raw oil stock to which has been added cheap rosin driers, *at the bung hole*, hence the name.

Lead and zinc should be used in combination—both in the priming and finish coats as given—in order that the faults of one may be overcome by the opposite qualities of the other pigment. White lead (basic lead carbonate and sulphate) tends to "chalk" as the coat of paint wears down. This is a very desirable quality, if not carried too far, for on the addition of fresh oil, this chalk material proceeds to make good paint for the second time. Zinc oxide, on the other hand, is a pigment so hard and unwieldy when exposed to the weather that it will scale or peel. Thus the proper use of these two materials tends to produce a paint of ideal quality.

I have recommended the use of asbestine or barytes not as an adulterant, as some may infer, but as an "extender" with the idea of producing better body; increasing the opacity; and at the same time really increasing the wearing quality of the paint. The late Doctor Dudley, Chief Chemist of the Pennsylvania Railroads, used to say: "All the inert material (asbestine or barytes) that can safely be added, without unduly impairing the opacity of the paint." He did not mean, however, that "if a little is good a whole lot is better," as a great many manufacturers and painters

(Continued to page 140.)

# Denison Load-Bearing Tile



## Costs No More Than Good Frame Construction

**C**ARRIES the entire load—it is easy to lay—absolutely fireproof—requires no painting—smallest upkeep cost—most perfect insulation of any building material known—cool in summer—warm in winter—coal bills cut in two—insurance rates cut in two—and everlasting.

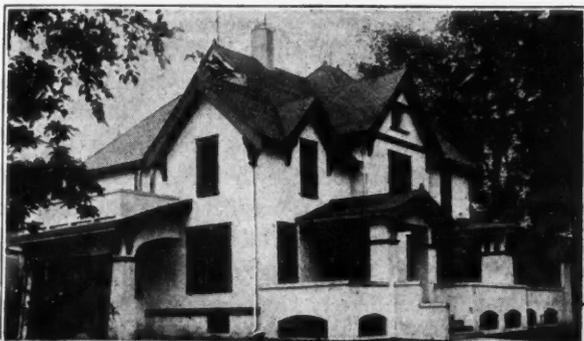
There is a good profit in it for you and an assured satisfied owner. The finish exterior can be of brick facing or cement stucco applied directly to the tile, which is grooved to provide a proper clinching surface. The inside wall does not require any furring for plaster.

Note the three vertical sections of dead air spaces which provide the best known insulation against heat and cold. Observe also the broken mortar joint which absolutely prevents frost or moisture from penetrating and condensing on the inside walls. The four vertical bearing webs are in continuous alignment and sustain the load to the best possible advantage.



Sold through all lumber dealers. Send for prices at nearest shipping point.

**Denison Fireproofing Co., Mason City, Iowa**



**Save Repair Bills—Overcoat With Kellastone**

FIGURE it out yourself—repainting and repairing the exterior of any building (which has to be done repeatedly) is more costly. Use, instead, economical Kellastone Imperishable Stucco—overcoat your building, assure its long endurance and stop everlasting repair bills.

**KELLASTONE**  
IMPERISHABLE STUCCO

will give an increased permanent value to your building. It contains no lime, gypsum or Portland cement and is not mixed with water. It is fire-proof. When dashed, according to our simple instructions, color schemes that express character, individuality and harmony are secured with nature's own unfading materials. Any plasterer can apply it. The home illustrated above has been completely transformed by the use of Kellastone. Write for full illustrated information how to make your old building look like new.

**The National Kellastone Co.**  
1315 Mallery Building - Chicago, Ill.



**ARTISTIC HOMES**

A book of 280 (8 x 11 inch) pages showing perspective views and floor plans of 250 artistic modern homes. A large variety of designs are given so as to meet the taste of the majority of home builders. There are artistic houses for people of moderate means and others for the more wealthy, but in every case the design is made with reference to comfort and economy.

Every design shown has been made by best architects in the world, who have made a study of home architecture and that alone.

Price \$1.00 Postpaid

**American Builder**  
1827 to 1833 Prairie Avenue, Chicago, Ill.

Was \$100  
Now \$49

**NEW OLIVER NINE FOR HALF PRICE**

The Oliver Typewriter Company created a nationwide revolution on March 3rd when it announced its new plans. No more expensive sales force of 15,000 men! No high office rents in 50 cities! No idle stocks!

But dealing direct with the people—cutting out all middlemen. The old plan cost the buyer a needless \$51 per machine. We now save that and give it to you. So the new price for standard \$100 Oliver's is \$49.

The Oliver Nine—our latest model—direct from the factory to you. It is the finest, the costliest, the greatest typewriter ever built. Used by the leading concerns.

Who would ever pay over \$49 again for a new typewriter? Especially when we not only make a new low price, but also give the lowest terms—about 10 cents per day—over a year to pay.

**STARTLING FACTS**

**Contractors' Special!**

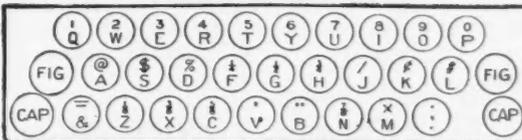
For contractors, our Special Oliver Nine is unbeatable. Besides being the best for ordinary correspondence, none can equal it for figure work. It has the characters you need, as shown on the keyboard herewith.



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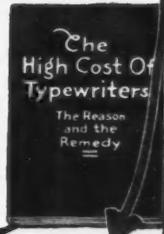
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**I**f you will keep your motor free from carbon. That knocking in your engine—the difficulty you have climbing hills—poor pick-up—lack of power—noisy motor—pre-ignition—in fact 80% of engine trouble is caused by carbon. Clean it out

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and your engine will run like it did the first 500 miles, quietly and full of "pep". And your gasoline consumption will drop from 12% to 20%.

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For 25c—five minutes' time—and with no labor you, yourself, can remove all carbon deposits. Simply pour an ounce of Johnson's Carbon Remover into each cylinder—allow it to remain from two to twelve hours and then drive your car 10 or 15 miles. You will be surprised at the wonderful improvement.

#### How It Works

Johnson's Carbon Remover does not eat the carbon, but releases it from the metal and softens it into a jelly-like, inflammable mass. Then, as the engine is operated, the mass burns, pulverizes and is blown out with the exhaust in powder form.

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Made and Guaranteed by  
**S. C. JOHNSON & SON**  
Racine, Wisconsin, U.S.A.

(Continued from page 138.)

seem to believe today, much to the detriment of their product and work. It will be noticed also that I have specified zinc oxide in the finish coats as well as in the primer. In studying paint troubles in the past years I have come to believe that there is one fundamental principle which the majority of paint and varnish investigators have overlooked or of which they were not cognizant. This has to do with the fact that each coat must ultimately come to have the same construction, density and hardness if aligating, checking or peeling are to be avoided. This I have proved time and again and recently settled an expensive lawsuit in court because I was able to prove that a hard, unyielding coat of material over a softer surface of the same product, results invariably in the destruction of the entire surfacing element thru cracking or aligating. Reverse condition of hard or soft will produce results of a like type. Thus, if these conditions occurs, the paint will have failed in one of its major requirements in that it will not have worn down gradually, without cracking or dusting, but with a smooth surface, paper thin, and of such a density as to allow the new paint to penetrate to the wood itself in order that it may secure a fresh foothold. To increase this penetration, the use of benzol as given in the formulae is to be highly recommended. No other material available will work as well or as quickly for this purpose and still be within the limits of practical cost.

In considering the matter of undercoats for new paint work, I wish to draw attention to the criminal practice attending the use of yellow ochre as a primer. More damage to good painting and more good work afterwards ruined has resulted thru the use of this material as a primer than thru any of the many paint products available. It has no "tooth," so that a new coat of paint will adhere to it; it has no ability to penetrate the pores of the wood, because of its coarseness, but simply is attached temporarily; with the oxidation of the oil completed, begins to peel off; it gathers moisture from the air, thereby causing blistering; worst of all, it causes no end of future trouble when it is necessary to repaint over such priming. A new coat of first-class goods will pull off all undercoats where yellow ochre has been used as a primer, thereby causing endless cracking, blistering and scaling. A coat of paint is no better than its foundation and if that be cheap, poorly applied, and altogether inadequate, how can good results be expected with such material as a base? Let it alone.

