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AMERICAN BUILDER

THE WORLD'S GREATEST BUILDING PAPER



2

Published in Chicago

More Profit on Each Job

Business brings dollars—that's why we're all in business—and that business is best which produces the most dollars.

Stucco is profitable business for builders—it's easy to get and easy to handle.

Stucco toned with exposed color aggregates has new "talking points," new life, new character, new prestige.

The beauty, texture and individuality of the color effects are the result of using richly colored granite or marble screenings or warm toned gravels or sands with Atlas White in the finish coat. The colors are permanent and the pure white cement emphasizes them.

These exquisite color effects make it easy for you to interest the prospective home-builder—and make a good profit, too.

"Guide to Good Stucco"—shows actual color samples, gives specifications, and the formulas. Send for a copy. Use the coupon.

The Atlas Portland Cement Company

Member of the Portland Cement Association

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

*Color Aggregate Stucco Residence, Kew Gardens, Long Island, N. Y. Marvin & Davis, Architects.
John K. Turton Co., Contractors.*



ATLAS



WHITE

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

Send me "Guide to Good Stucco"—also the "Contractor's Atlas" and special information on the subjects checked:

New Stucco Homes Remodeling in Stucco Stucco Garages Stucco Bungalows

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



The Sign of A New Service for Contractors

Now, for the first time—with the consolidation of the Ransome Concrete Machinery Co. and the Oshkosh Mfg. Co.—one organization has the facilities for giving you complete service in the contractors' equipment field.

You can depend on Ransome-Leach products. Their achievements are known throughout the trade.

Ransome Mixers helped build the Panama Canal, the subways of New York and the highways of the nation. Oshkosh Eveready Saw Rigs are undisputed dealers in the field. With hundreds of contractors, Oshkosh Low Loading Mixers are standard equipment.

Warehouses of the Ransome-Leach are located in all important cities in the United States—also in Canada. Immediate shipments! Short hauls! Service that will help you land contracts.

Put Ransome-Leach Service to the test. The next time you need equipment, call on us.

Write today for Catalog

Each cross on this map represents a Ransome-Leach distributing point.

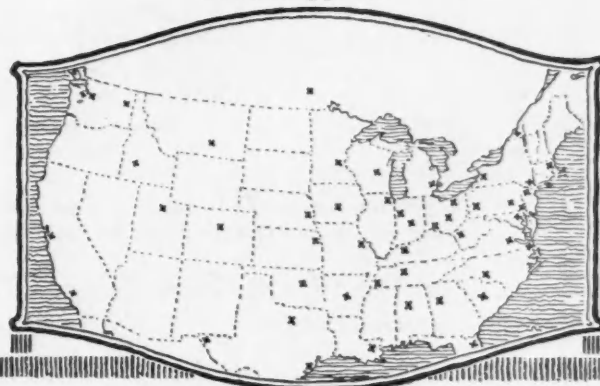
RANSOME-LEACH CO.

OFFICES:

New York, N. Y. Chicago, Ill.
Atlanta, Ga. San Francisco, Cal.

FACTORIES:

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Wallace Bench Planer

4-inch knives—Portable—Weight 50 pounds.

Run from ordinary electric light socket.

Certified for safety by the
Underwriters' Laboratories.

Certified for economy by
Hundreds of Enthusiastic Users.

Makes hand planing look foolish.

Makes savings out of shavings.

Makes money instead of muscle.

You Pay for this Machine Whether You Have it or Not, Why Not Write and Get One from

J. D. Wallace & Co.

1405 W. Jackson Blvd., CHICAGO, ILL.



Put Huther Tools on your saw rig!

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

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

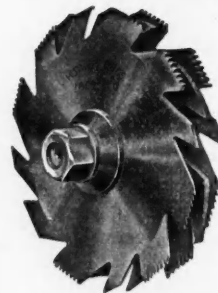
The outside cutters can be used singly, together or in connection with as many inside cutters as the cut requires.

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

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

If you are interested in making your saw rig more valuable, write for prices and catalog 38

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



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

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



Patented Dec. 30, 1913



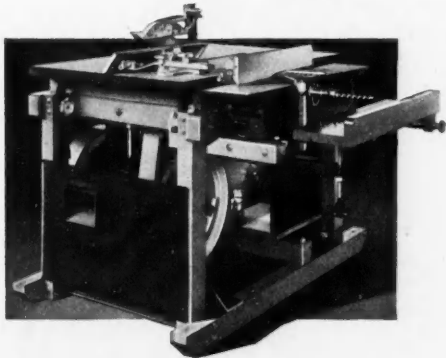
Grooves cut with Huther Dado Head.

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

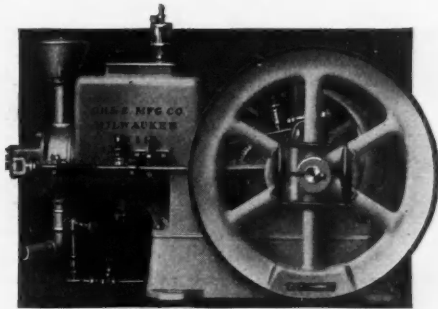
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Gasoline Hoists, Material Elevators, Mortar Mixers,
Power Driven Trench, Centrifugal, Triplex, Piston
∴ ∴ and Oil Pumps, and Gasoline Engines ∴ ∴



THE C. H. & E. No. 8 PORTABLE SAW RIG for use on or off the job. A complete combination portable woodworker.



THE C. H. & E. WATER HOPPER COOLED GASOLINE ENGINE, built in six sizes. Very reliable and simple in construction and design. For installation in Portable Saw Rigs, etc.

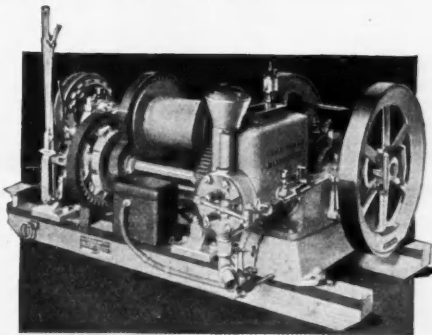
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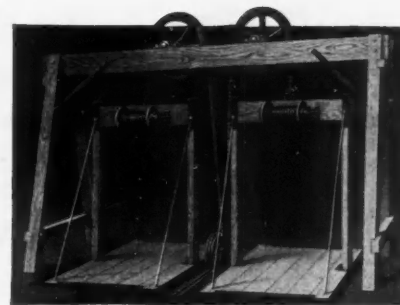
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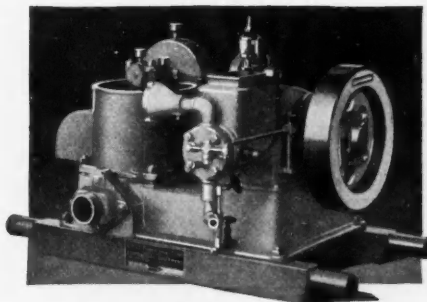
RIGS



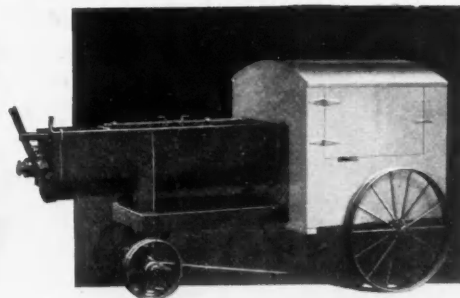
THE C. H. & E. ENGINE DRIVEN DOUBLE ACTING BUILDER'S HOIST for use in elevating material, back-filling ditches, and pile driving. Three Sizes.



THE C. H. & E. DOUBLE CAGE MATERIAL ELEVATOR for use in the rapid handling of building material. Cages are large and well braced, built of maple.



THE C. H. & E. POWER DRIVEN DIAPHRAGM BILGE TRENCH PUMP for use of builders in pumping water from footings, trenches, cellars and coffer-dams.



THE C. H. & E. MORTAR MIXER for use in supplanting the old fashioned hoe and mixing box. Mortar capacity for 30 to 40 bricklayers.

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

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Taken from Actual Photograph

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

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

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



Write for them today.

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

Carpenters--Builders

"Go over the top" with the

Barnett System

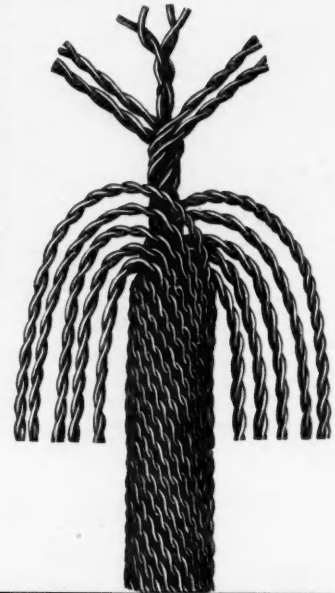
of Guaranteed Lightning Protection

Pull in that extra profit for yourself.

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

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

The Barnett System of Guaranteed Lightning



"IT'S A WINNER"---SAYS THE EXPERT MECHANIC

It takes the mechanic, the user of a plane, to judge its real quality and place upon it the final stamp of approval. If it doesn't meet this test it's no good no matter how fine it looks—no matter who designed it.

The New **Sargent Automatic-Set Bench Plane**

made in six sizes, has received the enthusiastic approval of expert mechanics the country over. It will pay you to see it at your dealer's today or send for our full descriptive catalogue.

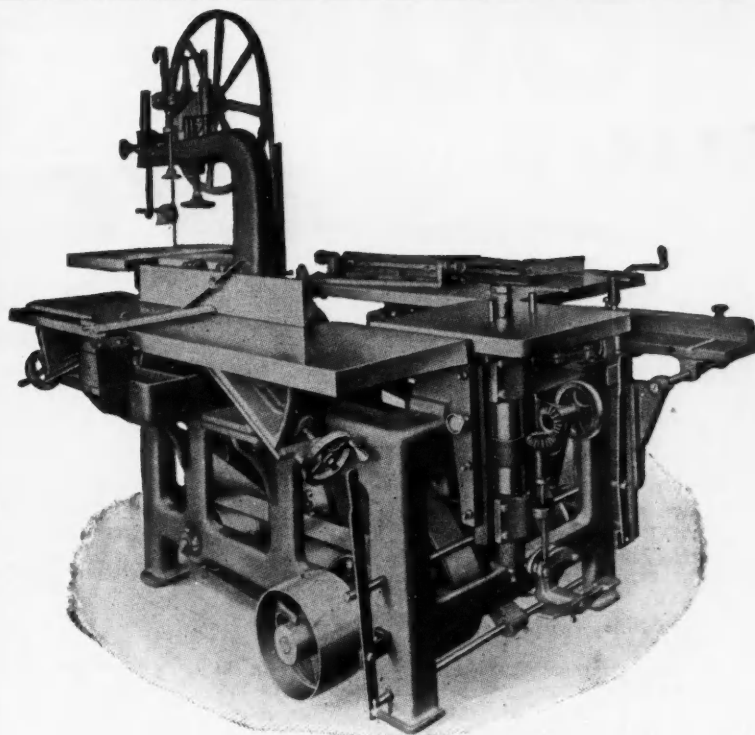
SARGENT & COMPANY
51 Water Street :: New Haven, Conn.



SARGENT

REG. U.S. PAT. OFF.

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER



Aviation Schools Choose No. 31

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

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

Uncle Sam Has Always Been a Keen Purchasing Agent

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

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

The "FAMOUS" Has Enlisted to Fight Waste

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

The Sidney Tool Co.
Sidney, Ohio

Mail the Coupon---for Facts

**FAMOUS WASTE-FIGHTING FACTS
ARE FREE**

Gentlemen:

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

Yours truly,

Name.....

Address.....

GREYHOUND SUPERIOR SAWS



BISHOP'S BEST

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

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

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

Made in Both Straight and Skew Back also Ship Carpenters Pattern							
Length	18	20	22	24	26	28	
Each	\$2.85	\$3.00	\$3.15	\$3.30	\$3.50	\$3.85	
	PACKED ONE IN A BOX					net	



SPEED & EASE

TRADE MARK.

GEO. H. BISHOP AND COMPANY

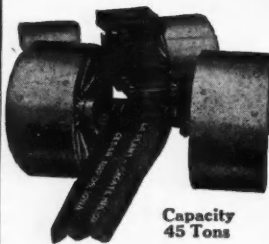
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Lawrenceburg, Ind.



Get This FREE BOOK On House Moving - NOW!

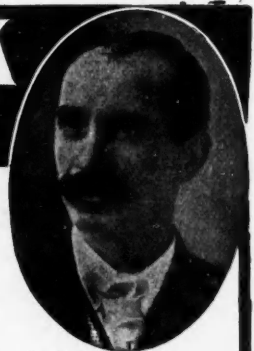
Read How Contractors Are Making Big Money Moving Houses



Capacity
45 Tons

All-Steel Giant Truck

ALL over the United States wide-awake contractors are fitting up with All-Steel Giant Trucks, moving houses instead of wrecking them. Last month one of my customers wrote that he cleared \$450 in 10 days. Others are clearing from \$100 to \$300 on every job. You can do the same. I will send you my plan and give you the benefit of my 25 years' experience. "Successful House-Moving Contractor," written by some of the country's greatest house-moving authorities, will keep you posted on moving problems and how to handle them. Every issue will be sent to you Free. Write me *now*. Get the advice and opinions on how to load odd-shaped buildings; how to raise and shore buildings and other points you will be interested to know about.



E. W. La Plant, Pres.
E. W. La Plant, pioneer house-mover of the country, is the designer of All-Steel Giant Trucks and Invincible Capstans which have revolutionized house-moving. He has made the house-moving contracting business a clean, practical, big money-making business.

E. W. La Plant, Pres.,
La Plant-Choate Mfg. Co.,
620 Eastlack Court, Cedar Rapids, Iowa

Please send me FREE your catalog "B" on house-moving and past issues of the magazine, "Successful House-Moving Contractor." Also complete details of your plan, without any obligation to me.

Name _____

Address _____

City _____ State _____

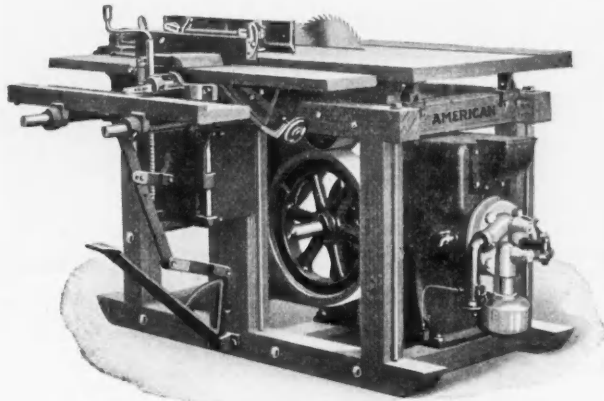
Mail Me the Coupon or a Post Card Right Now!

Get full details of the plan I offer to send you Free. Then judge for yourself whether or not you can afford to pass up this opportunity to make thousands of dollars every year. Tear out the coupon - fill in - send it NOW.

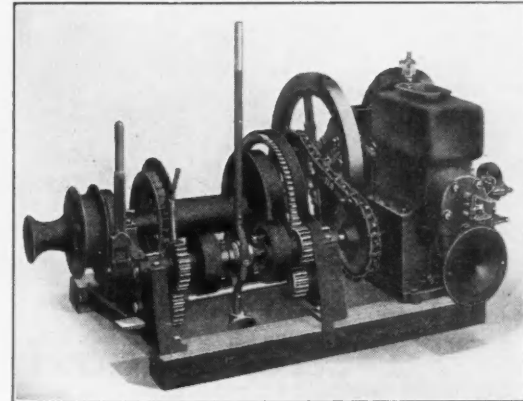
E. W. La Plant, Pres.
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620 Eastlack Ct., Cedar Rapids, Iowa



Speed Makers for Builders



"American" Variety Woodworker with Gasoline Engine Built in



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

"AMERICAN" Contractors' Woodworker

"AMERICAN" Contractors' Hoist

You'll never realize what a time-saver this "American" is until you've put it at work on your own job. Then—watch everything speed up. You'll have a small sized planing mill right on your work, on which you can handle almost any job that will come up in the ordinary building contract. Best of all—you'll find the "American" isn't a one-season machine. It has the built-in stand-up-ability that keeps it on the job, month after month, year after year.

Write for the Woodworker Bulletin

And when it comes to the lifting and handling jobs, this "American" will surprise you with the time it gains for you, the speed it puts into the work all along the line. When it's a question of finishing up one job quickly and getting on another soon, this hoist will take up the lost motion and reduce non-productive time in a way that spells profit. And you can figure the price of this "American" as a permanent investment, because "American" quality means long-time service at lowest up-keep cost.

Write for the Hoist Bulletin

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



Better Industrial Housing

The use of inflammable material in the construction of workmen's houses is fast becoming an obsolete method.

It has been proven that such homes are only temporary, and, while they last, a source of endless repairs and maintenance expense.

In sharp contrast to the old-style workmen's villages, consisting of long monotonous rows of tumble-down shacks, are the present-day industrial developments.

Permanent homes are being built on well-planned allotments. Many of these homes are built of NATCO Hollow Tile.

With the use of NATCO these homes are fire-safe and weatherproof.

NATCO needs no painting or repairs.

The big units lay up rapidly in a wall, thus effecting quite a saving in labor.

Our new Booklet on Industrial Housing (Bulletin 172) is just off the press. It contains photographs of several big NATCO developments together with floor-plans of a few houses.

Mail the coupon before our limited supply is exhausted.

NATIONAL FIRE PROOFING COMPANY
738 Federal Street Pittsburgh, Pa.

Workmen's Houses
Bethlehem Steel Co.
Sparrows Point, Maryland

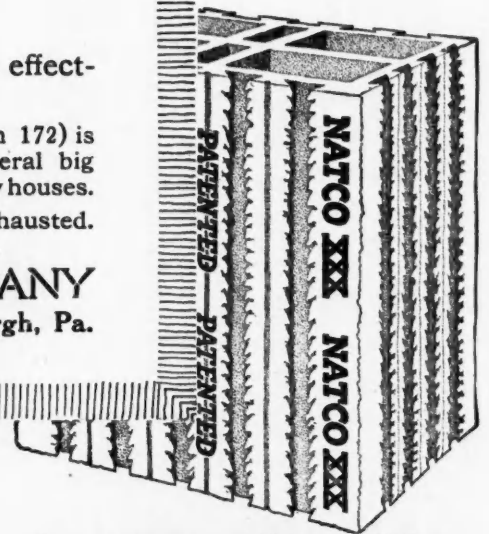
Architects
Bissel & Sinkler
Philadelphia, Pa.

One of four cottage rows, 30' x 250', 10 apartments each, 6 rooms, stair hall and bath.

In this development there are also 30 double houses, each having 6 rooms, stair hall and bath.

Ten rows of shacks, ten 1-room apartments to the row, are also provided as quarters for colored labor.

All these houses are of 8x5x12" Natco Hollow Tile furnished and erected by the National Fire Proofing Company.



NATCO

NATIONAL FIRE PROOFING COMPANY
738 Federal St., Pittsburgh, Pa.

Please send me your new booklet on Industrial Housing (Bulletin 172).

Name.....
Street.....
Town.....

EXCELSIOR Wire Products

WRIGHT WIRE COMPANY

This building must stand for generations to come

EVERY element entering into the construction of this notable building, the City Hall of San Francisco, must be able to stand the blows of old Father Time without flinching. To take care of the dead weight and down-pull without buckling, sagging or pulling away from the studding, required just such a material as **EXCELSIOR WIRE LATH**. And—Excelsior Wire Lath was used throughout this building to the extent of over 1,000,000 square feet.

While **EXCELSIOR WIRE LATH** has been used in many of the largest and most notable buildings in the United States, it can be used with the same degree of success in small buildings of all kinds—residence or business. Excelsior Wire Lath is applicable, irrespective of the cost of the building. Readily adaptable to all shaped openings.

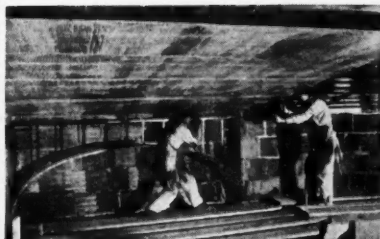
EXCELSIOR WIRE LATH is woven of strong steel wires of great tensile strength. The small amount of exposed metal surface permits the plaster to go through to the back and key tightly, making a wall of a solid sheet of stone with a rigid steel core. This makes a fire retarding wall—itsself unburnable. When properly put up, rust and disintegration cannot take place.

Has a strong, even selvage that permits easy handling and tying. Can be had either plain, japanned or galvanized.

*The illustration below shows a method of applying **EXCELSIOR WIRE LATH**, one of the steps in the manufacturing process, and one of the notable buildings where it was used. These pictures do not, however, show the care, precision and science with which Excelsior Wire Lath is made. This readily becomes apparent, however, upon use.*

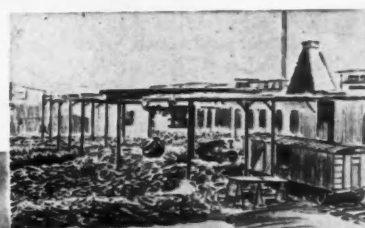
Write for booklet F, giving detailed information.

WRIGHT WIRE COMPANY, WORCESTER, MASS.



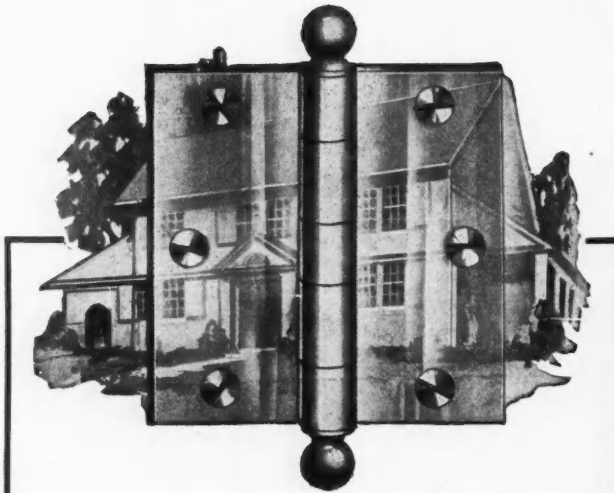
Tying Excelsior Wire Lath to iron furring, in barrel ceiling construction. Also for arch construction.

San Francisco City Hall where over 1,000,000 sq. ft. of Excelsior Wire Lath were used.



Rolling mill delivers the "rods" to the storage yard. From here monorail cranes carry them, as shown, to the shops for cleaning and coating—the first process in the making of Excelsior Wire Lath. "Rods" are about 1/4 inch diameter.





Your Attention !!

is called to the hinges on the door. To some people, door hinges may seem rather small and unimportant—nevertheless their mission in helping to make or mar the appearance of the rooms in a modern home is worthy of serious thought. The

GRIFFIN

"The Door Butt of America"

is designed along lines that insure both **beauty** to the home and **service** whenever the doors are opened and closed.

The Griffin operates freely and easily, it is amply strong for heavy doors and it is such a pleasing fixture that architects and home builders are glad to specify and use it.

Being finished in the various Griffin hardware finishes, it is in wide demand for the better classes of houses and office buildings.

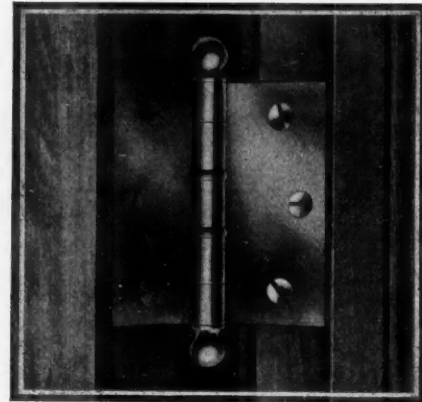
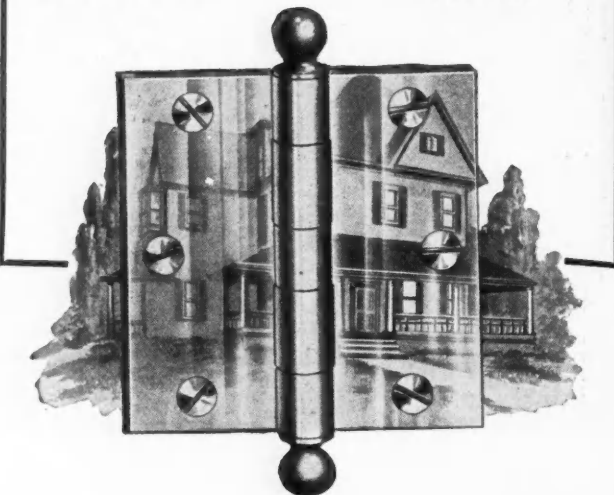
*Send for illustrated catalog
and circulars*

The Griffin Manufacturing Co.

ERIE, PENNA.

30 Warren Street
NEW YORK

17 East Lake Street
CHICAGO



No. 2742 —Wrought Steel Anti-Friction Butt
with Non-Rising Pins

McKINNEY Wrought Steel Hardware

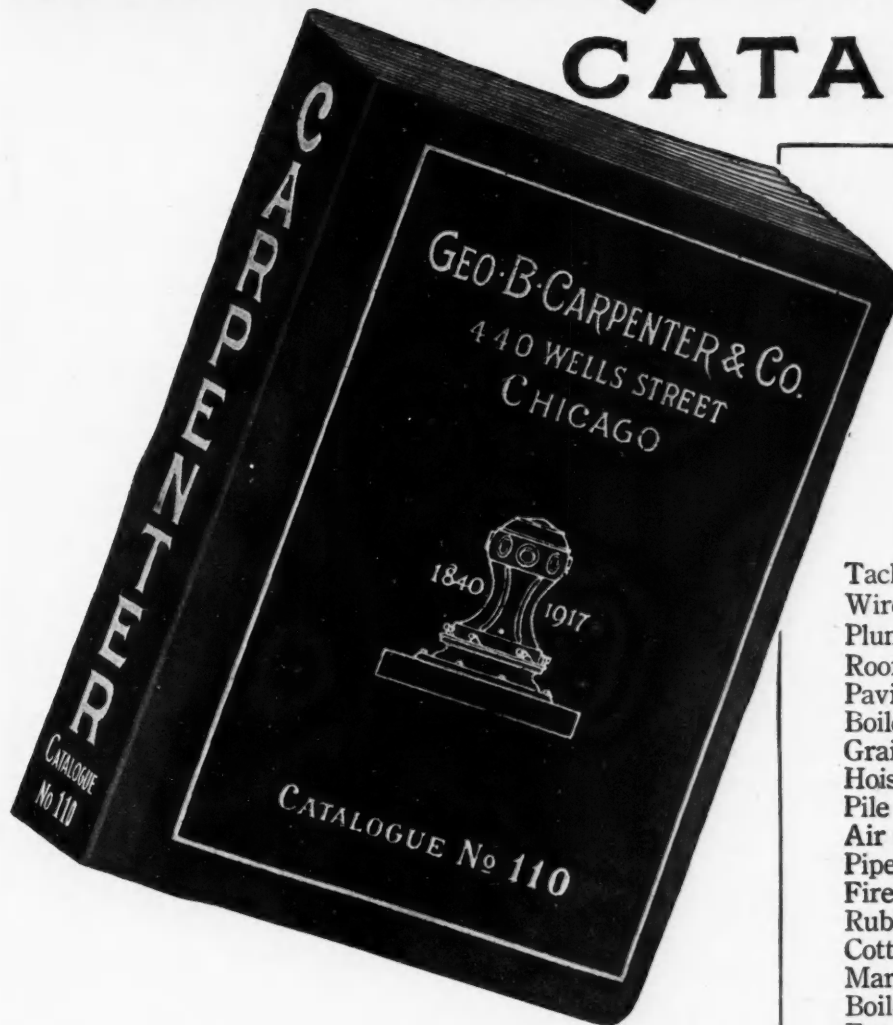
Architects and builders who select finishing hardware with an eye single to the owner's satisfaction specify McKinney Wrought Steel Butts for all doors from basement to roof. The exceptionally high quality of McKinney Wrought Steel Hardware never varies—you can always depend upon it.

A butt that is very popular with builders is the Anti-Friction No. 2742 shown above. It has two washers of special metal, accurately fitted at the two middle joints to reduce friction at the wearing surfaces and thus prevent sagging and binding. This butt is made of wrought steel particularly suited for the purpose and comes in all standard sizes and in any finish desired to match other hardware.

*Whether building or remodeling homes
or public buildings you'll find the
McKinney Builders Catalog "A 11"
helpful in selecting finishing hardware.
Send for your copy now.*

McKINNEY MFG. CO.
Pittsburgh, Pa.

Now, more than ever you must have this great **GEO. B. CARPENTER & CO** **CATALOGUE**



NOW, more than ever, our new catalogue is needed on account of the dislocation of all normal sources of supply in every line of industry.

Today, you are forced to go out with your hands full of money and find somewhere, somehow, the manufacturer or distributor who is willing and able to sell you what you want.

You need everything that will help you; our 1100-page Catalogue will be your best friend — a real "buyer's help." You can have it on request. Send for it now; it will simplify a lot of things for you. Address Dept. 1

of

- Ship Builders' Equipment & Tools
- Carpenter Tools
- Electricians' Tools
- Machinists' Tools
- Machine Shop Equipment
- Foundry Supplies
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- Bolts
- Screws
- Nails
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- Belting
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- Tents
- Awnings
- Flags

GEO. B. CARPENTER & CO 440 No. WELLS ST. CHICAGO

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER



Get Your Share of the Spring Store Front Remodeling

Store Front remodeling will be more brisk this spring than ever before. Retailers who have long planned on new Fronts will go ahead now, and this increase opens up a good opportunity for you. You can handle such jobs very conveniently, the turnovers are fast, and the profit big. Make the most of each job by using



Keep Your Men Busy

You'll find that Store Front remodeling jobs fit in between the larger jobs—they enable you to keep your men together and make each day show a profit. And you can easily get all the work of this kind you want by going after it. We help you close the jobs and sell "Desco" direct to you (we have no road salesmen).

Send for Sales Help

Put your name and address on this coupon and mail it. It will bring you information, Store Front suggestions, details, etc., that will enable you to build up a profitable Store Front business. Don't delay—the season for this work is here. Be the first man in your town to go after it. "Desco" is backed by 29 years of successful experience, is attractive, permanent, strong, safe, easy to order, easy to install and moderate in cost. Use this coupon now—don't put it off.

Detroit Show Case Co.

491 Fort Street W. Detroit, Michigan

This Is Your Coupon

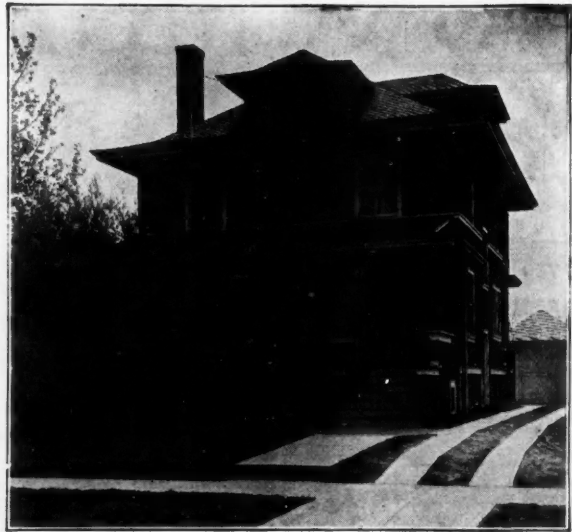
Detroit Show Case Co.,
491 Fort St. W., Detroit, Mich.

Please send me suggestions and data that will enable me to install modern store Fronts at a profit.

Name

Address

Nemco Products



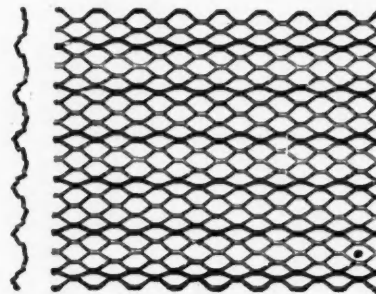
INVARIABLY *the building contractor who is best known for good work* won his reputation by using reliable trade-marked building materials.

It will help you to win leadership if you use

TRADE MARK

Kno-Burn

REG. U. S. PAT. OFF.



Corrugated Metal Lath

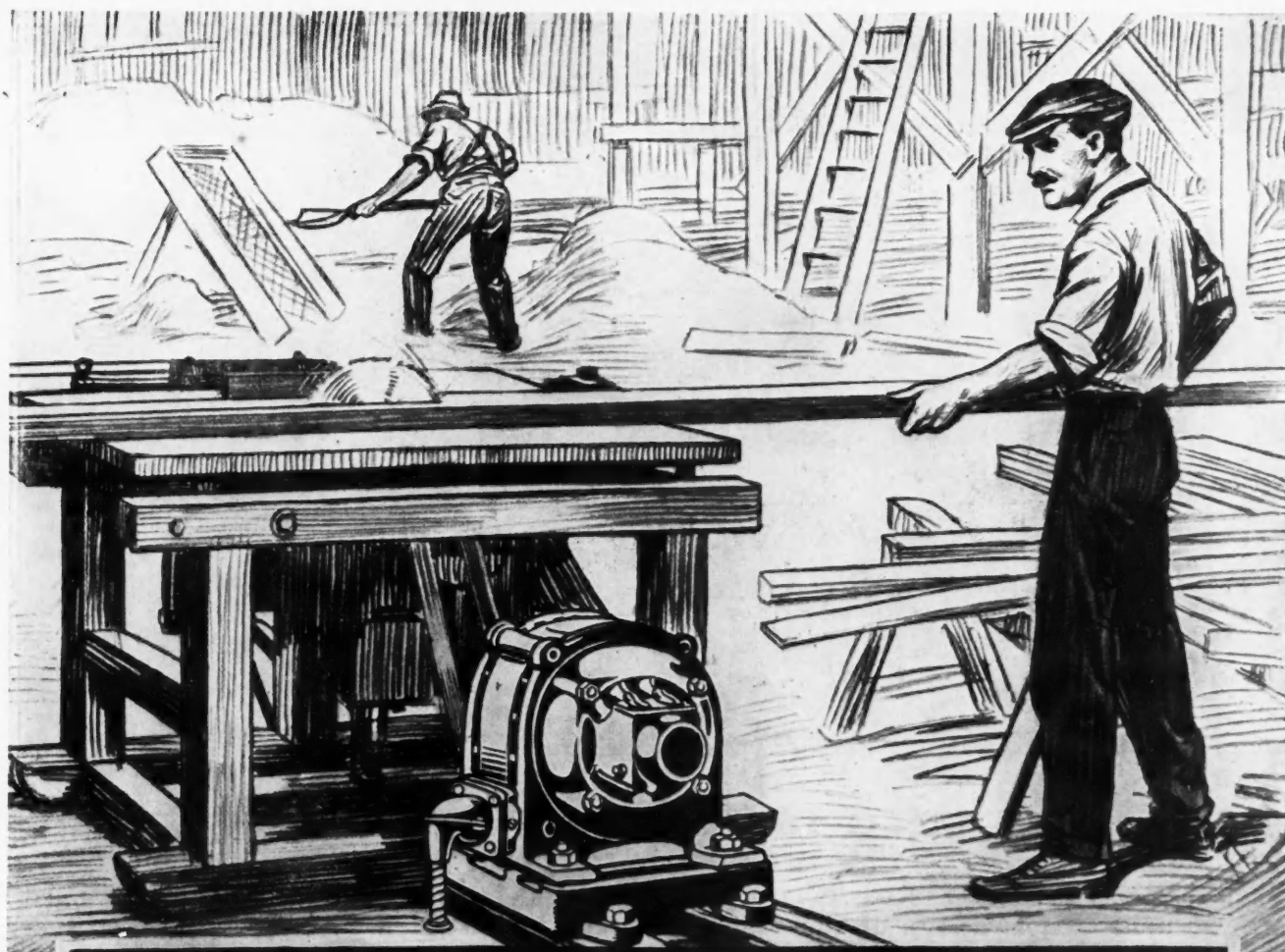
Requires no furring for stucco.
Completely embeds itself.
Provides a perfect key.
Easy to work over.

Send for Catalogue

NORTH WESTERN EXPANDED METAL CO.

903 Old Colony Building - Chicago, Illinois

**What's
Behind
Your
Plaster**



“A Man and a Half”

is the man provided with a G-E motor driven machine.

Close the switch and in an instant the machine is up to speed.

The turn of a controller handle gives varying speed where required.

For heavy work nothing equals the steady, willing power of the electric motor.

G-E motors never hesitate—they operate for years with only an occasional oiling.

Ask your electric power company or our nearest motor agency about G-E motors for your shop.

General Electric Company

General Office,
Schenectady, N. Y.



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All Large Cities

6969



Bishopric Board makes this a Lasting Home

When Architect R. G. McDowell designed this stucco residence in Des Moines, Iowa, he planned for long life as well as artistic beauty—and he specified Bishopric Board for the stucco background.

The advantages of Bishopric Board are **obvious**. Note its construction in the illustration below. It's "Built on the Wisdom of the Ages," combining principles used in building Solomon's Temple with the best methods in use since that time.

Bishopric Board is made of creosoted lath imbedded in Asphalt Mastic on a background of heavy fibre-board.

When applied the stucco is dovetailed into the lath. They are welded together into one solid piece. The stucco **can't** let go. And nails thru each and every lath hold the Stucco Board firmly to the frame-work.

The fibre-board, Asphalt Mastic and creosoted lath give absolute protection against heat and cold, wind and weather. They form a combination that is water, vermin and sound proof.

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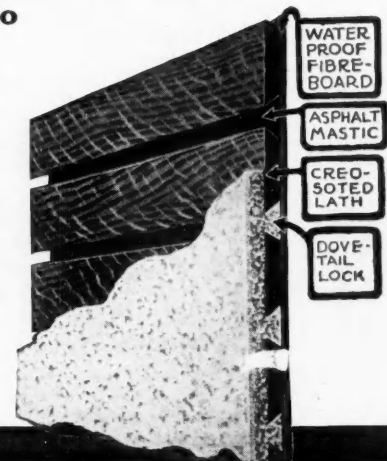
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Write for our free book, "Built on the Wisdom of Ages," illustrating homes, apartments, factory and public buildings finished in stucco on Bishopric Board. It contains letters from architects, builders and users, and extracts from reports of scientific tests. It also gives full instructions for making a stucco mixture that will last. With this book we send free samples of Bishopric Board.

Write *today*, investigate for yourself.

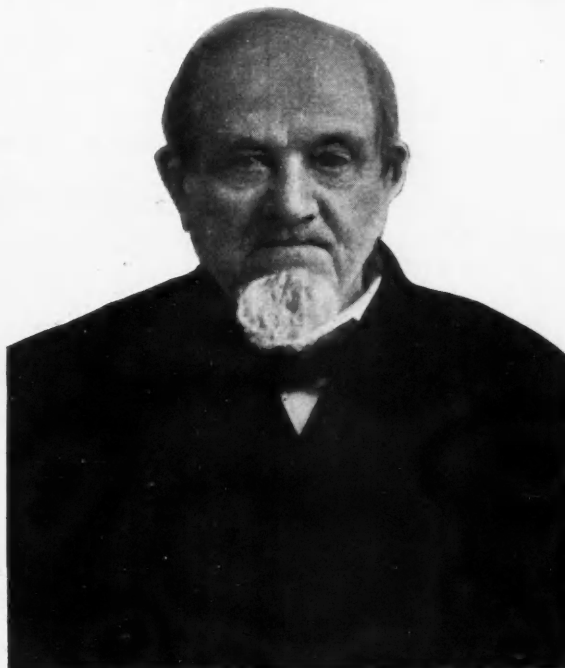


Short Talks With Our Subscribers

Mr. Radford's Father Dies

On February 8, at the age of ninety years, William Radford, pioneer lumberman and millwork manufacturer of central Wisconsin, died at his home in Oshkosh, Wis. Death was due to bronchitis, which became critical within a week's time, previous to which Mr. Radford had been in fairly good health, tho rather feeble owing to his advanced age.

Mr. Radford was born in Needingworth, Huntingdonshire, England, in 1828. He came to America in 1852, first locating at New York and two years later settling at Oshkosh, where he continued to reside until his death. In company with his brother, Stephen Radford, who survives, the firm S. Radford & Bros. was formed for the manufacture of lumber. In 1870 the sash and door business was established and the firm name changed later to Radford Bros. & Co. The sawmill was discontinued about ten years



The Late William Radford, Father of Wm. A. Radford
Publisher of the American Builder.

ago and at that time William Radford devoted his attention to the sash and door activity, resigning about five years ago. Recently the name of the concern, due to a reorganization, was changed to the Radford-Wright Company.

Mr. Radford married in England Miss Elizabeth Robinson, who departed this life about five years ago. Surviving are four sons, all interested in the lumber business, and four daughters. These are Charles W. and Stephen C. Radford of Oshkosh; George of Fullerton, Texas, and W. A. Radford of Chicago; Misses Elizabeth and Stella Radford and Mrs. E. R. Parish, all of Oshkosh, and Mrs. H. R.

Peck of Indianapolis. Sixteen grandchildren and five great grandchildren also survive. The funeral was held Sunday afternoon, February 10, Rev. W. H. Jones of the First Baptist Church, officiating. Sons and grandsons acted as pallbearers.

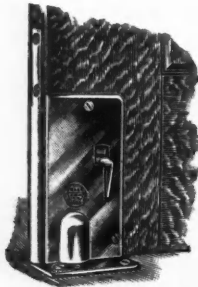
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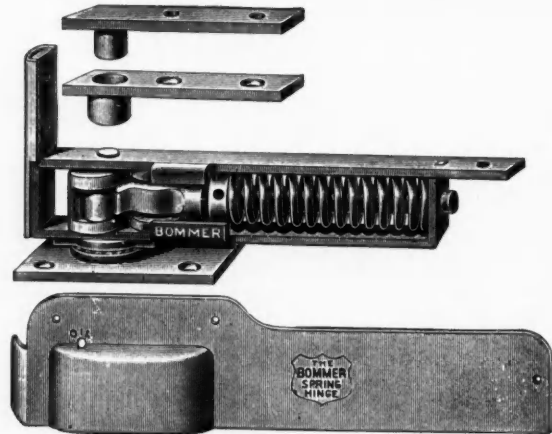
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VOL. XXIV

March, 1918

No. 6

Home Building Important And In Many Cases Essential

FOR several years the March AMERICAN BUILDER has been devoted to Home Building. This year, in the present National emergency, when all efforts are bent to the one end of winning the war and when some would discourage the building of homes as wasteful and non-productive, the AMERICAN BUILDER will stand firmly on its conviction that home building—always important—is now doubly so, and that in many cases home building and home improvements are absolutely essential to the carrying forward of our great National enterprises of farm production, ship building, and the efficient manufacture of war supplies.

Accordingly, we have made this March issue, as usual, our annual Home Building Number.

No stream can rise higher than its source. The patriotism and devotion to the ideals of democracy of the American nation can be no higher than the patriotism and devotion of the individual units that make up our nation. Everything goes back to the family; the type of family life maintained by the majority of our citizens determines the morale of the nation. Home owning develops the best in the family and in the individual.

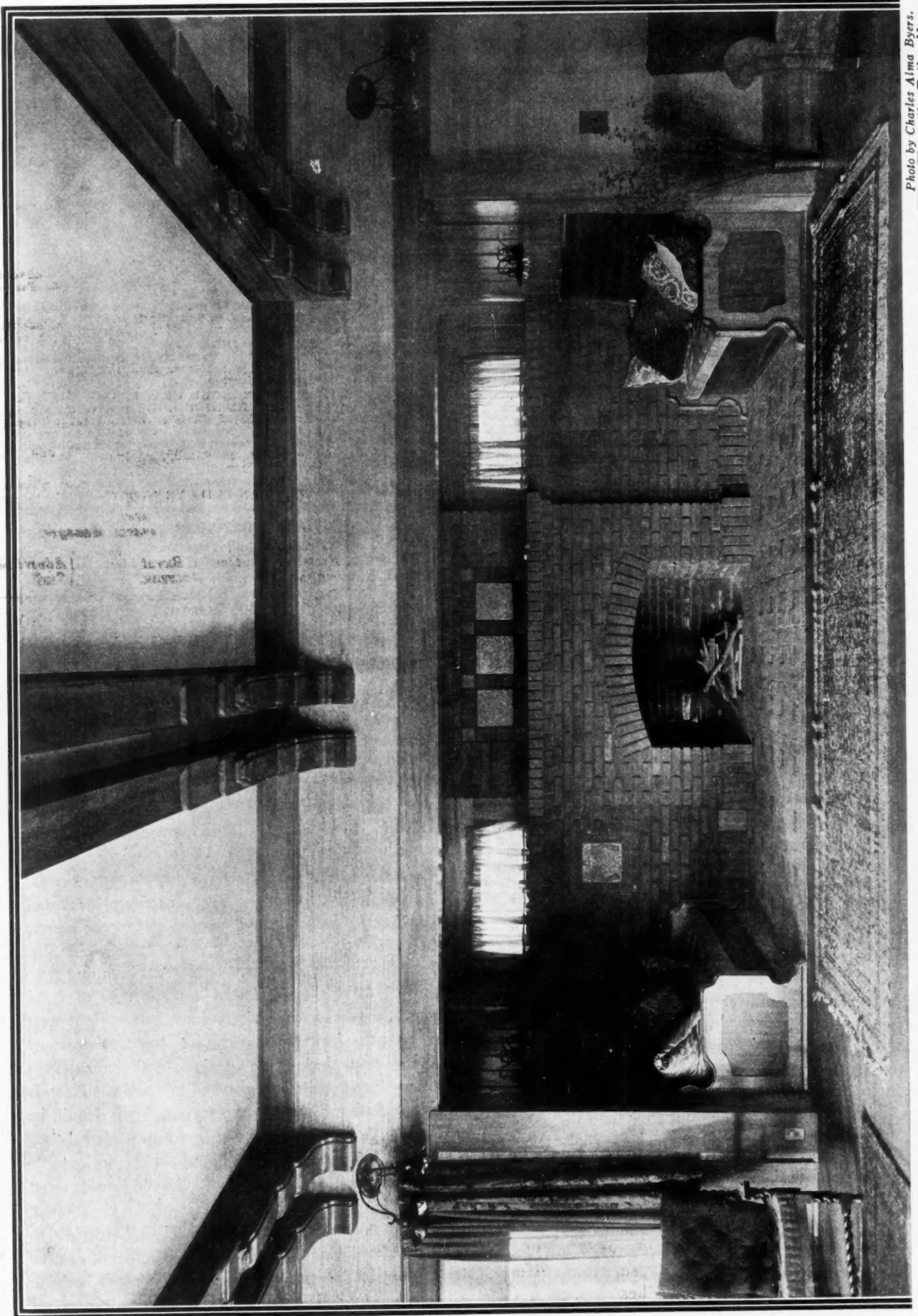
Put a stop to home building and the very foundations of our Democracy are undermined, standards of living are reduced, discontent multiplies.

In places this condition becomes critical, as in the industrial centers and near the shipyards. We say a housing famine exists, and various heroic remedies under the general name of "industrial housing" are resorted to.

These same condition—that are so evidently hurtful in the industrial centers—are just as truly present and just as hurtful all over the country wherever a new home is needed.

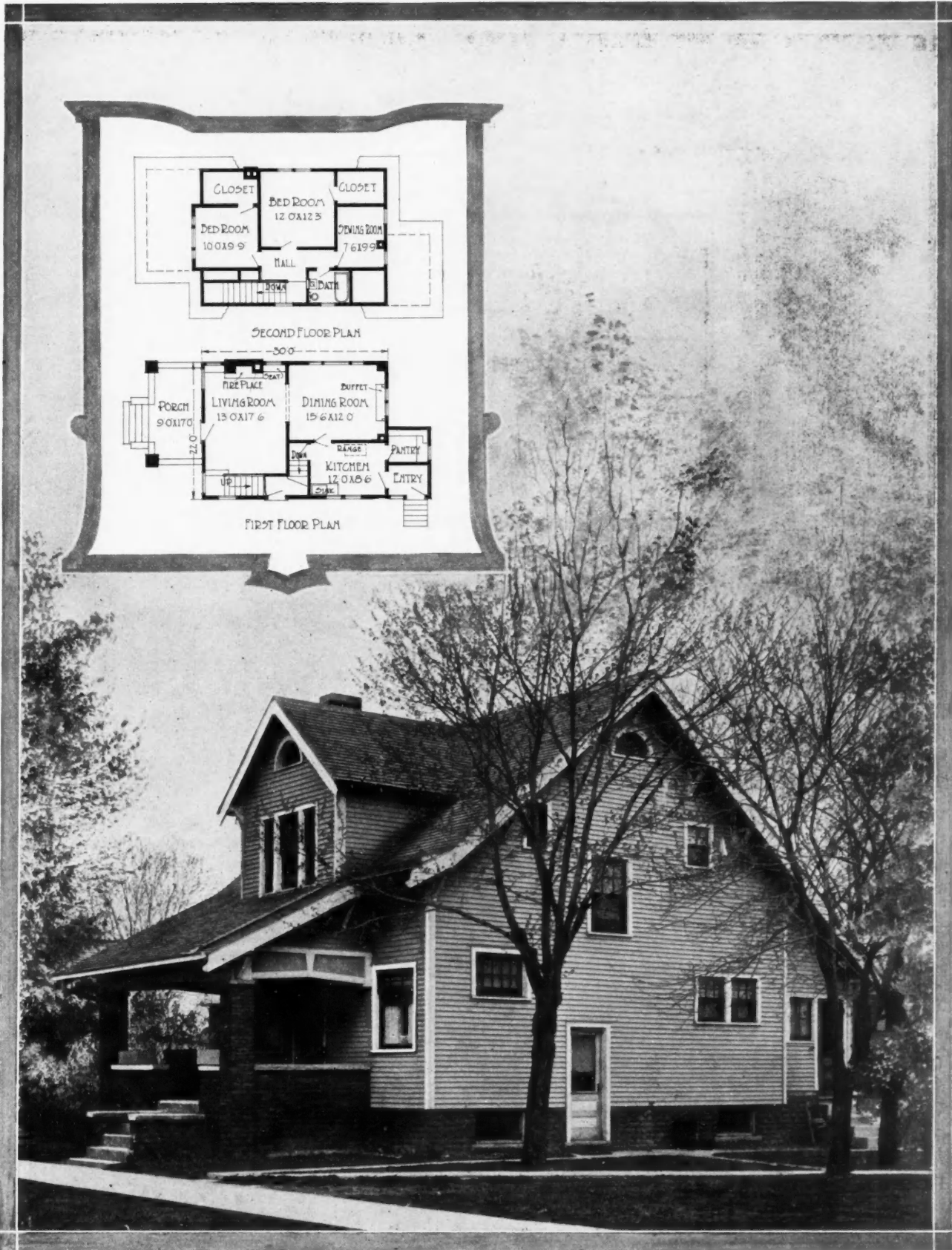
The administration is striving for a maximum production of farm crops. There is a shortage of farm labor; yet a good many elderly farmers are right now retiring off the farm and moving into town, where they can have the modern home comforts and conveniences in their old age. The best good of the nation demands that these farmers stay on the farm. They should be encouraged to make improvements right where they are to their farm homes, to make them comfortable and efficient in the modern way. The old houses must be rebuilt or repaired, or more farms will be abandoned.

Living conditions must be made right before there can be real efficiency in production, whether it is production on the farm or in the factory. Proper housing—*home building*—is essential to right living conditions and should be encouraged.



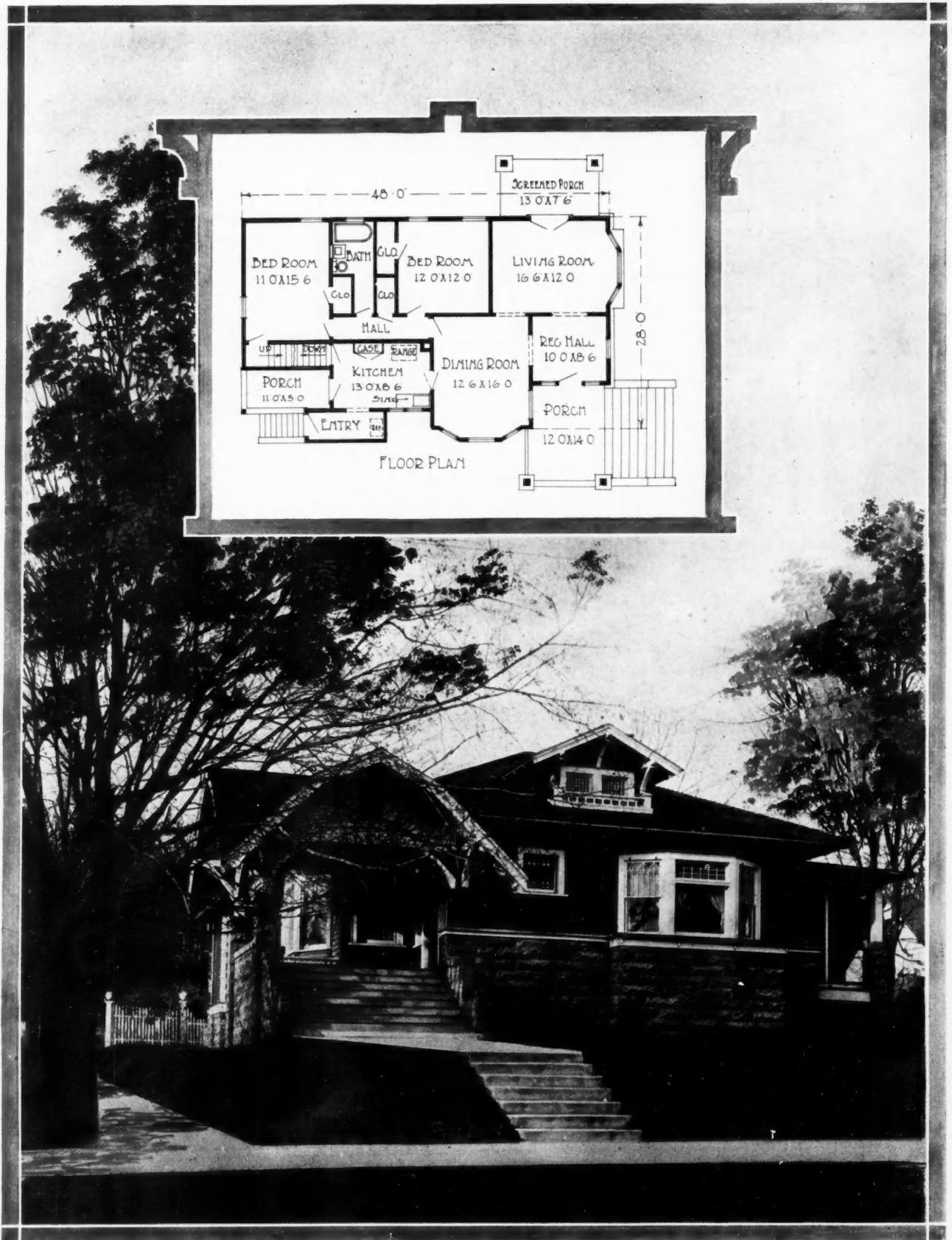
A Fireplace Alcove in a Rich California Home, Showing a Happy Combination of Face Brick, Colored Terra Cotta Insets, and Massive Woodwork. The Hearth Tiling Floors the Entire Alcove Space. The Built-in Seats Invite with Their Air of Solid Comfort. The Ceiling Beam Ends, Fashioned as Supporting Brackets, Deserve Particular Notice.

Photo by Charles Alma Byers.

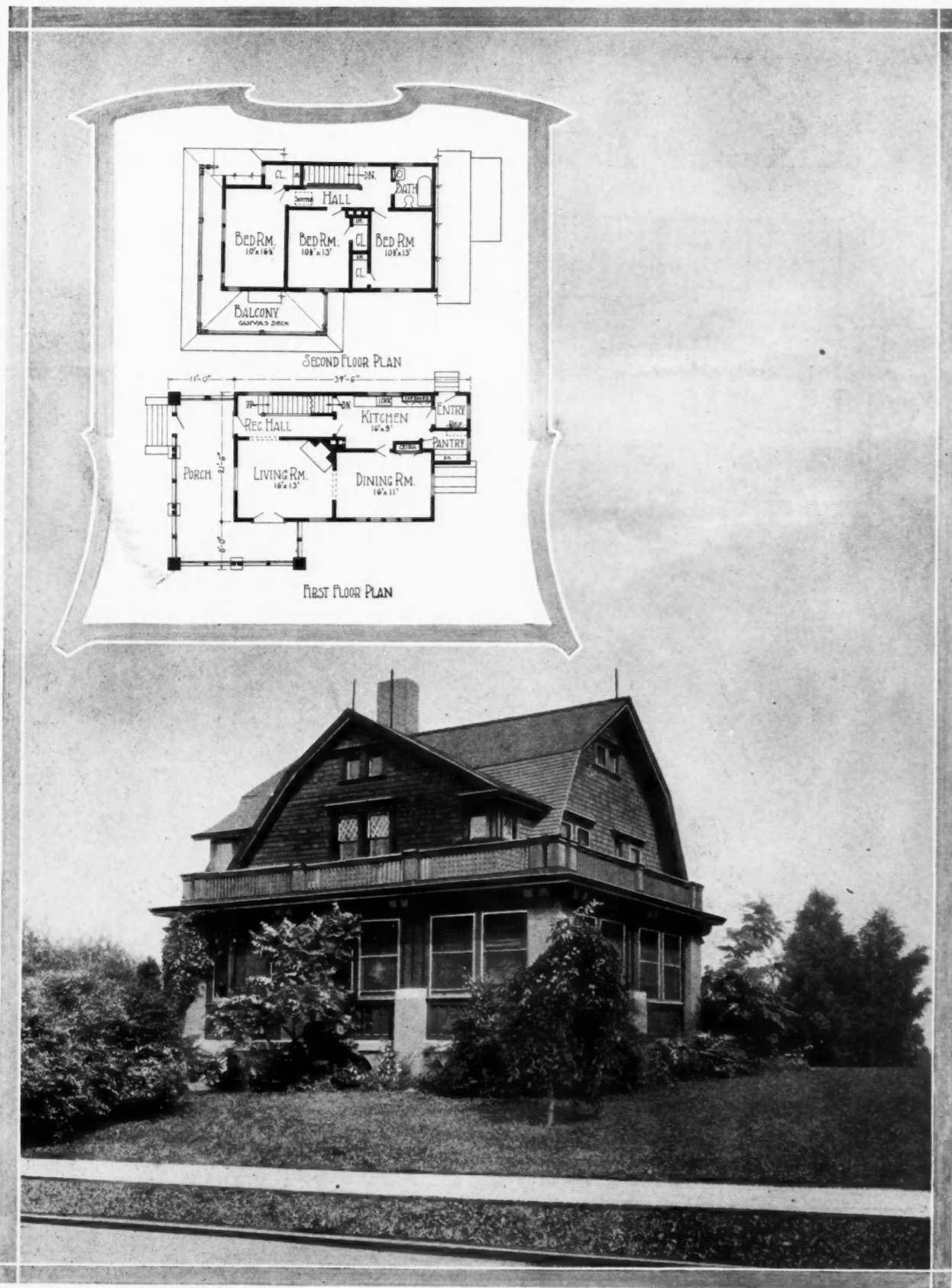


SIX-ROOM HOUSE FOR NARROW LOT. Occupying a space only 22 feet wide, this is a practical city house. The living room and dining room are extra large. Kitchen very conveniently arranged. Upstairs are three bedrooms, bath and several large closets.

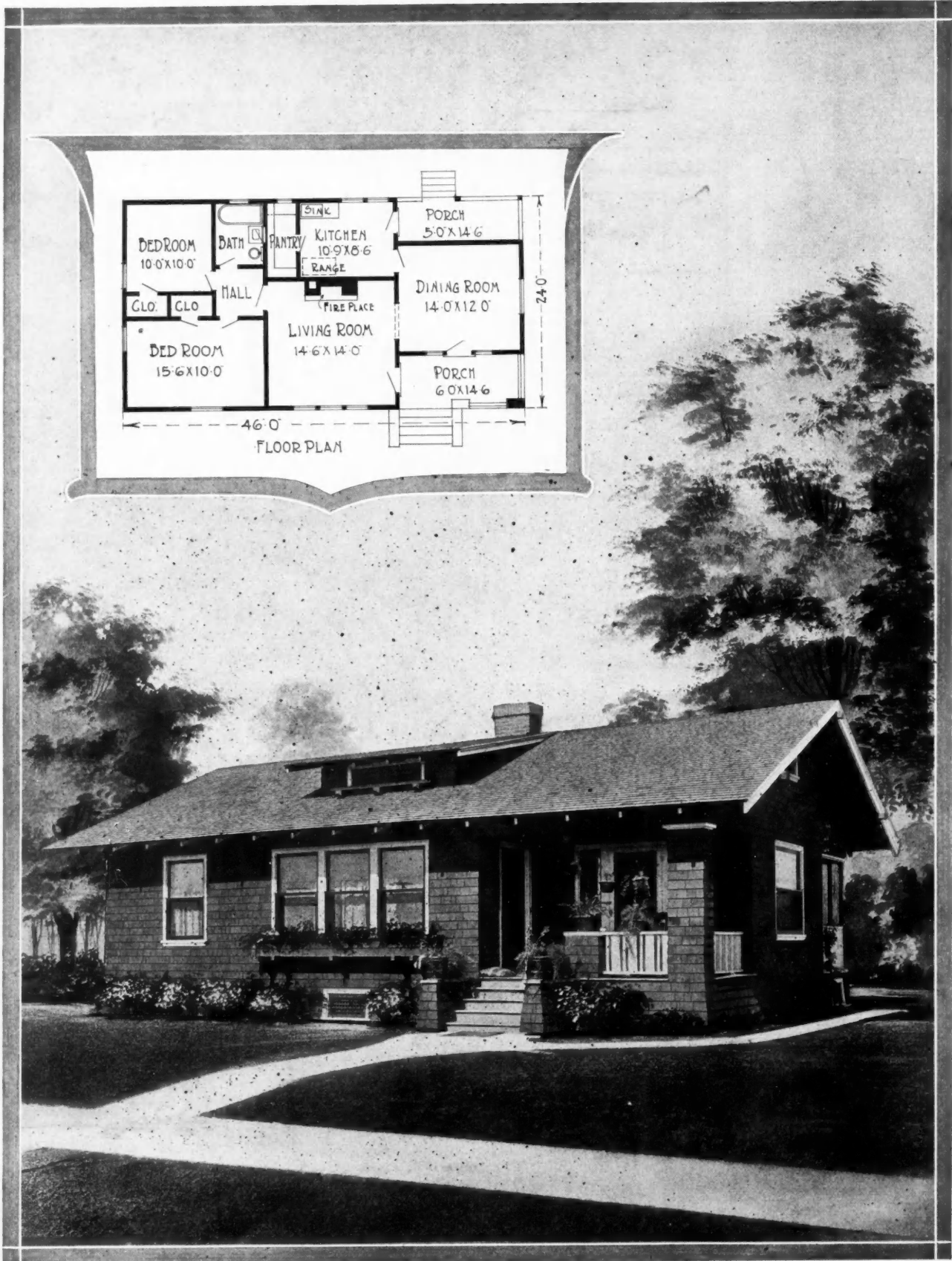
a fireplace also. Space. The Built-In Seats Invite with Their Air of Solid Comfort. The Ceiling Beam Ends, Fashioned as Supporting Brackets, Deserve Particular Notice.



BUNGALOW WITH CEMENT BLOCK FOUNDATION. Where good quality blocks can be had this bungalow design is a winner. With its living room and screened porch, well lighted dining room, convenient kitchen, two large bedrooms with adjoining bath room, this design leaves nothing to be desired.



A SCREENED PORCH COUNTRY HOUSE. Solid summer comfort is sure on this big screened porch. It is more than 29 feet long by 10 feet wide inside. Double doors, glazed full length, open into the big living room. The gambrel roof with huge dormer makes a very pretty sky line and gives a cool second floor of good size.



A SIMPLE SHINGLED BUNGALOW. Here are real economy and good looks combined. For a bungalow the width is held down to the unusual dimension of 24 feet. Five well arranged rooms are provided. It is a plan working out extremely well in regard to housekeeping conveniences.

AMERICAN BUILDER BUILDING PLANS



Complete Plans to Scale for Dutch Colonial

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

FOLLOWING the plan inaugurated last month, the AMERICAN BUILDER presents below a very attractive Dutch Colonial, eight-room residence design, and on the four pages immediately following, complete working plans to scale from which this house can be built.

So many of our readers have written of their appreciation of the full set of plans presented last month, that we are encouraged to go forward with this proposition. We want to keep these designs the practical, popular sort that our readers want. If we miss the mark, please write and tell us so.

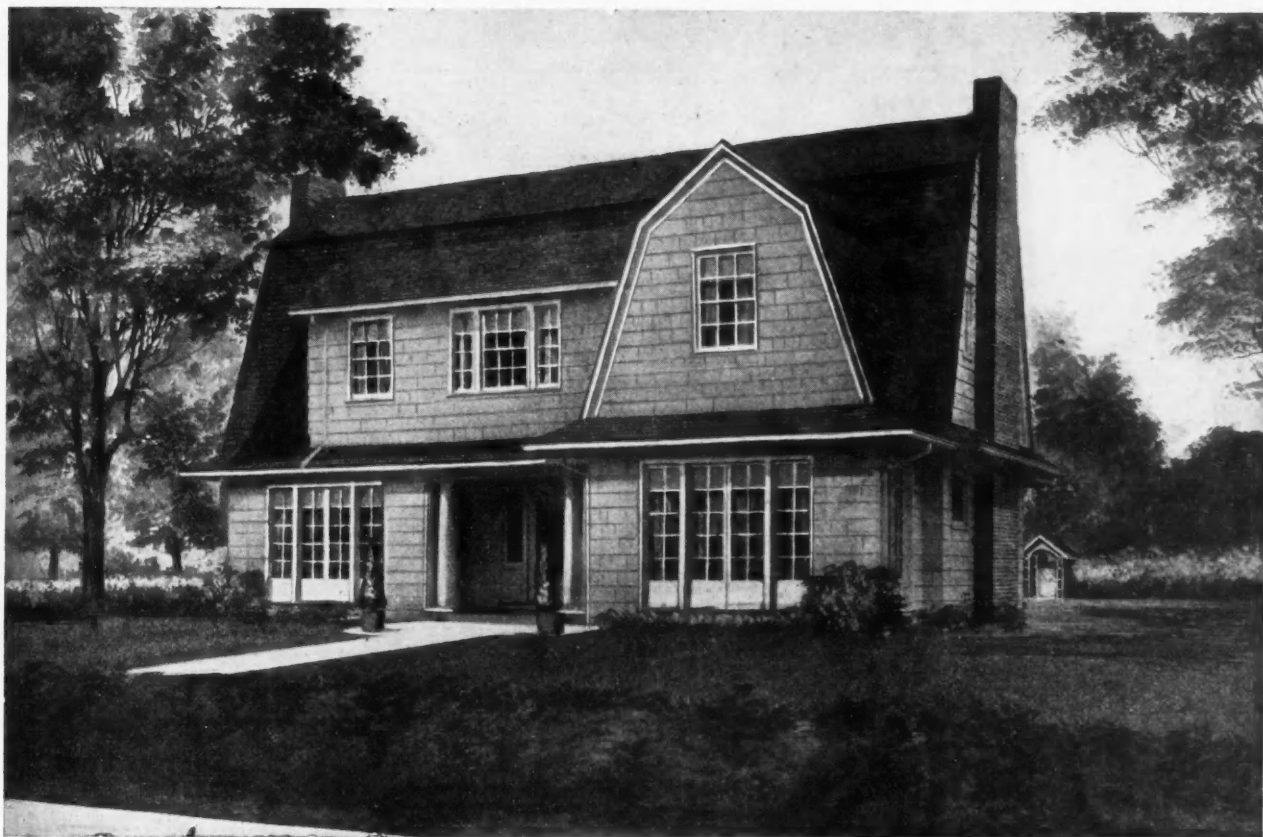
The Dutch Colonial is having a great vogue just now; in fact, it always has been in excellent taste, and the simple quiet beauty of its lines has won for it a lasting place in American home architecture.

It is a style that appeals both to the eye and to the pocketbook. With the Dutch Colonial, no money is wasted on tacked on ornamental effects. The gambrel

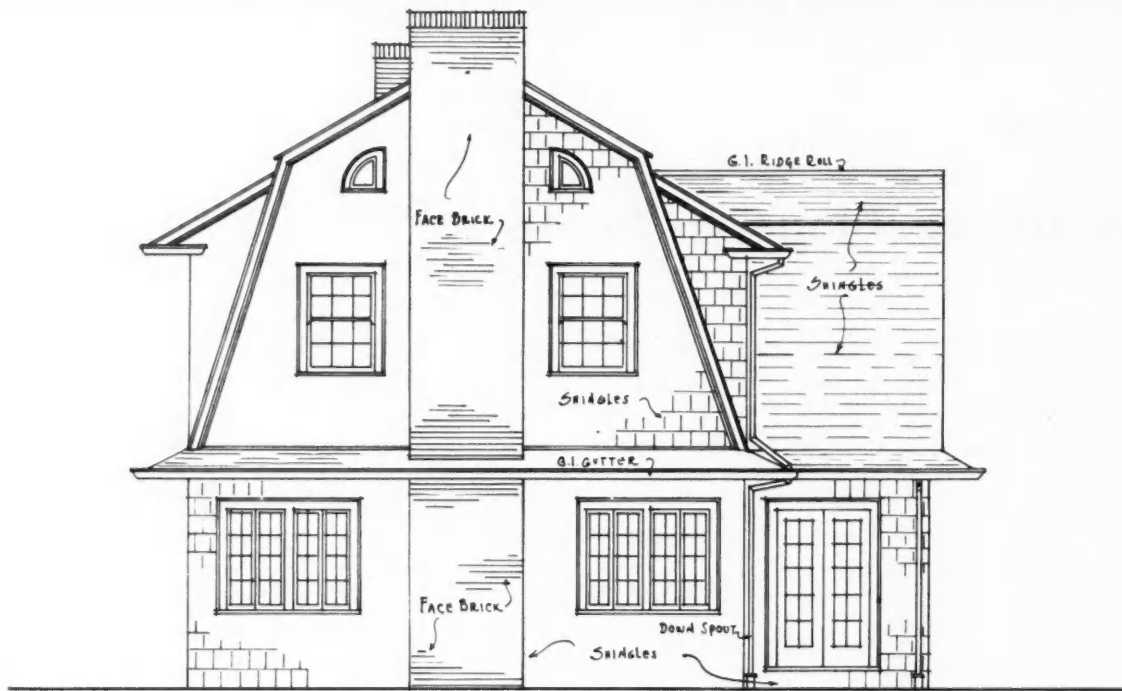
roof permits full utilization of the second floor, with very little attic space above.

The photographic perspective below shows this design as built for the Cedar Coventry Land Company, Cleveland, O. It is characterized by a rather free use of French windows on the ground floor. A study of the floor plans will show several exceptional features of arrangement.

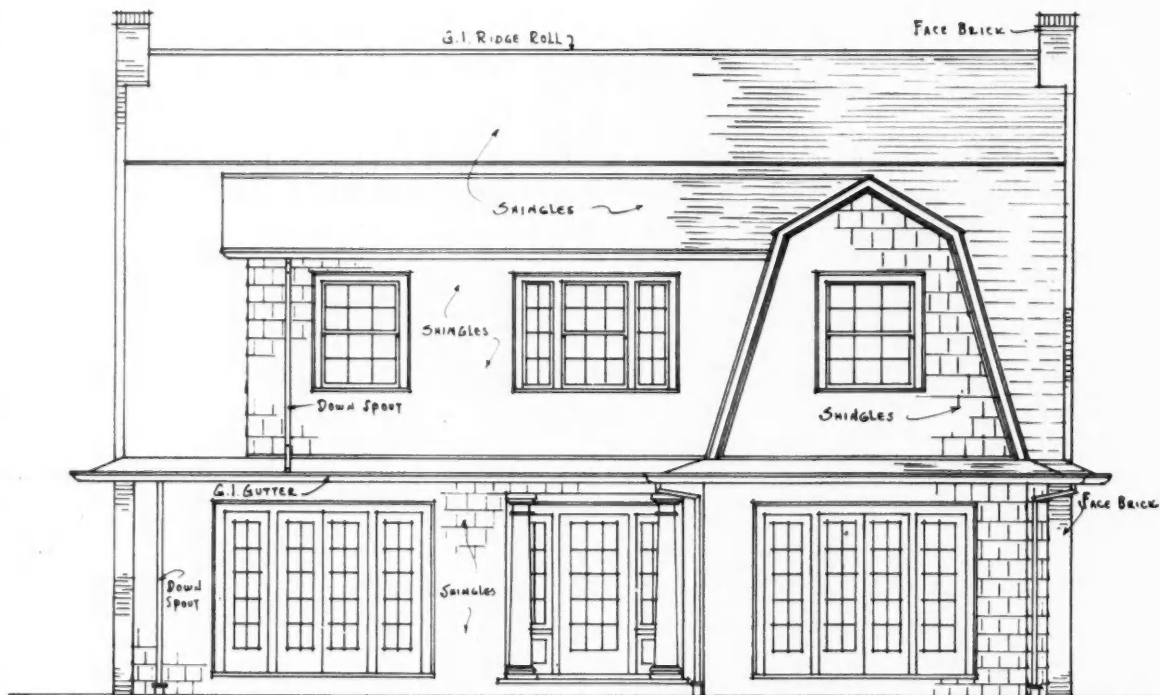
The living room, sun parlor group extends across the entire width to the right of the reception hall—living room 16 by 24 feet; sun parlor 14 by 8 feet. To the left of the reception hall are the dining room, breakfast room or screened porch, and the kitchen. All of the principle doorways have double full-glazed or French doors. Of these there are no fewer than four pairs. These full-glazed doors make a pretty interior and are practical, too, for they cut off drafts and noise, but not light. On the second floor are four large bed rooms, five closets, alcove sewing room, and large bath.



