

# Building Age

and

## THE BUILDERS' JOURNAL

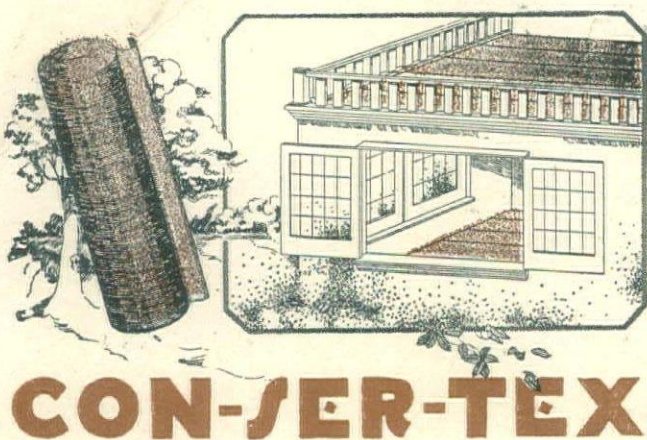


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November  
1922

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## The Ideal Roofing

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Wherever a durable flashing or a lining for a wood box gutter is required—

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## FLOORS The Wood-Mosaic Kind



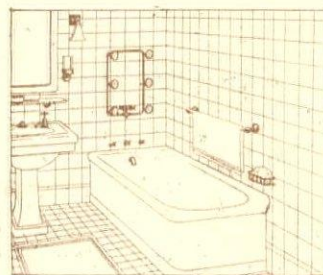
For every home—Old or New. Can be installed by your mechanics. Our 5/16" flooring can be laid in old or new houses. We make all kinds and thicknesses; Wood Carpet, strips Plain and Ornamental Parquetry, Tongue and Groove Flooring.

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## BISHOPRIC STUCCO

and

## BISHOPRIC BASE

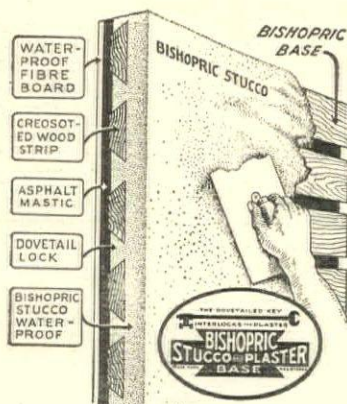
Provides an Ideal Exterior and Interior Wall for  
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DURABLE  
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Founded 1879

# BUILDING AGE

AND

## THE BUILDERS' JOURNAL

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By being able to show these intending builders a selection of designs from which they are almost sure to find a home which just suits their requirements and tastes, you are most certain to get them to take definite action and close the contract.

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The houses pictured in these plan books are designed by architects recognized for the high quality of their residence work. The designs are all original and cover every type and style of architecture, and range in size from 3 to 8 rooms.

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130 North Wells Street : Chicago



# TARGET and ARROW for BUILDINGS of



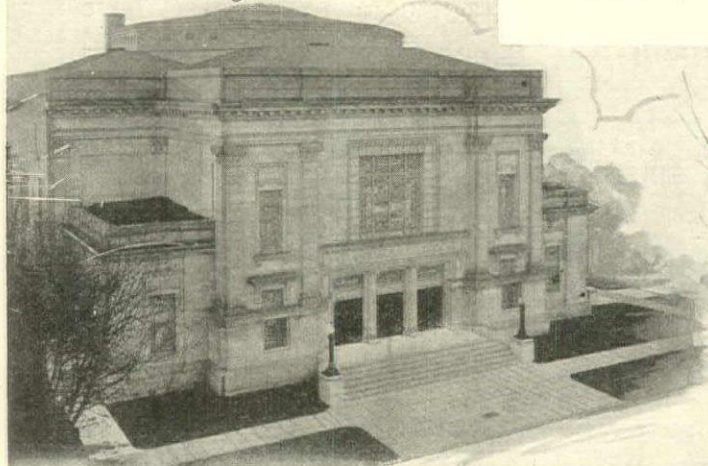
IREM TEMPLE, WILKES BARRE, PA.  
Roofed with 15,000 Sq. Ft. of TARGET & ARROW  
Roofing Tin

THE surrounding pictures give some idea of the types of "buildings of distinction" roofed with Target and Arrow Roofing Tin.

Most of the roofs shown are "ribbed," a strong architectural effect attained by laying the roofing tin over heavy wooden battens. Their beauty has been further enhanced by finishing them in appropriate shades of gray, brown or green.

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UNION STATION, DENVER, COLORADO  
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MASONIC TEMPLE, WASHINGTON, D. C.  
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# ROOFING TIN DISTINCTION

to its method of manufacture, for it is a truly hand-made roofing tin, made by an old Welsh process in which each sheet is repeatedly soaked and dipped by hand in pots of boiling palm oil and molten metal, consuming thirty-five minutes' time to coat each sheet and insuring an amalgamation of the coating with the base plate that cannot be done in any other way.

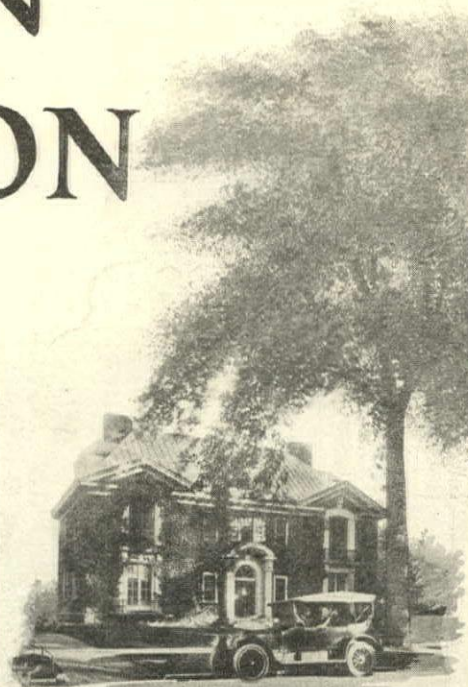
Target and Arrow Roofing Tin will solve more roofing, valley, gutter and flashing problems than any other roofing material on the market today. Full information and details of application on request.

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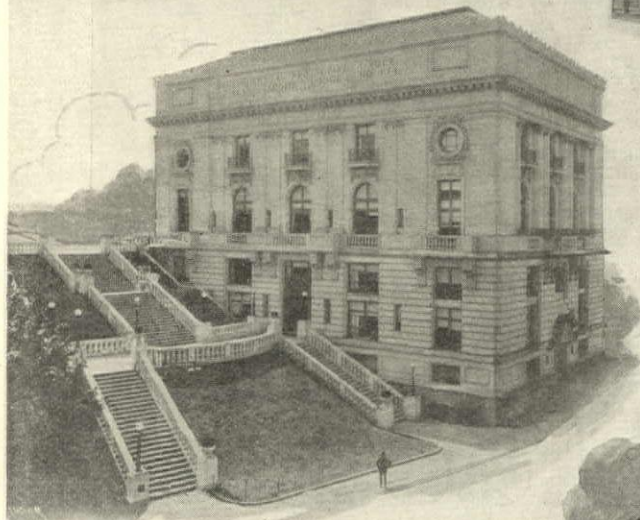
CITY CLUB, AUBURN, N. Y.  
WILKINSON & MAGONIGLE, Architects  
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ALUMNI MEMORIAL HALL, UNIVERSITY of MICHIGAN  
DONALDSON & MEIER, Architects, Detroit

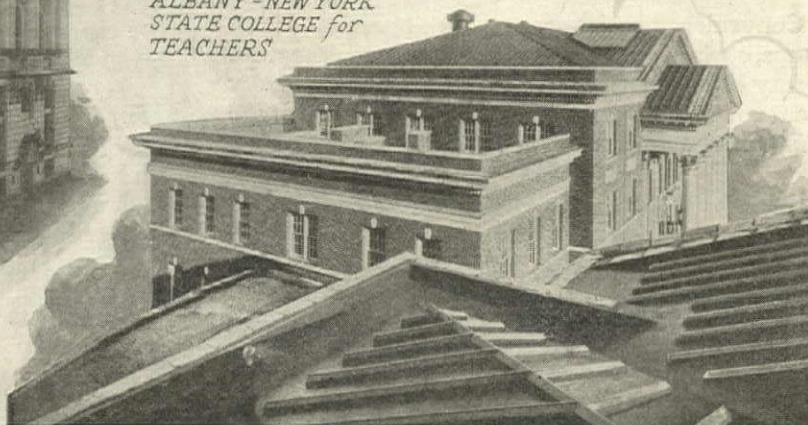


74<sup>TH</sup> REGT. ARMORY, BUFFALO, N. Y.  
Roofed with 200,000 Sq. Ft. of  
TARGET & ARROW Roofing Tin



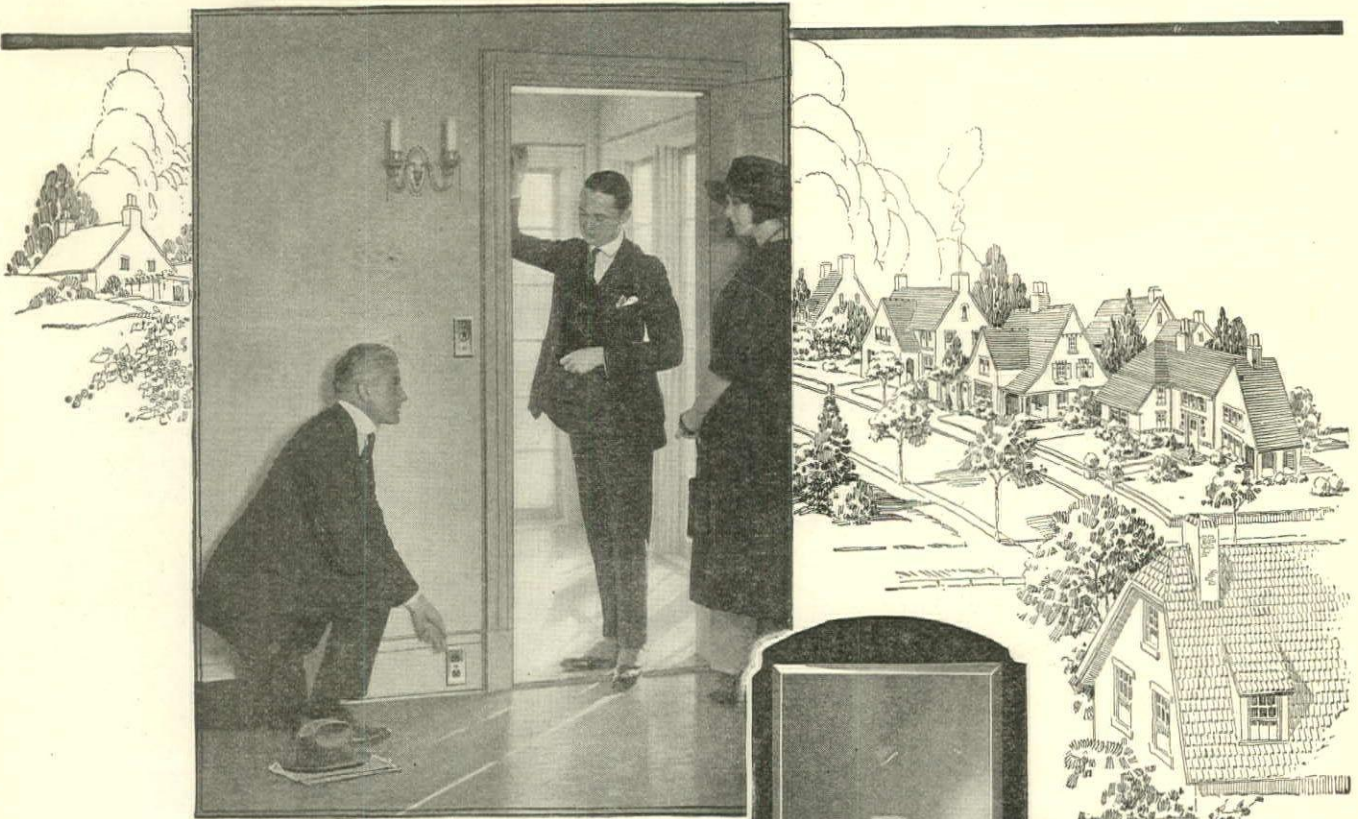
ELKS TEMPLE, TACOMA, WASHINGTON  
E. F. CHAMPNEY, Architect

ALBANY-NEW YORK  
STATE COLLEGE for  
TEACHERS





*Home seekers now regard electrical conveniences as essential and, accordingly, have given up-to-date builders an added selling point*



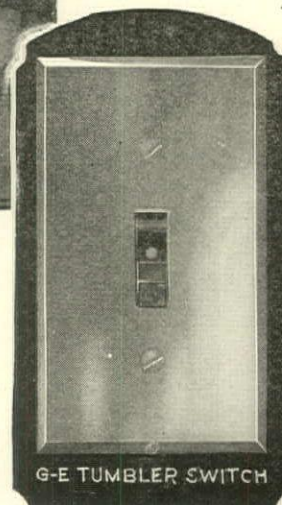
## Houses are sold for homes

**I**F the builder can show that the houses he has constructed will make real homes, they will sell more quickly and command a far higher price.