In using red lead for metal or cypress priming, it is best to mix only such amounts as can be used immediately. This oxide will harden in the pail over night and if mixed too far ahead will cause endless annoyance and waste. For priming cypress, the following formula has been proven to give results which will not check or scale from this greasy wood:

(Continued to page 142.)



## CMT COATING

*Puts life and color  
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Designed especially for the decoration and protection of either interior or exterior cement or stucco surfaces. Every gallon of C. M. T. saves many times its cost besides the beauty it gives to an otherwise dull cement surface. Write for sample, also for catalog of varnishes, paints, coatings, fillers, enamels, etc.

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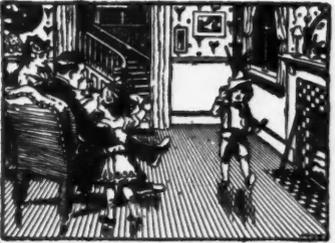
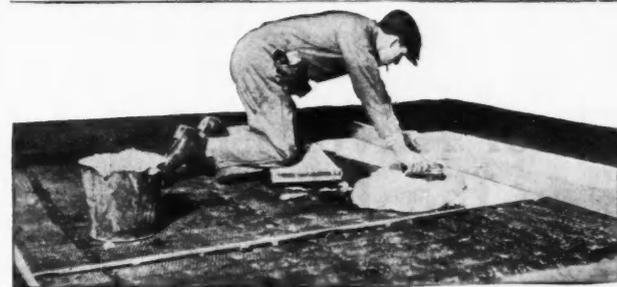
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- Oak Flooring is Distinctive, Beautiful and Substantial, three very vital reasons why so much Oak Flooring is in use today.
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within, although the storm rages without

CON-SER-TEX is a specially treated high grade cotton fabric particularly well adapted for roofing and porch covering. It will not stretch, crack nor blister. No more noise and rattle when the elements let loose. No more leaky spots nor repair bills after the storm has passed. CON-SER-TEX preserves the coziness and safety of the home during the storm.

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The Pacific Building Material Co., San Francisco

(Continued from page 140.)

White lead.....	34 pounds
Red lead.....	66 pounds
Raw linseed oil.....	6 gallons
Turps.....	1 gallon
Japan drier.....	1 quart

Add one cup of benzol to each gallon of paint as used.

This same rule should be observed in mixing porch paints when litharge is used as a hardener, or oxidizing agent, in addition to the usual amount of drier. For instance, a good medium slate gray porch paint would have:

- 100 pounds pure white lead.
- 1¼ pounds ivory black.
- 4½ gallons raw linseed oil.
- ¾ gallon of turps.
- 1½ pints japan drier.

One-half pound litharge should be added to each gallon of paint as used. The above gallon makes 8 gallons of paint.

Tinting colors should be purchased chiefly on the basis of color strength, for it is poor economy to buy a low grade color at 20c when a color three to four times its tinting strength can be had at 50c.

Above all else, mix your paints with brains. Stop and think before you mix a batch of paint; just what do you desire to accomplish? If you are not sure of your results, mix up a pint batch and test it out. A

pint does not cost very much money or time; a hundred weight of lead with the necessary oil, turps, driers and tints costs money, big money. Go slowly and make speed in the end and do not try to cut corners. If there are any to cut you will hear about them quickly enough, and if a formula calls for ivory black use it and not lamp black. Ivory black does not slow up the drying of paint. Lamp black never dries and often fades.

Next month we will give some common sense tests for good paint materials and the paints as well.



### After Twenty Years

(Continued from page 82.)

The writer was impressed with the importance of many things that he only knew in a matter of fact way before. Apparently, the men who built this church knew many things in a matter of fact way that they did not for some reason apply in construction. They knew, but not well enough to make practical use of their knowledge; and the same may be said of every mechanic to a more or less degree.

If the condition of this church was an exceptional condition, time could be spent to a better advantage than in looking it over; but in fully 90 per cent of buildings constructed without the supervision of an architect some of these faults may be found.

(Continued to page 144.)

## PHOTOS WANTED of Advertised Goods in Use on the Job

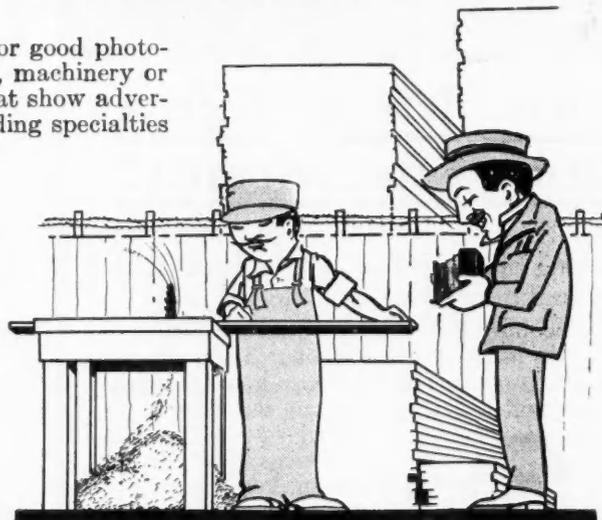
**T**HE EDITOR will pay \$2.00 each for good photographs that show interesting tools, machinery or equipment in use by builders or that show advertised building materials, fixtures, or building specialties being installed on the job.

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

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

Address Photo Contest Editor

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The Expanded Cup

Assures a Rigid Wall  
of Uniform Thickness

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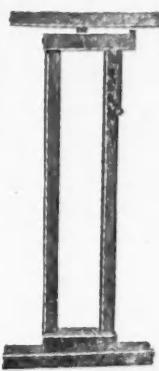
**SELF-FURRING**—this lath, therefore, saves labor, time and material.

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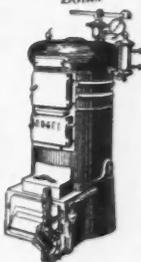
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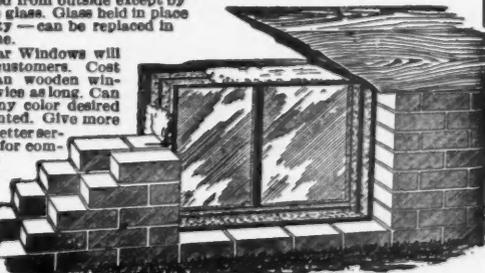
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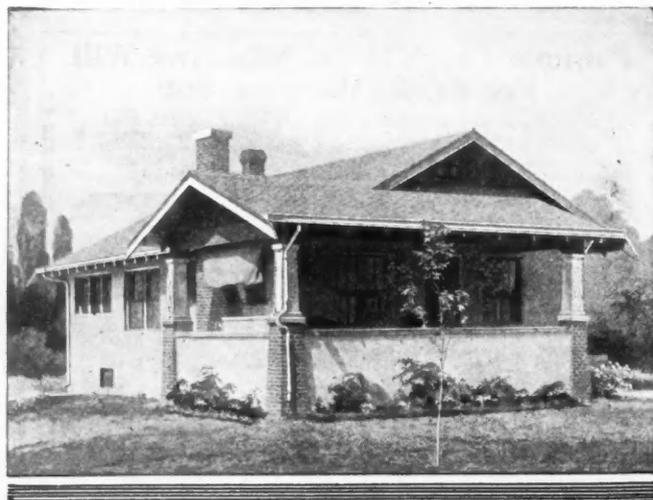
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The makers of **CURTIS** Woodwork guarantee complete satisfaction to users,  
"We're not satisfied unless you are"



(Continued from page 142.)

Where the tower joins the main building in church and school house construction, how many are waterproof after twenty years? The writer believes that over 25 per cent were never waterproof at any time, let alone twenty years!