Dutch Colonial Residence of Eight Fine Rooms. Complete Working Plans for This Dwelling Are Presented on the Four Pages Following.

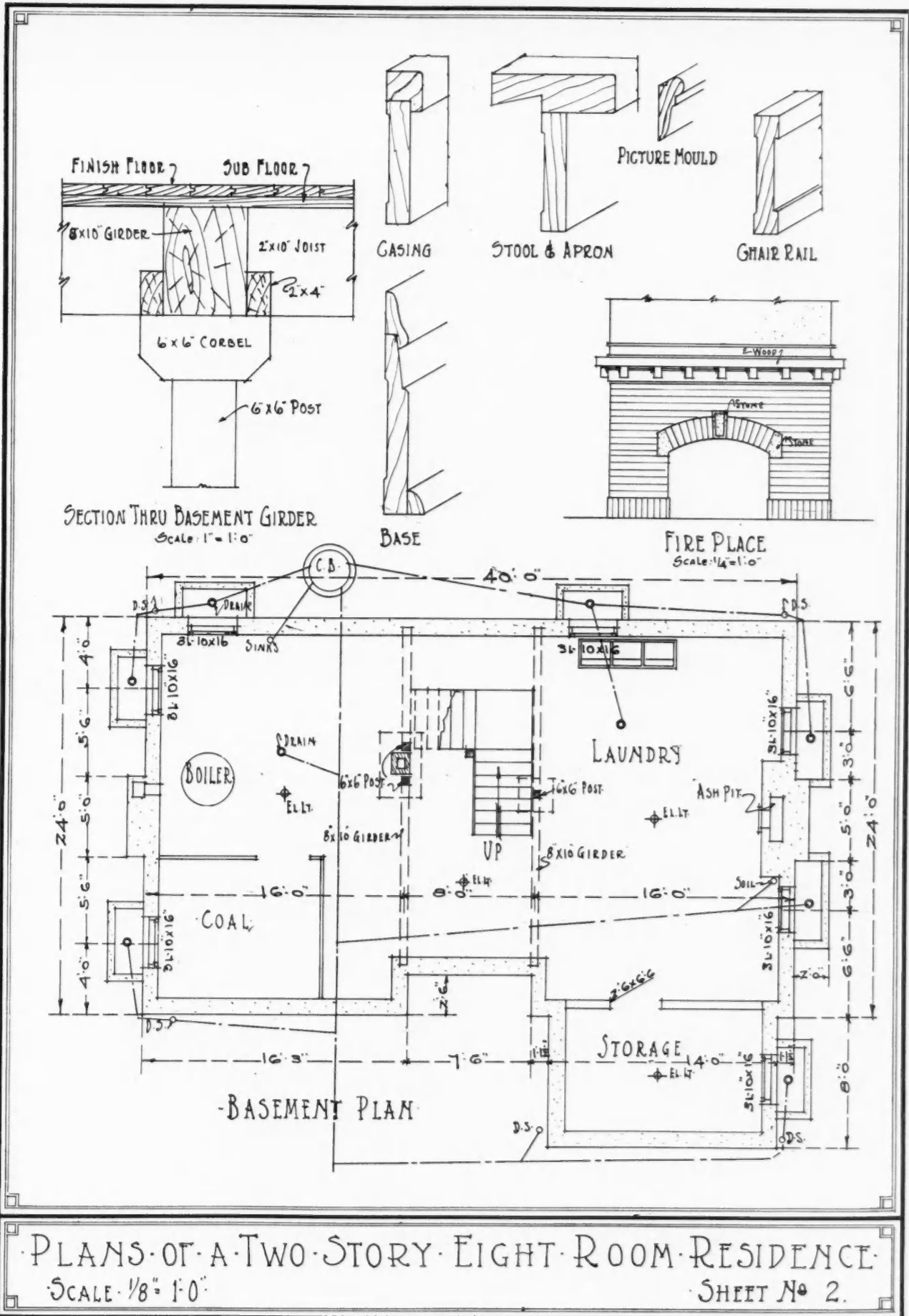


LEFT SIDE ELEVATION



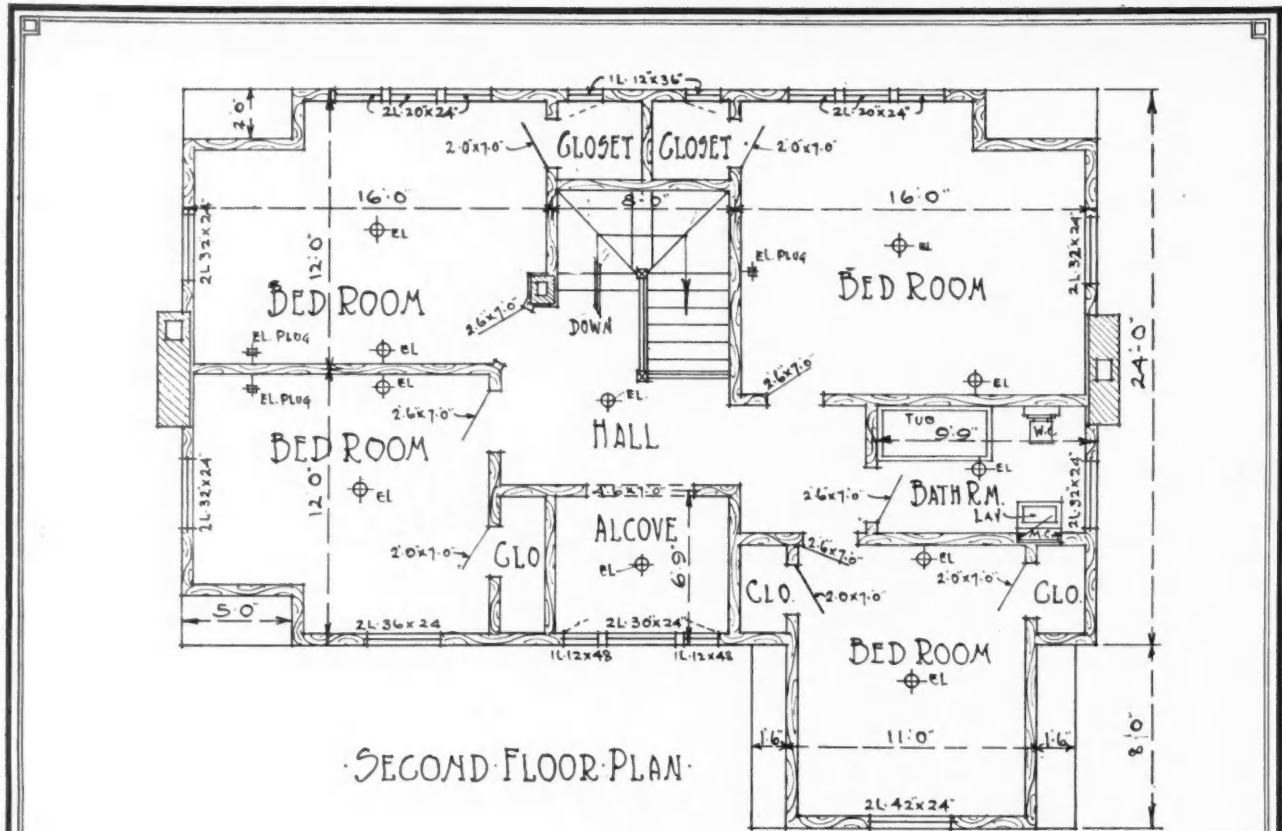
FRONT ELEVATION

PLANS OF A TWO STORY EIGHT ROOM RESIDENCE
 SCALE 1/8" = 1'-0"
 SHEET No 1

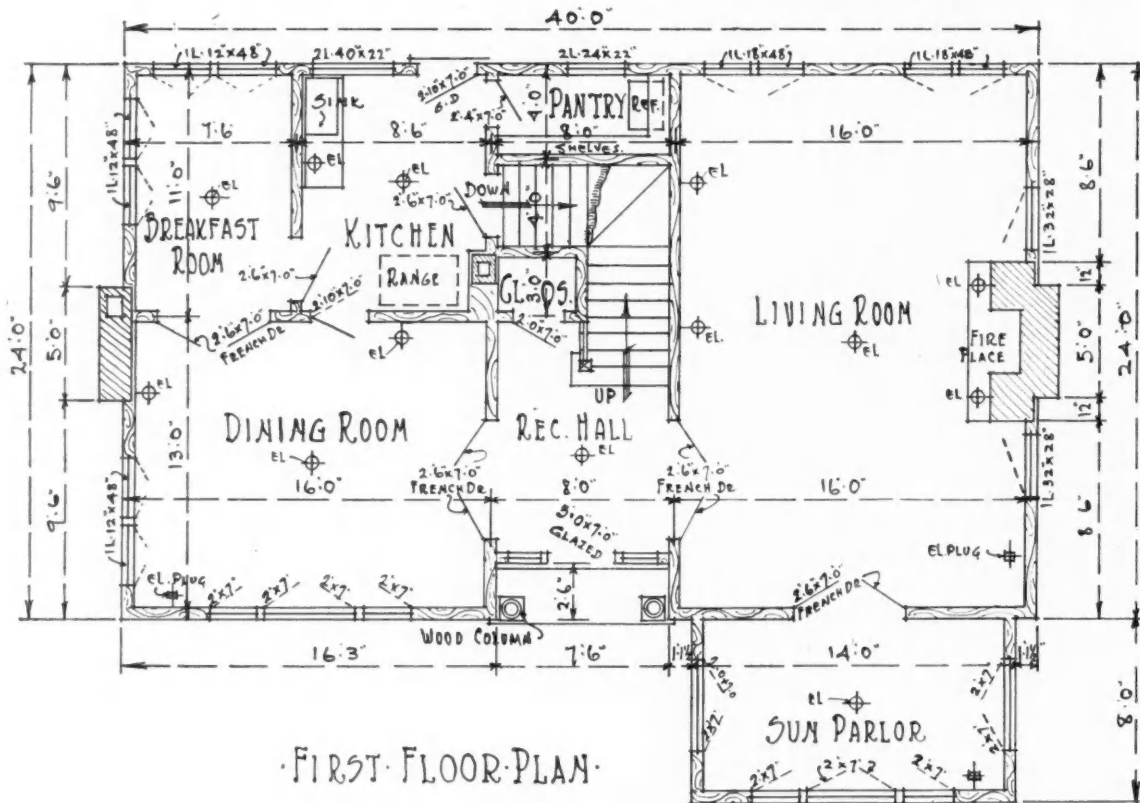


PLANS OF A TWO-STORY EIGHT-ROOM RESIDENCE.
SCALE 1/8" = 1'-0"
SHEET No 2.

Basement Plan and Details, 1/8-, 1/4- and 1-Inch Scales, of Dutch Colonial Residence, Page 25.

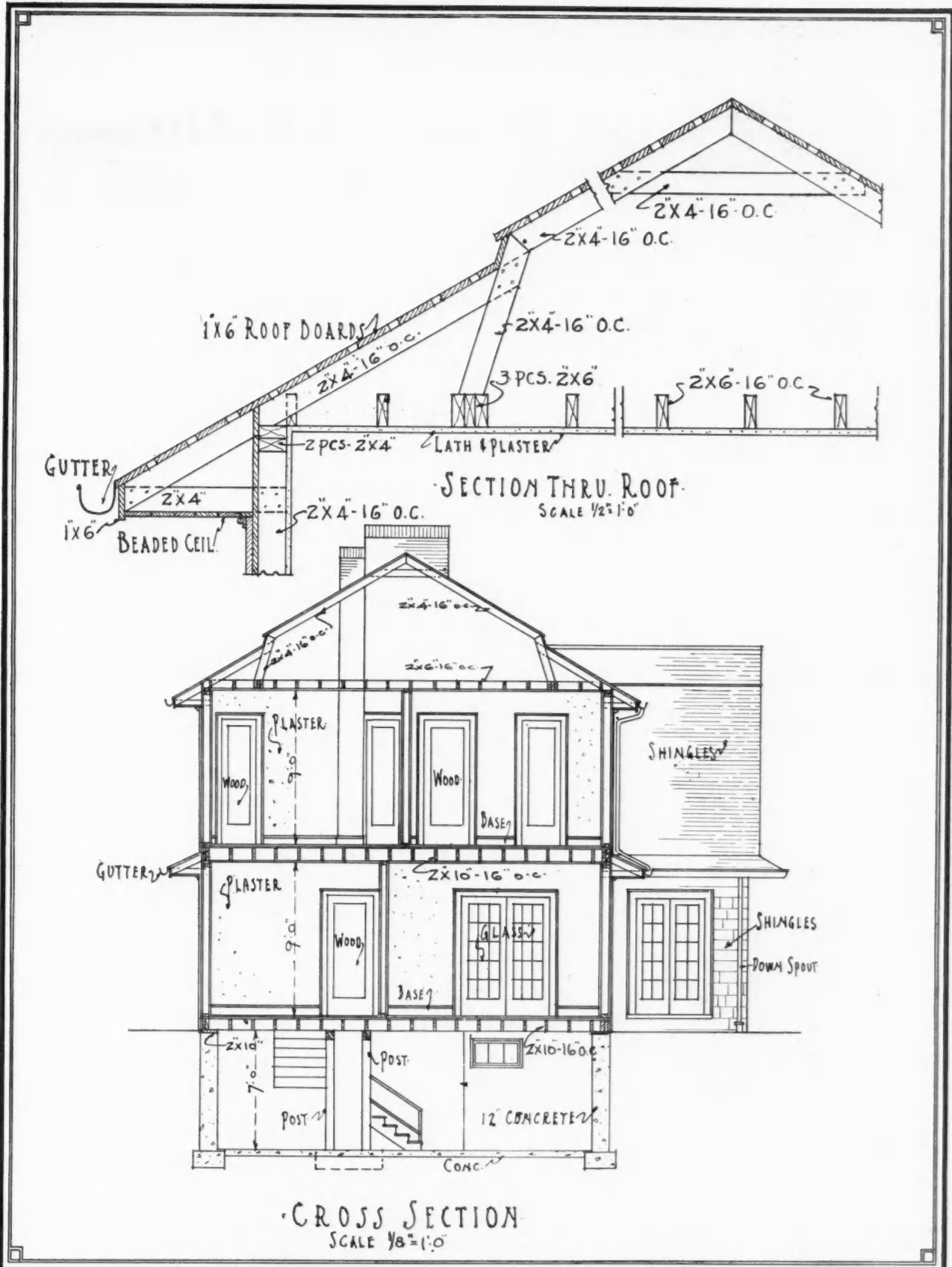


SECOND FLOOR PLAN



FIRST FLOOR PLAN

PLANS OF A TWO STORY EIGHT ROOM RESIDENCE.
 SCALE 1/8" = 1'-0".
 SHEET No 3.



PLANS OF A TWO STORY EIGHT ROOM RESIDENCE
SCALE 1/8" = 1'-0" SHEET No 4

Section and Construction Detail, Drawn to 1/8- and 1/2-Inch Scales, of Dutch Colonial Residence, Page 25.



Model Home Designs



Their Wish Home

A few months ago a young Western ranchman returned to his home in a city of Southern Illinois and was married to a girl of childhood acquaintance, she a maiden from the farm. That was the beginning of the comfortable little home which had its *locus* in the cottage shown in the illustration; the plans were sketched by the couple while they still rented.

The man of the house had spent twelve years in a two-room "shack" on the Western plains. There he accumulated a comfortable sum and there he learned something about inconvenience.

From the poorly lighted, cold and but fairly well ventilated place he called home he has been transformed into a comfortable cottage, with lots of light and ventilation and every convenience, a five-room bungalow, with a good start for three rooms upstairs. It only cost \$2,800. The original price was fixed at

\$2,496; but a concrete basement and a few extras added to the cost.

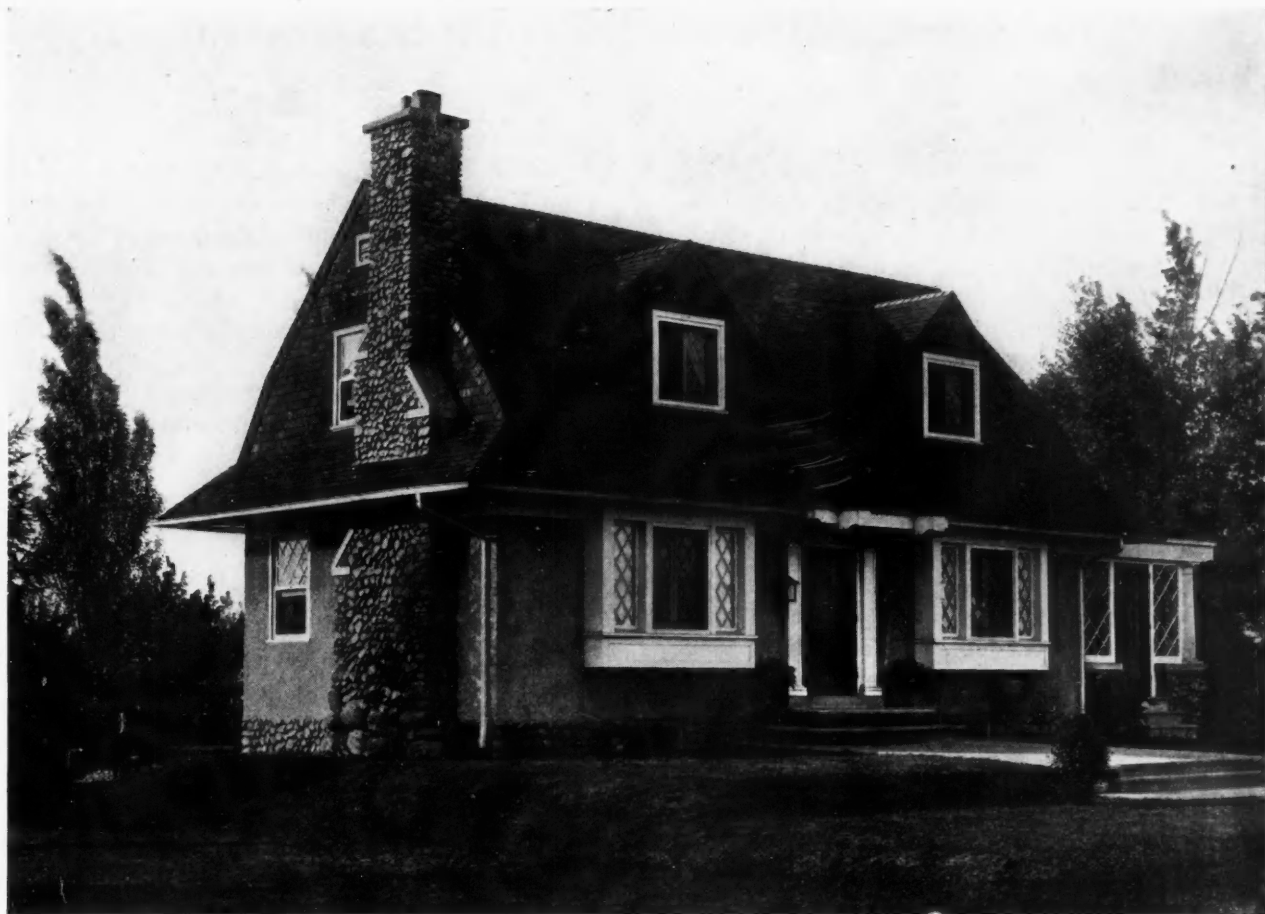
The cottage is built on a lot 72 feet front and it is 28 by 42 feet with an 8-foot porch extending across the entire

front. The only change he would make if building another would possibly be to make it 2 feet wider.

The bungalow contains a living room, dining room, two bedrooms and kitchen,



Photo and Floor Plan of Extra Good Looking and Practical Bungalow at Edwardsville, Ill.



Quaintly Artistic Residence for Which Two Different Room Schemes Are Presented Below.

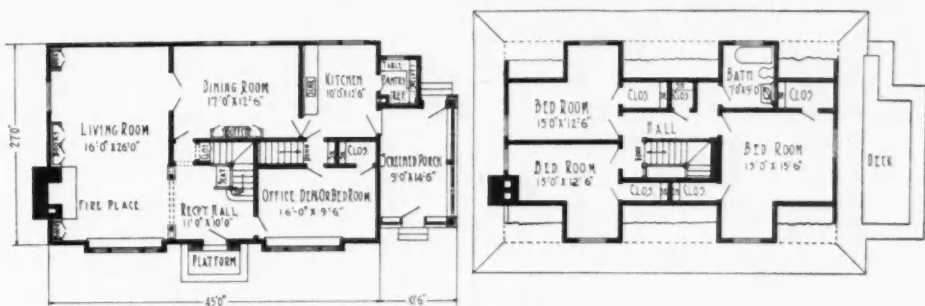
a nice sized bath room, two large closets, a linen closet, a pantry and an enclosed entrance at the rear porch.

The entire attic is floored and uprights in place for lath and plaster wherever it is desired to finish the upstairs. The uprights, usual 2 by 4, were placed to give the roof necessary carrying strength.

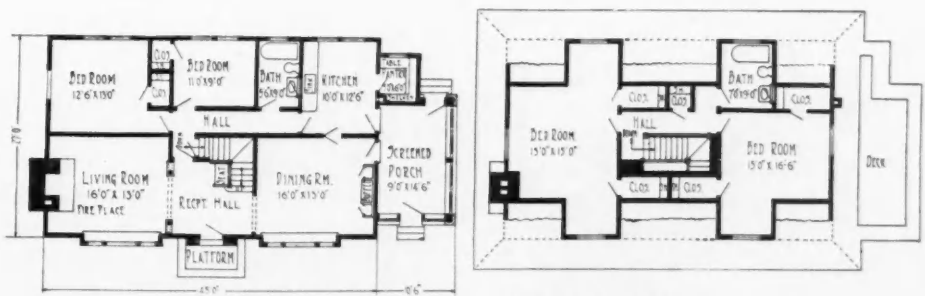
The owner believes an additional 2 feet on the left side could be used to advantage in the living room, dining room, pantry and porch. The position of the girder, however, would not be changed.

The living room has a cheerful fireplace built of mottled brick. The outside chimney, as well as the lower portion of the porch posts and foundations, are built of vitrified paving brick. Another feature in the living room are two book shelves built into the colonnades between living room and dining room.

The pantry is conveniently built between the dining room and kitchen and may have an outside ice box. In this home the ice box is kept on the porch, but protected from the weather.



This Arrangement Gives Large Living Room.



This Arrangement Gives Two Down Stairs Bedrooms.

The bath room is located between the two bed rooms and readily reached from every portion of the house. It is large enough and has a linen closet. In the hallway is a clothes chute.

Each of the bed rooms has large closets and with the spacious attic there

is lots of room for storage purposes.

There is a basement under the entire house and it is concreted.

The attic is reached thru an enclosed stairway with the floor landing near the center of the building.

HERBERT C. CROCKER.

Industrial Housing Problems—(PART III)

By Leslie H. Allen

Of the Aberthaw Construction Co.

Materials of Construction

Very little change has been made in recent years in construction methods and materials, the chief alteration being towards the reduction of fire risks and conflagration hazards.

The standard form of wall construction for rural districts continues to be wooden framing. Where city laws do not forbid it, this is used in the cities. The frame is usually lathed and plastered inside and covered with rough boarding, paper and shingles or clapboards outside. Cement stucco on wire lath is coming into vogue for exterior finish—at a slightly higher cost; this when put on satisfactorily requires less maintenance and no repainting but requires expert workmen to make a satisfactory job. In a few cities brick walls are more frequently used, furred on the inside and lathed and plastered. A few houses here and there have been built with hollow tile, stuccoed outside and plastered inside directly on the tile; and some experiments have been made in concrete houses; altho nowhere yet has Edison's dream been realized. The most noteworthy instance of concrete houses are the hundred houses at Donora, Pa., built for the American Steel & Wire Co., by the Aberthaw Construction Company. These houses, built with Lambie steel forms, have 6-inch reinforced concrete walls, stuccoed outside and furred and lathed and plastered inside. The forms, however, give such a smooth surface that it is intended on the next job to leave the concrete exterior surface bare, rubbing any irregularities and leaving a smooth concrete surface of even texture and color.

Altho no exact cost data can be given at the present time on the foregoing material, the following figures are, however, given in order to indicate the relative costs of these materials, based on present prices. As

prices do not vary consistently, these figures may not hold good for very long. In certain localities where clay for tile-making is abundant the prices of tile would be cheap and would indicate that this is the cheapest material to use. In other places where there is a good gravel supply right on the ground the relative cost of concrete would be reduced.

Assuming the cheapest construction, a wood framing, wood lathed and plastered on the inside and rough boarded and shingled on the outside, as our standard



A Street of Concrete Homes Built at Donora, Pa.

or 100 per cent, the relative costs of various houses would be as follows:

Wood framing, inside wood lathed and plastered, outside rough boarded and clapboarded and painted	102%
Wood framing, inside wood lathed and plastered, outside wire lathed and stuccoed.....	108½%
6" concrete wall, inside furred and lathed and plastered, outside rubbed smooth.....	112%
6" concrete wall, inside furred and lathed and plastered, outside stuccoed.....	116%
8" hollow tile, inside plastered direct, outside stuccoed	111%
8" brick wall, inside furred and lathed and plastered	115½%
Wood framing, veneered with 4" brick, inside lathed and plastered.....	113%

The chief roofing materials in use at the present time are wood shingles, asphalted felt shingles, asbestos shingles, slate, tile "ready" roofings, tar and gravel built-up roofings and tin roofings, the last three being used for flat roofs.

The wood shingles, while still in common use, are slowly giving place to other materials. Many cities have legislated against them, and as the asphalted felt shingle, which is a good deal more fireproof, can be put on for about the same price, it is coming into general use. The wood shingle is a



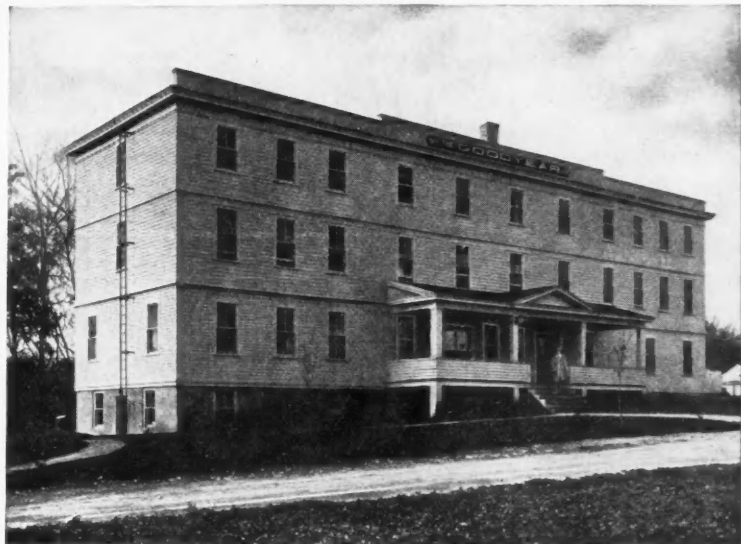
dangerous fire risk, on account of the ease with which conflagrations spread by burning shingles flying thru the air.

The asbestos shingle costs about twice as much, and is not so commonly used, altho it makes a more permanent roofing.

The cost of tile and slate roofing is so much higher than the above that they have to be left out of consideration in workmen's houses.

The flat roof covered with a 5-ply built-up tar and gravel roofing is considerably cheaper than any of the preceding, but its appearance is generally objected to. In our large cities, particularly in Philadelphia, it is used extensively, and, on account of the low first cost and maintenance expense, it is very favorably regarded. Various types of ready roofing are used as substitutes for built-up roofs, but, on account of the difficulty in making good water-tight joints they have not come into general favor. The tin covered roof is being used less and less. It is more expensive than the built-up roof and requires frequent repainting and maintenance. One of the stock objections to the flat roof is that it is hot, but, as a matter of fact, this is not the case. The flat roof should have underneath it a ceiling furred down to give a hollow space of at least 18 inches between the ceiling and the roof surface. This dead air space provides a proper insulation against heat and cold, and is actually cooler in summer and warmer in winter than a pitched roof in which the ceilings of the bedrooms are sloping.

The objection to the flat roof on account of its lack of architectural pretensions is not an insuperable one. Conditions of this sort should be a challenge to archi-



Plant Hotel or Boarding House.

itects to overcome.

Wood lath and plastering continue to be the customary method of finishing walls and ceilings. Plaster board covered with a finish coat costs very little more, and where speed is essential can be put on and dried out much more quickly. The various wall boards and composition boards offered as substitutes for plastering are not satisfactory for industrial houses. The cost per square foot is low, but the waste in cutting is very great unless specially ordered, and the result is not so permanent.

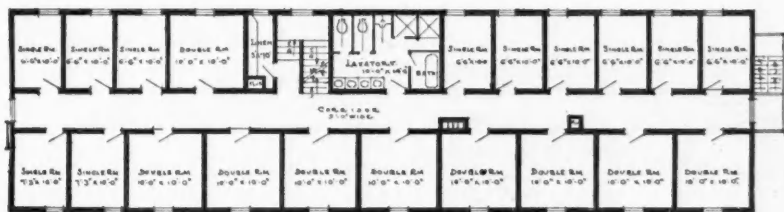
Interior woodwork is best stained and varnished and not painted, as it is less easily soiled.

Wall papers add nothing to the comfort or health of the tenant, but do add to the rent he has to pay, besides proving a harborage for vermin. Kitchen and bathroom walls are best painted with lead and oil, while many owners leave all other rooms bare or tint them with cold water paint.

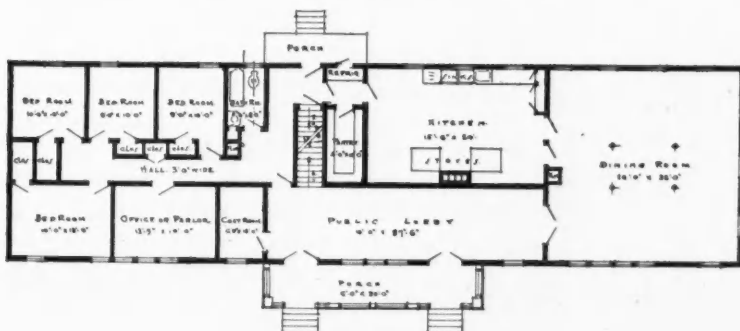
Architectural Design

In attempting to discuss architectural design we are treading upon difficult ground. No laws or limitations as to style can be laid down, and matters of taste cannot be discussed here. The designer of the workman's house is usually working under very strict limits of cost. It is his duty first of all to plan for the comfort, safety and health of the tenant, and if after this is done he has still some money left for architectural adornment, the money spent in this way is money well spent.

Any attempt to beautify the elevation has to be paid for. Each dormer, every valley, each moulding, porch or



SECOND & THIRD FLOOR PLAN.



FIRST FLOOR PLAN

Floor Plans of Plant Hotel or Boarding House.

railing has to be reckoned up in dollars, and where it becomes a question of sacrificing necessary floor space or internal convenience for outside embellishments, the tenant's vote, if he were given a chance to exercise it, would almost invariably be for the internal necessities rather than the external luxuries and ornamental effects.

In planning a house the square plan bounded by straight lines is the cheapest and most economical. As the plan changes from square to oblong, the ratio of walls to floor space increases, and with it the cost. Any departure from the right angle means increased labor and waste of material in cutting.

Porches should be so designed that they do not shut off sunlight from any room. In many row houses a continuous porch is built right across the front, with the result that sunlight never enters the front room on the ground floor. As sunlight is the greatest foe of disease germs, it will be seen what a detriment this is to the health of the inmate.

Valleys and dormers in a roof not only add to its cost, but to its maintenance, as these angles in the

roof are the points where leaks first make their appearance.

No applied architectural ornament can equal the beauty or permanence of a careful planting of trees, shrubs and vines. The plainest of houses suitably planted with quick-growing vines on permanent trellises, and with a good shade-tree in front, will look far better than the most ornate building, elevation and cost much less.

In studying photographs of successful housing developments it will be seen that those which win the most general approval are those in which this feature has been given careful attention.

Layout of Streets

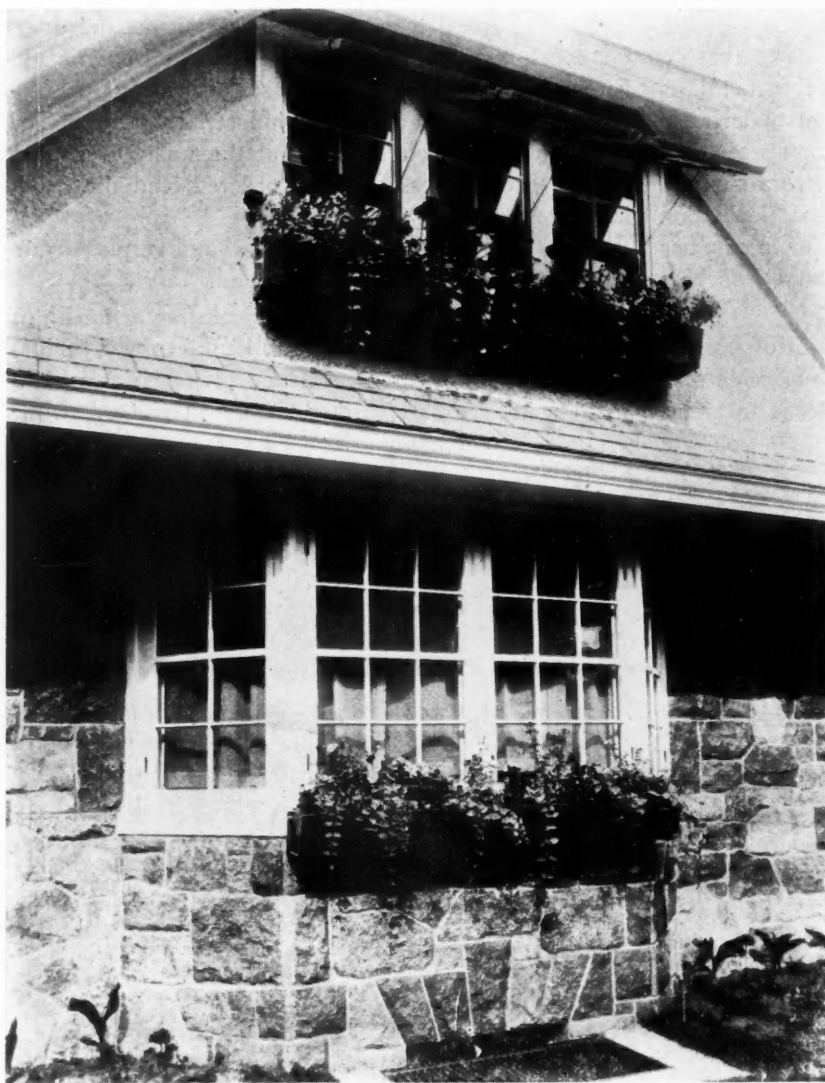
The deadly monotony of straight rows can be avoided by houses set at varying distances from the frontage line, and the appearance of the street can be much improved as well as more light and air being given to each building.

In laying out the street line it will generally be found that the streets which follow contours of the ground, provided these are not too irregular, give a more pleasing effect, and in many cases save large sums of money that would otherwise have to be expended on cut and fill, embankment and retaining walls.

Size of Lot

No general rule can be laid down as to the size of the lot that should be given the worker. Until the recent movement for home gardening was started it was not customary to find more than one garden in three under cultivation in cities. Many workmen work so hard all day that they have not the time or strength to do any gardening in the evening. Even if they do, ignorance of methods of cultivation and the impossibility of protecting their land from the raids of children in adjoining houses and the neighbors' fowls, make it a very discouraging and difficult matter.

In some sections the English scheme of gardening in "allotments" has been tried successfully. In such cases the houses are built on very small lots of land and a reservation of several acres is provided for gardening. This is fenced in and cut up into small allotments and let out in small sec-



A Pretty Stone Bay with Interesting Gable Window Above.

(Continued to page 128.)

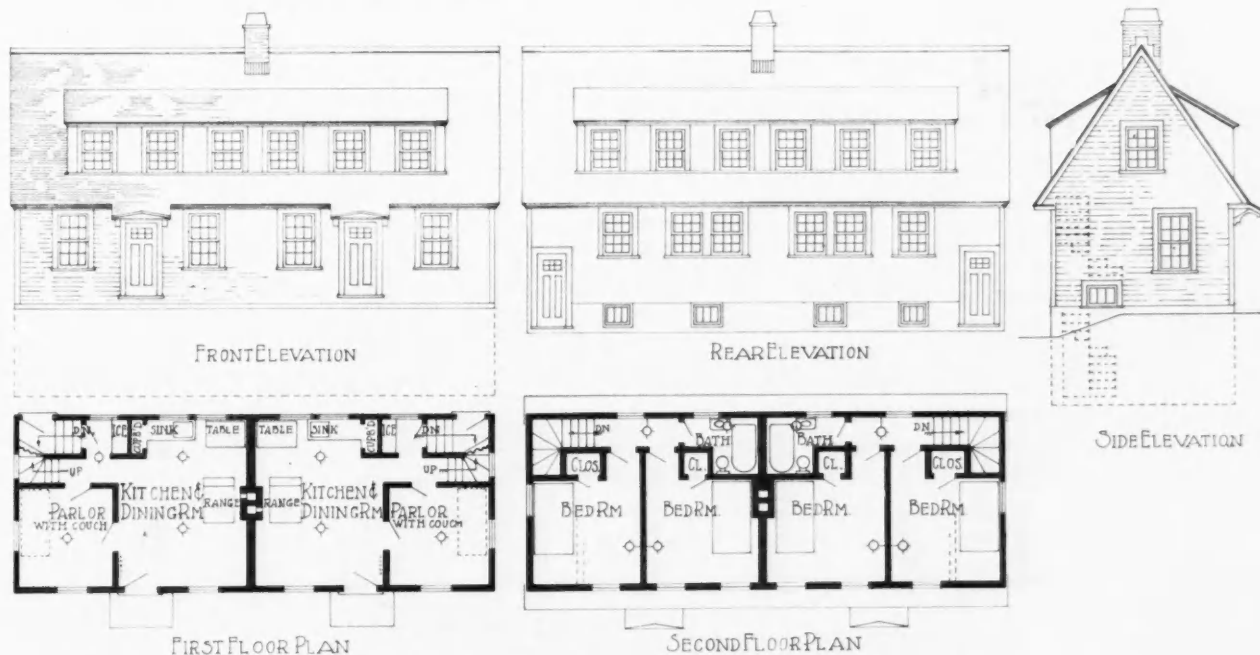
State Starts Experiment on Low Cost Houses

WILL DETERMINE THE POSSIBILITY OF A \$2,000 HOME

TO build a home within reach of the family with a \$15 a week income is the purpose of the State of Massachusetts in launching its Lowell realty project.

This action on the part of the Commonwealth is the first governmental attempt in America to solve the problem of building attractive and comfortable homes which can be bought by a family of small means. The Homestead Commission have been endeavoring for several years to have the experiment sanctioned by the Legislature. After many constitutional obstacles were overcome, it was approved by the Legislature on May 25, 1917, which gave the Homestead Commission authority, thru consent of the Governor and Council, to purchase a tract or tracts of land for the purpose of providing homesteads for the artisan population and others who are citizens of the state.

Each house will contain modern conveniences such as electric light, bath, and hot and cold water. Altho no heating system will be installed, provision will be made for stoves in the bedrooms. Some of the double houses (as the sketch portrays) will contain living-room and dining-room and kitchen (one large room) on the first floor and two chambers and bathrooms on the second floor. The commission will try and maintain the "American Standard" of house, which allows for three rooms on the first floor and three on the second floor, in the majority of the dwellings. Each house will also have a complete cellar, well lighted and ventilated. Both single and double type of houses will be built, and the latter will be designed to give each family as much privacy as possible.



One of the Double House Types to be Built by the State at Lowell, Mass.

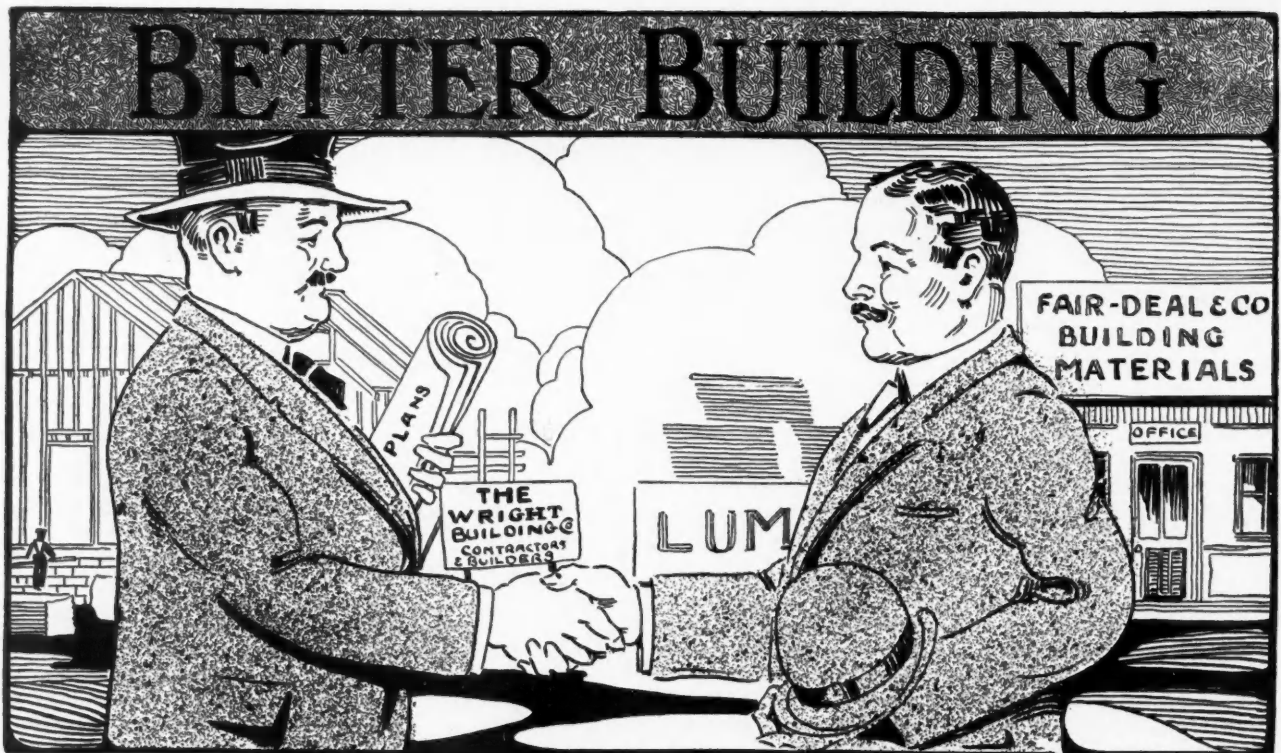
The members of the Commission decided on a tract of land comprising seven acres, located on Hildreth street, Lowell, as most adapted for the initial project. The land is located within one mile of Merrimac square, the principal business center of Lowell, and within a corresponding distance or less of about a dozen of the largest mills. This site was selected last year, but no action was taken until permission was given by Governor McCall and Council on Aug. 15. A year ago it was estimated by the commission that the cost of each lot of land and erection of each house would be about \$2,000. Since then, however, building material has advanced, so the cost may be a little more than this amount.

The above sketches are preliminary plans made by William Roger Greeley (of Kilham & Hopkins, archi-

The Homestead Commission are procuring figures on various types of construction, such as brick, terra cotta, frame, etc. By so doing, a study of every economical advantage will be made. For example, if it costs more to erect a brick house than it would a frame house, but the upkeep of the latter is more than enough to offset the additional cost of the former, the brick house will be preferred. Every precaution will be taken by the State to insure the construction of substantial houses.

The disposition of the houses will be made on the most liberal terms. All houses will be sold at cost, as the Commonwealth's venture into the realty business is not one for commercial advantage but to relieve the wretched conditions of the houses of the low-paid

(Continued to page 138.)



A Back Yard Poultry Campaign

CHANCE FOR LUMBER DEALERS AND BUILDERS TO STIR UP SOME BUSINESS AND DO UNCLE SAM A GOOD TURN AT THE SAME TIME

LAST spring the government food experts were urging all people to plant a garden; this year the garden is just as essential, but in addition all citizens are urged to assist further in reducing the high cost of living by keeping chickens. By giving prominence to this request of the government the astute dealer in building materials of all sorts will not only aid his country, but likewise increase his own business, as the keeping of chickens presupposes a chicken house, runways, fencing, and very likely sheds for storing grains and tools.

An excellent campaign along these lines was recently instituted by a Litchfield, Ill., lumber and tile merchant, whose office was located in the business district of the town.

They paved the way for arousing public interest by their ads in the local paper, embellished with cuts of several chicken houses, and likewise of a number of breeds of fowls.

UNCLE SAM WANTS LITCHFIELDIANS TO RAISE POULTRY IN THEIR BACK YARDS

Aid your country in food conservation; reduce the high cost of living, and enjoy nourishing food by keeping a little flock.

SEE OUR WINDOW DISPLAY

Then come in and let us tell you how you can build an economical and practical chicken house, such other outbuildings as may be necessary, and how to get the best results from your flock.

An even better form of advertising would have been a card addressed to a selected list of householders both in town and country, extending an invitation to come and see their window display, and likewise consult them regarding the problems of chicken raising. Many people pay but little attention to general advertising, but thru curiosity, if for no other reason, would drop around to see such a display if the matter was brought to their personal attention.

In one of their windows was shown a chicken house 5 feet square, thru the glass doors of which could be seen a little flock of chickens. Cards on the wall, neatly lettered in black, advised:

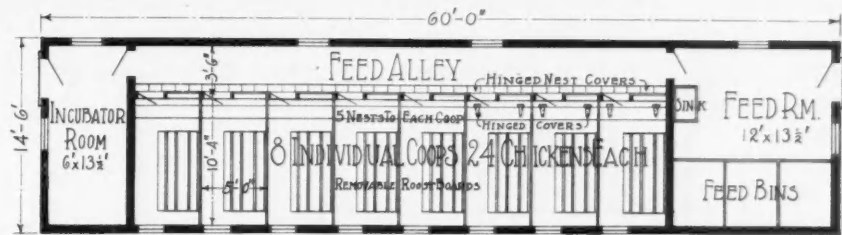
Every pound of chicken meat produced in America releases a pound of red meat for the soldier boys.

Keep a back yard flock—three hens for each member of the family—and aid in reducing the high cost of living.

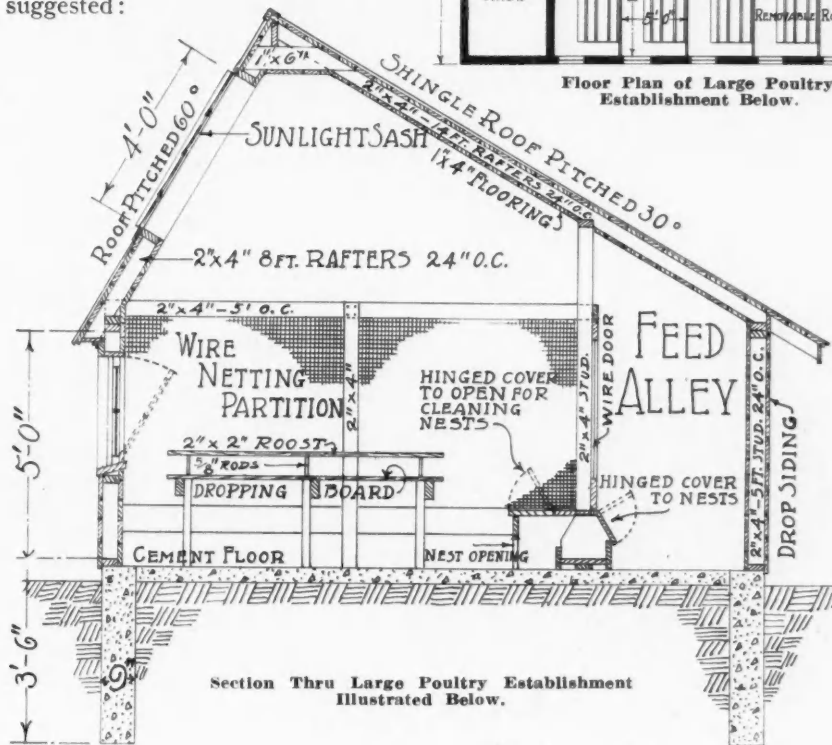
Down in front were the ground plans of a house similar to the one exhibited, but larger (8x8), suitable for housing a flock of from 25 to 30.

Inside, along one side of the wall, were shown rolls of wire fencing, hen coops, and wire frame 6 feet long and 3 feet wide, covered with one inch mesh wire. It was made of 2x4 lumber, with an additional

piece across the center to support the wire when the hens stood on it. Up thru the meshes of the wire green oats were shooting, and a card on the wall behind it suggested:



Floor Plan of Large Poultry Establishment Below.



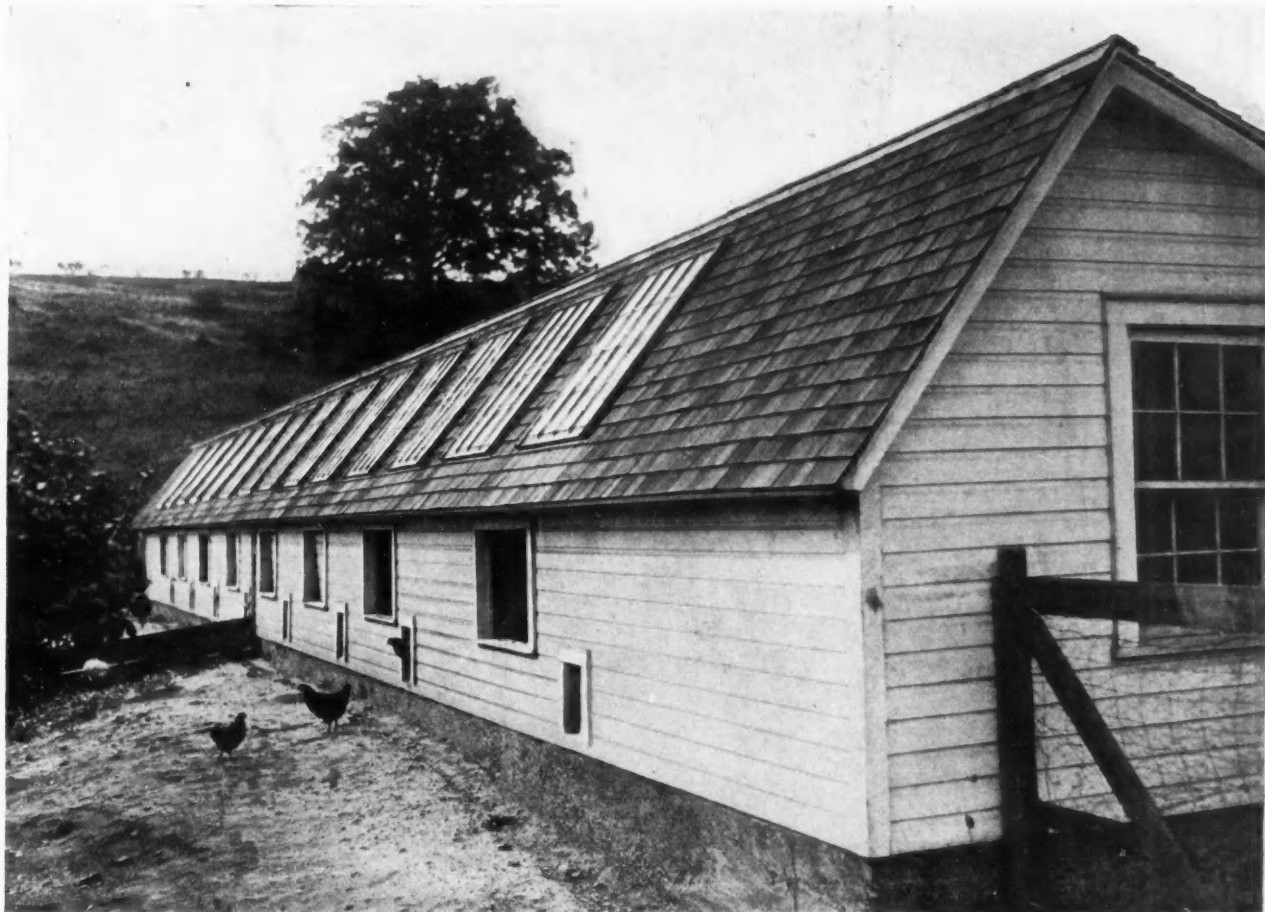
Section Thru Large Poultry Establishment Illustrated Below.

WIRE FRAME FOR SMALL CHICKEN YARD.

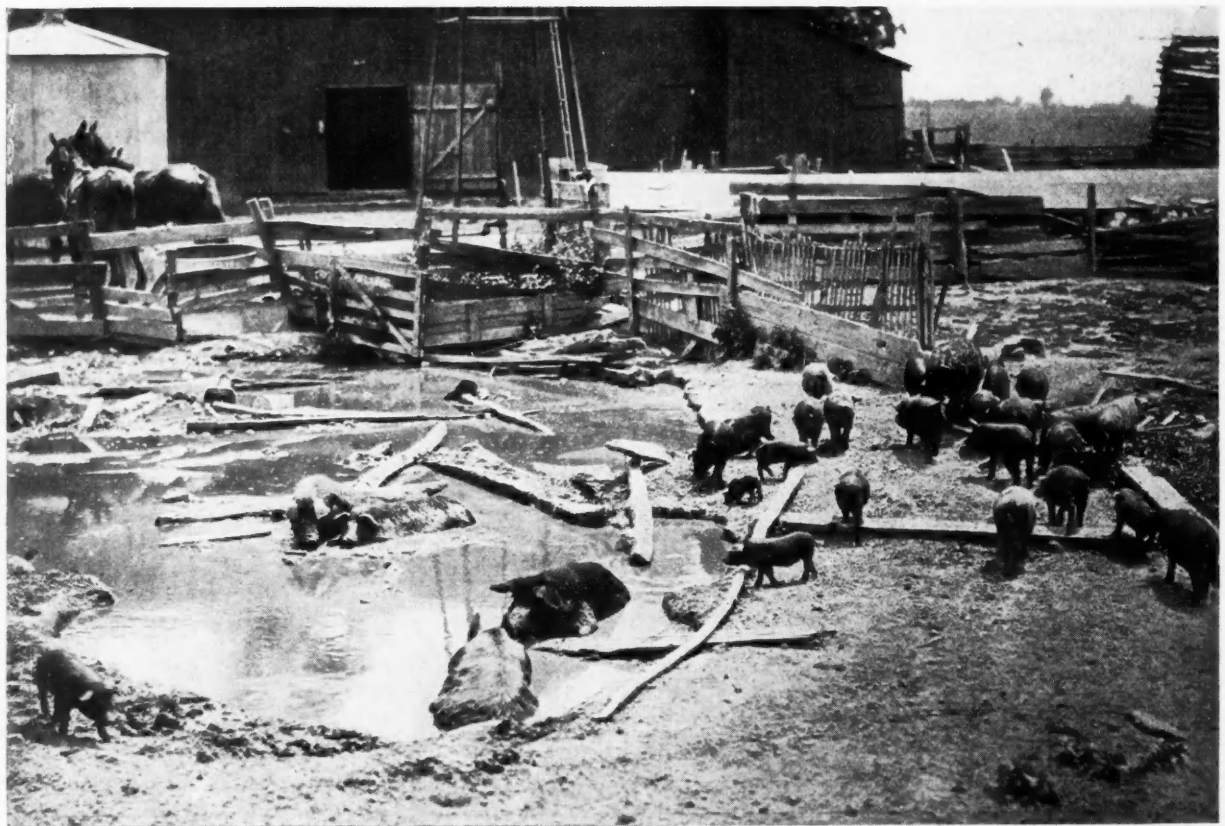
Where space is not available for two yards, to be used alternately, green food may be secured by use of a frame like this. Plant the crop beneath it and as the shoots come up thru the wire the hens will eat them off, but as they cannot eat them down to the roots the sprouts will continue to grow and supply new green material.

A publicity campaign such as this is sure to interest scores of people, particularly suburban dwellers, the country housewife, as well as her sister in the city, and is sure to result in many questions being asked. Of course anyone in the office can supply all the neces-

(Continued to page 146.)



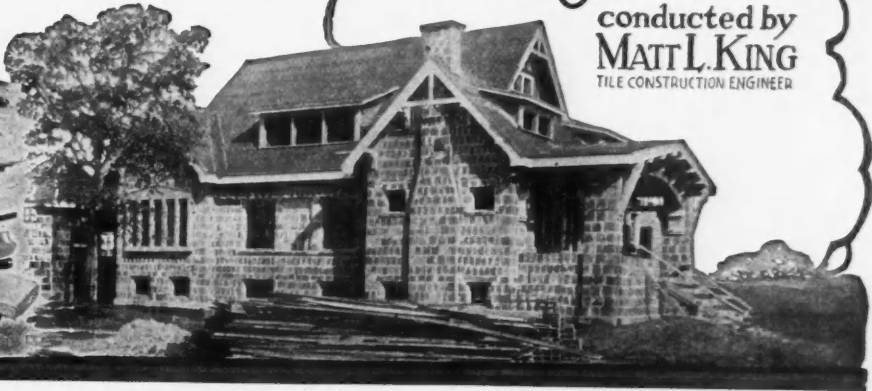
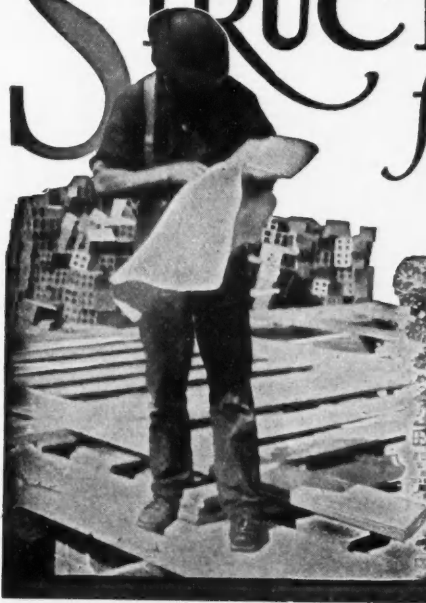
Type of Large Poultry Establishment. For Plan and Section See Above.



A CONTRAST IN PIG LOTS. This improvement doesn't cost much and is easily done. It is a money-maker for the hog raiser. Insanitary conditions too often seen in the feed lot, in contrast with sanitary concrete feeding floor illustrated above.

STRUCTURAL TILE WORK

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



conducted by
MAT L. KING
TILE CONSTRUCTION ENGINEER

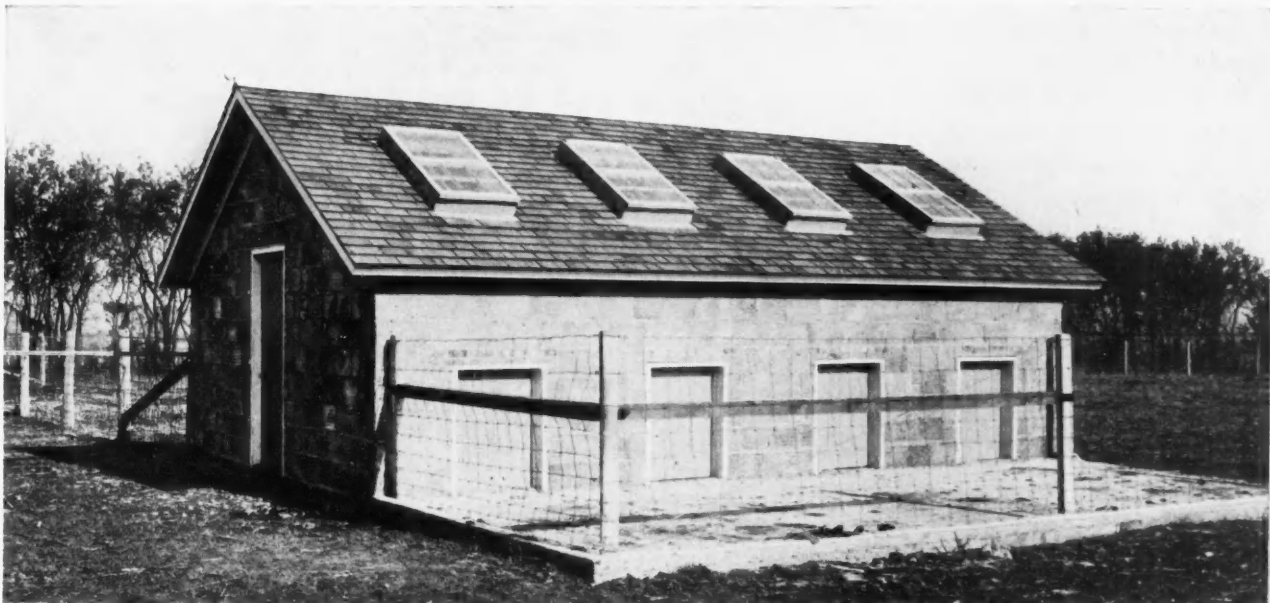
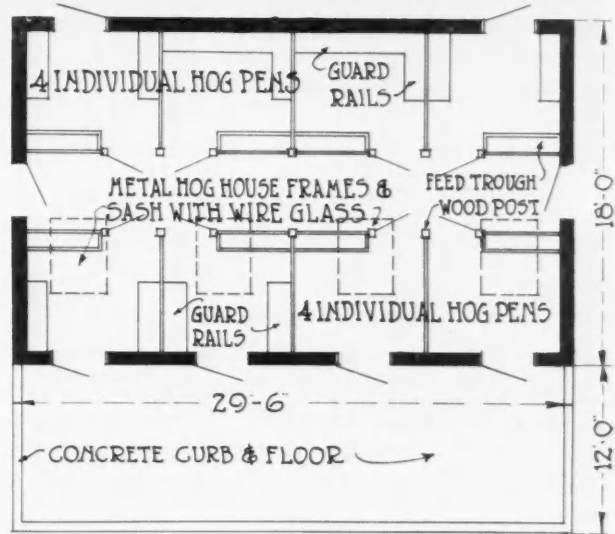
Constructing the Smaller Farm Buildings for Keeps

Hollow Tile Is Easy to Use and Makes Permanent Buildings

THOSE who build of structural tile are pretty apt to build again, using the same material. If the dairy barn is put up with hollow tile basement walls, the chances are good that before very long there will be a new hog house, poultry house, silo, or milk house constructed also of hollow tile.

The reason is that the farmers admire the looks of the smooth, clean tile walls; they appreciate the snug warmth and dryness of these buildings inside; and they relish the permanency which they feel the use of this material gives them.

When the farmer makes a building improvement he likes to feel that it will last—that he won't have to be doing it over again in the course of a few years.

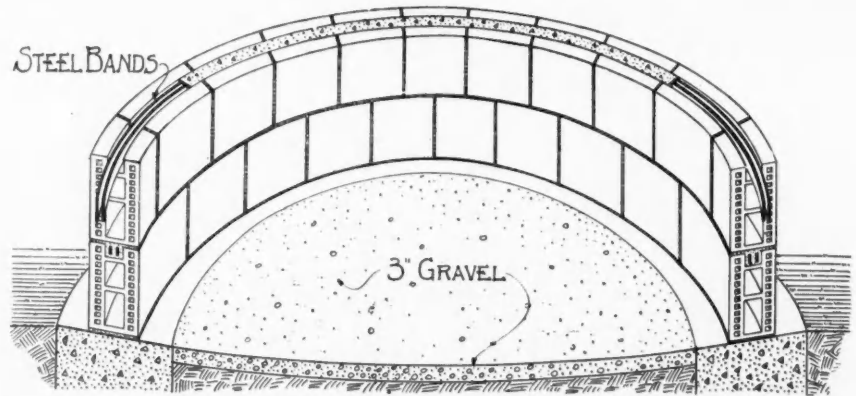


Photograph and Floor Plan of Hollow Tile Hog House, Size 18 by 29 Feet 6 Inches, Containing Eight Pens and Lighted by Four Roof Windows.

Building Improvements to Aid Food Production



The Circular Tile Ice House Is Built of Silo Blocks Curved to the Proper Circle and Reinforced with Steel Bands in Each Course of Blocks.



A Permanent Ice House on an Iowa Farm. Similar Buildings Are Used for Granaries, Root Storage, Etc.

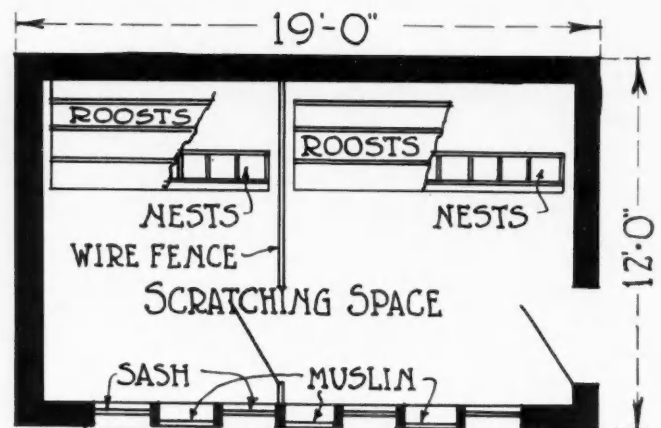
He figures that it is worth a little more and will save him money in the long run to have the work done thoroly in the first place.

In a great many localities the local lumber dealer carries in stock the tile commonly wanted for farm buildings. An assortment of a very few shapes and sizes serves every purpose. More and more the local builders are becoming acquainted with tile and have no trouble in laying up a first class job.

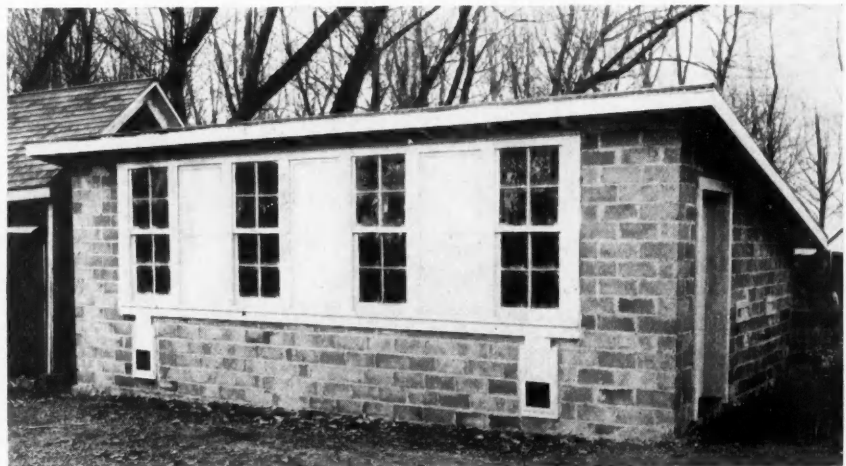
This year, all the emphasis should be put on building improvements that will aid food production. We must raise more live stock, more grain, roots and fruit; and then take care of what is raised that it may all be utilized. This will

require building improvements — temporary make-shifts possibly, but wherever it can be done, permanent improvements which will add to the value of farm lands and make for general prosperity.

The structural tile community hog house, the circular ice house, and the open front poultry house illustrated are very useful buildings. It would be hard to find any more important. Build them this spring so that part of the high priced crop money may be invested in lasting improvements, and also that Uncle Sam's total of food production and crop food utilization may be increased.



Floor Plan of Tile Poultry House Illustrated Below.



Permanent Poultry House of Hollow Tile, Well Liked for Its Warmth, Dryness and Freedom from Vermin. The "Open Front," Composed of Alternate Glass and Muslin Panels, Gives Light and Ventilation.



A Very Pretty Two-Car Garage of Hollow Tile, Stuccoed. The Doors Are Hung in Two Groups of Three Panels Each, Arranged to Slide Back Around the Corner Inside.

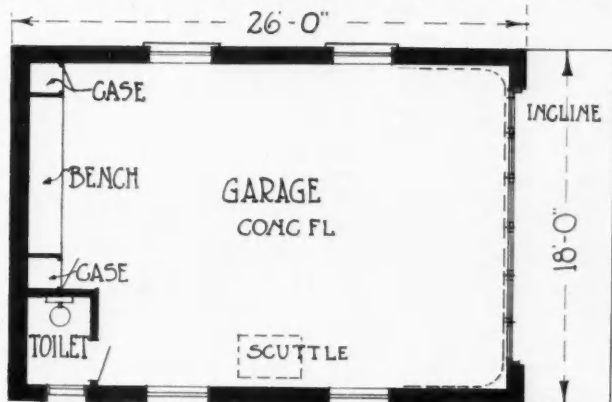
When I Build a Garage

SOME day I am going to, in order to get away from the high cost of "boarding" at the public garage. I will build my garage in the back yard close to the house, and will make it as nearly fireproof as I can. That is, the floor will be concrete and the walls hollow tile.

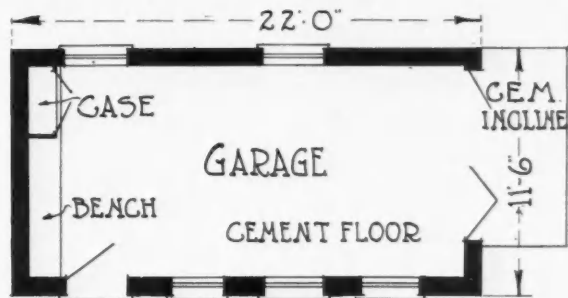
It is fifty-fifty with me whether the tile surface is stuccoed or, vitrified tile being used, the dark brown surface of the tile itself is left exposed. Both are good looking, and both give good protection for the car—which is the important thing.

If I build a double garage I will make it 18 by 26 feet, and if for one car, 11½ by 22 feet. I want plenty of windows and doors that operate easily. I know that there are several first class ways to hang garage

doors, and special hardware for the purpose, and I am going to look into them all very carefully before I decide; because a hard working door or one that is not weather-tight is an everlasting nuisance. B. L. J.



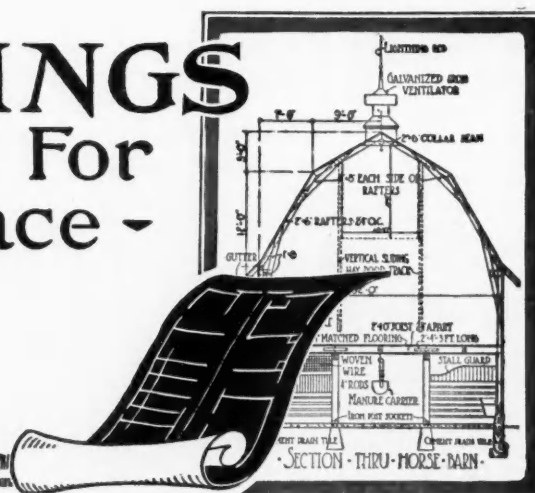
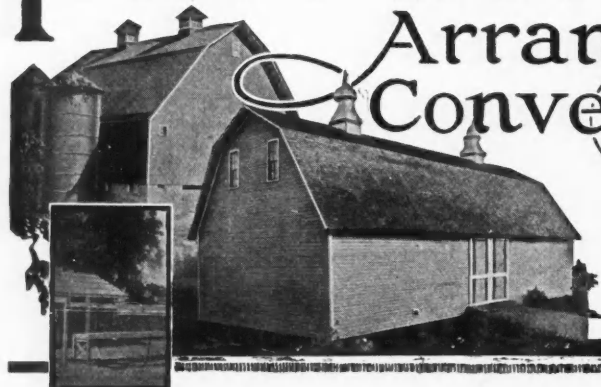
Floor Plan of Two-Car Stuccoed Tile Garage Illustrated Above.



Photograph and Floor Plan of One-Car Tile Garage. The Variety of Coloring in the Tiles Makes a Pretty Wall.

FARM BUILDINGS

Arranged For Convenience -



A Barn That is "Different"

Photographs and Floor Plan of Gothic Roof, L-Shaped Barn for Cows and Horses, Built Near Wimbledon, N. Dak.

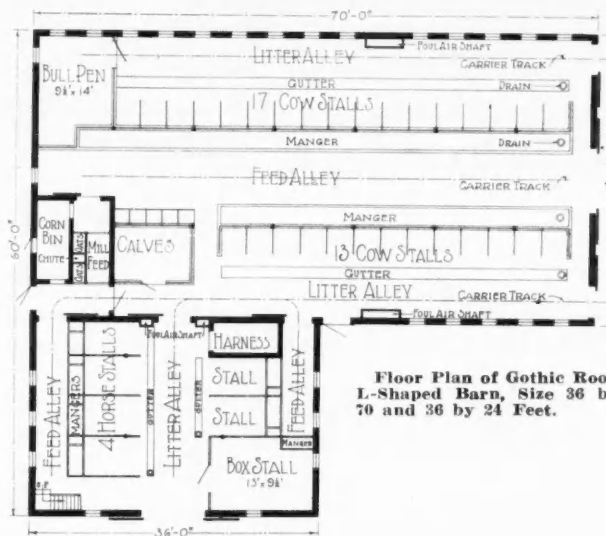
GOthic roof barns—those with curved roofs in the form of a pointed arch—are getting to be quite common. There are a few leaders among the farmers in every community who occupy a conspicuous position and who favor the unique or distinctive type of farm building for that reason. These like the Gothic roof barn. Even if the cost should be a trifle more, they gladly stand it because of the distinction which a big barn of this type gives a farmstead.

The L-shaped barn with a Gothic roof is not so common. Barn builders have worked out a standard solution to the roof framing problem of the Gothic barn and it seldom gives trouble any more; but when Contractor Wm. C. Ruben and his men undertook to roof this L-shaped building they were up against a new proposition in the curved hip and valley rafters where the two roofs intersect.