Every builder knows that provided the location of a house is pleasant, it is the *conveniences* in it which make it attractive to purchasers.

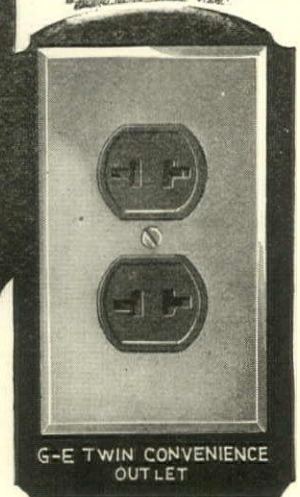
And of all conveniences, none is more important in the home-maker's eyes than the wiring.

Convenience outlets for everything—fans, irons, lamps, cooking appliances, vacuum cleaner, heaters. Plenty of switches conveniently located in every room to assure step-saving control. *These are the things that sell houses for homes.*



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G-E TWIN CONVENIENCE  
OUTLET

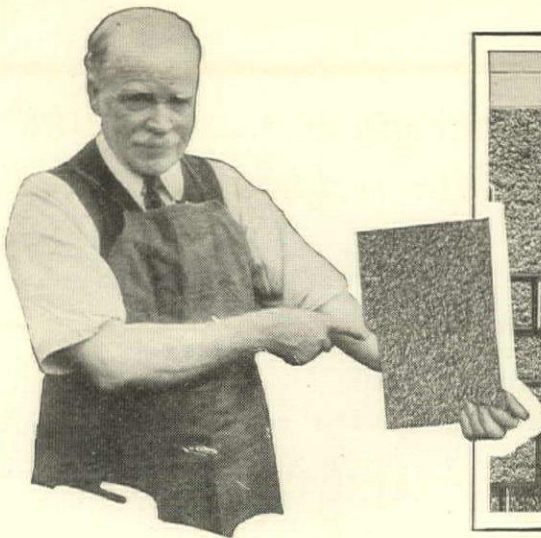
For information address Merchandise Department,  
General Electric Company, Bridgeport, Conn.

# General Electric Company

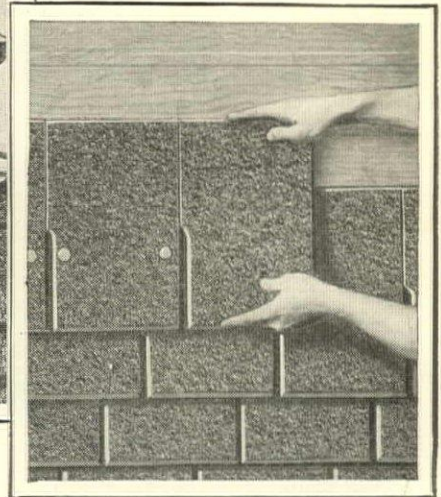
General Office  
Schenectady, N.Y.

Sales Offices in  
all large cities





Shoulder device forms perfectly sealed roof. Three thicknesses everywhere except at slots.



Patented shoulder makes correct application easy. Set upper half of each shingle against next. Quickly, automatically done.

## A Patented Feature that Makes Even Laying Easy

**T**HE patented shoulder of the Vulcanite Self-Spacing Shingle makes for quick, accurate laying. The illustration at top of page shows exactly how it's done. You can't go wrong.

Also, this snug-fitting, quality shingle builds a roof that looks finer, serves better and lasts longer.

We will gladly send one of our large force of roofing experts to your office to explain Self-Spacing Shingles or any other Vulcanite Roofing. The line also includes the two high-grade specialties illustrated at the right, as well as a *better roofing for every possible requirement*—shingles, rolls, ornamental effects and built-up roofings for every conceivable use. Also roofing cement and roofing paint.

And remember this—no matter where you are located we can assure *prompt deliveries and low freight rates*. Conveniently located warehouses. Factories at Albany, N. Y.; Anderson, Ind.; Chicago and Kansas City.

Communicate with our nearest office for Vulcanite sales proposition.

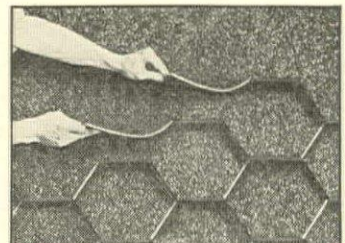
### VULCANITE ROOFING DIVISION

The Beaver Products Company, Inc.

Administration Offices, Buffalo, N. Y.

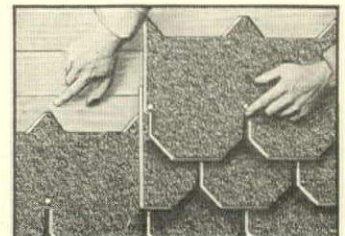
District Sales Offices: Albany, N. Y.; Cincinnati, Ohio; Chicago, Ill.;  
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### Two other Vulcanite Patented Shingles



#### Vulcanite Hexagon Slab

Highest possible quality. Considerably wider than ordinary slab shingle, insuring double thickness at every point. Patented design assures proper application. Can be applied directly over old shingles. Many dealers have developed profitable business in Hexagon Slabs for this use alone.



#### Vulcanite Doubletite

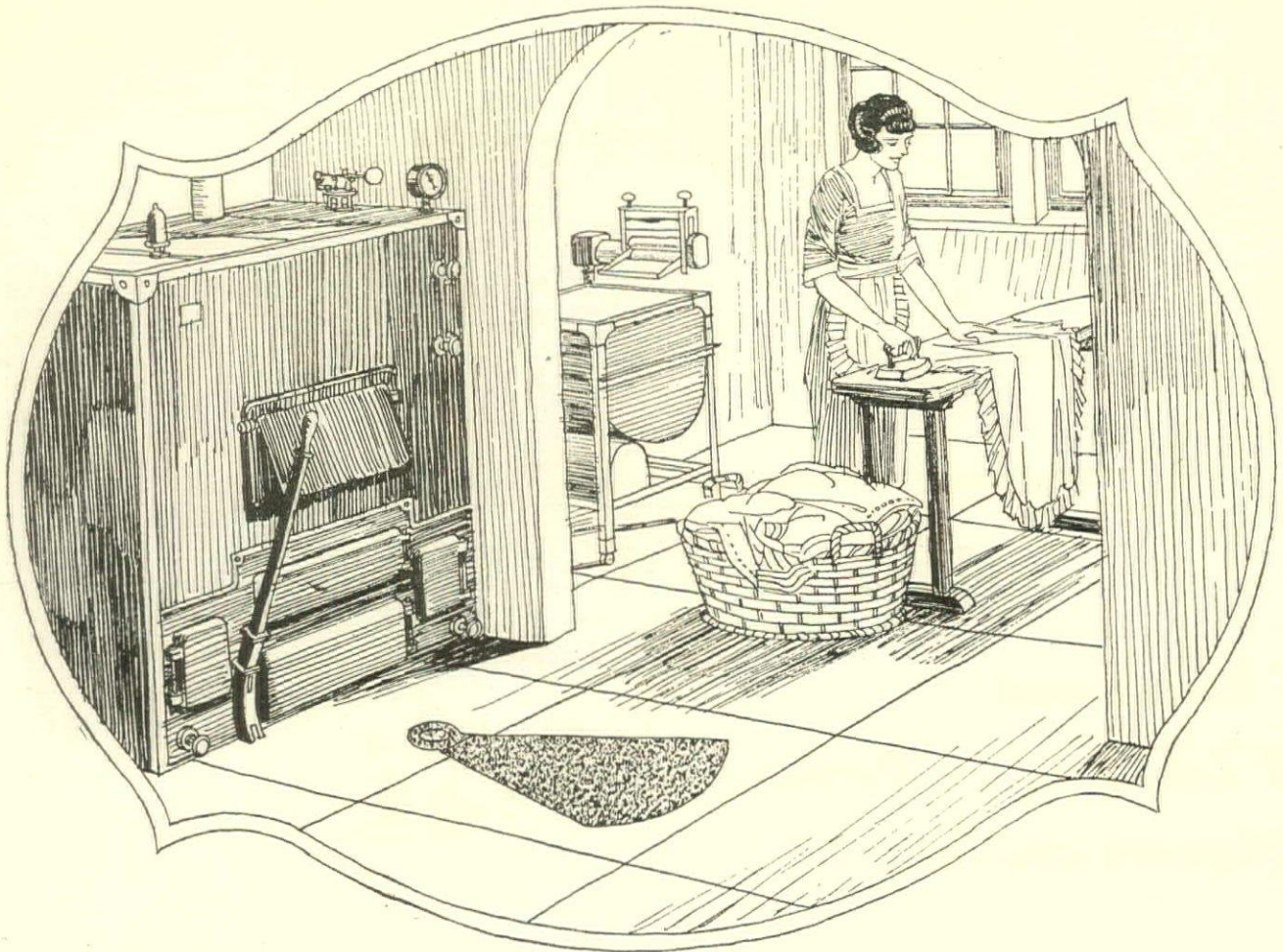
Triangular projection on each slab underlies slots in second course above, giving double thickness throughout. This is an exclusive patented Vulcanite feature. Twelve inches wide, heavy—exceedingly attractive in appearance—won't curl—automatic spacing—medium priced.

# VULCANITE ROOFINGS

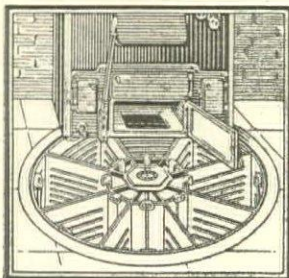


VULCANITE QUALITY FOR BETTER ROOFS





*The Cellar as clean as  
The rest of the house*



The Sharp Rotary Ash Receiver consists of a set of five, eight or twelve rugged cans, mounted on a revolving steel frame, installed in a concrete pit under any size or style heater. There's nothing to get out of order.

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Even the most careful housekeeper can't compete successfully with the dust that always rises and floats through the house when the ashes are taken up and shovelled into cans.

But the forethoughtful installation of the

### Sharp Rotary Ash Receiver

will eliminate entirely all the nuisances connected with the old fashioned methods of ash disposal.

With the SHARP ROTARY ASH RECEIVER there are no unsightly cans to litter the cellar, no more dirt, no unnecessary labor. Just rake the ashes through a hole in the bottom of the heater into the can beneath. When the can is filled, just turn another can into place. The complete equipment provides storage for several weeks accumulation of ashes.

No matter what kind or size heater you may have, the SHARP ROTARY ASH RECEIVER is readily adaptable to it. It can be installed in houses already built at small additional cost.

You will be interested in the new Sharp booklet that tells the story of "The Cellar as Clean as the rest of the house." Send for your copy today.