Only the exceptional church roof remains straight at the ridge line and eaves. Frequently 2 by 6's are used for principal rafters where nothing less than 2 by 12's should be used. The average contractor or carpenter is absolutely unable to figure out roof stresses of this kind—he simply guesses at them, with the result that not one roof in twenty is made strong enough, nor anywheres near strong enough to retain its original shape. But let the intelligent mechanic go back and look at his sagging roof, and if he has another church to build, I will warrant that he will not guess at the size of roof timbers to use nor pattern after some other piece of guesswork in the neighborhood, but will get some good book on the subject and preclude the possibility of having another such an undesirable job to his credit.

Frequent driving rains wet the foundation wall; this, together with the moisture from the soil, soaked up thru the spongy mortar and would in ordinary construction have rotted the under side of the sill; but here it rotted sills, joists and the lower ends of the studding. There should have been a waterproof cement damp course on top of the wall from 1/2 to 1 inch in thickness. Any material that will absorb and retain moisture should not be used to embed sills. Air cannot circulate at the points of contact, and the presence of dampness causes decay.

Every foundation should be well ventilated; the closer the woodwork to the soil, the more ventilators needed. They need not be so large, but they should be closer together. In cellars and higher foundations the openings may be fewer and larger; in every place they should bear a close relation to the amount of air they are expected to move.

Foundations should be high enough to keep dampness from the woodwork. This is governed by moisture conditions, location, and whether the air can circulate freely around the building or not. They should also be made of materials bearing some relations to each other in lasting qualities. Here were rocks as enduring as granite, laid with a mortar that would fall out of the wall in less than fifty years and had practically lost its bonding power in less than a quarter of a century.

For underground work exposed to continuous moisture, the writer has found, by experience, that lime mortar is absolutely worthless, even dangerous when subject to much weight or lateral pressure. The wet sand and rotten lime lessen friction, making the tendency to buckle from load and slip from lateral pressure, greater. In such a place a dry laid wall is much safer as the friction of the hard materials upon each

(Continued to page 146.)

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EXTRA DENSE LONG-LEAF PINE



THE MORE YOU'LL REALIZE THE VALUE TO YOU OF RECOMMENDING IT.

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Never before has there been offered to carpenters and builders so much truck quality at the price. Chassis prices, \$1185 to \$3750.



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Agencies in all Principal Cities and Towns

(Continued from page 144.)

other will better resist displacement. To sum this up, lime has no place in a good foundation nor any other exposed masonry.

The result of embedding the sills, joists and foot of the studding in the masonry of the foundation was a surprise to the writer. It did not seem possible that it could cause such decay in so short a time. One would scarcely believe it if told, but here was evidence indisputable; here was a job done at considerable expense to make the building solid and warm, that simply destroyed the woodwork and might have endangered life. On account of the vibration of the floor, an extra girder was put under the joist on the south side as far as the excavation for the furnace extended. This was done by the trustees who thought that the vibration of the floor was caused by the joists being of insufficient strength in the first place, and had not the least idea that it was really caused by the rot at the ends of the joists buried in mortar and beyond observation.

Could the mason have foreseen results, this disastrous improvement would not have been attempted; but one does not have to go back twenty years to find workmen embedding woodwork in the masonry of the foundation. Less than a decade ago the state specifications for the rural school houses in Iowa called for similar construction. Less than three years past, the writer saw some of the work done on a residence costing over \$8,000.

In time, these jobs, too, will show the evil result of such work, as in every instance in cases of this kind that came under observation, where much moisture was present, the result was the same—rotted woodwork more or less; and this ought not to surprise carpenters, as they are continually finding places of dimension rotted for no other reason that they were piled where the air could not circulate.

There is no better way for a mechanic to improve his work than occasionally to go and look at his jobs of twenty or any number of years ago. If he is perfectly satisfied with them you may be sure that such a man will never add anything very valuable to the knowledge of the building trades.

Your friends will tell you one thing about your work, your enemies will tell the public another; both are subject to prejudice and both may lack sincerity. The unimpressionable building material you have used is influenced neither by love nor hate. Step around and look at it. It is a valuable and inexpensive teacher.

Stability and endurance are the main essentials of a good building, time the only true test. Silently and unerringly it shows what is good and what is bad, what to keep and the best things to keep. Poor material and poor workmanship have no place in its keeping, it is eminently practical and no mechanic can fail to learn from the effects of its application to his works in the past.



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No Sir! Canton Side Doors are built so you can't slip or trip on them. Flush hinges, imbedded handle and corrugated surface guarantee safe walking.

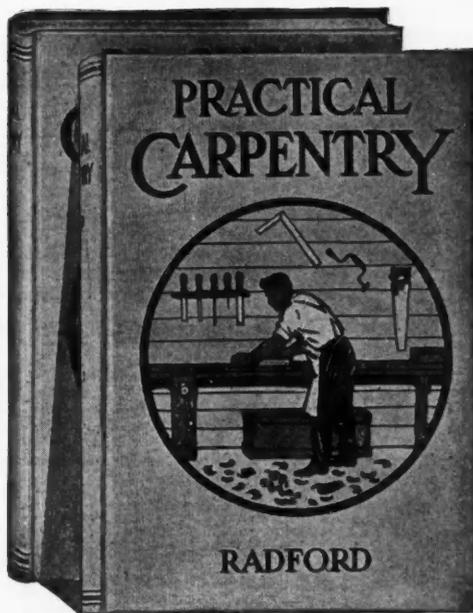
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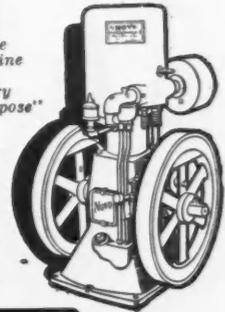
NO LAMP  
NO FAN  
NO FREEZING  
TROUBLE

Over 75 different kinds of power outfits, each the handiest, most economical source of power known. Write for our book "Reliable Power"

It tells you the advantages of standardizing power with Novo Engines. You'll find it worth reading.

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706 Willow St., Lansing, Mich.  
Furnished to operate on gasoline, kerosene, alcohol or distillate; 1-15 H. P.



## All on Account of the Nails

Many an expensive shingle roof has been torn off before its time because the nails used weren't rustproof. If you were to investigate the matter you would find that the rusty nail cuts off from 33 to 50% of the natural life of the shingle.

M. I. F. Nails will safeguard you—they are absolutely rustproof. An M. I. F. Nail will outlive the best shingle ever sawed.

Stop and think what this little economy means to your business. Then send for a few samples of M. I. F. Nails the kind that won't rust.

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BRANFORD, CONNECTICUT

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# CARPENTERS

FOREMEN—SUPERINTENDENTS—CONTRACTORS  
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## Plan Reading, Estimating, Architectural Drawing, Contracting, etc.

This is a course for practical men. We send you actual blue print plans of buildings now being built or recently completed. Practical training, not book knowledge, is what you want—it's what we give. When you think of the opportunities this training offers, you will take time—right now—to mail the coupon for full information.

**To Succeed** in any branch of the building business you must have a complete knowledge of plans and specifications. You must be able to estimate closely the cost of material and labor. Guessing won't do—you must know. This knowledge is what makes successful foremen, superintendents and general contractors. This knowledge means money—thousands of dollars—to any builder—to you!

**Your Spare Time is Enough**  
**You Can Master These Subjects in Your Own Home by This New, Easy, Quick Method**

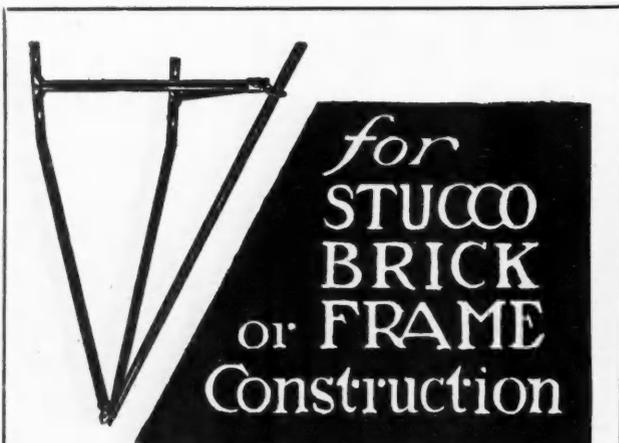
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Hundreds of men are in daily attendance at this old-established college. In your own home you can do the same work these men are doing. The same experts that teach them will guide you toward the big job. They will prepare your instruction matter. Your work is examined and approved by them. These men know exactly the practical training you need, because they are in constant charge of big work. No books to sell.