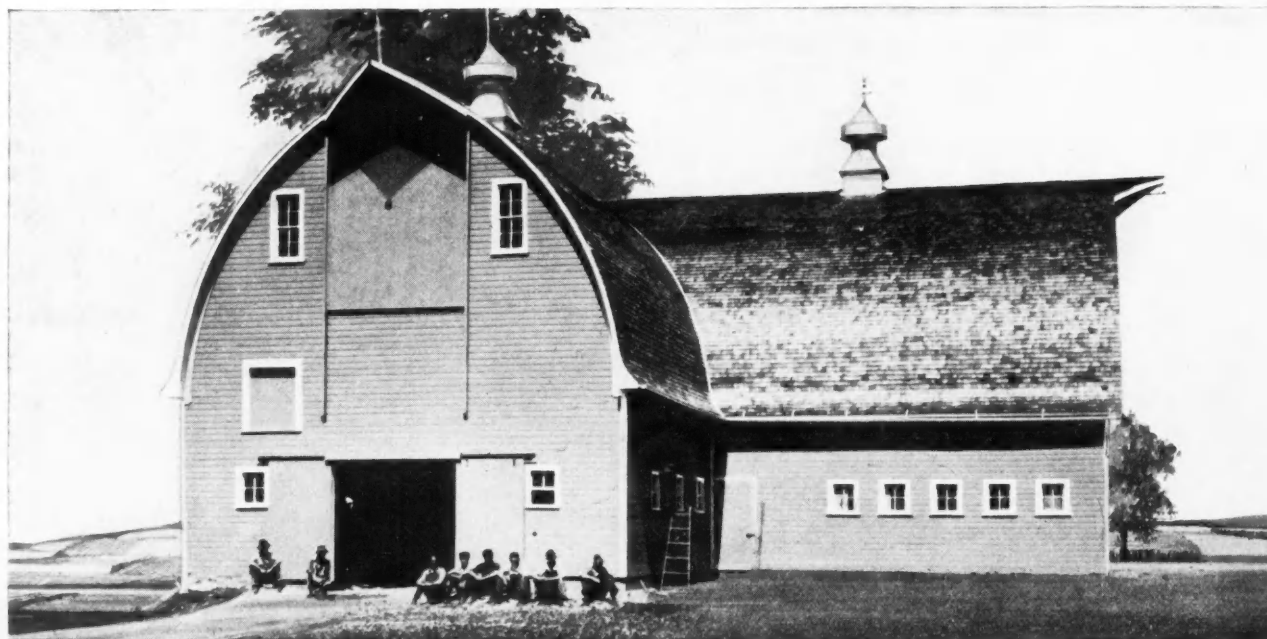
It is the same problem, but on a much larger scale,

encountered in building a curved ceiling in a square room.

A close examination of the two photographs of this job during construction will be both interesting and in-



Floor Plan of Gothic Roof, L-Shaped Barn, Size 36 by 70 and 36 by 24 Feet.



Contractor Wm. C. Ruben and His Men Are Proud of the Finished Job—A Gothic Roof, L-Shaped Barn, Near Wimbledon, N. Dak.

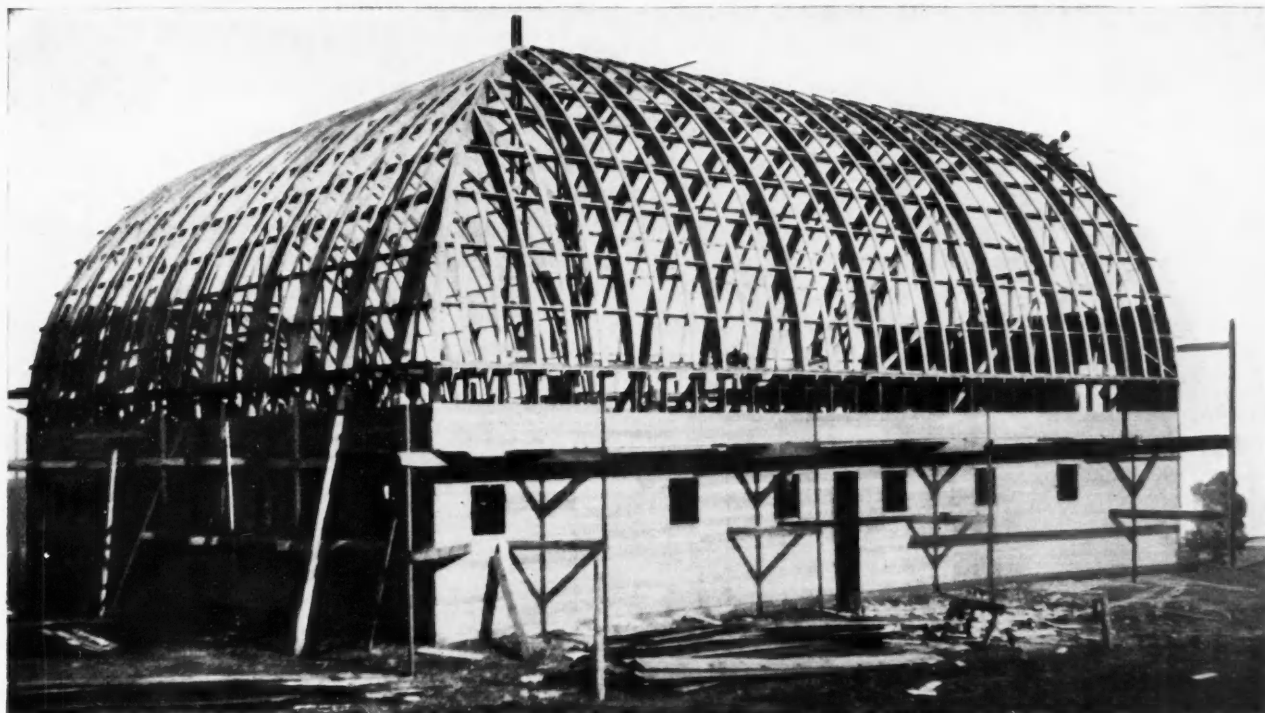


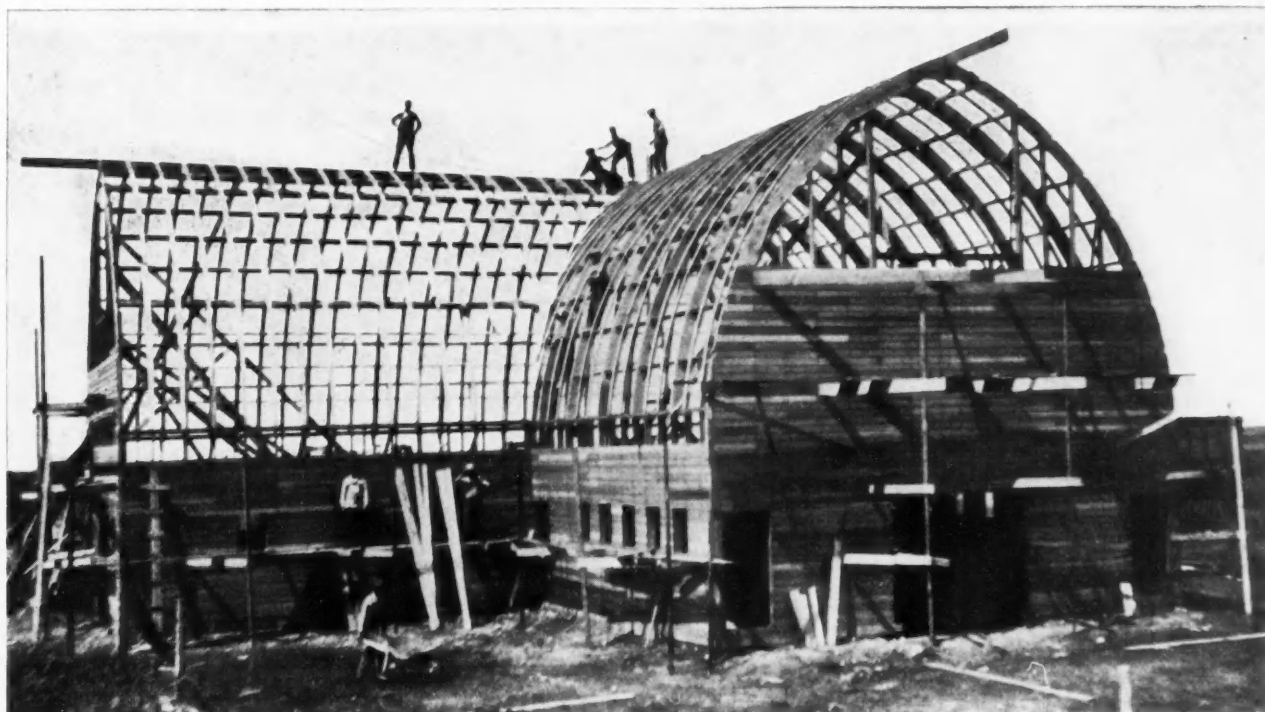
Photo During Construction Viewed from the Rear. The Curve Hip Rafter Where the Two Parts of the Roof Intersect, Requires Considerable Skill to Lay Out.

structive to other builders. The hip and valley rafters are made very heavy. Their curvature is, of course, not the same as that of the common rafters, but corresponds point for point the same as a straight hip or valley corresponds to its common rafter. The task is to lay out the diagram and fashion the curves on this huge scale.

This style roof is self-supporting with an absolutely clean mow with no purlin posts or braces of any kind,

that is, extending below the curved ribs. Several lines of boards are nailed on diagonally across the roof from one end at the plate up to the ridge at the other end to act as wind bracing.

Turning to the stable floor plan of this barn, you see an excellent arrangement for taking care of both cows and horses in the same building. Stalls for thirty milch cows are arranged in the main section of the barn, while the horse stable is in the "L."



L-Shaped Gothic Roof Barn During Construction. Every Fourth Rafter Is Built Up to Form a Strong Rib. The Outside Edge Is Sawed to the Circle. Intermediate Rafters Are Bent to Shape Over the Cross Ribs.

Two Successful Pigeon Plants

THE PROFIT AND FUN OF RAISING SQUABS—HOW TO BUILD A SMALL PIGEON HOUSE AND A LARGE ONE

By F. Arthur Hazard

Secretary American Squab Breeders' Ass'n.

WITH the ever-soaring prices of meat, it behooves the man who has a back yard to put in a few pairs of good pigeons and raise squabs for his table. This can be done on a small scale, and one will be surprised to see what can be accomplished. There is no more toothsome meat known than that of the young pigeon—the squab.

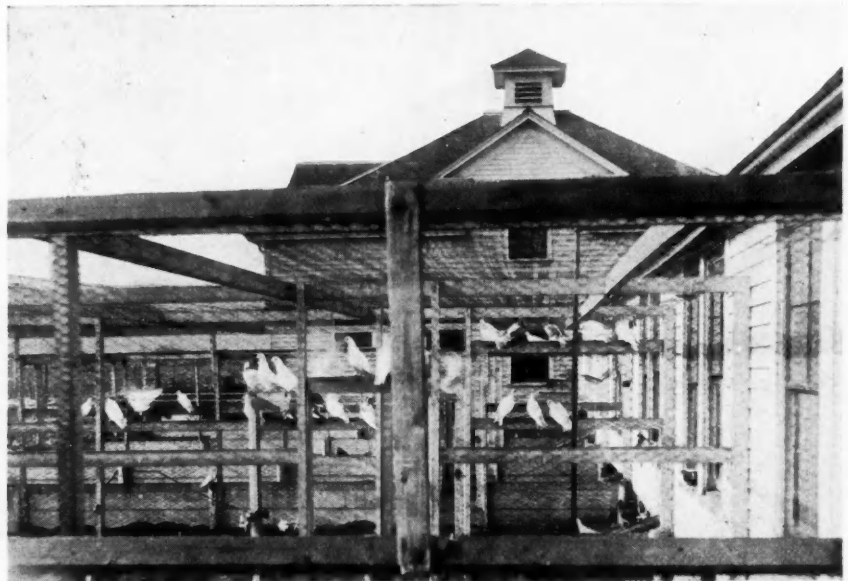
The squab is hatched in seventeen days from the date that the egg is first laid. In four weeks from the time the squab is hatched it is ready to be killed and eaten. A remarkably short time for meat to grow to such a size that it can be consumed. It is one of the fastest growing meats that we know of, being unlike the chicken, which takes a great deal longer to grow to killing age.

Therefore, for the person who wishes to enter this industry, whether on a large or small scale, I have drawn the accompanying plans, so that he might have a guide by which to build his pigeon house.

How to Build the Small Squab House

Let's take the smaller of the two houses. Here is shown a two-room house that will easily accommodate fifteen pairs of breeders in each room, with plenty of

room to spare. In each room there are nests on either side. In this manner the nests are somewhat darkened, which is preferable, as a pigeon does not like a light ray flowing into its nest. These nests need not be constructed as shown, but may be made from orange



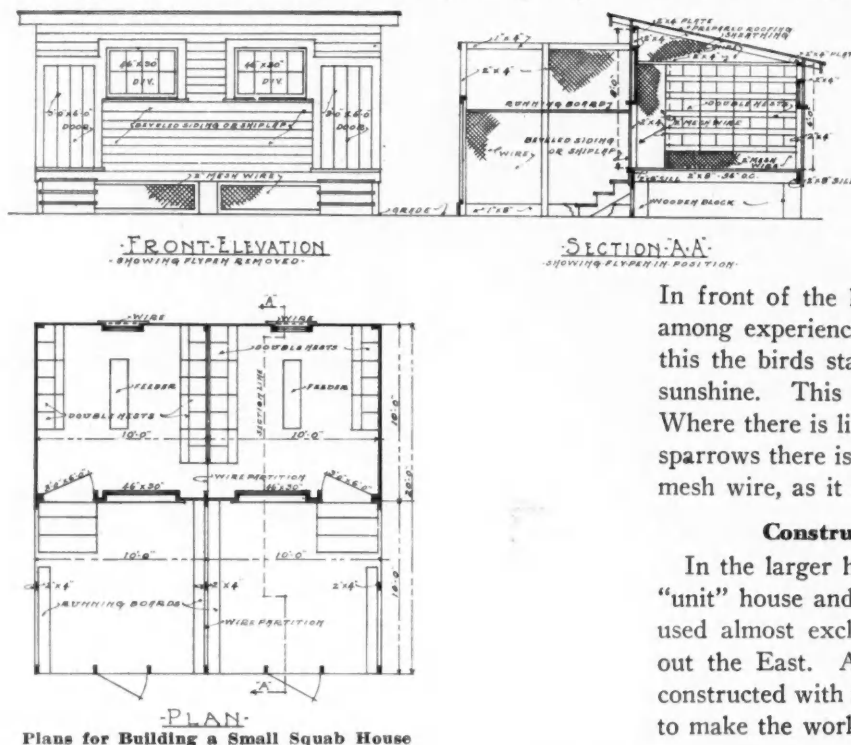
If You Have a Back Yard Build a Pigeon House and Raise Squabs for Your Table.

crates, which are much cheaper than those shown on the plan. When the orange boxes are used, a series of shelves must be placed on which to rest these boxes, so that cleaning may be effected more easily than if the boxes were just piled up on each other. Each room has a window in both front and rear. That one in front should be of glass, while the rear one is simply an opening covered on the outside with small mesh wire. A solid board blind is here used when it is desired to close up this opening.

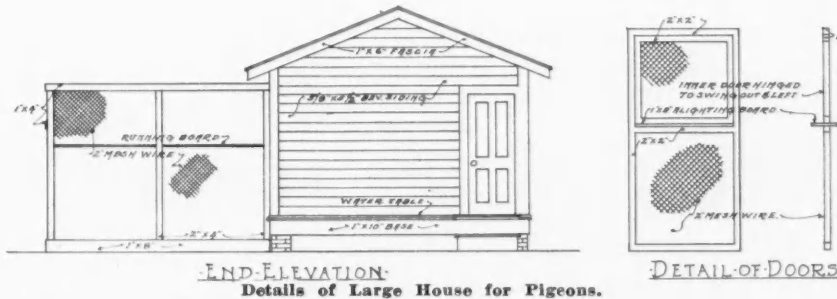
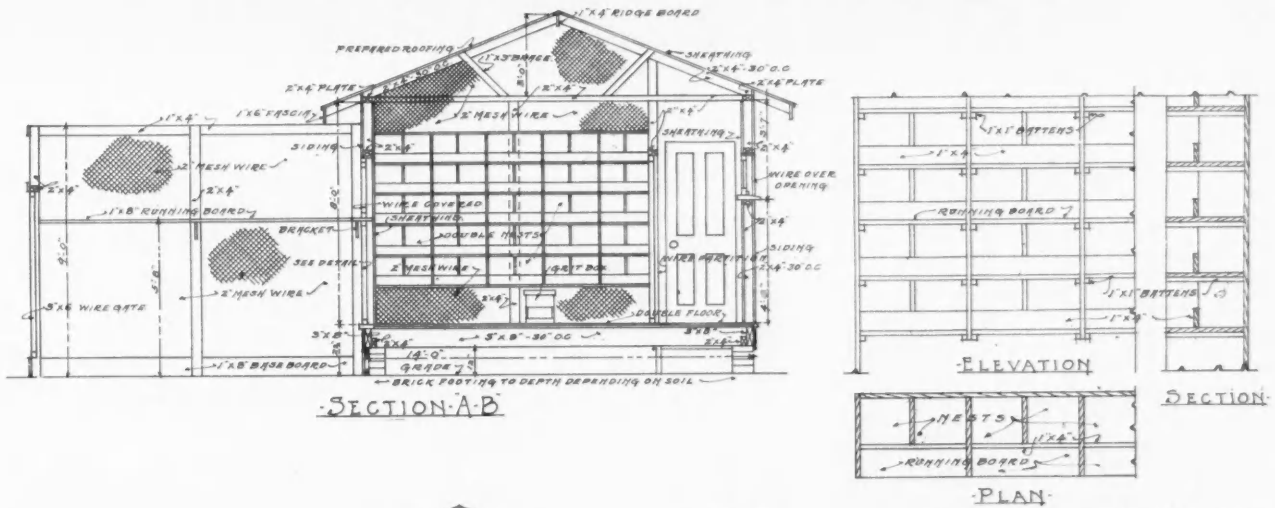
In front of the house is the cage, or what is known among experienced pigeon men as the "fly pen." In this the birds stay when off duty and to bask in the sunshine. This is covered with 2-inch mesh wire. Where there is little possibility of being bothered with sparrows there is no use to cover this cage with 1-inch mesh wire, as it is far too expensive.

Construction of the Larger House

In the larger house we have what is termed as the "unit" house and that style of pigeon house which is used almost exclusively by the larger breeders throughout the East. As shown by the plan, this house is constructed with an alleyway down the rear of it, so as to make the work of feeding and caring for the birds



Plans for Building a Small Squab House



PART-DETAIL-OF-NESTS

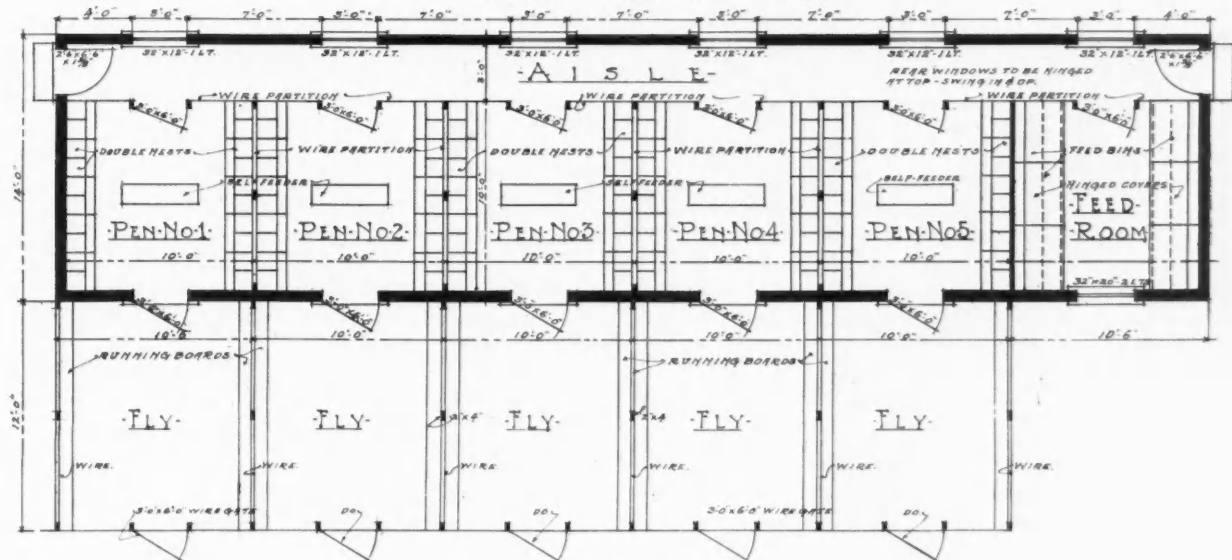
much neater than the boxes and are preferred by a great many. Instead of a window in the front of each pen we have here a door, which is nothing more or less than a frame built of 2 by 2-inch stuff, as shown in the detail.

more quickly accomplished. In each pen or nest room we can again use the orange-box nest instead of the built-in nests, as shown. In drawing these plans the writer showed the built-in nests, for in reality they are

The lower half of this is covered with 2-inch mesh wire. The upper half of the door has a removable frame inside that is also covered with 2-inch mesh wire. This is held in place by little thumb bolts



FRONT-ELEVATION



PLAN

Plan and Front View of Large House for Pigeons.

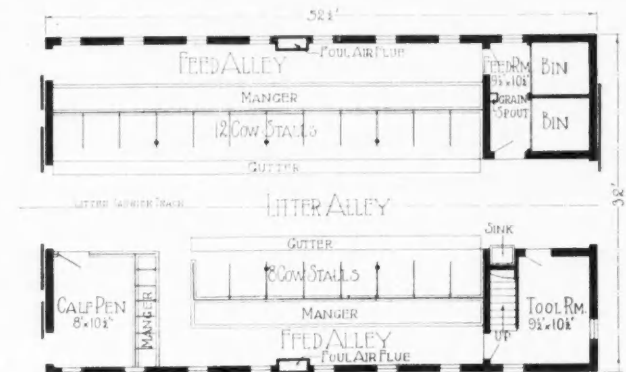


Barn for Twenty Cows Arranged to Face Out, so as to Drive Thru. Size of Barn Is 52½ by 32 Feet.

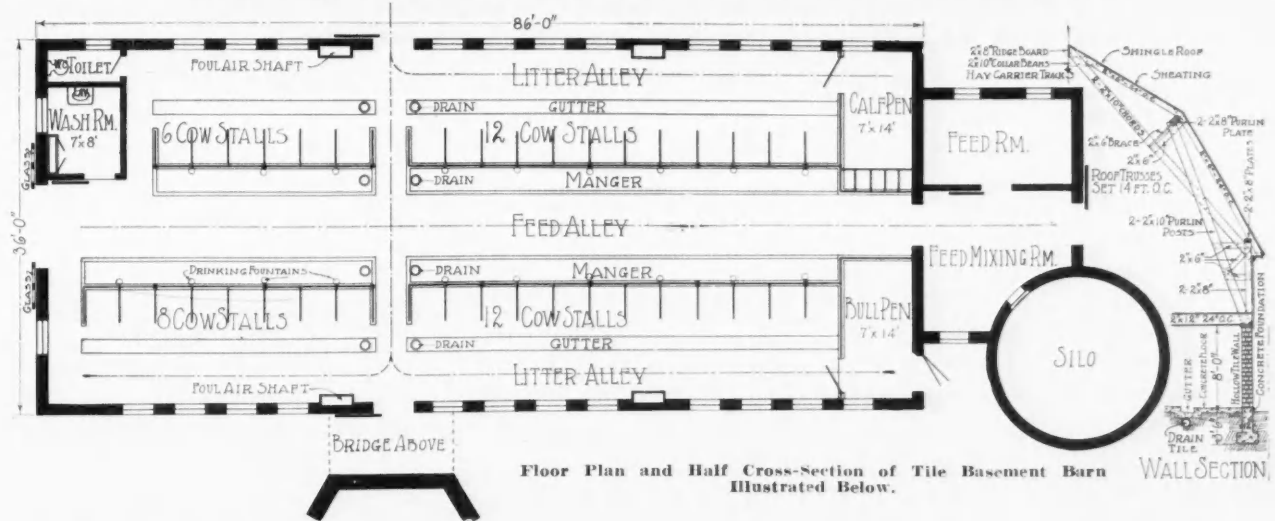
and is removed when it is not desired to close the birds up in the house. When the weather is warm the whole door is swung out on its hinges and simply a large opening left for the birds to pass in and out. The partitions between the pens are of 2-inch mesh wire, as shown in the sectional view detail. The floor should be doubled, if at all possible, in order that the cold air from below may be shut out. In warmer climates one floor will be sufficient, but should not be filled with cracks. Groove and tongue stuff should be used if the price will permit.

As to the construction of the houses, a glance at the drawings and details will make everything clear, for we have given sizes, spaces and practically every dimension that is needed. Another advantage is that one will note that all sizes of lumber are stock sizes and such as are readily secured in every town or city. If the construction proves to be too expensive with the

siding as shown, square-edge boards, nailed vertically, with a batten over each crack, will do just as well, but, of course, will not look as neat. When the thin, beveled siding is to be used it is wise to use a covering over the studs on the inside of the house. I have



Floor Plan of Small Dairy Barn Above.



found from experience that the siding alone is not sufficient to make the house as warm as it should be, especially in very cold weather.

In concluding, I wish to state that the man who has business cares and worries can turn to nothing that will afford him more amusement and recreation than squab raising. The more care and attention you give them the tamer they get and the more you will learn

to like them. But just a little advice. Do not try to make a start with birds that are being sold off for a song, for you will rue the day that you bought them. No workman can accomplish much with poor tools. So with pigeons. Buy the very best that your pocket can afford, and you will wear a smile and still be breeding pigeons when the other fellow has sold out and torn down his pigeon house for firewood.



Tile Basement Bridge Barn at Briar Comb Farm, Winona County, Minnesota. The Stable Floor Plan Shown Above Provides for Thirty-eight Cows in a Barn 86 Feet Long.

More Fire-Stopping Frame Construction

By Ralph W. Ermeling, Architect

SOME styles of architecture require a box cornice with a wood gutter trough similar to that shown in Fig. 1, and others, like gambrel roofs, have overhanging eaves or cornices, much as the case illustrated by Fig. 5. If a fire originates in the lower part of the building and passes up thru the wall between the studding, there is nothing in the ordinary construction to prevent it passing on up into the garret or top floor as the case may be. The board shown in Fig. 1 holding the fire-stopping in place is the chief fire retardant in this detail, altho the main plate above serves the same purpose. It should be noticed, however, that without the lower board set where it is, flames could pass up between the floor joists. The boards set on edge between the joists help to prevent the passage of fire and also act as a retainer for the mineral wool or other incombustible material used for filling.

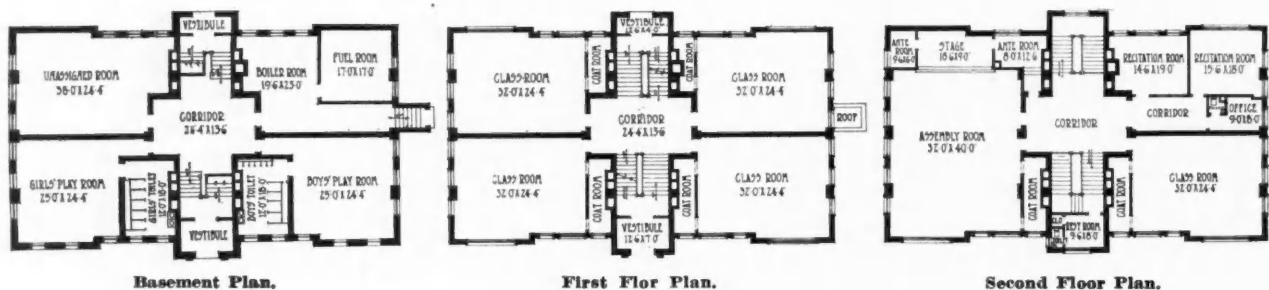
This form of construction, and that of Fig. 5, tends to prevent fire from a nearby building breaking thru into the attic space. Such fire-stopping will protect

also against fire which might lap up under the eaves thru the windows from a fire below within the house itself.

Fire chiefs report that fire from a burning porch is frequently carried thru stud walls to the attic or upper story of a house. How this may be avoided is shown in detail in Figs. 6 and 7, the former with a porch built out from a straight vertical wall, and in the latter where a room on the second floor overhangs part way beyond the face of the wall below. Asbestos or sheet metal is recommended for a facing over the sheathing which comes below the roof of the porch, and also a simply constructed wood enclosure or boxing for the incombustible filling where the fire might have a chance to pass thru the framing from the porch into the building. Even tho no filling is used, the wooden stops will prevent the rush of hot gases, smoke and flames from getting by.

There are buildings still erected where sliding doors

(Continued to page 140.)



Basement Plan.

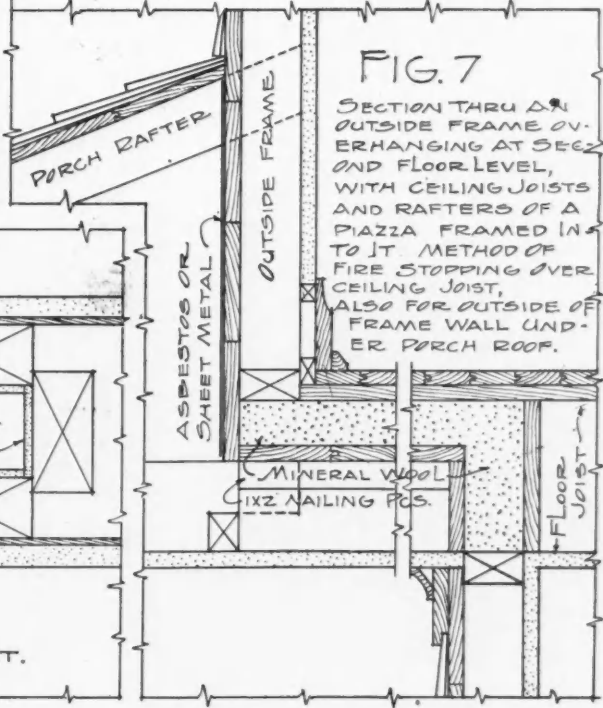
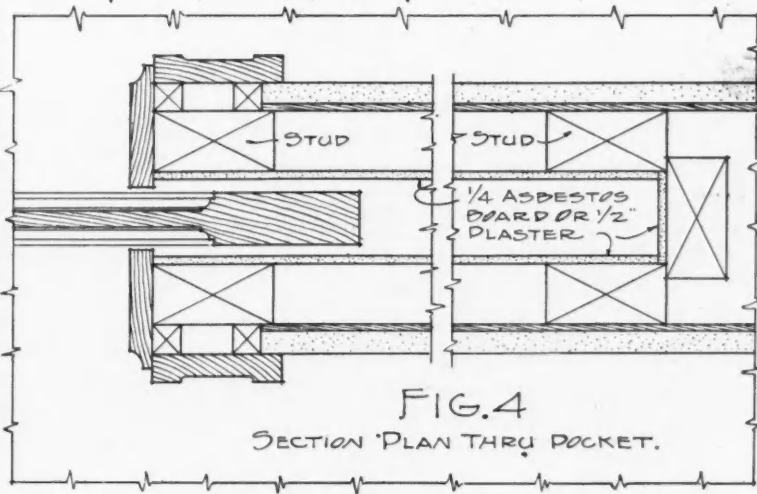
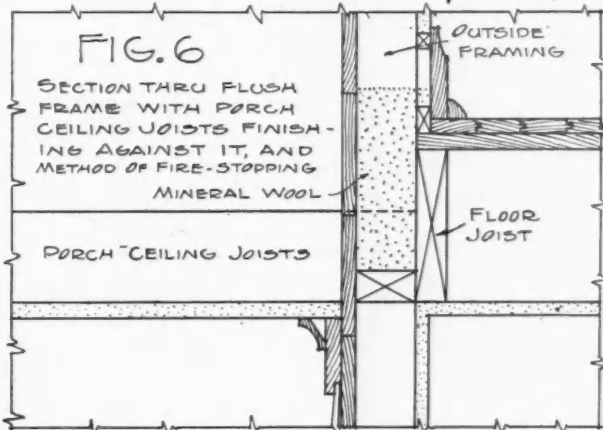
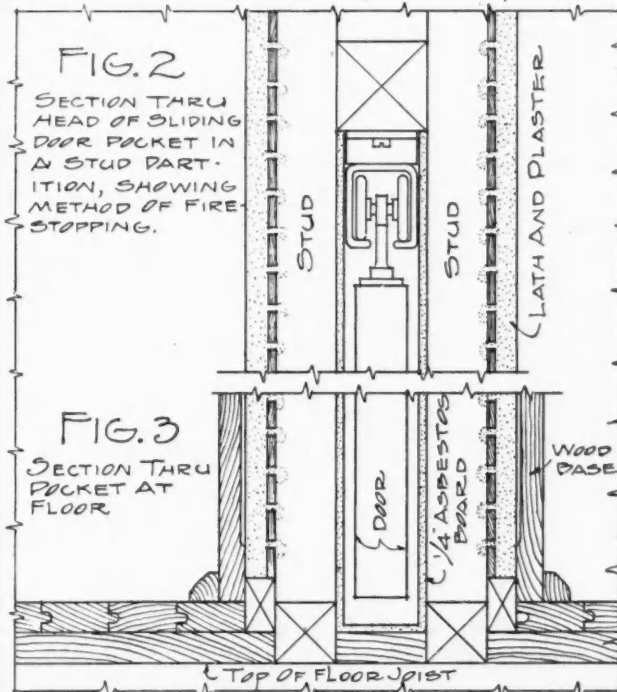
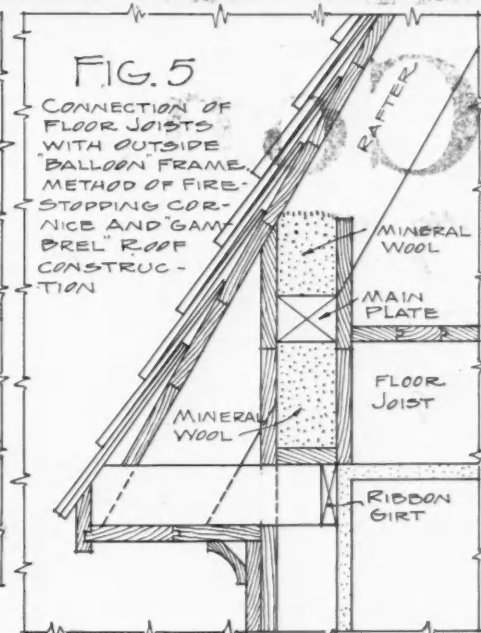
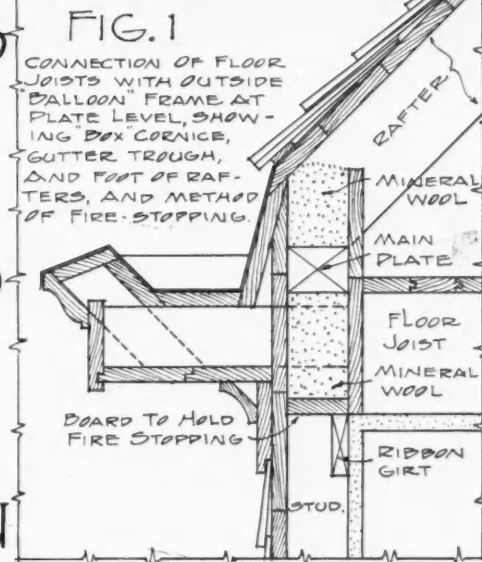
First Floor Plan.

Second Floor Plan.



New School at Bensonville, Ill., Designed by the Well-Known Chicago School Architects, Ashby, Ashby & Schulze.

DETAILS OF FIRE RETARDING CONSTRUCTION



Details of Fire Retarding Timber Construction, Showing How to Do It the Better Way.

Come on Men 250,000 of You!

Launch a Blow at the Kaiser by Helping Launch a Ship

Who says we can't build ships!

Come on you loyal American Mechanics, masters of familiar trades, and brand this "made in Germany" insinuation by building a bridge of ships to Pershing.

You can't do your country a greater service than by exchanging your good American brawn and skill for good American dollars—in the shipyard. And you'll do as much to win the war as the men dependent upon you in the trenches. Ships, men, are the pivot on which the destiny of this country turns, and Uncle Sam is looking for 250,000 U. S. shipyard volunteers to build them.

Listen!

Every rivet driven in the shipyards brings us nearer to the successful termination of the war.

To do our fair share our shipbuilding program calls for 6,000,000 tons a year, or over a thousand ships. We must have them to win. We must have them to keep the wheels of American industry moving and American labor employed in the factories.

The Shipping Board has the money, the materials and the yards to carry out this 6,000,000 ton program, but it needs men to assure these thousand yearly launchings which will hurl their tidal wave toward Germany. There must be an immense reserve of earnest skilled labor to draw on as fast as

plants are completed in the yards and housing provided.

This, then, is the purpose of this message—to ask your enrollment as a shipyard volunteer, for work in the shipyards when needed. Back up Uncle Sam and the millions of your brother workmen by your enrollment.

This does not mean that you are to give up your regular job and rush off to some shipyard which at the moment, may not be able to accommodate you. Quite the contrary! Your enrollment simply shows that you stand ready, when called upon, to do a particular job for a particular wage in a particular place. Everything will be in readiness for you, and you will lose no time.

And so highly does the Government think of your services that you are placed in a deferred class in the draft, as long as you are working on ships. The War Department, by arrangement with the Emergency Fleet Corporation, accepts shipyard work as a substitute for military service. That's how important Uncle Sam considers ship building and the men engaged in it.

"But," you say, "I've never worked on shipbuilding."

That's exactly why Germany thinks that America cannot build ships. Germany knows that there are not enough men in America who have



The Man of the Hour

actually worked on ships to make more than a tenth of the ships we need if we are to do any fighting worth while.

Here is where you American workmen can fool the Kaiser.

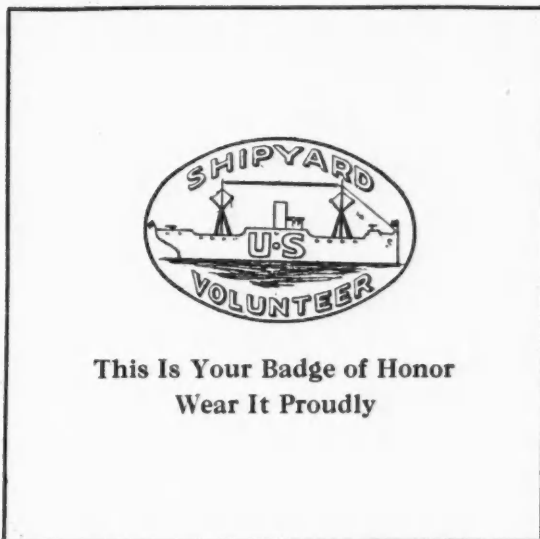
Ships are not things of mystery; they are merely big buildings afloat—the product of everyday skill and industry—and the American Mechanic (hats off to him) can build them.

Familiar trades—your trade—are the ones that build ships; and almost all trades are represented. Two-thirds of the occupations used in shipbuilding are common to other industries, like boiler making, car building, bridge building, carpentering, machine shop work, etc. The list given later indicates some of the classes needed. Read it carefully and see how you qualify.

If you possess the right sort of training now is the time to rally around this movement and wear a Badge of Honor. This button, issued by the United States Shipping Board, shows that the wearer, through enrollment in the

United States Shipyard Volunteers, has placed the welfare of the Nation above all else and stands ready by his labor to help throw across the seas a bridge of ships by which the armies of the United States can pass to do their duty on the fields of France.

To wear this button is a sign of distinction. It truly stamps the owner as the **man of the hour** in whose hands rest the happiness and security of every man, woman and child in this country.



Come on men—250,000 of you! Your Government is asking that you answer the rattle of German machine guns with the rattle of the riveter. It is asking you, for the present, to prove that you are the marrow of Americanism by going on record with an expression of your willingness to help build ships where you are needed. And it meets you half-way with good wages and deferred

class in the draft with all honors.

Can you turn a deaf ear to the call? Where can you qualify in the following list?

Acetylene and electrical welders
Asbestos workers
Blacksmiths
Anglesmiths
Drop-forge men
Flange turners
Furnace men
Boiler makers
Riveters
Reamers
Carpenters
Ship carpenters
Dock builders

Chippers and calkers
Electrical workers
Electricians
Wiremen
Crane operators
Foundry workers
Laborers, all kinds
Loftsmen
Template makers
Machinists and machine hands, all sorts
Helpers
Painters

Plumbers and pipe fitters
Sheet-metal workers
Coppersmiths
Shipfitters
Structural iron workers
Riveters
Erectors
Bolters up
Other trades
Cementers
Crane men

Clip the Coupon and Get the Full Story

Edward N. Hurley, head of the United States Shipping Board, is the mouthpiece of Uncle Sam in this call for shipyard volunteers. He has complete information on hand, ready to mail you, regarding method of enrollment and other details you may want to know. The coupon below is here for your convenience in writing. Don't delay. Fill in the information asked for, clip and mail. Your action in this matter will bring you full particulars.

Show that you are *interested* by doing this now, while the coupon is before you.

Edward N. Hurley, Chairman,
U. S. Shipping Board,
Washington, D. C.

I wish you would send me at once further information, telling me how I can enroll as a member of the U. S. Shipyard Volunteers of the Public Service Reserve for employment in shipyards and so help win the war.

My Trade is.....
My Name is.....
Street Address.....
Town.....State.....



Painting the Interior

WHAT THE MASTER PAINTER MUST INSIST ON IF HE WANTS TO TURN OVER A FIRST CLASS JOB

By Ralph G. Waring

Specification Engineer

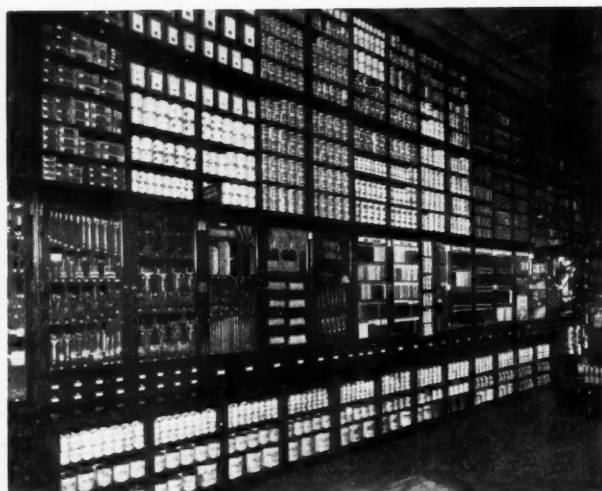
NOTE: This is the seventh of a series of articles by Mr. Waring. The eighth will appear in an early issue.

THE master painter who undertakes to handle the finishing contract under present-day conditions finds many exasperating circumstances which cause considerable friction before the contract is completed. Oftentimes the general contractor has been delayed and the outside work has not gone along as smoothly as it might had those columns arrived on time or the dormer trims had not had to be changed over. Then the plumbers have had trouble in getting their work installed, with the result that the floors are tracked up and paper and excelsior litter the once clean floor. The decorator appears with his curtain outfits just when it is advantageous to varnish the trim and floor for the last coat in several rooms, causing the master painter to wonder whether after all "It is better to smoke here than hereafter." Last of all, the owner comes along, looks proudly at his new possessions and as a last straw leaves behind the suggestion, "Hurry and finish up the job, so that I can get in here in a couple of days." And yet the master painter is expected to turn out clean, well-varnished and enameled work; walls free from finger marks left by other men than his own; well-polished floors, free from heel marks and scratches. The strange part of it is that ninety times out of a hundred he can stand the gaff from everybody and deliver a really good job in the end.

For safety's sake, however, the master painter should have it stipulated in his specifications that all inside work shall be complete and accepted; all

refuse and dirt removed from all rooms, closets and halls; that he will not be responsible for results if plumbers, masons, carpenters, decorators or others come in and cause dust, litter or other annoyance, while working on the fulfillment of his contract. If this is agreed to in black and white before the contract is signed, but little trouble will be experienced later on when the work is under way. No master painter need be afraid that he will lose a contract because of such insistence, for the owner, in nine cases out of ten, will respect him all the more for the evidence of care shown under the circumstances; especially if he has explained to him something of the why and wherefore and that he will be able to get into the new house more quickly because the contract can be more easily fulfilled.

No inside work should be attempted until the plaster has dried at least three weeks, nor should the last coat of outside finish be applied until after this time has elapsed. The priming and seconds coats on the siding protect the lumber from external moisture, cold and heat conditions, but at the same time I am convinced that they also exert a valvular action and allow internal moisture to escape. For this reason I much prefer to apply the last coat of finish on new houses after all the inside work of sizing, papering, painting and varnishing is done. Then the outside last coat will hold its gloss longer and the inside finish be brighter and more permanent, because it is not being influenced by undue moisture in the plaster



Orderly Paint Goods Display Helps Business for the Scholdinger-Marr Co., Columbus, Ohio.

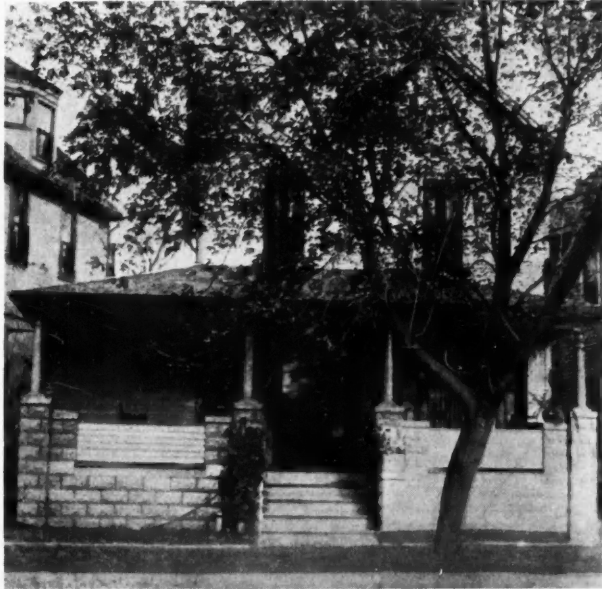
(Continued to page 140.)

Changing a Frame Dwelling Into a Modern Store Building

MR. J. W. Blashill, one of the most enterprising meat market men of Ann Arbor, Mich., conceived the idea last spring of remodeling a frame dwelling, which happened to occupy a very good business location, into a modern store building. He put the proposition up to Contractors E. Scheffer and

Carl Stole, who pronounced the idea practical and proceeded to work it out as illustrated in these photos.

The house stood fairly close to the street, so only a little had to be built on to bring it out to the sidewalk. The partitions were cleaned out in the first story and the floor was dropped to grade, giving a high ceiling for the shops. Face brick veneer and modern display windows completed the front. The second floor became two comfortable apartments.



Substantial Frame Residence on Packard Street, Ann Arbor, Mich., as It Looked before the Remodeling Was Undertaken.



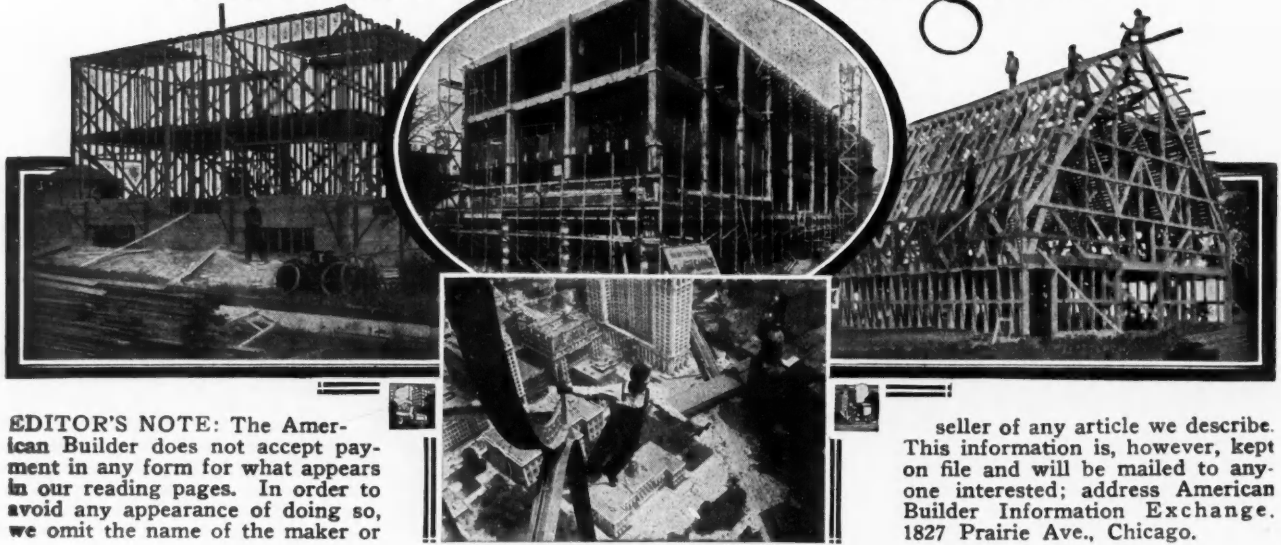
The Work Under Way. Framing Brought Out to the Sidewalk Line and First Floor Cleaned Out to Form Two Store Rooms.



A Face Brick Veneer Front and Modern Show Windows Have Completed the Transformation of the Old Dwelling Into this Modern Store Building with Flats Above.

OUT ON THE JOB

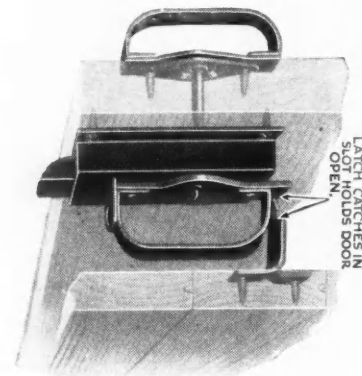
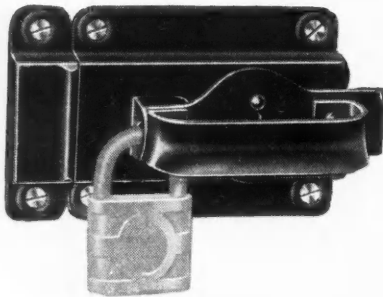
What Builders are Finding Good



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.

A New Swinging Door Latch



Barn Door or Garage Lath Closed and Locked and Acting as Holder When Door Is Open.

A new barn door latch has a handy loop of strong steel for a handle. A padlock, passed thru a hole in the handle loop and thru a corresponding steel bracket fastened to the case, locks the door securely.

A simple holder fastened to the side of the barn engages the latch when the door is swung open, holding it until released.

This new swinging door latch is very easily installed. All you have to do is bore a half inch hole for the handle and insert the screws. It can be used on doors $\frac{3}{4}$ inch to $2\frac{1}{4}$ inches thick.



Canvas Roofing Makes Good

Canvas roofing has long been recognized

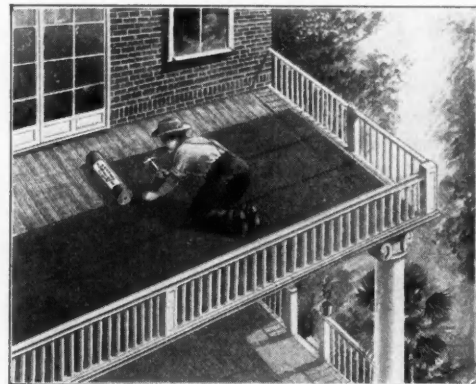
by representative builders as the roofing material that withstands constant wear and tear. It is also used to cover porch floors, and when the up-to-date builder has a porch floor to cover that is subject to hard usage he turns to canvas. The result is that canvas roofing covers the roofs and porches of many of the leading residences thruout the country.

It is rapidly demonstrating its superiority because it does not expand or contract, because it is noiseless, and because it is not affected by tread of feet or drip of rain.

Some builders have objected to canvas roofing because they thought or imagined that it was difficult to lay. This objection may have come from their experience in handling canvas

which had not been treated for roofing purposes, but an Eastern manufacturer has produced a canvas roofing made waterproof by a special process that also prevents its being affected by heat or cold. It is soft and pliable and is easier to lay than a carpet. It fits smoothly and snugly into the various nooks and corners which so often trouble the builder or workman who uses ordinary untreated duck.

Another strong point is that this prepared deck cloth is not



Showing How Roof and Deck Cloth Is Applied.

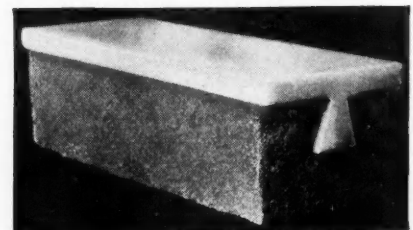
laid in wet paint, and only one coat of paint is needed after laying.

Some interesting comments regarding the laying of both untreated canvas and treated canvas are shown in a collection of letters compiled by this company.



Glass Brick a New Building Material

We are privileged to reproduce a photograph of the new glass brick, which comes from West Virginia, and is making a stir in the building material field. The glass facing of this brick



Glass Faced Brick.

is ¼ inch thick, and develops a crushing strength three times as great as granite. This facing is held rigid by a dove-tail firmly indented in the concrete base.

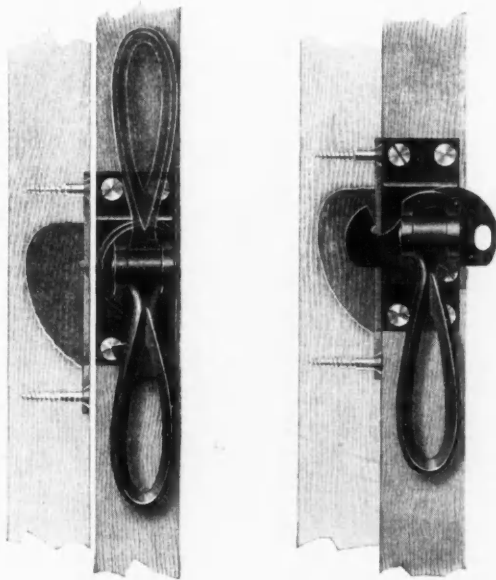
The glass brick is made in various colors and in about 400 shapes. It is offered as an ideal finishing material for bathrooms, hospitals, hotels and restaurants. Mantles of glass brick are already becoming popular in many of the newer homes. Glass floor tile is made of the same quality glass for use in banks, comfort stations, waiting rooms, etc.



A Draw-Tight Door Bolt

A new door fastener draws doors tightly together or against the building, making them weather-proof. The outfit as illustrated is attached to the end of single, double or parallel doors. When in the locked position a hole in the draw plate is uncovered thru which an ordinary pad-lock can be inserted, thus preventing operation of the bolt and preventing theft or trespassing.

This new draw-tight door bolt is used on garages, implement sheds, stables, etc. It is strongly made of malleable iron.



Edge of Door Showing Draw-Tight Bolt in Unfastened and Fastened Positions.

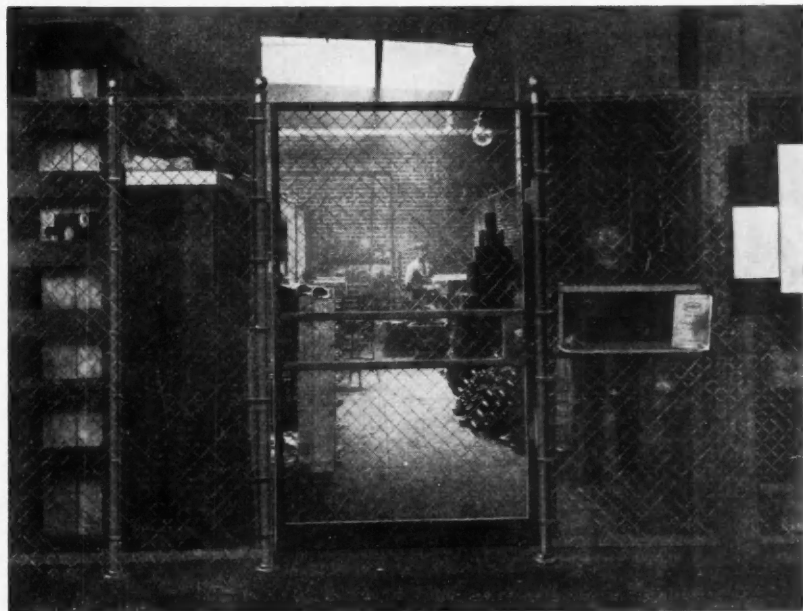


Chain-Link Partitions for Stock Rooms

The factory stock room needs a strong pilfer-proof partition, but one that does not cut off the light. A special woven wire fabric has been developed for this purpose. It is light, durable and sightly. Its spring-like construction makes it resilient, hence impervious to hard blows, which will permanently deform the average rigid fabric.

The manufacturer or warehouse manager should face up to the questions—How is your stock room protected? Are your machines properly protected? Have you wanted to enclose certain parts of your plant, but have not done so on account of cutting off the light?

If so, you should investigate this chain-link partition fabric.



Partition of Lock-Link Fabric Shuts Off no Light. Notice Wicket and Locked Stock Room Door. Here Is Real Protection.

It can be attached to columns or ceilings, or, best of all, can be self-supporting on pipe posts without braces. Such a partition is only one-half inch in thickness, and no space is wasted.



Roof Windows "Let the Sunshine In"

Put the little pigs or other young stock under the ventilating roof windows and see the light and warmth of the sunshine of winter and early springtime breathe vigor, growth and health into the little fellows. At that season there is none too much sunshine. Get the greatest good from it. It is equally



Sheet Metal Frames Are Self-Flashing.

as important as the feed, and produces that sturdy animal life, thru which a large portion of the crop is to be marketed, and the purse abundantly filled.

These windows, with frames and wide flashings of metal, and each made to receive two 10 by 30-in. D. S. glass, are easily opened and automatically held in the proper position to admit just the right amount of fresh air to prevent overheating as the heat of the sun increases.



The total amount of timber cut on the national forests in the fiscal year 1917 was 840,612,000 board feet, as against 714,505,000 board feet in 1916.

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

Remodeling an Old Fashioned House

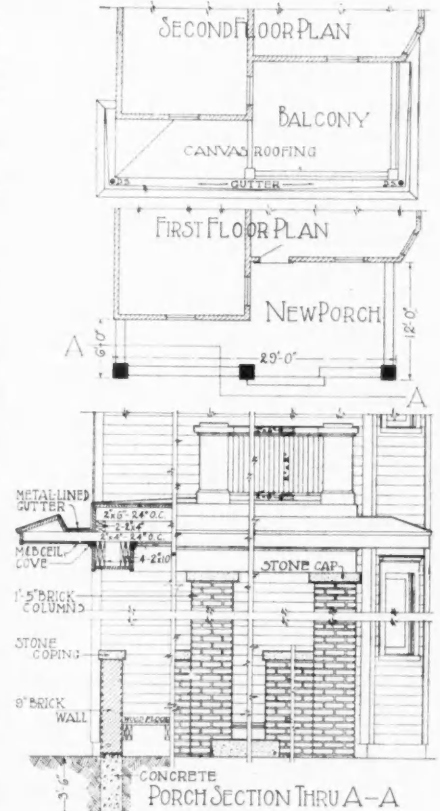
THESE is many a well built house that is not giving the service and satisfaction it ought, because of its skimpy, old-fashioned front porch. Mr. P. Ackerman, a contractor and builder of Galt, Ia., has such a house and has put it up to us to make some remodeling

suggestions. A porch of face brick with square columns and stone trim extending clear across the front, and with a flat balcony above, would be worth a good deal more than it would cost and would change the entire appearance of the property to a surprising degree.

The drawings show how this would be done and what the effect would be.



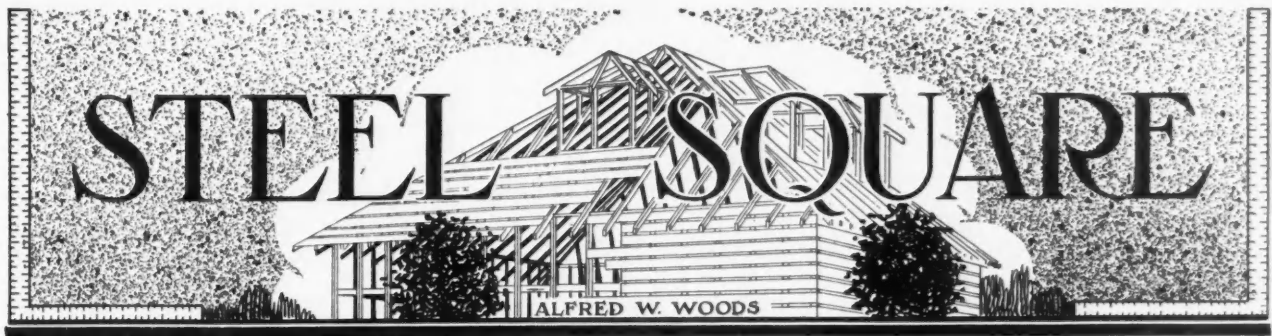
Old Style Frame House, Which Contractor P. Ackerman, Galt, Iowa, Wants to Remodel by Building on a Large Modern Porch.



Working Drawings Showing New Porch Construction Suggested.



The American Builder's Suggestion for a New Brick Porch for the Above House, Showing How the Job Will Look When Completed.

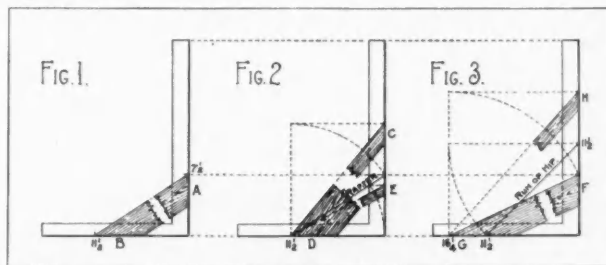


Possibilities of the Steel Square

ILLUSTRATING THE USE OF THE STEEL SQUARE IN OBTAINING THE LENGTHS AND CUTS OF RAFTERS BY THE ONE TWELFTH SCALE FOR THE SQUARE CORNER BUILDING

By A. W. Woods

IN most all of our writings on the use of the steel square we have reckoned on a basis of the full scale per one foot run of the common rafter; having the full scale for one foot run it is an easy matter to find the lengths of the relative rafters for any run by simple multiplication or running of the square, because in that way we have a standard or full scale to work from for any run and pitch, while on the other hand, if we use the scale of one inch to the foot (1/12 scale), we will have a change of figures for the different runs and pitch which cannot always be readily arrived at without first making a diagram from which to obtain the proper proportions to take for the various cuts and especially so for the top cuts of the jack, hip and roof boards.



The Steel Square for Rafter Cuts.

The one inch scale has some advantage over the full scale in finding the length of rafters, because one placing of the square is all that is required, but if the placing should be off one twelfth of an inch it would affect the length of twelve fold, whereas in the full scale it would require the placing of the square (usually called running) as many times as there are feet in the run of the common rafter and if there is a fraction in the run it requires an extra placing which in the case of the hip or valley furnishes a problem of no small means for the novice to solve but the misplacing of the square in the running would only affect the length of the rafter for just what the misplacing really is. However it is not probable in running the square say twelve times, would amount to a whole inch.

Now for illustration purposes we are going to work in fractions in both the run and rise, using the one-

twelfth scale to the foot. For example, we will say that our building is 23 feet wide and the rise of the roof is 7 feet 6 inches. The run being one-half the width of the building, would be one half of 23, or 11½ inches, which is taken on the tongue, and the rise being 7 feet 6 inches, we take 7½ inches on the blade as shown in Fig. 1. These proportions give the plumb and seat cuts as shown at A and B, respectively, for the common rafter, and the length of the line between these figures will be the length of the rafter per 1 inch scale.

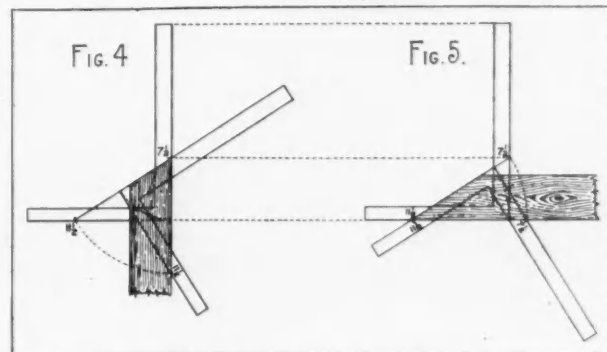
Passing on to Fig 2. In this illustration is shown how the proper proportions are determined for the top cut of the jack, side cut of the roof boards to fit over the hip or in the valley and the miter cut for same as shown at C, D, and E, respectively.

Note: This side cut of the jack is obtained by taking the run of the rafter on the tongue and its length (the rafter) on the blade, the latter giving the cut as shown. These proportions also give the side cut of the roof board, but reversed on the square as shown.

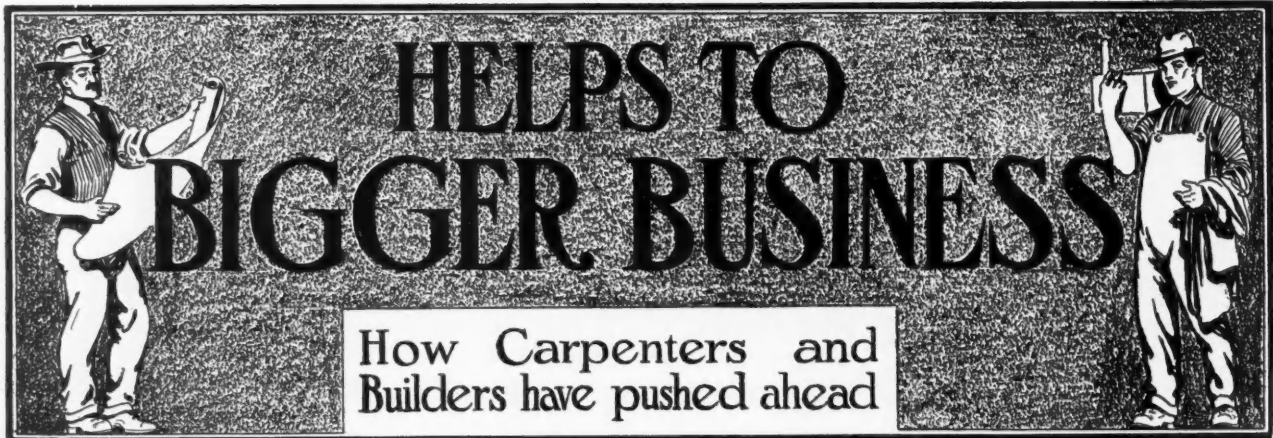
The edge or miter cut of the roof board is obtained in this case by taking the run of the rafter on the tongue and the rise of the rafter for an equal length of run on the blade. The latter will give the cut as shown.

There are other ways of illustrating this cut but as they would tend to confuse rather than enlighten in connection with the illustration we will pass them by for the present.

(Continued to page 128.)



The Steel Square for Rafter Cuts.



Learning to Sell Electric Light Plants

I WAS a builder in a small town where the newest things were slow in coming. One day Judge Brown, a great friend of mine, for whom I was then putting up the finest house I had yet built, came into my place and said: "Sam, I'm thinking some of having electric lights in my new house."

"That's all right, judge, but where are you going to get your electricity?"

"Make it," he said. "I've been looking around a good deal, while you've been building away here, and I find out that some people are making their own electricity. They can light up their houses in the night. In the daytime—and in the night time, too—they have their electric fans, electric chafing dishes, electric laundry irons, and so on. They run them with the electricity they make right in their own cellars."



"Sam, I'm Thinking of Having Electric Lights in My New House."

"And besides, I find that this electricity gives a mighty good light. You can turn it on and off with a little button. No matches. Just the thing for me with all my grandchildren spending half their time at my place. Convenient and safe—safe from fire. That's a big item, Sam. The missus can have a little motor and run her sewing machine with our own electricity if she wants to."

"But, Sam, I'm not quite satisfied about having those electric wires all over the house. Suppose one of the children puts his hand on a wire? What then? They execute people with electricity, Sam. Not around here, but in New York State and other states. Well, we don't want any executions at our house. Now you look into this matter, Sam, and find out about this. And find out about the cost and all that."

This left me with a pretty large order on my hands. The judge was then, and had been before, a mighty good and profitable customer. And besides, I wanted to do anything I could to accommodate as fine a man as he was. So, I thought I would put my troubles up to the editor of the periodical I took. It is a paper just for builders and the like, and I knew the editor would be friendly because I had written to him before.

Well, he told me that I needn't worry about danger to children and others who might get their hands on the wires. If it seemed necessary, I could advise my customer to use a 32-volt system, when there would be no danger at all. I could, he said, put in a 110-volt system and fix the wires so that they couldn't be reached. He said that sometimes the one was used and sometimes the other. It depended on the conditions. Then he gave me a list of manufacturers and advised me to write for catalogs.

I followed his advice and soon had a big lot of reading matter. I could understand that which came from the manufacturers of gasoline engines. I found in some of the other material that the editor

knew what he was about when he told me about the 32-volt and the 110-volt systems. But just what these systems were I couldn't quite make out. And it didn't seem at all clear what volts were, and amperes. And yet, the reading matter made a big fuss over both of them. At least some of the reading matter did. I found, too, that there were a lot of chances to make mistakes—and pretty big mistakes, too, as well as I could make out.

If I was going to advise the judge, I needed more help. I wrote to some of the manufacturers and told them about the house and that we were thinking of using electric light and making it ourselves. I gave them the size of the house. But it seems that wasn't enough. The gasoline engine people wanted to know just what size engine I wanted; the dynamo people, the size of the dynamo; and the storage battery people, the capacity of the battery. I looked into the reading matter again, and saw that it did have a good deal to say about such things. But it was difficult reading and I guess I must have skipped some of the hard parts, for when the judge came around again I wasn't able to figure out the cost even to my own satisfaction.

I couldn't tell the judge for sure whether the cost would be \$500 or \$1,000.

He didn't get mad. The judge is a mighty fine man—he smiled a little, as if to himself, and then he said to me: "Sam, I've been looking around a little, and I find that it isn't such an easy matter, this electric system on your own premises. I was over to Elisha Leonard's in the next county. Elisha has electric lights at his place. But he told me that this wasn't his first try at the game. He put in electric lights some years back. When everything was ready, they started up, and sure enough, he said, they got their lights. But the light trembled, as it were. Besides, they were pretty dim. He wrote somewhere about the trembling, and they told him he ought to have a storage battery. So he got a battery set up in his cellar. Well, that settled the trembling all right. However, they had to be pretty careful about the lights or they would soon get to the end of their string and have no light at all. Then he couldn't have any light in the daytime, unless some one went down and started up the engine. It seems he got too small a battery. Besides the trouble with the dimness still continued. So he wrote about that. He found out that probably he could correct that by using bigger wire. So he got bigger wire and put that in. The lights improved, but there was still dimness. About that time a fellow came along who looked over the whole outfit and the house and all. He said that the wire was still too small, but that the best thing to do would be to take out pretty much everything since the battery was too small. If that were made bigger, then the dynamo would have to be bigger, too. The engine might stay, he said, because it was

too big for its present job. Then he asked Elisha if it didn't cost a good deal to run things. 'You bet it does,' said he. It seems that the reason for that was the big engine. You have to run them somewhere near their capacity or it costs more. Well, the upshot of it all was that Elisha got the fellow to figure out just what ought to be gotten.

"The first question he asked was whether Elisha was going to use carbon lamps or tungsten lamps. He said that had to be decided, because the tungsten lamps required a good deal less current, altho they cost more. Then he had to know just how much candlepower was going to be required to give the light wanted. It seems that you need to know how many amperes must come over the wire in order to tell what size storage battery to get and what size dynamo. And, if we want to know the amperes, we



"Sam, We May Have Missed a Pretty Big Point in Fixing Up That Electric Light Plant."

will have to decide two things—(1) tungsten or carbon, and (2) how much candlepower. These we have to settle on in order to determine the proper size of gasoline engine. If we get too big a one, then we will waste gasoline; if we get too small a one, we will not get the current we want. Of course, when you come to think of it, it is reasonable to suppose that you would have to know the different sizes—size of wire, of battery, of dynamo and of engine—before you could figure the cost."

"Well," said I, "I'm mighty glad you came in just now and told me all this. Perhaps I'll now be able to make head and tail of all this reading matter." And I got all the catalogs out. The result was that the judge and I studied up on the thing, and finally sent in the orders. I wasn't a very good salesman, was I? Of course, it was my first attempt to handle an electric light matter.

Even then, after the stuff came and was all put in and working to beat the band, the judge came

(Continued to page 125.)



EASY LESSONS IN STAIR BUILDING

Hand Railing Explained

How to Lay Out a Spiral Stairway

By Morris Williams

Lesson 9

Note: Lessons 1 to 6 Appeared in the Issues of the AMERICAN BUILDER July to December, 1916, Lesson 7 in April, 1917, and Lesson 8 in June, 1917

IN Fig. 60 is shown a plan of a spiral stairway consisting of eighteen winders. I need not say that it matters not how many winders a stairway of this type consists of as far as its construction is considered, for if one revolution is accomplished, any number of others will be but repetitions.

In planning the winders, the best arrangement is to make them all the same size upon the center line of the rail, and at a distance of 14 inches from it have each one of suitable dimension for easy stepping, because it is at about this distance from the rail the stepping is assumed to be done. By having them equally divided upon the center line, the development

of both the rail and stringer will be straight lines, which is a matter of very great importance, for the reason that it affords the rail to be made in uniform sections and the stringer of a straight board as if for a common straight flight.