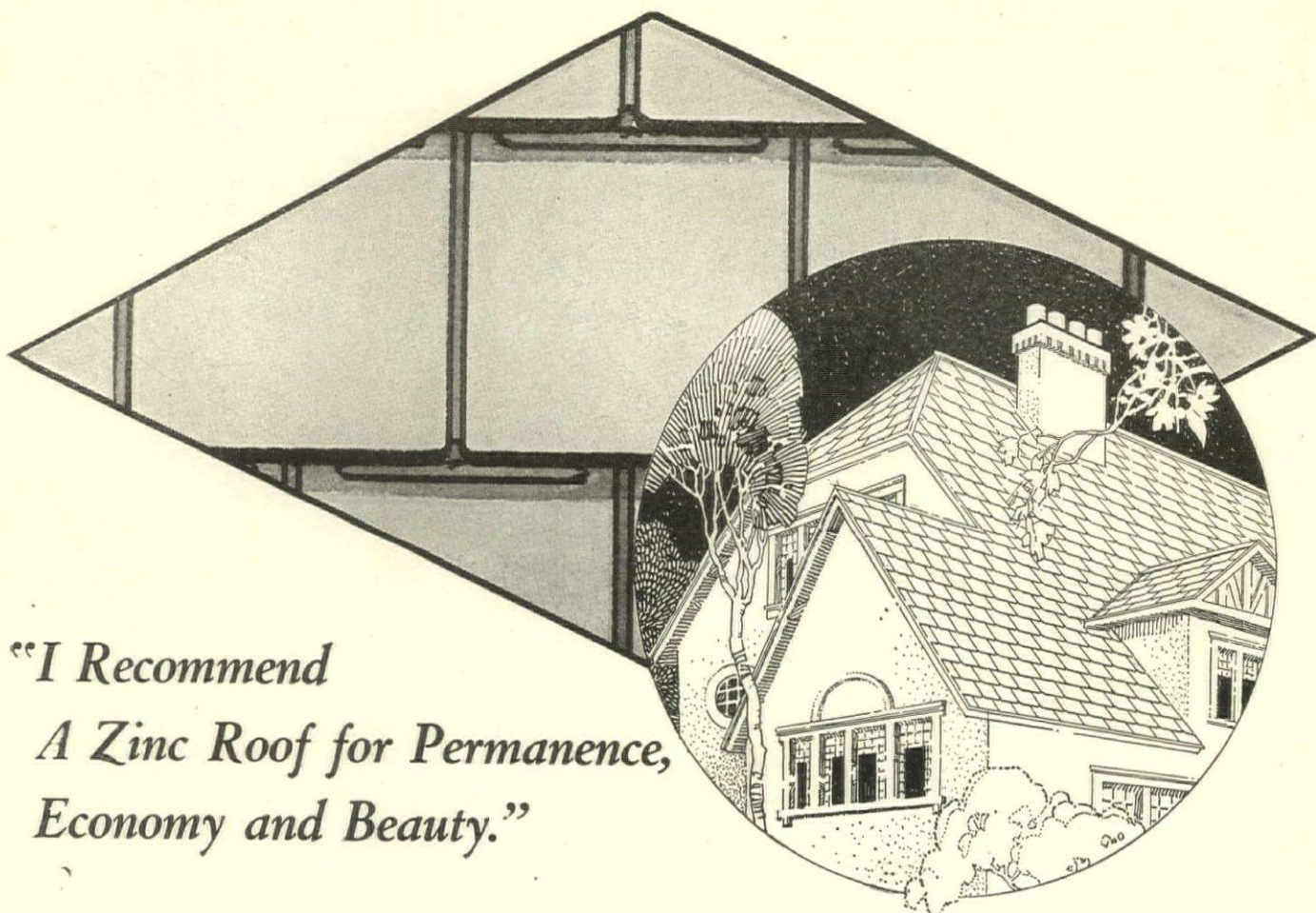
*Contractors and Builders: Send for  
Specification Book, prices and discounts.*

# SHARP ROTARY ASH RECEIVER CORPORATION

218 Bridge Street

Springfield, Mass.





**"I Recommend  
A Zinc Roof for Permanence,  
Economy and Beauty."**

"AMERICANS are realizing more and more what Europeans have known for centuries—the great economy and durability of zinc for roofing," said the up-to-date roofing contractor. "I recommend the Illinois Zinc Shingles to my customers for permanence, economy and beauty. I tell them it is a practical roof which they will never get tired of—and I guess I ought to know after more than twenty years in the roofing business."

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"Well," he continued, "look at those European roofs, some of them more than 100 years old, and as good as new today. That's permanence for you! Pure zinc will

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We shall be pleased to send you detailed information on the Illinois Zinc Shingles; also on Illinois Corrugated Roofing and Siding. Mail us a postal card.



ILLINOIS ZINC COMPANY

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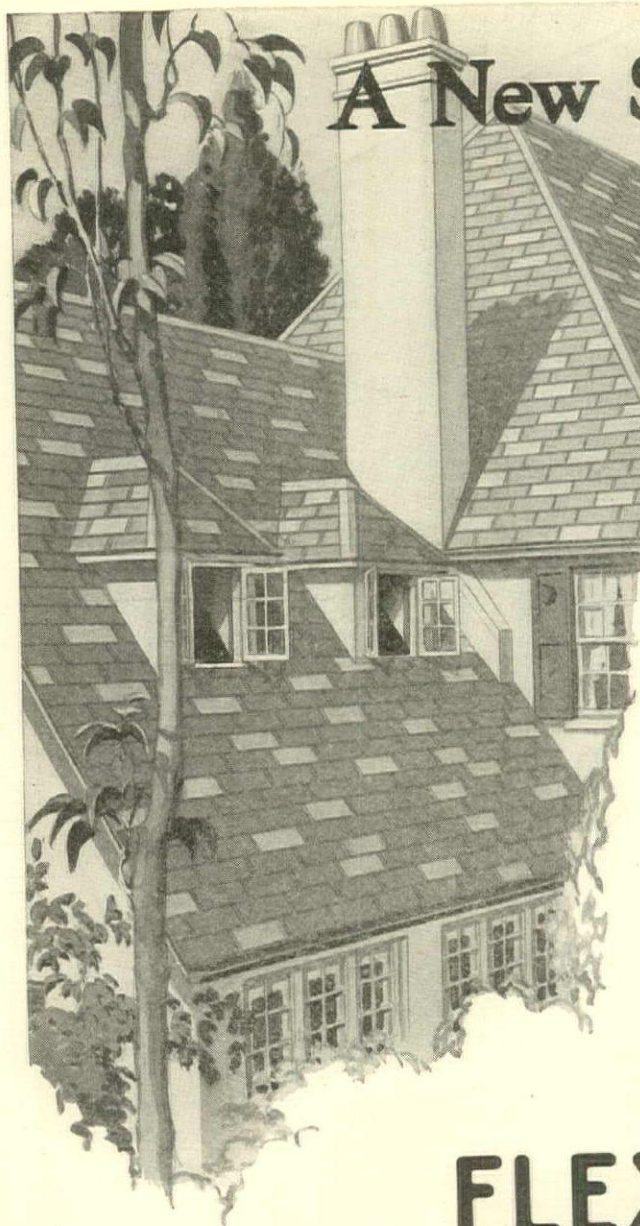
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Established 1870

*Corrugated Zinc Sheets for Roofing and Siding—Illinois Zinc Shingles—Strip or Ribbon Zinc—Slab Zinc (Spelter)—Wide Zinc Sheets  
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The 10 x 14 inch size makes it economical to lay, saving 35 per cent in labor and nails as compared with Standard Asphalt Shingles.

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But this fourth Flex-a-Tile color has made possible a still more striking chapter in roofing history, for with Weathered Brown has come the multi-tone roof—a blending of brown shingles with green, of brown with red, of brown with blue-black in many combinations, laid promiscuously on the roof.

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Men who build have but to see this new shingle effect to appreciate the rare beauty of a Weathered Brown roof—for here is a shade that suits equally well the dignity of the finest dwelling or the charm of the modest bungalow.

The profits of this instant popularity are yours if you sell this shingle—Weathered Brown. Like many other Richardson Products it presents a real business opportunity.

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# The RICHARDSON COMPANY

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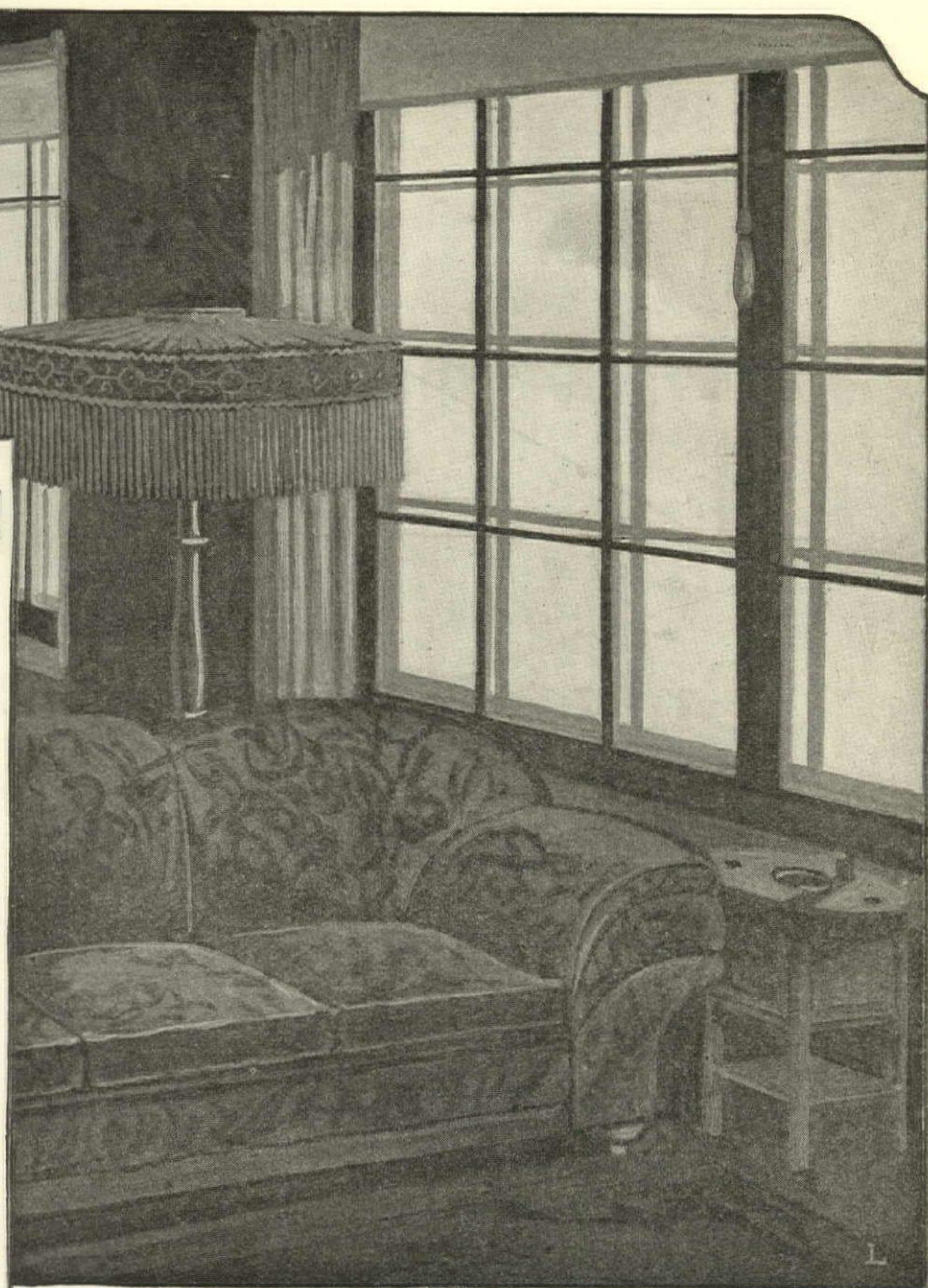


### Window Glass Grading Depends on Standards

FIRST, second and third quality are relative terms which depend on the standards used in grading.

The American Window Glass Co. grades its product to the highest standards in use in the United States. Its "A" (second) quality lights are hardly distinguishable from "AA." Its "B" (third) quality lights are practically as clear as ordinary seconds.

In using "A" or "B" quality single or double strength be sure the grade marking on the box has not been altered—high grading invites substitution.



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The installation of storm sash enables a saving in fuel equal to many times their first cost and upkeep.

Insist on plenty of windows equipped with storm sash. Specify the grade of glass and make sure it is the finest obtainable in that grade.