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RELIABLE brackets are the only kind of steel brackets on the market that can be used on stucco and brick work as well as frame construction. That's why so many builders find Reliable brackets the most satisfactory for their work.

But there are other important features—

The nail holes are slotted so that the user has but to drive in four nails, when the work is done the bracket is "lifted off" of the nails and folded up, and the nails are driven in without defacing the siding in any way.

**And they are compact!**

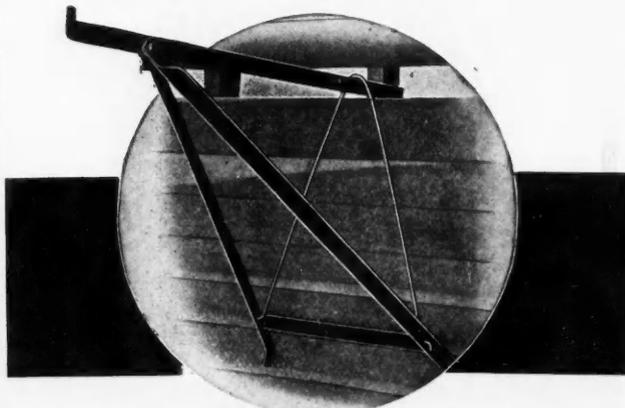
Simply fold them up and stow them away in your trunk. Think of what an advantage they are over wood scaffolding, besides being so much cheaper—and safer. Use them anywhere on the roof—chimney building—on the corners in the gables.

We would like to quote you on Reliable scaffolds. We will give your letter prompt and careful attention.

Send today for further information and prices.

There are no steel scaffolds more reliable than Reliabilities.

Elite Manufacturing Co.  
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**Why Build Scaffolding?**

Why go to the trouble and expense of erecting wooded scaffolding requiring about 5 hours of your valuable time when you can easily obtain a scaffolding that can be put up in 5 minutes?

**Order "Trouble Savers"**

No bolts, screws or nails! Just hook one on to a stud and your scaffold is up. The illustration above shows how simple it is. Every "Trouble Saver" is guaranteed for five years. If you would like to try them out first, we will send a lot to you for 30 days free—freight prepaid. You won't send them back! We feel sure of that. Contractors all over the country have written appreciative letters about "Trouble Savers". These points particularly impress them—absolute safety—no side movement—easily adjusted—compact and easily stored away—big time and money savers. Try them on your next job.

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**A Permanent Sidewalk Light System**

BERGER'S  
*Raydians*

THIS system fully meets the vital points of ease, speed and economy of installation; abundance of light area; strength and durability. An installation can be kept in perfect condition due to the easy replace feature which permits broken glass to be readily replaced in an economical and watertight manner.

See Sweet's, pages 834-837, and  
Write for Bulletin T. A. B.

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Branches: Boston New York Philadelphia  
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Berger's "Raydians"  
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**I**NTERIORS of banks, stores, homes, offices, theatres, churches, schools, garages, etc., are all made more attractive by the use of

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 STEEL CEILINGS

There are hundreds of beautiful designs to select from so that the treatment of each type of interior can be harmoniously carried out.  
 The many advantages of these ceilings will appeal to the owner and their use will be a credit to your ability.  
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**FREE SERVICE**  
**For Builders**

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**Come to Us for Everything in Sheet Metal**

**STA-DRI**

**A**LIMPID, practically odorless liquid that will permanently waterproof your stucco and cement buildings without the slightest discoloration of these surfaces.

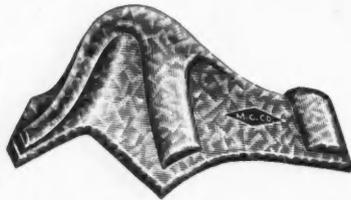
The cost of *Stay-Dri* does not exceed one-half cent per square foot and the application of it, especially by spray is very economical.

*We will be glad to mail complete information on Stay-Dri to builders who are interested in it as a profitable business.*

**Protective Materials Corp.** 51 East 42nd Street NEW YORK

**PERMANENT WATER PROOFING for stucco or cement**





No. 160  
Hip Finial

**"AMERICAN"  
METAL ROOF  
TRIMMINGS**

Made of Gal-  
vanized Iron  
or Copper  
Sheets



No. 159 Hip Starter and No. 157 Hip Finial

This is  
positively  
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High grade workmanship. Reason-  
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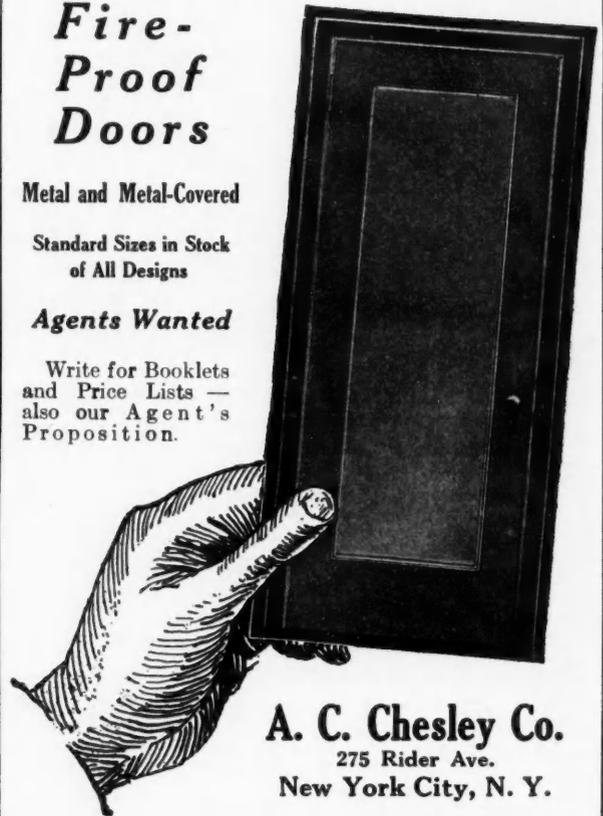
**Fire-  
Proof  
Doors**

Metal and Metal-Covered

Standard Sizes in Stock  
of All Designs

**Agents Wanted**

Write for Booklets  
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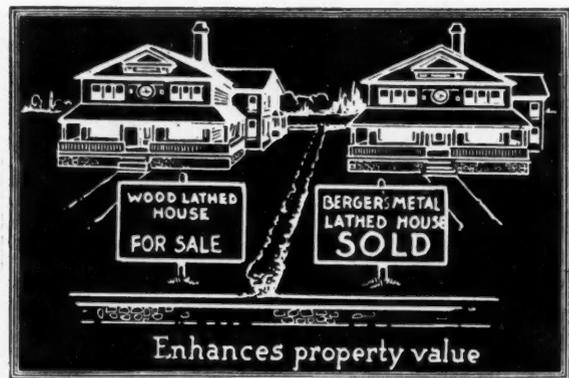
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*Blackboard talks  
by the professor*



No. 5—  
"Makes  
Property  
Worth  
More"



Enhances property value

"Much depends on the materials used in erecting a building as to whether or not the owner's investment will be a profitable one.

"Rapid deterioration is certain where flimsy construction is used, and frequent repairs are necessary. Buildings in which

**Berger's Expanded Metal Lath**

is used are not subject to continuous repairs due to the falling, cracking or staining of plastered walls and ceilings.

"Berger's Expanded Metal Lath assures a more substantial and safer building, preventing deterioration and making the building more valuable from an investment viewpoint. It is cheaper in the long run.

"Berger's Expanded Metal Lath prevents cracking and staining of plaster; is fire resisting; permits immediate decorating; keeps vermin from making holes thru the walls; muffles sound; and reduces insurance rates.

"You'll add to your own reputation as a reliable builder and enhance the value of your client's buildings by using Berger's Expanded Metal Lath."