The plan arrangement of the tangents indicates a plan layout for four sections, three being alike—the bottom one made smaller and different for the double purpose of having an easement and a more abrupt turn-out at the bottom newel post. Due to the turn-out arrangement, the radius of this section as shown drawn from center X is considerably shorter than that of the three other sections drawn from center O, and its curve length covers, as shown from the newel to riser 4, but two and one-half of the treads, while the three other sections cover five treads each, as shown from riser 4 to riser 9; from riser 9 to riser 14 and therefrom to 19, the landing rising. To lay out the plan tangent lines, as shown in Fig. 60 for these three sections, draw the radius lines from risers 4, 9, 14 and 19 to center O, and all the tangents square to the radius lines. Draw the tangents for the bottom section square to the radius from X. To draw the pitch of the tangents for each section, measure from E to E', the height of the 5 risers contained with the section, revolve the plan tangent DC to C', and connect C'E' for the pitch. The distance from point D on plan to the pitch line as shown at W indicates the height from W to D of the twisting bevel, shown in Fig. 61, its base, WE, being the length of the plan radius OE.

The pitch of the bottom tangents AB and BC is conditioned by the need of the easement in the bottom one abutting the newel at A, and the need arising out of the joint at C for the upper one over BC to conform with the pitch of the connecting tangent CD. The bottom one, AB, must be a level tangent, as above stated, owing to the easement; and the upper one, BC, must conform with the pitch of the connecting

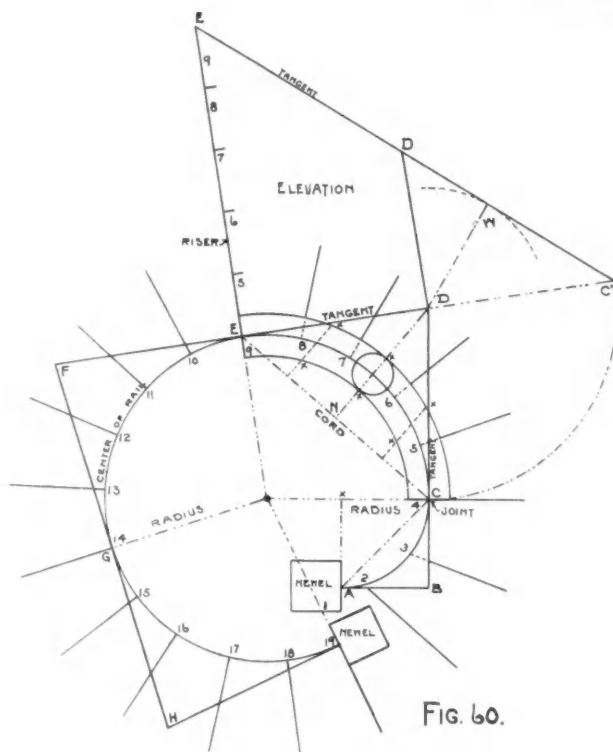


Fig. 60. Plan of Spiral Stair.

tangent CD' , owing to the joint at C being made square to the two.

The operation to lay out the face mould for the wreath over the bottom section from the newel to the joint at C is shown in Figs. 62 and 63, Fig. 62 being the plan and Fig. 63 the face mould.

Across the plan, draw the lines $x-x$ at equal distances from, and parallel to, the level tangent AB .

In Fig. 63 make the base CA' equal the chord CA in Fig. 62, and the height CC' equal the height CC' in the same figure.

To find the angle between the tangents, place in

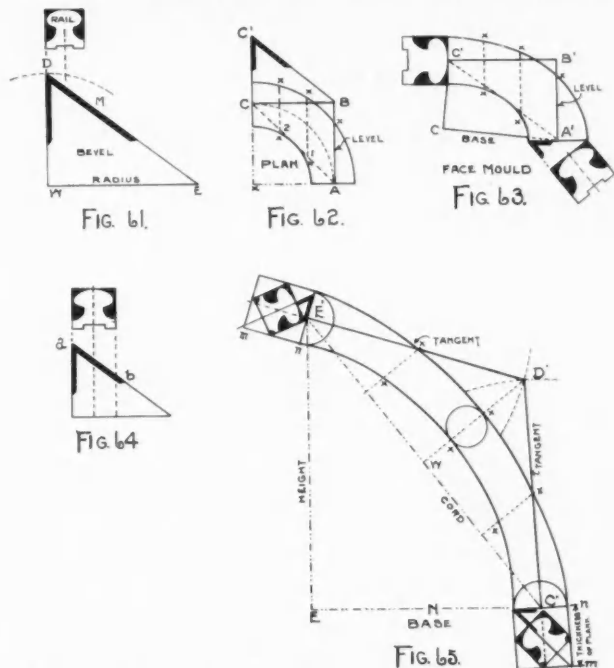


Fig. 61. The Bevel for the Second, Third and Fourth Sections of the Wreath. Fig. 62. Plan of the First Section. Fig. 63. Face Mould for Fig. 3. Fig. 64. Bevel for Fig. 4. Fig. 65. Face Mould for the Second, Third and Fourth Sections of the Wreath.

the compass the length of the pitch tangent BC' , Fig. 62, fix one point in C' and turn around, as shown by the arc; again, fix in the compass the length of the level tangent AB , Fig. 62, fix one point in A' , and turn around to intersect the arc drawn from C' in B' .

Connect $B'A'$ and $B'C'$ for the tangents. Draw the ordinates at equal distances and parallel to the tangent $B'A'$ and locate upon each the points xx , measuring from either the tangent $B'C'$ or from the chord line $C'A'$, measurements to correspond with those shown across the plan in Fig. 62. Now trace the curves thru these points either by free hand or by bending a lath to touch each one and scribing along the lath.

Make the joints square to the tangents.

The width of the mould at C' is the same as that of the plane rail, and at A' determined as shown from a to b upon the long edge of the bevel in Fig. 64.

It is to be applied to the end A' directed towards the inside, as shown in Fig. 63.

In Fig. 62 it is shown to be simply the intersecting angle of the tangent pitch and a perpendicular line.

No bevel is required for the end C' due to the joint being parallel to the level tangent $B'A'$ and of the two tangents being at right angle to one another.

How to lay out the face mould for the wreath over the second section shown on plan, Fig. 60, extending from C to E and covering five steps is shown in Fig. 65, the operation being precisely the same as the one shown in Figs. 62 and 63 for the first section.

Make the base $EN C'$ equal to the chord $EN C$ on plan, Fig. 60, and the height EE' equal to the height of five risers shown from E to E' in the elevation above the plan.

To determine the angle between the face mould tangents required to give them the true direction to square the joints place in the compass the length of the pitch tangent $E'D'$ shown in the elevation, Fig. 60, and with the ends E' and C' for centers intersect at D' and connect $D'C'$ and $D'E'$ as shown for the tangents.

To draw the curves, bisect the chord in W and connect WD' , which will be a directing ordinate, and also in this case the minor axis, and that because of the tangents being equal.

By bisecting the chord between WE' and WC' , we will have two other ordinates, XX , making the number to correspond with those across the plan rail shown in Fig. 60.

All we need now is to find the points xx , etc., upon the face mould ordinates at distances from the chord to agree with the points xx , across the plan, measuring from the plan chord and trace through the points.

In this operation we have made use of only three ordinates, but, of course, any number may be used, and more the better, in that they furnish greater number of points to trace thru; but we must not forget that the number upon the face mould will have

(Continued to page 145.)

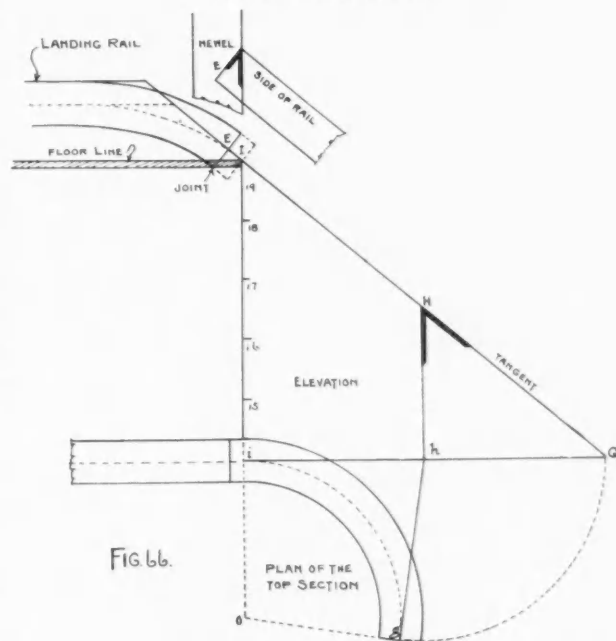


Fig. 66. Showing How to Connect the Top Section of the Wreath to a Newel and Also to a Landing Rail.

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

Wood Tank Saves \$200.00

To the Editor: Chicago, Ill.
Wood as a substitute is becoming the thing more and more in these turbulent times, and only recently a rather unique method of saving expense was used.

It had been the custom to use steel tanks under the huge grinding machines of a large plant, and of necessity the ends of same had to be set in to clear the four machine foundation columns. This meant a knocked-down tank, and in the case of steel meant quite a bit of fitting to make a tight joint, necessitating expensive welding.

Concrete was suggested as a substitute, but it will be readily seen that this would check at once under the vibration of the machine.

Then some ingenious fellow suggested cypress, and lo!

Not only was \$200 saved on each tank, but they now have something indestructible and easily fitted together.
Vive la cypress!

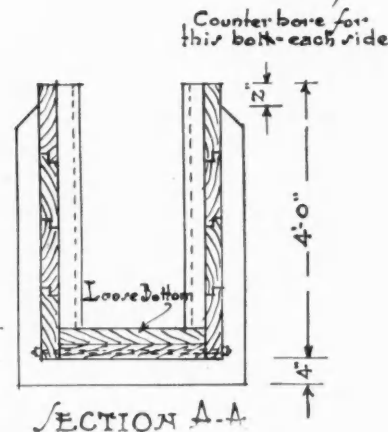
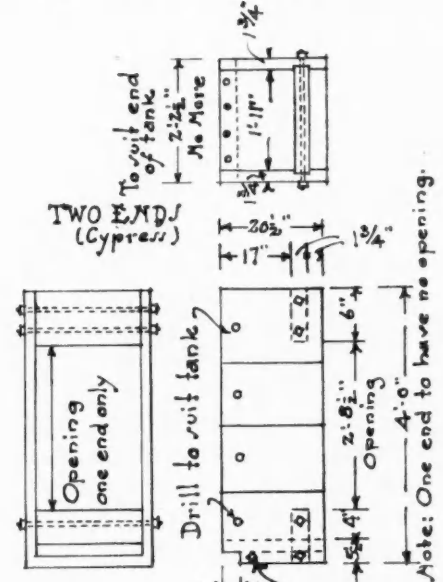
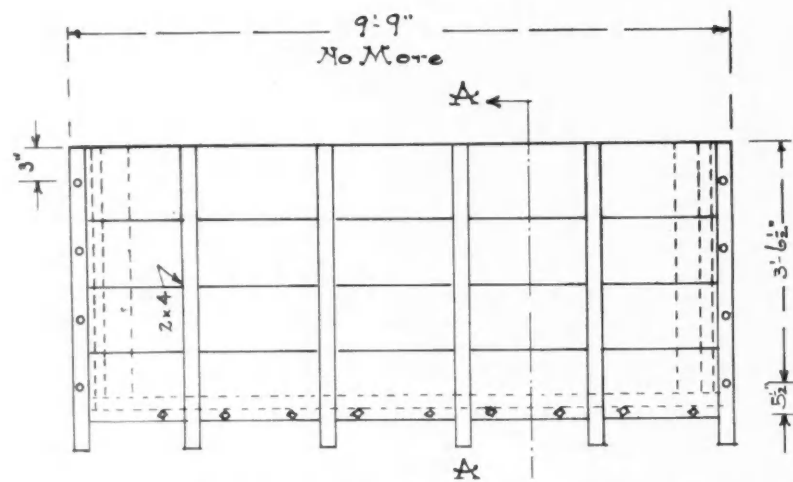
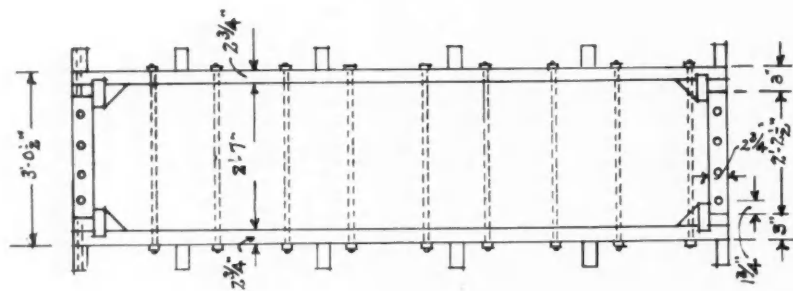
NORMAN V. CHRISTENSEN, C. E.,
% Simonds Mfg. Co.



Don't Skimp on the Scaffold Nails

To the Editor: Kiron, Iowa.
Replying to the question of Louis Brandenburg in the February issue of AMERICAN BUILDER, I wish to say that his

MUD AND WATER TANK



Working Details of Cypress Tank to Catch Grinding Water Under Machine in Simonds' Chicago Plant.

calculations are wrong in regard to six ½-inch pipes being equal in capacity to one 1½-inch pipe. The nearest commercial size pipe equal in area to six ½-inch pipes is a 1¼-inch pipe. The area of a ½-inch pipe is .19 inches, and six such pipes will have a combined area of 1.14 inches. A 1¼-inch pipe is, therefore, as you see, larger in area than the six ½-inch pipes.

In regards to the number of nails to use in making safe scaffolding, it seems to me to be largely a matter of using good common sense. I have heard of one instance where a man worked on a scaffold, one end of the bracket having one 8 d. nail, for nearly a full day before the nail let go. I always remember what one old experienced carpenter told me when building scaffolding, "We get paid for building *safe* scaffolds, but not for falling down for lack of an extra nail." Examine your scaffold work once in a while during the day for weak places and remedy them at once if such appear, and you will soon know the proper amount of nailing required.

J. A. ENGBERG.

✦

Wants a Cheap Fire-proof Non-dripping Roof

To the Editor:

Lucca, N. Dak.

Last year I built a fireproof garage, using only a tile and concrete slab as roof and ceiling combined, but I find that the frost comes thru in cold days, and when the weather gets warmer it will cause water to drip from the ceiling.

Now I am about to build a hall and store building and would like to know the cheapest way I could build a fireproof roof and ceiling—extreme span is 30 feet—and will make a good and warm building.

R. B. MARSCHKE,
Contractor.

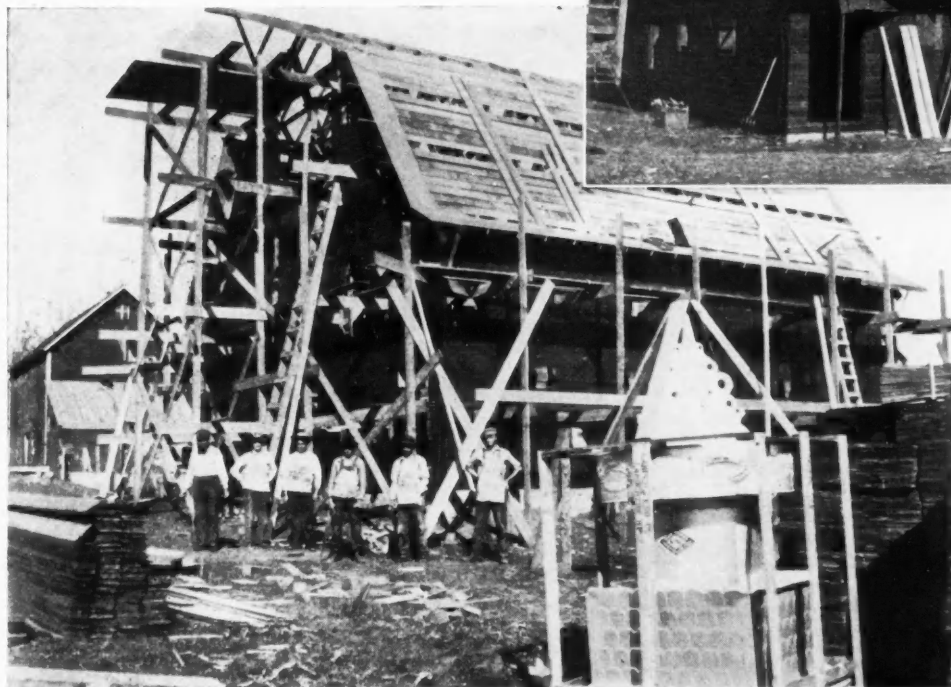
✦

From a Minnesota Builder

To the Editor:

Lamberton, Minn.

I am enclosing herewith some snapshots of buildings I have put up around here.

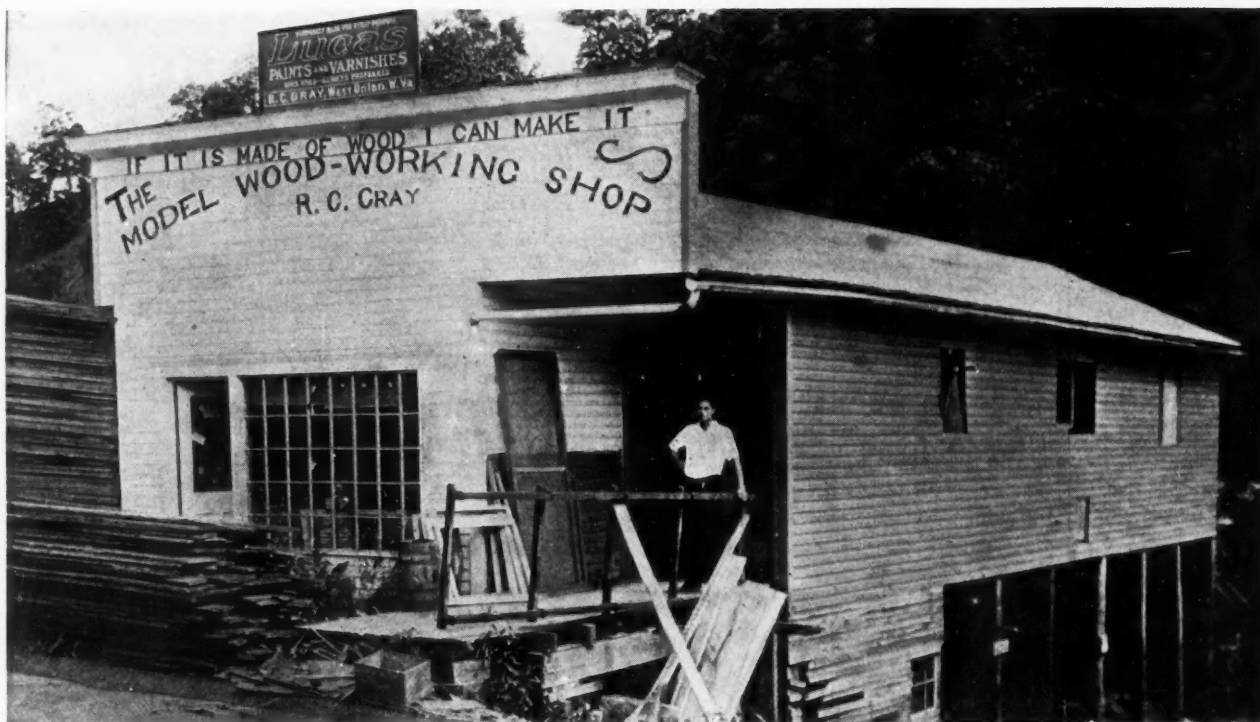


Modern Dwelling, Size 22 by 36, 14-Foot Studs Built at Walnut Grove, Minn., by Contractor Kregel.



Above, Finished Barn Built for Otto Jaeger, near Lamberton, Minn.

To Left, W. C. Kregel and Gang Ready for Work on the Jaeger Barn.



Woodworking Shop of R. C. Gray at West Union, W. Va. Size 20 by 62 feet.

A Well Equipped Power Shop

To the Editor: West Union, W. Va.

Enclosed please find check for a year's subscription to the AMERICAN BUILDER. I have been taking the AMERICAN BUILDER for several years and think it great.

I am enclosing picture of my shop, which is 20 by 62 feet, with basement, where I store my lumber. Equipment consists of Dixie planer and matcher, a Parks ball bearing combination woodworker, double table machine with all attachments, also post drill and drum sander, which I made myself.

I have a six horsepower Badger gas engine in basement, also turning lathe and power grind stone. I handle from two to four cars of lumber a year. I keep busy all the time, having from two to six weeks' work ahead for the last two and a half years. I want to build about 50 feet to the rear of my shop, as I need all the room I have now for work room.

R. C. GRAY,

General Woodworking Shop.



Insulation vs. Back-Plaster

To the Editor: Lexington, Neb.

Some time ago I received my books, "Mechanical and Architectural Drawing," for which please accept my thanks.

I would be glad to have any of your readers who have used Unifelt for insulation on their houses give their ideas as to its value as compared with back-plaster. I built a parsonage here in town in which all outside walls are insulated with 18-inch Unifelt between studs, with lath nailed to each side of stud. In my estimation, it far excels back-plaster, as I had no trouble whatever in keeping this house warm while plastering with the thermometer as low as 22 degrees below zero, using a pipeless furnace. Dimensions of the house are 30 by 32 by 18 feet.

Also what about using wood board for insulation? I built an exact duplication of above house last spring which is heated with a pipeless furnace, and the owner tells me that he has no trouble whatever in keeping his house warm, using

cottonwood for fuel. On this house we lined the entire outside of the building with Cornell wood board, then covered this with tarfelt before siding. Personally, I prefer Unifelt, because it is more economical than wood board, and as far as I can find out, its insulation qualities are greater. Either is more economical than back-plaster.

Thanking you for the many good articles you give us from time to time in your BUILDER, and wishing you an abundance of success for the coming year, I am,

FRED W. KOCH,
Contractor and Builder.



A Speedy Lock Mortiser

To the Editor: Creighton, Neb.

Tell that brother carpenter in the January number who tells us how to hang a door that I think he is slow when it takes him 43 minutes to put on a mortise lock. I can fit, hang and lock one in that time and sometimes in 30 minutes, and do it all day.

N. L. RAYMOND,
Architect, Contractor and Builder.



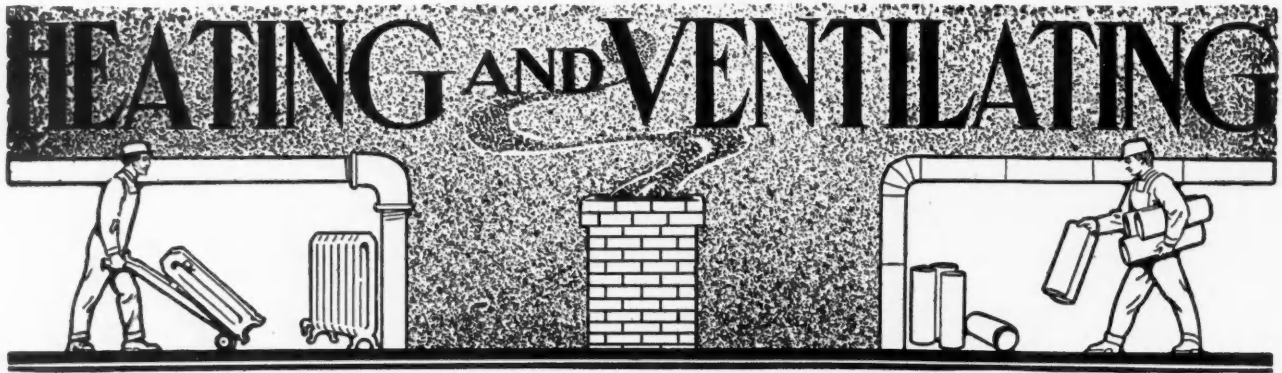
Time Cards for Jobbing Work

To the Editor: Pittsfield, Mass.

I am enclosing samples of time cards and master card as used by Rice Bros. in their work. These cards will care for seven jobs, giving the time on each job, each day and at the bottom, the total for the week with the charges to each job directly under. The insurance at right. Any explanation of work may be put under remarks, and material, etc., is entered on back of card. The master card is used for weekly posting of the totals on time cards and will care for thirty weeks. I worked these cards out by combination of time cards published by you some years past. If you see fit to publish them, I trust they will assist other contractors who do jobbing work.

FREDERICK G. RICE,
Of Rice Bros., Contractors and Builders.

(Correspondence Department Continued to page 68.)



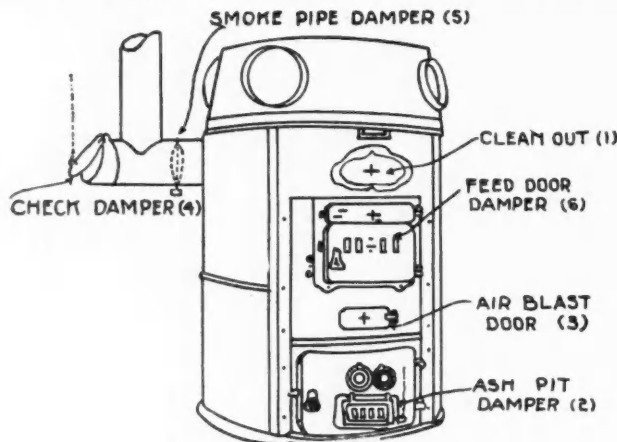
The Installation, Care and Operation of the House Furnace—(Part III)

By K. G. Smith

Engineering Extension Department, Iowa State College

Operation of the Furnace

Proper operation of a furnace means efficient combustion or burning of the fuel. Three things are necessary for combustion—fuel, air and heat. Lack of any one of these three will retard combustion or cause it to cease entirely. The fuel supply is often the only one of these three given careful attention. The air supply and the heat of the fuel bed are just



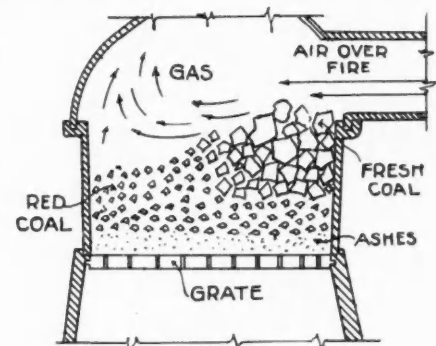
Standard Type of Furnace with Parts Named.

as important. For regulating the air supply nearly all furnaces have the dampers and checks shown. The clean-out door (1), the ash pit damper (2), air blast door (3), and feed door damper (6) have already been mentioned in discussing the choosing of a furnace. The check damper (4) is not always placed as shown, but must be located between the furnace and chimney. Its function is to admit cold air to the smoke pipe and thus retard combustion. When *open*, this damper checks the fire. It should always be closed when fresh coal is being fired. The smoke pipe damper (5) may be omitted. It aids in checking the draft and may be necessary if the draft is unusually strong. It is especially useful in windy weather and in checking the fire at night. If installed, it is better to place it between the furnace and check damper, rather than between the check damper and chimney. The direct

draft damper or radiator damper, as it is sometimes called, is not shown in the cut. This damper, as mentioned before, is to be opened when firing the furnace in order to let smoke and gas pass out as directly and quickly as possible. It should be examined from time to time in order to be sure that it works properly and closes tight. If it gets loose, is broken, or clogged with soot when partly open, it allows the hot gases to pass up the stack without heating the radiating surface and the furnace, even with heavy firing, will not properly heat the house.

Firing

To keep the fire burning steadily the furnace should be fired regularly. When possible, the entire fuel bed should not be covered with fresh coal, but a small area of red coal should be left thru which air can pass in order to burn the gases as they are driven off by the heat. If the furnace is provided with an air blast door for admitting extra air over the fire to burn the gas, it should be kept open for a time after firing a fresh charge. If it is left open after the gas has all passed off and the coal has been reduced to coke, it causes loss of heat by admitting cold air which cools the furnace and does no good. The damper in the firing door is used for the same purpose. In burning soft coal with a large amount of gas, this should be left



Burning Gas with Fresh Charge of Coal

open for a time after firing a charge. In some furnaces, where burning coal with a large amount of gas in it, this door must be left open practically all of the time or the gas will puff out with an explosion.

(Continued to page 122.)



These doors are swung on Stanley Garage Hinges No. 1457—24 inch at top and bottom, 10 inch at center, held open with Stanley Garage Door Holder No. 1774. Also equipped with Stanley Garage Door Cremone Bolt No. 1052, Stanley Garage Latch No. 1264 and Stanley Garage Door Pull No. 1266.

No man will ever thank you for putting up a garage for him just because your price is low, unless you are careful to provide the building with essential conveniences.

If you don't put Stanley Garage Door Holders on the doors, and a howling March gale smashes these swinging doors against the outgoing car—who will be blamed?

It's also up to you to suggest and provide the exceptionally strong Stanley Garage Hinges; the convenient, com-

fortable, easy-to-operate Stanley Garage Pulls and Latches, and the trustworthy, positive Stanley Garage Bolts.

Use Stanley Garage Hardware throughout the garage and the equipment is right.

Sold by all the leading hardware stores everywhere

Send for our complete catalog on Stanley Garage Hardware. Free on request

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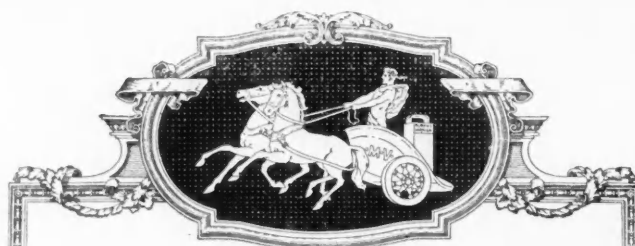
The Stanley Works

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

Manufacturers of Wrought Bronze and Wrought Steel Hinges and Butts of all kinds, including Stanley Ball Bearing Butts. Also Pulls, Brackets, Chest Handles, Peerless Storm Sash Hangers and Fasteners, Screen Window and Blind Trimmings, Furniture Hardware, Twin Rolled Box Strapping and Cold Rolled Stripped Steel.

Stanley Garage Hardware is adaptable for factory and mill doors.



For The New Building

The larger the job the more reason for using Murphy Varnish. Its many economies in labor and material-costs, and the *lasting* pleasure its durability affords your clients, increase with every square-foot of varnished space.

Murphy Varnish

"the varnish that lasts longest"

It flows so freely and is so easily applied that finishers increase their output—and save labor that is expensive. There is no waste—every drop is usable and uniform in quality.

Use these *longest lasting* products for *all* your work. The more you use them the greater will be your saving.

Murphy Transparent Interior
Murphy Transparent Spar
Murphy Transparent Floor
Murphy Nogloss Interior
Murphy Semi-Gloss Interior
Murphy Univernish
Murphy White Enamel
Murphy Enamel Undercoating

Murphy Varnish Company

Franklin Murphy, jr., President

Newark

Chicago

Dougall Varnish Company, Ltd., Montreal, Canadian Associate

ANA

(Correspondence Department, Continued from page 65)

Good Word for Metal Corners

To the Editor:

Elk River, Minn.

This picture shows my man putting Kees metal corners on the farm residence of O. Engstrom, near Elk River, Minn.



Metal Corners for Both Outside and Inside Corners Make a Neat Finish.

This is the first time I have used them, and both the owner and myself are well pleased with the effect.

CHRIS. JORGENSEN,
Contractor and Builder.



How Should He Straighten this Door

To the Editor:

Minden, Neb.

Enclosed is my check for a year's subscription, also marked coupon for one of your builders' volumes.

I enjoy my copy of the AMERICAN BUILDER each month. I think it a fine thing for the expert workmen to write about their methods of speeding up those particular jobs which fall to the lot of us all. The true brotherhood spirit is in those who are willing to pass along the benefits of their own ingenuity and thought to their less fortunate brethren. Nowadays there is folly in the action of a workman who attempts to keep to himself some method he has discovered of doing a thing better and quicker, for some more liberal minded brother will certainly hit upon practically the same idea and give it to the craft thru the AMERICAN BUILDER, and thus get all the credit for the innovation, while the selfish one gets the laugh if he comes forward with a tardy claim for recognition. Truly there is no place in modern building trades for the "old-time framers" Mr. Woods writes of in the January number.

In answering Mr. Donaldson's query as to the quickest way to "hang a door," Mr. A. O. Stein gives my method almost exactly. Mr. Fred E. Lucas says he can "hang a door" in twenty minutes, but he evidently calls the operation completed with the fitting of door and fastening on of hinges.

Just what is meant by "Hanging a Door"? I think the entire process of setting jamb, fitting door, fastening butts, lock and stops should be understood, for the door is not in working order unless all this is done. Now let us have an answer from some of our speedy workmen, giving the time it takes to go thru the complete process of hanging a door, omitting the casings, of course, and I believe this answer will be what Mr. Donaldson really wants.

I wish some clever brother would help me with a door problem I have not been able to solve. A 3 by 7 glass panel outside door set in a rabbeted jamb has warped inwards fully

(Continued to page 70.)

Beautiful and Permanent as well as Fireproof

AMBLER ASBESTOS BUILDING LUMBER cannot be equaled as an absolutely fireproof interior finish. The natural gray color is pleasing and permanent. It can, however, be painted and grained if preferred, to match the owner's "color scheme", although no "preservative" is ever needed.

Ambler Asbestos Building Lumber

is made of concrete, reinforced with long Asbestos fibres; it is absolutely fireproof, and like all concrete improves with age.

Comes in convenient sizes; can be fit into place by any carpenter; is light, strong, handy; never needs repairs.

Adaptable to almost any purpose. As pictured it is used for artistic interior work in a bathroom, at the same time fireproofing and obviating the danger where hair curlers, alcohol lamps, etc., are used.

*Write now for more facts,
samples and prices*

KEASBEY & MATTISON CO.
Dept. B-1 AMBLER, PA.

MANUFACTURERS OF

AMBLER Asbestos Shingles, Asbestos Corrugated Roofing and Siding, 85% Magnesia Pipe and Boiler Covering and Asbestos Building Lumber. EVERYTHING IN ASBESTOS.

Interior view of bathroom in residence of T. H. Hamilton : 214 South 17th Street, Harrisburg, Pa.



(Continued from page 68.)

half an inch at top and bottom on the lock side. When I hung this door both stiles were warped opposite and I had no choice of a hollow side to go next to the stop. How can this door be straightened permanently? Have tried putting a small block in the middle, then forcing the top and bottom up against the jamb overnight, but the warp comes right back when the braces are removed.

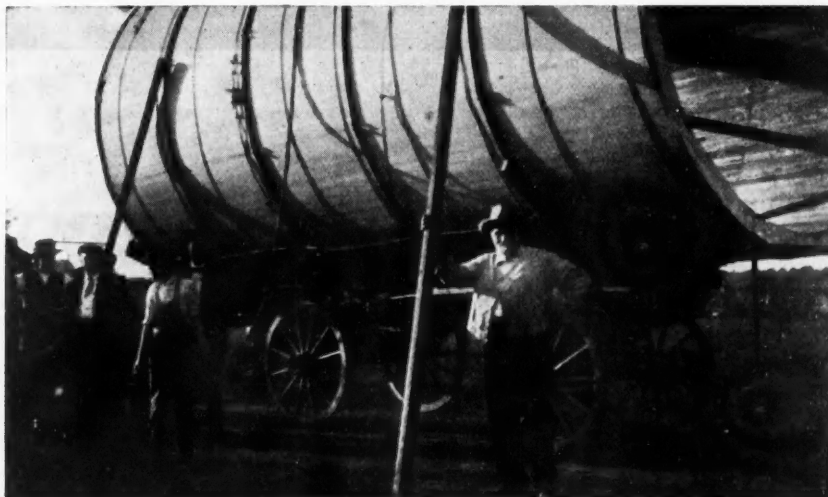
TOM L. ANDERSON.



Wood Silo Hauled Six Miles

To the Editor: Perry, Mo.

This photo shows a Tulsa silo loaded on wagon after being used as demonstrator. Irons and cables of silo were furnished by Tulsa Silo Company, Kansas City, Mo. The silo was made up in sections at the lumber yard of 4 inch fir flooring. It was hauled for about six miles over country roads without damage to silo.



Tulsa Wood Silo Loaded for Hauling.

J. F. FLEMING.



How to Repaint an Auto

To the Editor: Syracuse, N. Y.

In answering the inquiry of Walter H. Cottis, building contractor, I make haste to enclose the following, trusting that it will reach him in time:

To properly prepare a metal car body for refinishing the first prerequisite is a warm (70°) room, free from overhead dust and with a floor that can be mopped, sprinkled, or

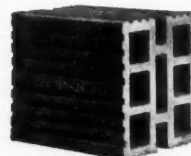
oiled just before the varnishing is done.

The body should be taken apart as far as practical, removed from the chassis and while being refinished may be laid on saw horses. All removal of old finish should be carried on outside of the varnish room, and may be accomplished by scrapers, steel brush, sand blast, varnish removers, or blow torch, if it can be exercised to prevent overheating on soldered joints. Thoroughly sand to a clean, bright surface, sponge clean, wipe dry with a moist chamois and transfer part to varnish room. Lay all parts out in order, to prevent rehandling as much as possible. Wash the chassis or running gear

(Continued to page 72.)

DENISON LOAD BEARING TILE

No. 47 Block



8 1/2 x 10 1/2 x 12
Pat. July 31st, 1917

Contractors are assured of their profits if they build with DENISON LOAD BEARING TILE. It is 25% cheaper than brick and sells as easily as a brick house. It is fire safe, has the warmth and dryness of a brick house, and all its advantages at much less cost to build. It lays up quickly and does not require nearly as much mortar as brick construction.

Denison tile is easy to lay for all bedding surfaces are on the same plane, each tile is a complete unit in itself, and it cannot be placed wrong by masons.

The No. 47 Block is the standard size, and is four brick courses high. Other heights are furnished for approaching window ledge, cornice, etc. Corner blocks and jamb blocks are furnished at the same basic price.

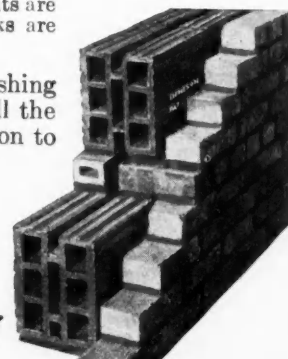
DENISON LOAD BEARING TILE carries its own load, and has a crushing strength of over 70,000 pounds to the square foot of bearing surface. All the bearing webs are in vertical alignment. Plaster and stucco apply directly on to the block without lathing.

Send for portfolio of construction details
and prices at your nearest shipping point.

MADE BY THE

Mason City Brick & Tile Company

MASON CITY, IOWA. 900 8th STREET



“Is asbestos roofing worth the difference?” asks your customer

—“It looks like the others, feels about the same and on a roof I couldn’t tell which was which.”

He is right about the looks. But tell him to forget that part of it and think of fire safety and wearing qualities. Johns-Manville Asbestos Roofing has a base of 95% pure asbestos and asbestos neither burns or rots.

And the binder is real asphalt—and asphalt doesn’t carry fire. It is the toughest and strongest we can buy—it cements the asbestos fibres together into sheets of pliable rock. These sheets reduce maintenance cost and outwear others many times over.

You can easily show your customer that Johns-Manville Asbestos Roofing will not burn. Direct the flame of a blow-torch against a sheet—a little of the binder will melt out otherwise the sheet will be unharmed. Then try the same test on other roofings and have a fire extinguisher handy.

You don’t have to wait for customers to ask about Asbestos Roofing—ask them if they know what it is and what it does—then tell them what we have just told you and make the blow-torch test. There is a big market for these sheets of safety and the profits might as well be yours.

H. W. JOHNS-MANVILLE CO.
NEW YORK CITY
10 Factories—Branches in 61 Large Cities.



JOHNS-MANVILLE ASBESTOS ROOFING



War Conditions and Copper Store Fronts

Lack of business is the costliest condition for the merchant.

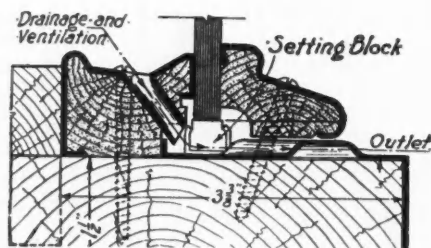
Beautifying his store front to stimulate business, he realizes, is the most economical and best paying step—And the

BRASCO COPPER STORE FRONT he finds is even less expensive though more attractive, distinctive and durable than the ordinary system.

**The low cost to the contractor
gives him a
GREATER PROFIT MARGIN**

See Sweets Catalog, pages 855 and 866

Mail coupon below for Store Front Book
and Brasco Detail Folder.



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BRASCO

A. B. 3-18

Without obligation, send me Brasco Store Front book
and folio of full size store front details.

NAME.....

ADDRESS.....

BUSINESS.....

(Continued from page 70.)

with a strong, hot solution of Gold Dust to thoroly remove all traces of grease and dirt. Wash clean with much clear water. After all pieces have been cleaned, sanded, washed and chamoised ready for varnishing, they should be given a coat of "rough stuff," as it is known to the trade. This may be bought from any varnish house of any size. If not available, it may be prepared as follows:

Two quarts high grade rubbing varnish (Murphy).

One pint brown japan.

One pint pure turpentine.

Two pounds very fine silic.

Two pounds white lead in oil.

Enough ivory black in oil to tint to shade desired.

Keep separate brushes for rough stuff, rubbing varnish and finishing varnish, each brush being kept suspended in clean turpentine so that the bristles clear the bottom of the container by an inch or more. Wash out brushes each time before putting away.

Apply the "rough stuff" in a thin, well brushed out coat and let dry a day or two until perfectly hard. Sand smooth with No. 0 paper. Dust off carefully and give a second coat. When dry, sand as before, dust, sponge off.

The varnish used should be either Murphy's or Pratt & Lambert's rubbing body. Colored auto body varnishes are made by both firms and are both high grade. To keep the varnish work clean and free from nibs, the varnish room must be free from dust, with a freshly mopped floor. The varnish brush and pot must be clean and the auto body must be clean. After chamoising off and just before varnishing, the body may be gone over with a "tacky cloth" made from a piece of cheesecloth, wrung out in clear varnish and then shaken in the air a minute before using. This will effectually remove all lint, dust and rubbing material which is left by the chamois.

Use a 3-inch China bristle or Badger hair brush to apply the colored varnish. It is best to work on small parts first, as hood, cowl, etc., leaving the body and door panels last. The body should be laid off by starting on the left side nearest the front end and laying on the varnish in strokes parallel to the floor. Do not lay on up and down. Work from the unfinished to the finished portion; moving as rapidly as possible; avoiding undue brushing of the varnish, as it sets quickly, and keep the work clean by using a picking pencil. This may be made by attaching a piece of very thick fatty varnish, from an old empty can, to a piece of beeswax and used as a pencil point to touch and remove specks while the varnish is still soft. If this be done it will not be necessary to let the body dry longer than three days to prevent "pulling out" of nibs in the varnish, thereby leaving small pits in the surface. When the varnish has dried three days in the warm room, rub down with pumice stone (0 or F) felt block, pumice block flattened on one side, and water. Keep two pails handy on a saw horse, one for rubbing felts, the other for sponging water. Dry with a chamois. When thoroly dry clean up with a "tacky cloth" and transfer to the varnish room.

Five coats are generally given to good work and pay in the long run. The real difference between Fords and thousand dollar cars lies principally in the quality and amount of body finishing. Needless to say, a Ford does not get very much.

The last coat may be either Valentine's wearing body clear, or the color varnish as used for rubbing. The last coat should not be rubbed but left in the gloss, great care being exercised to have absolutely clean work, free from nibs.

Never use a brush for finishing varnish that has been used

(Continued to page 74.)

TRY THIS on Your MEMORY!
REMEMBER THIS NAME
CON-SER-TEX CANVAS ROOFING

Permanently Water-Proof—Chemically Treated

**Your Opportunity to reap larger profits this coming season. Specify
 CON-SER-TEX CANVAS ROOFING**

In the EDITORIAL PAGES of this issue a detailed description is given of this home, as illustrated below; in the construction of which CON-SER-TEX CANVAS ROOFING was used. It is the most satisfactory material to use for roofs, floors, sleeping porches, lining for the gutters, and covering for valleys and hips. It is also a most durable flashing.

CON-SER-TEX is a canvas roofing which has been treated chemically to protect the fibre from mildew and the destructive action of the oil in paint. Positively will not crack, stretch, peel, shrink, rot, or leak. Very easy to lay—saves, time, money and trouble. Your most profitable move is to specify CON-SER-TEX CANVAS ROOFING on all your repair jobs or new buildings. Increase your profits by doing this. Our booklet, "Roofing Facts and Figures," is FREE to you, and we will gladly mail it on receipt of your name and address. Investigate and examine our samples. Write today.

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CALIFORNIA DISTRIBUTORS

**Waterhouse & Price Co., Los Angeles
 The Pacific Building Material Co., San Francisco**



(Continued from page 72.)

in rubbing goods. Also do not use a new brush on last coat work. Brushes carefully cleaned, suspended in clean turpentine, washed after each period of use, will do more than any one factor towards the production of good work. Brushes when well cared for improve with constant use and, like many another finisher, I would not exchange for any price the brushes I have been using five years or more.

Wish best wishes for a successful job,
RALPH G. WARING,
Specification Engineer.



A Buffet, Dumb Waiter Design

To the Editor: La Fargeville, N. Y.

In reply to W. R. L., who asked for design of buffet and dumb waiter, I send a sketch, hoping that it may be of use to him.

The space above waiter may be a mirror or window; spaces each side can be mirrors or wood; doors may be wood panel, glass panel, or leaded glass, as desired.

The dumb waiter is to be concealed by doors, but if desired the doors may be put on the waiter and this space left open when the waiter is down. In this case one should use a waiter with a top which will stand flush with the floor and correspond with it in color and finish. Such a waiter can be purchased with this top, or can be made.

JOHN UPTON.



BUFFET WITH DUMB WAITER.

Front Elevation of Design Suggested by John Upton.

What Do the Plasterers Think of This?

To the Editor:

El Paso, Ill.

I have a most mysterious case of defective plastering which I would like you to help me solve.

Last September I built a school house in the country. The building was of frame construction with 2 by 8 yellow pine ceiling joist across the full width of the building. Each rafter was so constructed as to form a complete truss; these were spaced 16 inches on centers. The ceil-

(Continued to page 76.)

**Don't Lay
Another
Roof
Until We
Send You a**

Winthrop Tapered Asphalt Shingle

Just ask for a sample shingle. See how tough, how pliable and how durable it is. See how it is made

like a wooden shingle—thick at the butt and thin at the top. See how easy to lay it is. See what a beautiful roof it will make—red, green or slate-black. Then you will understand why owners want the Winthrop when they know about it.

Winthrop Tapered Asphalt Shingles will enable you to get most of the roofs in your town. They win out with less argument than anything you ever tried to sell, for they look better than wood shingles and they have all the protection of asphalt.



Beckman-Dawson Roofing Co. ASPHALT SHINGLES

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REX PRODUCTS Roofings and Shingles

REX PRODUCTS are known as GOOD roofings. They are manufactured by a company that has a reputation for making only good roofings.

Our two factories are conveniently located in the East and in the West (Rutherford, N. J., and Chicago, Ill.), handy to the shipping centers of the country.

Rex Strip Shingles
Rex Diamond Strip Shingles
Rex Reversible Strip Shingles
Rex Wide Space Shingles
Rex Shingles (8x12 inches)
Rex Slate Surfaced Roofing—32 in.
Rex Slate Surfaced Roofing—16 in.
Rex Inlaid Roofing (shingle pattern)
Rex Starting Strips—50 ft. lengths,
8, 12, 16, 20 inch widths
Rex Flintkote Roofing—1, 2, 3 ply
Zarex Roofing—1, 2, 3 ply
Mikado Roofing—1, 2, 3 ply
Steadfast Roofing—1, 2, 3 ply
Double Sanded Roofing—3, 4, 5 ply
Guardian Roofing—1, 2, 3 ply
Regular Paradox-Rex Canvas Roofing
Rex Black Waterproof Paper
Rex Roof Paints and Preservatives
Rex Flintkote Plastic

Everyone interested in roofing materials (architects, contractors, dealers, owners) should have a copy of our General Catalog No. 20. It contains much valuable information.

Write for your copy today.

The Flintkote Company

90 Pearl Street, Boston

New York Chicago New Orleans



Neponset Twin Shingles Are Fire-Safe

If you have a job of putting a sloping roof on a building near a railroad, you can't beat Neponset Twin Shingles. Sparks won't ignite them. If you have a similar job in a fine residence neighborhood, they are just the thing. They are permitted when other shingles are barred. Fire spreads from blazing, flying embers falling on inflammable roofs—but on a Neponset Twin Shingle roof red hot fragments cool without doing harm. The National Board of Fire Underwriters approve



NEPONSET TWIN SHINGLES

because they're fire-safe. But that's only one of the strong reasons why you should use them. They are the only Twin Shingles—two shingles in one. Easily, conveniently handled. One man does the work if need be. Notches automatically take care of spacing. Save time, labor, money. Use 25% less nails. Strong, tough pliable—easy to follow curves. And above all, your customer gets a **beautiful** roof that will last for many a year. Write today for full particulars.

BIRD & SON, Dept. C, East Walpole, Mass.

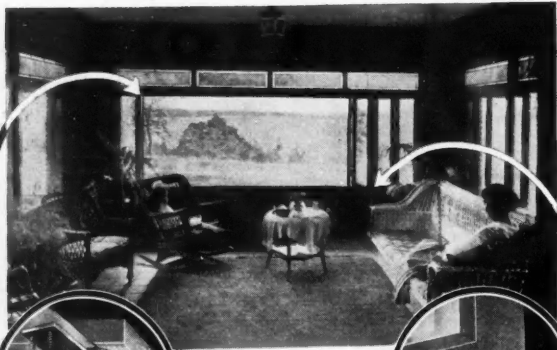
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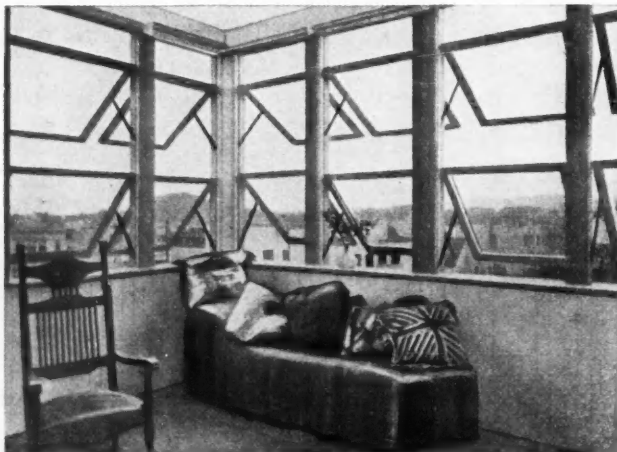
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makes possible a type of casement window that has none of the disadvantages of any other window and has many appreciated features found in no other window. If you do not know all about **Whitney Windows** you are losing money by not getting full information from us.

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SLEEPING PORCHES, SCHOOLS, HOSPITALS & FACTORIES
or wherever maximum ventilation is desired.

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Reversible — Weightless — Noiseless

Both sides of glass washed from inside. No Pulleys, Cords, weights required.

Let us send you our Latest Catalog It shows how to increase your profits.
Fixtures distributed by the Pittsburgh Plate Glass Co., all principal cities. Address inquiries

SIMPLEX WINDOW FIXTURE DEPT.
Pittsburgh Plate Glass Co., 451 St. Clair St., Chicago, Ill.

(Continued from page 74.)

ing was lathed with white pine, well seasoned lath, and plastered with "Acme" plaster put on by a regular mechanic. This ceiling was not decorated by the painter until two months after the plastering was finished. Up to this time the ceiling did not show any cracks. (Plaster was shipped from factory in June.)

Today I was called out to the school house by the building committee, and we found a strip of plastering off near the middle of the room and the balance of the ceiling badly cracked. This plastering had fallen off unexpectedly a week ago. The teacher had not noticed anything wrong until just before the plastering fell, when she heard a peculiar cracking noise. I found the lath well nailed and not the least bit warped. I also found the plaster clinches still in place between the lath, the plaster having separated just at the face of the lath.

The building is warmed by a hot air furnace, but the hot air register is located on one side of the building and is across the room from the place where the plaster is down and cracked most.

The plaster has never gotten wet in any manner, nor frosted, and I am sure the roof construction is very rigid. Trussed rafters were made thus. These braces were all well nailed and kept about $\frac{3}{8}$ of an inch up from the bottom edge of ceiling joist, so that the shrinkage of the ceiling joist would not cause the lath to be pushed off where the middle hanger and braces intersect. There is no apparent settlement in the ceiling or any of the side walls; in fact, the plastering on the side walls is not cracked.

I am enclosing a sample of the plaster which fell off. You will notice that the finish coat is made of the ordinary plaster with the hair sifted out. This is the customary way of plastering in this locality.

I have used this brand of plastering for thirteen years, and this is the first time any of it has fallen off or cracked badly.

JAS. A. REICHEL,
Contractor and Builder.

Answer—I fear I am unable to give reliable information as to the cause of the sudden giving away of this plaster. However, I find from the sample, the under coat shows the mortar to be very poor, so that the proper adhesion had not taken place, while, on the other hand, the finished coat shows that it is very good.

Now, my theory is this: The hard finish being extra good, besides having a good coat of paint (as the sample shows), prevented the heat rays from passing thru the pores of the plaster and when the room at the ceiling reached a certain degree of heat and counteracted by the cold air in the attic, caused the sudden separation between the strong and the weak and naturally being at the face of the lath it showed up there first. It is probable that the plastering was done during very warm weather and the lath being very dry, absorbed the moisture out of the mortar, thereby preventing the proper setting up of the under coat. Now, under such conditions the lath should be well sprinkled before applying the mortar.

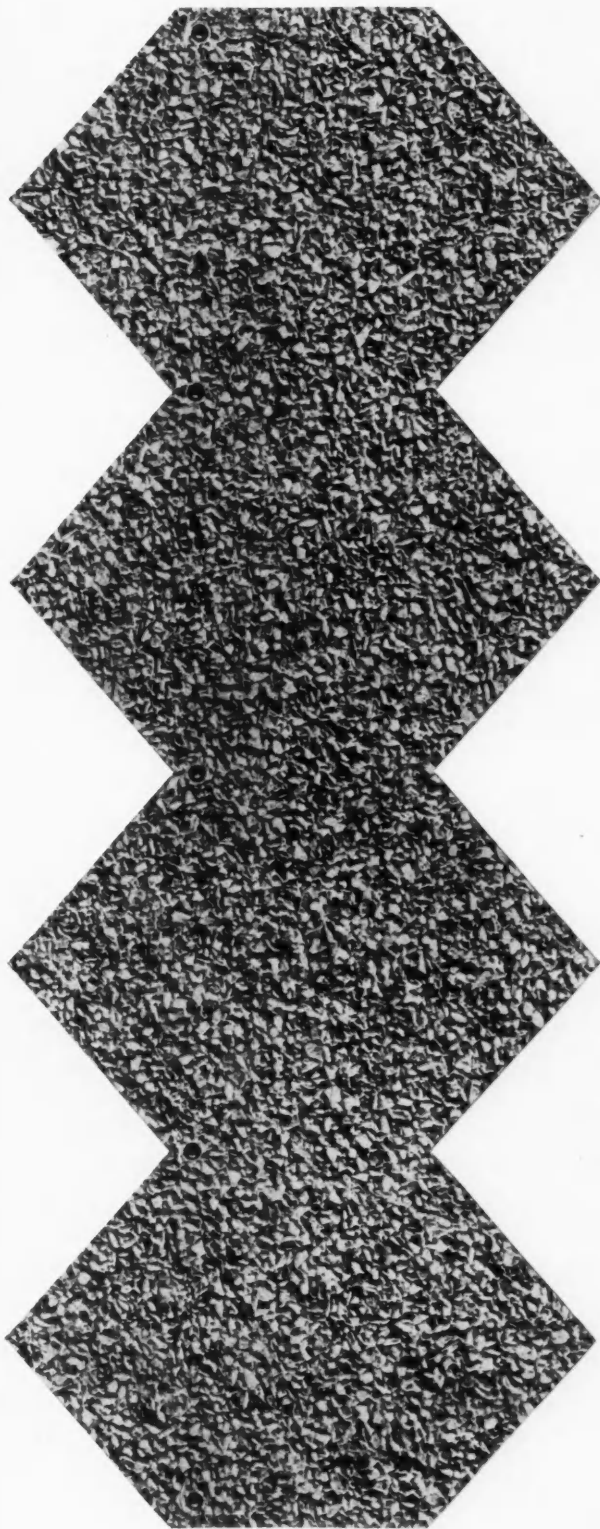
The reason the side walls did not crack and peel off was because the heat being greater at the ceiling and larger area of cold air in the attic caused the giving away of the ceiling first. In other words, if the walls had been subjected to the same conditions they would have cracked and peeled same as the ceiling.

If this giving away of the plastering occurred during the recent cold weather I think it will fully prove my theory.

A. W. WOODS.

(Correspondence Department Continued to page 80.)

Lay Four Shingles At Once



HERE'S how to cut labor and cost in laying shingles—to save time, make a bigger profit for yourself and still give the very best kind of a roofing job—USE

FLEX-A-TILE Diamond Point Slabs

And lay four shingles at one operation. There is no time lost in spacing and chalk lining, for each slab fits naturally into the course below. And besides a clear saving of 50% in time, you effect a saving of 38% in nails and 35% in freight.

For New Jobs or Repair Work

You will always find "Flex-A-Tile" Diamond Slabs most economical—as well as most satisfactory. "Flex-A-Tile" Diamond Slabs are manufactured with the same scrupulous care and by the same scientific process as famous "Flex-A-Tile" Asphalt Shingles in other styles. Rain, snow, sunshine and storm—through the most rigorous tests of wind and weather, "Flex-A-Tiles" will stand up unflinchingly and give the kind of lasting service that builds an enviable reputation for the man who uses or specifies "Flex-A-Tiles" for his roofing jobs. And the beautiful, natural stone surfacings in rich red or fadeless green are a never-failing source of delight to your customers—and their friends, too, who may also become your customers when they see an attractive "Flex-A-Tile" job.

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4,305½ Per Cent Gain

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Actual time and weather have demonstrated that the main point of difference in favor of

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Look for this special design below the regular brands—it indicates that Copper Steel is used.

is that it gives more wear and added life to Black and Galvanized Sheets, Roofing Tin Plates, Corrugated and Formed Roofing and Siding products. Demand Keystone for your work.

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This high record was achieved in the face of the handicaps of war, fuel and traffic conditions.

233,977 Tons in 1917

A reputation for reliability has followed *Keystone* quality ever since it was first placed upon the market. Its record is unequaled.

The excellence of the copper-steel alloy was proved before offering it [to the trade. It insures greater

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for Building Construction purposes, Roofing, Siding, Cornices, Spouting, Gutters—and all forms of exposed sheet metal work where long life and lasting service are important factors.



Send for our booklets describing actual service tests. Every user of sheet metal should have them.

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Sheet and Tin Mill Products of every description, including Black Sheets, Galvanized Sheets, Tin and Terne Plates, Electrical Sheets, Corrugated and Formed Roofing and Siding Materials, Planished Iron Sheets, Polished Steel Sheets, Special Sheets for stamping, Automobile Body Sheets, Stove and Range Sheets, Etc.

Elevator Builders

To the Editor: Mt. Pleasant, Mich.

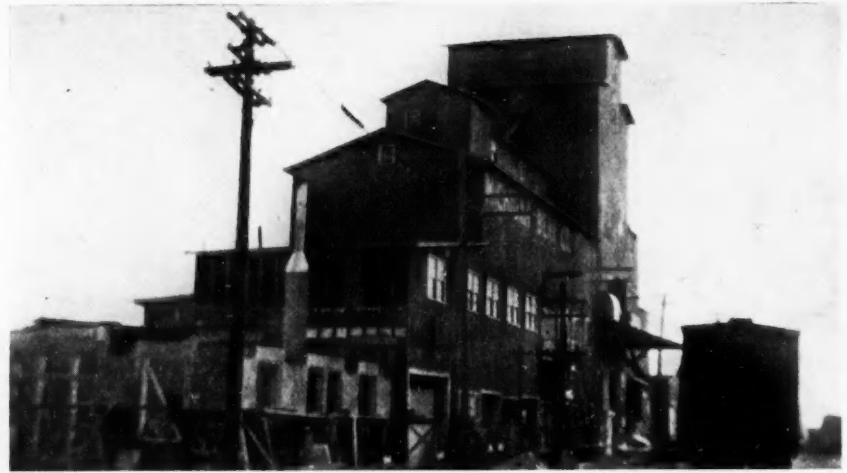
Altho we have been subscribers and readers of the AMERICAN BUILDER most of the time since its beginning, this is our first attempt in writing you.

We wish to thank the Editor for the kind interest shown in answering the letter from Morgan Park, Ill., in the January number, for it was very interesting and helpful to us.

The most of our work differs to some extent from the ordinary line of carpentry, for we are grain and bean elevator builders. We use concrete foundations with mill construction and steel corrugated siding usually. We have a Little Wonder Concrete Mixer No. 17, with side loader, which we think is a dandy; also a light size Parks ball bearing woodworker with a swing cutoff saw and tilting table that we built and attached to the woodworker ourselves, and is fine for cutting hopper bottoms and all angle cuts. We find that we could not get along without it.

We have been trying to take some pictures of this outfit, but as yet have not made much success of it, but will enclose what we have for your use, if you see fit. We are using a hoist which we rigged up with the clutch pulley and gearing from an old creamery churn to elevate materials with, driving it with either the mixer or woodworker engine.

J. H. FERRIS,
Hodgins & Ferris, General Contractors.



Thirty Thousand Bushel Elevator at Port Huron, Mich., for the Michigan Bean Company Built Last Fall by Hodgins & Ferris.

Kicks from a Good Kicker

To the Editor:

Shelby, Neb.

I have been taking the AMERICAN BUILDER for some time and think it is a very good magazine, but think there is some room for improvement. These are just my ideas and you are not to pay very much attention to them.

One thing I think would be better for us carpenters is more dope about wood and less about brick; leave the brick work to the mason. Then make your Correspondence Department larger, and offer some means of getting the information that men have had to get by experience.

(Continued to page 82.)

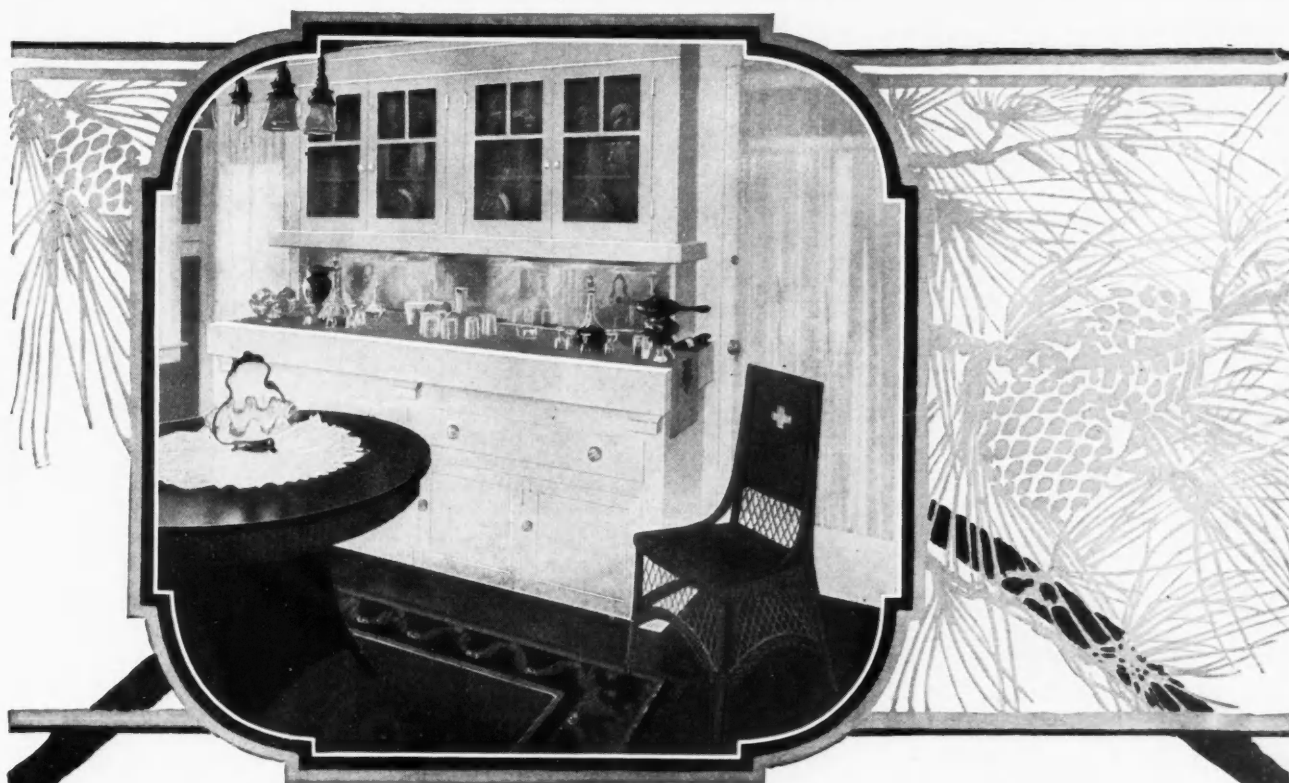
*"Beautiful Birch for
Beautiful Woodwork"*

Our nation-wide campaign of advertising is calling upon millions of prospective home builders to insist on "Beautiful birch" for the interior finish, veneer doors, floors, etc. We're working with (and for) the men who must do the building—"Team Work." You're with us, of course?



THE FREE birch BOOK GIVES INTERESTING FACTS ABOUT "THE HARDWOOD THAT ALWAYS MAKES GOOD." WRITE FOR IT—TODAY.

NORTHERN HEMLOCK & HARDWOOD
MANUFACTURERS' ASS'N.
201 F. R. A. BLDG. OSHKOSH, WIS.



Home Beauty That Endures

DURABILITY of interior finish in the home—whether that finish be paint, enamel or stain—is dependent largely on the character of the wood of which the trim is fashioned. Woods used for such purposes should possess a close, even grain, adapting them to fine joinery, and should be workable without being “spongy”.

The most economical and the most available wood perfectly suited for all of the requirements of fine home interiors is

Southern Pine

“The Wood of Service”

Properly treated, Southern Pine takes and holds perfectly paints and enamels, and its beautiful and varied grain yields the richest and most artistic effects when stains are used. It is very workable, yet so dense and strong that its endurance is proverbial.

There is one right way and several wrong ways to apply paint or stain to Southern Pine. The right way is told in a beautiful booklet, “*The Interior of Your Home*”, which will be sent you gratis, promptly on request, if you mention this magazine.



Southern Pine Association

NEW ORLEANS, L.A.



Big Economy in Metal Lath Construction

The man who builds will appreciate the reasonable cost at which you can construct modern, strong, fire-proof homes by utilizing our metal lath products. You can save the owner time, material and labor expense.

Use Hy-Rib and Rib Lath—and you save forms, stiffening channels and labor. The metal lath is so stiff and rigid that supports may be placed a greater distance apart—saving in the cost of supports and the labor and time necessary to attach the lath. Moreover, streaked and cracked plaster is prevented.

Hy-Rib furnished in four depths of ribs and various gauges.



Hy-Rib

A steel sheathing, stiffened by rigid deep ribs. Manufactured from a single sheet of steel. Its use is decidedly simple. The easily handled sheets are fastened to the supports and the plaster or concrete applied. No forms, stiffening channels nor wiring required.

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.

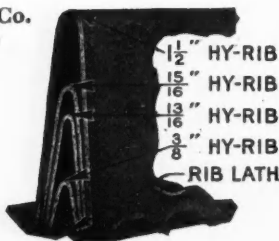
Begin now to build with Hy-Rib and Rib Lath. The line is complete, including Diamond Lath, Channels, Studs, Corner Beads, Base Screeds, etc.

Write today for free copy of Hy-Rib Handbook, with specifications, tables, illustrations, etc. Very valuable to builders. Address Dept. H-44.

Trussed Concrete Steel Co.
YOUNGSTOWN, OHIO



Representatives in
Principal Cities



(Continued from page 80.)

Another thing would look better to me but probably not to the advertisers, is to place the ads all in one part of the magazine. I save all the good parts of the magazine and bind them in a loose leaf binder. Have six or seven years in one book. I do not want to save the ads, but find some pages with useful information on one side and an ad on the other side. Have to save the ad or lose the information on the other side.

Still another thing, some of the stunts, such as shingling and fast building are so stretched that no one would believe it. Workmen generally earn their money and if A puts on 15,000 shingles while B puts on only 2,000, the chances are that they *both* did a good honest day's work.

I would like to buy a book on machine woodworking. Do you know of any published? Would like to know a quick way to cut wedges on a rip saw, also how to build a sander that will do finish work. I have a portable car 8 by 20 feet that has a rip saw and engine, also place for nails and a lot of other things, and have a swing cut-off saw that sets outside. Find this very convenient, as I can do my work right on the job.

Well, this about all the kicking I can do for this time.

EVERETT FUNKHOUSER.



Some Questions for Steel Square Fans

To the Editor:

Carterville, Mo.

As a reader of the AMERICAN BUILDER I see quite a few articles on the steel square and its uses.

I want some reader to answer some of these questions about the square. In the first place, what is the steel square? What did it originate from, and who made it? Who was the first to have it patented? Where did he get his ideas of how to make the steel square, and what did he take for his base?

I have used the steel square for thirty-five years, and know as much about it as anyone. I have made a study of it in all the books I could get, but have never seen the questions answered which I have asked. I know all about the cuts and uses of the square.

The AMERICAN BUILDER is fine, and I enjoy reading it. I am writing this to get carpenters to study the square. There are so many men who do not know the many ways in which the steel square can be used, many of them using it only for squaring off boards. The article on page 89 of the January number, by A. W. Woods, impressed me as to the ideas of the steel square. I want someone to go back to when the solar year was figured out and see if he can find out how the steel square was originated.

J. M. McDANIEL,

Contractor and Builder.



Well Located Shop Brings Business

To the Editor:

Huntington, Ind.

This is a busy town, and I am always busy. Even now they are advertising for carpenters around here. I maintain a shop the year around, but have no special use for it in the spring, summer and autumn; but it pays well in winter, for I do all kinds of cabinet work myself and like it very much. But as soon as the sun shines in spring, my shop being in the business section, enables me to use it mostly for an office and a place to keep tools, etc., and above all a bonanza to catch business.

I have read your paper with interest and gleaned many pointers from it, I assure you, and often feel like answering some of the questions asked.

JOHN H. UFHEIL,

Contractor and Builder.



1866
CURTIS
WOODWORK
"The Permanent Furniture for Your Home"

Two real reasons why you should urge your clients to build now.

1. Lumber, woodwork, and most other building materials are not high as compared with other products.
2. Curtis Standard Designs cost no more now than special woodwork cost "before the war."

ONCE you start using products that the customer knows, you begin to benefit from the good name which those products bear. **CURTIS** Woodwork is a name that represents a definite standard of quality to thousands of home builders throughout the country.

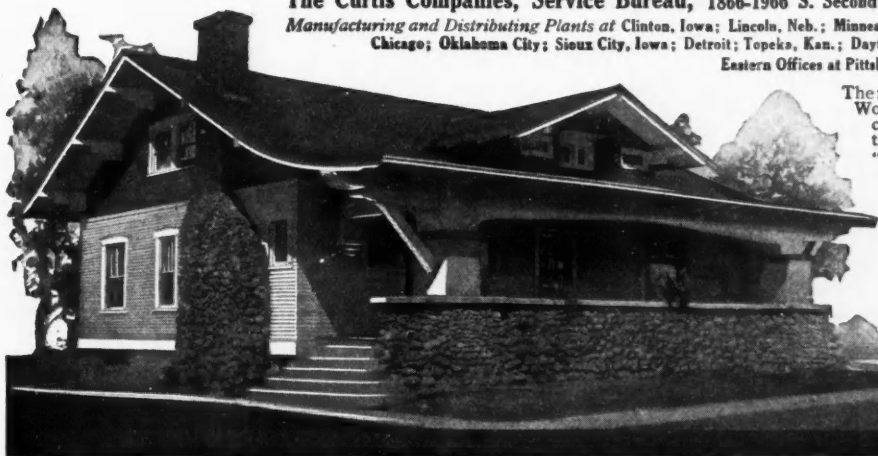
This year Curtis built-in furniture takes on an unusual value for you. Labor is scarce. You must build as fast as you can with the men you can get. Curtis built-in furniture comes ready to set in place. Use it and make the work you do count big in results.

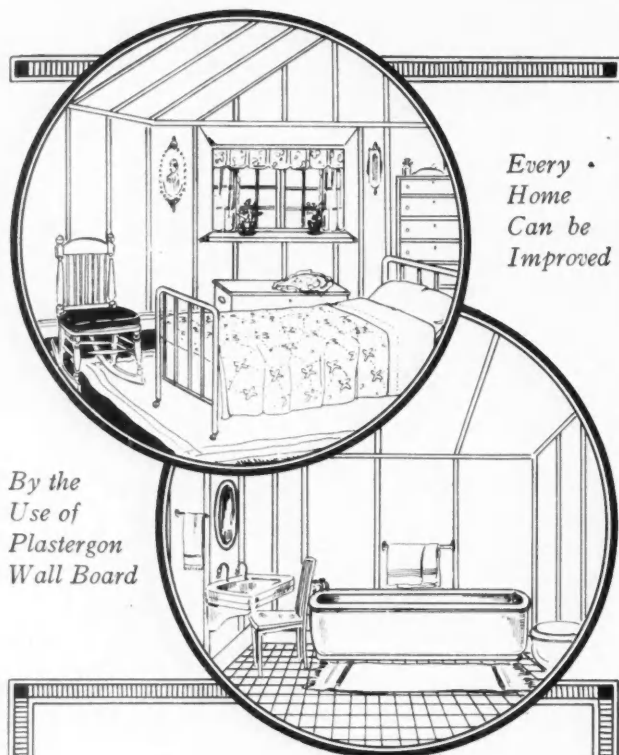
Ask a Curtis dealer to prove to you that there is actual profit for you in pushing **CURTIS** Woodwork. If you do not know a Curtis dealer, write us for the name of one near you.

CURTIS Woodwork is advertised in 19 National and State Farm Papers.