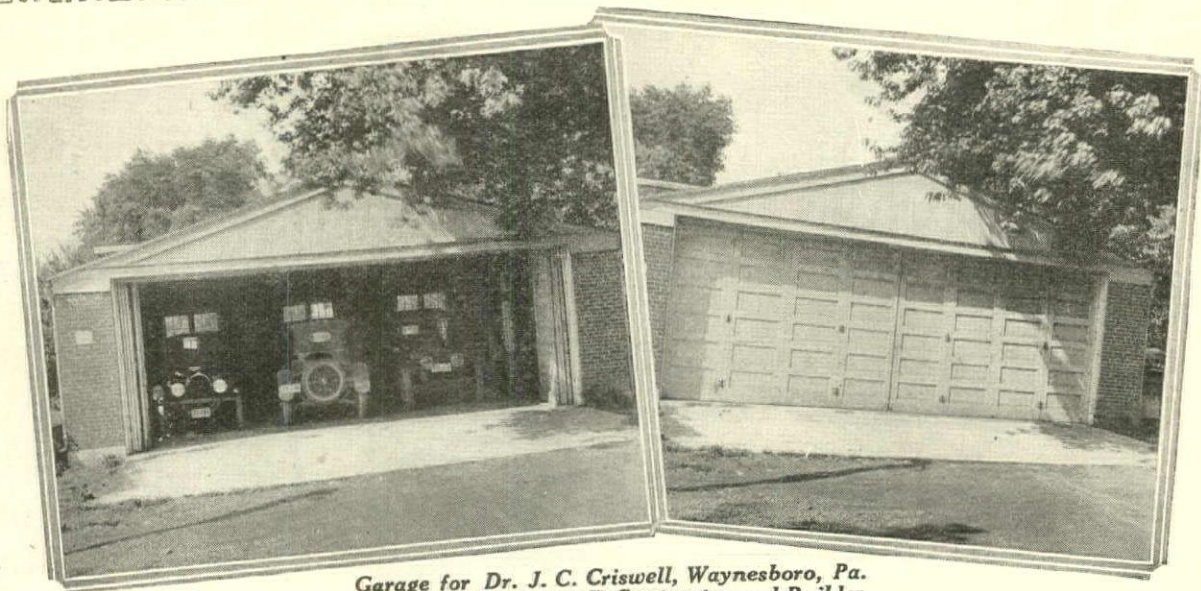
*"Let in the  
Sunlight"*

## AMERICAN WINDOW GLASS CO.

GENERAL OFFICES: PITTSBURGH, PA.

BRANCHES IN PRINCIPAL CITIES





Garage for Dr. J. C. Criswell, Waynesboro, Pa.  
Built by J. W. Rockwell, Contractor and Builder

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Only by using *Slidetite* Garage Door Hardware was it possible to build a garage with an **unobstructed** opening of such exceptional width. The doorway is 28 feet 6 inches wide—affording ample room for three cars to enter abreast, and is 9 feet in height. It contains eight doors, four of which fold to either side.

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*Slidetite* equipped doors operate on a jointless track—a mere push is all that is required to open or close them. Yet they fit the opening snugly and always remain weathertight.



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for  
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A Hanger for any Door that Slides.

AURORA, ILLINOIS, U.S.A.

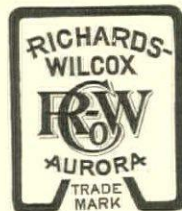
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Catalog  
J-22



*"Sheetrock goes up faster and finishes better"*

**EDWARD J. O'CONNOR**  
*Contractor and Builder*

Raritan, New Jersey  
June 26, 1922

UNITED STATES GYPSUM CO.  
Chicago, Ill.

Gentlemen: Referring to your letter of May 8th, 1922, a few words of commendation are due you. First: Your "Sheetrock" wallboard is superior to any of the wallboards on the market. Second: The setting up and finishing is faster and better than others, saving time and expense. Third: No mess like lath and plaster to be taken away. Fourth: Our customers are quick to see the advantages of this fireproof wall and ceiling material. I am pleased to recommend "Sheetrock."

Yours very truly,

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Sheetrock is a fireproof, permanent wall and ceiling material in unit form. It is made of gypsum rock, the same material used for the finest wall plasters. You saw and nail it the same as lumber. Hundreds of letters in our files, like the one written by Mr. O'Connor, tell of the ease and economy with which Sheetrock is put up. Return the attached coupon and we will send you a sample of Sheetrock along with a plan that will help you get profit-increasing Sheetrock jobs. Send it in today!

*Sheetrock is inspected and approved by The Underwriters' Laboratories, Inc.*

# U.S. SHEETROCK

Reg. U. S. Pat. Off.

## The FIREPROOF WALLBOARD

UNITED STATES GYPSUM COMPANY, General Offices: Dept. H, 205 W. Monroe St., Chicago, Ill.  
*World's Largest Producers of Gypsum Products*

SALES OFFICES: New York, N. Y., Buffalo, N. Y., Boston, Mass., Washington, D. C., Philadelphia, Pa., Pittsburgh, Pa., Cleveland, Ohio, Cincinnati, Ohio, Detroit, Michigan, Milwaukee, Wisconsin, Minneapolis, Minnesota, St. Louis, Missouri, Kansas City, Missouri, Omaha, Nebraska, Denver, Colorado, Los Angeles, California

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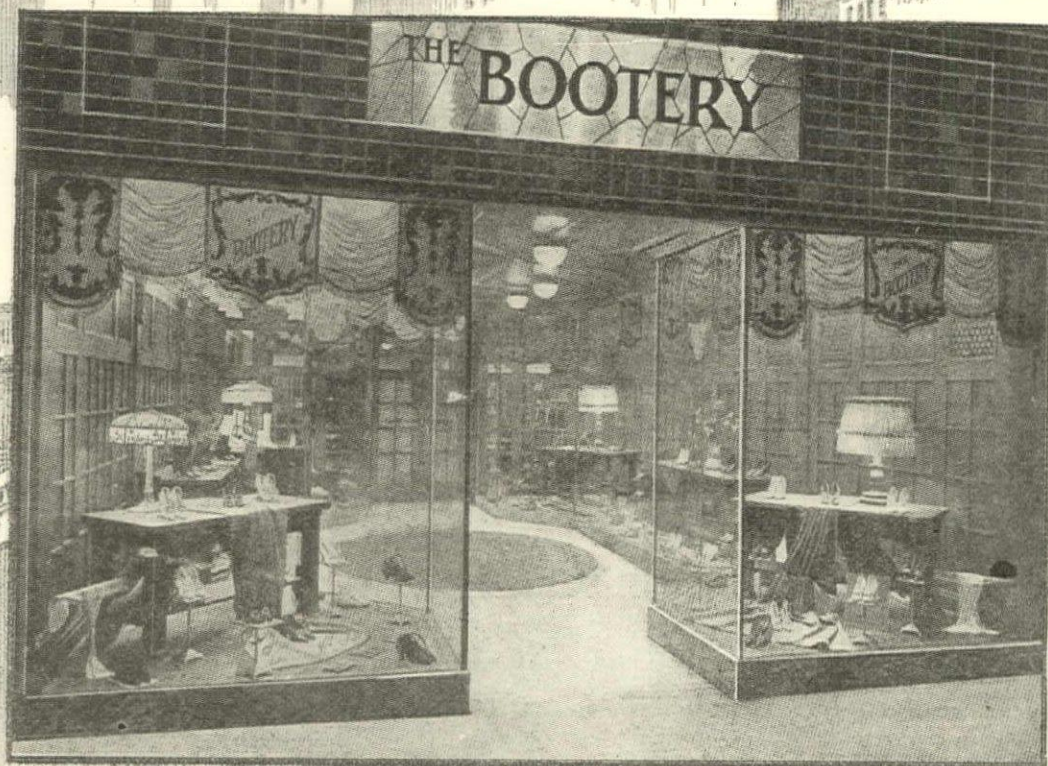
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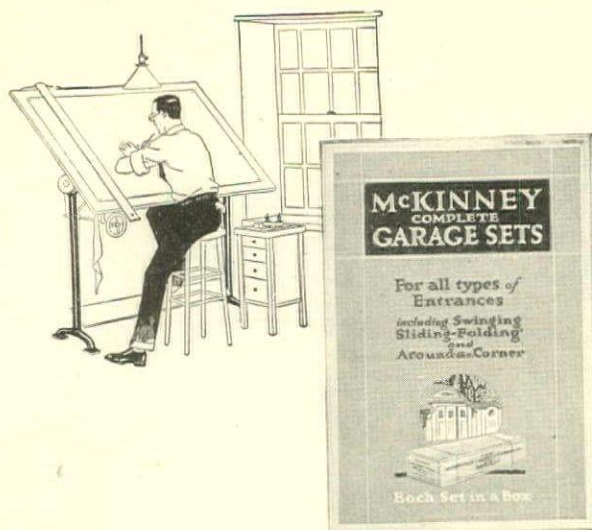
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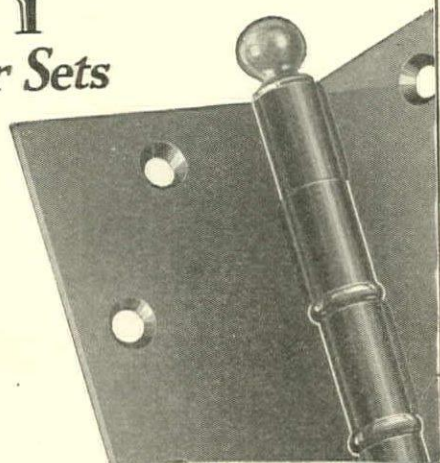
The McKinney Garage Sets are made according to the McKinney standard—quality always. Each set is packed complete in a single box, and numbered. Specify this number on the plan and the purchaser of the hardware cannot make any mistake.

Builders will find this booklet helpful, too, when called upon to advise garage owners what kind of an entrance to construct, and to select the hardware for the erection of the doors. We will be glad to send this booklet to any Architect or Builder.

McKINNEY MANUFACTURING CO., PITTSBURGH  
Western Office, Wrigley Bldg., Chicago Export Representation

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*Also manufacturers of hinges and butts, door hangers and track, door bolts and latches, shelf brackets, window and screen hardware, cabinet hardware, steel door mats and wrought specialties.*







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**A**CCURACY of construction and careful choice of materials in the Andersen Frame make snug fitting yet easy-sliding windows.

Andersen Standard White Pine Frames are accurately made. Each part is the product of a special machine. The parts, when assembled, form a perfect fitting frame that excludes all weather.

Exposed portions of Andersen Frames are of genuine White Pine. This wood has for centuries shown its ability to weather all out-of-door conditions without warping, shrinking, swelling or rotting. Windows run easily in Andersen accurate Frames; the use of White Pine keeps them easy running for all time.

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sizes from a stock of only 11 standard sizes, simply by interchanging heights and widths. The advantages of an accurate frame, ready when wanted, are evidenced in the saving of time, labor and money. Such frames are more profitable for the dealer to handle yet cheaper for the builder to use.

Each Andersen Standard Frame is packed in two small bundles containing seven units. These seven units with pockets and pulleys in place complete can be nailed up in 10 minutes.

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We have prepared an interesting book on the qualities and economies of Andersen Frames. Upon request, we will gladly send you a copy without charge.

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Department F-11 - South Stillwater, Minn.