Send for Metal Lath Booklet F. A. B.

**The Berger Manufacturing Company, Canton, Ohio**

Branches:—Boston, New York, Philadelphia, Chicago, St. Louis,  
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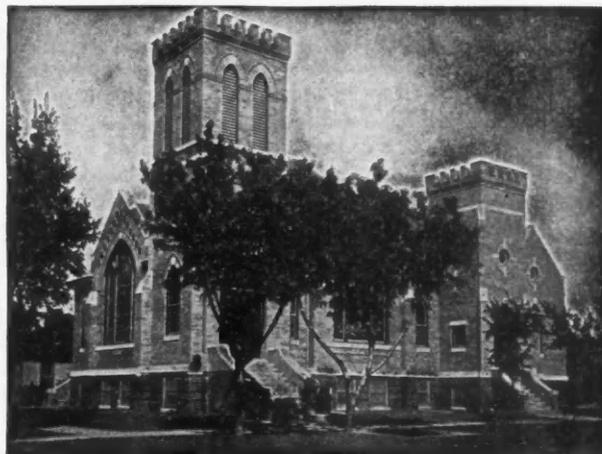
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# Let me design your CHURCHES

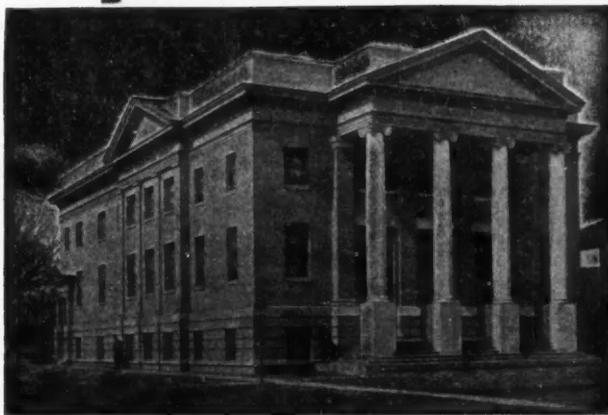
My experience in church work is valuable to you. My knowledge of church architecture assures your getting the most approved, up-to-date designs. The work I have done for hundreds of Builders, Contractors, and various Church Boards throughout the country proves that I can do satisfactory work for you. I can plan a church to meet your needs.



Presbyterian Church

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## I CAN SAVE YOU MONEY



First Congregational Church

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by furnishing plans and specifications at the lowest possible cost. Tell me what you need. Information is free. You pay me only for actual services. Let me show you what I can do for you. Fill out the coupon and mail it. You pay nothing in advance fees and you will not be obliged to give me the work unless I show you that I can do it better, quicker, and at a smaller cost than anyone else.

**ALFRED W. WOODS,**  
—ARCHITECT—  
LINCOLN                      NEBRASKA

----- TEAR OFF THIS COUPON and MAIL -----

Alfred W. Woods, Architect,  
Lincoln, Nebraska.

DEAR SIR:—

We propose building a church as per details given below. Please send us information as to what architectural service you can furnish us. It is understood that this information costs us nothing.

Proposed Cost.....	Name .....
Frame, Brick or Stone.....	Address .....
Denomination.....	Town and State.....
Seating Capacity.....	
Size and Location of Lot.....	

# **FIRE-RESISTIVE CONSTRUCTION COSTS NO**

Now is the time to build of face brick and hollow tile. Lumber is costing now more than double what it did a year ago; Portland Cement has gone way up; steel is out of sight. Face brick and hollow tile alone have held closely to the old prices.

They are now the cheapest building materials on the market, as well as the best.

Now is the time to build of permanent, fire-resistive burned clay. Get an estimate from your nearest builders' supply dealer now on face brick or hollow tile for that new residence, barn, garage, store building, warehouse, factory, public garage, hog house, granary. Make all of these buildings permanent—with prices what they are today it will cost you no more. We will gladly give you any information you need regarding their use, without fee or obligation.

## **WATCH THESE PAGES EACH MONTH**

We will have something interesting to tell you in this space each issue. Don't overlook it. It will save money for you and for your customers. Our organization is developing a line of ideas that will promote the building business in your neighbourhood. It will lead to better building—more permanent improvements. Don't overlook any of these features.

And don't hesitate to write us for the other helps we have in our office which we will freely place at your disposal if you are interested. Our engineers and draftsmen are at your service to help you solve any problems that confront you regarding the use of brick, tile and other permanent building materials.

## **WE ARE GOING TO SHOW YOU HOW TO USE PERMANENT, FIRE-RESISTIVE MATERIALS AT THE COST OF FRAME**

In succeeding issues we will show you stores, churches, schools, banks, garages—in fact, every kind of a useful building.

### ***HERE IS THE FIRST EXAMPLE***



A Cozy, Permanent, Fire-resistive Bungalow, Built of Face Brick and Hollow Tile with an Asphalt Shingle Roof, at a Cost Six Months Ago of Only Five Per Cent More Than Frame. (Look into the Comparative Cost of These Materials Today.) Designed and Built by Contractor Geo. Schindelbek, Aurora, Illinois.

# MORE THAN GOOD FRAME CONSTRUCTION

---“Now I am building of permanent, fire-resistive materials almost entirely for I have found that I can make more money in handling this class of work than I can in frame.”

—Geo. Schindelbek, Contractor, Aurora, Ill.



Here is Contractor Schindelbek right on the job.

## Contractor Schindelbek says More of Interest to You:—

“This six-room face brick and tile bungalow shown here, I sell for \$3,600.00. In frame the best I can get for it is \$3,000.00. This is 20 per cent more than in frame and it costs me only about 5 per cent more to build.

“Another thing—as regards my profits—is that I do not have to give so much of my personal attention to these houses as I do to frame. After the construction is started I don't have to watch it one-half as close as I do in other cases in order to make sure that things are done the way they should be.”

## MAIL THIS IMPORTANT COUPON TODAY

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Your town, state and date

**The Permanent Buildings Society  
Chamber of Commerce, Chicago, Ill.**

Gentlemen: We are very much interested in the Fire-Safe Bungalow shown in the August issue of the American Builder. We would like to receive the free floor plans of same together with a bill of material and detail plates of construction.  
Use this space to ask for any further information you may desire.

\_\_\_\_\_  
Tell us what other building you are planning

\_\_\_\_\_  
Do you want to know where to get the necessary permanent building materials for these and similar buildings?

\_\_\_\_\_  
(Your name)

\_\_\_\_\_  
(Your business)

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(Your town)

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# "Opportunities"

Have you anything to Sell, Barter or Exchange,  
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**C. L. PARKER, PATENT ATTORNEY.** Formerly member Examining corps, U. S. Patent Office. McGill Bldg., Washington, D. C. Pamphlet of instructions sent upon request.

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**NEW ROOF FRAMING TOOL.** Can be carried in pocket. Gives all lengths and cuts of rafters on bevel and square. Enables anyone to frame a roof. Price with directions, \$1.00, postpaid. **WM. ZURICH**, Princeton, N. J.

### Instruction

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**BURNS KEROSENE or GASOLINE**

one just as well as the other; or the two mixed. Make their own gas. 300 to 600 C. P. at 1/4¢ an hour. Family or Business use

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1 DOZ 15¢  
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These Pins are used for supporting movable shelves in Book Cases. Cannot fall out or sag down. The best shelf pin made. Easily put in place by any one.

Send for free sample to **J. D. JOHNSTON**, NEWPORT, R. I.

**Indestructo Carpenters' Tool Cases**  
Stronger than any wooden chest, much lighter, holds tools better, much easier to carry. Same shape as a suitcase when folded and carried like one. Made of 3-ply veneer, covered with heavy canvas and painted. Edges and corners are bound and reinforced with steel. Two brass catches and locks. Contains a place for every tool. Two sizes—31 in. for 20-in. saws; 33 in. for 28-in. saws. Will last a lifetime. Write for booklet and prices now.