The Curtis Companies, Service Bureau, 1866-1966 S. Second St., Clinton, Iowa
 Manufacturing and Distributing Plants at Clinton, Iowa; Lincoln, Neb.; Minneapolis; Wausau, Wis.; Chicago; Oklahoma City; Sioux City, Iowa; Detroit; Topeka, Kan.; Dayton, Ohio
 Eastern Offices at Pittsburgh and Washington

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





Every
Home
Can be
Improved

By the
Use of
Plastergon
Wall Board

Permanent Economical Construction

THE demand today is for economical construction, yet it must at the same time be permanent. War-time economy is sweeping the land and the carpenter or builder who does not bring himself to a realization of conditions is very apt to experience a severe dropping off in his business.

Waterproof **PLASTERGON** TREATED WOOD FIBRE **WALL-BOARD**

is the ideal war-time economizer in the building field. It offers economical, yet durable construction. It is water-proof, warp-proof and twist-proof. It instantly meets the most exacting demand for an interior finish that is reasonable in price, highest in quality, artistic in appearance. And it further affords a saving of \$4.00 to \$6.00 per thousand feet because we size Plastergon before it leaves our factory.

Plastergon is the ideal material for repairing and remodeling old rooms, finishing attics, bath rooms, putting up partitions, permanently repairing damp, cracking plaster—and a hundred other uses. The high cost of building material and the scarcity of labor means that people are going to remodel and redecorate their old buildings instead of erecting new ones—and it is these jobs that mean plenty of work and good profits to all who go after them on the right basis. The Plastergon Sales Plan will get jobs of wall boarding for you and we urge that you ask us for particulars.

Write Now for Full Information About Plastergon
and Our Free Service Bureau

Plastergon Wall Board Co.
201 Philadelphia Ave., Buffalo, N. Y.



NEWS OF THE FIELD

Number of Paint Shades and Sizes of Containers Reduced

The Council of National Defense makes the following announcement:

To conserve tin and linseed oil and other ingredients of paint that are necessary for carrying on the war paint manufacturers now making in some cases as high as 100 shades of house paint will limit themselves after July 1 to thirty-two shades. They will also eliminate several sizes of containers. Recommendations to this effect have just been issued by the Commercial Economy Board of the Council of National Defense. The board consulted with practically all manufacturers and representative dealers in preparing the recommendations and is already assured of the co-operation of practically the entire trade.

Eight Shades of Enamel

The detailed limitations refer to all kinds of paint and varnish. Enamels, for instance, will be restricted by the manufacturers to eight shades, floor paint to eight, roof and barn paint to two, shingle stains to twelve, oil colors to thirty, carriage paint to eight, architectural varnishes to ten grades, marine varnishes to four, and so on. In many cases this will mean a reduction of 50 per cent or more.

Half-gallon cans are to be discontinued altogether for both paints and varnishes, as are also all cans smaller than half pints. In several kinds of paints, pint containers are to be eliminated and all cans smaller than gallons in barn and roof paint and shingle stain are to be dropped. The reductions are expected to involve little inconvenience to consumers.

Can Operate on Smaller Stocks

With the reduction in the number of kinds of paint and varnish and of the sizes of containers dealers will be able to operate on smaller stocks, and this will mean the release of large quantities of materials and capital that would otherwise be tied up on the dealers' shelves.

The program represents the voluntary action of paint manufacturers and dealers in meeting a national problem presented to them by the board.



Ransome and Oshkosh Combine

To supply the contracting trade of the United States with a full line of equipment from stock is the aim of a new consolidation in the contractors' equipment field.

The Ransome Concrete Machinery Company has made a combination with the Oshkosh Manufacturing Company. This alliance places the new company—the Ransome-Leach Company—in a position to handle the Western trade from the Oshkosh factory and the Eastern trade from the Dunellen, N. J., factory, giving a distributing center for machines both in the East and West. In addition, the Oshkosh Manufacturing Company are the makers of the "Eveready" saw rig and woodworking machinery, which has been added to the line. Duplication of mixers and pavers will be, in this manner,

(Continued to page 86.)

Our Plan Service Enables You to Create Profitable Business

Contractors and builders everywhere are utilizing the expert staff of designers and decorators we have organized for their benefit. Take advantage of this free service and send us a dimension sketch or blueprint of the room or rooms to be enclosed. Cornell experts will at once supply you with practical and original panel suggestions and cost estimates.

Economies affected by Cornell-Wood-Board in the saving of expense, labor, time and inconvenience, will create new, permanent business for you and satisfy the most exacting customer.

Cornell-Wood-Board

Excels for Walls, Ceilings and Partitions

Cornell-Wood-Board is a decorative asset which easily surpasses other interior finishes. It is a non-conductor of heat and cold, will not buckle, crack, warp or split, and resists fire and moisture.

The hundreds of varied uses of Cornell-Wood-Board appeal especially to the contractor and builder today, when building operations have been lessened by a war time conservation of man-power and materials. Cornell-Wood-Board is daily demonstrating its superior merit as the best covering for walls, ceilings and partitions of

FARM HOUSES RESIDENCES BUNGALOWS SCHOOLS THEATRES ARMY CANTONMENTS
DAIRY BARNs GARAGES CHICKEN HOUSES OFFICES STORES CHURCHES


Write Today for Free Samples of Cornell-Wood-Board and Complete Information Regarding Our Co-operation with Contractors and Builders

CORNELL WOOD PRODUCTS CO.
Dept. 103, 173-75 W. Jackson Boulevard, CHICAGO, ILLINOIS



Living Room Made Pleasant by Use of Cornell-Wood-Board

Garage Made Modern by Use of Cornell-Wood-Board



This Test

proves that
Moisture cannot injure-

Ceil-Board

SUPERSEDES PLASTER FOR WALLS AND CEILINGS

A New Haven Builder says:
"The writer has made comparative tests of various ceill and wall boards to determine which would absorb the least moisture, with the result that your Ceil Board 'won out.'"

A. J. Nottingham

This test shows that a good sized drop of ink remained on the broken edge of a piece of Ceil Board for 1 hour and 35 minutes.
Write for samples of fine finishes, booklet and "Special Service" proposition for builders.

THE PHILIP CAREY COMPANY
1021 Wayne Ave., Lockland, Cincinnati, Ohio



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 84.)

avoided, as well as the duplication of selling agencies. One large warehouse will be established in every principal city where the combined lines will be ready for immediate delivery. In addition to the woodworking machinery, a line of trench pumps, back fillers and material elevators has been added.



Concrete Institute Meeting Postponed

On account of the congestion of the railway service and the expressed wish of the government to restrict passenger traffic to the minimum of necessity at this time, the board of direction of the American Concrete Institute on January 16, 1918, decided to postpone the annual meeting of the institute until June 24-26, 1918, at Atlantic City, N. J.

Full preparation had been made for the regular meeting at Chicago on February 7, 8 and 9, 1918, but the directors feel that patriotism impels the postponement until the later date. Copies of the program amended to meet this condition, together with preprints of papers and reports, will be mailed to the members at least two months in advance of the convention.



Wait Goes with P. C. Ass'n.

Bertrand H. Wait has entered the employ of the Portland Cement Association and on February 1 will take up his duties with the association as district engineer in charge of the Portland Cement Association, New York office, 101 Park Avenue.



Annual Exhibit of Evening Work at Institute

Thursday evening, March 7, will be observed as "Visitors' Night" in the School of Science and Technology of Pratt Institute, Brooklyn. From eight to nine o'clock all the shops, laboratories and drawing rooms of the school will be open to the public, giving an opportunity to all persons interested in industrial education to observe the students at work in the various courses and to inspect the results and methods as well as the equipment and general facilities of the institute for conducting this kind of industrial training.

The School of Science and Technology provides instruction in industrial electricity, technical chemistry, mechanical drawing and machine design, strength of materials, stationary engineering and power plant machinery, internal combustion engine work, machine work and toolmaking, forge work, carpentry and building, pattern making, and trade teaching for the training of skilled workmen who desire to prepare themselves for the teaching of their trades. A special feature of

(Continued to page 88.)



Nearly Twice as Strong as Other Wall Boards!

You can apply a third more of Upson Board a day than of soft, punky boards. It works like wood: doesn't pull from the nails. No come-backs!

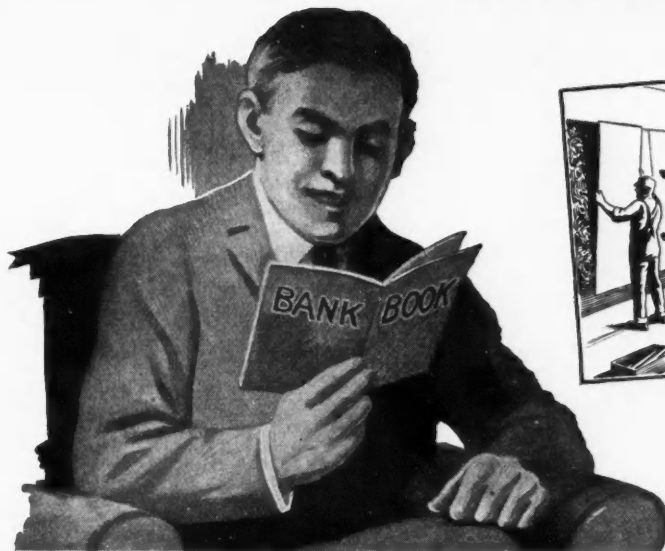
Better than Plaster for Walls and Ceilings



UPSON PROCESSED BOARD

The Most Dependable Board Made in America
Upson Board is made good to make good. It is not like other Boards! It is stronger, harder, stiffer—holds the record of not one complaint to every 2,000,000 feet used. Write for all the facts.

THE UPSON COMPANY Fibre Board Authorities
18 Upson Point, Lockport, N. Y.



Black Rock wallboard will fatten your bank balance

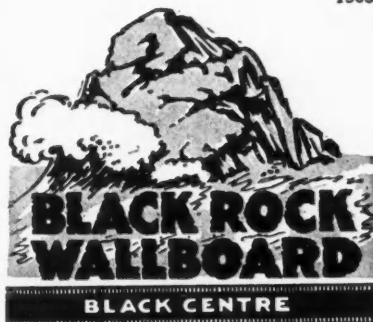
Finish one job with Black Rock Wallboard and you'll soon have more jobs hunting you.

Wallboard—especially good wallboard—is in great demand, as you know, for finishing extra rooms or whole interiors.

The quality of Black Rock Wallboard makes repeat orders sure. It is made of compressed layers of selected fibre, surface-sized, and has a black moisture repellent centre. It is convenient to handle, and nails and saws as easily as wood. Will not crack or warp.

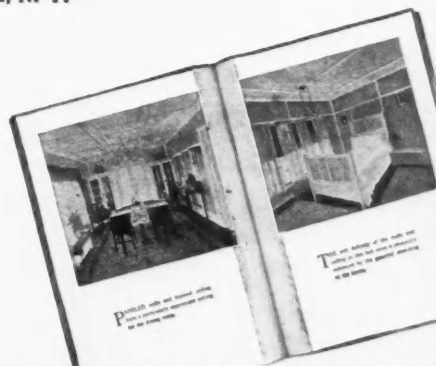
Our ability to make prompt deliveries (due to our immense resources) gives the dealer who sells Black Rock Wallboard, or the builder who uses it, a big advantage over his competitors. He not only gets the contract, but he makes good and paves the way for the next job.

BLACK ROCK WALLBOARD CO.
1505 ONTARIO PLACE BLACK ROCK, N. Y.



Wallboard Book Free

Illustrated in colors, this interesting book will be sent free of charge to any builder or lumber dealer, with an actual sample of Black Rock Wallboard and details of our free Plan Service for builders and our exclusive agency plan for dealers. Write today.



(Continued from page 86.)

the work this year is the organization of a number of new courses to meet the extraordinary demands for skilled mechanics arising from the war. These courses are boat woodworking, ship drafting, marine engine operation, and gasoline engine operation for men desiring to enter the aviation service.

This school is now giving instruction in its evening courses to more than thirteen hundred men who are regularly employed in various vocations and who use these courses as a means to prepare themselves for more effective service.

This will be the only public exhibit of the work of this school held this year.



Meeting the Time Penalty Clause in Building Construction During Low Winter Temperature in Chicago

A small building job that presented unusually difficult conditions on account of a time limit during very low winter temperature accompanied by the heaviest snowfall and the most severe blizzards in the city's history has just been completed within the time limit in Chicago.

Increasing business of the Wm. Glader Machine Works, Ann and Lake streets, Chicago, made necessary erecting an addition to their plant in the shortest possible time. About the middle of last December a contract was let to the A. Lund Construction Co. to erect a 50 by 100-foot one-story-and-basement machine shop on the corner adjacent to their present plant. A stipulation of the contract was that the entire work, including excavating basement, constructing foundation side-walls and piers and erecting superstructure was to be completed within five weeks with a penalty for every day of delay beyond the specified time.



Concreting in Zero Weather at Ann and Lake Streets, Chicago.

Work began immediately and proceeded with only a few hours' interruptions, notwithstanding temperatures ranging to 14 degrees below zero prevailed and during the early part of the construction there was the heaviest fall of snow on record with practically all streets except those on which were street car lines blocked to traffic.

The foundation work consisted of side retaining walls on three sides and a central row of piers. Forms for the concrete were constructed in the usual manner. About a foot

(Continued to page 90.)

You Should Know

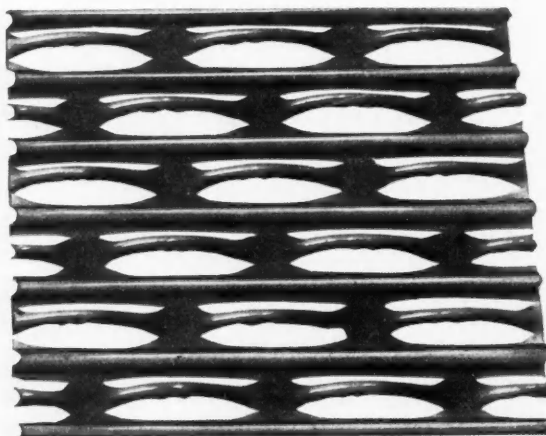
The experience of reliable contractors
who have made extra money by using

BOSTWICK "TRUSS-LOOP" METAL LATH

And the cost of
the material.

WHY?

For better
Profits in
1918



Write us giving
your name and
full mailing
address, the
results secured
will be given you
in the words of
practical men
and prices will be
quoted you.

DO IT TODAY

The Bostwick Steel Lath Co., NILES, OHIO

BEAVER BOARD

FOR BETTER WALLS & CEILINGS

There's an Ever Ready Supply at Your Dealer's



You can't expect Beaver Board results unless this trademark is on the back of the board you buy.

Ready for big jobs, little jobs, any kind of Beaver Board Jobs that all have a good profit in them for the contractor and builder.

In lumber yards or building supply stocks the country over, you'll find this sturdy lumber product in a full variety of sizes ready for immediate delivery.

Even though millions of feet of Beaver Board have been furnished the U. S. Government for Army Cantonments the enlarged facilities of the Beaver Board Companies have kept dealers everywhere liberally supplied.

When you order your stock, simply be sure that the Beaver Board trademark is on the back of every panel.

THE BEAVER BOARD COMPANIES

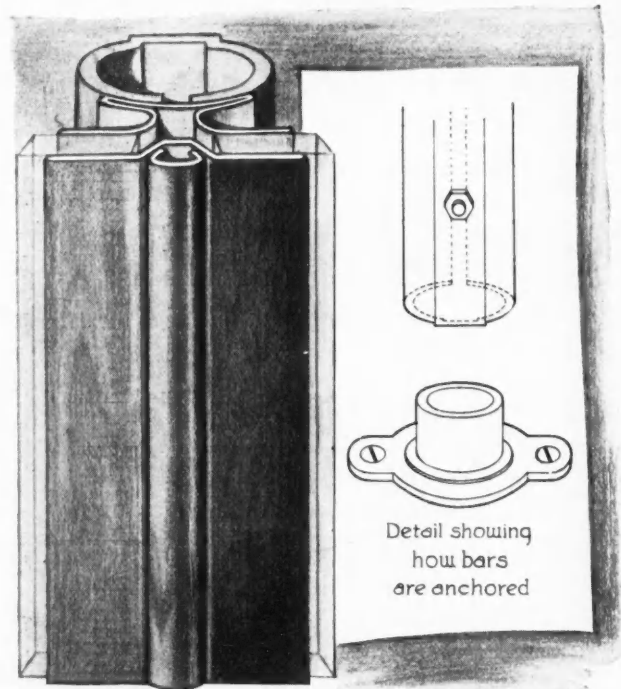
33 Beaver Road

Buffalo, N. Y.

Branches in Boston, New York, Baltimore, Cleveland, Detroit, Chicago, Minneapolis, Kansas City and San Francisco.

Manufacturers also of Beaver Greenboard and Beaver Blackboard
Distributors in Principal Cities. Dealers everywhere.





Detail of Kawneer Division Bar No. 12

WHY NOT REMODEL Store Fronts

THE Government has recommended **re-modeling** rather than **new buildings** of various kinds. This measure, designed to conserve efforts and building materials, opens up an excellent channel for **Store Front Remodeling**. You can, therefore, be patriotic and still make good money by installing

Kawneer STORE FRONTS

Co-operation on our side is assured you. Why not take a stroll down the streets some night and look over **store fronts** which look as if they needed remodeling?

Get in touch with the owner and offer **your** services to him. If there is a tenant, tell him of the advantages of Kawneer Store Fronts; that it will increase his business; that it will create a bigger prestige for him. Perhaps he will be able to help you land that store front job.

Our little Catalog "J" showing our store front construction will be sent you. Just pin the coupon to your letterhead. If at any time you want some information, don't hesitate to write us.

Kawneer Manufacturing Co.
NILES, MICHIGAN

PIN THIS COUPON TO YOUR LETTERHEAD

SEND ME WITHOUT OBLIGATION
A COPY OF CATALOG "J"

(Continued from page 88.)

inside of the forms for the sidewalls and about the same distance entirely surrounding the central piers other forms were built. Before the concrete was poured the space between the two sets of forms was filled with stable manure and firmly tamped.

The concrete was mixed in a 15 cubic foot "The Standard" low charging mixer which was placed close to the side of the structure, making it necessary to wheel the concrete only a short distance. Sand and stone were delivered by teams and motor trucks and the sand piled and heated by maintaining a fire in a central cylinder of boiler iron extending thru the pile. Water for the concrete was supplied by a large cask mounted on the mixer platform, and heated by a vertical type boiler placed near the end of the mixer. The stone was not heated and no anti-freezing preparations were used. As soon as a section of a sidewall or one of the piers was poured, the top was covered with stable manure about a foot deep and allowed to remain until it was necessary to remove it to begin the brick superstructure.

While the size of this job is not large, its interesting feature is in the fact that it was satisfactorily completed within the very short time limit under weather conditions so severe that few contractors would care to undertake outside construction work.



National Radiator Co. Takes Over Federal Radiator

With the purchase of the Federal Radiator Company of New Castle, Pa., the National Radiator Company of Johnstown, Pa., announces an increase of capital stock to \$2,500,000.

Main offices of the company will be retained at Johnstown, Pa. Officers of the new organization are: John H. Waters, president; S. B. Waters, vice-president and treasurer; G. C. Blackmore, vice-president and superintendent of manufacturing; R. E. Warden, general manager sales; Chas. L. Crouse, credit manager, and C. E. Resley, auditor.



The Bicycle as a War Time Economy

The bicycle is a very necessary and constantly increasing part of the equipment of modern armies. Back of the front line trenches they are in use by the tens of thousands and the new big American army now in the making will take thousands of "Sammies" to the front, mounted on sturdy, ever-to-be-depend-on bicycles. We are proud of the share that one of our Chicago manufacturers has had in the outfitting of the American and British armies in this respect.

While we have always known it to be true, it has been doubly emphasized in the World War, that the bicycle is the cheapest form of transportation in the world today. Needing no stable or garage, no groom nor expert repairman, requiring no food, fuel or water, it is always ready for service. It will go anywhere that a horse, automobile or motorcycle can go—and into and thru many places where other means of transportation cannot go.

And it is significant of the spirit of true economy which is sweeping the country that civilian bicycle riding is now showing a decided increase. The shoe leather saved and the carefare saved by the intelligent use of a good bicycle are real, easy to figure economies that more than pay for the cost of the bicycle. The time saved in going there and coming back again is an extra dividend, while the pleasant exercise given to the leg and body muscles when riding, the deep draughts of good fresh air that sweeps clear to the bottom

(Continued to page 92.)

MIDLAND TERRA COTTA

Dependable Service
and Material—Always



Our 1918 series of stock
plates are ready for you

ALFRED S. ALSCHULER, ARCHITECT,
USED MATTE CREAM ENAMELED
MIDLAND TERRA COTTA TO TRIM
THE ABOVE INDUSTRIAL BUILDING

MIDLAND TERRA COTTA CO
1515 LUMBER EXCHANGE CHICAGO

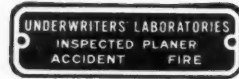
(Continued from page 90.)

of your lungs—mean an added physical efficiency and “pep” that, at school or at work—serves to increase your efficiency and enables you to do more and better work.



Wallace Planer Awarded the Label of Safety

About three years ago the Underwriters' Laboratories organized a “Casualty Department” designed to establish the same relation between casualty insurance companies and users of safety devices which has been in existence for many years



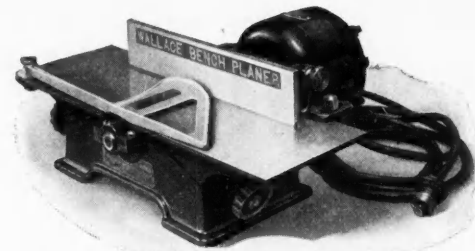
between fire insurance companies and users of fire protection and prevention apparatus.

This casualty department works in conjunction with a “casualty council,” which is composed of representatives of The National Workmen's Compensation Service Bureau, Federal Bureaus of Mines and Standards, State Labor Department of Pennsylvania, State Labor Department of New Jersey, the American Museum of Safety, and all the largest casualty insurance companies.

The casualty department also co-operates with other departments of the Underwriters' Laboratories in the investigation of devices and machines which have a bearing on both the accident and fire hazards.

The first complete woodworking machine submitted for approval as to accident and fire hazards was the Wallace bench planer, manufactured by a well-known Chicago company.

The casualty department made a thoro investigation of every constructional detail of this machine, together with



Bench Planer with Approved Safety Guard.

the patented flap and shutter guard, which is part of its regular equipment. After a few minor changes were offered, a complete report on the machine was made to the casualty council, and by casting a favorable majority vote they signified their approval.

At regular intervals an inspector of the Underwriters' Laboratories visits the factory, checking up every detail of the Wallace bench planers under construction, and authorizing the use of their label on every approved machine.



Sewer Pipe Makers Stage Instructive Exhibit

The exhibit of the Sewer Pipe Manufacturers Association at the Columbus Real Estate and Building Show, Jan. 23 to Feb. 2, took the form of a display of pipe joining methods in which the Flex-Form joint was used to demonstrate the advantages of poured joints over the traditional hand troweling method.

Lest some reader may think that special skill was employed in preparing the exhibit it may be worth while to record that an emergency arose just before the exhibit was placed and

(Continued to page 94.)

Ask Yourself This Question

WHY is it automobile products are rapidly taking the place of horses for ALL kinds of hauling? Why? Because they multiply your profits and territory by three. You can make quicker trips—more trips—and carry heavier loads.

The HOOSIER MAKE-A-TRUCK will save you money. The man who has for some time felt that he needed a light truck can no longer say, “I can't afford it.” A good Ford chassis costs about \$100.00. Attach a Ford chassis to the HOOSIER MAKE-A-TRUCK—you then have a dependable truck with only one-third the usual cost, and one-half maintenance upkeep. Depreciation is very small.

Why not use the modern way in doing your hauling? Follow the lead of successful contractors of today. You can do it. We show you how. The HOOSIER MAKE-A-TRUCK is the only answer to the cheap hauling question. It represents an investment considerably lower than a good team of horses and wagon. Maintenance expense only while in action.

Now is the time to buy. By writing now you can secure agency in your territory, and save yourself the agent's commission. Every contractor needs a HOOSIER MAKE-A-TRUCK—so sell him one, and make profit for yourself.

Are you going to save yourself this agent's commission? Write now—enlist our transportation engineers to solve your hauling problems. Learn exactly what the HOOSIER MAKE-A-TRUCK can do for you.

Sheet Metal Specialty Co.

Goshen, Indiana

Write
Today!



1 and 2 ton chain drive, 1 and 2 ton shaft drive for Ford cars. Also 1 1/2 ton chain drive universal make, the truck that fits any car



Some Answers to Questions That Frequently Arise Regarding Concrete Work

I want to build a concrete foundation, but as I won't be able to place the concrete all at one time, please advise how I can do the work from day to day and get the best results.

It rarely happens that all the concrete can be placed at one time unless it is a very small job. When you have done about as much work as you can do in a day on your foundation, put some clean jagged rocks in the top of the concrete, say a foot apart, with about half the rock protruding from the concrete. When ready to place more concrete, wet the top surface of the hardened concrete. The rocks will help to make a good bond with the new concrete. Of course, it is necessary to see that the old concrete is free from all dirt before the fresh concrete is deposited.

If there is a foamy coating on top, caused by use of a very wet mixture, remove or roughen this.

Can concrete be used in the construction of a tank for the storage of molasses and is it necessary to apply any special coating on the inner surface?

It is entirely practical to use concrete in the construction of a tank for the storage of molasses. At the present time there are some fifteen manufacturers of molasses feeds in this country using underground concrete storage tanks for this purpose. Some of these have been in service for six to ten years. A number of them were built without any coating on the inner surface other than a cement mortar finish, and no detrimental effect has been observed either on the concrete of the tank or upon the quality of the molasses.

The concrete tank being placed under ground keeps the molasses at a more uniform temperature, and once constructed according to recognized practice in building water storage tanks, etc., requires no further attention.

If these, or any other concrete-construction questions or subjects interest you, and you live east of the Mississippi, tell us what you are planning to build and we will send you a free copy of "ALPHA CEMENT—How to use it." This is a 96-page illustrated hand-book that shows how to build scores of concrete improvements. Ask for Book 10. Special information will be furnished free, on request, on the following subjects:

Walkway
Driveway
Roads
Small Bridges
Culvert
Foundation
Gutter and Curb
Storage Cellar
Spring House

Small Dam
Milk House
Ice House
Manure Pit
Septic Tank
Tennis Court
Concrete Roof
Silo
Corn Crib

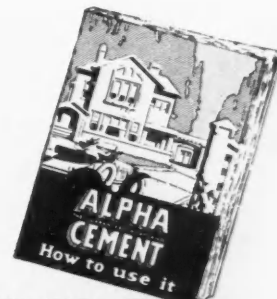
Storage House
Smoke House
Hog House
Poultry House
Dipping Vat
Tanks
Piers for Small Boats
Garden Furniture
Greenhouse

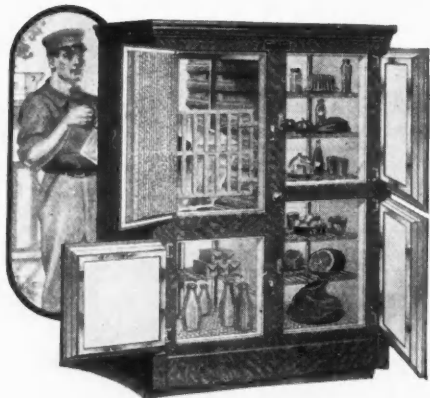
Fence Posts
Gate Posts
Walls
Sills
Lintels
Garages
Porch, Cellar and
Stable Floors
Cold-weather Concrete Work

Address: ALPHA PORTLAND CEMENT COMPANY, EASTON, PA.
or the nearest ALPHA CEMENT DEALER. (We will tell you who he is if you don't know.)

Concrete for Permanence

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER





Free Plan Services To Architects

The McCRAY FREE Plan Service places at your command the ideas and suggestions of our experts, blue prints and detailed specifications for including McCray refrigerators in your plans.

Convenience of location, outside icing arrangement, sanitary drain system, accessibility, exterior finish, etc., can be arranged for most satisfactorily when the plans are being made.

MCCRAY

Sanitary Refrigerators

include every possible convenience. Their patented system of refrigeration keeps a constant current of pure, dry, cold air circulating through every food compartment, absorbing all dampness and carrying off all odors. The drain trap is water sealed and sanitary.

Let Us Send You Suggestions

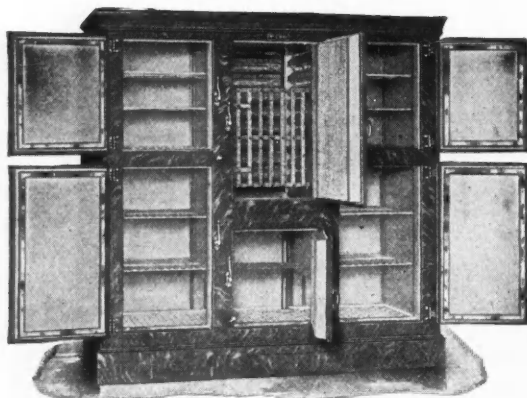
Simply give us a rough sketch of the floor plan of your building and our draftsmen will furnish you blue prints, suggestions and estimates for including McCRAY refrigerators. This service is FREE to you—take advantage of it without delay.

McCray Refrigerators are made in a variety of styles and sizes to suit every need. We build special sizes to order for particular needs or to fit any arrangement. Send today for catalog.

- No. 93 for Residences
- No. 62 for Meat Markets and General Stores.
- No. 71 for Grocers and Delicatessens Stores.
- No. 51 for Hotels, Restaurants and Clubs
- No. 74 for Florists

McCray Refrigerator Co.

860 Lake Street, Kendallville, Ind.
Salesrooms in all Principal Cities



(Continued from page 92.)

an eighteen-year-old helper who had never poured a sewer pipe joint before in his life was compelled to make the joints in the two structures shown in the picture.

Three 6-inch standard 2-foot lengths of pipe formed the spans. The bottoms of the increasers were sealed with cement and the entire constructions were filled to the top with water and maintained that head thru the show without so much as the sweating of a joint.

The span of the three lengths of vitrified pipe on one of these structures were joined with G-K compound represent-



Exhibit of the Sewer Pipe Manufacturers' Association at the Columbus Building Show.

ing the flexible drain line construction and the joints of the other span were poured with plain one-and-one cement and demonstrated the rigid drain line construction.

The joints remained absolutely dry and were so different in appearance from the ordinary test that it was often necessary to stir up the water in one T, making waves in the opposite T thru the span to show some skeptics that there was no camouflaging in the construction.

From the interest that architects, engineers and plumbers took and expressed in regard to this exhibit and the "Tight & Right" installation, it appears that the "Flex-Form" will be a very popular tool and a universal favorite in aiding the conscientious efforts in the conservation of metals.

The exhibit also included a miniature culvert with concrete headwall and water flowing thru it continuously.

A fireplace was erected for the purpose of displaying an installation of fire clay flue lining, one of the products closely allied with sewer pipe.



The Sheet Metal Specialty Co. Enters Truck Field

The Sheet Metal Specialty Co., Goshen, Ind., which is well known to builders and building material dealers for its silo extension roofs, steel silo chutes, and barn ventilators has recently branched out into the motor truck manufacturing business. They offer the "Hoosier Make-A-Truck," in several sizes; for Ford cars one ton and two ton chain drive, and one ton and two ton shaft drive; for other makes of cars one and one-half ton. The "Hoosier Make-A-Truck" is an attachment that goes on an automobile chassis either new or old to convert it into a serviceable truck. The price is remarkably low, and contractors and lumber dealers are being granted special agent's discount.

MEDUSA WATERPROOFING



Wholesale Grocery Warehouse, Marshfield, Wisconsin—made damp-proof with Medusa Waterproofed Portland Cement

Are You Forgetting Something?

When you build with concrete, do you make absolutely certain that the structure will be waterproof and damp-proof—as well as permanent?

Do you know that the best time to make concrete buildings, basements, etc., waterproof is *when you build*—not after you have finished?

Do you realize that Medusa Waterproofing is the *original* and best integral waterproofing material?

Medusa Waterproofing (Paste or Powder) is not a surface mixture—but a material that becomes an integral part of the concrete. It makes the concrete absolutely and permanently weather-proof and damp-proof and keeps it from cracking.

Medusa Waterproofing costs little to use—and it gives you the satisfaction of knowing that all of your concrete jobs will stand up under all conditions of weather and temperature.

Don't forget Medusa Waterproofing.

You'll Want This Booklet

The Medusa Waterproofing Booklet is full of interesting data which you can use every day. We will gladly send it to any contractor who wants it. Don't wait until tomorrow—fill out the attached coupon *now* while you are thinking about waterproofing.

The Sandusky Cement Co.
Dept. G. Cleveland, Ohio

SANDUSKY
CEMENT CO.
Dept. G,
Cleveland, Ohio

Send your Waterproofing Booklet.

Name.....

Town.....

State.....

THE SANDUSKY



CEMENT COMPANY



“You Get The Job”

“We’ve been watching you, young man. We know you’re made of the stuff that wins. The man that cares enough about his future to study an I. C. S. course in his spare time is the kind we want in this firm’s responsible positions. You’re getting your promotion on what you *know*, and I wish we had more like you.”

The boss can’t take chances. When he has a responsible job to fill he picks a man *trained to hold it*. He’s watching *you* now, hoping you’ll be ready when the opportunity comes.

The thing for you to do is to start today and train yourself to do some one thing better than others. You can do it in spare time through the International Correspondence Schools. Over 5000 men reported advancement last year as a result of their I. C. S. training.

The first step these men took was to mark and mail this coupon. Make your start the same way—and make it right now.

I. C. S., Box 8152 Scranton, Pa.

TEAR OUT HERE

INTERNATIONAL CORRESPONDENCE SCHOOLS

Box 8152 SCRANTON, PA.

Explain, without omitting me, how i can qualify for the position, or in the subject, before which I mark X.

<input type="checkbox"/> ARCHITECT	<input type="checkbox"/> Law for Contractors
<input type="checkbox"/> Architectural Draftsman	<input type="checkbox"/> BUSINESS (Complete)
<input type="checkbox"/> Contractor and Builder	<input type="checkbox"/> BOOKKEEPER
<input type="checkbox"/> Building Foreman	<input type="checkbox"/> Stenographer and Typist
<input type="checkbox"/> Concrete Builder	<input type="checkbox"/> Higher Accounting
<input type="checkbox"/> Plumber and Steam Fitter	<input type="checkbox"/> GOOD ENGLISH
<input type="checkbox"/> Heating and Ventilation	<input type="checkbox"/> Common School Subjects
<input type="checkbox"/> Plumbing Inspector	<input type="checkbox"/> Mathematics
<input type="checkbox"/> Foreman Plumber	<input type="checkbox"/> SALESMANSHIP
<input type="checkbox"/> CIVIL ENGINEER	<input type="checkbox"/> ADVERTISING MAN
<input type="checkbox"/> Surveying and Mapping	<input type="checkbox"/> Window Trimmer
<input type="checkbox"/> Structural Engineer	<input type="checkbox"/> Show Card Writer
<input type="checkbox"/> Structural Draftsman	<input type="checkbox"/> CIVIL SERVICE
<input type="checkbox"/> ELECTRICAL ENGINEER	<input type="checkbox"/> Railway Mail Clerk
<input type="checkbox"/> Electric Lighting	<input type="checkbox"/> AGRICULTURE
<input type="checkbox"/> Electric Wiring	<input type="checkbox"/> Poultry Raising
<input type="checkbox"/> Electric Car Running	<input type="checkbox"/> MINE FOREMAN OR ENGINEER
<input type="checkbox"/> MECHANICAL ENGINEER	<input type="checkbox"/> Metallurgist or Prospector
<input type="checkbox"/> Mechanical Draftsman	<input type="checkbox"/> Chemical Engineer <input type="checkbox"/> Spanish
<input type="checkbox"/> Shop Practice	<input type="checkbox"/> Gas Engineer <input type="checkbox"/> German
<input type="checkbox"/> Sheet Metal Worker	<input type="checkbox"/> AUTOMOBILES <input type="checkbox"/> French
<input type="checkbox"/> STATIONARY ENGINEER	<input type="checkbox"/> Auto Repairing <input type="checkbox"/> Italian

Name _____

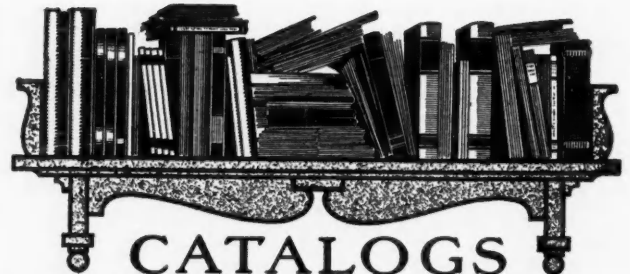
Occupation & Employer _____

Street _____

and No. _____

City _____ State _____

If name of Course you want is not in this list, write it below.



CATALOGS BULLETINS & BOOKS RECEIVED

The following literature, dealing with subjects of interest to builders, is now being distributed:

Supervisory Service for Automatic Sprinklers is the subject of the January Issue of “Grinnell Automatic Sprinkler Bulletin,” which is published quarterly by the General Fire Extinguisher Company, New York City. By their new supervisory and valve-alarm service which has now been perfected, they are prepared to guard absolutely a sprinkler system against human carelessness and ignorance or the malicious tampering of enemy fire bugs bent on crippling our industries.

Trus-Con Steel Buildings is the timely subject of a new illustrated booklet issued by the Trussed Concrete Steel Company, Youngstown, O. It features standardized structures built with their standard stock units, which are carried for immediate delivery. These sheet steel building units are making all kinds of emergency and portable structures at the present time, including warehouses, shops, dining halls, barracks, offices, etc. One gets a new conception of the adaptability of knock-down sheet metal buildings in looking thru this booklet. 24 pages and cover, size 8½ by 11 inches.

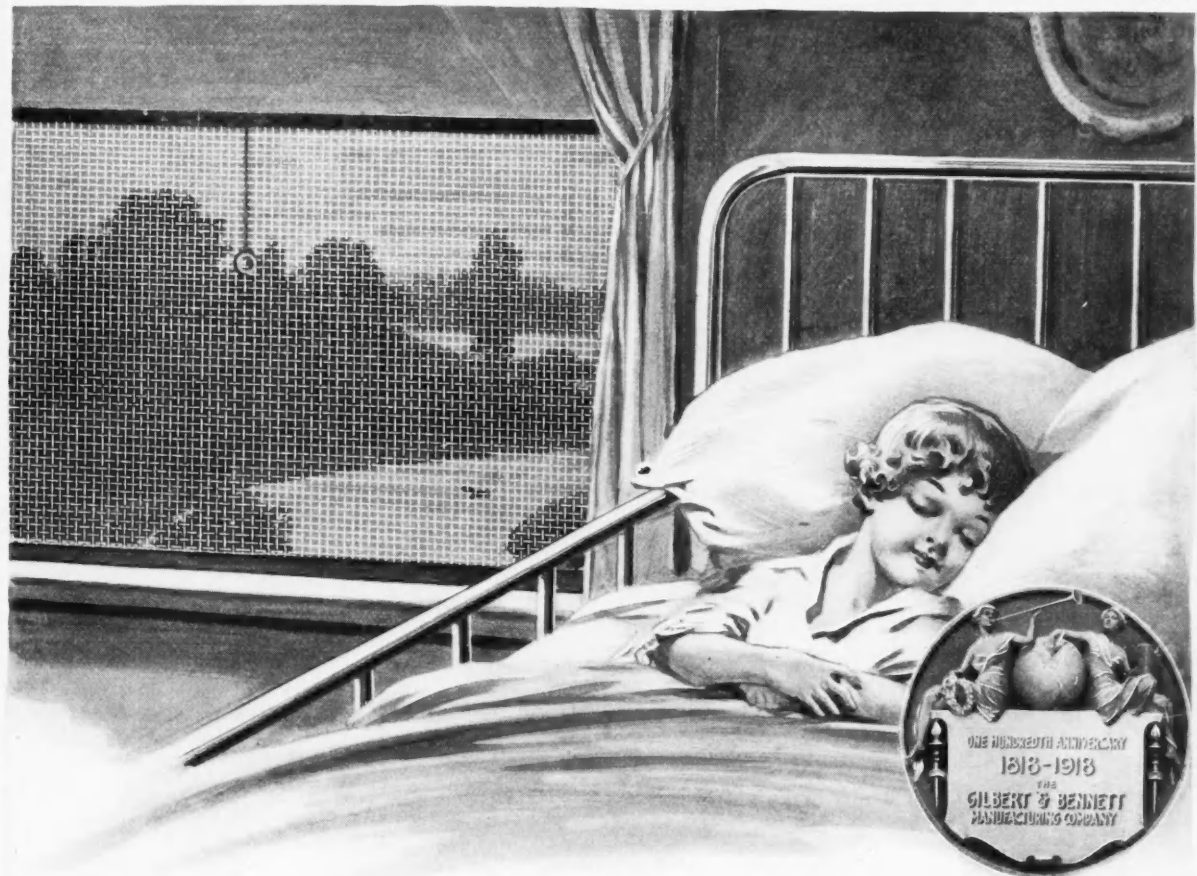
“Rules and Regulations for School House Construction” has been issued by the Pennsylvania State Board of Education, Harrisburg, Pa. It gives the regulations which every Pennsylvania builder or architect should have for handling any public school (including rural) remodeling or building. 24 pages, size 6 by 9 inches.

“One Hundred Years of Progress” is the title of a deluxe souvenir book prepared by the Gilbert & Bennett Mfg. Company, of Georgetown, Conn., and Chicago, to celebrate their one hundredth anniversary. It goes back to the time in 1818 when Benjamin Gilbert began the business, which has continued to the present day. A number of rare old etchings are reproduced, and the portraits of the leading men of this organization are shown. The story of the beginning and the development of this wire cloth business reads like a romance. The binding is cloth, stamped in a special design and with gold. The book is a worthy addition to any library.

“Building More Comfort Into the Farm Home” is the text of a well planned pamphlet by The Beaver Board Companies, Buffalo, N. Y. It shows by well selected photographs and drawings, how wall board is being used for remodeling farm houses and for lining farm buildings. The descriptive matter points out a number of helpful ideas for the user of Beaver Board.

National’s 1918 Hardware Catalog. The new catalog of the National Mfg. Company, Sterling, Ill., featuring their complete line of builders’ hardware, is a book of 104 pages, size 7 by 10 inches. It takes up in clear and logical order their equipment for sliding barn doors, their garage door hardware, their door pulls, hasps, hinges, push plates, door and window screen hardware, ball bearing floor hinges, butt hinges, and ornamental hinges. All

(Continued to page 98.)



Protect Your Child With PEARL Screens

The time of disease is the time of flies and mosquitoes. Keep these out! They carry disease as well as cause discomfort—have your screens made with permanent, handsome G & B PEARL Wire Cloth. It is the biggest selling branded wire cloth in America because it does away with painting and repairs and offers wear qualities that are unusual.

No painting—no repairs—when you use G & B PEARL—to say nothing of the fact that it insures handsome, sanitary screens that won't bag and don't sag.

Lots of imitations of G & B PEARL but it pays to look for the two copper wires in the selvage and the Round Tag on each roll that insures the genuine article. The rust-proof qualities of PEARL are the result of a process exclusive with Gilbert & Bennett. No other manufacturer can make it.



We have a dealer in your town. See him or write us if you are interested in permanently screening doors, windows or porches. Samples and literature FREE.

Address Dept. J.

The Gilbert & Bennett Mfg. Co.

New York Georgetown, Conn. Chicago Kansas City

PEARL is made in two weights—regular and extra heavy

The best hardware dealer in your city sells "PEARL"

Catalogs, Bulletins & Books Received

(Continued from page 96.)

items are indexed. The illustrations are very satisfactory and the descriptive matter pertaining to each item gives just the desired information.

The "Stewart Monogram" is a new house organ or business booster published "every little while," it is stated, by the Stewart Mfg. Company, 165 Rath St., Waterloo, Ia. The first two issues contain eight pages each, size 7½ by 10½ inches. Contractors will find this little paper readable and interesting.

"Pigs — Pork — Profits." The Lichty Metal Products Company, Waterloo, Ia., thus make use of "apt alliteration's artful aid" to boost their two newest specialties for hog houses, namely: The Monitor Suction Cupola, and the Monitor Twin Windows. The circular is printed in black and green, and makes a timely appeal for fresh air and sunshine in the hog house in order to make pork. They also have a blueprint of a model hog house which they are distributing.

"Novo Power" makes its bow. The first issue of a new house organ is out, issued by the Novo Engine Company, Lansing, Mich. It is designed for sales agents of Novo products. Clarence E. Bement, vice-president and general manager of the company, states in his Foreword that the principal work of this publication will be to keep you posted on the different outfits they are bringing out and the improvements they are continually making on their old outfits. It is a 4-page paper, size 9 by 12 inches.

David White Company Surveyors' Instruments. In a new illustrated catalog of 32 pages and cover, size 6 by 9 inches, the David White Company, Milwaukee, Wis., fea-

ture their extensive line of surveyors' instruments, including engineers' transits, architects' levels, contractors' levels, leveling rods, tapes, spirit levels, etc. The importance of accuracy in any building or engineering work is acknowledged by all. The cost of accuracy is not great when the proper instruments are employed.

"Concrete on the Farm" is the title of a new book by the Atlas Portland Cement Company, New York City. It contains 94 pages, size 8 by 10 inches, extremely well illustrated with clear photographs, well drawn sketches, and working plans. Every imaginable use of concrete on the farm is pictured and described. Rural builders and farmers will find this a gold mine of inspiring suggestions and useful information.

"Radford Screen Goods for 1918." In a very neat booklet of 16 pages and cover, size 4 by 8 inches, the Radford & Wright Company, Oshkosh, Wis., feature their enlarged line of screen doors, window screens, and porch screens. A combination door having a glass panel for winter when used as a storm door, and a screen panel for summer, is an interesting item of their line. Quite a choice of panel styles is offered in these combination doors. The Radford screen goods can be obtained thru any retail lumber dealer.

According to one of the German forestry journals, the Kaiser, in 1908, killed 1,995 pieces of wild game, including seventy stags, elk and roebuck. At that time he had slaughtered a total of 61,730 pieces of game, more than 4,000 of which were stags, and was the leading exterminator of wild life in the world. As a slaughterer of men, women and children since 1914, however, he has been the foremost exterminator of human life in all history.



Lowest installation cost

**SORLIEN
CEILING BED
CUTS COST OF BUILDING**

A sleeping porch equipped with Sorlien Ceiling Beds is a valuable addition to your home.
You can install one or more "Sorliens" in your present porch without detracting from its usefulness by day.
The "Sorlien" gives to small homes the convenience of a den, library or sewing room by day, and converts these rooms into comfortable bed rooms by night.
If you are planning on building and wish to reduce costs without omitting convenience, put your problem up to us.
Price of bed \$45.00, f. o. b. Minneapolis. Write today for booklet.

Sorlien Ceiling Bed Company
406 Sixth Ave. South
Minneapolis, Minn.

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



For Remodeling  **Is Unequaled**

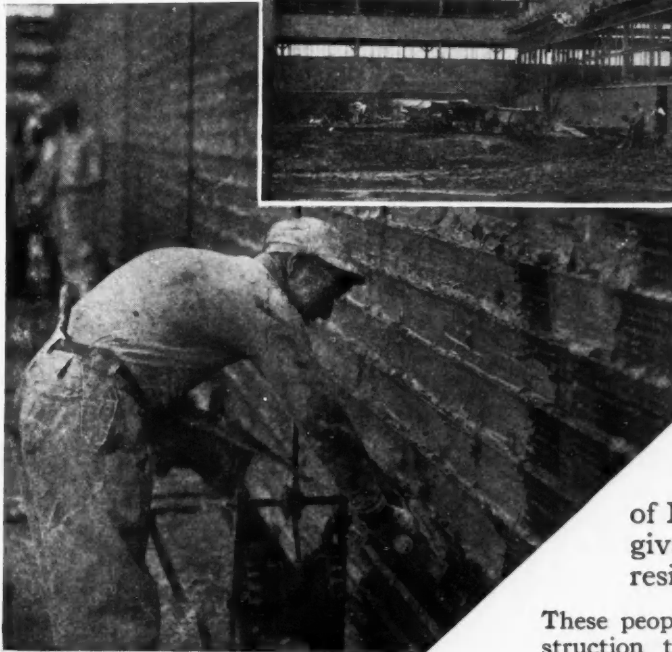
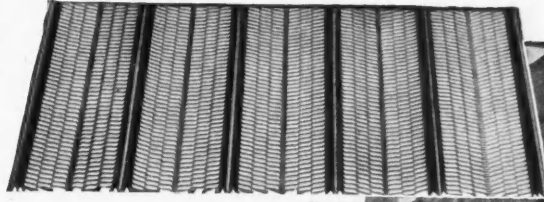
Trade Mark Registered, U. S. Patent Office, No. 94745

It handles easily—saws clean and smooth. Won't warp, shrink, chip or crack. Adaptable to any method of decoration. Keeps out heat, cold and moisture. Compo-Board is the only wall board with the wood core. That is the feature that makes Compo-Board superior to other wall boards and also instantly identifies the genuine. Sold by dealers everywhere in strips 4 feet wide and in lengths of 1 to 18 feet, as desired. Write for interesting book and sample.

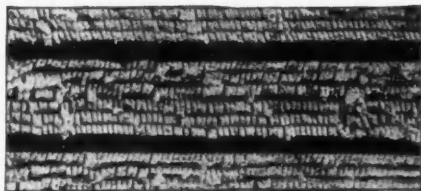
The COMPO-BOARD CO., 5777 Lyndale Ave. No. Minneapolis, Minn.

RIBPLEX Combined Centering and Reinforcing Plate

Ribplex plates 24 in. wide and from 6 to 12 feet long are carried in stock at the Berger plant and at all Berger branches in gauges 24, 26 and 28. This means prompt shipment. The ribs, 3/4 of an inch high and spaced 4.8 in. center to center, give great strength while the expanded metal between gives a perfect bond with concrete or plaster.



Applying the scratch coat



The Inside Key—ready to back plaster



Being used on the exterior walls of the new

NATIONAL MALLEABLE CASTINGS BUILDING

at E. 93rd St. and Quincy Ave., Cleveland, O.
F. W. Mark Construction Co., Gen. Contractors

Over one hundred and five thousand square feet (about 2-2/5 acres) of Ribplex were used in this building to give a light, strong, economical, fire-resistant and permanent wall structure.

These people were so well satisfied with Ribplex Construction that they are using it also in their new plant at Sharon, Pa.

For ROOF construction, Ribplex offers the same advantages of fire-resistance, light weight, strength and permanence, at a cost comparing favorably with that of less substantial inflammable constructions.

An actual sample and literature will be sent promptly on request.
Address Dept. K-3.

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.



A glimpse of the finished building—Firm, even, fire-resistant, permanent walls of Ribplex construction.



For the Handy Man Around the Farm

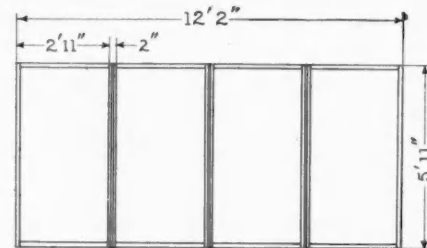
Cheap Hotbed for the Home Garden

A HOTBED measuring 6 by 12 feet will be plenty large enough for the average home garden. And a bed this size may be so easily and cheaply constructed that it is a shame to do without one. The necessary material, except sash and glass, will probably be found somewhere around the workshop or store-room.

The frame should be laid 12 feet 3 inches long (inside), by 5 feet 11 inches wide (outside). The back of frame, which should be the side to the north, will be 14 inches high, and the front will be 8 inches high. The end pieces must be sawed to follow the slope from back to front, but must stand about 2 inches

higher than the front and back. This will hold the sash in place, as it is about 2 inches thick. Every 3 feet a 1 inch strip should be run across from back to front. These cross bars should be 2 inches wide, and let down into the back and front pieces so as to be flush. Then, in the very center of each cross bar should be nailed a strip one half inch wide. This will form a slide for the sash, and at the same time allow one half inch for swelling.

The frame may be nailed together, but a better way would be to bolt it to inside corner pieces of 2-inch by

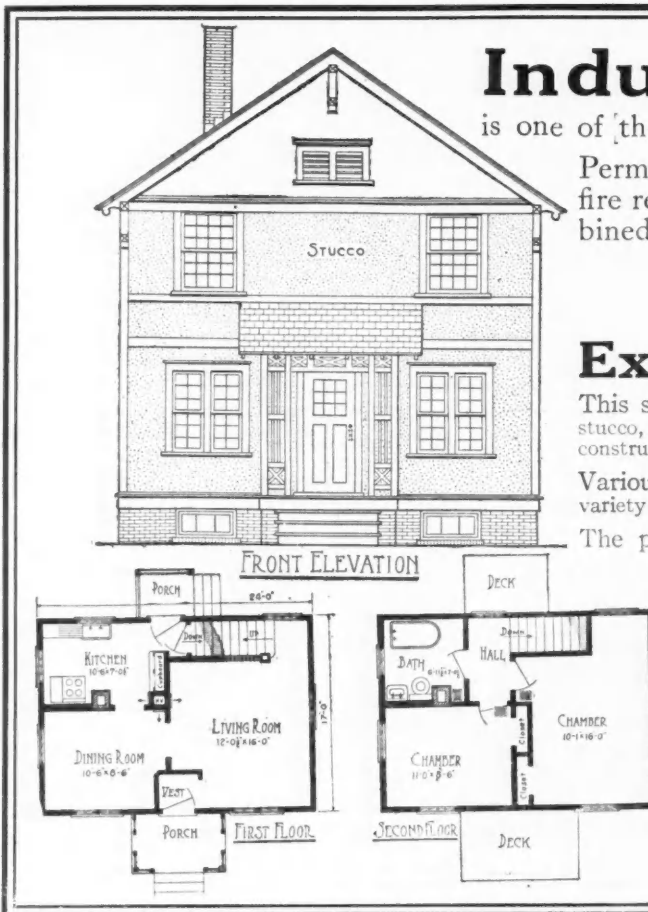


TOP VIEW OF HOT BED
A Good Size for Home Hotbed.

2-inch wood. Two coats of paint will prevent warping and rotting of timber.

The stock size sash is three feet by six. Four of them will be necessary for a hotbed the size given. Each sash is divided into three rows of six panes. Each pane is 10 inches by 12 inches. The most economical method is to buy the sash unglazed and put

(Continued to page 102.)



Industrial Housing

is one of the big problems before the country today.

Permanence, sanitation, minimum cost of upkeep, fire resistance and reasonable first cost are combined to best advantage in stucco and plaster on

Berger's Expanded Metal Lath

This strong material, embedded right in the plaster or stucco, reinforces it in all directions and prevents cracking. Such construction is fire resistant, sanitary, permanent.

Various color treatments and finishes will help to give variety to a group of houses.

The plan shown here has been prepared by us as a practical five-room industrial house. A slight extension will make it a six-room house.

If you are interested in an industrial housing proposition as Architect, Contractor or Business Executive, we shall be glad to supply you with full details of this plan together with estimates, additional plans and suggestions. Address Dept. F-3.

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.



\$10

Brings this latest Improved ALOE Convertible Level

Combination Level and Transit

Think of it—for only \$10.00 we will send this latest improved Aloe Convertible Level, just to prove to your satisfaction that this is an instrument you can't afford to be without. The picture we show you of the Aloe is as accurate as a photographic reproduction can be made. The description we give you and our statement of the work that can be done with it are absolutely accurate in every respect.

But—neither the picture nor the description will so convincingly prove the real merits of this remarkable combination level and transit as an actual trial of the instrument itself.

When you have it in your own hands, carefully examine its fine construction and improved features and finally when you set it up and see how simple it is to operate—how exacting in accuracy it is for doing any kind of leveling work—then and then only will you know for an absolute certainty that the Aloe is the best convertible level you could possibly buy, and that it is without a doubt, the

Biggest Value Ever Offered For never before has there been a convertible level constructed of such high grade material, of such fine workmanship and finish, so complete in every particular and of such absolute accuracy that has ever sold at such an astonishing low price—on such easy terms.

We can afford to give you this bigger and better level value because we make the instrument and sell direct to the man who uses it. There are no middleman's or dealer's profit for you to pay. Therefore you can get this high grade, accurate combination transit and level at actually a bargain price and if after a thorough trial you decide to keep it, you have nearly a year to pay for it.

10 DAYS' FREE TRIAL MONEY BACK

We have such great confidence in the Aloe Convertible Level that we want you to try it 10 days at our risk. Put it to the most exacting tests. See with what minute accuracy you can level up a wall or foundation—grade a walk—survey a lot—or any similar work where accuracy is required. In fact it is so accurate you can detect an error of 1-16th of an inch in 300 feet.

Examine its construction—note the freedom from complicated and unnecessary parts or attachments, how simple it is to operate. Then if at the end of 10 days you are perfectly satisfied that the Aloe is the best instrument you can get for doing your work, keep it and pay the balance (\$55.00) in eleven monthly payments of \$5.00 each. If not perfectly satisfied return it to us and we will immediately refund your \$10.00.

You Save \$5.00 The regular cash price of ordinary convertible levels as sold by dealers is \$70.00. Our price for the Aloe is only \$65.00, but all you need send now is \$10.00. As a matter of fact even if you paid all cash for the Aloe, you would save \$5.00—but we do not ask you to send all cash for it. Send only \$10.00—we will ship the instrument promptly subject to your examination.

Why Pay More? No other convertible level at anywhere near the price begins to compare with the Aloe in material, workmanship, finish, accuracy and all-around adaptability. And you can't afford to buy a cheaply constructed level at any price. On the other hand it is not good business—nor is it necessary for any man to invest a big sum in a highly complicated instrument so cluttered up with attachments that only a trained expert can use it.

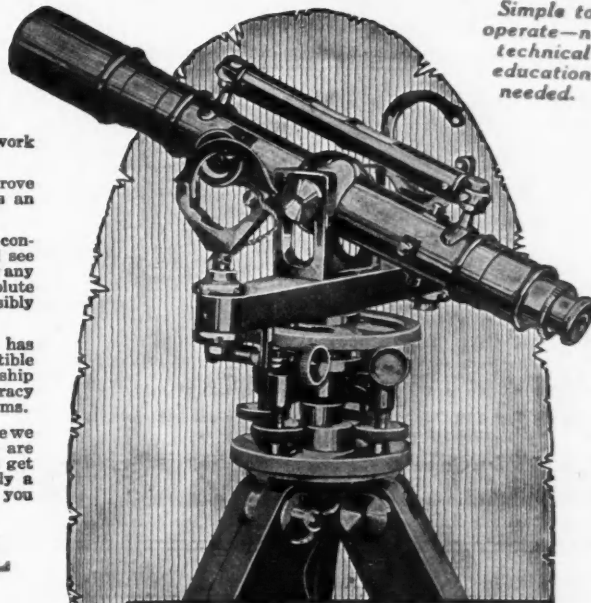
The Aloe will do accurately all the work you will ever have for either a transit or a level. We positively guarantee this and leave it to you to be the judge.

USE COUPON NOW

Fill out and mail the coupon to us today with \$10.00 and prove to yourself that the Aloe Convertible Level is just what you have been waiting for. You run absolutely no risk—if you are not perfectly satisfied at the end of 10 days' trial, return the instrument at our expense and get every cent of your money back. If the trial convinces you that it is the biggest value ever offered and that it will prove profitable to keep it, simply pay the balance at the rate of only \$5.00 per month for eleven months. You have everything to gain and nothing to lose, so send coupon right now—today.

A. S. ALOE CO.,
624 OLIVE ST. ST. LOUIS, MO.

Simple to operate—no technical education needed.



SPECIFICATIONS

"Telescope:" Length 12 inches, magnifying power 18 diameters, achromatic terrestrial of good definition focussed by rack and pinion. The bubble to telescope is 5 inches long and graduated to facilitate leveling up. Tangent screw is of improved style. Horizontal circle, diameter 4 inches graduated to degrees, numbered 0 to 90 each way with vernier reading to 5 minutes. When the instrument is used for leveling, the telescope is reversed and placed on the fixed bearings on each side. The instrument packs whole and stands erect in a nicely finished box.

Mail At Once

A. S. Aloe Co., 624 Olive St. St. Louis, Mo.

Enclose find \$10.00. Please send me one fully equipped Aloe Convertible Level. If found satisfactory I agree to pay the \$55.00 balance in eleven monthly payments of \$5.00 each. Otherwise I will return the level within 10 days and you are to return to me my \$10.00.

Name

Address

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



Drop us a line and tell us what you are figuring on building this Spring

HUNDREDS of progressive contractors are finding that brick construction is as easily handled as frame; and it has many advantages—the principal one is, that it gives your client a more permanent home and relieves him of the continual expense of painting and upkeep.

Then we will tell you how "Artfashioned" Brick can be used to advantage

Artfashioned Brick are made in a wide range of colors and textures. There is a Nuvoque Brick for every style of architecture—from the modest bungalow to the best building in town.

You can get "Artfashioned" Brick from your Local Dealer

We have hundreds of lumber dealers in the Middle West now handling "Artfashioned" Brick. If your local dealer does not carry our line ask him to write us. We prefer to furnish it through his yard.

BOONE BRICK TILE & PAVING CO., Manufacturers of Artfashioned Brick, Boone, Iowa
Sales Offices all through the Middle West

MADE IN IOWA!

WITHOUT OUR ESTIMATE YOU HAVE NO COMPETITION

The
Whitacre-Greer Fireproofing Co.

Manufacturers of
**HOLLOW TILE FIREPROOFING
and BUILDING BLOCK**

Waynesburg, Ohio

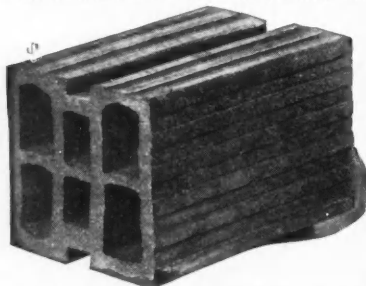
Chicago Office:
538 South Dearborn St.

Pittsburgh, Office:
7138 Jenkins Building

FIREPROOFING MADE OF PURE FIRE CLAY

"HEAVY DUTY" INTERLOCKING TILE

The **STRENGTH** of BRICK and the **DRYNESS** of TILE are combined in Vigo American Heavy Duty Interlocking Tile to make a **BETTER** wall than solid brick and at two-thirds the cost.



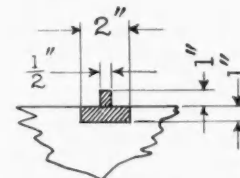
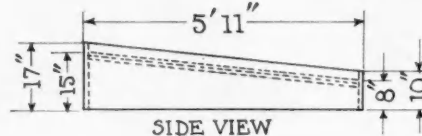
We also manufacture Fireproofing, Building, Arch, Partition and Drain Tile, Hollow Brick and other shale products. Send for our literature.

VIGO-AMERICAN CLAY COMPANY
7th and Ohio Sts., TERRE HAUTE, IND.

(Continued from page 100.)

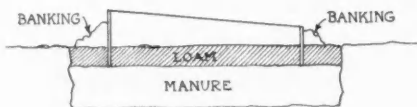
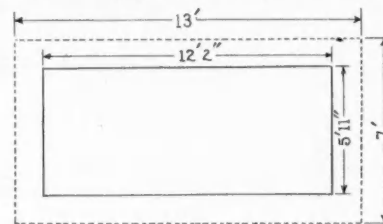
in the glass at home. This is done by means of small, special brads. Putty may be used, also, but is not absolutely necessary. For convenience small knobs or handles should be fastened to the sash frame.

The pit is the important part. It must be about 19 inches deep and 1 foot larger each way than the frame. This is to allow for even heating of sides and



corners. Fresh horse manure should be used. It should be turned several times before covering, so that it will start heating evenly. The manure should be placed in the pit to the depth of 15 inches. It should then be dampened and thoroly tamped down. Then the frame should be set down, and sufficient fresh, loamy garden soil put in to level with the ground. Dirt or manure should be banked against the sides of the frame. At the end of three or four days the bed is ready for planting.

For raising sweet potato plants, or where the temperature does not fall more than three or four degrees below the freezing point, cheap muslin is often used



in place of glass. It is nailed securely to one end, and fastened to strips the width of the hotbed every two or three feet—to prevent sagging. To uncover the bed for ventilation it is simply rolled up on the strips.

The location for a hotbed is an important item too often overlooked. It should be in a sheltered place, protected from the north and west winds. Water supply should be convenient, as it is necessary to frequently water the plants.

A cold-frame is constructed in just the same way as a hotbed, except that no manure is used—consequently a pit is not needed.



The Acid Test

EVERY foot of your house drain and house sewer is a test tube of chemical reactions, due to the presence of acids and alkalis that are found in all sewage and wastes, to greater or less extent.

In this case it is not the contents, but the pipe that is tested. It makes a vast difference to the happiness of the household whether or not the pipes buried beneath the household will withstand the acid test.

Chemists use vessels of porcelain and glass — vitrified materials — for their experiments

as well as to store their strongest chemical reagents. Years of use make no difference in them.

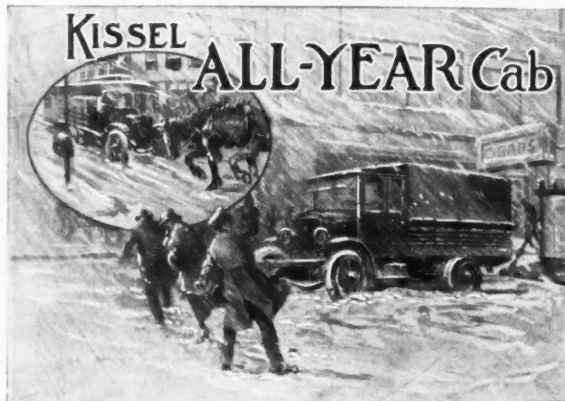
Vitrified Clay Pipe has the same acid resisting qualities as the chemist's equipment, coupled with a high degree of physical strength and toughness. It needs no coating to protect it from the sewage. Its own glazed surface is the best interior that science could invent.

Its use is the best possible guarantee of permanence and freedom from drainage ills.

THE SEWER PIPE MANUFACTURERS' ASSOCIATION
JOHN L. RICE FIELD COMMISSIONER SECOND NATIONAL BLDG AARON, OHIO

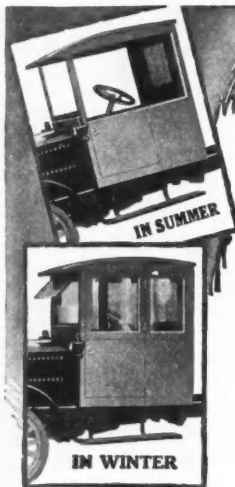
Vitrified Clay Pipe

"THE PERMANENT PIPE"



Snow-Proof, Wind-Proof Rain-Proof

THE past winter has proven the acid-test for the **ALL-YEAR CAB** in the building business. By fully protecting drivers, uninterrupted schedules were maintained, increasing financial results for owners.



As this winter, so this spring, the **ALL-YEAR CAB** will afford your drivers full protection from March winds and spring rains, increasing their efficiency and eliminating unnecessary layups of your trucks.

In summer it is quickly changed into a cool, open housing by removing the winter attachments, consisting of side, door and rear windows.

KISSEL TRUCKS

There are five new sizes—a truck for every business—a size for every purpose. The Kissel built-in strength in frame, axles, springs, brakes and other structural parts—the sturdy Kissel-built power plant equal to all power demands, insure dependable performance and reliable service necessary to maintain continuous haulage and delivery schedules.

Investigate the new Kissel Trucks and the **ALL-YEAR Cab**. Send for literature and specifications, or see your nearest Kissel dealer.

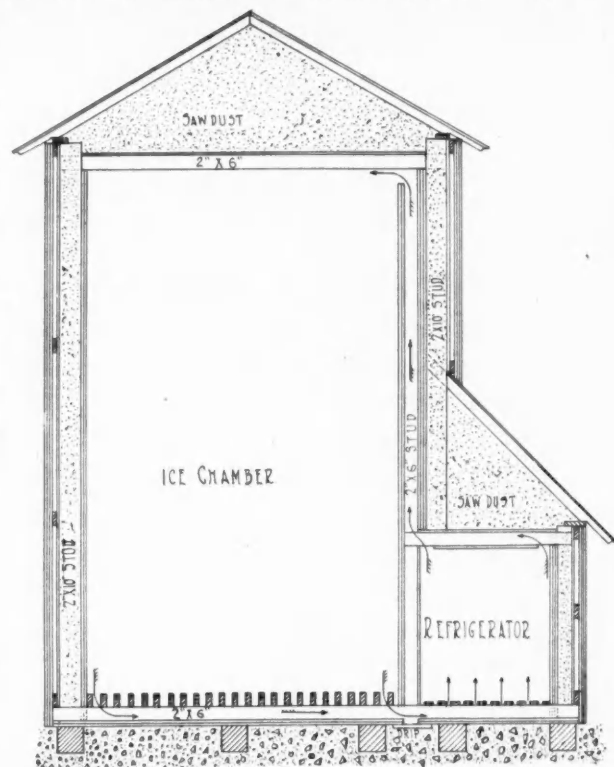
KISSEL MOTOR CAR CO., Hartford, Wis., U. S. A.

Building the Farm Ice House

The foundation for the ice house is the first important consideration. Drainage is necessary to carry away the drip, so that provision must be made for the percolation of drip water thru a porous substance so that it will run it off a safe distance.

If the ground is sandy and slopes away from the ice house the proposition is easy. The only thing necessary is to make a ditch around the foundation and to lay a tile drain around the ice house with an opening pointing down hill. The tile is simply covered with sand and the ground made level. On the top of this level surface is placed a foot of sawdust. As the ice melts, the sawdust becomes damp and packs closely under the weight of the ice, so that air cannot penetrate thru to the ice from the bottom in sufficient quantities to do any harm.

If the ground is especially fine grained clay, then a porous foundation must be made to get rid of the moisture. This can be done by filling in between the sills of the building with gravel, putting the coarse gravel in the bottom and the finer gravel on top.



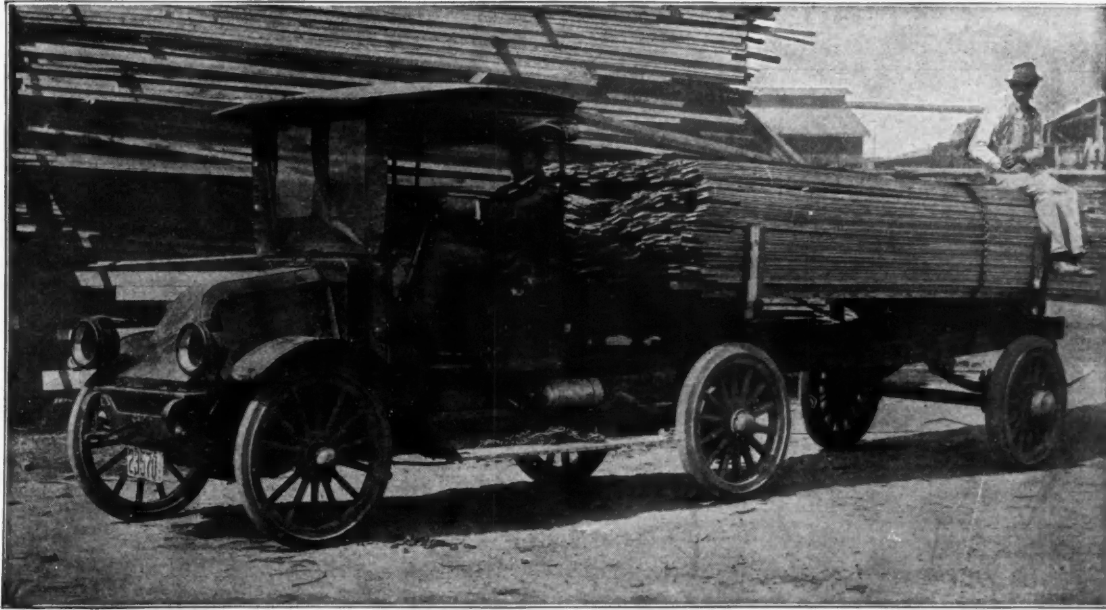
Practical Ice House and Cooling Room.

In clay ground the tile drain should be placed inside of the building at the bottom of the gravel. The gravel foundation should be about a foot deep. Then a foot of sawdust is filled in and the ice put on top of the sawdust in the usual way.

The ice house building should correspond in appearance with the other farm structures.

It is not necessary to insulate an ice house for farm use. The only requirement is that the ice space should

(Continued to page 108.)



King
TRAILER
 ANN ARBOR
 MICH.

Hauling 3 Tons With a $\frac{3}{4}$ Ton Truck

THIS is profitable hauling. Here's a load of lumber—nearly 4 tons—piled on a King 3 Ton Pole Trailer and pulled by a $\frac{3}{4}$ ton International Truck.

The reserve power of the motor—which otherwise represents wasted fuel—pulls the King Trailer. The load is distributed 30% on the motor truck, 70% on the King Trailer. The motor truck is actually carrying no more than its rated capacity—the brunt of the burden is on the King Trailer.

Building Supply dealers, lumbermen—write. Find out how you can triple your hauling capacity at original hauling cost. Do quantity hauling, or get two or three trailers and haul in relays—the most profitable way of all.

King Semi-Trailers and Pole Trailers furnished in 1½, 3 and 5 ton capacities.

Prompt delivery assured. But get your order in now.