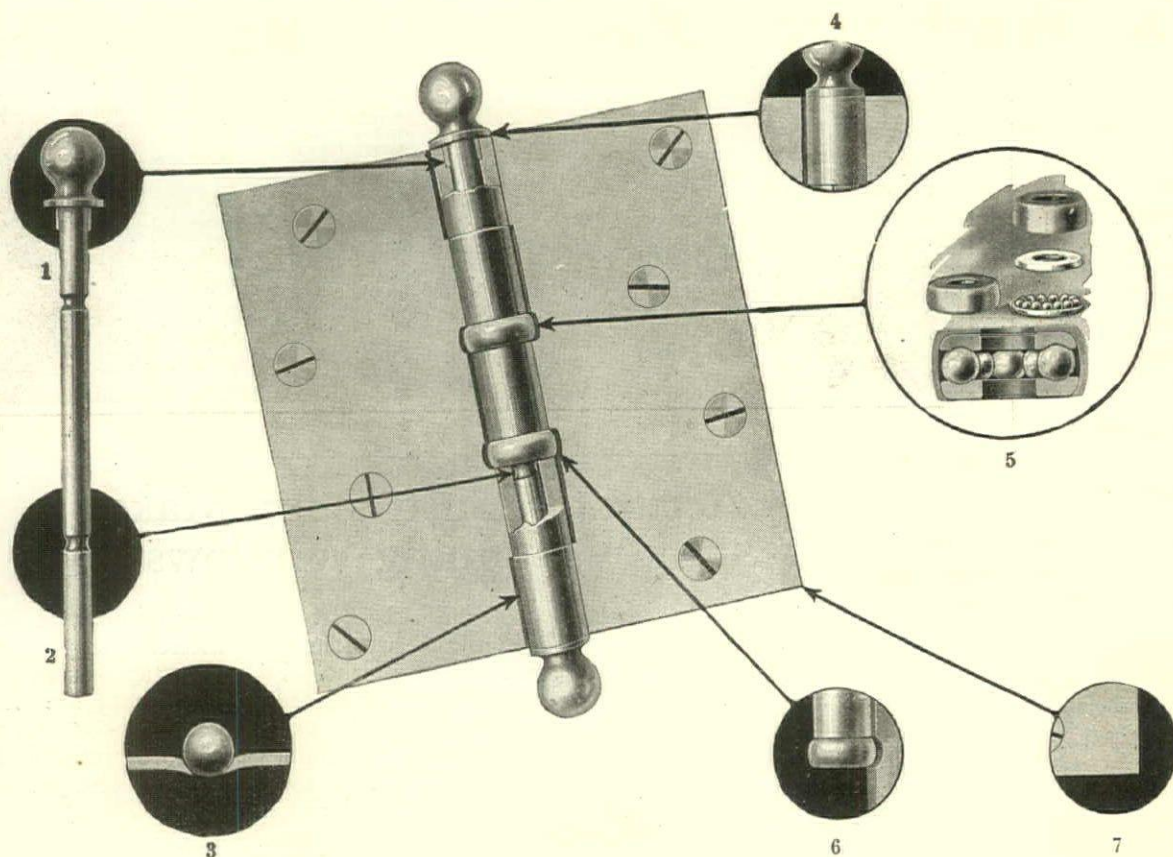
Trade Mark Registered

# Andersen FRAMES



# STANLEY

## BALL BEARING BUTTS

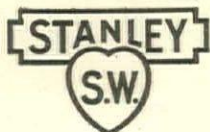


### SEVEN DISTINCTIVE FEATURES

1. Non-rising Loose Pins
2. Self-lubricating Pins
3. Beveled Edges
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6. Non-detachable Washers
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The Stanley Works was the original designers and manufacturers of Ball Bearing Butts. In addition to the Seven Distinctive Features the class number is stamped upon the back of each Butt for identification. The letter "Z" stamped on the back of the Butts distinguishes the Stanley Sherardized Finish—an anti-rust finish recommended for all steel Butts exposed to the weather. When specifying, remember The Seven Distinctive Features of Stanley Ball Bearing Butts.

Write for "Detail Manual, E-11."



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# BUILDING AGE

AND

## THE BUILDERS' JOURNAL

NEW YORK, NOVEMBER, 1922

### The Washington Memorial at Valley Forge

**W**INTER work is the theme of this issue of BUILDING AGE AND THE BUILDERS' JOURNAL. We who are enjoying the prosperity of a wonderful country should pause and consider that all this would not be possible had it not been for the work done that one winter at Valley Forge by Washington and his army of patriots.

Were it not for the stout hearts and courage of the Continental Army to do Winter Work, very few of us, perhaps, would today be enjoying the comforts of a home in the United States. It is only fitting that we should perpetuate the record of



*No spot on Earth, not the plains of Marathon, nor the passes of Seenpach, nor the place of the Bastile, nor the dykes of Holland, nor the moors of England, is so sacred in the history of the struggle for human liberty as Valley Forge.*

—Cyrus Townsend Brady

their sacrifices in a suitable memorial at Valley Forge, Pa.

The words of Mr. Brady given here sum up the greatness of this beloved and historic spot, dear to thousands of patriotic Americans, and conceded to be the one shrine of American Patriotism to which every citizen should journey at one time or another and give it due reverence. The building work now being done there is of national importance and rightly deserves every possible bit of publicity given it.

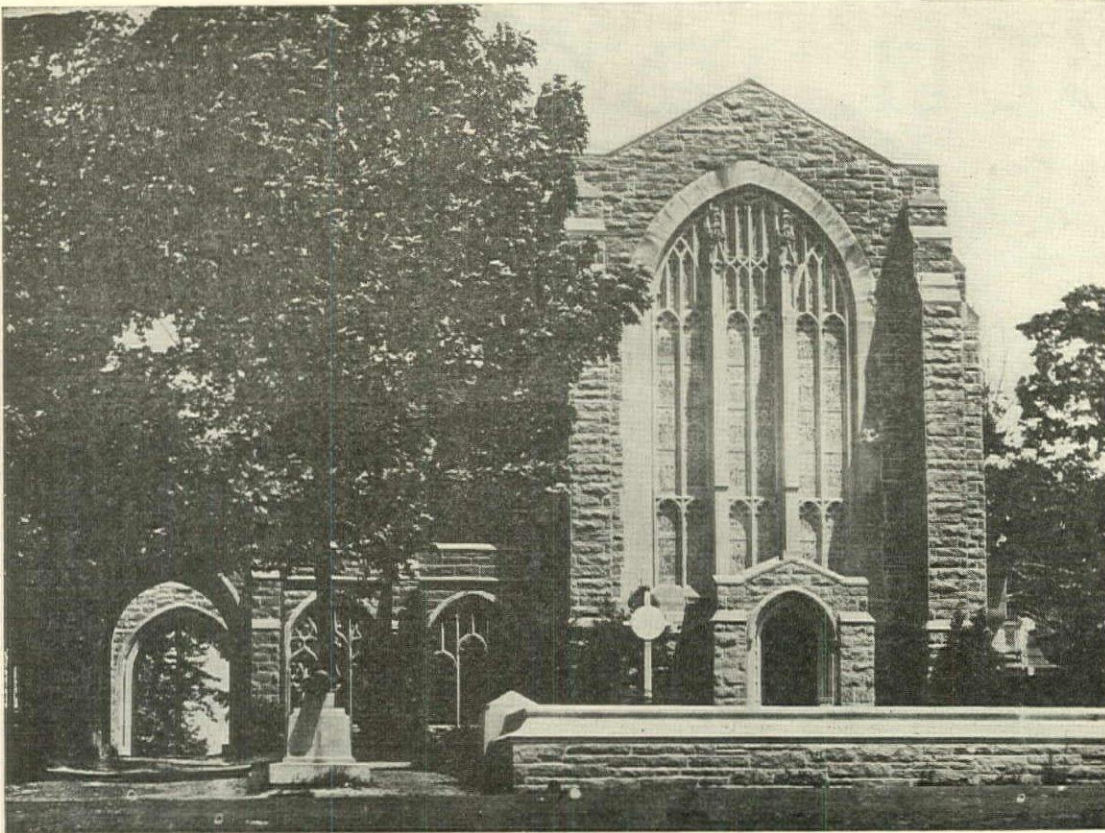
The Washington Memorial, when completed, will be one of the greatest memorials in the world. It contains



The Old Home of Dutch Colonial Design at Valley Forge, Pa., Used as Headquarters by George Washington



The Washington Memorial Chapel at Valley Forge. A Stone Edifice of Dignified Gothic Architecture.



much of an educational value, holding in its mass many different kinds of workmanship that have been wrought through careful study and the benefit of education of a vast nature. Its conception has won the admiration of patriots, and its completion will give to the American people a group of buildings of rare beauty and unequalled significance.

The Washington Memorial stands upon a commanding site at Valley Forge, in full view of almost the entire encampment and facing the great National Arch, erected by the United States in memory of the officers and men who made these hills sacred ground.

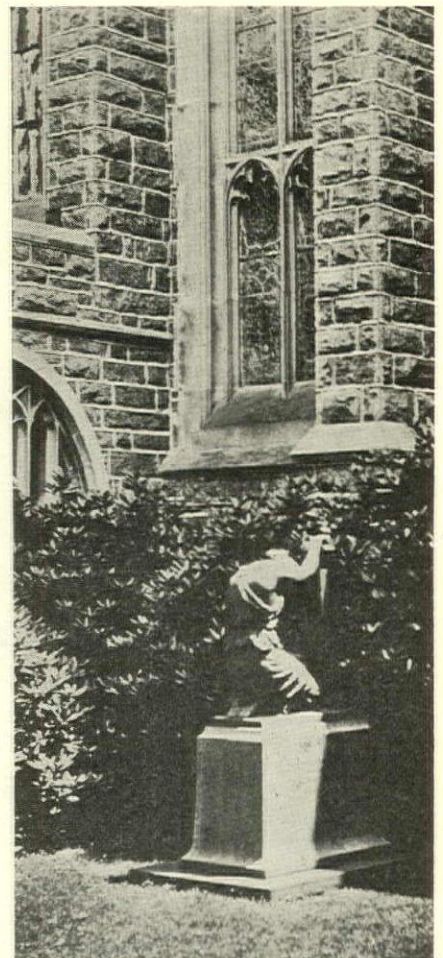
The memorial will include the following structures: The Patriots Hall, Washington Memorial Chapel, Washington Memorial Library, Cloister of the Colonies, Porch of the Allies, Thanksgiving Tower, and the Woodlawn Cathedral. These will form the administration group of the memorial.

In addition there will also be eight Halls of History, wherein the entire nation's history will be in review, affording a truly great and wonderful education for anyone. The differ-

ent halls are named: (1) The Aborigines, Pocahontas Hall. (2) The European Background, Raleigh Hall. (3) The Colonial Period, Franklin Hall. (4) The War of the Revolution, Washington Hall. (5) The Period of National Development, Jefferson Hall. (6) The Civil War, Lincoln Hall. (7) The Period of National Expansion. (8) The World War, Victory Hall.

The Halls of History of the Valley Forge Museum of American History will culminate in Victory Hall. This will represent not only the last period to date, but will be the greatest of the eight buildings. It will represent man's last and supreme battle for freedom, for the larger life of man. It will be a great national memorial to the men and women whose devotion and sacrifice won the victory. It will honor all the allies, but it will be pre-eminent as America's tribute to her heroic sons and daughters.

All that art and building craft can do will be employed to give expression to the meaning of the conflict between brute force and the spiritual life of man. It will be carved in the stone tracery, leaded in the windows and painted on the walls.