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Write Today for Free Sample **Degrah** A New and Wonderful Wood Finish

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Quick drying and non-penetrating like Shellac. Glossy, smooth and tough as Lacquer. Less expensive and more durable than Varnish. Takes the place of all three. Dries in three hours. A fresh coat can be applied and sand papered each day. **DEGRAH** also comes as a white enamel. Also as an enamel varnish. To the latter you merely add zinc in oil to make your own white enamel. **DEGRAH** white enamel saves you big money on contracting work.

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Carpenters and Builders! That's what it means when you use a

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with Positive Gauge — Get One Today!

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 are Absolutely Odorless, easily installed and easy to operate. Chemical is very efficient and entirely harmless to the skin.  
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 Made in 5 sizes and many styles. Prices \$48.00 and up. Send for Circular  
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 Send postal for free sample and catalog. One cent investment, saves dollars. Let us prove this.  
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 Drive and demonstrate the Bush Car. Pay for it out of your commissions on sales, my agents are making money. Shipments are prompt. Bush Cars guaranteed or money back.  
 Write at once for my 48-page catalog and all particulars. Address J. H. Bush, Pres. Dept. 8-B, V.  
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 allows the air to circulate between the porch column and the floor, keeping both perfectly dry and preventing rot.  
 Have your architect specify from page 958 of Sweet's catalog or write for circular "G."  
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 30 Years of success in making and selling high-grade engines enables me now to sell direct to the user on practically his own terms. Any worthy, creditable man anywhere in the U. S. can accept my offer, and be sure of a reliable engine at direct from factory prices.  
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**High-Grade WITTE ENGINES**  
 are made in sizes 2, 3, 4, 6, 8, 12, 16 and 22 H.P. —Kerosene or Gasoline. Particularly adapted for farm and shop. Hundreds in use in every state. My Free Book, "How To Judge Engines," explains fully what you should know before buying.—ED. H. WITTE, Pres.  
**Witte Engine Works** 1778 Oakland Ave., Kansas City, Mo. 1778 Empire Bldg., Pittsburgh, Pa.

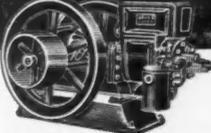


**HAMPTON'S MODERN ELECTRIC Center-Drive, Geared and Self-Surfacing FLOOR MACHINE**  
 With both ends free to reach up to the walls. Write for further particulars  
**JAS. HAMPTON, P. O. Box 64**  
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 No Edge-Roller—No Chain—No Vibration



**IF YOU DO NOT FIND WHAT YOU WANT**  
 in the AMERICAN BUILDER, write us and we will try to get it for you.

**KEROSENE ENGINES OTTAWA LATEST DESIGN**  
 Durable, Powerful, Reliable, Massive. Built to last; to do hard, heavy work. Uses Cheapest Fuel. Pulls 25 to 50 per cent over rated H.P. 3 Months' Trial. Easy Terms. Sizes 4 to 22 H.P. Easy to Start. No Cranking. No batteries. 10-Year Guarantee. Most practical engine ever built. Engine book free. A Postal brings it. Write today.  
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 Has all the features of a Builder's Transit and Architect's Level. Durable, accurate and economical. You can use the G & B under all conditions. A quality instrument for \$67.50. Write for circular "B."  
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 Wood and iron, with adjustable saw guides. Suitable for any cross cut or back saw. Insures perfect mitres. Carefully made. Several styles. Prices very reasonable. Write for circular.  
**Olmsted's Tool Grinder and Sharpener**  
 No foot power required. Guide rests for tools, etc. Requires no skill for operating — does rapid work. Ask for further particulars.  
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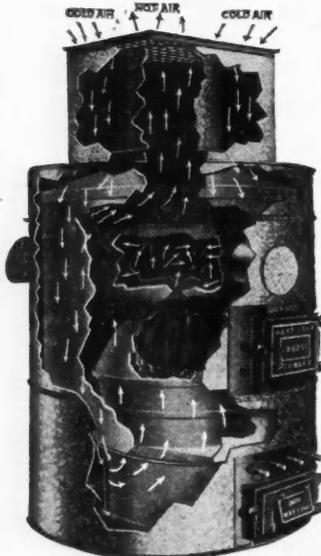
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**PEARL WIRE CLOTH**  
**CANNOT BE SUCCESSFULLY IMITATED**  
 Many competitors have tried and failed. This is due to the fact that the metallic coating from which the genuine PEARL derives its rust-resisting qualities is a secret process, exclusive with The Gilbert & Bennett Mfg. Co. Consumers everywhere are keeping on the safe side by insisting on seeing the two copper wires in the selvage and the Round Tag on the roll which identifies the real article.

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 Get directions for building table and operating our Jointers. This information is valuable to wood workers. We manufacture 20 styles and sizes. Try a Jointer Head 30 days, if you are not pleased, return at our expense. Get prices.  
**Manufactured by WHISLER MFG. COMPANY, Gibson, Iowa**





Bovee's Upright Furnace



Bovee's Cast Iron Pipeless Furnace

ing and there is nothing more economical of fuel. With this system of piping the basement is always cool.

### The Central Heating System

With this system of piping but one large warm air register is used directly over the furnace. It also has two cold air returns that may be taken from other rooms which greatly aids in the circulation of heat in the different rooms and also prevents the cold air moving over the floor to reach the one central register as used with the pipeless furnace. This also allows using a rug in the room as the openings in the floor are not as large as when both hot and cold air registers are one. With the CENTRAL HEATING SYSTEM we use any style of our furnaces and of suitable size to heat the building. With this system a separate pipe can easily be run to a bath room or to any other rooms, which is often very desirable.

We ship everything prepared so that any handy man can install any of the Bovee Furnaces quickly and without the aid of a tinner.

Send us a rough plan of your building for estimate on best system of heating plant.

**Bovee Furnace Works**  
50 8th Street Waterloo, Iowa

# Old Reliable Bovee Furnaces

*At Special Prices to  
Contractors*

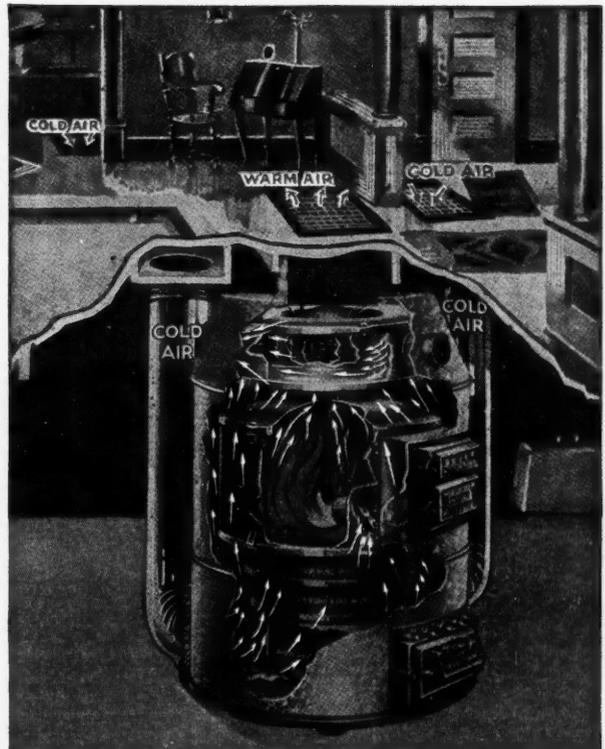
**The Pipeless Furnace With One Register  
The Central Heating System With One  
Warm Air and Two Cold Air Registers**

### Regular Piping to Each Room

We MANUFACTURE a full line of furnaces, both UPRIGHT AND HORIZONTAL, which we furnish with regular piping to every room where the buildings are not arranged to be properly heated by one register. We have had a very wide experience and can tell at once on receipt of a pencil sketch of the building to be heated the best style of furnace and piping to use. The BOVEE FURNACES are well made of the best heavy material and actually use very much less fuel than other furnaces.