KING TRAILER COMPANY
 1201 Main Street Ann Arbor, Michigan

Yearly Average Price Paid to Producers of 10 Crops for 10 Calendar Years

Year	Wheat	Corn	Oats	Barley	Rye	Buck-wheat	Flax-seed	Pota-toes	Hay	Cot-ton
	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Dols.	Cts.
1917.....	200.8	129.2	64.9	109.5	163.9	157.5	292.8	177.0	14.01	23.2
1916.....	122.2	73.8	43.1	67.2	94.8	89.9	197.8	104.3	11.25	14.8
1915.....	103.8	71.2	44.4	55.2	89.7	81.5	150.6	52.1	11.27	9.5
1914.....	88.4	71.4	40.2	50.0	69.9	78.7	134.3	72.4	11.96	9.2
1913.....	78.7	59.4	36.7	52.9	63.2	71.7	121.4	64.2	11.66	12.3
1912.....	86.6	65.6	44.6	69.6	76.5	75.1	160.5	81.4	14.25	11.0
1911.....	86.3	55.3	38.1	74.0	77.5	70.6	207.1	91.6	13.56	11.5
1910.....	96.4	62.1	40.8	56.2	73.9	71.6	218.1	59.1	11.96	14.0
1909.....	101.3	65.9	49.0	59.0	75.8	76.8	131.3	76.9	9.95	11.7
1908.....	90.3	63.4	48.7	58.9	74.2	77.5	108.0	74.8	10.00	9.5
10-year average.....	105.5	71.7	45.0	65.2	85.9	85.1	172.2	85.4	11.99	12.7

Prices for 1917 increased over 1916 prices, according to the following percentages, based on the above table: WHEAT, 61%; CORN, 57.1%; OATS, 66.4%; BARLEY, 61.4%; RYE, 57.8%; BUCK-WHEAT, 57%; FLAXSEED, 67.6%; POTATOES, 59%; HAY, 80.3%; COTTON, 63.8%.

These figures have been taken from the December, 1917, issue of "Monthly Crop Report," which is published by an authority of the Secretary of Agriculture. Study them carefully so that you may be well informed on this important subject.

"BERGER'S"
Classik
STEEL CEILINGS

Saved This Building

The fire was held in check by the ceiling until the firemen arrived, and the ceiling itself was not seriously injured. Berger's "Classik" Steel Ceilings are made in a wide variety of artistic designs. They are beautiful, safe distinctive, permanent and fire retardent. Write for Catalog D-3.

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.



The Wild Building, Canton, Ohio. Fire originated in the rear of Nelson's Millinery Store—read Mr. Nelson's letter below:



Rear section of store just after the fire. Note failure of plaster on walls.



WILD, NELSON, PHOT.

NELSON'S MILLINERY
208 TUCKERMAN ST. E.
CANTON, OHIO Jan. 28th. 1918.

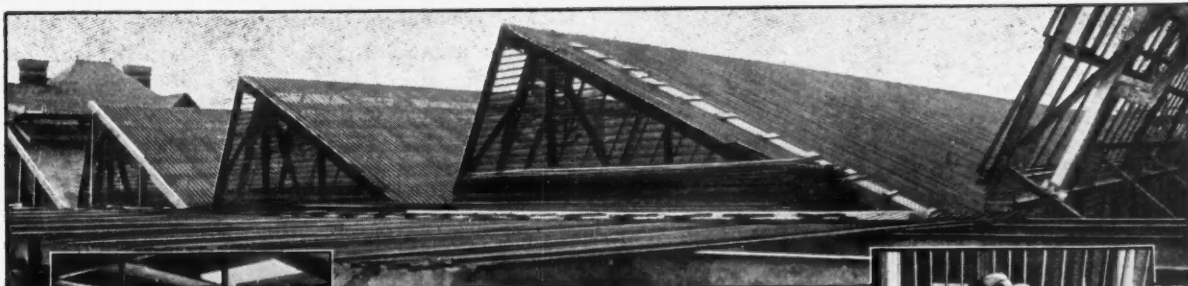
The Berger Manufacturing Co.,
Canton, Ohio.

Dear Sirs:

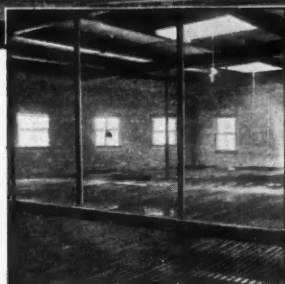
On Dec. 24 fire broke out in the rear of my millinery store in the Wild building. All of the stock and fixtures in the rear of the store were destroyed but thanks to your Steel Ceiling my entire Spring stock of millinery on the second floor and in fact the entire building was saved.

The ceiling itself has now been refinished and looks as good as new.

Very truly yours,
Geo. Nelson



Self-Sentering saw-tooth roof ready for concrete, Model Gas Plant, Pittsburgh



Self-Sentering floor, Bryant & Chapman Creamery, Hartford, Conn.



Self-Sentering partition Bower's Sanitarium, Lancaster, Pa.

A Self-Sentering Roof or Floor Pays Big Dividends in Safety, Economy, and Permanence

America-at-war reveals a high rate of incendiary fires, an increased need of protection for men, machines, and supplies, and the imperative necessity of making every dollar count. These are some of the reasons why you should specify Self-Sentering for concrete mills, office buildings, and factories. Self-Sentering and concrete construction is notably fire-safe, staunch, economical, and durable.

Self-Sentering

Form and Reinforcement for Concrete Construction

The illustrations show the use of the materials for concrete roofs, floors, and partitions. In all cases, this construction will withstand the hottest flames, and is amply staunch to bear a load in excess of standard requirements. Yet its use means less concrete, less weight, and lighter framework throughout the structure.

Self-Sentering is a combined centering and reinforcing for concrete roof and floor construction. It consists of a parallel series of heavy, cold-drawn ribs connected by diamond mesh, the most efficient form of expanded metal.

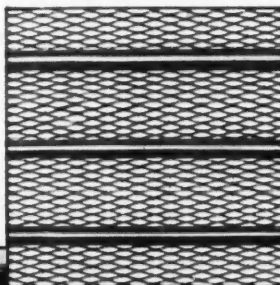
Self-Sentering is economical because it does away with

temporary wooden forms. It acts as a form for wet concrete, and becomes a permanent part of the finished structure. This type of construction saves labor because the large, stiff sheets are quickly and easily put in place, and the concreting is relatively simple.

In addition to all types of concrete roof and floor construction, Self-Sentering can be adapted to many special uses requiring either straight or curved forms. There is also a heavy demand for Self-Sentering on alteration and repair work.

Every engineer and builder should write today for our complete data on Self-Sentering.

A small section of Self-Sentering showing its formation



The hope of the allied cause is American industry. The hope of American industry is the buying public. If common-sense saving gives way to a universal policy of blind hoarding, the backbone of industry will be broken and the allied cause greatly imperiled. Judicious spending will keep industry going, and not in the least compromise legitimate national economy.

The General Fireproofing Co., YOUNGSTOWN, OHIO.

Manufacturers of All Types of Metal Lath, Concrete Reinforcements, Waterproofings

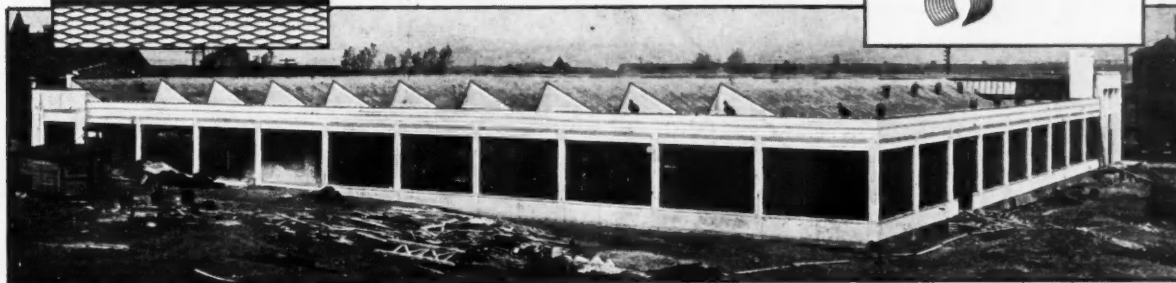
BRANCH OFFICES

New York City	Buffalo	Cincinnati
Chicago	Philadelphia	Utica
Kansas City	San Francisco	Atlanta

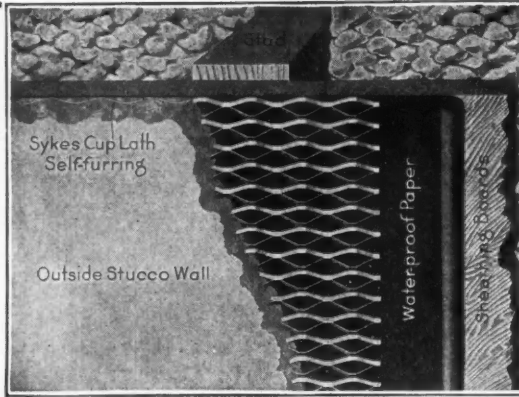
Trade Mark Registered U. S. Patent Office **The Best Dealer in Your Town Has GF Products in Stock**

Complete Self-Sentering Roof on Model Gas Plant

Self-Sentering for curved form work



The Sykes Cup Grips



A perfect key for stucco (or plaster) is assured by the peculiar cup formation of

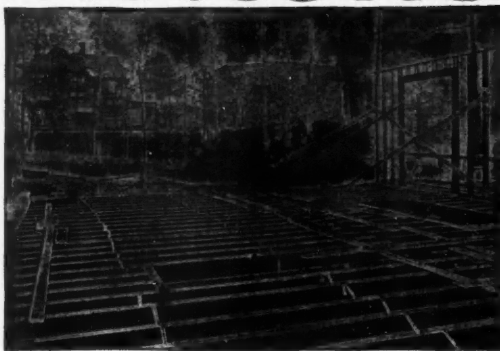
SYKES EXPANDED CUP METAL LATH

Self-Furring Saves Money and Labor

- Sykes** is easily applied—can't be applied wrong.
- Sykes** is heavier than other metal lath of same gauge; therefore more rigidity and durability is assured.
- Sykes** is the best metal lath for interior as well as for exterior work.

Write for Free Sample and Booklet. Specifications for Stucco on Metal Lath

Sykes Metal Lath & Roofing Co.
504 Walnut St., Niles, Ohio



Residence of E. H. Fickinger, Yonkers, N. Y.—Metal Lumber floor and partition construction used throughout—F. W. Connor, Archt.

BERGER'S Metal Lumber

These light, strong, unburnable studs and joists possess advantages of economy, durability, light weight and ease of erection, unequalled by any other form of fire resistive construction.

Write for technical Bulletin L-3

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.

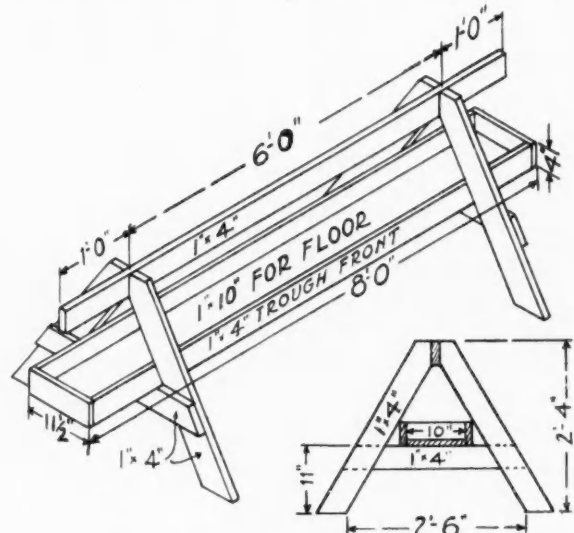
(Continued from page 104.)
be about 12 feet across and about 14 feet deep. There must be room all around the ice for sawdust or chopped straw or hay to keep the air away from the ice. Twelve feet in diameter gives sufficient quantity to maintain a low temperature so that the ice melts very slowly. Any material used for packing should be watched as the ice settles.

The building consists of sills, studding, boarding and roof, with a continuous door in one side that reaches from the silo to the gable. Sixteen feet from the bottom of the sill to the top of the plate is sufficient height. The ice will then reach within two feet of the plate, so the distance between the top of the ice and the collar beams will give sufficient head room for a man to stand and use his packing tools.

Weight of Ice

Ice is heavy. A cubic foot of ice weighs approximately 58 pounds. One ton of ice occupies nearly 35 cubic feet. A cube of ice 11 by 11 feet, and 11 feet high, if solid all thru, would weigh about 38 tons.

These figures give an idea of the amount of space required to store as much ice as needed, allowance always being made for melting, also for voids between the cakes of ice.



Sheep Feeding Trough Easily Made.

Consider This

IN 1914 one bushel of wheat would buy three pieces of lumber 2 by 4—16. This fall one bushel of wheat will buy seven pieces of 2 by 4—16.

Or, if you plan to build a gambrel roof barn 32 by 56 feet with 14-foot shed along one side:

In 1914 it took 40 hogs to pay for this barn, while at the present time it requires only 24!

There never was a better time to buy lumber than the present.

THE renter who sings "Home, Sweet Home" and "My Country 'Tis of Thee" is kidding himself and serenading his landlord.—Billy Sunday.



Maritz & Henderson, Architects

B. F. Charville, Builder

*Residence of H. L. Sallenback, Saint Louis
Built of Kiln Run Hy-tex Chaldeans.*

Don't encourage your customers to put off building. Every building-material man knows that prices cannot go down during the war, or for some time after the war.

For some years to come there will be no more favorable time for building than the present.

And don't forget to tell your customers of the advantages in a brick house—beauty, comfort, safety against fire and economy against depreciation.

Every one of our offices is ready to cooperate with you.

Hy-tex

The Standard of Quality in Brick

Hydraulic-Press Brick Company

Saint Louis

Branch Offices: Baltimore, Chicago, Cleveland, Davenport, DuBois, Pa., Indianapolis, Kansas City, Minneapolis, Omaha, Philadelphia, Roseville, Ohio, Toledo, Washington

Largest Manufacturers of Face Brick in the World

Send for these Booklets

"Hy-tex Brick" tell you the many advantages in building with brick, and something about the completeness of the Hy-tex line and the benefits you can derive from Hy-tex Service.

"Suggestions for Small Hy-tex Homes"—shows the possibilities of brick in small homes. It is illustrated with perspectives and floor plans of small brick houses.

Mail the Coupon NOW

Hydraulic-Press Brick Co.
St. Louis, Missouri

Send me "Hy-tex Brick" and "Suggestions for Small Hy-tex Homes."

.....

.....

Name

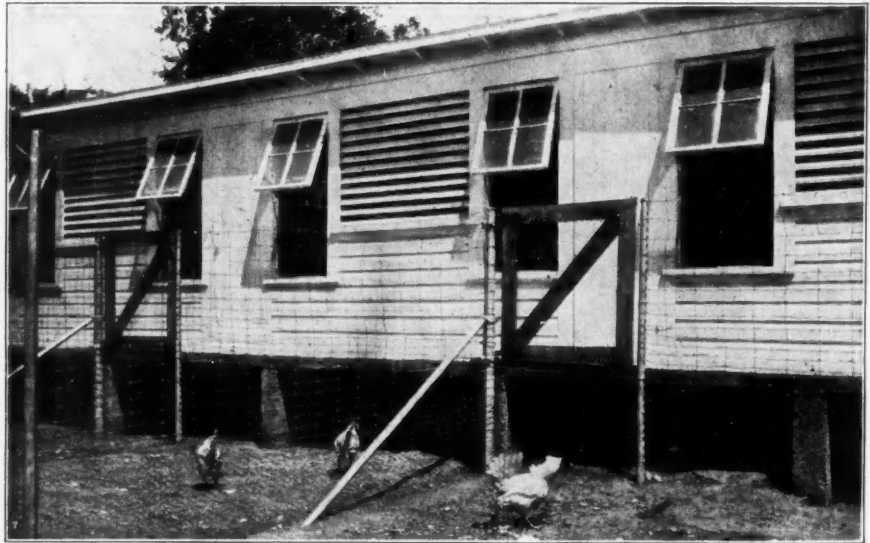
Street

City State

Concrete Elevated Walk for Large Poultry House

When concrete began to be extensively used in permanent farm improvements, it was readily granted a place in foundations and floors of poultry houses where its usefulness was particularly recognized because it protects the superstructure from the dampness of the earth and renders the building inaccessible to rats.

To illustrate this application, we are showing a small section of the 135-foot breeding house at the Missouri State Poultry Experiment Station, located at Mountain Grove, Mo. Owing to the great length of this building, a concrete walk 3 feet wide was built in front of the house, elevated high enough above ground to provide an opening under the walk from each pen into the adjoining yard. In this way the frequent opening and closing of gates is avoided and it is much easier to keep the respective flocks separated. This house contains nine units, or pens, and the doors from the walk are so arranged that they open alternately from the walk and from the inside, permitting the attendant to enter or leave the



Poultry House at Missouri State Poultry Experiment Station.

house without traveling far out of his way. Double spring doors in the inside partitions separate adjoining units. The floor in this house is of concrete.—H. H. RICE.

Will Building Materials Become Cheaper?

THE conclusion reached by O. E. Hawk, president of the Youngstown, O., real estate board is that it will never be cheaper to build than now; or as he exemplifies his idea: "It is, therefore, hard to see

(Continued to page 112.)

CUT OUT SHELLAC AND HIGH-PRICED VARNISHES

This year you can thank your luck that despite the high cost of everything there is still one way you can cut down expenses, and even make an improvement in the results you can give. It's in using DEGRAH.

Now You Degrah Instead of Shellac

DEGRAH is the lowest priced product on the market—the only one with which you can do all general shellacking, varnishing and lacquering—and you cut its cost still lower by thinning it $\frac{1}{2}$ with turpentine. A great improvement over shellac, because it is water-proof, resilient, durable, and retains its high natural gloss indefinitely.

Full information gladly sent on request. Go to your jobber or dealer and say "I want DEGRAH," and insist upon getting it. If your regular dealer hasn't it, write us, and we'll tell you who has.

Don't forget **KEYSTONA** and **EDELVICE** Enamel. They are also unequalled products for quality and economy on the finished job.

KEYSTONE VARNISH COMPANY
2007 Keystone Building BROOKLYN, N. Y.



Mortar Colors

Every brick building has mortar joints. In some buildings the joints are wide and take up as much as one-quarter of the entire wall area. Usually architects are very particular to specify the correct quality and color of the face brick, but sometimes fail to mention anything about the Mortar Color. Needless to say this method of doing things is fast becoming obsolete. Architects have learned to specify

Clinton Mortar Colors

They have been the standard for more than a quarter of a century. They have been tested and inspected by the best experts, but Clinton Mortar Colored Joints have shown that they have stood the acid test of time. Clinton Colors are packed and shipped with the greatest of care and shipments can always be made promptly from our large and varied stock.



Write today for our samples and catalog

Clinton Metallic Paint Co.
Clinton, N. Y.

"VENDOR" SERVICE

The Reliable

Roofing Slate Service

**Genuine Bangor
Albion Bangor
Jackson Bangor
No. 1 Pen Argyl**

**Slatington Big Bed
Washington Big Bed
Trout Creek Big Bed
Franklin Big Bed**

The various qualities of Roofing Slate quoted above are the product of the following companies and are sold EXCLUSIVELY through the Vendor Slate Company.

WE CAN MAKE IMMEDIATE SHIPMENTS IN ANY QUANTITY—IN ANY SIZE—IN ANY QUALITY.

Genuine Bangor

Genuine Bangor Slate Co.
Old Bangor Quarry
American Bangor Quarry
Bangor Excelsior Quarry
Star Quarry
Royal Quarry
North Bangor Slate Company
North Bangor Quarry
Bangor Washington Quarry
Bangor Quarry Company
Bangor Union Quarry
East Bangor Consolidated Slate Co.
East Bangor Consolidated Quarries
Bangor Central Slate Company
Bangor Central Quarries
Bangor Supreme Slate Company
Grand Central Quarries
New Bangor Valley Slate Company
New Bangor Valley Quarries
Bangorvein Slate Company
Peerless Quarries

Albion or Jackson Bangor

Jackson Bangor Slate Company
United States Quarry
Valley Quarries
No. 5 and 6 Jackson Bangor Quarries
Albion Vein Slate Company
Stoddard Quarries
Genuine Bangor Slate Company
Albion Quarries
M. L. Tinsman Slate Company
Tinsman Quarries

No. 1 Pen Argyl

Hercules Slate Company
Hercules Quarries
Hammann Slate Company
Northampton Quarries
Shimer Slate Company
Alpha Quarries

**Slatington Big Bed
Washington Big Bed
Franklin Big Bed
Trout Creek Big Bed**

Provident Slate Co.
Genuine Washington Slate Co.
Genuine Franklin Slate Co.
Prudential Slate Co.
Washington Slate Co.
Trout Creek Slate Co.
Blue Mountain Slate Co.
Blue Valley Slate Mfg. Co.
Custard Slate Co.
Carbon Slate Co.
Thomas Slate Co.
Ellis Owens Slate Co.
Lobb, Parry & Co.
Henry Quarries Co.
Royal Blue Slate Co.
Highland Slate Co.
Manhattan Slate Co.
Roberts Bros.
Blue Vein Slate Co.
Ellis Owens Sons Slate Co.
Pennsylvania Slate Co.

THE LARGEST SHIPPERS OF ROOFING SLATE IN THE WORLD



VENDOR SLATE CO.
I N C O R P O R A T E D
EASTON, PENNSYLVANIA



WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER



Stop Those Leaks!

THE easiest and quickest way of repairing leaks in radiators, pumps, water jackets, motor head gaskets, hose connections, etc., is to use Johnson's Radiator Cement. This will stop the leaks in just a few minutes without laying up the car. No mechanical experience is required—all you have to do is remove the cap and pour the cement into the radiator.

JOHNSON'S RADIATOR CEMENT

Quick—Efficient—Harmless

Johnson's Radiator Cement contains no powders, cement or anything which can coat or clog the cooling system, and is absolutely harmless in every respect. It will ordinarily seal a leak in from two to ten minutes.

Johnson's Radiator Cement blends perfectly with the water until it reaches the leaks—just as soon as it comes in contact with the air it forms a hard, tough, pressure-resisting substance which is insoluble in water making a permanent seal.

Quarts. . \$1.75 Pints. . \$1.00 Half-Pints. . \$.65
Write for our folder on "Keeping Your Car Young"—it's free.



If your dealer cannot supply you, use attached coupon.

S. C. JOHNSON & SON, Dept. ACB 3
Racine, Wis.

I enclose \$1.00 for which please send me, all charges prepaid, a pint of Johnson's Radiator Cement. Also send me, free your booklet on "Keeping Your Car Young".

Name

Address

City and State

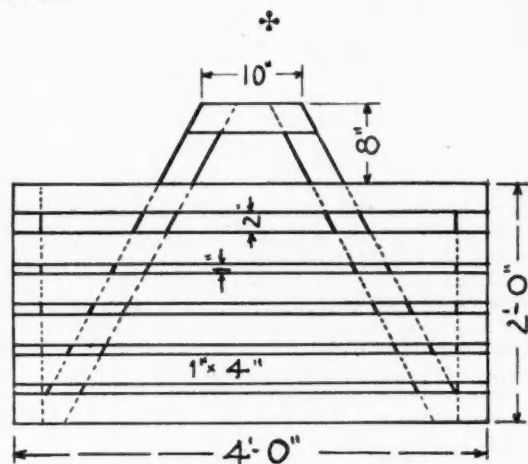
My Dealer is

(Continued from page 110.)

where anyone who intends to build can save money by waiting. On the contrary, it would seem to be the part of economy to build now before prices advance still further, and in the case of business building, to take advantage of the greater saving which increased facilities naturally afford."

Mr. Hawk thinks that after the wars are over there will come an era of unprecedented prosperity in which the whole country will share. It will be an era of reconstruction in which all labor will be employed at higher, not at lower wages and the materials at hand or procurable will not be enough to supply the needs.

Under such conditions he does not see how building operations can be carried on for less than they are now. Of many materials, he thinks, there will not be nearly enough. But one of the greatest shortages will be in labor for there will not be a liberal supply of foreign labor. He does not believe, as some do, that there will be a rush from Europe Americaward, for there will be too much work to be done in the European countries and the various nationalities will want to aid in rebuilding their own countries. Especially will this be the case if the American ends are attained—the liberalization of the governments of those countries.

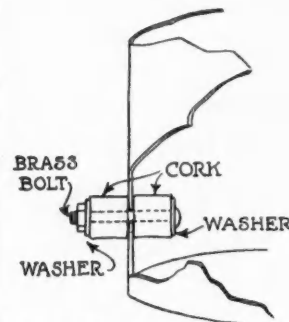


Handy Hurdle for Driving Hogs or Sheep.

Mending the Water Tank With Corks

Common pop-bottle corks make a fine thing with which to mend small holes in the water tank.

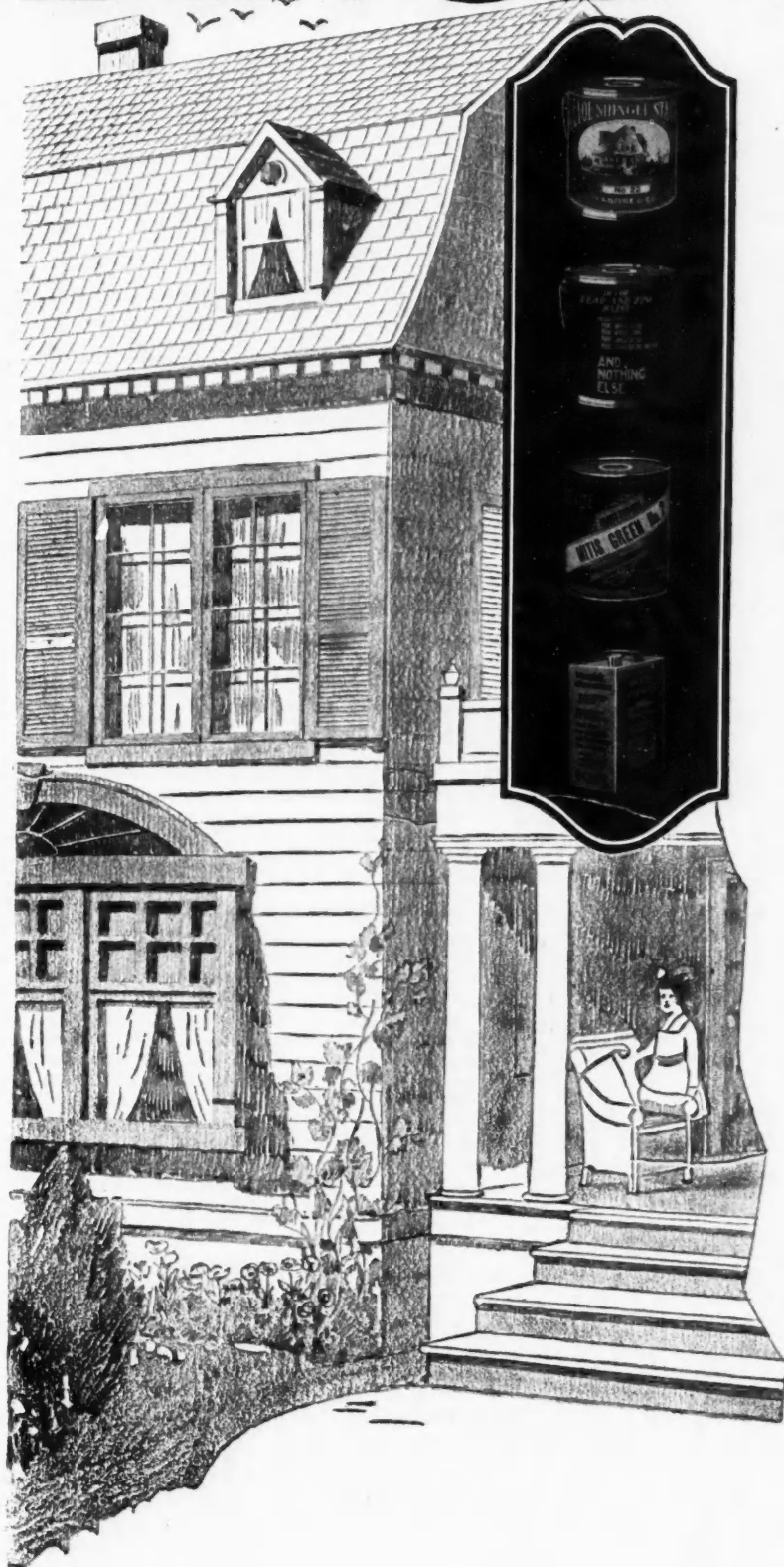
The hole in the tank should first be made large enough to admit a small bolt. Corks should then be placed over the leak—one inside and one outside the tank. Metal washers keep the bolt from cutting into the corks, and allow it to be tightened enough to press the cork down into the hole.



How to Mend a Water Tank With Corks.

Bolt and washers should be of brass to avoid rusting.

DEVOE *for Outside Work*



Every DEVOE product is *guaranteed PURE* to the last drop in the can. DEVOE takes fewer gallons and wears longer because it *is PURE*. For every kind of outside painting there is a DEVOE paint that is guaranteed to give complete SATISFACTION.

SHINGLE STAINS

Made with creosote oil; highly penetrative. For all shingled or unfinished wood surfaces. The creosote acts as a preservative. In a number of attractive colors.

LEAD AND ZINC PAINT

Made of the same pure ingredients that the old-time painter used. Absolutely free from whiting, silica, barytes or other worthless adulterations. Always uniform in strength, color and covering capacity; goes further and lasts longer than ordinary paint.

MITIS GREEN

A permanent green for outside work. Especially desirable for blinds, lattice work and trimming. Furnished in paste or liquid form. Made only by DEVOE.

VERNOSITE

The perfect weather-proof varnish for outside doors window sills, piazza floors and ceilings, stables, porch furniture, store fronts and yachts. Will not turn white under sun, rain, snow, sleet or salt water. The most durable exterior varnish made.

Let us send you "Architectural Finishes" embodying specifications and suggestions

DEVOE

The oldest paint manufacturing concern in the United States. Founded in New York 1754

DEVOE & RAYNOLDS CO., Inc.
NEW YORK and CHICAGO

Safety First for Carpenters and Builders
EXTRA PRECAUTIONS THAT WILL PREVENT ACCIDENTS ON THE JOB.

By C. F. Herington

“SAFETY First” is fast becoming a by-word for many of our large industries, and the writer thinks it will be a good thing if the carpenters and builders will take up this movement and push it, as it is a very good cause. With this idea in view, I am giving a few suggestions with the hope of reducing the number of accidents which occur every year in the building trades. Without a doubt these suggestions are very simple and the majority of them are familiar to you all, but as most of the accidents that occur are due to neglect of precautions of precisely this kind, it is exceedingly important to call attention to them and emphasize them.

Wooden Ladders

Accidents in connection with the use of ladders are extremely common. Wooden ladders should be made of good, sound material, straight grained and free from knots or other serious defects. The steps or rungs should preferably be made of split oak or ash shaved to shape and inserted in suitable holes in spruce side-

bars and fastened tightly enough to prevent them from sliding. Nailing the rungs to the side-bars is not good practice under ordinary circumstances, and broken or badly worn rungs should be immediately replaced. The top of a ladder should project at least 4 feet above the landing to which it leads, and it should be securely fastened by means of ropes, clamps, cleats or hooks. Never climb up or down on ropes or cables.

Workmen should not carry loads that will interfere with the free use of both hands for grasping the side-bars for ascending or descending ladders. It is much safer to handle such loads with a rope or with a block and tackle secured at some convenient point. Workmen should always descend a ladder with their faces turned toward a ladder and never away from it, and they should never slide down the side-bars. Carefully remove all projecting nails and splinters from the sides and rungs of your ladders.

If it becomes necessary to lash two ladders together to obtain the required reach or span, see that the upper ladder of the combination overlaps the lower one by at least 6

(Continued to page 116.)



THE MORE YOU KNOW ABOUT

BOGALUSA

Trade-Mark Reg. U. S. Pat. Office



EXTRA DENSE LONG-LEAF PINE



THE MORE YOU'LL REALIZE THE VALUE TO YOU OF RECOMMENDING IT.

“BOGALUSA” is the name BY WHICH TO BUY the BEST LONG-LEAF PINE THAT GROWS. FOR ALL STRUCTURAL USES, SPECIFY “BOGALUSA”—that is your guaranty. And unless you can identify the lumber delivered as real “Bogalusa,” you’ll refuse it as “not per order.”

WRITE US. (Cutting 1,000,000 feet a day still leaves us time to take an interest in YOU.) There’s a real value for you in the Bogalusa Book. (Free.)

GREAT SOUTHERN LUMBER COMPANY,
1600 Fourth Avenue Bogalusa, La.

BOGALUSA

“THERE’S A DIFFERENCE”

THE WHEELER SCREEN

is truly “Self-Fitting” by its Screw Adjustment.

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

We End All Troubles.

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

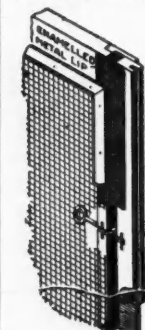
Corner showing Screw Adjustment

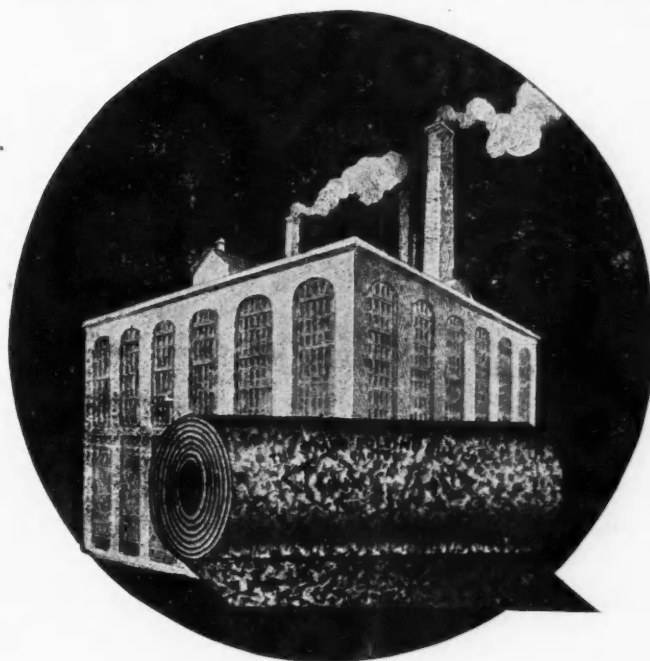
Big Money Selling Our Screens. You can make more money selling the “Wheeler” Adjustable Screens than by making other screens. Keep your men busy at other work. Let us take care of your Screen orders. You actually make \$5.00 to our \$1.00, because we allow you the big-single profit on each house-order,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

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

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

WHEELER SCREEN CO. - Geneva, Illinois





What Will Cover the Roof?

YOU have carefully selected the brick, the lumber, the plumbing, the hardware, the paint and hundreds of other materials that are to go into the building.

But the roofing—have you selected that as carefully as the other materials? Somehow the roofing is usually slighted. Yet it is all-important, because the roof receives extremely severe punishment.

Some roofings corrode, some melt, some dry up, crack and are inflammable. But Toncan Metal Roofing is Corrosion-Resisting; it won't dry up, melt, crack or burn in actual service. It is procurable in many forms. Why not specify it?

Write for "Corrosion—the Cause—the Effect—the Remedy"

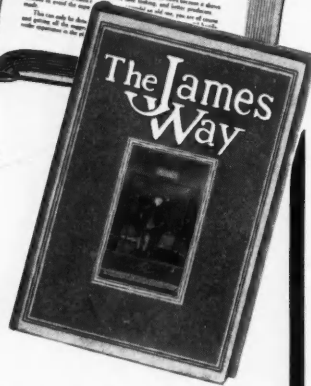
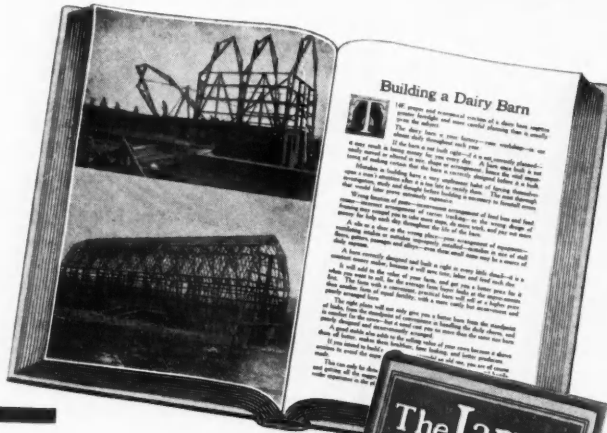
Jobbers and Sheet Metal Contractors everywhere sell Toncan Metal.

The Stark Rolling Mill Co.,

Canton, Ohio

**TONCAN
METAL**

Resists Corrosion



Send us the Names of Your Barn "Prospects" and get this Book Free

THIS is a 312 page book of great value to any one interested in barn building or equipment. It is filled with photographs of the interior and exterior of many different types of barns—gives helpful suggestions about location, lighting, drainage, ventilation, etc., describes and illustrates stalls, stanchions, pens, carriers, drinking cups and other labor saving and milk increasing equipment.

If you will send us the names of prospective barn builders or farmers who are going to remodel their barns, we shall be glad to send you a copy of this book free. It will be a big help to you in talking barns and barn equipment. It will help you land bigger and better contracts—open up new business for you.

JAMES MANUFACTURING CO.
 FV-75 Cane Street, Ft. Atkinson, Wis.
 (East of Ohio Address)
 FV-75 Williams St., Elmira, N. Y.

(Continued from page 114)

feet. Then bind the two ends together in a substantial manner and brace the ladder effectively at the splice, after it has been erected.

Ladders have always been prolific sources of accidents and too much care cannot be given to the construction, placing and use of them. Repair all broken and rickety ladders immediately and thoroly; or else discard them as soon as their condition is known, and destroy them so that they cannot be used again. Be exceedingly cautious in using ladders that are coated with ice.

Every opening where a ladder passes thru a floor should be railed off on three sides, the fourth side being left open so that the workmen may climb in and out in safety. The railings must be substantially constructed and they should be about 40 inches high. A railing that is poorly



Ladder Accidents are Extremely Common.

built or insecurely supported is a menace, because it may inspire confidence and then give way when someone is leaning against it.

Inclined runways or plankways should likewise be railed wherever they are more than four or five feet in height, and if they are steeply inclined, cleats should be nailed to them to give a good foothold and prevent slipping. Sunken water barrels, deep ditches, wells, cellar ways, cisterns and all other similar openings should be railed off, so that no person can fall into them.

In laying plans for a temporary floor be particularly careful and see that they rest securely upon the supporting beams, and that no ends project over a beam unless securely fastened at the other end. Take precaution when moving the planks about to see that they do not fall on persons below.

All work done in elevated positions, such as shingling and painting is especially hazardous and should not be undertaken except by persons accustomed to this work and even then it is essential to take every

(Continued to page 118.)

The New Model KING Aerator



Means Better Looking Barns —More Business for You

THIS new model King Aerator means much to you as a barn builder. King Aerators always were different from the ordinary metal cupola or ventilator. This improved design with the flaring base adds still more beauty to the Aerator. It's another big reason why you want to specify and install King Aerators on the barn you build. The more beautiful the barn, the more you can be proud of your work. King Aerators add the finishing touch of beauty to any barn or farm building.

Start Your Customer Right

If your customer does not install a King System at the time you build his barn, he will want to add the system later.

Start him right—with King Aerators on his barn roof. They are the first unit of the complete King System of Ventilation. The other units, or the foul air flues and fresh air intakes, can be added at any time.

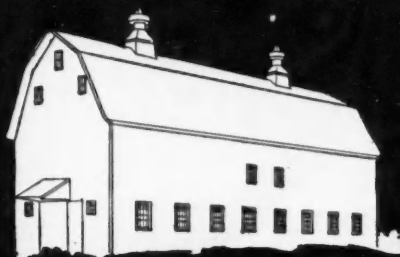
Every owner of a modern barn wants his building properly ventilated. And when he thinks of proper ventilation he thinks of the King System—the only ventilating system that's planned by

ventilating engineers to fit the exact conditions of the building it goes into.

Send for this Book on barn ventilation and telling about the construction of King Aerators and the service back of them. Our book shows photographs of many different types of barns. It will be helpful to you in showing your customers the kind of barns you want to build for them. The book is free. Send for it today.



King Ventilating Company
1202 Cedar Street
Owatonna, Minn.



(Continued from page 116.)

possible precaution to avoid accident in connection with it. See that the ladders that are used are firmly placed and fastened, in position, and that every staging that is used is strong and substantial. The workmen should also wear a safety belt secured to the building by a strong rope.

Do not allow tools or other materials to remain on the roofs unless securely fastened, as otherwise they might become loose and injure persons by falling upon them.

Injuries that might be of small import in a town or city often lead to serious results on an isolated job, and we strongly advocate the adoption of first-aid outfits, but it is exceedingly important to realize that great harm can be done by the improper use of them. Attention to these suggestions will materially reduce the number of accidents on a job.

NOTE.—The writer is indebted to the Travelers Insurance Company of Hartford, Conn., for much of this information.



Buying Made Safe and Easy

How Advertising Saves and Protects the Buying Public

DOES the average person ever stop to think what a safe and easy thing buying has become in our day? What a contrast to the way it used to be within the memory of most of us!

This applies to all buying—of necessities, of luxuries, of everything.

Mr. John Sullivan, secretary of the Association of National Advertisers, in a recent interview, said some things on this subject which should interest every buyer in the world. For his words apply to the purchase of anything, from a 5-cent cake of soap up to the most expensive advertised article.

"Today," said Mr. Sullivan, "the housewife sends her little child to make purchases at the corner grocery. She sends her with perfect confidence that, even tho a child, she cannot err therein. All that the child needs is explicit instructions to buy *this* or *that*. In the case of all staple produce the price is known, the quality is known and the *name* is known. There is practically nothing about the goods that is unknown. And to be sure of getting exactly what you want, it is only necessary to name the goods.

"It is the same in other stores of nearly every kind.

"What a contrast to the days of our fathers, when practically all buying was a hazard—impossible for the child and risky even for the parents!

"In those so-called 'good old days,' soap was just soap, prunes were just prunes, coffee was coffee—and so on thru the long list of things that are used in every home.

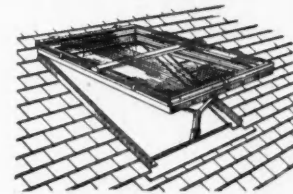
"In no case was there any guarantee of quality—or any sure way to identify goods that might have proved satisfactory so that the same goods could be bought again. The whole buying game was just a game—a game and a gamble; with all the odds against the buyer.

(Continued to page 129.)



Cupolas

Put an
O. K.
on every job



Windows

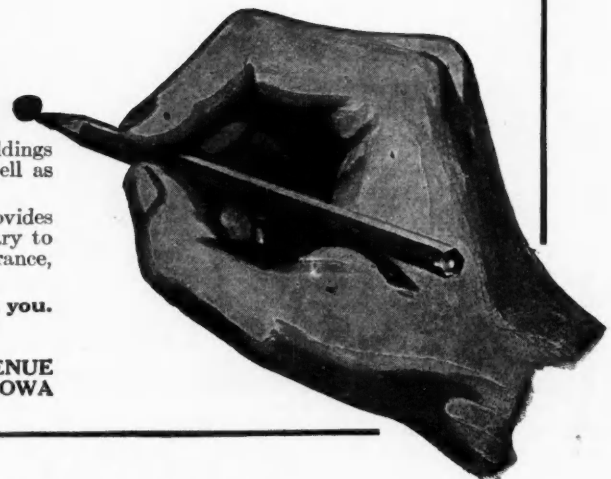
O.K.

O-K Cupolas and Sun-Lite Hog House Windows on farm buildings mean greater satisfaction and service to your customers—as well as **bigger profits and more business for you.**

They are dividend paying investments for farmers—one provides scientific ventilation—the other lets in the sunshine so necessary to successful hog raising. They are efficient, neat in appearance, economical and durable.

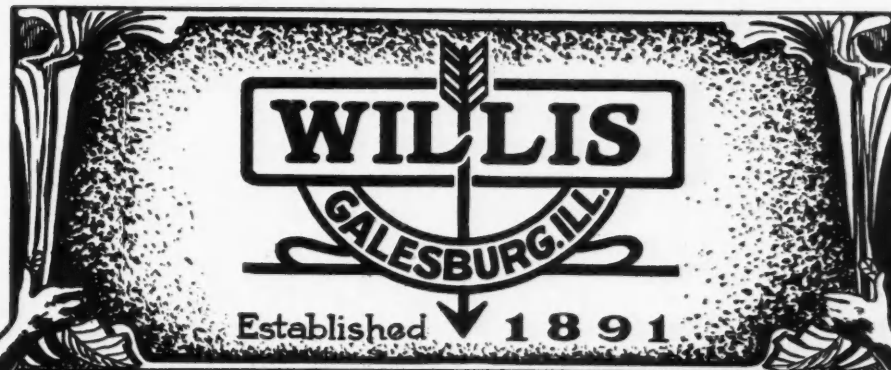
Our proposition to Contractors and Builders will interest you. Write for details.

PHILLIP BERNARD CO. 2400 FLOYD AVENUE
SIOUX CITY, IOWA



QUALITY

SERVICE



**WILLIS PRODUCTS
SOLVE EVERY SHEET
METAL PROBLEM**

On all your jobs there are Willis Products that you can use to a big advantage and profit



WILLIS VENTILATORS

Style No. 125

A most efficient ventilator for every purpose. Simple construction. Backed by twenty-five years' experience in the manufacture of high grade ventilators. Willis Ventilators are made in several different styles and all sizes. Whenever you have requirements it will pay you to investigate the qualities, etc., of these much used ventilators. Built to give lasting satisfaction and service.

WILLIS SKYLIGHTS

Style No. 70

Perfect light and ventilation. Constructed of the best quality of sheet metal with condensation gutters and bars. Strongly braced. Largest glass area possible. Side sash operate from floor, either single or in batteries. Willis Skylights are manufactured in all styles. Guaranteed not to leak, sag, buckle, bend or break. One inexperienced workman can easily erect these with only a hammer and screw-driver.



OUR COMPLETE LINE

covers everything in Sheet Metal Building Materials. When in need of Fireproof Windows and Doors, Crestings, Cornices, Ornaments, Metal Roofings and Ceilings, Lath and Cornice Bead, or any other Sheet Metal Building products, specify WILLIS. Quality the highest and prices right with unequalled service.

*Our big general Catalog is of value to every Contractor. Copy will be sent to you upon request.
DEPT. "B"*

WILLIS MANUFACTURING COMPANY
GALESBURG, ILLINOIS

(Continued from page 118.)

"Then gradually, step by step, came the great change. The *trademark* began to appear—a positive means of identifying goods. And with the trademark came *advertising* on a national scale—the best, the surest, the cheapest, the only efficient way of making the merits of these goods known to buyers everywhere.

"Trademarked merchandise was soon found to be good merchandise—worthy of every buyer's confidence.

"In fact trademarked articles have got to be good. The trademark identifies them, advertising proclaims them, and use by thousands and millions make their qualities positively known. Only first-class merchandise can dare to court such a test. A well-known trademark is an asset of priceless value for a good article, but it would be sure death for a poor one, for in that case it would be not a guarantee but a *warning* to the buyer. It would help him to identify the bad as well as the good; to avoid the one and choose the other.

"The greatest achievement of modern advertising is that for the first time in the history of the world's merchandising it protects the buyer; it makes buying both easy and safe. The value of every trademark depends on the good will of the buyer, therefore, this trademark, which positively identifies the goods, for better or for worse, is the buyer's sure and certain guarantee."

Some Different Uses of Wall Board

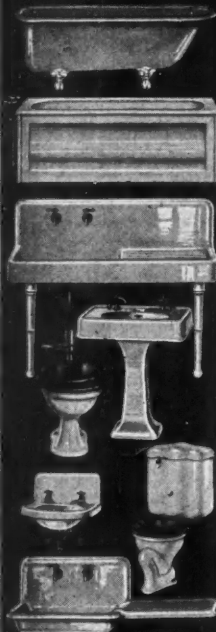
CARPENTERS and builders would do well to become acquainted with the many different uses of wall board. A knowledge of them may be the means of turning many a dull time into one of industry and profit. Those who already know of its wide adaptability find it one of the handiest of building materials for winter work.

Most builders are well aware that wall board is being used quite extensively for walls and ceilings of residences, commercial and other types of buildings; but it is improbable that many have heard or seen it used for the purpose to which it has been put, as shown in the accompanying photographic illustration. All the sign panels are panels of wall board. No special preparation or treatment of the board was necessary on account of its being used outside, insomuch as the present day wall board is so well sized in its manufacture that exposure to ordinary weather conditions does not affect it adversely. This does not imply, however, that it should not be painted, because it is just as necessary to do so when used in this capacity as it is when used in-doors.

In many towns and cities thruout the country conventions, expositions and the like, are held every year. These call for the decoration of the thorofares on a more or less elaborate scale. The illustration shows a band-stand erected for an industrial exposition. But

(Continued to page 122.)

CONTRACTORS—BUILDERS—CARPENTERS DO YOUR OWN PLUMBING-HEATING



Our New Hardin Easy Method

Any handy man with a few ordinary tools can easily install our plumbing or cut-to-fit heating outfits—this new, simplified method with our plain plans and instructions and save one-half. This new method is perfect, simple and easy. You save the high cost of skilled labor and save all unnecessary material.

This New Cut-to-Fit Easy Way

Send for our valuable, big, complete Handy Man Book-Catalog, showing and describing over 10,000 different plumbing and heating fixtures and supplies with separate wholesale discount sheet applying to same.

This big book explains and shows our new Hardin simple method. Shows you how easily you can install any kind of hot air, water or steam heating plant or plumbing outfit our new, original, practical, Cut-to-Fit easy way. (No loss or waste).

It helps you select the proper fixtures and has many pages of practical plans, diagrams, sketches, elevations, etc., showing you just how to do the work from start to finish—this new, original, practical Hardin easy way.

Every carpenter, contractor and builder needs this free, big, valuable Handyman book-catalog.

\$500,000 Plants Behind Our Guarantee

Write today

HARDIN-LAVIN CO.

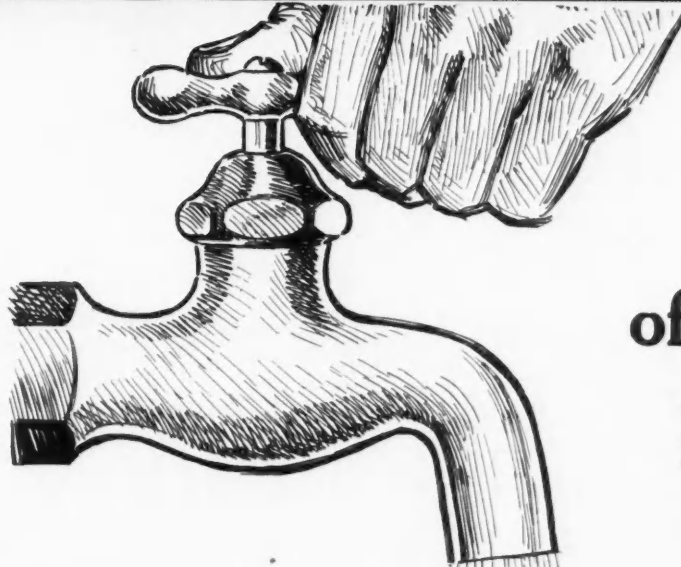
40 years at
4532-42 F Cottage Grove Ave., Chicago



Hardin-Lavin Steam or Hot Water Boiler.



New Hardin-Lavin Pineless Furnace.



At the Turn of the Faucet Running Water

When you build a country home, or any other isolated building there is one convenience that you cannot afford to have inefficient. And that one is the water supply system. Every hour of the day, year after year, your customers must depend on it. And the system you install will mean either complete satisfaction or continual trouble for your client. If you want to insure that satisfaction, and guard against all trouble, install the



KEWANEE



Water Supply System

For 20 years, Kewanee Systems have been giving absolute satisfaction. Thousands of these systems are now in use, and their owners know the perfect, efficient service that the Kewanee always gives.

Electric Lighting Plants

Kewanee Electric Lighting Plants are built with the same mechanical precision as Kewanee Water Supply Systems. They are not experimental. 6 years' performance and hundreds of satisfied users prove it. The Kewanee Engine in any of the 28 different size plants can be used for any other purpose required.

We gladly offer the services of our drafting and engineering departments to contractors and architects free of charge.

Sewage Disposal Systems

Kewanee Sewage Disposal Systems bring to every country home the health and comfort of sanitary efficient methods of taking care of all waste. Easy to install with construction so simple that it never gets out of order, the first cost is the only cost. There are no future plumbing bills.

Write for free bulletins on

Water Supply Systems

Electric Lighting Plants

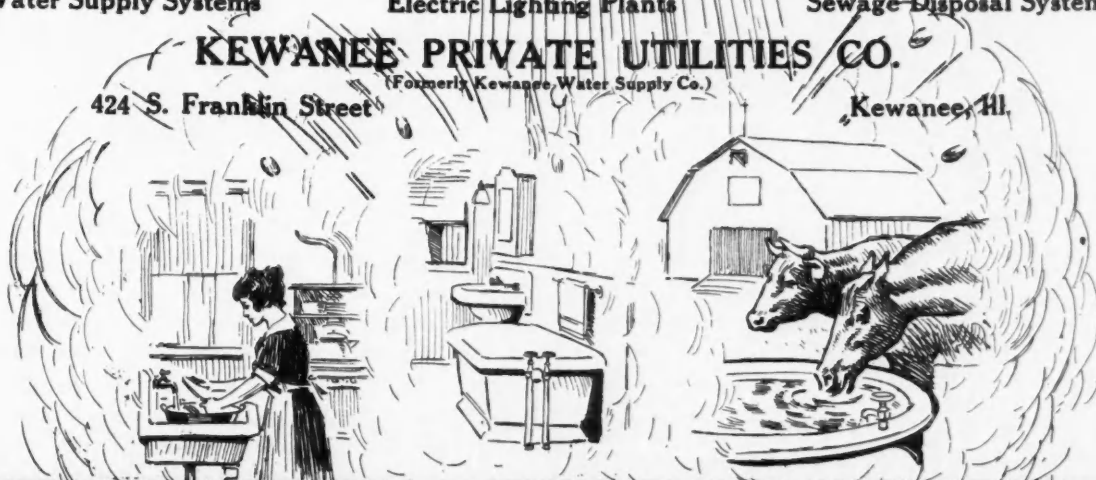
Sewage Disposal Systems

KEWANEE PRIVATE UTILITIES CO.

(Formerly Kewanee Water Supply Co.)

424 S. Franklin Street

Kewanee, Ill.





Mueller Pipeless Furnace

A real pipeless furnace, exactly same construction as old reliable Mueller line, but without pipes or flues. Heats whole house comfortably from one register. Easy and inexpensive to install. A good profit on every job. Write for full information.

L. J. MUELLER FURNACE CO., 216 Reed Street, MILWAUKEE, WIS.

Earn \$27⁵⁰ A Day Easily




Carpenters and builders can earn this money by working all or spare time. Start now to own a business of your own. Akron Lighting Systems are wanted in homes, stores, churches and public buildings. Best and cheapest light known. Uses common gasoline. Absolutely safe. Permitted by Insurance Companies.

Sell Akron Lighting Systems They are simple, dependable and durable. Have latest patented improvements. Give an abundance of bright, clear, soft, steady light which is restful to the eyes. Complete line of portable lamps and lanterns. Lamps are clean—no smoke, no wicks to trim and odorless. They will burn in any position whether standing erect or upside down. Lantern is storm-proof, bug-proof and wind-proof. Gives a 400 c. p. light. Is absolutely safe; can be dropped or rolled without danger of exploding. Fully guaranteed. Exclusive territory to Agents. Outfit Free. Write NOW for catalog and agent's proposition all Free.

AKRON GAS LAMP CO., 303 Gas Building Akron, Ohio

Sold direct at Wholesale Price in open territory.

Does it Pay to Experiment

The Modern Way Furnace Company Finished Experimenting Years Ago



Today thousands of MODERN WAY heaters are giving entire satisfaction, because they are scientifically right, and mechanically correct.

With our foundry capacity doubled, we are in a position to give you service with a Real Pipeless Furnace.

Get our proposition today.

THE MODERN WAY FURNACE CO.
Offices: 7th Floor Shoaff Bldg.
FORT WAYNE, IND.



Wallboard Is Used for the Sign Panels of This Bandstand.

it is only one of other features of this sort: arches, box columns, floats and so forth, can and have been made with wall board.

The reasons wall board is popular and in demand for the purposes mentioned are several. One is because it requires only a light framework, to which it can be applied easily and quickly. Another is the readiness with which it can be cut with a knife or saw to numerous shapes. When it displaces stucco for arches, as it does frequently, it does so principally on the merit that it does not require time to dry out before it can be painted; just as soon as it is on, it may be painted.

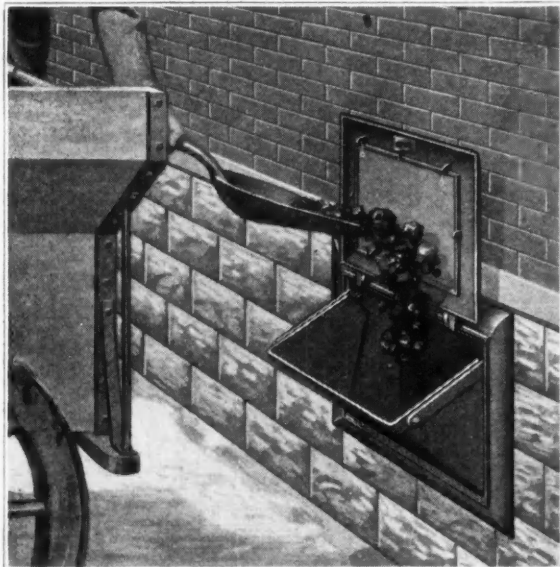
Installation, Care and Operation of House Furnace

(Continued from page 66.)

It should not be left open any longer than is necessary since it cools the furnace as stated above. The fire should be checked by opening the check damper in the smoke pipe or by closing the ash pit damper or both and not by opening the furnace door or damper in the door. The check damper and the ash pit damper ought not to be wide open at the same time.

The furnace should be shaken regularly night and morning in cold weather. In mild weather shaking once a day may be sufficient. In this case, shake in the morning. Too much or too vigorous shaking causes unburned coal to drop thru into the ash pit. Sometimes, if the grates are too coarse, unburned coal will come thru even without shaking. The only way to get this coal out is to sift the ashes. The top of the fire should be kept level with the bottom of the firing

(Continued to page 124.)



Majestic Coal Chutes

Protect the building, sidewalks and lawn from damage and coal smut. The door locks automatically and can be unlocked only from the inside, making it burglar-proof. They replace any basement coal window or can be built into new foundations. Every owner will be glad to have one because it enhances the value of his property.

The MAJESTIC Hot-Blast Heating System is designed to prevent even the slightest waste of coal or heat—by its successfully applied hot blast. Every bit of fuel is consumed. A constant current of air circulates through the fire compartment—keeping the coal evenly aglow until they are entirely burnt out. Even soot, smoke and gas are turned into heat, which is forced through the register above.

Get in Line for Your Share of MAJESTIC Continuous Profits

Every home—every building—every store in your vicinity needs a MAJESTIC Coal Chute or Hot-Blast Heating System. They are easily installed—the heating system can be put up in one day—and every job nets you a good profit.

Investigate the complete MAJESTIC line today. It includes Hot-Blast and Duplex Heating Systems, Pipeless Furnaces, Coal Chutes, Underground and Built-In Garbage Receivers, Package Receivers, Rubbish Burners, etc.

THE MAJESTIC COMPANY

800 Erie Street Huntington, Indiana

Majestic Hot-Blast Heating System

“Save Coal” is the order of the day. The high cost of coal is compelling people to think about discarding their old coal-eating stoves and installing modern fuel-saving heating systems.

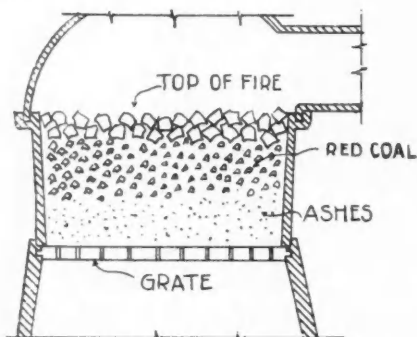
In the saving of fuel, the new MAJESTIC Hot-Blast Heating System is wonderfully efficient. It is built on different principles—and has proved itself the only successful fuel-saving heating system of its kind.



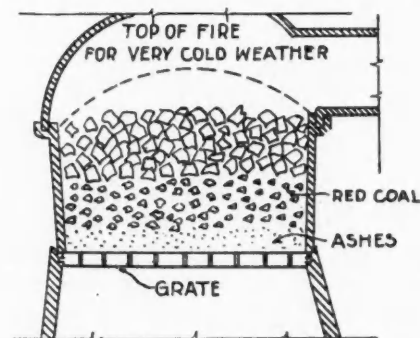
Installation, Care and Operation of House Furnace

(Continued from page 122.)

door, or nearly so at all times. In cold weather the depth of ashes beneath the fire should be less than in warm weather. In other words, the thickness of fire should be varied with the weather not by raising and lowering the top of the fire, but by raising and lowering the bottom.



Mild Weather Fire with Deep Bed of Ashes.



Cold Weather Fire with Shallow Bed of Ashes.

The ashes should be removed daily and not allowed to accumulate under the grates as they will choke the draft and may cause the grates to overheat and burn out.

In fixing the fire for the night, the fresh charge should be placed on the fuel bed and allowed to burn up with drafts open for a short time (not too long) then the check damper should be opened and the ash pit damper closed for the night. In this way, the gas

is burned off and its heat utilized. It would be lost if the furnace was closed at once after firing. In order to handle a fire in this way, the furnace must be tight. A furnace with loose fitting doors and dampers will admit so much air that the fire cannot be effectually checked, after once being started. Sometimes it is possible and desirable in mild weather to bank or cover the fire with ashes to keep it over night. With

some coals, this causes excessive clinkering. If any considerable amount of coal or coke drops thru the grates, this may be consumed by using the ashes for banking. It must be remembered, however, that any excessive amount of ashes in the firepot, especially around the edges of the fire, lessens the efficiency of combustion, causing loss rather than gain economy. Ashes will not burn and any attempt to burn them with

(Continued to page 126.)

ALWAYS THE "BEST"



Standard Socket

"Best" Stud Socket

is a cast iron socket with one side and one end open so that the studs are easily and quickly fitted without cutting. The "Standard" size is adapted for studding up to 8 in. wide. A "Special" for larger size—also for corners and end. Ask for circular.

"BEST" COAL CHUTE

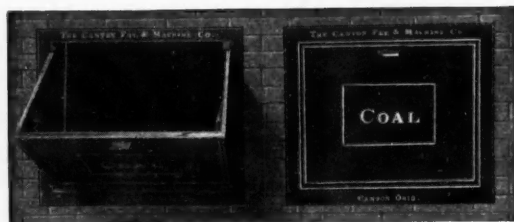
A well constructed chute which opens vertically against the side of the house and protects it from injury. Locks automatically when open and when closed. Chain provides for opening from any part of basement. Can be closed and locked from outside. Write for circular.



Cast Iron or Glass Door—Three Sizes

STERLING FOUNDRY CO.

8 Avenue A, Sterling, Illinois



Start the Ball Rolling

by suggesting to your customer a remodeling of that old, dirty-looking coal window. Home owners do not think of these little repairs until you or some energetic man comes along and suggests the improvement to them.

Big Profits in Repair Work—Get It

Just think of the many homes you know of that possibly might need a new coal chute. Advise it, and then tell them why you are the man to do the job. One coal chute installed means a sure lead to the various other repair jobs around the house.

Install Canton coal chutes. They have a world-wide reputation and are undoubtedly the best. All steel and burglar proof. Sales profits are surprisingly large. Kindly request our catalog B6 today.

The Canton Foundry & Machine Co.

CANTON, OHIO



THE BIG "ORIGINAL" IDEA



Mr. S. D. STRONG

LAST MONTH'S ISSUE
TOLD OF THE MAN WITH THE
ORIGINAL IDEA

THAT MAN WAS
S. D. Strong of This Company

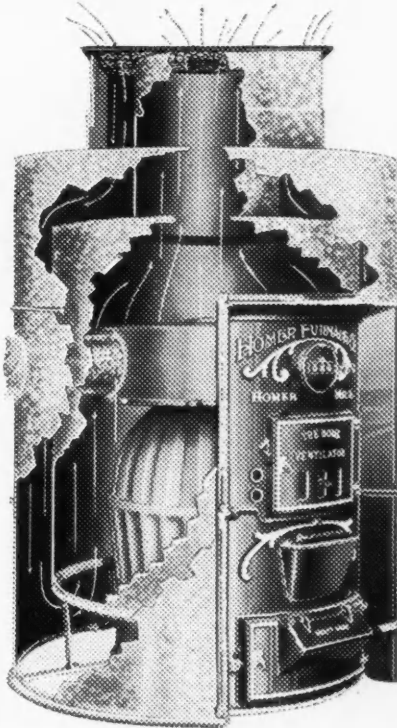
HERE IS HIS IDEA

CHEAPEST IN PRICE; HIGHEST IN QUALITY

The
**ORIGINAL
PATENTED
PIPELESS
FURNACE**

Over 20,000 in use.
4000 sold in the last
two months.

Our Patent Papers
PROVE it the Orig-
inal. Compare
them with others
making the same
claim. Investigate
at once our attrac-
tive Agency Pro-
position.



Manufactured in the
**LARGEST
EXCLUSIVE
PIPELESS
FURNACE
FACTORY IN THE
WORLD.**

**IT HEATS, VENTI-
LATES and SATIS-
FIES.**

**LESS PRICE, LESS
FUEL, MORE
HEAT.**

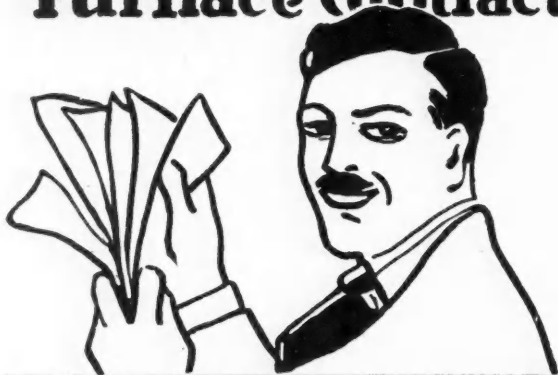
Send for Catalog
and Dealers' Prices
today.

HOMER FURNACE CO.

SOLE MANUFACTURERS OF THE ORIGINAL PATENT PIPELESS FURNACE
Dept. C, HOMER, MICHIGAN



Furnace Contracts

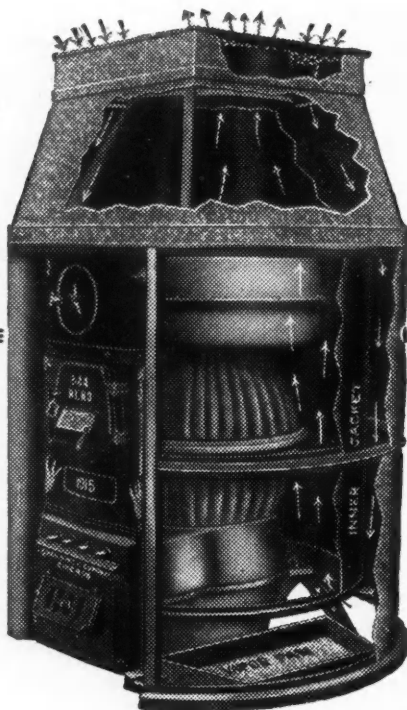


You can pile up a nice profit without interfering with your regular business by taking up our Agency Proposition for installing

Hero Pipeless Furnaces

They are easily and quickly installed; they are the simplest, most practical furnaces for heating homes, stores, or halls; they represent an economy in installation as well as "First Cost;" and they are sure to give complete satisfaction to users.

Chas. Smith Company
57 W. Lake Street Chicago, Ill.



(Continued from page 124.)

or without patent compounds will be unsuccessful. These directions for firing apply to soft coal, not to hard coal and coke. Hard coal can be spread over the entire fuel bed, as there is a very small amount of gas to come off. It is a good plan, however, especially when burning small sizes of hard coal to leave a small area of the fuel bed uncovered when firing a fresh charge. A hard coal or coke fire should never be poked from the top. In burning coke the fire should be deep, the firepot kept full, and the furnace closed as much as possible.

(To be Continued in the April American Builder.)



Learning to Sell Electric Light Plants

(Continued from page 59.)

in one day and said: "Sam, we may have missed a pretty big point in fixing up that electric light plant."

"How's that?" I said. "She's working all right isn't she?"

"Sure," said the judge. "But we could have saved a lot of money if we had known more about the game. Sam, I have just found out that it doesn't matter very much what kind of power you use to run that dynamo nor when you use it."

"That's so, I expect," said I. "What's the answer?"

"Well, we could just as well have rigged things to run the dynamo with the steam engine I use to run my sawmill with. It seems you don't have to put the plant down in the cellar, if you don't want to. And you don't even have to have it close by. You have to use a higher voltage if you go beyond a certain distance unless you want to spend money for bigger wire. But this higher voltage, 110 instead of the 32 we used, is a good thing in another way, as it is easy to get fans, and the like, for 110-volt current. We could have used this higher voltage if the mill is really too far away for the 32. But I'm not sure that it is too far off. But, don't you worry about it, Sam. What's done is done. Only, we'll know better next time."

It was like the judge to take it good naturedly; but I wasn't satisfied with myself. Of course, a builder isn't necessarily an electrical engineer. At the same time, he ought to know the points of the game, if he is going to sell to or advise his customers. And with this electric light game you can't tell your customer that it's a bully good thing and everybody's doing it and let it go at that. He will want to have some idea of cost. And to tell him that, you will have to know quite a few little things.

NOTE: In an early issue, the American Builder will present the first of a series of articles setting forth fully the technical details of farm home lighting.—EDITOR.

HOLLAND FURNACES MAKE WARM FRIENDS

“DOING YOUR BIT”

—Means Just This

“Save a Ton of Coal This Winter”

HELP UNCLE SAM save 20,000,000 tons of coal, which is equivalent to \$100,000,000.00 of good U. S. money. This is all possible if every home owner would “do his bit” and “save a ton a year.”

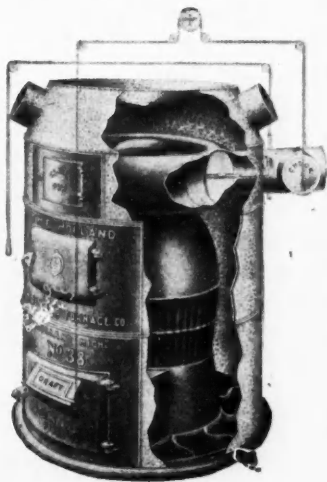
Cut Your Coal Bills One-Half

You can do this with a “Holland Furnace” and still never be cold. They use less coal. Burn everything combustible and any kind of fuel, soft coal, slack, hard coal, screenings, wood and coke. In the Holland furnace air admitting fire pot, fuel burns from the sides and over the top—the natural way. Grate is slightly cone-shaped. It breaks up clinkers and compels fuel to roll toward wall of fire pot. Air is mixed with the gas. This eliminates all troublesome clinkers and insures entire consumption of all fuel in the fire pot. All gases and soot are burned. No internal explosions and puffing. Holland Furnaces are clean and healthy.

Holland Furnaces Make Warm Friends

Ask Any Lucky Owner

The Holland Guarantee and the Holland Five Year Service Bond insures heating satisfaction. Grate is roller operating. All sifting of ashes is unnecessary, as all coal is burned. All cast iron construction, and the fact that all castings are evenly heated make Holland Furnaces almost repair-proof. The Holland fire pot will outlast any other.



This is it →

A Word to Contractors and Builders

Have you investigated our new and most interesting proposition to live contractors and builders? Let us send you complete information. Our experts will gladly answer promptly any questions and explain the advantages of Holland Service.

Holland Furnace Co.

Holland, Michigan

Two Factories (Holland, Michigan, Cedar Rapids, Iowa)

ASK ANY

LUCKY OWNER

Possibilities of the Steel Square

(Continued from page 57.)

Passing on to Fig. 3, is shown the plumb and seat cut of the corresponding hip rafter as at F and G, respectively. The figure on the tongue is obtained by taking the diagonal length of the run of the common rafter, which in this case is 16¼ inches. This figure and the length of the hip gives the top cut of the hip to fit against the ridge piece. Note: This is for the unbacked hip. If the hip is backed before this cut is made, then the same proportions as used for the top cut of the jack as described in Fig. 2 applied to the backing plane will give the proper cut.

Now let us return to Fig. 1 again. The proportions 11½ and 7½, not only give the plumb and seat cuts of the common rafter but also give the cuts of the siding boards, for either vertical or horizontal boards to fit in the gable as shown in Fig. 4 and 5, respectively, the blade giving the cut in the former and the tongue in the latter.

Industrial Housing Problems

(Continued from page 34.)

tions to those who wish to take care of gardens. A garden properly cultivated is a very beneficial thing, but a lot of land which is allowed to become the dumping-ground of dirt and refuse is of no benefit to anybody, but rather the reverse.

In city developments it will probably be found best to give very little land to the tenant, but to use the

land that otherwise would have been allowed him in the maintenance of parks and playgrounds for children and allotments for gardening.

Until quite recently small house construction has been entirely in the hands of the local builder, operating on a small scale. During the past year, however, several large contracting organizations have taken up this class of work, so that the manufacturer can now get the same kind of service in his construction as he has been accustomed to get in his plan construction contracts. A good deal of economy is always gained when a large number of houses are built at one time by one contractor. The money saved by purchasing direct from manufacturing firms in carload lots rather than in teamloads from a local dealer, the continuous employment of large gangs of men, the taking of cash discounts and other economies practiced by big contracting organizations, are quite a help in reducing costs.

When the whole development is under the control of one responsible contractor, the disappointments so often experienced of houses built but roads not finished or sewers not completed are avoided. The grade of workmanship is better and the work is finished promptly instead of being allowed to drag far beyond the scheduled contract time.