Charming Exterior Corner of Chapel with the Statue of "Peace and Devotion"

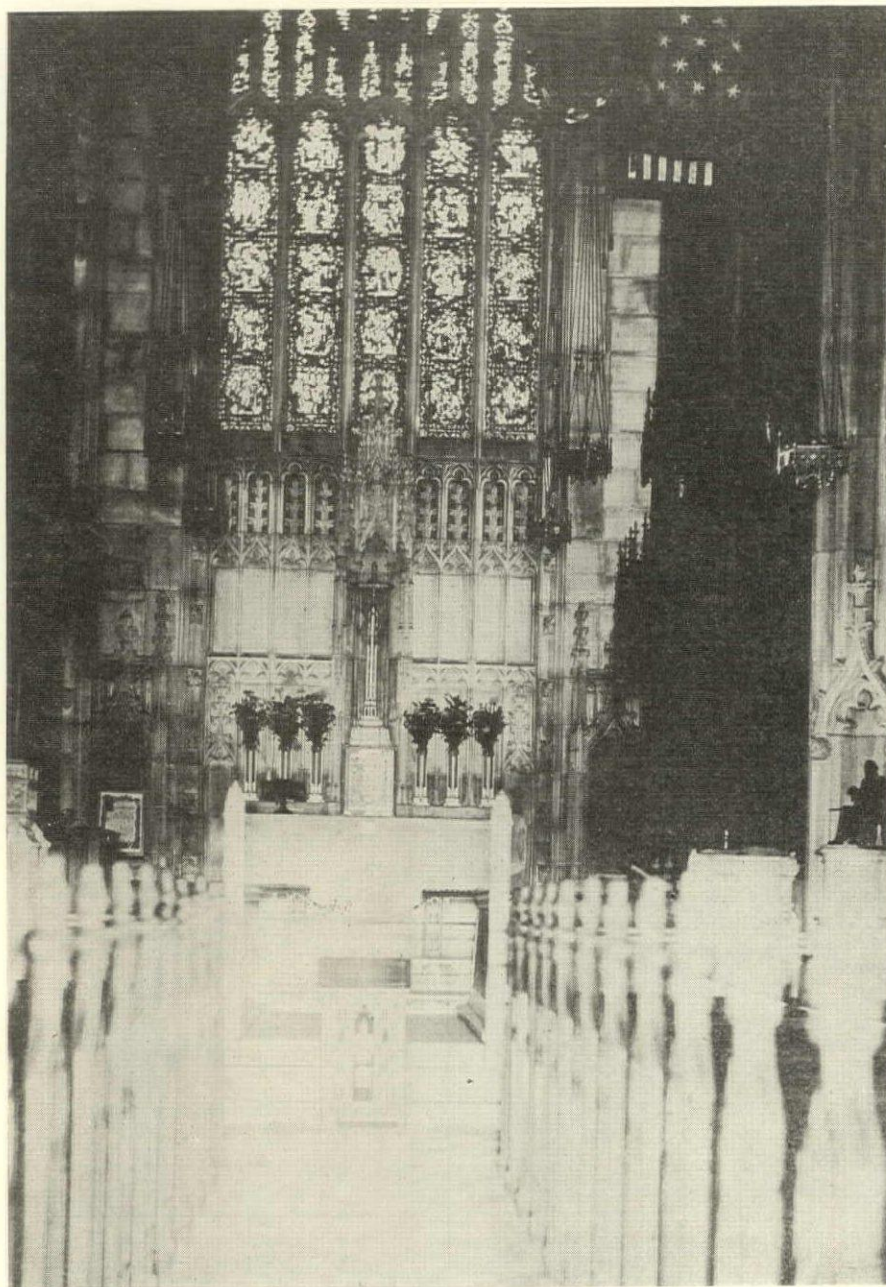


Such a conception realized anywhere in the land would become at once the mecca of today, tomorrow and for all time. Such a Victory Hall will have a hundred fold more value when built upon the hills of Valley Forge, where it stands surrounded by the unmarked graves of those who nearly a century and a half ago heard the call of duty, rose to fight for freedom, and gave their all for the American ideal of democracy.

The Rev. W. Herbert Burke, D.D., who is president of the Valley Forge Historical Society, has been and is an untiring worker in this great memorial idea. Recognizing the historical importance of Valley Forge and appreciating the importance of



A Replica of One of the Hospitals. Their Best Was Far From Comfortable.



Interior of the Washington Memorial Chapel

its ideals and spirit in the life of the nation, Dr. Burke suggested in 1903 the erection of the Washington Memorial at Valley Forge as a national shrine and as a school of patriotism.

The Washington Memorial Chapel, an American Westminster, the shrine of the American people, has been completed, and in the past two years attracted over 90,000 visitors. Its beauty and historic significance are unexcelled.

Into its sacred fabric and furnishings has been woven the history of the nation, and its many memorials commemorate not only Washington, but all who labored with him in the building of the nation. In it are memorials of the men and women who made our great Republic.

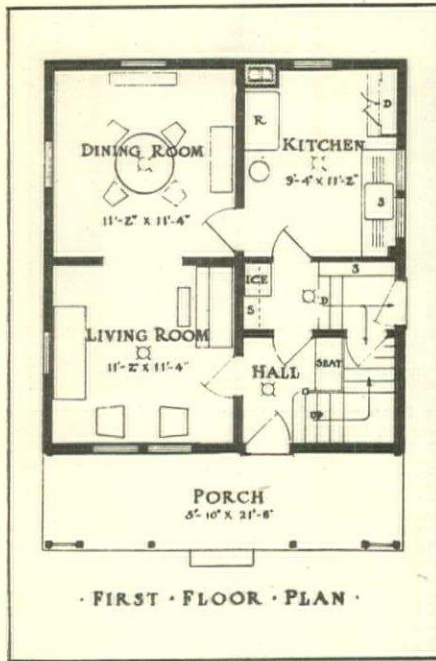
The screens in memory of Washington and the Major and Brigadier Generals at Valley Forge, and the choir stalls in memory of the brigades, make a collection of memorials unequaled in importance and patriotic inspiration anywhere.

The extent and scope of a great work should interest every loyal American. All who make the trip to Valley Forge will be well repaid and will go away with a deeper and finer sense of patriotism than ever before. Valley Forge is today THE really great and true shrine of American patriotism. Valley Forge, being near Philadelphia, is easily reached from many points. All should see it.

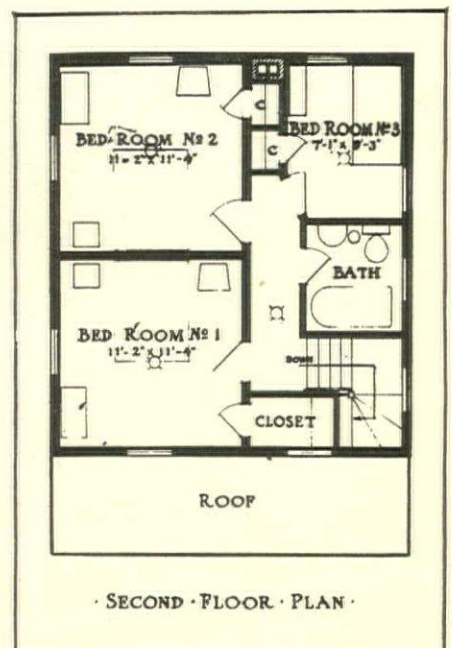
C. H. THOMAS.



# Variety in House Design



Designed by  
MURPHY & DANA  
Architects  
for a development at  
New Britain, Conn.





# Slight Changes in Details Prevent Sameness

Designed by C. E. SCHERMERHORN, Architect

IN building a number of small houses it is more economical that they be made all alike in interior arrangements and exterior design. Perhaps only a few exterior details are changed to lend a little variety, sometimes the only change is the difference in painting.

To show that a considerable change in appearance may be made and still have the same design, we give a picture of two houses that are identically the same in room arrangement and exterior. The houses are 24 feet by 24 feet in size. On the one, the gable is towards the front, and on the other it is towards the side. Likewise, the one has the front entrance on the side and the other in the front. This simple change results in both houses having a distinctiveness of its own.

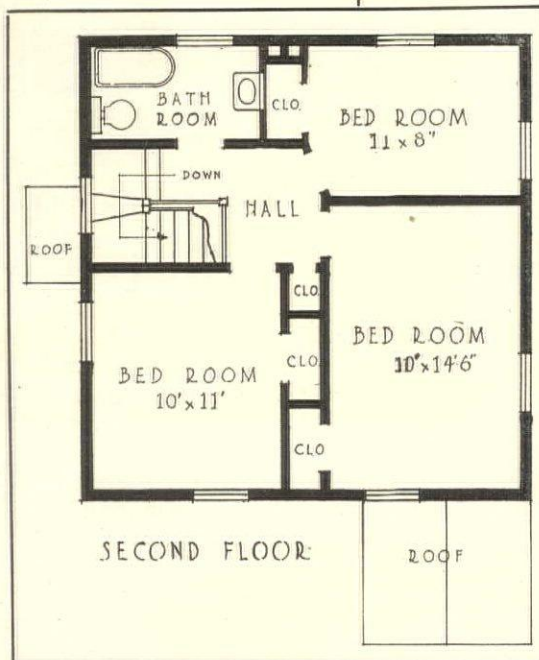
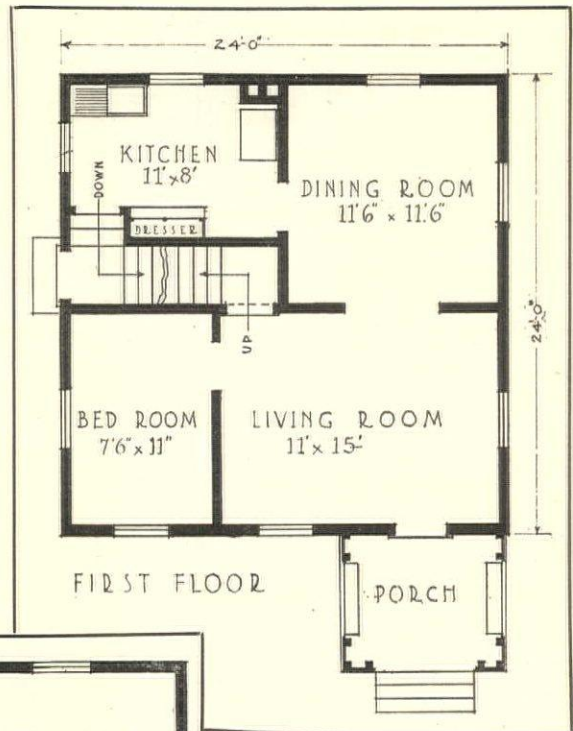
A further change could be made if there are a number of such houses in a row is to have some set back further than others, that is, to give some thought to a proper grouping. Another variation would be to have the porch in the center on some houses.

The room arrangement in this small house is worthy of special study. There are seven fair sized rooms in the small space of 24 feet by 24 feet. Each room has been so planned that there is ample space for all necessary furniture. There is no waste

space, each bedroom is provided with a closet and there is a linen closet in the upper hall.

For anyone requiring a small home that can be built at a moderate price and still have a pleasing design, a house of this kind is to be recommended.

The exterior of these houses can either be

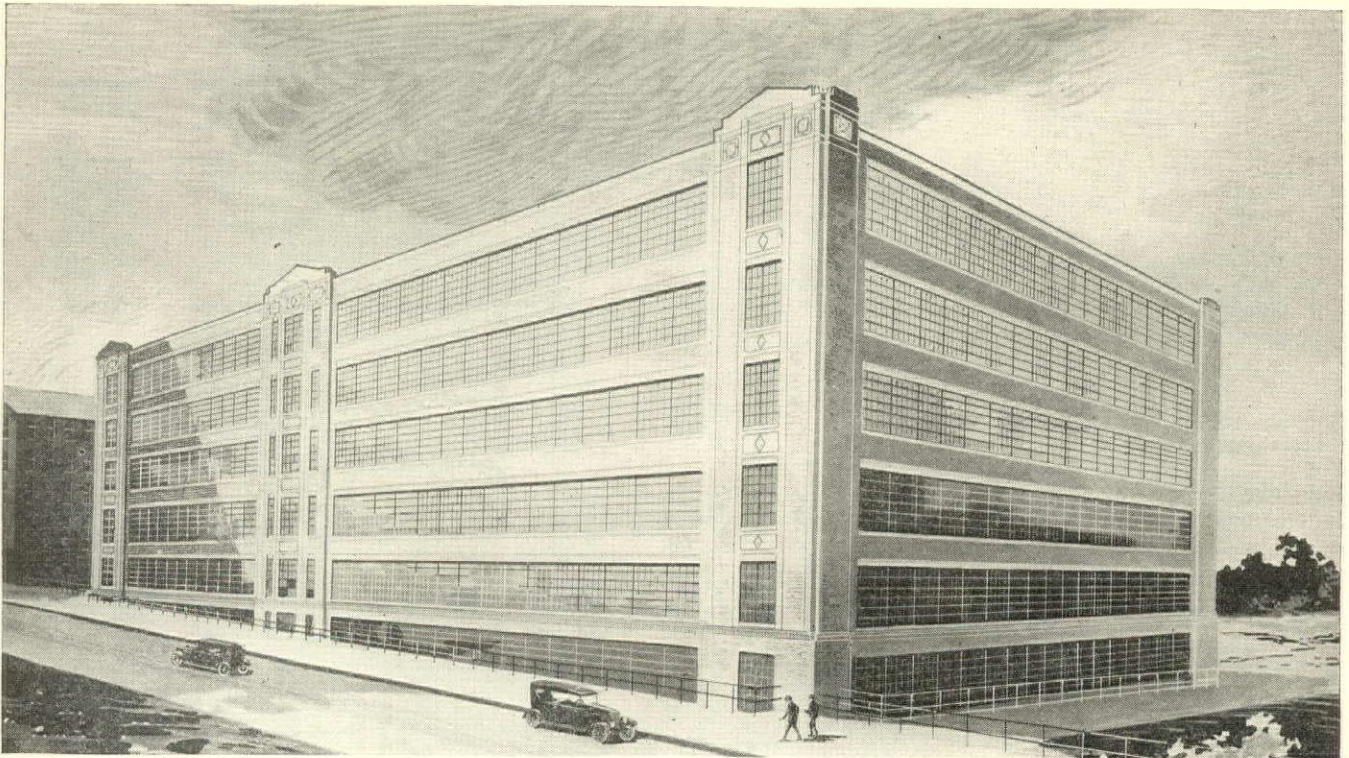


shingled or have wide Colonial clapboards with mitered corners. To lend variety in a group some houses could have a stucco exterior and some others be built of brick or in combination.