### The Pipeless Furnace

This style of furnace is especially adapted to houses having large openings between rooms and open stairway to allow free circulation of the warm air. Also for old houses where it is difficult to cut piping into the walls. We use only furnaces having ample capacity to heat the building as we make different sizes suitable to heat any building from a cottage to a large church. They are very easy to install as as there is but one register to cut in the floor directly over the furnace and no piping in the basement. The heat is delivered instantly in the building



Bovee's Upright Furnace With Central Heating System

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# SERVICE IS WHAT YOU WANT MR. CONTRACTOR

**OSHKOSH**

## LOW LOADING MIXER



A good mixer of course—that's what you want first of all—one that is built right, works right and stands up under long, hard usage. But is that enough? Oshkosh manufacturers and dealers don't think so. We believe you're entitled not only to quality, but **service after the sale**. For that reason Oshkosh dealers go a step further than has been the custom in selling mixers.

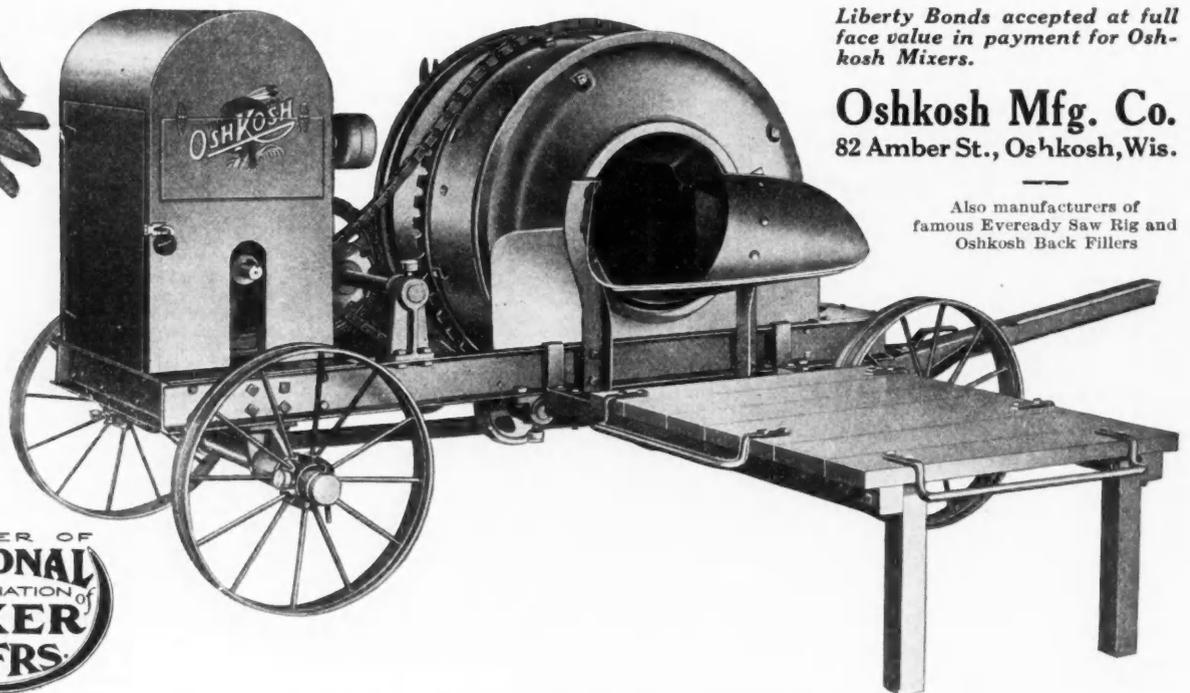
Own an Oshkosh Mixer—then if you need parts quickly, if your mixer needs attention for any reason whatever, see your Oshkosh dealer. He is prepared to give you immediate and efficient service—and that service lasts throughout the life of the mixer.

Write for catalog and name of your nearest dealer and service station; also ask for our interesting booklet "Facts and Figures."

*Liberty Bonds accepted at full face value in payment for Oshkosh Mixers.*

**Oshkosh Mfg. Co.**  
82 Amber St., Oshkosh, Wis.

Also manufacturers of famous Eveready Saw Rig and Oshkosh Back Fillers



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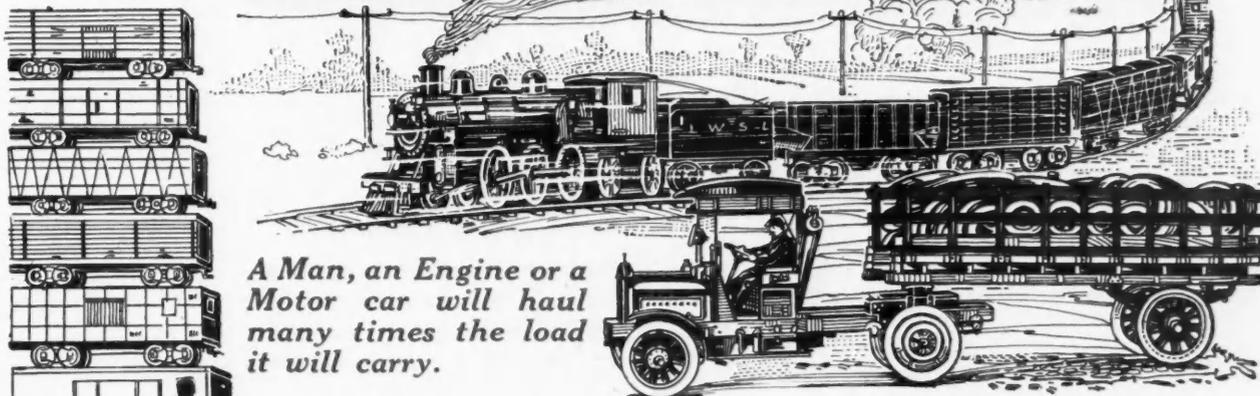
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# The **King TRAILER** Principle that has solved all **HAULING PROBLEMS**

ANN ARBOR MICH.



*A Man, an Engine or a Motor car will haul many times the load it will carry.*

When this scientific principle was applied to hauling and delivery problems the King Trailer idea was born. Today King Products—Trailers, Semi-Trailers, Fifth Wheels and Pole Trailers are universally recognized as Standard Equipment wherever Speed, Economy and Efficiency are considered in the trucking field.

## Comparison of Specifications Proves King Superiority

"King Quality" is fast becoming a by-word where wisdom and experience meet in the solving of loading, hauling and delivery problems. The man who buys and the man who sells has learned that nothing short of the best in design, construction and material will permanently answer every requirement of the tractor-trailer. King specifications indicate and King performance proves that King Trailers and Semi-Trailers are the best, lightest running and most

economical equipment on the the market. Some manufacturers seem to forget that the trailer must operate under the same conditions as a motor truck. It must travel at the same speed. It must *trail* perfectly and evenly—on straight-away, turn or twist—on smooth or rough or hilly roads. It must follow its tractor without jerk or strain in starting and stopping, else both tractor and trailer upkeep will be excessive.

### King Trailer Specifications

King Trailers are made in capacities of 1000 to 1500 lbs. Solid rubber, truck-type tires; Artillery wheels; Ball-bearing axles; Automobile springs; Hardwood body, floor and frame; Oak draw-bar; Kingpatent Universal-motion, Shock-absorbing Coupler. Detailed specifications and dimensions furnished on request. King Trailers are designed by expert automobile and motor truck engineers. They make a light delivery truck of any automobile.