When the houses are built a most important problem presents itself for consideration in the decision as

(Continued to page 130.)



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.

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.

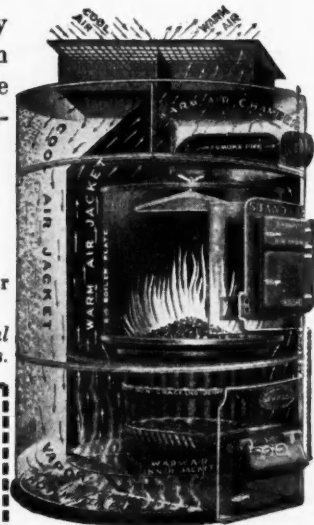
Write Today for our Special Proposition to Contractors.

MAIL TODAY

Standard Heater Co.
438 W. Ontario St., Chicago
Send me your Special Agency Proposition to Contractors.

Name

Address



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438 West Ontario Street
CHICAGO



Durable-Dependable-Economical

Hopper Cooled, Frost Proof, Dirt Proof, Vertical Engines

Ideal engines assure constant, care-free service.

As standard equipment on concrete mixers, power loaders, hoisting and pumping outfits, Ideal Engines are furnishing dependable power for the most difficult tasks.

Built to run with a minimum of care

and attention, Ideal Engines are furnishing power for construction work throughout the country—cutting building costs by furnishing economical, reliable power.

Ideal Engines are light weight for power delivered; vertical type, requiring small floor space.

Ideal contractor equipment includes Reversible Hoists, Single Drum Hoists, Double Drum Hoists, Water and Mud Pumps. Let us send you our catalog containing complete information about Ideal Engines and Outfits

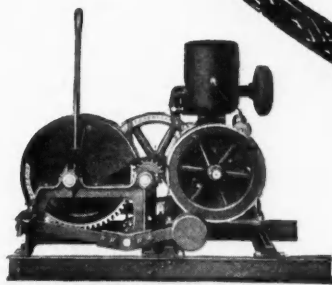
IDEAL ENGINE COMPANY

R. E. OLDS, Chairman

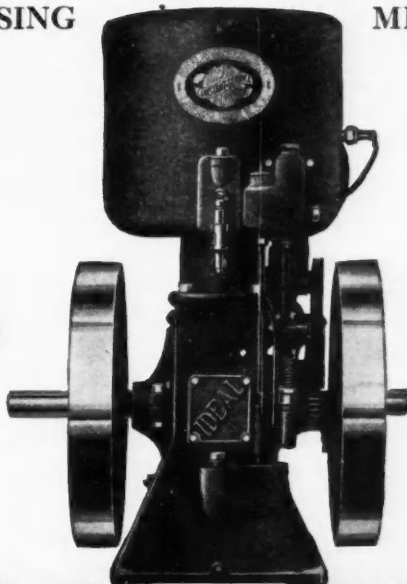
805 East Kalamazoo Street

LANSING

MICHIGAN



Ideal Single Drum Hoist



Ideal Force Pumping Outfit

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 outhouse 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.

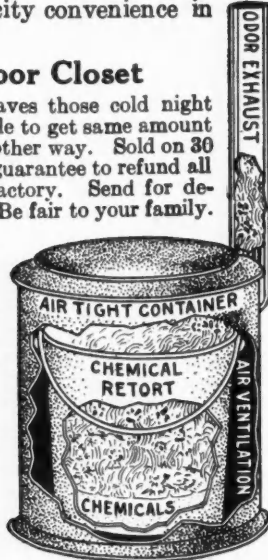
Abolish Outdoor Closet

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.
303 Fostoria Bldg. TOLEDO, OHIO



Mr. Builder: Increase Your Income Right Now—This Month

Here's something right in your line—a Chemical Closet that you can sell to a home builder cheaper than a wooden privy and make a bigger profit for yourself. Here's something you can sell at odd times or turn over to your son or your foreman to sell.



RO-SAN Chemical Closet

An absolutely sanitary, odorless indoor closet that may be placed anywhere in the house. Abolishes the germ breeding out-door vault. A comfort and convenience when there is no sewer connection. Germs killed by chemical. Easily emptied as the ash pit of a stove.

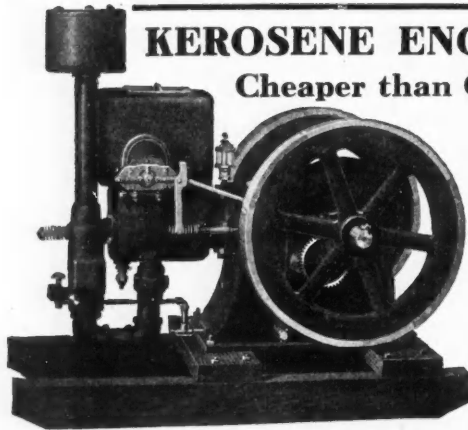
AGENTS WANTED

We want one live carpenter contractor in each town to act as our agent. Hundreds of builders are selling these fixtures. Good profit for little work. We help you sell them. Write today for complete details.

ROWE SANITARY MFG. CO.
903 Rowe Building, Detroit, Mich.
Ask about the Ro-San Washstand. Hot and cold running water without plumbing.

KEROSENE ENGINES

Cheaper than Gasoline



The
Brownwall
Engine &
Pulley Co.
Holland, Mich.

The Power
For YOU

Every Purpose

Industrial Housing Problems

(Continued from page 128.)

to whether the houses are to be sold to the working men or rented them. No general answer can be given to this question, but a brief statement of the pros and cons can here be given.

If the houses are sold to the workmen, there is the objection that if the workmen are fired or leave of their own accord they still retain the house, tho it is wanted for other workmen; also that if they can sell at a profit, the increment in value which has been put into the house by the presence of the plant goes to the workman, who has not earned it. On the other hand, the workman buying his own home and paying for it by installments has to make himself a steady and efficient worker in order to keep up his payments. There are usually more applications to purchase than there are houses to sell. Therefore the purchasers can be selected from those that are the most likely to remain with the company. The difficulty of firing men is not a pressing one, as the manufacturer's problem today is rather how to hold his men than how to fire them. The employment manager is being kept busy finding new places for men who do not fit in one corner of the plant rather than let them be fired in the old way.

Where houses are rented the owner has more control over them, and can evict tenants who leave his employ. He has, however, the difficulty in strike times of taking care of his property, which otherwise would not concern him.

Labor leaders object to the immobility of labor caused by men owning their homes.

The tendency seems to be today towards the selling of the houses, and several interesting purchase schemes have been evolved by manufacturers.

The Norton Company at Worcester, Mass., have organized a housing company called the Indian Hill Company. Their system of selling is as follows:

The Indian Hill Company require from the purchaser an initial payment of 10 per cent of the purchase price, whereupon a conveyance of the property is made. For the remainder of the purchase price the purchaser gives two notes, one for \$1,000 payable in twelve years at 5 per cent, and another for the balance of the purchase price payable on demand with interest at 5 per cent, both notes being secured by a purchase money mortgage.

The purchaser gives also a supplementary agreement to the effect that he will purchase in a co-operative bank five shares, and will continue payments thereon until his deposits shall have matured in the sum of \$1,000, which in local banks, at the prevailing rate of interest, takes place in about twelve years. This insures the payment of the twelve-year note according to its terms. It gives the purchaser a feeling of independence, inasmuch as he does not make periodical payments on the principal to the company, and enables

(Continued to page 132.)



Fig. 172—Novo Hoisting Outfits for every hoisting job requiring less than 20 h. p. These reliable hoists are built in various sizes and types.



Fig. 1446—Novo Triplex Pumping Outfits are made in a wide range of sizes up to 15 h. p., suitable for high lifts or long distance pumping.



Fig. 276—Novo Air Compressors cover a wide range of sizes from 1 1/2 h. p. 5 ft. machines to the 15 h. p. 50 cu. ft. machine.

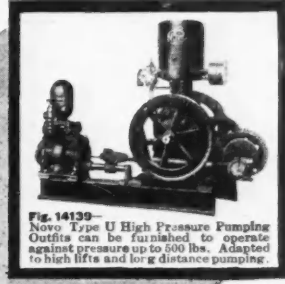


Fig. 14139—Novo Type U High Pressure Pumping Outfits can be furnished to operate against pressure up to 500 lbs. Adapted to high lifts and long distance pumping.



Fig. 335—Novo Diaphragm Pumping Outfits furnished with single or double pump mounted on skids or trucks. Suitable for various capacities.

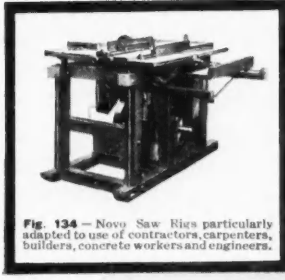
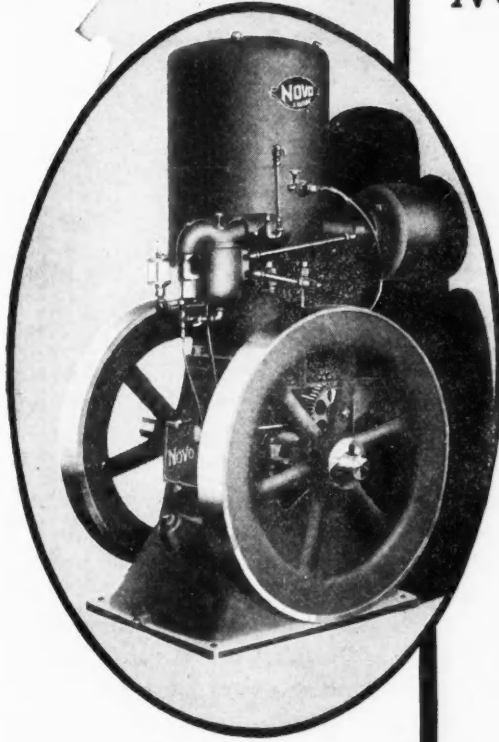


Fig. 134—Novo Saw Rigs particularly adapted to use of contractors, carpenters, builders, concrete workers and engineers.

NOVO STANDARDIZED POWER

Use Kerosene or Gasoline *It now makes no difference—if it's a NOVO KEROSENE ENGINE*



There is an urgent need for a reliable kerosene engine. The supply of gasoline must be conserved for the imperative needs at home and abroad. There is an abundance of kerosene. It is comparatively a cheap fuel, but heretofore it has not been used successfully in internal combustion engines under varying conditions of speed and load.

The problem of using kerosene had to be solved and it seemed clearly our duty not only to ourselves but to our customers and the nation, to offer the solution.

Novo Outfits for pumping, hoisting, air compressing, and sawing have become an economic necessity wherever power for these purposes is required. Novo power is now used in every civilized country.

We began our kerosene tests over three years ago. The Novo Kerosene Engine was thus gradually perfected. We have succeeded in eliminating the disadvantages heretofore known to kerosene combustion.

The Novo Kerosene Engine requires no more attention than a gasoline engine. The operation is exactly the same as when using gasoline.

Novo, the Standard Power of America, now offers the added advantage of this greater economy, coupled with the reliability which has made Novo renowned the world over.

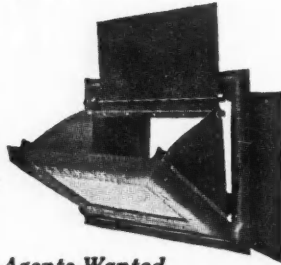
Are you ready to consider the saving Novo Kerosene Engine will make for you? Write for our book, "Standardized Power." This book tells and illustrates the advantages that come from adopting Novo as your standard power for pumping, hoisting, mixing, etc., and also explains the Novo Kerosene Engine.

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Clarence E. Berment, Vice-Pres. & Gen. Mgr. Lytton Building, Chicago, Ill.

THE AUTOMATIC COAL CHUTE

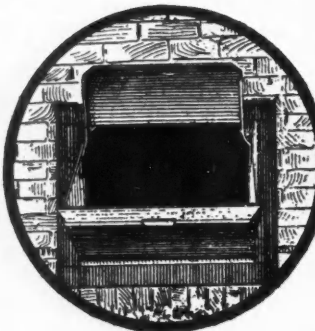
Will Answer Every Requirement

Opens Automatically
 Closes Automatically
 Locks Automatically
 Fool Proof
 Order one from your
 dealer or direct from



Agents Wanted
THE WESTERN IRON & FOUNDRY CO.
 Wichita, Kansas

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.

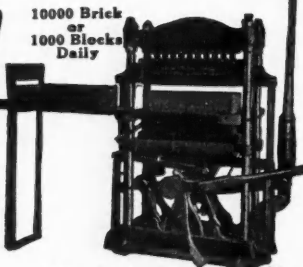
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Make Your Own Brick

and
\$20 to \$50
 Extra Daily Profit

Be independent of the clay brickmaker and dealer. Put yourself in a position to make more money on your contracts, to take bigger jobs—more profitable jobs without worry of delays or lost time eating into your profits. With a Helm Press you can make 10,000 Brick or 1,000 Blocks a day—\$20 to \$50 daily profit. Operates under 80,000 pound pressure. No tamping—no burning—every brick or block perfectly true. A big demand in your own community for this superior kind of building. Equip yourself to supply it.



The Helm Press

Helm "Dry Wall" Building System

Appeals to builders, contractors and architects. It overcomes the opposition to concrete because it offers absolutely Dry Wall construction. It saves money for builders, as no furring and lathing are required, and it makes rigid walls and fireproof walls. This is the system which is bound to get you business and give you the advantage over all other products.

Send for Our Valuable Book FREE

Let these FREE books tell you all about this great opportunity which is open to you today. It will tell you all the details of this system, about the Helm Press and the Dry Wall building system. It will show you how easy it is to start a profitable business. It tells how each product is made, how it is cured and sold. Write today. Use a post card or coupon.

HELM BRICK MACHINE CO.
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Helm Brick Machine Co.
 473 Mitchell Street
 Cadillac, Mich.
 Gentlemen—Please send FREE your book on Concrete and Helm Presses.
 Name.....
 Address.....

Industrial Housing Problems

(Continued from page 130.)

him to become acquainted with co-operative bank methods.

In consideration of this agreement the company agrees not to make demand upon the demand note as long as the purchaser shall continue to make monthly payments of interest to the company and monthly payments in accordance with his agreement to the co-operative bank. The company further agrees that if he shall die or become incapacitated within twelve years—provided that at the time he shall not be over sixty years of age—they will accept the surrender value of his co-operative bank shares in full payment of the time note. The result of this agreement is that the purchaser may be assured that at the end of twelve years or upon his prior death, a sufficient proportion of the purchase price will have been paid so that he or his estate will then own the property free of all incumbrances except a first mortgage for not over 60 per cent of the value of the property, so that at his option he may resort to a bank for a mortgage and be entirely independent of the company.

The company gives each purchaser a schedule showing the required monthly payments. The following table is a reproduction of one which was given to a purchaser of one of the 1915 houses, and illustrates very well the method of financing the purchase of an Indian Hill house:

Total purchase price.....	\$3,851.50
First payment 10%.....	385.15
Borrowed on mortgage, the balance.....	3,466.35
Amount due in twelve years, secured by time note....	1,000.00
The balance secured by demand note.....	2,466.35
Monthly interest during first twelve years.....	14.45
Monthly payment to co-operative bank.....	5.00
Total monthly payments during first twelve years.....	19.45
Monthly interest payment after twelve years.....	10.30
Total loan	\$3,466.35
Demand loan	2,466.35
Five per cent.....	173.32
Five per cent.....	123.32
1/12 monthly	14.45
1/12 monthly	10.30

The Massachusetts Homestead Commission advocate the payment of 20 per cent of the purchase price before deeds are passed, and the payment of the whole of the rest of the cost in equal monthly installments so calculated as to take care of interest, taxes and insurance in twenty years, more or less.

The Goodyear Company in their work at Akron plan to place two mortgages on the property. The first mortgage is for about one-half the value of the property, and is carried by an insurance company. The second mortgage is carried by the Goodyear Company, and covers the balance of the purchase price. It is not necessary to make any payment down when the property is purchased. Payments are made semi-monthly which take care of the second mortgage in twelve years and the first mortgage in three years more, the rate of interest being 6 per cent per annum. These periods are the maximum time allowed to pay for the property, but

(Continued to page 134.)

Lowers Dealer Installation Costs! Safeguards Health and Comfort!

There you have in a few words the demonstrated *Advantages* of the powerful, modern, Round Oak Moistair Heating System and the Round Oak Sales Plans. Conceded the most healthful and economical plant the home owner can *buy*. Conceded the most creditable heating plant the dealer can recommend. The best the builder or architect can specify. If you do not know these facts from experience or observation, investigate the

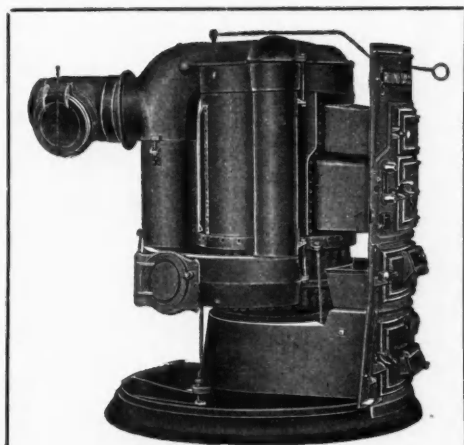
ROUND OAK MOISTAIR HEATING SYSTEM

The Only Heating System that Automatically Ventilates and Humidifies

This system burns all fuels economically—insures delightful warmth and comfort in all weathers—promotes both health and comfort!

For a generation it floods the home with a constant stream of fresh, pure *warm* air—air free from dust, gas, smoke—air not only FRESH but *properly MOISTENED*—hence more healthful!

More durable—trouble proof—simple in operation—vastly more *economical* because of its many exclusive fuel *saving* features.



**Five Star Points of
Round Oak Supremacy**

- *Comfort**—Circulates pure, warm, everchanging air, free from dust, gas, and smoke—automatically humidified like nature's way.
- *Health**—The one heating system that automatically ventilates and properly moistens the air you breathe.
- *Economy**—Longest fire travel, steals most heat from chimney. Perfected hot blast, extra-deep fire pot and combustion chamber over size guarantee complete combustion with all fuels—Absolute control.
- *Convenience**—Single regulation controls entire system. Automatic sprinkler guarantees dustless removal of ashes—extra-large ground feed doors—Burns all fuels.
- *Durability**—Materials used stand highest physical tests. All hinge pieces drilled, not cast. Never a bolt where a rivet will do! Tight fittings guaranteed. Renders more than a generation of Supreme Service.

Backed By 47 Years of Manufacturing Experience

Endorsed by technical experts and health authorities as the very last word in home heating plant perfection, now has the endorsement of over 69,000 users.

Another \$50,000 for National Advertising in 1918

Centering about a Plan of Sales and Superior Installation of deepest interest to every contractor, builder, architect, desiring to increase his business; cut cost of installations and give his customers supreme service. Write for the Sales Plan NOW. *Send the Coupon.*

The Beckwith Co., Round Oak Folks
148 Front St., DOWAGIAC, MICH.

ESTABLISHED 1871

Also Manufacturers of the Genuine Round Oak Stoves, Boiler-Iron Ranges and Combination Coal and Gas Ranges.



Also manufacturers of the Genuine Round Oak Stoves, Boiler-Iron Ranges and Combination Coal and Gas Ranges.

SALES PLAN COUPON

THE BECKWITH COMPANY
Round Oak Folks

148 Front Street, DOWAGIAC, MICH.

Gentlemen: Without obligation, please send us full details of your 1918 Plan for increasing local sales of Round Oak Moistair Heating Systems. Also please include catalog, prices, etc.

Very truly yours

NAME _____

ADDRESS _____

Industrial Housing Problems

(Continued from page 132.)

provision is made to allow extra payments to be made if desired, as well as preliminary payments down. The purchaser has the option of taking a diminishing life insurance with the insurance company which, in the event of death, will pay one or both of the mortgages, depending upon the amount of insurance taken. The insurance company has made an attractive group insurance proposition, which brings the cost of this feature down to a very low figure, and have made the purchasing plan very popular.

It is generally found that the workmen are willing to purchase quite high priced houses if the way is made easy for them by one of the methods outlined above.

It is advisable to retain an option on the property where it is sold to the workmen, providing for the purchase of the house by the company if the workman wishes to leave, some method being set up for the valuation of depreciation, etc. It seems only fair that any unearned increment should pass to the company and not be retained by the workman, as otherwise he is encouraged to speculate in real estate to the disadvantage of the factory owner.

It is very necessary that proper restrictions be placed on the use of the property and the construction of poultry houses, stables, garages, etc.

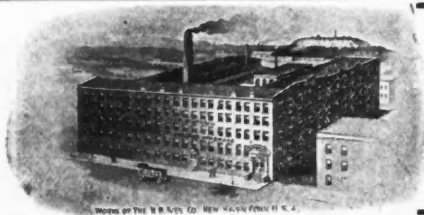
After a man has been working hard for twelve years

or more to pay off the cost of his home, it is likely that he will have gained habits of industry and thrift which will stay with him, and the man will become a permanent asset to the plant. While he has been paying for his house the tie between him and the plant has been one that he has not resented or felt that the owner is to blame for. Many owners have come to think that the system of selling houses is proving to be the best method of securing a contented body of employees around the plant.

It will always be found that very many of the employees, however, are not inclined to purchase, either because they are less thrifty or because, for one reason or another, the ownership of house property does not appeal to them, and houses for rent must be provided for them.

Some real estate companies operating on a large scale have adopted a rebate system by which if the tenant keeps his house in good repair and pays his rent promptly for eleven months he is not required to pay the twelfth month's rent. If at the end of eleven months any interior repairs are required, or if payments for repairs have been made by the company during this period, the tenant pays for these repairs out of his rebate, and whatever balance remains out of his month's rent is remitted, but if the cost of the repairs exceeds the month's rent the difference is paid by the owner. This is, of course, an inducement to the

(Continued to page 136.)



WORKS OF THE H. B. IVES CO., NEW HAVEN, CONN., U. S. A.

THE H. B. IVES CO.

NEW HAVEN, CONN., U. S. A.

ESTABLISHED 1876

INCORPORATED 1900

MANUFACTURERS OF

BUILDERS' HARDWARE

HIGH GRADE WINDOW AND DOOR SPECIALTIES

Write for Illustrated Folder

Help Conserve the Food Supply

without any additional cost to you during the fall, winter and spring months.

Filled from the outside in summer and cooled from the outside in winter without the use of ice.

ANY WOMAN WITH PRIDE

who wants a tidy kitchen will not only be interested in—but will demand the Herrick. The Herrick does away with the annoyances of the ice-man's visits to the kitchen and his soiling of the floors by his always muddy feet and dripping ice and also saves the food.

Our Free Plans

show how the Herrick saves kitchen space. It is built into the wall so that only the front is visible. Any housewife will appreciate this saving of space. When remodeling install the Herrick Outside Icing refrigerator.

Progressive Builders

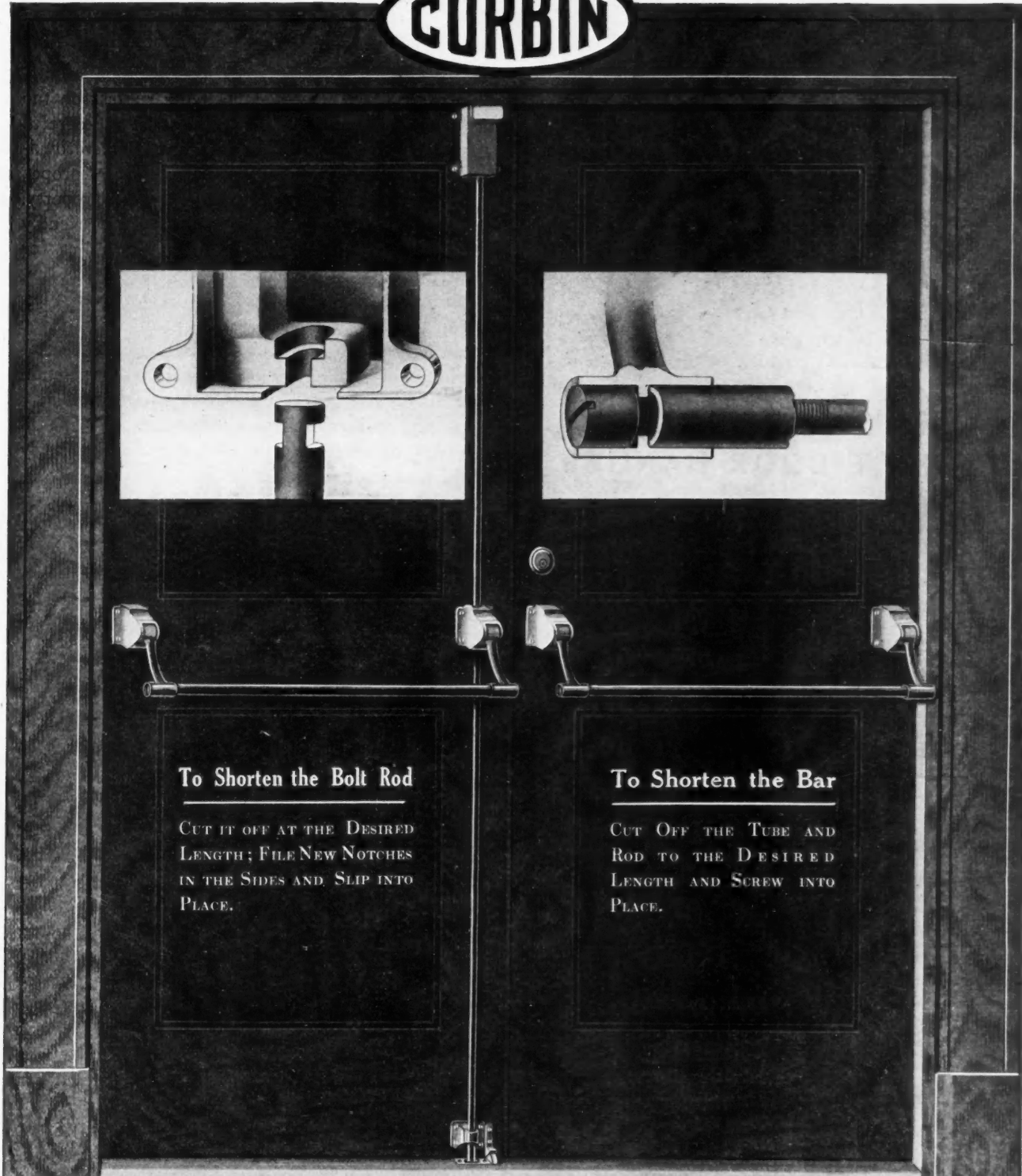
get information on this modern convenience. Suggest it to your customers before they suggest it to you. Be an up to the minute builder and sell and install Herrick Refrigerators.

Write for our free plans and our complete catalog.



HERRICK REFRIGERATOR CO.
WATERLOO, IOWA

HERRICK
DRY AIR SYSTEM
REFRIGERATOR



To Shorten the Bolt Rod

CUT IT OFF AT THE DESIRED LENGTH; FILE NEW NOTCHES IN THE SIDES AND SLIP INTO PLACE.

To Shorten the Bar

CUT OFF THE TUBE AND ROD TO THE DESIRED LENGTH AND SCREW INTO PLACE.

OUR NEWEST EXIT FIXTURES

are simple in construction, made to sell at popular prices, and thoroughly reliable. They can be carried in stock in regular sizes, and cut to desired lengths on the job, for special requirements. Easy to apply, cannot get out of order, and fulfill the most strict legal requirements. Write for information.

P. & F. CORBIN

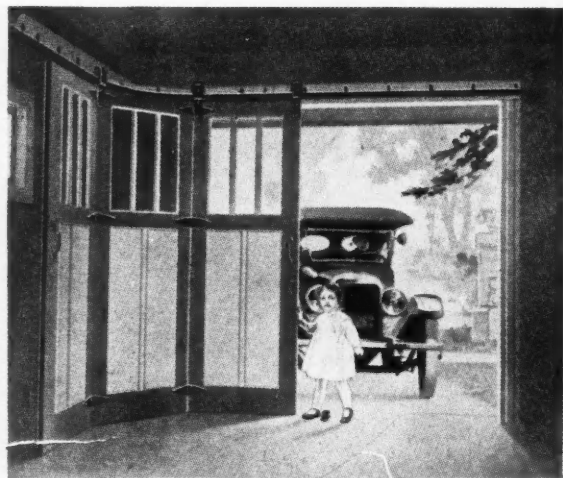
The American Hardware Corporation, Successor

NEW BRITAIN, CONN.

NEW YORK

CHICAGO

PHILADELPHIA



LOUDEN GARAGE DOOR HANGER

Car and garage owners everywhere are demanding the Loudon Hanger because the door built with it requires no operating space; the construction is all inside the garage out of the weather, trouble proof; moves easily on swivelled roller-bearing trolleys.

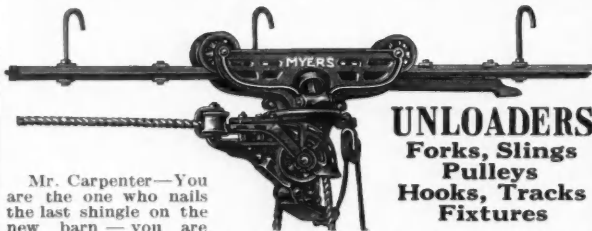
Carpenters and builders find the Loudon Hanger an attractive proposition because of the big demand for it and because the Loudon door is easy to build.

Write for Our Free Illustrated Book on Garages

It contains much helpful information that will prove profitable to you, and tells all about the Loudon Hanger. Postpaid on request—no charge or obligation.

THE LOUDON MACHINERY COMPANY
(Established 1867) 5516 Court St., Fairfield, Iowa

MYERS HAY TOOLS

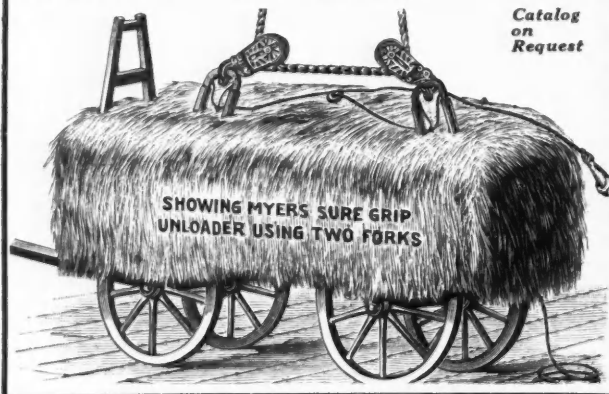


UNLOADERS
Forks, Slings
Pulleys
Hooks, Tracks
Fixtures

Mr. Carpenter—you are the one who nails the last shingle on the new barn—you are called to make repairs now and then, and quite frequently install the hay unloading outfit for your customers—so naturally you will be interested in the Myers Unloaders, Forks, Slings, Tracks, Pulleys and Fixtures for unloading hay or grain from the rack into the mow or onto the stack—Myers Hay Tools are easy to install, and are known and used wherever hay or grain of any kind is a crop. Why not recommend and install the Myers this year? The line is complete, fully guaranteed and up-to-date in every respect.

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

Catalog
on
Request



Industrial Housing Problems

(Continued from page 134.)

tenant to take care of his property and not vacate a place when the period for rebate is approaching.

Supervision

If a housing project is to be really successful, too much emphasis cannot be laid on the strict and careful supervision and education of the tenants. Overcrowding and the lodger evil must be prevented by proper restrictions in the leasing or selling of the property, and a welfare worker or district nurse or friendly rent collector should make periodical inspections for the purpose of seeing that the premises are being kept clean and that the tenants are living decently. It is not essential that this worker be engaged directly by the owner of the houses. In many cases it is far better if the local municipal league or other local organization can be subsidized to take care of these activities.

A welfare worker can often accomplish a great deal in the way of educating the foreigner along sanitary and decent housekeeping lines.

An interesting experiment which is about to be tried is the establishment of a "probationer's" block on the outskirts of a new industrial town. To this block are admitted tenants of the negro or foreign birth, and their housekeeping is supervised by a resident superintendent. They are taught American cooking, laundry work, etc., in a welfare building, and when they have proved themselves to be good tenants and agreeable neighbors they are permitted to occupy houses in other parts of the town. This experiment will be watched with a good deal of interest.

Conclusion

In these articles the writer has endeavored to touch upon the many problems that are still being studied by those who have the welfare of the workmen and the manufacturer at heart. It cannot be stated that any of these problems have yet been finally and satisfactorily solved. All that it is hoped to accomplish in this article is to set forth clearly the main problems in a desire to assist the manufacturer starting a housing venture to form a correct judgment for himself.

If improperly conceived and executed such work can only cause disappointment and regret to those who have invested their money in it, but if carried out properly and thoroughly good housing is one of the finest aids in cementing the good relations of the employer and the employed and of making good citizens and good Americans out of the splendid raw material that is continually being poured into the "melting pot." Present conditions are a disgrace to our country. It is not necessary to apportion blame for this. It is enough if we realize the fact that "evil is wrought by want of thought, as well as by want of heart" and unite to remedy the conditions.

The provision of good housing not only satisfies a local need; it makes for healthier, happier families, and renders a great national service.



HAVE NO EQUAL

We say that in driving, holding and lasting qualities Zinclad Shingle Nails have no equal. You, too, will say this after you have tried them. Get Zinclads from your dealer. If he does not carry them, write us.

W. H. MAZE COMPANY
PERU, ILL.

Zinclad

SHINGLE NAILS

State Starts Experiment in Low Cost Houses

(Continued from page 35.)

workers, now so prevalent thruout the Commonwealth. When circumstances warrant, possession of the house will be given immediately to the intended purchaser and title will be granted when 20 per cent of the total cost of the house is paid. As the estimated cost of each house will be about \$2,000, it is figured on monthly deposits of \$15, entire payments will be made in twenty-eight years.

A topographical survey of the Lowell tracts already under way and the erection of the houses will commence in a few weeks. This year, Massachusetts, carrying a heavy war budget, gave heed to the recommendation of the commission and appropriated \$50,000 to help secure homesteads for its poorer citizens.

Co-operation in this plan has been offered by the Lowell co-operative banks. These banks are willing to take over a mortgage on any of the houses when 20 per cent of the cost of the house has been paid. Such aid will allow a large portion of the money to return to the state treasury, which may be used in further advancing the project.

An investigation has revealed a lively and wide-spread demand for houses such as have been described and it is possible that the homes soon to be erected in Lowell will be sold before completion, at least a large number will. If this proves to be the case, funds received upon completion of the first buildings may be

re-invested in a second enterprise.

Altho an experiment of this nature is the first to be tried by any government in this country, it has been carried out with wonderful success in all the large countries of Europe for the past twenty-five years.

The members of the Homestead Commission who have worked so diligently for the success of this enterprise are: Charles F. Gettemy, chairman; Henry Sterling, secretary; Augustus Thorndike, Kenyon L. Butterfield, George C. Whipple, Warren Duram Foster, Mrs. Eva W. White, Cornelius A. Parker and Arthur C. Comey. In explaining the purpose of the Lowell project, Mr. Sterling of the commission says:

"The desire of the Legislature and the purpose of the Homestead Commission is first, to make an attempt to meet the needs of the low-paid workers, rather than those who receive high wages. The commission has studied the conditions and situation of male adults, of whom there were 285,000 in 1915 in this Commonwealth receiving \$14 per week or less. All of these persons are or ought to be the heads of families. The utmost they can afford to pay is \$15 per month. This sum on a 9 per cent basis would pay for a \$2,000 home in a little more than sixteen years. Whether it is possible to provide such a home, with garden, for \$2,000, or near that sum is the problem which the Homestead Commission, by its experiment in Lowell is seeking to solve.—*Boston American*.

Wait A Minute!

Do not pass over this announcement to every contractor and builder before reading it and learning of this **BIG MONEY MAKING PROPOSITION.**

SOLD! SOLD!--PROFIT! PROFIT!

Yes, they are sold upon sight. Garage owners appreciate **TOPPING FOLDING GARAGE DOOR HANGER SETS** every time. They are completely sold on the proposition, and all you have to do is to get after their order. Big money is made every day by our thousands of contractor or builder representatives.

TOPPING FOLDING GARAGE DOOR HANGER SETS are the simplest and strongest on the market today. They offer any new ideas in garage hardware. If there is anything new, the **TOPPING FOLDING GARAGE DOOR HANGER SET** has it. Packed in complete sets. Automatic locking device can be opened or shut by any member of your family. Neat appearance, last forever, and every sale brings another.

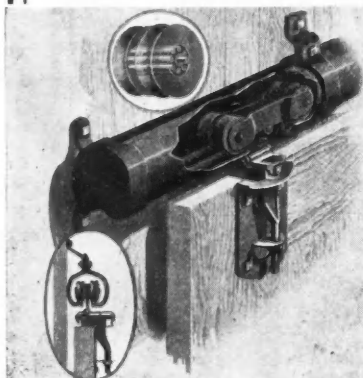
Investigate our proposition at your local dealers, and get acquainted with the **TOPPING FOLDING GARAGE DOOR HANGER SET.** It means profit to you.

Use Red Rib Barn Door Hangers

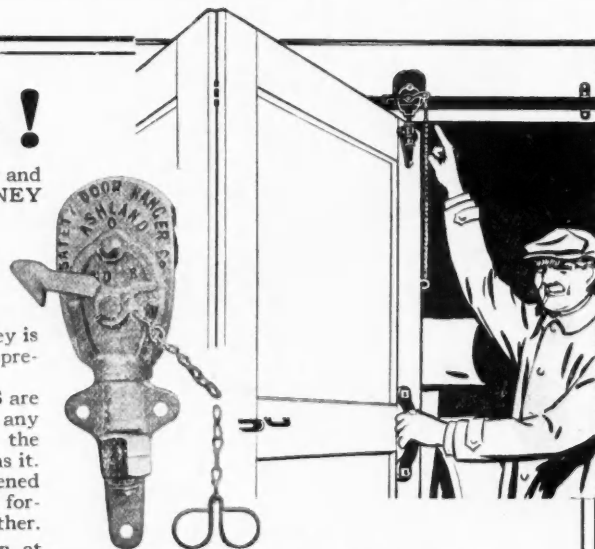
They are especially adapted to the use of heavy barn doors. They are designed by experts to withstand the strain and wear brought upon barn door hangers. Consider lasting qualities, and you will find none better than the "Red Rib" Hangers. Solid, double-grooved wheel. Very strong trolley. Sheds water. Bird proof. Tandem wheel. Finze hanger. Noiseless. Roller bearing wheel. They are absolutely guaranteed.

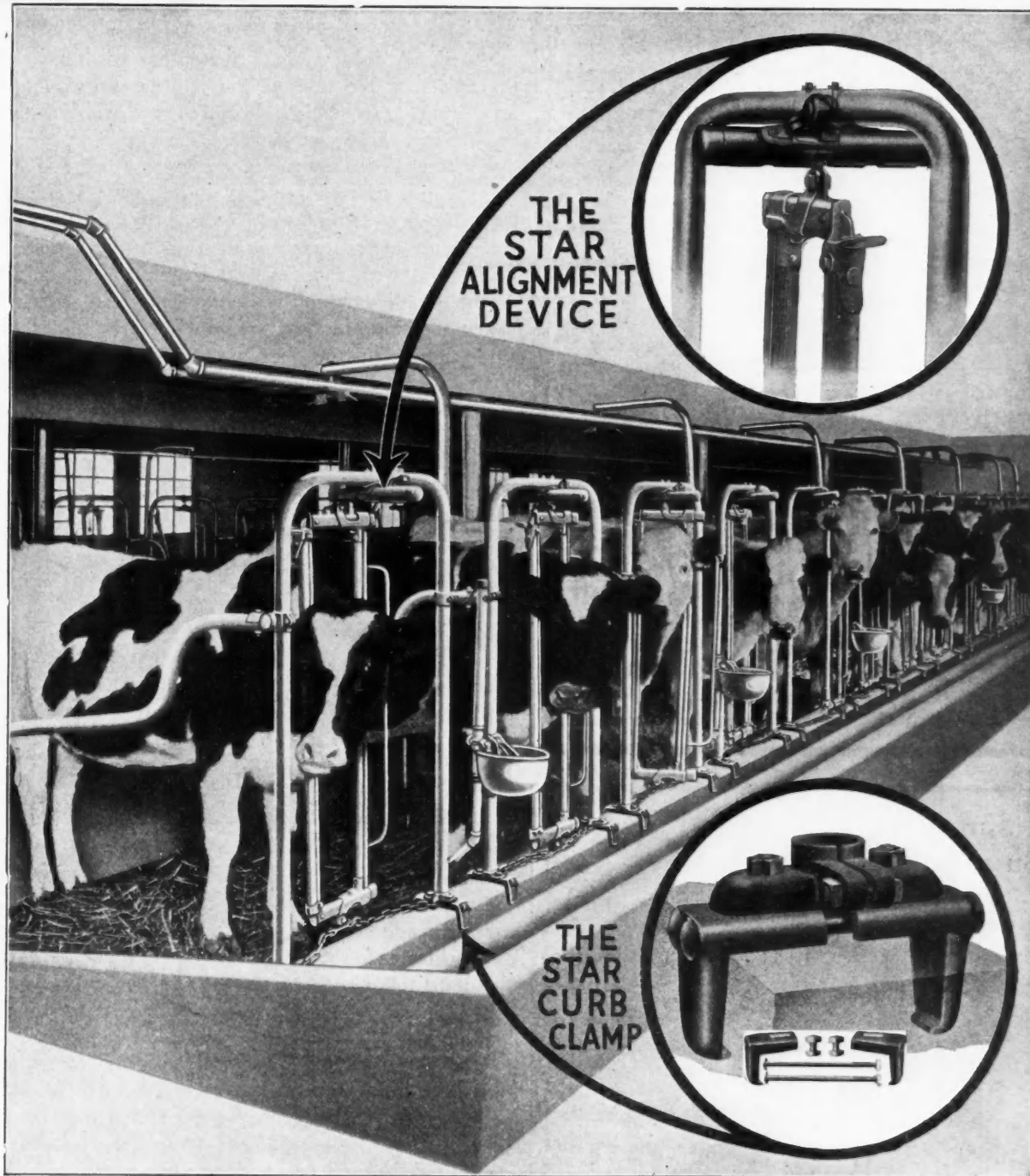
There is money in this proposition for you. Investigate it at your local dealers. Or, if by chance, he does not carry them in stock, write for our money-making proposition to contractors and builders, and descriptive literature.

Safety Door Hanger Company
Ashland, Ohio



Does Not Sag or Bind





The Two Features That Cinch The Sale

You know that the nearer you come to carrying exactly what your customers want, the bigger your sales are bound to be.

The two big, new, added features on STAR Barn Equipment have been in use long enough to demonstrate that they "cinch the sale" every time our Dealers show them.

The STAR ALIGNMENT DEVICE *instantly*—by the simple turn of a lever—lengthens or shortens the cow bed. Takes about the same time that it does to lock a stanchion. Compare this exclusive STAR feature with the slow, laborious methods used on other stalls.

Then there is the STAR CURB CLAMP—by its aid the barn owner can set a stall in *sixty seconds*. No templets or anchor setting—the curb can be finished up with the rest of the concrete work.

On top of these new and exclusive features, STAR BARN EQUIPMENT has more practical advantages to offer than any other equipment made. The Unit Stall construction—the extra strong Giant STAR Stanchion with its One Hand Lock, Wood Lining and Easy Adjustment—but what's the use of trying to tell it all here?

Write for a free copy of the "How Book" for contractors, and send us a list of the farmers who are going to build or remodel barns in your vicinity. Write today—

HUNT, HELM, FERRIS & COMPANY

Main Office and Factory, 59 Hunt St., Harvard, Ill.
Eastern Branch, Industrial Bldg., Albany, New York

The STAR Alignment Device

Our new feature—the STAR Alignment Device—is a revolutionary improvement in stall construction.

By its aid you can *instantly* with the simple turn of a lever lengthen or shorten the cow bed.

And it takes no longer to make the adjustment than it does to lock a Stanchion.

This feature exclusive with the STAR.

You may, if desired, equip with plain STAR Stalls and add the Alignment Device later, when you are ready.

The STAR Curb Clamp

This exclusive STAR feature is pronounced by barn owners everywhere, the greatest single improvement ever made in steel stall construction.

And—it is exclusive with the STAR. Does away with templets and anchor setting and enables you to finish up your curb with the rest of the concrete work.

When the stalls arrive, drop them in place, tighten the draw bolts of the STAR Curb Clamp and the job is done. With the STAR Curb Clamp you can "set a stall in sixty seconds" and set it right.



**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

**Simonds
Blue Ribbon**



ONLY
\$3.00

"The
Saw Makers"

Supreme knowledge of tool steel has perfected this famous Simonds Blue Ribbon \$3.00 Saw. Sold with a binding guarantee of quality, workmanship and temper. Expert workmanship is apparent in every part of this saw. Large hand-hole. Crucible steel.

You can buy a 24 or 26-inch Simonds Saw any place in the U. S. At your dealer or direct from us. Write for our free book, "Carpenter Guide Book."

They never fail—Try one

SIMONDS MFG. CO., Fitchburg, Mass.
17th St., and Western Ave., Chicago

More Fire Stopping Frame Construction

(Continued from page 48.)

are used. A doorway thus treated has advantages, in that it allows two sides of the wall or partition to be free from doors, which occupy a certain amount of room when swung on hinges. The pockets for such doors have been notorious, however, for being fire traps. In Fig. 2 we see that the block on which the track hangs over the head of the door fills the entire space between the studs, and the sides of the pocket are made tight with asbestos board lining. The bottom of the double partition is further protected from fire below the floor by two horizontal plates under the studs parallel to the door, tightly fitted between the boards of the under flooring. The method of protecting the end of the pocket with a stud and asbestos or plaster board is shown in Fig. 4.

Several materials are suitable for fire-stopping. Anything that is incombustible will do, but substances which are the poorest conductors of heat are the best. Brickwork, stone and cinder concrete or gypsum blocks may be used where they can be most conveniently set in place. Metal lath and plaster is useful for wall, ceiling or partition covering, as are plaster board and asbestos sheets. Mineral wool, when packed into a space, will form a united mass that will not fall out thru holes that might exist in the woodwork supporting it.



Painting the Interior

(Continued from page 52.)

and walls. The first thing to be done is to start with the uppermost rooms and clean all walls, doors, casings, trim and floors very carefully and thoroly, closing and locking each room as it is cleaned. This procedure should be followed down to the basement and all material swept up should be carefully taken out of the building.

The floors should now be covered, at least along the main lines of travel, with the red rosin sized building paper in order that cement dust may not be tracked up from the basement, where all mixing, etc., should be done. If fine, hardwood floors are installed thruout, the men should wear old rubbers, or have rubber heels on their shoes; otherwise the owner will look askance at the numerous pock marks in his flooring and in all probabilities will hold out on some of the final payment if the floors are not resurfaced and refinished.

The woodwork and standing trim should first be stained, shellaced and filled. The former should be a water or oil stain. Avoid spirit stains, because they are exceedingly difficult to apply free from laps and "holidays" and are not permanent to light. The shellac coat may be either orange or white, depending upon

(Continued to page 142.)

GOODELL PRATT

1500 GOOD TOOLS

MITRE BOXES All-Steel-Non-Breakable

Goodell-Pratt Mitre Boxes are built to last — and they do last.

Every single part of Goodell-Pratt Mitre Boxes is made of steel. No breakage is possible; consequently no expense for repairs.

The frame is built in the form of a rigid truss bridge. This great strength combined with careful workmanship insures absolute accuracy not only when the box is new, but after years of use.

The saw when elevated is held in place by a spring lock, which is easily released by a slight downward pressure. The lever which carries the saw can be swung from 45 to 90 degrees either right or left. It locks automatically at all the most desired angles.

This Box is furnished with Disston Saws in five sizes. All sizes have a capacity of 10½ inches at right angles and 7¼ inches at mitre.

Get a Goodell-Pratt Mitre Box and you will possess an everlasting tool.

GOODELL-PRATT COMPANY

Toolsmiths

GREENFIELD, MASSACHUSETTS, U. S. A.



WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

Painting the Interior

(Continued from page 140.)

whether or not the work is dark or light. Shellac should be reduced one-half with denatured alcohol; do not use wood alcohol if you wish to avoid the possibility of blindness resulting from the exposure to fumes in a closed room. Never apply shellac as an undercoat in full body; it is merely a sizing coat for the wood and will prevent much cloudiness from improper sanding when the filler is applied. Let the shellac coat dry at least three hours; more if the rooms are cold. Prepare the filler, being sure to use one prepared from a silex base and not from cornstarch or flour, which will shrink and fade when the oil has been absorbed by the wood. It should be of the consistency of skimmed milk and brushed on *across the grain*; let set enough to loose the turpentine gloss; then cleaned off *across the grain* with squares of burlap. Never use excelsior, shavings or other coarse material, which invariably scratches the work. Let all filler be cleaned out from moulding and corners with a hardwood stick sharpened to a slender pencil point on one end and a skew chisel on the other. The filler should be allowed forty-eight hours to harden clear down to the base of the pores; otherwise the first varnish coat will be badly pitted where the filler in the pores has absorbed the finish.

The varnish used should be tested out before the contract is started. Apply a coat to a sheet of glass

at ordinary room temperature (70°F.) and stand the piece on edge. Note the time required to set; freedom from tears and sags; time required to dry dust free. When dry three days test the toughness with the fingernail and point of a knife. If the varnish is hard, resistant to abrasion and when scratched with a knife point rolls up ahead of the knife in a compact curl, leaving no fractured or ragged edges behind the blade, then the material is good, provided further that it does not cloud up when one-half portion of the plate is immersed in water for several days or longer and compared with the portion not treated. A strip of tin, which has been carefully cleaned with benzine, then soap and water to remove the grease, should also be varnished at the same time as the glass. When dried three days, much longer if time permits, twist the tin and roll is quickly between the hands. Note freedom from cracks and flaking. Avoid a varnish which will not remain practically unchanged under the test, provided it has dried quickly and sets free from dust in a short time.

After the varnish has dried three days or longer, it should be sanded free from nibs with 00 or 0000 sandpaper. The trim should be carefully dusted; better still, sponged with clear water and dried with a chamois. The floors should receive the same treatment. If this method is followed and the rooms kept closed, an enormous amount of sanding will be saved

(Continued to page 144.)



Gedney Farm Hotel, White Plains, N. Y.,
Kenneth M. Murchison, Architect

Why Was Bayonne Roof and Deck Cloth Chosen?

When the contractors faced the problem of covering the roofs and porches of the Gedney Farm Hotel, they decided on

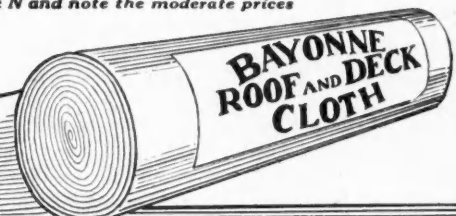
BAYONNE Roof and Deck Cloth

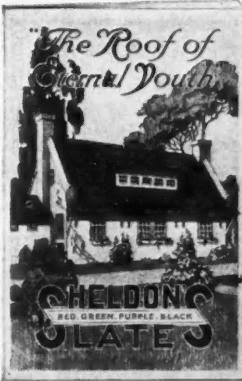
They wanted a material lighter than metal—something which could be put on easily, to last for years—in all kinds of weather. They wanted canvas, but they knew that ordinary roofing canvas would not do. They were afraid to risk the buckling and cracking which always result from laying canvas on wet paint. They knew the expense and trouble of laying canvas that way.

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WHETHER you are an owner, a builder, or a roofer, it is up to you, in these times, to investigate roofing values searchingly. When artificial roofings are represented as "equal to slate" and "as attractive as slate," why not get the *real thing*—Sheldon's Slates?

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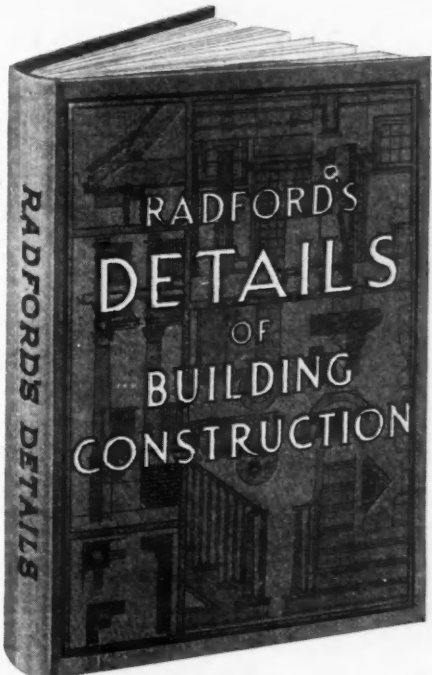
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BECAUSE it means an economy of both time and material to you.—It requires little, if any, sand-papering and dries hard in 8 to 12 hours, allowing one-coat-a-day work to be done with safety.—It will enable you to make first-class jobs on close grained woods with one coat of filler and one coat of varnish.—It will hold out varnish better than shellac and will cover 800 sq. ft. to the gallon.—It will make the very best Flat Stain by simply shading with colors in oil or a varnish stain by adding a little good mixing varnish. It is very valuable as a first coat for floors to bring them up to an even surface.—It helps the user over many a difficult place and adds to the quality of his work.

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Painting the Interior

(Continued from page 142.)

in the end because of great freedom of dust, the ruination of much varnished trim. If the work is to be rubbed with felt pad, pumice stone and water, start with the head casing and continuous trim, using a pad of Spanish felt $\frac{7}{8}$ by $3\frac{1}{2}$ by 5 inches. Have two pails handy, one with water and sponge in which to dip the rubbing felt, the other to contain clean water for sponging off after rubbing. Use O or F pumice stone and rub only with the grain of the wood until the work is smooth and the surface has been leveled off free from nibs. Sponge clean, using a 2-inch chisel Chinese bristle brush for moulding, and wipe dry with a chamois. Avoid all cloths for wiping, as they invariably leave lint, which will ruin any varnish finish. Never let the pumice stone dry on the work, as it will dust off and float around to spoil fresh varnish applied later. When properly dried, if any sags or tears have occurred on the varnish, they may be removed with a chunk of pumice stone of fine tooth, which has been shaped with a file or sandpaper.

Never rub any undercoats with oil, since it is next to impossible to clean it off. Varnish will not adhere to a greasy surface. Very little is saved by rubbing the last coat in oil, since it causes the pumice stone to cut too slowly and often softens the varnish so that it sweats, whereupon this portion must be left to re-

harden. The best procedure is to carefully rub in water and then clean up with good oil polish after sponging off and drying slightly with a chamois.

All woodwork should be finished, except for the last sponging off and polishing, before the walls are touched, either for painting, enameling or papering. This applies especially to the doors, which should be stained, shellaced, filled and given one coat of finish immediately after hanging to prevent subsequent swelling when not protected from the conditions of moisture resulting from the preparations of the walls. The same consideration should govern the treatment of the floors for the first coat of finish in order that they may not swell and subsequently open up after the house is heated.

Much care must be exercised thruout in order that the work may proceed smoothly and not cause trouble, because some part may be influenced by some other portion thru not having been undertaken in the proper order. Cleanliness and freedom from dust are absolutely essential to really good work and will save much excessive sandpapering or rubbing if carefully observed. Clean brushes, carefully put away in the proper liquids at night so that they do not rest on their own bristles, will do much to make for a successful job, so that with the woodwork nicely finished, the treatment of the walls may be next considered.



The Bessler Movable Stairway as it appears when folded



Nothing visible in room below except a neat panel

Use Every Square Inch of Floor Space by Specifying

The Bessler Movable Stairway

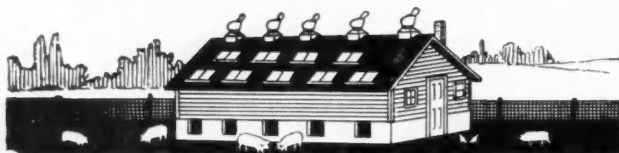
A modern invention of substantial and attractive design that gives all the advantages of the stationary stairway without wasting a single square foot of floor space—a boon to progressive builders.

Made in sizes and lengths for adaption to all ceiling heights and conditions of building. Is ideal in its simplicity and practical in its operation.

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Send today for architect's plans, complete details and specifications of this

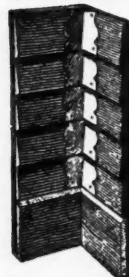
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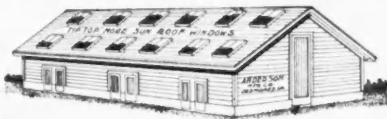
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Easy to Install—Sure to Please Your Customers

Chief Cupola saves time and labor installing—base bolts directly to roof and cupola bolts to the base. Only six bolts needed. Meets all requirements—insures adequate ventilation—satisfies all users. Write for full description, prices, etc.

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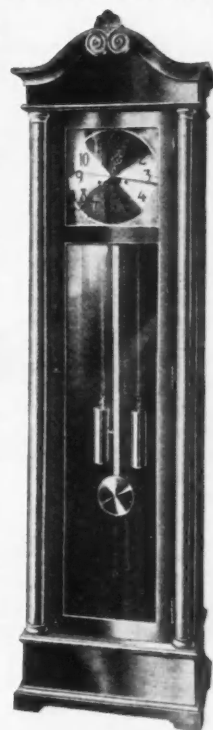
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CLOCK COMPANY

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Back Yard Poultry Campaign

(Continued from page 37.)

sary information regarding building materials, but a little study may be necessary to qualify as a poultry expert. If the person in charge of the office is not particularly interested in chickens he should make it a business to find out, so that he can intelligently answer inquiries. The U. S. Department of Agriculture issues a number of bulletins on the subject, and full information can be secured by writing them. A supply of this literature should be kept on hand to give to those who show an interest in poultry. Of course the practical side should not be overlooked and along with the question of feeding and raising chickens should go many suggestions as to proper housing, and displays of material suitable for this purpose. If this is done the Back Yard Poultry Campaign will not only give the firm a vast amount of publicity, but likewise be a source of considerable revenue to the enterprise dealer in building materials. W. B. STODDARD.



How to Lay Out a Spiral Stairway

(Continued from page 61.)

to equal the number across the plan.

The twisting bevels are shown at each end applied parallel with the joint and in a reverse direction, the one at C' towards the inside, and at E the outside, the blade in each case passing thru the center of the plank, which also is shown in the figure to be the center of the rail.

Because this face mould is for a rail over a section covering five winders and that the remaining two sections covers the same number, it follows that it will be the face mould for the other two also. But owing to the top sections having to be connected either with a newel post or a landing rail, few inches of shank must be added to its length, as shown from I to E at the top of Fig. 66, which is a plan and elevation figure of the top section. If connected to a landing rail, it is here shown that the latter will have to be ramped and the wreath rail made to extend to the joint at E.

And if to a newel, it will need the same extension, due to pitch, as shown above the ramped rail, where a bevel is shown applied to its square end to mark upon its side the cut to fit against the newel.

It is shown in this lesson that even a problem reputed to be so complex as the construction of a spiral handrail is after all not so very formidable, being solved simply by laying out only two different face moulds for any number of rail sections decided upon to make use of.

In this lesson we decided upon but four, just the number necessary for one revolution. If it had been more, it would mean only to get out more rail sections cut out to the form of the same face mould shown in Fig. 65.

In regard to the stringer, it turns out to be but a straight board bent upon a drum, an operation that has been more than once explained in these lessons.

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.

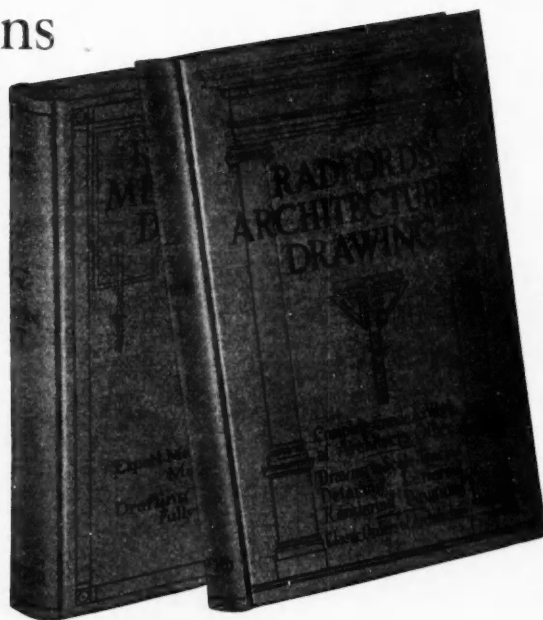
Radford's "**Architectural Drawing**" is a book of 304 pages, with 147 illustrations and a supplement showing perspective views and floor plans of 41 brick, cement and frame residences.

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.

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This book shows you how to get the barn building business in your neighborhood. Enables you to approach the farmer with a definite practical plan that will appeal to him.

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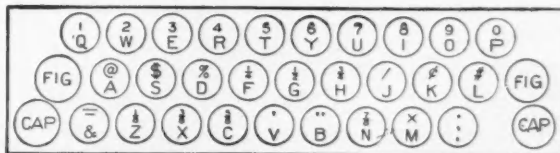


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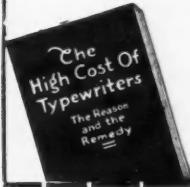
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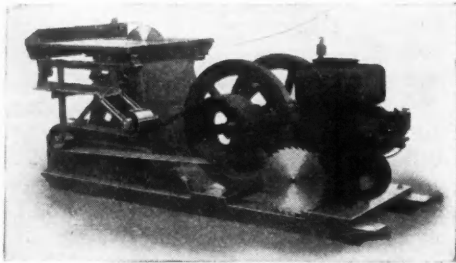
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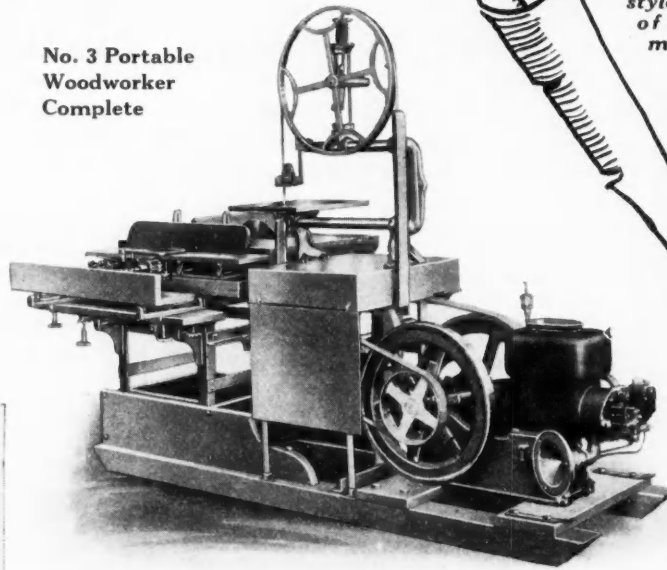
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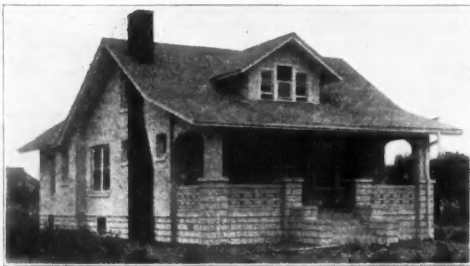
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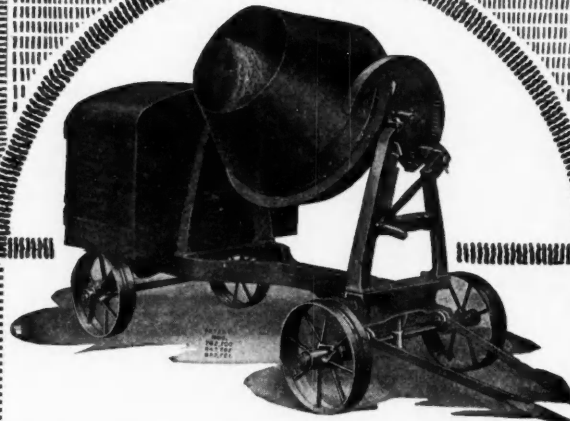


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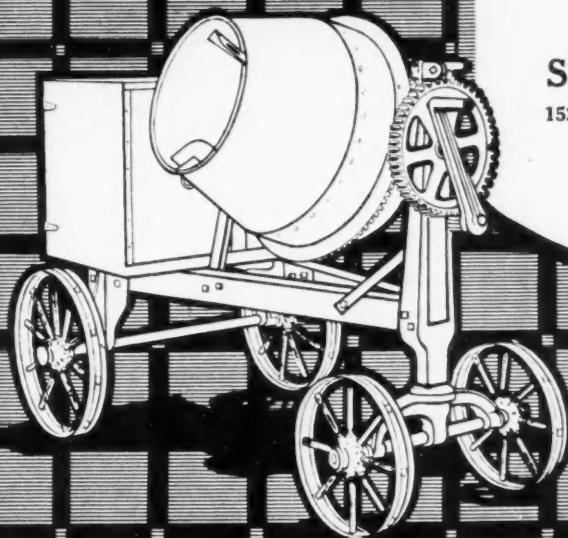
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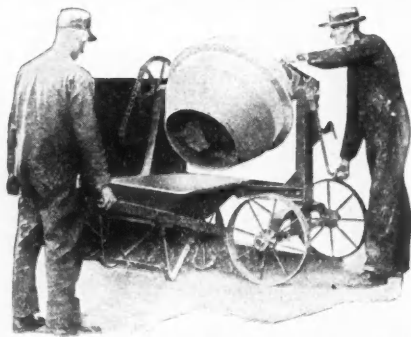
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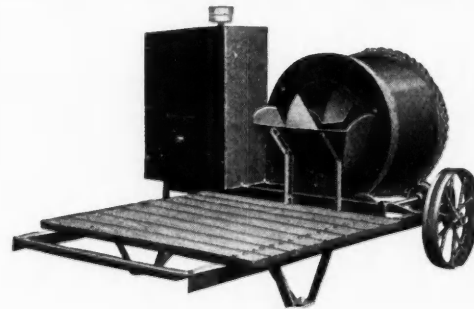
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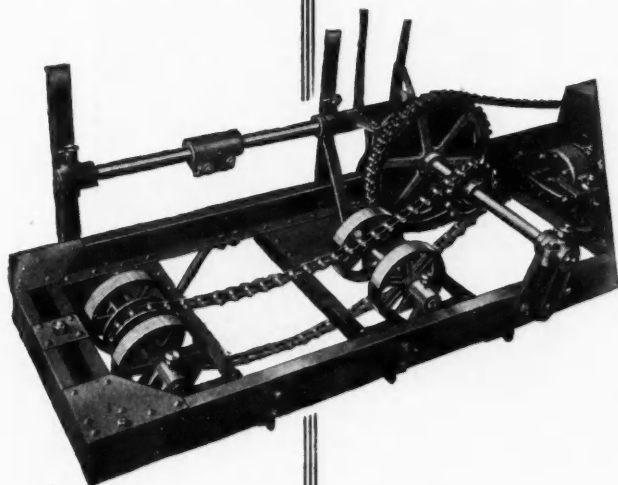
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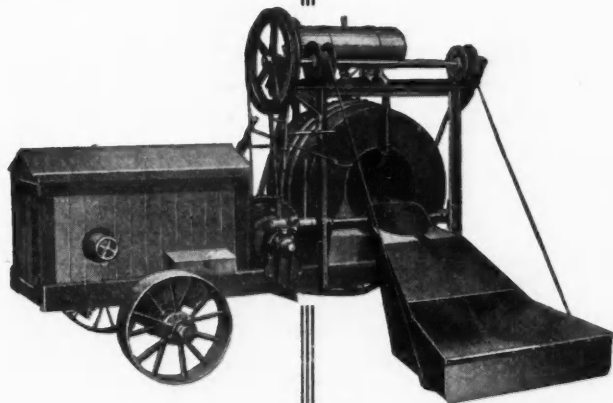


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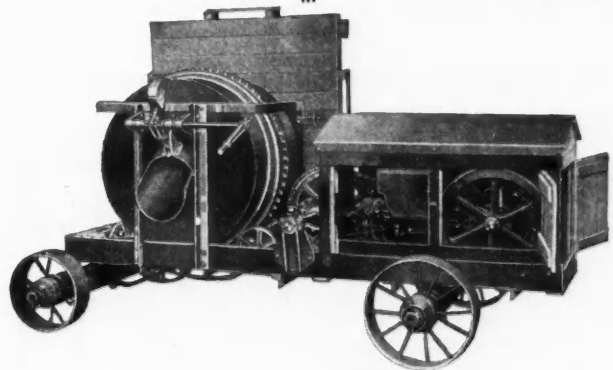
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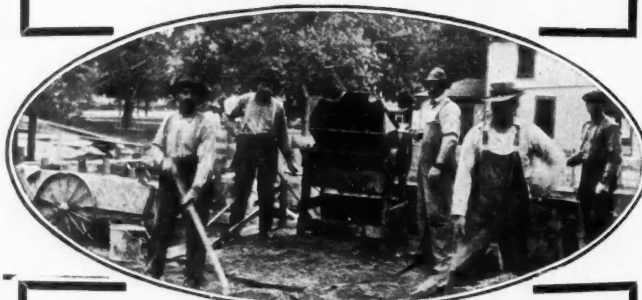
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State.....

THE NORTHFIELD MIXER

Conservative capacity:—30 to 45 cu. yds. of finished concrete per day on ordinary work. 6 to 9 cu. yds. per hour has often been done under favorable conditions. Mixes more thoroughly than any small revolving drum mixer. So light that two men can lift it. So substantial that it will give years of service. No contractor can afford to be without one or more on every job. Write today for catalogue and low factory prices.
NORTHFIELD IRON COMPANY 402 Nice Station Northfield, Minn.

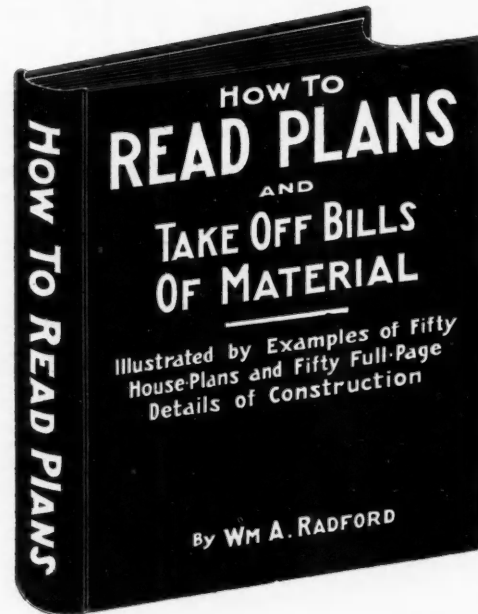
The American Builder

Guaranteed Circulation 36,000

Publishes More Pages of Advertising
 Has the Largest Number of Advertisers

AND

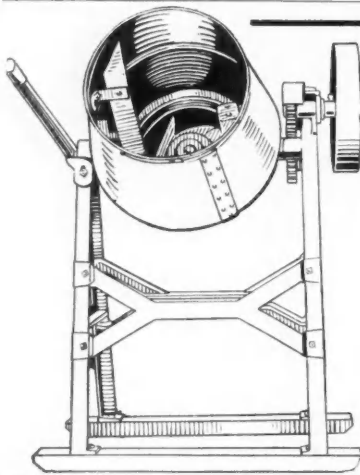
Many Thousands More Subscribers
 Than Any Other Building Paper
 in the World.



This book contains the latest and most reliable, practical information on original drawings, tracings, blue prints, and rough sketches. It shows how to figure inside and outside dimensions, heights, openings, take off quantities, and a vast amount of other data that is indispensable to the man who has to do in any way with construction or the use or estimating of materials.

Price, \$1.00, Postpaid

American Builder, Chicago, Ill.



LOW COST EFFICIENCY SIMPLICITY DURABILITY

These are the features you want in your choice of a first-class mixer. Our recent patents make

THE GILSON MIXER

FULFILL ALL THESE REQUIREMENTS

Made entirely of iron and steel; requires no clutch pulley to stop drum while engine is running; no troublesome chain drive. Mixes mortar and plaster as well as concrete. Loads in one side and discharges opposite; will keep 8 men busy and is handy for one man. Runs drum in opposite direction when discharging mix, insuring a clean drum at all times. Furnished mounted with gasoline engine if desired. Can furnish same style attachment for home-made mixer at \$18.00. Write us for descriptive folder and prices.

THE GILSON MIXER CO., 504 7th St., West Bend, Wis.

YOU NEED AN ARCHER MIXER

Because It Will Save You Labor, Money, Time

ARCHER MIXERS do away with three to four men in every gang. The original end discharge mixers—they put the wet mix direct into the forms without wheelers.

PORTABILITY Because of perfect balance on two-wheeled truck one man can move the Archer on the job—and it does not need a team to take it from job to job.

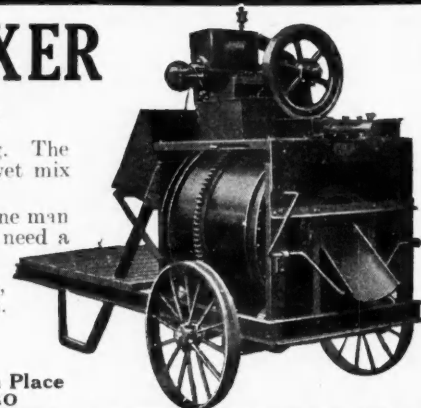
ADAPTABILITY Any kind of work anywhere—paving, foundations, conduits, buildings—the Archer fits into your needs.