The design shown on the opposite page is another interesting example of how small changes may be made to secure a variety in design. Here also the one house has the gable to the front while on the other it is to the side, with the porch extending half way across the front and floor plans reversed.







## New Departure in Building Construction The Glass Front Factory

By WILLIAM R. FOGG

ONE of the prime requisites for the production of first quality work under economical conditions is that the rooms in which work is performed shall be provided with ample daylight. The older forms of factory construction consisted of more blank wall space than windows, while the modern tendency has been to make the windows as large as possible.

The majority of recently built factories consists of a series of large steel sash windows with columns between, which for architectural effect have been treated as pilasters, and many an artistic factory building has been the result. In these the pilasters and intermediate rails below the windows are frequently of ornamental brick work, concrete with tile inserts, terra cotta, etc.

The latest step in securing the maximum amount of daylight in the interior of a factory itself is by practically eliminating the pilasters and having what amounts to all glass walls. This result is in-

sured by the new features in industrial building construction which have been evolved by the Ballinger Company, architects and engineers of Philadelphia, and embodied in the construction of a new worsted mill now being erected at Bridgeport, Pa., for James Lees and Sons Company.

This new building is an addition to the present plant operated by this company, and it will be five stories and basement in height. The total length from the front and rear is 250 feet with a depth of 121 feet; this is exclusive of the stair towers. These six floors will give a total area of about 180,000 square feet and will be used for the housing of machinery, etc., used in the manufacture of worsted yarns.

This interesting industrial building is of reinforced concrete, flat slab construction. On account of the delicate nature of the machinery employed in the manufacture of the worsted yarn, danger from dust had to be guarded against, and for this reason a

maple floor was used as a top wearing surface.

The unique feature in the construction of this factory consists of the entire omission of exterior wall columns permitting if desired an unbroken line of light around the entire building, except at spaces where the wall surface is necessarily broken by stairways or other features.

This arrangement results in permitting an unusual amount of light to flood the interior of the building, adapting it admirably to the purposes of manufacturing. In this particular case a building 120 feet wide has been erected without requiring an excessive story height to obtain the proper daylight illumination that has been found so necessary to a proper working by the operators at the looms.

This unbroken extent of window space has been made possible by making use of the well-known principle of the cantilever. The first row of interior columns is placed five feet back from the outer

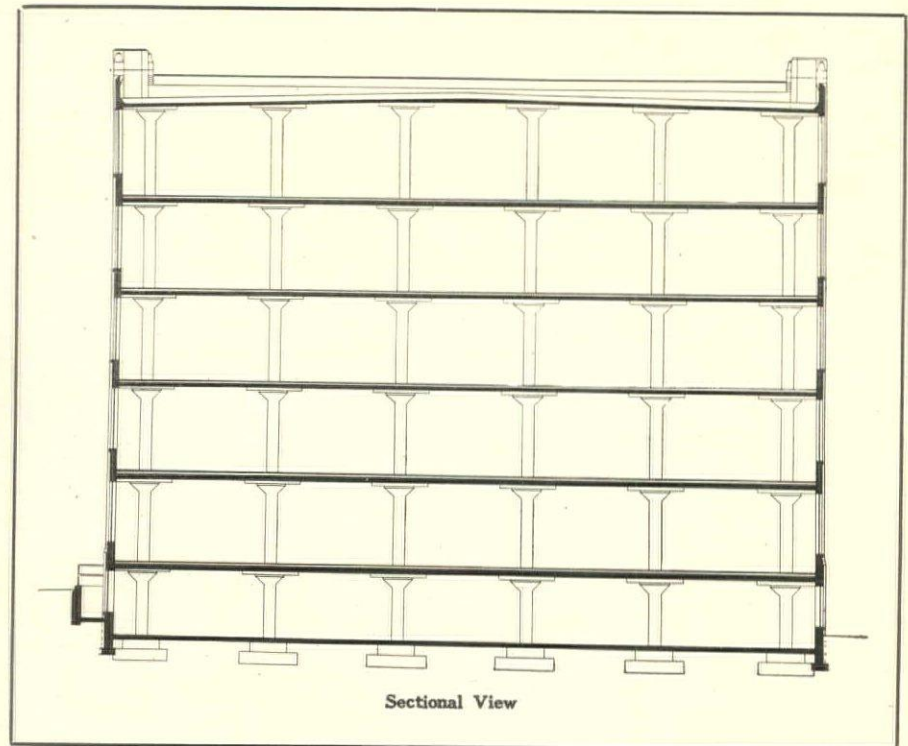


wall and the concrete floor slabs extend as a cantilever beyond the columns to the wall line. The structural walls under the windows are built directly upon the projecting cantilever floor slabs, they have to bear the weight of the steel windows and in addition a certain floor load.

This ingenious method of construction gives not only a maximum amount of daylight but by the elimination of wall columns or pilasters, the concrete work itself is simplified so that economy in the construction work is obtained by making use of this cantilever principle. A rather considerable saving in the cost of erecting such a building results by this method.

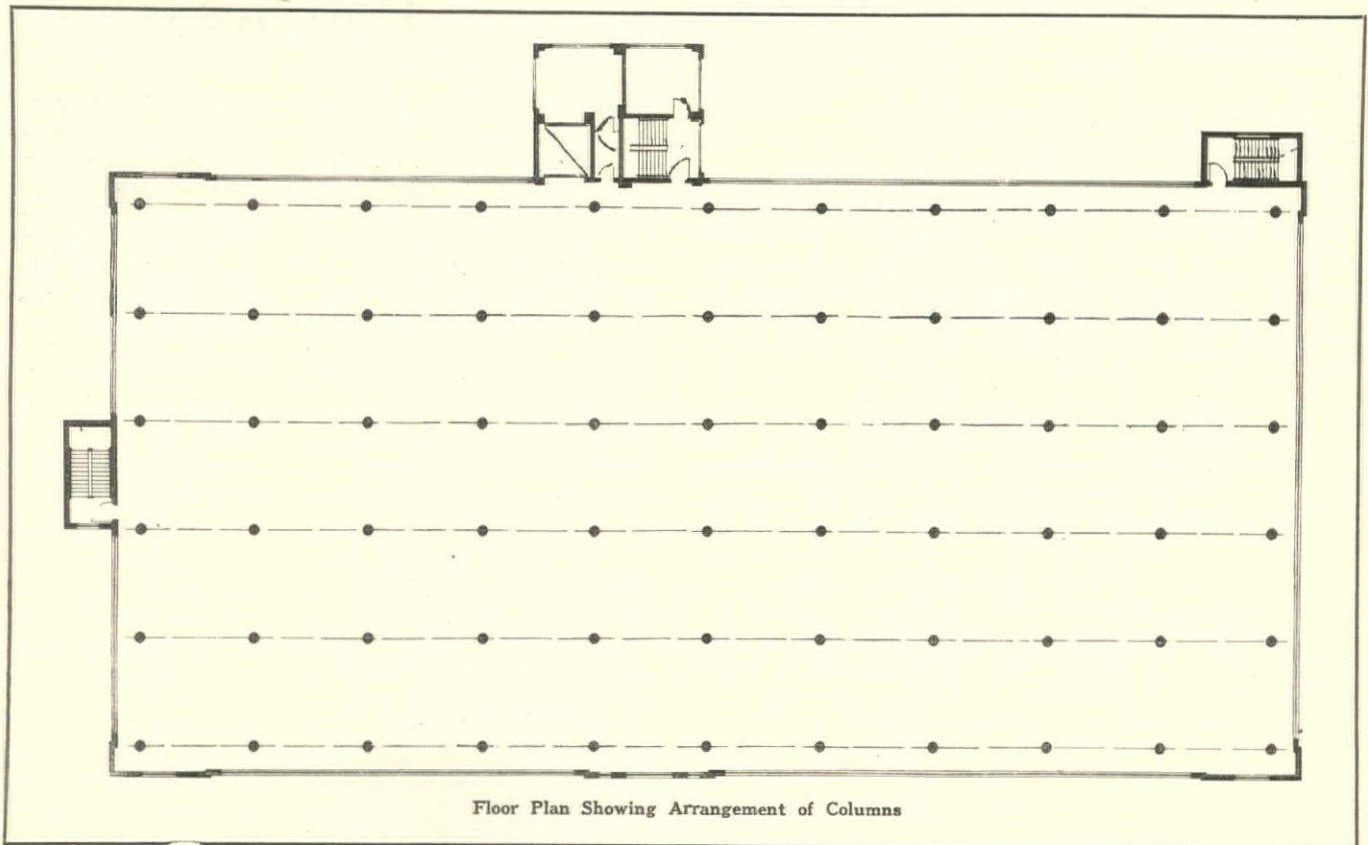
Another advantage resulting from the omission of the exterior wall columns and their corresponding projections on the inside of the building is that the installation of work benches, machinery and other equipment as well as placing the radiators for the heating system is greatly facilitated as all the various jogs are eliminated.

It is certainly a new departure in industrial construction. This building is now under construction



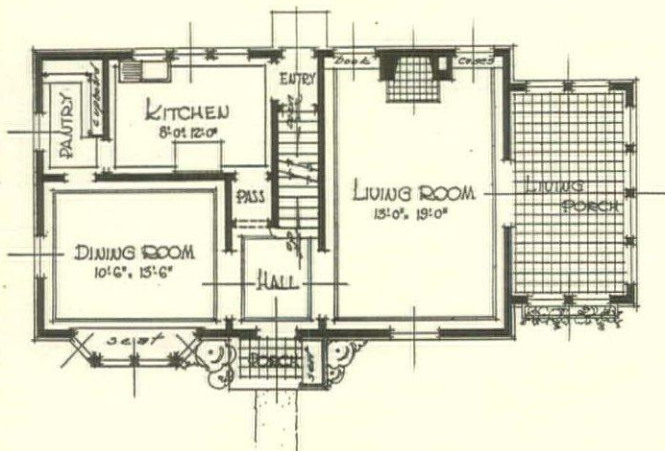
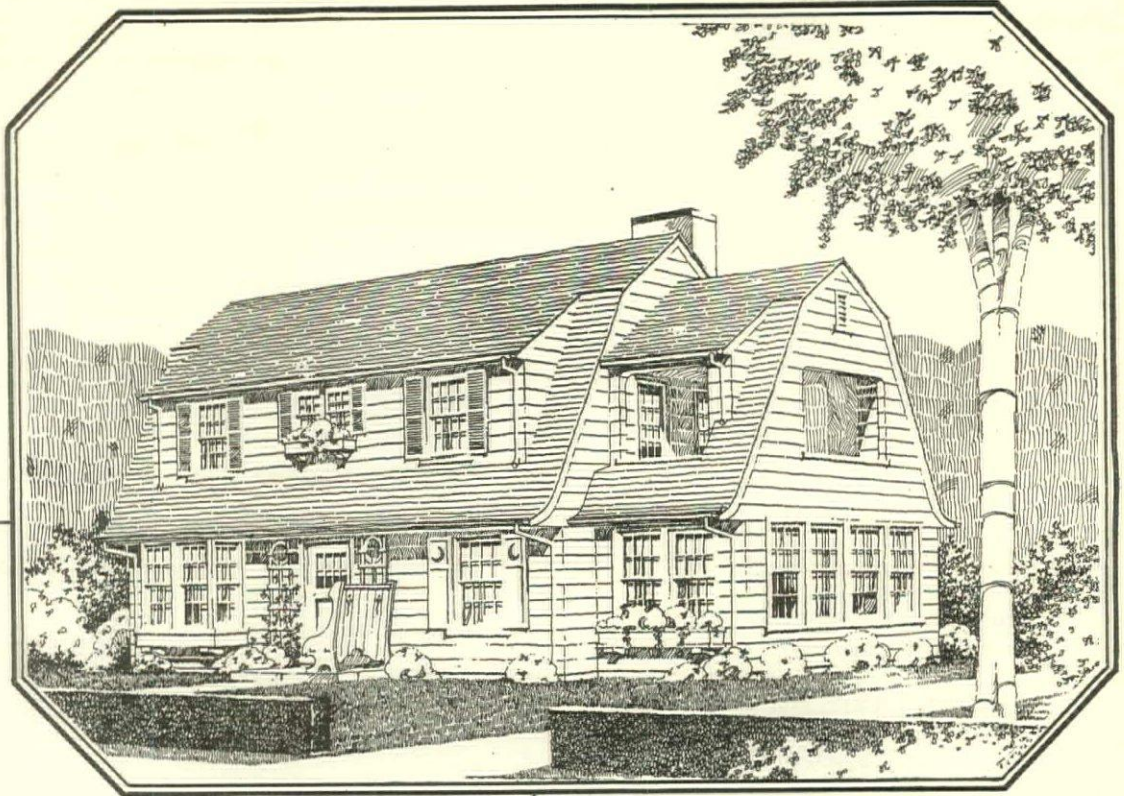
and rapidly nearing completion. It is expected that it will be ready for occupancy by February 1st, 1923. The floor plan shows the location of the different columns, in the length of the structure they are placed 24 feet on centers and in the width 22 feet on centers.