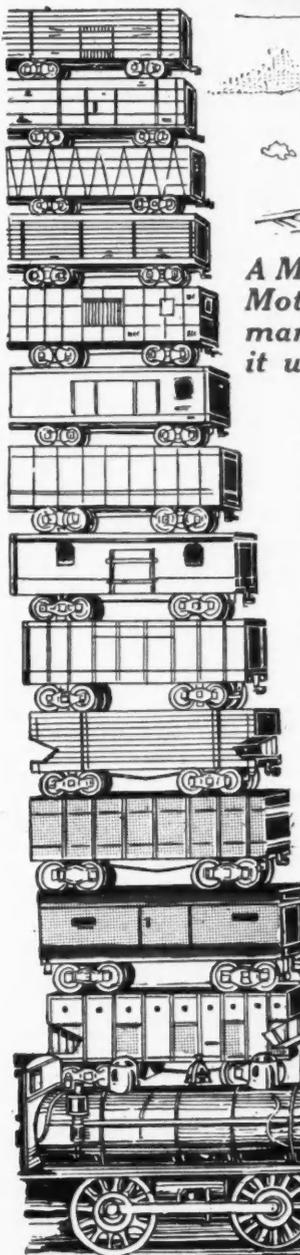
### King Semi-Trailer Specifications

King Semi-Trailers are made in three sizes: 1½, 3 and 5 ton. Heavy solid-rubber truck tires; truck-type wheels; Roller bearings in axles; standard motor-truck springs; heavy, non-splinter, hardwood floorings; Standard stake body, well ironed; King-Irwin Universal-motion, Shock-absorbing Fifth Wheel. Detailed specifications and dimensions on request. King Semi-Trailers are designed by expert motor-truck engineers. 1½-ton size for use with Ford roadster, 3 and 5-ton sizes for converted or standard trucks.

### King Dealers Recognized as Hauling Experts

Mr. Dealer, you can become a big man in the hauling interests of your vicinity. The King Line qualifies you to dominate the field—qualifies you to decide all hauling and delivery problems from ½ to 15 tons. There's big money for you in the King Agency. King Quality gives you prestige. No other line so complete—no other so good—no other so satisfactory to buyer and seller. The Trailer and Semi-Trailer business is growing.

It's getting to be one of the big industries. It will be a bigger business than motor trucks. Get into it now. Become a trailer expert now—when trailer business is starting its big boom. Post yourself now on the famous King Line. Learn our helpful sales policy. Write at once for King details, prices, discounts, terms, sales service plan and special demonstrator offer to dealers. We must have representation in all open territory—at once—quick. Would YOU be the KING DEALER in your territory? If so, SIGN AND MAIL THE DEALER COUPON—TODAY.



#### Dealer Coupon

**KING TRAILER CO.,**  
613 Main St., Ann Arbor, Mich.  
Gentlemen: Please send full details of your King Trailer, Semi-Trailer and Fifth Wheel sales plan, including prices, terms, discounts and special demonstrator proposition for dealers.

Name.....  
Address.....  
Business.....

## King Owners Now Save Much Time and Money

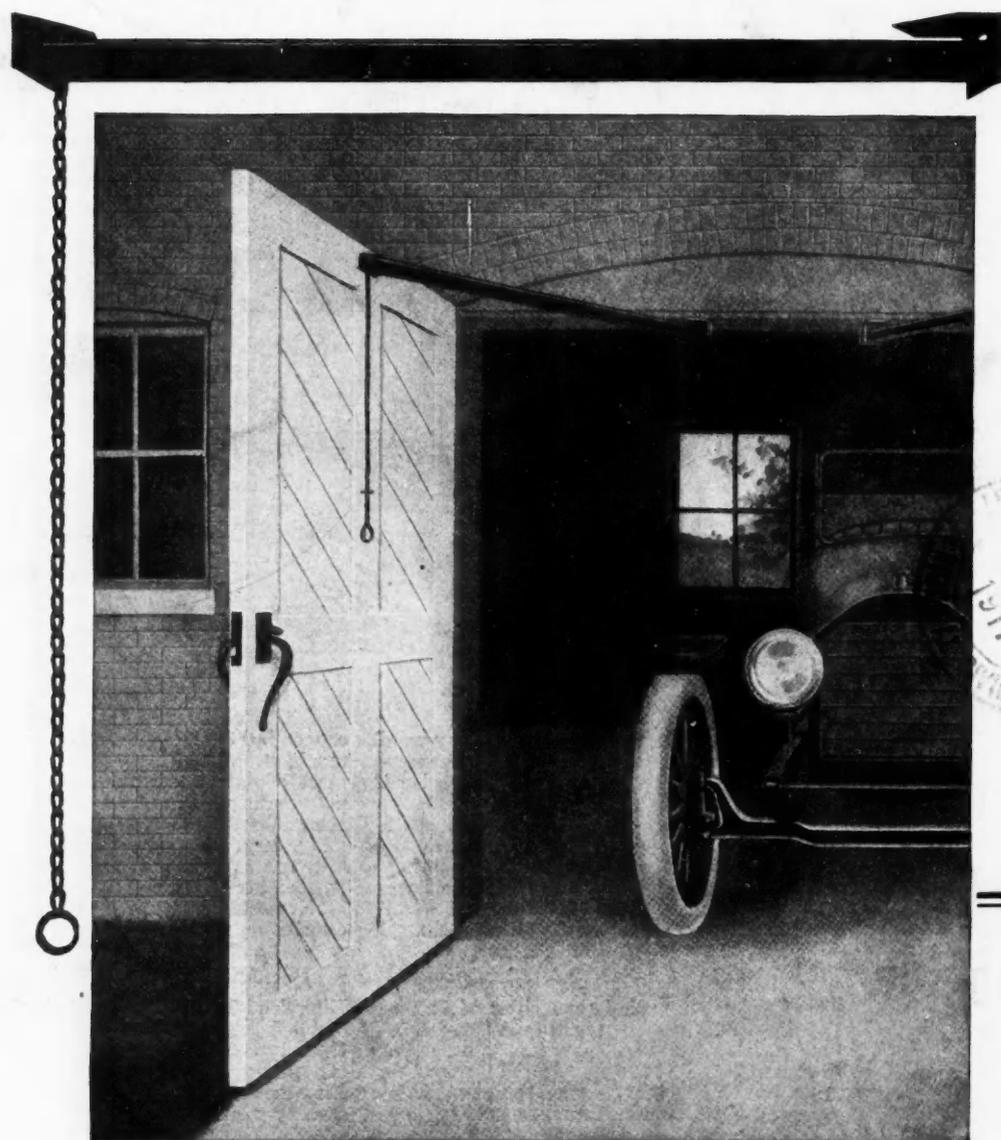
There's a King model for every business need. Every business man who has any hauling to do, needs a King. Farmers, Merchants, Plumbers, Paperhangers, Painters, Contractors, Lumbermen, Quarrymen, Manufacturers, Storage and Warehouse Companies, Moving Van and Expressmen—in fact, every business where an automobile, a truck, a team or a "push-cart" is used, can save time, money and reduce upkeep and overhead expense by at once getting in touch with us or our nearest King Dealer. By investigating the King Line you can benefit by the greatest Hauling Principle ever discovered—one that cuts the cost and cuts the necessary tractor power to the minimum. Trailer and Semi-Trailer initial cost and expense are only a fraction of other hauling equipment. Many merchant-owners of King Equipment are qualifying as King Dealers in unoccupied territory. They make money through the King Line in two ways. Don't think of taking on any Hauling Equipment until you have investigated the famous King Line. SIGN AND MAIL THE OWNER COUPON TODAY.

**KING TRAILER COMPANY**  
613 Main Street      Ann Arbor, Mich.

#### Owner Coupon

**KING TRAILER CO.,**  
613 Main St., Ann Arbor, Mich.  
Gentlemen: Please send full information and descriptive literature relating to the King Trailers, Semi-Trailers and Fifth Wheels, together with the prices and name of nearest King dealer.

Name.....  
Address.....  
Business.....



## Garage owners want this holder

Garage doors slamming open and shut—open and shut—at the mercy of the wind, greatly annoy the garage owner. Oftentimes his machine is seriously damaged when he tried to “run the gauntlet.”

Consequently there is a ready market for this National No. 810 Garage Door Holder. It holds the door perfectly firm. Its construction is as follows:

A rigid U-shaped steel arm, thirty-two inches long—a swivel joint which permits the holder to fold back along the head jamb when door is closed. (when door is opened U-shaped arm slides through embossed steel catch plate and drops into two notches at the “garage” end of the arm)—a chain attachment for releasing the holder when door is open. (See illustration.)

Each pair of National No. 810 Garage Door Holders are packed, complete with screws. Finishes: Japan, Dead Black Japan, Sherardized, Sherardized and Dead Black Japan. Weight, per pair, 6½ pounds.

**National Manufacturing Co., Sterling, Ill.**