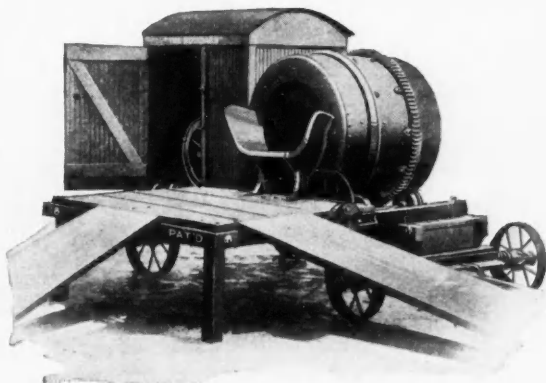
ONE MODEL—Two Sizes, Half Bag and One Bag

Write for Prices and Special Offer

ARCHER IRON WORKS

2433 W. 34th Place
 CHICAGO





**AND—
IT STANDS
PUNISHMENT
SPEED—SIMPLICITY
SAFETY**

THE MACHINE GUN Of Concrete Construction

ANY contractor knows, and knows almighty well, that next to the quality of cement — comes the question of the “mix”. And it’s a fact; you can waste more time, lose more money and acquire more grief by using complicated high-charging concrete mixers than the whole job’s worth.

Or, you can stop all that and play safe, no matter what the job, by discarding old-style mechanical chargers and standardizing all your concrete work with

“The Standard” Low-Charging Concrete Mixer

Low Charging

“The Standard” Mixers are built in every size and capacity to meet every requirement of the Contractor. All low charging; operate on half the power needed for mechanical chargers — and do better work in half the time.

Simplicity — Economy

“The Standard” Mixers give you at once a smooth, even mixture, uniform throughout, and you can *know* what you’re getting every time. For plaster-mixing and mortar, you can’t get a better; saves tempering. In short, “The Standard” Mixer is the one mixer for the practical man on account of its simplicity, low-charging feature and economy of operation.

Over 1000 “The Standard” Mixers in Use in Chicago Alone

In addition to “The Standard” Mixers, “The Standard” line of equipment includes Pumps, Centrifugal, Diaphragm, High Pressure, Dredging, Deep Well, Trench and Gravel; HOISTS, Single and Double Drum, Reversible and Non-Reversible; Portable Woodworker — 12 tools in one; Engines, Gasoline, Gas, Steam and Crude Oil, etc.

If interested in Concrete Mixers, write our nearest branch office for copy of our latest Mixer Catalogue 44. If interested in Contractors’ Equipment, ask for our Complete Equipment Catalogue No. 44E.

“THE STANDARD” CONTRACTORS’ EQUIPMENT

THE STANDARD SCALE

PITTSBURGH 1631 Liberty Avenue
NEW YORK 145 Chambers St.
PHILADELPHIA 523 Arch Street



& SUPPLY COMPANY

BALTIMORE 409 N Gay St.
CHICAGO 163 North May St.
CLEVELAND 1547 Columbus Rd.,

BLYSTONE 3-Purpose MIXER

**Concrete
Mortar
Plaster**

Saves Big Money for the General Contractor

Watch your step this year. Again you've got to contend with labor scarcity, shifting labor, rising wages, higher prices all along the line. Tighten the hold on your profits. Safeguard your profits by planning for bigger profits—save more money on the job. This **Blystone 3-Purpose Mixer** is the biggest money saver you can put to work on your building jobs. It frees you from half your payroll—does three kinds of work better and quicker than hand labor—and saves materials. A short cut to bigger profits.

On the Typical Building Job

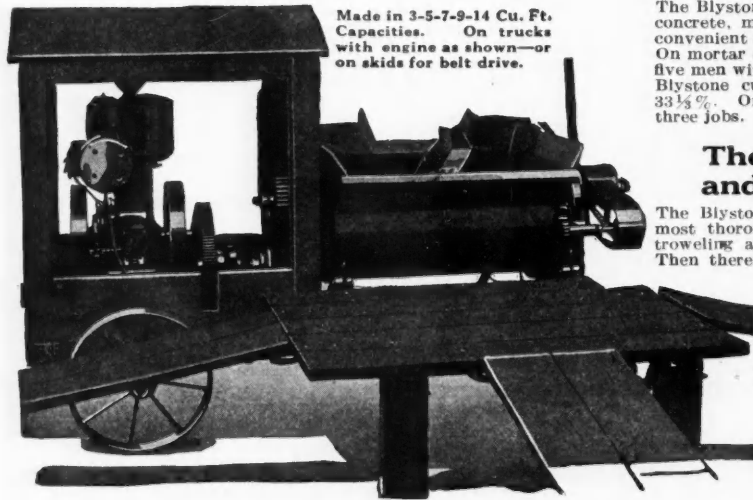
The Blystone does all the mixing there is to do on a building job—concrete, mortar, plaster—one, two or all three. It is the speedy, convenient and thorough concrete mixer that cuts costs to the quick. On mortar one laborer and a Blystone turns out as much mortar as five men with hoes—it will mix for 25 to 40 bricklayers. On plaster Blystone cuts the labor 75%, and increases the sand to plaster 33 1/3%. One machine for three jobs instead of three crews for three jobs.

The Wonderful Blystone Mix and Other Blystone Advantages

The Blystone is noted for the **quality** of its mix—conceded the most thorough in existence. The secret is the turning, tearing, troweling action of the Blystone Reverse Spiral Shovel System. Then there is the wide open drum so easily filled, discharged and cleaned. The automatic discharge, the simplicity of the whole machine, the low upkeep and operating cost.

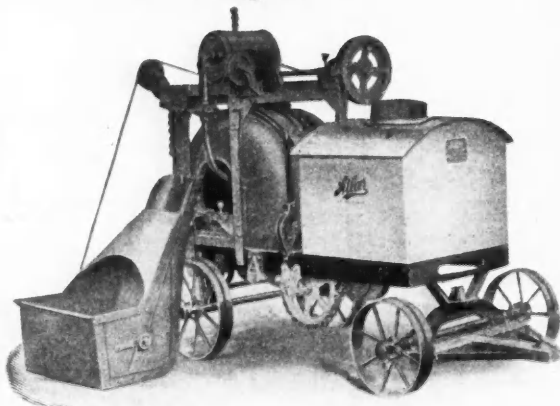
We will back up every statement we make. You must be satisfied. Send for Blystone catalog and prices. Prompt shipment of mixers.

Blystone Manufacturing Company
1217 Carpenter St.
Cambridge Spring, Pa.



Made in 3-5-7-9-14 Cu. Ft. Capacities. On trucks with engine as shown—or on skids for belt drive.

The *Atlas* MIXER



YOU can depend on the Atlas Mixer for uninterrupted service.

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

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

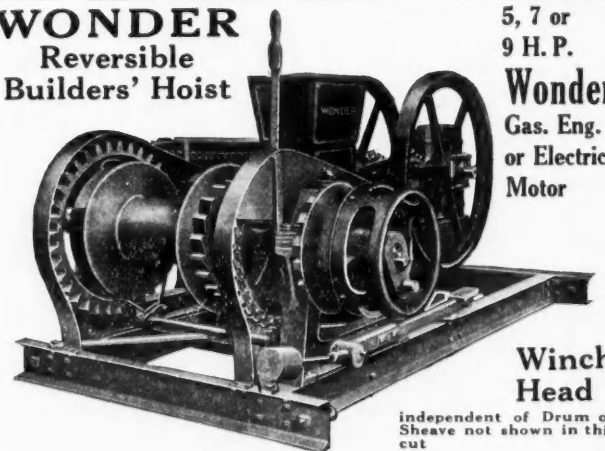
High grade engine—more power than you will ever need.

Send for circular, "Concrete Facts"

Atlas Engineering Company
Manufacturers

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

WONDER Reversible Builders' Hoist



5, 7 or 9 H. P.
Wonder
Gas. Eng. or Electric Motor

Winch Head

Independent of Drum or Sheave not shown in this cut

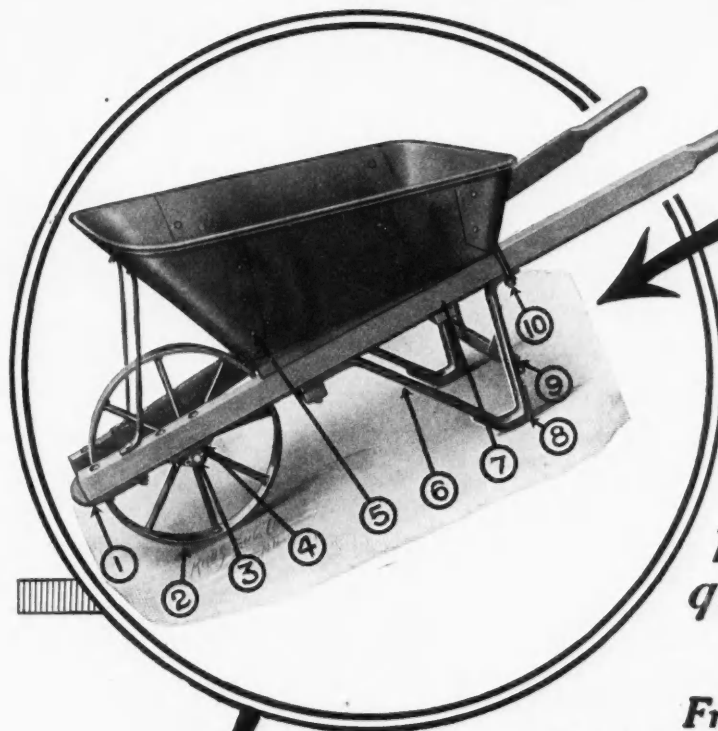
You Can Make More Money with this Hoist

It's built for high speed and hard use and you can do more things with it to save man power or beat labor shortage than you have any idea of until you investigate such features as **two line speeds and load capacities without extra cost**, and other big improvements that make the **WONDER** absolutely the most profitable Hoist investment.

Send for Catalog and See the Reason Why

Waterloo Cement Machinery Corporation
103 Vinton Street, Waterloo, Iowa

Mixers, Hoists, Pumps and Contractor's Equipment
NEW YORK CHICAGO KANSAS CITY SAN FRANCISCO



Sterling
Wheelbarrows
have genuine sterling
qualities built into them

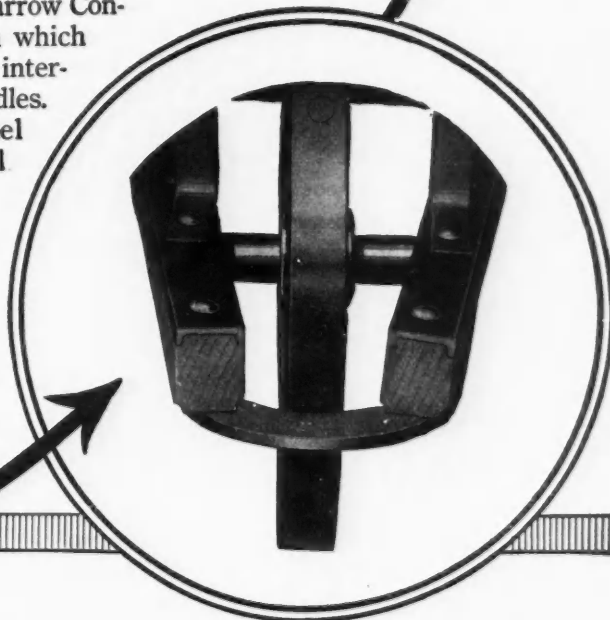
***From The Malleable Tipped
 Handles To the Handle Clamps,
 There Are 10 Good Reasons Why You
 Should Buy Sterling Barrows.***

- The Wheel Guard is Malleable and Ribbed for Extra Strength.**
- The Wheel Tires are 3/8" Thick, and 2" Wide.**
- The Axle Brackets are Malleable and Dust-Proof.**
- Hubs Are Steel and Equipped with Self-Oiling Bearings.**
- Trays Are Not Drawn, and They Have Double Corners.**
- Legs Are Constructed from 1 3/4" Channel Steel.**
- Legs Are Equipped With Steel Shoes.**
- Wheel Axles Are 5/8" Diameter-Shafting Stock.**
- Handles Are Equipped With Clamps Instead of Bolts to Hold the Leg.**

Added to these improvements in Wheelbarrow Construction, is the notable feature of design which makes all Sterling wheelbarrow parts interchangeable. There are no right and left handles. They are the same, and bored alike. One wheel for all styles. One leg fits all frames. All trays are punched alike, thus will fit any frame regardless of size.

Catalog No. 19 shows a variety of Sterling Barrows and Carts for every contractors purpose. Write for it.

Sterling Wheelbarrow Company
Milwaukee, Wisconsin





A No-Lost-Motion Mixer for the Efficient Contractor and Cement Product Plant

The Frank Mixer is the logical equipment for the busy contractor that must have a mixer which requires a minimum of attention and which produces a mix of uniform quality in a short time.

The Frank Mixer can be located conveniently near the forms where the mix can be discharged onto a platform or wheelbarrow where it can be shovelled or dumped directly into the form. The open drum makes loading easy and also enables the foreman to watch the batch mix—to see it and feel it so as to find out, quickly, when the batch is thoroughly mixed.

Frank Mixers used on any job

Frank Mixers are not confined to product plant work. They are designed to handle all kinds of work; mortar and plaster as well as concrete; sidewalk and floor construction; general farm work, country road building,—in fact, any job where a dependable, easily operated efficient mixer is required.

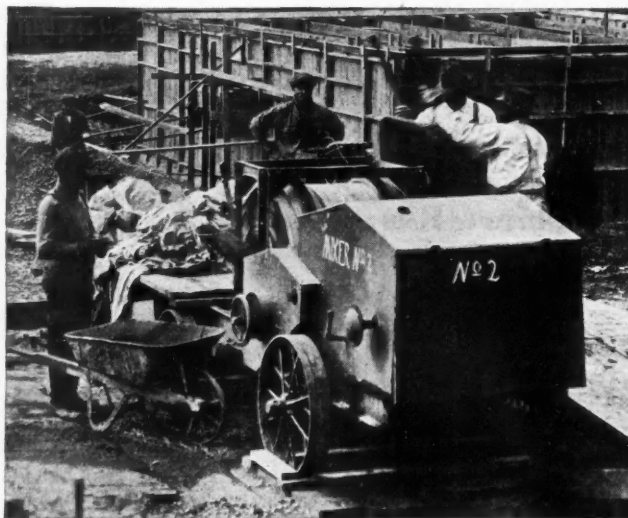
And the cost! The extreme simplicity in the construction of the Frank Mixer—the few working parts are made of the best material—enables us to place this machine on the market at a price much lower than most mixing equipments. You can see for yourself, in studying the accompanying illustrations, the perfect simplicity and sound practicability of this mixer. It never gets out of order—easy to clean as a pail.

Let us send you Particulars

Frank Manufacturing Company

241 Century Building

Des Moines, Iowa



DANDIE

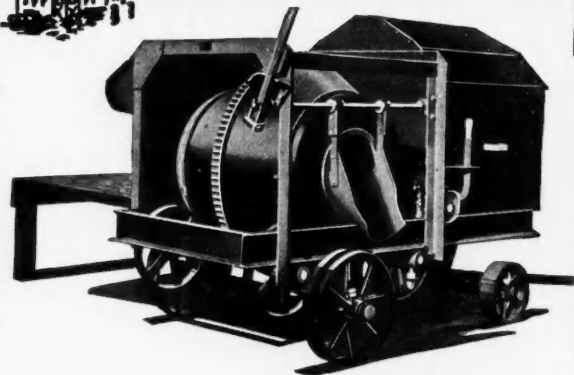
The Big Value

GET the price on this mixer before you buy—get it now while these mixers are in stock in our warehouses at principal

cities. Not the cheapest mixer, but a new standard of value for mixers within the price range for light mixers. Big production and standardized manufacturing keeps price down, and quality up—is the reliable light mixer—scientific design takes the place of weight. Built in 5 and 10 cu. ft. capacities. May be equipped with low charging platform, batch hopper or power loading skip, automatic water measuring tank and light duty hoist.

Write for Koehring Catalog K-5.

Koehring Machine Company
Milwaukee, Wis.



BUILD SERVICE

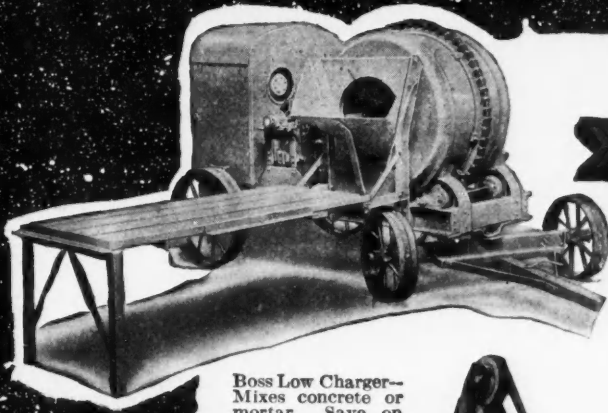
The corner stone of the successes of many large contractors is the increased efficiency of their Mixer Service.

Eureka Quality Mixers

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

Eureka Machine Company
103 Handy Street, Lansing, Mich.

Why Pay High Prices?



Boss Low Charger—Mixes concrete or mortar. Save on labor—that's the big item now.



Speed at low cost—that's what you get in Boss Equipment.

Boss Equipments are real sensations.

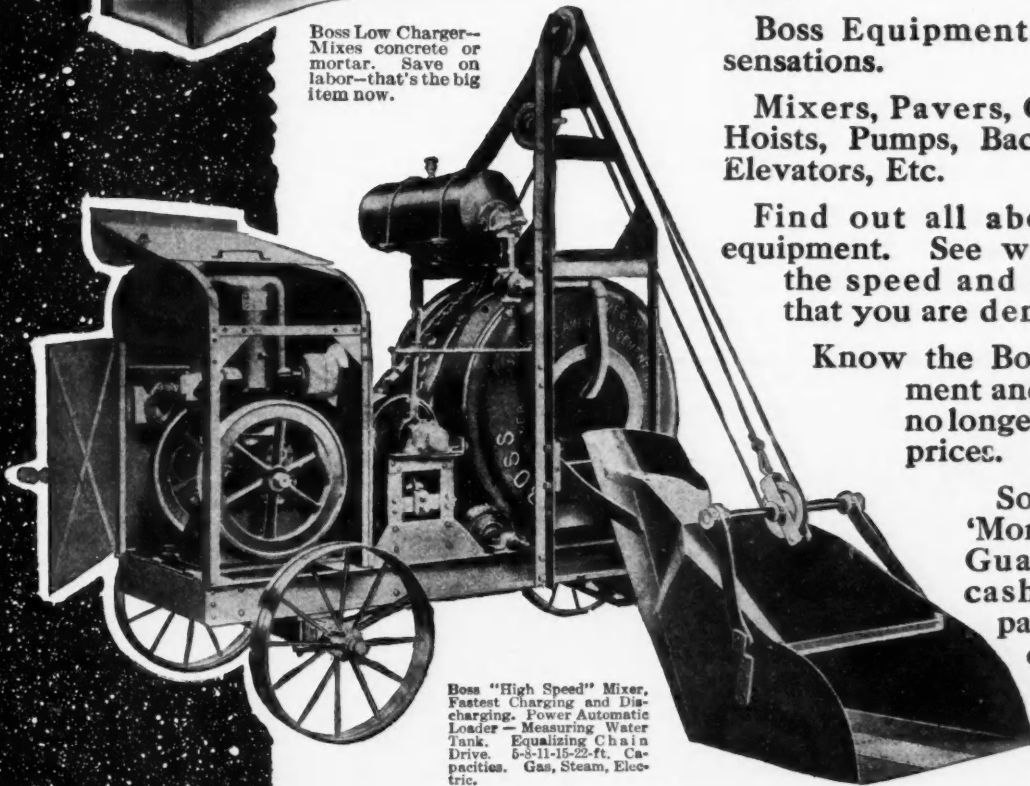
Mixers, Pavers, Grouters, Hoists, Pumps, Back Fillers, Elevators, Etc.

Find out all about Boss equipment. See why it has the speed and efficiency that you are demanding.

Know the Boss Equipment and you will no longer pay high prices.

Sold on safe, 'Money-Back' Guarantee—cash or easy payments as desired.

Prompt delivery.



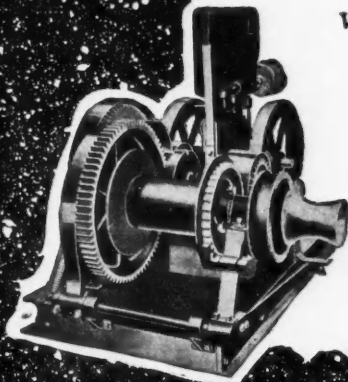
Boss "High Speed" Mixer, Fastest Charging and Discharging. Power Automatic Loader—Measuring Water Tank. Equalizing Chain Drive. 5-11-15-22-ft. Capacities. Gas, Steam, Electric.

Write for your copy of the big Boss catalog—it's full of contractor's bargains. Get this catalog now and save much money later on.

The American Cement Machine Co. Inc.

Keokuk Iowa
THE 300,000 HP. ELECTRIC CITY

Address the Nearest Branch



Heavy Duty Contractors' Hoist, Single Drum Reversible, all built like a steam rig. Hyatt Roller Bearings as in all Boss equipment. Sheave and Niggerhead. Safety ratchet. Steel frame. 6-8-10 h.p. sizes. Costs no more than ordinary hoist.

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

Steel Built-Hyatt Roller Bearings

Mortar Mixing

With the Kent

Saves Labor and Lowers Cost

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

Don't Be a Waster of Labor

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

Write for descriptive circular and prices

THE KENT MACHINE CO.
KENT, OHIO



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 003, Nehawka, Neb.

Always on the Job—

LITTLE "DEVIL" MIXER

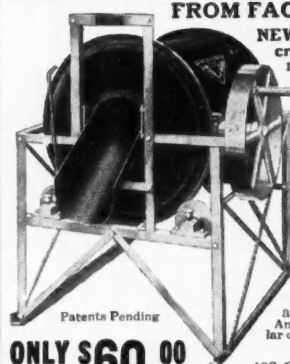
A Bigger, Better Mixer for the Same Money

Capacity 8 cubic feet of loose material. Low Charging—End Discharge—May be used for Paving, Grouting Brick Pavements, Foundations, Sidewalks and will mix and place concrete quicker and at less labor cost than any mixer on the market. Write today for catalogue, prices and terms.

Chicago Builders' Specialties Co.

1461 Lumber Exchange Bldg., 9 So. LaSalle St. Chicago, Ill.

ONE MAN CAN RUN IT



FROM FACTORY TO YOU—SAVE 40%

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

The Whirlwind Way Makes Mixing Pay

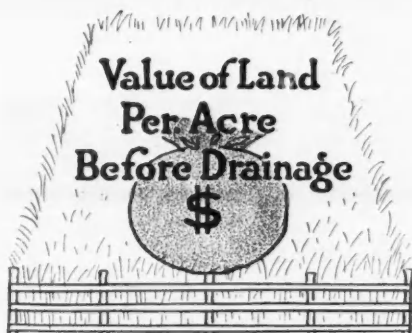
Saves its cost on one job. Capacity about 3 cubic ft. Mixes a batch a minute. Does perfect work, wet or dry, empties clean. Discharges direct to forms, cuts out the wheeling and backache. Satisfaction guaranteed or your money back. Reference: Any La Crosse bank or Dun Agency. Write for circular or order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

The Little Whirlwind Mixer Co.

432 Gould Street La Crosse, Wisconsin

Patents Pending
ONLY \$60.00

8 MEN CAN'T STICK IT



Conditions Like This Boost the Tile Business

THE farmer considers his pocket book! Drained land increases in value many, many times the cost of drainage—it yields bigger crops per acre—each harvest nets a far larger cash return.

With a certainty of selling all he can raise, the farmer is naturally strong for drainage. So he sets out to buy drain tile.

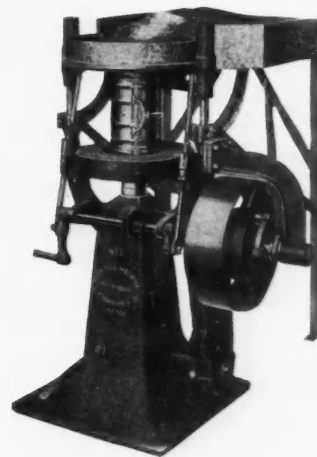
And he finds it mighty scarce!

Coal shortage, car shortage and embargoes have curtailed clay tile production and sent prices skyward. Cement tile—which he prefers, anyway—is therefore high in demand.

Multiply this condition by *hundreds of thousands* and you'll realize why the cement tile business **will pay you**.

For well-known reasons, ordinary building business may be dull this year. It is good policy to take on some line where the demand and profits are sure. Cement tile offers that. The required investment is very moderate.

We are prepared to furnish complete equipment and to post tile makers on the most efficient and economical methods of manufacturing cement tile and sewer pipe. We have specialized in this line for more than 10 years.



The Dunn No. 1, shown above, is the logical tile machine for easy thorough and economical manufacturing.

Bulletins completely describing the cement tile business and equipment sent free upon request. Write for them.

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

Austin Drum Mixer Features



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

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

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

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

Write for Bulletin 7-D

F. C. AUSTIN COMPANY, Inc.

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

Main Office: Railway Exchange Building, Chicago
New York Office: 30 Church Street



The Great Bell

-original-Pipeless-Furnace

Father of Them All

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

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

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

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

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

American Bell & Foundry Co.
27 Cody Street, Northville, Mich.

HESS MEDICINE SANITARY LOCKER

The Only Modern, Sanitary STEEL Medicine Cabinet



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

Costs Less Than Wood

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

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

HESS, 920L Tacoma Bldg. CHICAGO
Makers of Steel Furnaces Free Booklet

The Recessed Steel Medicine Cabinet

Make Your Basements WATER TIGHT

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

The Bitu-Mortar Waterproofing Co., Inc.

BITU-MORTAR WATERPROOFING
WATERPROOF PERMANENTLY

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

Plumbing, Heating and Pneumatic Waterworks Supplies at Wholesale



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

Save 20 to 40%

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

Small orders are as carefully handled as large ones.

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

Get Our Free Estimate For Hot Water Heat In that new or old house



GOOD PROFIT FOR CONTRACTORS

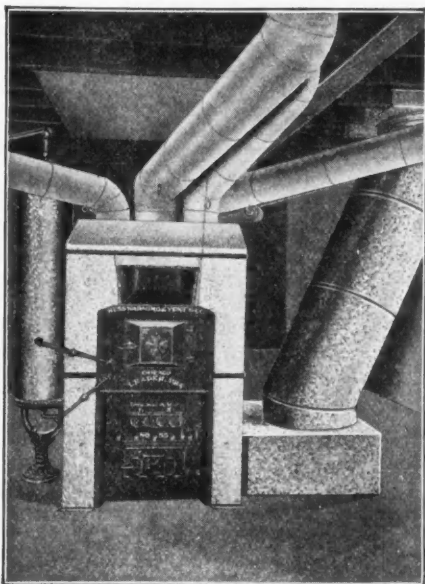
The Andrews Contractor Plan enables you to net more from the heating price and gives your customers the best system. We furnish free estimates on complete plants ready to screw together. Steel Boilers alone if desired.

\$200.00
Get Our Proposition and Big Heating Book

ANDREWS HEATING CO., 1524 Heating Bldg., Minneapolis, Minn.

Comfort Insurance

We insure comfort in that new home. There is no producer of comfort that excells the Hess Furnace System of Heating



A HESS Welded Steel Pipe Furnace showing hot air pipes, air supply and tank heater

The method of installing it, which we plan in every detail, **insures proper temperatures** in every room, and thorough and complete circulation of the warm air.

The size of furnace we select **insures economy** in fuel and ease in firing and regulating.

Its adaptability to any kind of fuel **insures against inconvenience**. If you can't get the particular fuel you want anything else will do.

The addition of sufficient moisture **insures a healthful and agreeable condition** of the atmosphere, quite unlike the effect from steam, hot water or ordinary hot air furnaces.

The construction of the Hess Steel Furnace, with every seam welded, **insures against leakage** of gas and dust, with their menace to health.

Our trial terms of sale, by which your own trusted banker holds the purchase price till next January, while you test the furnace, **insures you against loss** and against errors on our part. We receive nor ask no pay till the heater proves equal to our guarantees.

Don't you want such insurance?

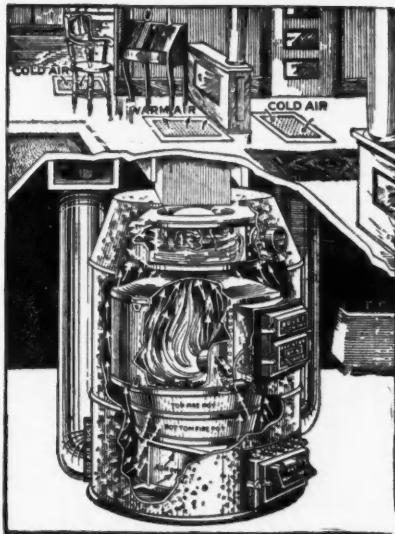
New booklet just out on Furnace Heating. Ask for one.

Special rates to contractors.

We make Pipeless Furnaces also.

HESS WARMING & VENTILATING COMPANY 1220 Tacoma Bldg. CHICAGO

BOVEE'S PIPELESS CENTRAL HEATING SYSTEM AND OTHER FURNACES



Every home can now have a first-class high-grade heating system in an old house as well as new. Heats as much as three large stoves. Costs but little more than a good stove.

We furnish either our UPRIGHT FURNACE for burning hard coal, soft coal or wood; or our HORIZONTAL FURNACE with large doors 16x16 inches for burning 4-foot wood or soft coal.

Either style furnace furnished in any size necessary to heat the house.

USUAL SYSTEM WITH PIPING TO EACH ROOM FURNISHED WHEN DESIRED. Write for our three color catalogue, free.

BOVEE FURNACE WORKS
50 Eighth St. - - Waterloo, Iowa

MADE IN MILWAUKEE
GILT EDGE
BOILERS
FURNACES
R.J. SCHWAB & SONS CO.

There's A Steady Demand For A Pipeless Furnace

In many homes built without provision for warm air heating a furnace of the regular type cannot be installed without great difficulty and expense. Every one of these homes, however, appreciate the advantages of furnace heat.

The Gilt Edge Pipeless Furnace

Meets their requirements, for with it, every room in the house can be heated comfortably from one central register.

The Gilt Edge Pipeless is in all essential heating features identical with our standard Gilt Edge Furnace. Having no outside jacket the return circulation is positive and highly effective.

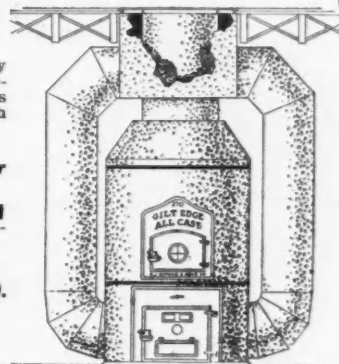
WRITE FOR OUR PROPOSITION

There's good, quick money in the sale of Gilt Edge Pipeless Furnaces in old homes and new. Get in touch with us at once.

A Gilt Edge Heater for Every Need

Warm Air—Hot Water—
Steam—Vapor

R. J. SCHWAB & SONS CO.
273 Clinton Street
MILWAUKEE, WIS.

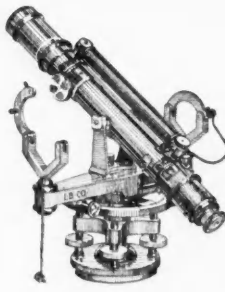




Special Drawing Set
No. 450
Price \$4.65
Sent parcel post prepaid
Cash with order

We have also a full assortment of large sets of instruments

PEERLESS BLUE PRINT CO.
341-347 FIFTH AVE. NEW YORK CITY



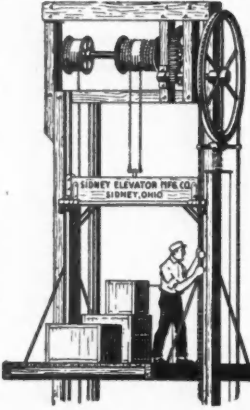
FREE TRIAL!

The Convertible Wye Level shown on the left—an instrument which, without extra parts or special attachments, will tilt 45 degrees in either direction—will be sent for 10 days' free trial at our risk to any responsible person. No other level can be found selling at \$60 that can equal it for accuracy, adaptability, simplicity and sturdiness.

Ask for our complete catalog and full details of our free trial offer.

BECKMANN INSTRUMENTS

The L. Beckmann Company
500 Adams St., Toledo, Ohio



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

Every Builder

Should investigate the superior merits of this

KOLESCH LEVEL

It was made to meet your special needs and can be depended upon to always "make good."


Light in Weight, But Built for Hard Service and to Last

KOLESCH & COMPANY
138 Fulton Street, NEW YORK

G & B TWO LEVELS IN ONE

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

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



CARPENTERS WANTED AS AGENTS

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

Sanitary Automatic Dumbwaiter saves carrying food to and from cellar. Perfectly ventilated; screened openings; finished inside with durable white enamel. Keeps food perfectly. Top lies flush with kitchen floor. You can walk over it. Operates with push button or lever. Also furnished as a Refrigerated dumbwaiter. Assembled complete ready to install. But three hours required to place our waiters in actual operation; old or new homes. Quotations include every needed supply. \$19.11 apiece. Illustrated catalogue.

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

HOISTS & ELEVATORS

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

Send for Catalog

J. G. SPEIDEL Reading, Pa.

DUMBWAITER

COMPLETE \$22.00 READY TO INSTALL

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

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

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

AUTOMATIC SASH HOLDERS

SPECIFY USE DEMAND

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

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

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

The Atlas Concrete Mixer

Made in 8 sizes and many styles. Prices \$48.00 and up. Send for Circular

"CONCRETE FACTS"

ATLAS ENGINEERING COMPANY
3009 Lisbon Avenue Milwaukee, Wis.

Sedgwick Hand-Power Dumbwaiters and Elevators

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

SEDGWICK MACHINE WORKS 132 LIBERTY ST. NEW YORK



VAUGHAN'S Vanadium Nail Hammer

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

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

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



The Toughest, Strongest
Hammer Made

\$1.50
EACH

WAX HOLE

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



The Great Diehl Line of Hardware Specialties

Free catalog
upon request



New Way Hinge

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

Address
Hardware Specialty Co.
Glenbeulah, Wis.

Other Excellent Products

- Hangers
- Fasteners
- Hinges
- Latches
- Buttons
- Couplings
- Base Knobs
- Door Catches
- Window Catches
- Transom Lifts
- Door Pulls
- Drawer Pulls

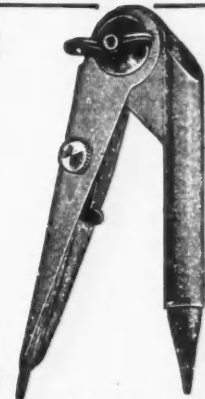
Just The Thing! Low Price

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

The "Acme Scriber"

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

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



Combined Level and Transit Try It For 10 Days—FREE



No. 2020

Either a level or modified transit with which to run straight lines, plumb girders, walls, etc. Instantly convertible from level to transit. An accurate, up-to-date, moderate priced instrument for use on construction work. "White" levels have been standard equipment for many years. There are thousands of them in daily use on as many jobs. Try one on your work for 10 days free—no obligation.

Circular sent on request.

DAVID WHITE CO., Inc.
419 E. Water St., MILWAUKEE, WIS.

Screen, Weatherstrip Men, Contractors, Carpenters, Etc.

Write now for our agency proposition for the most complete line of Order-Made

Window and Door SCREENS

on the market. We have some good territory still open. Our agents are supplied with a complete outfit of samples, models, etc. We give exclusive agencies to those who make good. This is a splendid opportunity to add considerable to your income. No regular agencies established in towns of less than 10,000. Write now.

Address

STANDARD SCREEN COMPANY
1850-58 Hastings St. Chicago, Ill.

CWC WATERPROOFING PRODUCTS

Ceresit Waterproofing Compound
Cem-bric Covering Compound
Indurite Concrete Hardener
Radiolite White Enamel

Get the Ceresit Waterproofer and learn about these waterproofing products.

CERESIT WATERPROOFING CO.
910 WESTMINSTER BLDG., CHICAGO

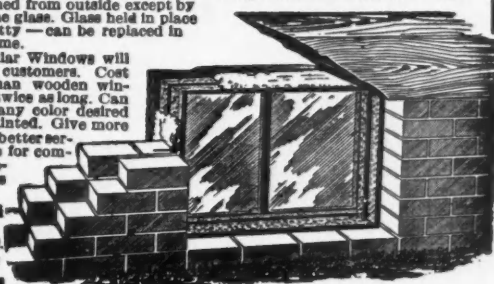


Famous Chief Cellar Windows Will Not Stick, Warp or Rot

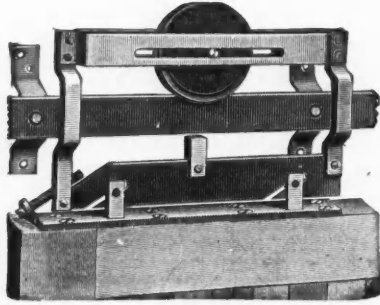
The solution of the cellar window problem—a modern, 20th Century Cellar Window made right for service. Made of steel-window, casing and all. No rotting, shrinking or swelling. Fits perfectly all the time. Trouble proof, easy to open and close, leak-proof and fire-proof. Will not rust. Nothing about it to wear out. Fitted with special, inside steel latch—cannot be opened from outside except by breaking the glass. Glass held in place without putty—can be replaced in minute's time.

Chief Cellar Windows will please your customers. Cost no more than wooden windows—last twice as long. Can be painted any color desired or left unpainted. Give more service and better service. Write for complete description, prices and terms.

SHRAUGER & JOHNSON
438 Walnut St.
Atlantic, Iowa

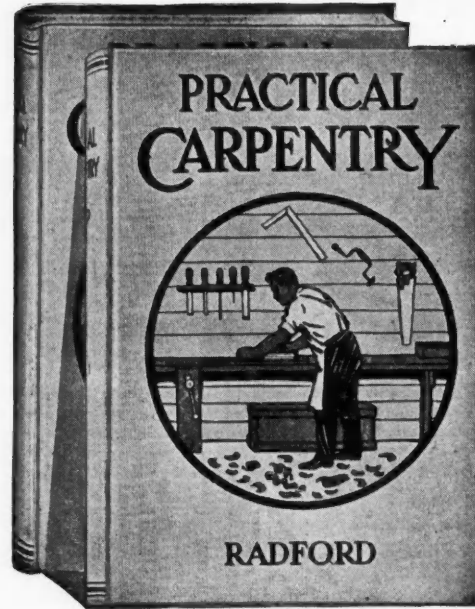


“LANE’S STANDARD” Parlor Door Hangers



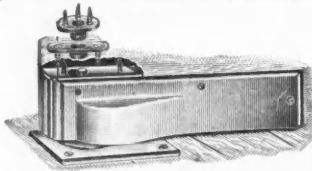
Are most extensively used today—because they have no superior, and the same quality today that originally commended them for the best work. Our catalog shows full line of Barn Door Hangers also.

LANE BROS. CO.
Cherry St., Poughkeepsie, N. Y.



Two volumes of reliable textbooks to which to refer in work that is new and unusual. **PRACTICAL CARPENTRY** is the most complete, most accurate, most practical and most up-to-date work of its kind. It describes the best and quickest methods for laying roofs, rafters, stairs, flooring, mitering, coping, splayed work, circular work, and, in fact, for forming all kinds of joinery and carpentry work.
Bound in cloth, over 600 pages of useful and necessary information. Complete information from foundation to roof.

Price \$2.00 Postpaid
American Builder
1827 Prairie Ave., Chicago



The “Shelby CHIEF” Floor Hinge WITH IMPROVED PIVOT AND SOCKET

The installation of the Shelby Chief greatly simplified. Mortising for pivot and socket entirely eliminated. To install bore a 1 1/2-inch hole 1/4-inch deep in top jamb for rim of pivot and 1 1/8-inch in top of door for socket. Secure with wood screws, allowing the thickness of metal of socket for clearance between door and top jamb. Insist upon having genuine Shelby Chief Hinges.

THE SHELBY SPRING HINGE CO.

SHELBY, OHIO

MORGAN DOORS

because of their

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

For complete information, write

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

SAMSON SPOT SASH CORD



SAMSON CORDAGE WORKS, BOSTON, MASS.

SILVER LAKE A Sash Cord



The guaranteed sash cord (since 1869 the standard) not only outwears common cords, but outwears chains and ribbons. The name Silver Lake A is printed on every foot of the genuine. Guaranteed full lengths.

Silver Lake Co.
Newtonville, Mass.

The Practical Workman is Sure to know the Reason Why

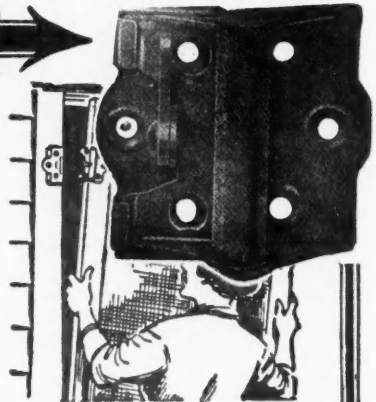
JIFFY!

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

Ask Your Dealer to Show You a **JIFFY HINGE**

They are inexpensive, made in a variety of finishes and are sure to make a neat satisfactory job. If your dealer cannot supply you, write for samples and prices.

ROCK CITY MFG. CO.
Wabash, Ind.



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



They Make Work Easier

WHITE ADZE
Stay Sharp Longer

Don't try to use dull tools. It is hard work at best. If your Adze stays sharp your work is much easier.

Isn't That Right?

Drop a card for our Carpenter's Catalogue

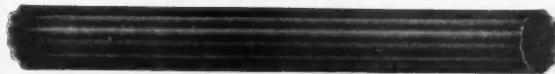
The L. & I. J. White Co.
10 Columbia St. Buffalo, N. Y.

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

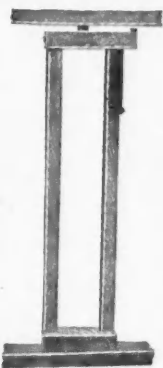
MANUFACTURERS OF **COPPER**

In Sheets, Plates, Rolls

CORRUGATED COPPER CONDUCTOR PIPE



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



Wilder Steel-Latch Cattle Stanchions

have special, patented features every contractor and stock owner should know about. All hardwood construction except for our Steel Latch. They're smooth—rustless—easy to adjust. Automatically rigid when open—swing freely when closed. *Cheaper and more efficient than steel. Write for full information.*

WILDER-STRONG IMPL'T CO.
Box H, Monroe, Mich.

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

Dixon's Pencils

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

Made in Jersey City, N. J. by the

Joseph Dixon Crucible Co.

LUMBER

CITY N. J.

K No 997

1802

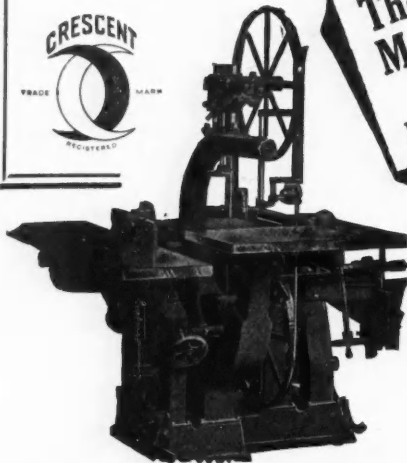
N'S 410

ERS, 538

MONEY EARNED

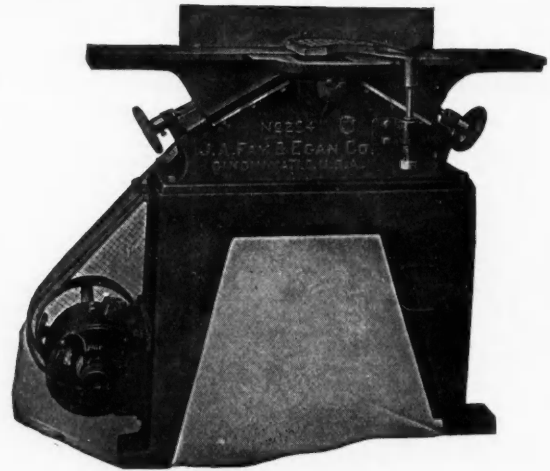
To save money is to earn money, and that is what the CRESCENT Universal Wood Worker is doing in many contractors' shops. Your business constantly demands greater efficiency and better service and the CRESCENT Universal Wood Worker is the machine that will help you deliver the goods.

Four men can work on the CRESCENT Universal Wood Worker at one time, doing four different kinds of work. The CRESCENT is the machine you will eventually buy, so ask for our catalog today. It tells about attachments for Universal Wood Worker, adapting the machines for resawing, panel raising, grooving, disk grinding, sanding, tenoning, dadoing, knife grinding, mortising, in addition to band sawing, ripping, cutting off, boring and making mouldings.



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

Also it tells about our splendid line of band saws, jointers, saw tables, shapers, variety wood workers, planers, planers and matchers, cut off saws, disk grinders, borers, hollow chisel mortiser, Universal Wood Workers.



—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.



SILVER'S NEW WOODWORKING MACHINES

SAW TABLES, JOINTERS, SWING SAWS, BAND SAWS—

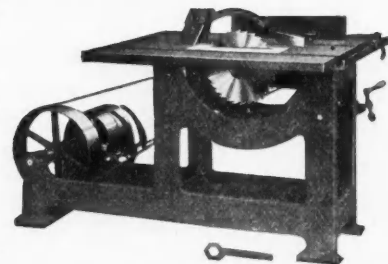
Tools of good honest construction, newest improvements and conveniences; patterns fresh from the designers.

Jointers, 8, 12, 16, 20-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



Miller's Lock Mortiser

TWO MINUTES

Will cut an opening in a door for a mortise lock in **IMPROVED AND UP-TO-DATE** cuts true in any kind of wood for any size lock from 1" to 1½" 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

CARPENTERS

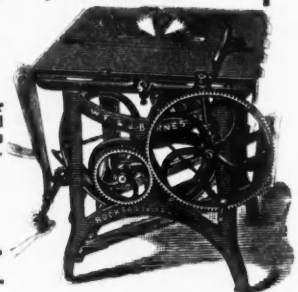
In these days of close competition need the best possible equipment, and this they can have in

Barnes' Hand and Foot Power Machinery

Our new foot and hand power Circular Saw No. 4, the strongest, most powerful and in every way the best machine of its kind ever made. For ripping, cross cutting, boring and grooving.

SEND FOR OUR NEW CATALOGUE

W. F. & John Barnes Co.
74 RUBY ST. ROCKFORD, ILL.





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

"A Bit of Utility"

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

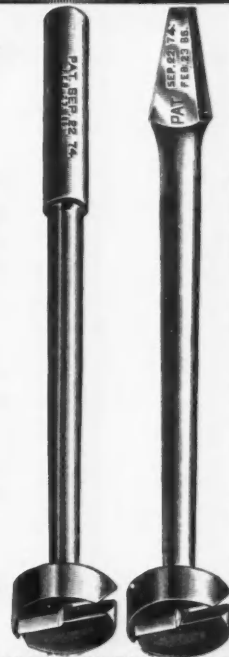
Unequaled for Delicate Work

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

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

The Progressive Mfg. Co.

Torrington, Conn.



"Red Devil" Carpenter's Adjustable Saw Vise

Saves Your Saw — Pays for Itself

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

SMITH & HEMENWAY CO., Inc.

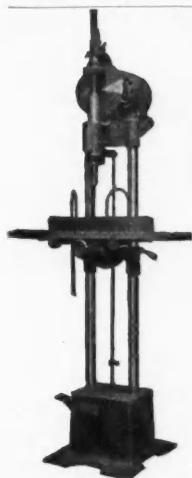
106 Coit St., Irvington, N. J.

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



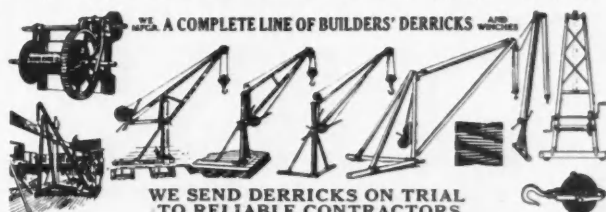
SUPERIOR HOLLOW CHISEL MORTISER and BORING MACHINE

SPEED and ACCURACY

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

WRITE TODAY FOR FREE TRIAL

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

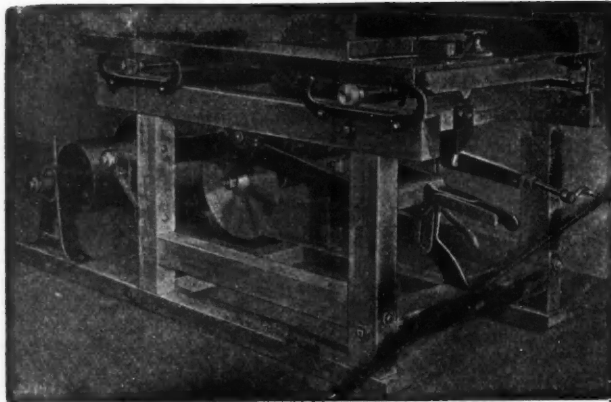


WE SEND DERRICKS ON TRIAL TO RELIABLE CONTRACTORS

Our Motto is SATISFACTION or DERRICK RETURNED

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

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

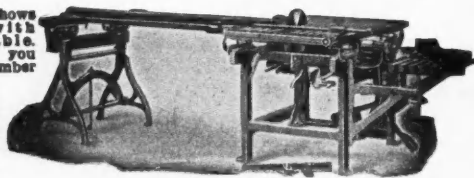


**NOW IS THE TIME TO GET A
BEACH
DOUBLE ARBOR RIP AND CUT-OFF MACHINE**

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

BEACH MFG. CO., Montrose, Pa.

This view shows extension with rolling table. This allows you to handle lumber up to 26 ft. and slides easily with 1000 lb. weight in it. Locks instantly for ripping or beveling.



QUICK ACTING *The Taylor* SELF LOCKING
TRADE MARK

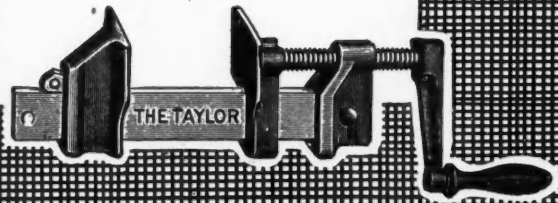
Clamps

**An Investment
Not an Expense**

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

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

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



100 Lafayette St.,
NEW YORK

THE JAMES SWAN COMPANY, Seymour, Conn



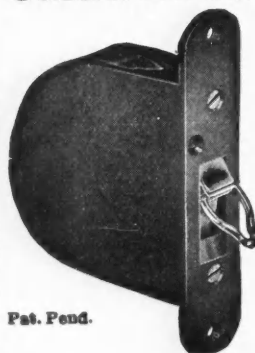
Awarded Medal of Honor on Mechanics' Tools at Panama-Pacific Exposition.

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

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



Caldwell Sash Balances Uniform Mortises



Pat. Pend.

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

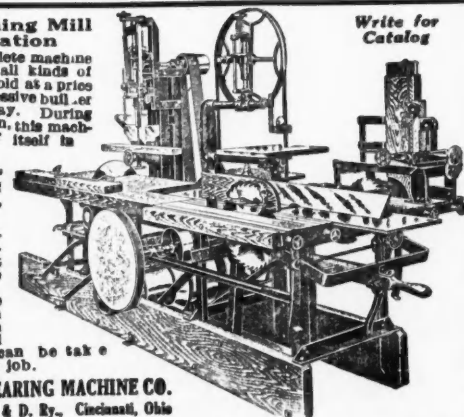
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CALDWELL MFG. CO.
2 Jones St. Rochester, N. Y.

Parks Planing Mill Combination

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

Rip saw, 12" Jointer, 22" Band saw, Swing cut off saw, Shaper, Upright mortiser, Tensioner, 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.

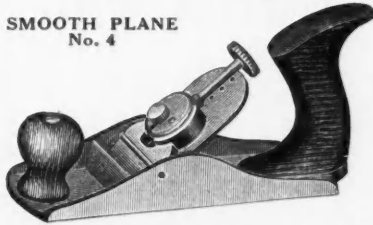
PARKS BALL BEARING MACHINE CO.
Fergus St. & C. H. & D. Ry., Cincinnati, Ohio



Write for Catalog

Self-Setting Iron Planes

SMOOTH PLANE
No. 4



Carpenters that are desirous of saving time should purchase these planes, as they are the quickest set and adjusted planes to be had and as they will not tear out or clog even when used against the grain in the most difficult wood.

Write for circulars and prices

Buckeye Mfg. & Foundry Co.

9401 Lake Ave.

Cleveland, Ohio

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

Fine Beveled Edge
Shank and Socket

Chisels



Tang and Socket Butt Chisels

Plain and Beveled Edges

Send for illustrated Catalog

Buck Bros., Millbury, Mass.

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

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





*Pays for itself on the
First Job*

==The Pearson== Automatic Shingle Nailer

Do your nailing fast—faster than ever before. You can use this Pearson's Nailer on any pitch roof. Wear mittens, gloves, etc. This "Hand Nailer" is the only Nailer—throw nails in by the handful—then start nailing. Nails easily driven through tin or quite heavy sheet iron. These nailers are made in two sizes—The BLUE Nailer for 3d, common No. 14 gauge wire nails.

The RED Nailer for 3d galvanized No. 13 gauge 1 1/2-in. wire nails. The regular price is \$7.00 but if you order from this ad, we will send it prepaid parcel post for \$5.00. This offer is liable to be withdrawn, so act now.

PEARSON MFG. CO. - ROBBINSDALE, MINN.

Ankyras

Saved One Builder 60 cents in Time and Labor Alone on Every Bolt

Ankyra Ankor Bolts have many advantages over lead plugs, for supporting wall and ceiling fixtures, plumbing, radiator brackets and similar objects that lead plugs lack. In the first place, Ankyras cost less; they are much stronger; never work loose; and never pull out.

But here is a cold dollars and cents comparison of installation costs. It took a workman with a helper, 4 1/2 hours to put 9 lead plugs into place in a hollow tile wall. In one hour by himself, he put in 27 Ankyras.

Here is the way it figured out:

	Lead Plugs	Ankyras
Journeyman's wage per hr.	\$.75	\$.75
Helper's wage per hour	.50	...
	1.25	.75
	4 1/2 hrs.	1 hr.
Total cost of labor	5.63	.75
	9 Plugs	27 Ankyras
Installation cost	.63 per plug	.03 per Ankyra

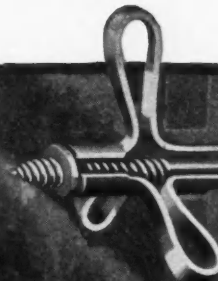
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Self-Riveting
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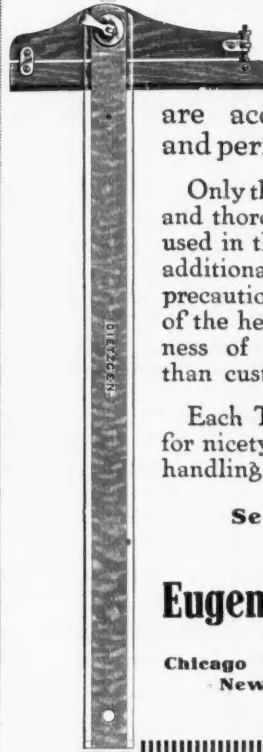
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are accurate, dependable, and perfect in workmanship.

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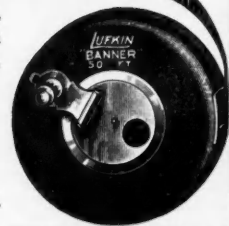
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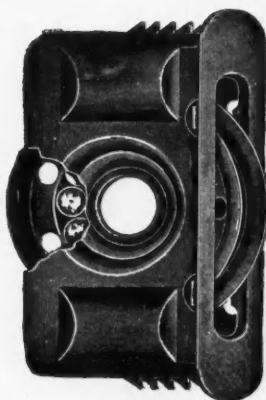
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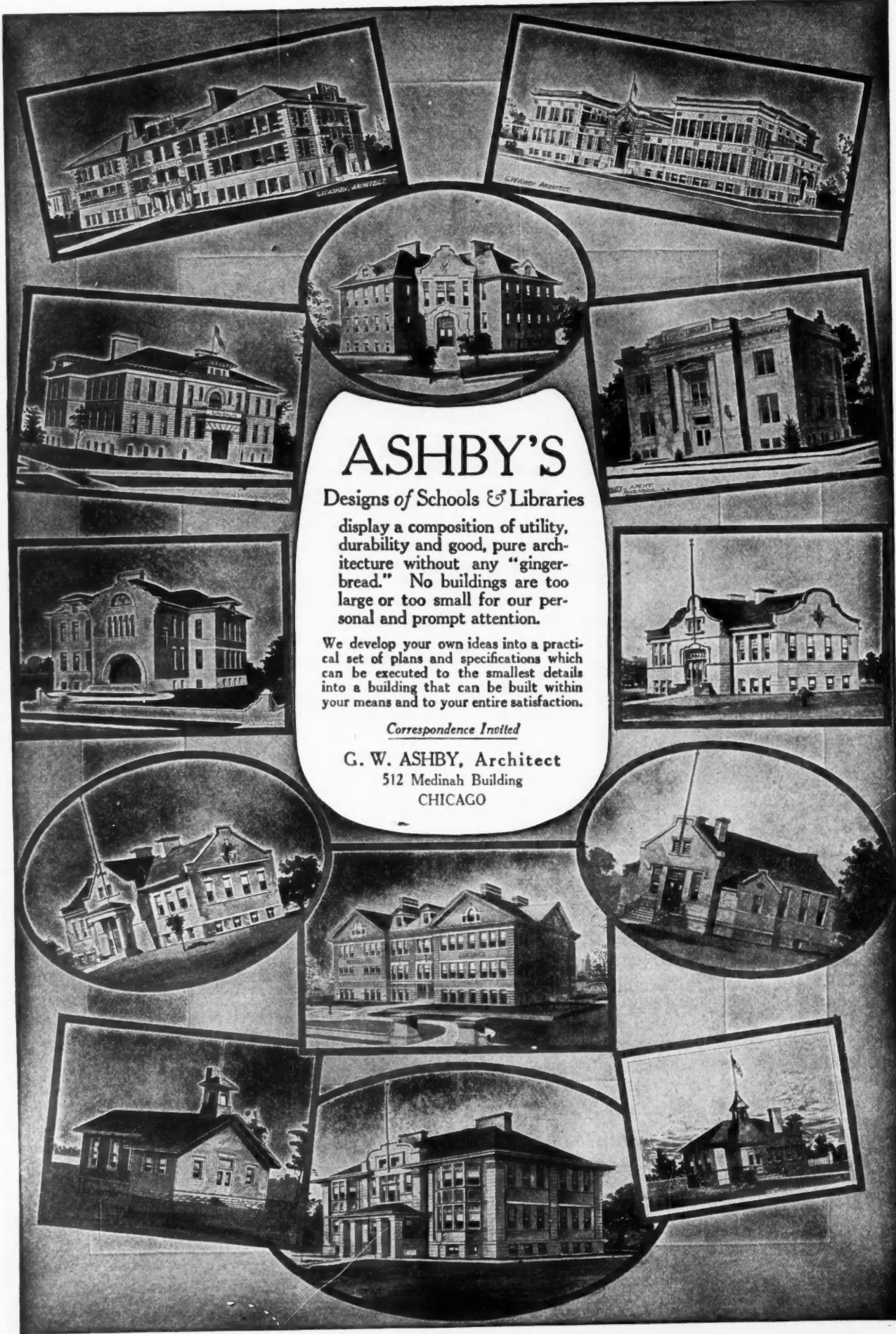


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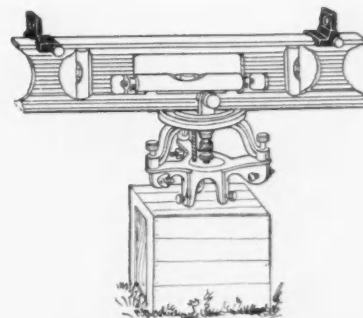
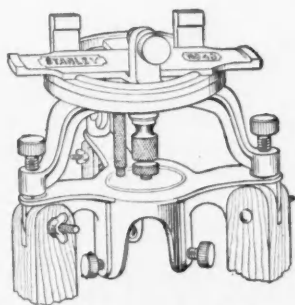
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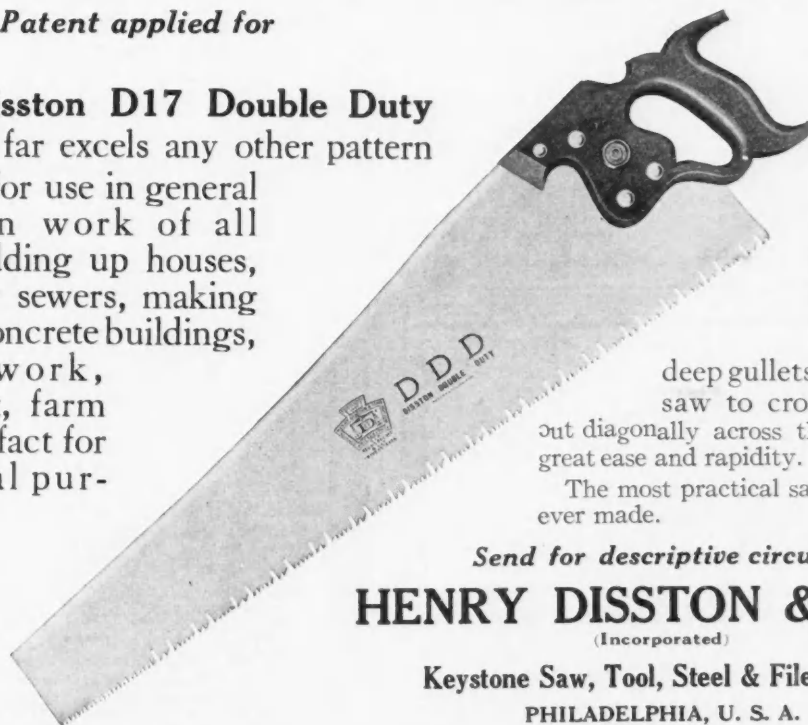
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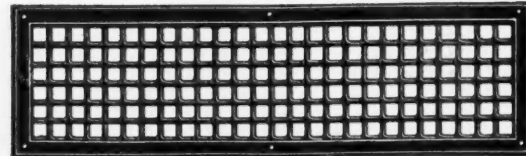


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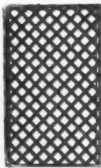


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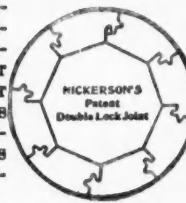
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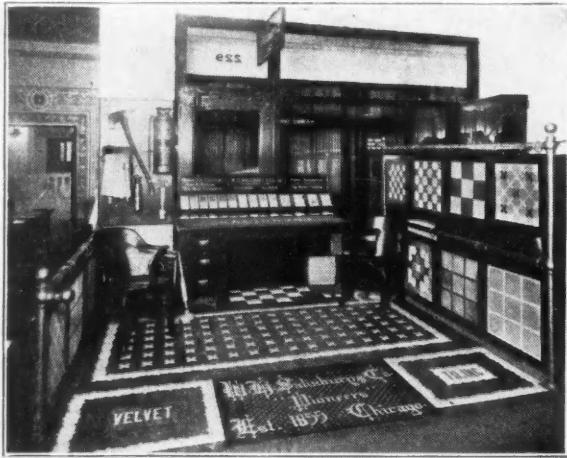
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The Triple "A" Spring Driven Floor smoother
IS THE ONE BEST BET FOR MAKING OLD FLOORS LOOK LIKE NEW

It is the only machine on the market equipped with the necessary **combination of weight and pulling power** required to scrape old or varnished floors.

The famous TRIPLE "A" SPRING MOTOR **trebles** the operator's pulling power and so permits the use of enough weight to force the scraper edge through the crust, and to **keep it under** the grit for the full length of the stroke.

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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.



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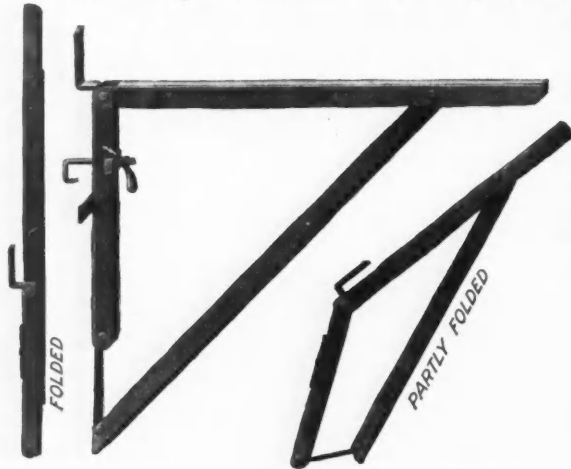
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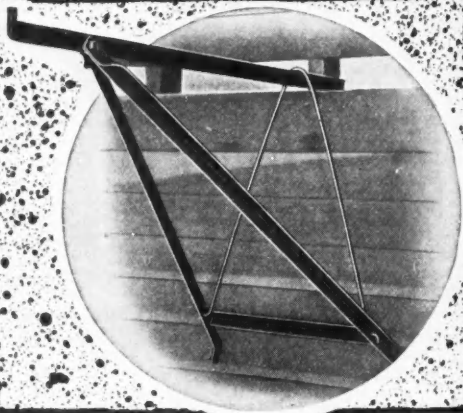
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They are a decided improvement over all others. Workmen feel safe while working on them. You will have no more accident claims to pay! "Trouble Savers" are on the job. No nails. No screws. No bolts.

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"Reliable" FOLDING Brackets

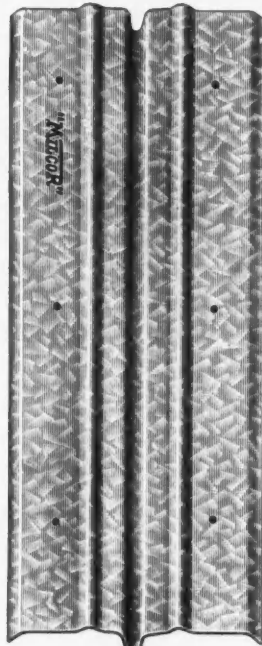
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More Than Cover the Cracks



Broader and Better than other batten strips. Not liable to split the boards.

Ribs "give and take" with expansion and contraction of the wood.

Nail holes punched every 12 inches.

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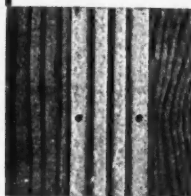
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barns and buildings from weather and vermin. Line your grain bins or wagon boxes with

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

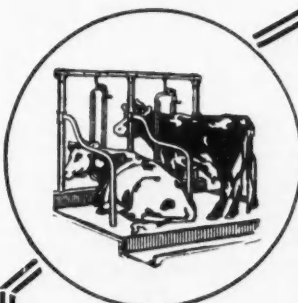
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and Barns you build will show More Profit.

Buckeye Stalls, Stanchions and Litter Carriers will make your barns more profitable. Cows will give more and better milk when stabled in comfortable quarters.

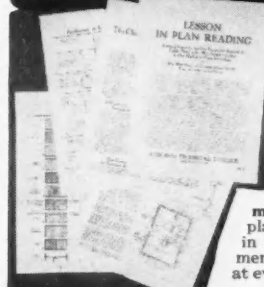
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Different from all others. New Interlocking Connections.

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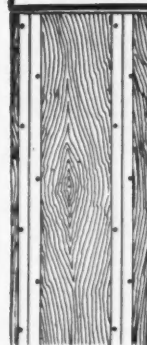
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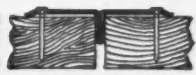
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Shows end view of Batten with the joint open and siding contracted. Chief Battens automatically accommodate expansion and contraction.

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Strength, Simplicity and Good Appearance

are the principal features of the Caldwell Tubular Tower.

Thousands of them have been in use for years, many of them having survived cyclones and tornadoes.

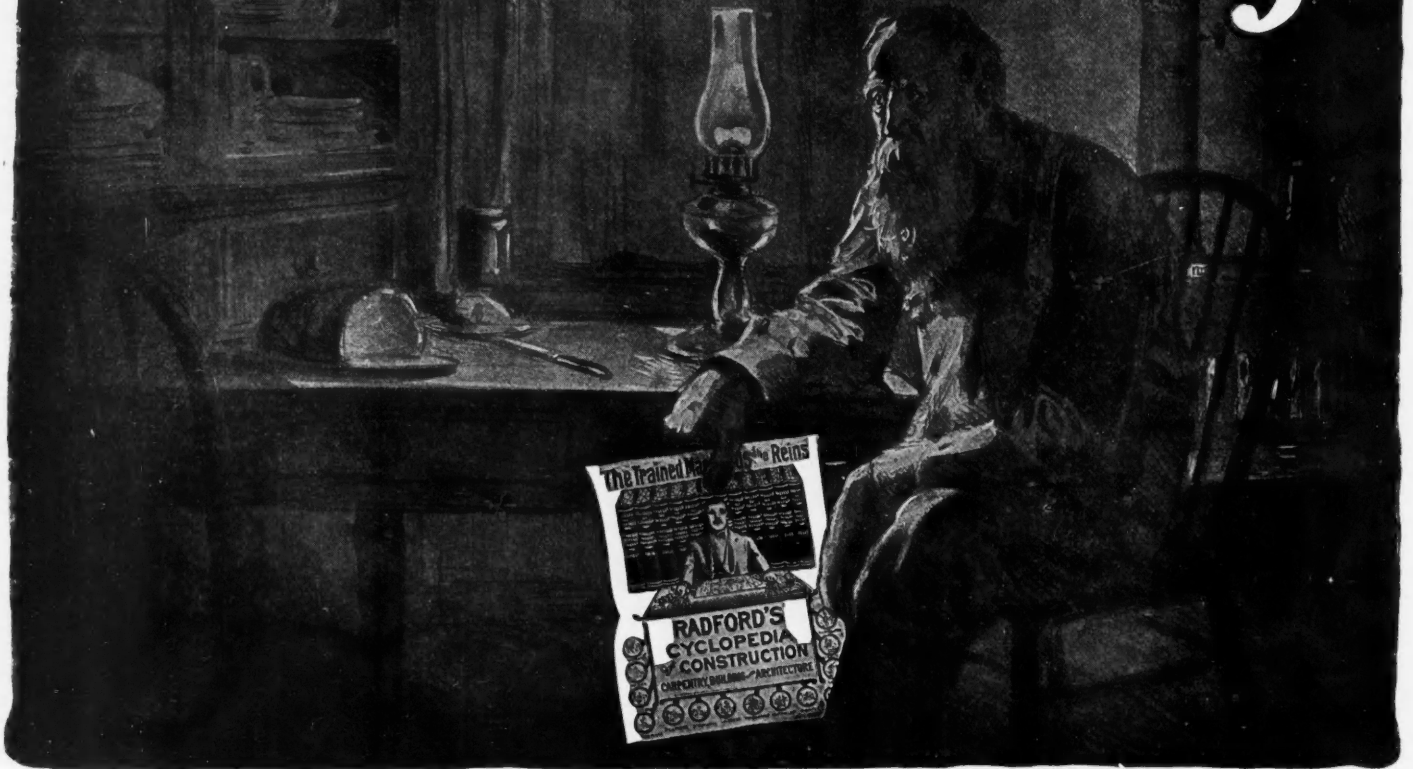
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3-18

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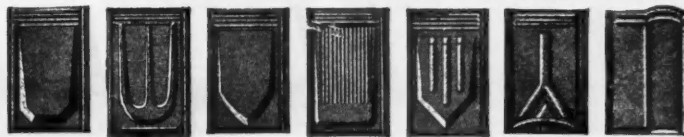
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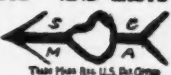
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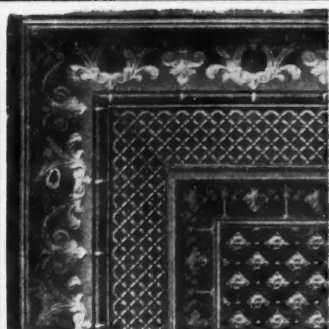
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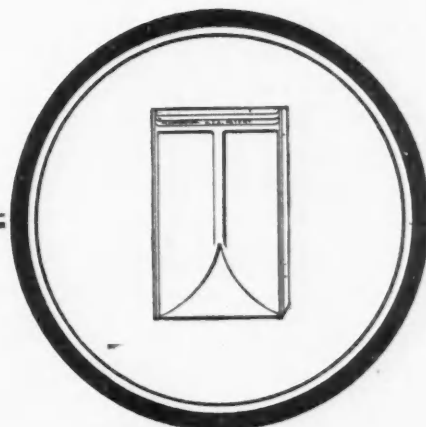
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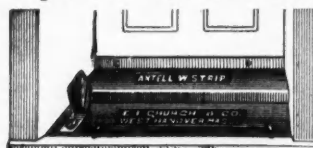
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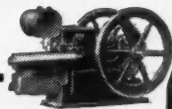
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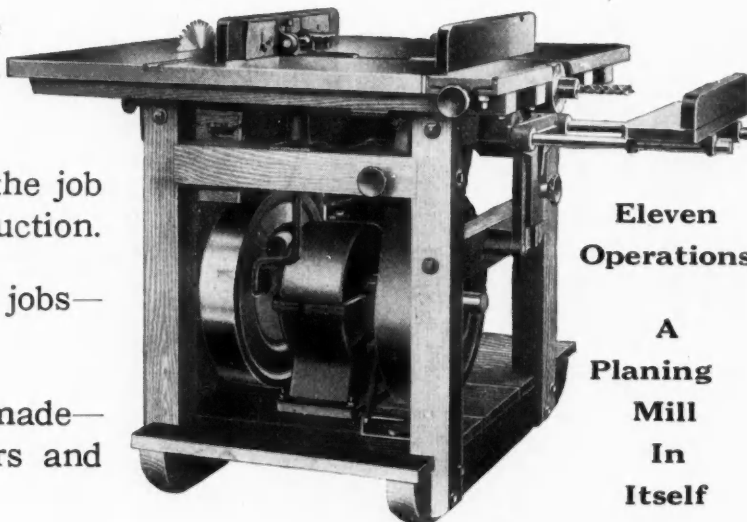
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