It will be noted that all the stairways are placed on the exterior of the building proper. Three separate stairways are provided so that there is ample safeguard for rapid escape in case of an emergency. Toilet rooms are placed on each floor in the rear extension.



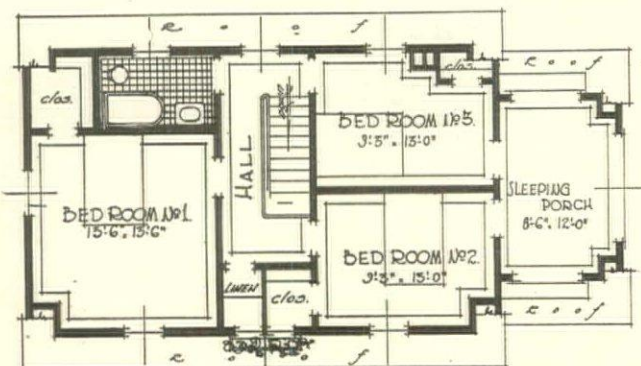


Novel Arrangement  
of Sleeping Porch  
and Living Porch  
Are the Special  
Features of This  
Clever Dutch-  
Colonial Design



FIRST FLOOR PLAN

SCALE OF FEET  
0 5 10 15



SECOND FLOOR PLAN

## Comfortable Home With Attractive Porches

THIS house has been designed for comfortable living. The architects have so arranged the plans that the housework can be done with ease. Note the arrangement of the kitchen with relation to the rear entry, cellarway, pantry and dining room; all can be reached with but a very few steps, this also applies to the front door, a call at this point does not require one working in the kitchen to pass a long distance through main rooms.

The dining room has a large bay window on the front that gives a pleasant outlook. The living room has a generous open fireplace with bookcases on either side under the windows.

The striking feature of the plans is the porches. The architects have solved the problem of the living porch and the sleeping porch in an admirable manner, so they are not only livable, but add to the exterior appearance of the house as well.

The porches are placed in a wing at the end of the main house, this gives three sides exposed for the porches—plenty of air and sunshine—and the roof of this extension has been designed to harmonize with the main roof.



Too often sleeping porches are simply "stuck" on the houses, giving the appearance of a sanatorium; which has been the reason why so many people have given up the idea of a sleeping porch. The living porch is completely enclosed with sash and screens, so it becomes an all year around room.

The second floor provides three nice bed rooms, a bath room and ample closets, all conveniently arranged about the center hall. The hall has a large window that gives light directly on the stairs, just where it is most needed.

*Specially Designed for*  
**BUILDING AGE**  
*and*  
**THE BUILDERS' JOURNAL**

*Together with*  
**Constructive Details**

by **R. C. HUNTER & BRO.**  
Architects New York

The interior should be carried out in the Colonial style to harmonize with the exterior.

A cellar, providing the laundry, heater and coal spaces, etc., extends under the entire house.

The exterior of this house is attractive, every detail has been well designed and the general proportions are good. The graceful Dutch roof lends charm. The house is, throughout, true to the best Colonial traditions. The estimated cost of the construction is about \$8,000.

## Quantity Survey of Comfortable Home

Shown on Preceding Page

**T**HE quantities given are for estimating. All measurements are NET unless otherwise noted; areas given for such items as sheathing, flooring, etc., are net areas to be covered, with no allowance for matching, waste, etc. Minor cuts have been disregarded.

Such items as clearing site, temporary work and protection, scaffolding and general equipment and supplies have not been included.

Such items as are marked "Unit," are to be estimated in a lump sum, following requirements of plans and specifications.

### Excavation

(Excavation for pipe trenches not included)

Excavation for cellar .....	240 cu. yds.....
Excavation for footings .....	13 cu. yds.....
Excavation for areas .....	4 cu. yds.....
Excavation for trench walls.....	9 cu. yds.....
Excavation for leader drains and dry wells .....	12 cu. yds.....
Backfilling around walls, etc.....	35 cu. yds.....

### Leader Drains and dry wells—

Field stone for dry wells.....	10 cu. yds.....
4 in. salt glazed tile drain pipe.....	36 lin. ft.....
4 in. elbows.....	6 .....

### Masonry

Concrete for cellar walls.....	770 cu. ft.....
Concrete for footings.....	178 cu. ft.....
Concrete for trench walls.....	126 cu. ft.....
Concrete for area walls.....	84 cu. ft.....
Cellar floor (3 in. concrete and 1 in. cement finish).....	595 sq. ft.....
Area bottoms (brick and sand).....	32 sq. ft.....
Porch floors (12 in. cinders, 3 in. concrete and brick finish).....	40 sq. ft.....
(concrete without cement ft)...	123 sq. ft.....
Concrete forms.....	2100 sq. ft.....
Pointing cellar window sills.....	14 lin. ft.....
Common brickwork for chimney.....	93 cu. ft.....
(or 1.9 M.)	
Face brick for fireplace hearth and jambs .....	15 sq. ft.....
(or 105 brick)	
Fire brick for fireplace .....	15 sq. ft.....
(or 75 brick)	
8 in. x 12 in. T. C. flue lining.....	54 lin. ft.....
3 in. bluestone chimney cap (1 ft. 10 in. x 2 ft. 8 in.).....	1 .....

### Mason's Iron Work

Fireplace damper (2 ft. 8 in. opening, with throat, etc.).....	1 .....
C. I. ash dump.....	1 .....
C. I. cleanout door for ash pit (16 in. x 12 in.).....	1 .....
C. I. cleanout door for boiler flue (8 in. x 8 in.).....	1 .....
Thimble for boiler flue.....	1 .....

### Plastering

Three coat Patent plaster on metal lath, gross .....	640 sq. yds.....
(Net 590 sq. yds.)	
G. I. corner beads.....	100 lin. ft.....

### Tile Work

Tile work for bath room—	
Floor (1 in. hex. white).....	47 sq. ft.....
Wainscot (3 in. x 6 in. white wall tile).....	100 sq. ft.....
6 in. sanitary base.....	25 lin. ft.....
Moulded cap .....	25 lin. ft.....
Living Porch floor—	
6 in. x 6 in. quarry tile.....	123 sq. ft.....

### Sheet Metal Work

Copper flashing for roofs, sleeping porch floor.....	222 lin. ft.....
Copper flashing and counterflashing for chimney .....	9 lin. ft.....
Copper chimney cricket.....	5 sq. ft.....
Canvas floor for sleeping porch.....	98 sq. ft.....
4 in. half round, hanging gutter .....	168 lin. ft.....
3 in. x 4 in. leaders.....	90 lin. ft.....
Bends for leaders.....	24 .....
Gutter thimbles.....	12 .....
3 in. x 4 in. G. I. gas range vent.....	21 lin. ft.....
Cap and thimble for same.....	1 .....

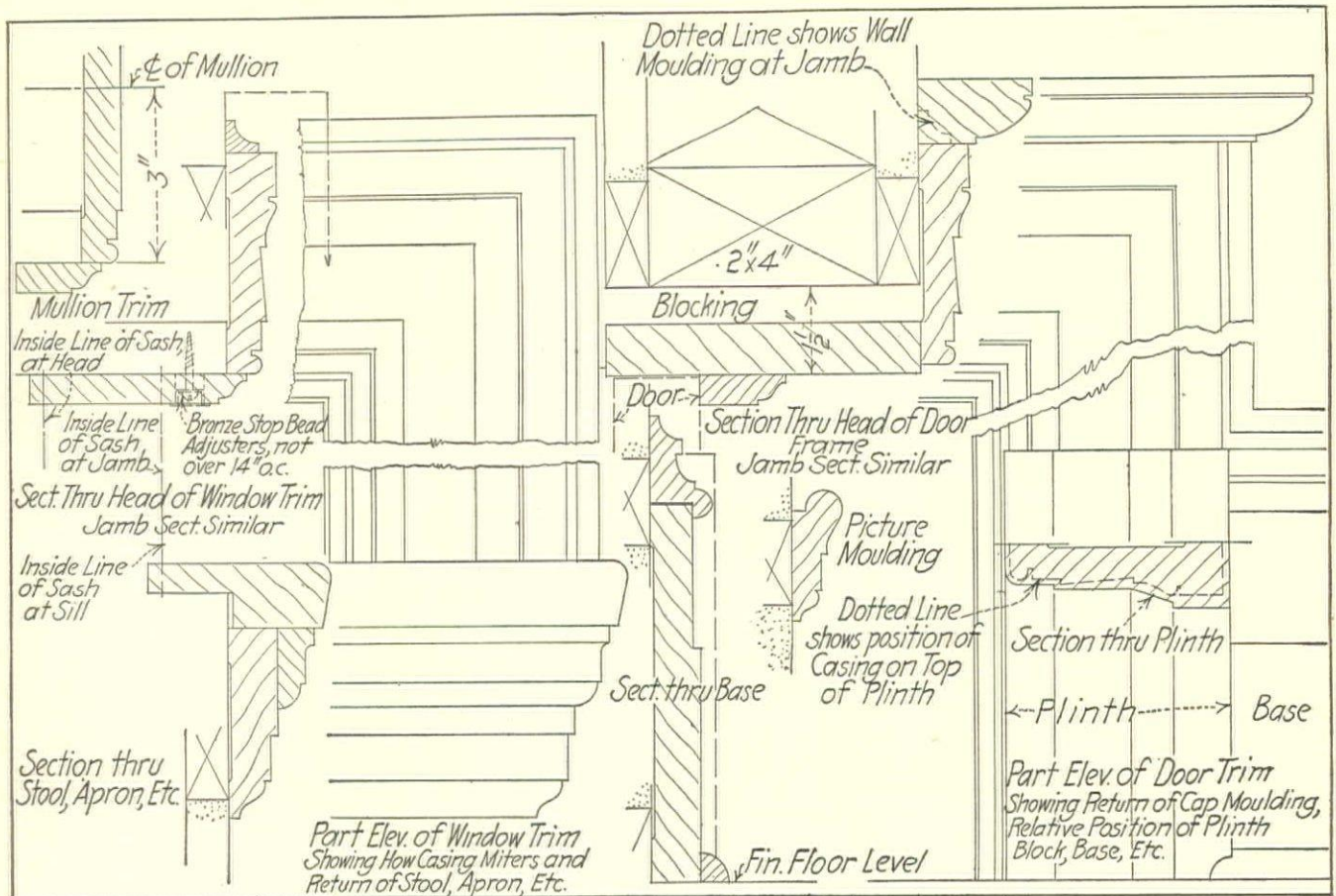
### Carpentry

#### TIMBER

All No. 1 common stock, hemlock, rough unless noted.  
Cellar girders—  
6 in. x 10 in. spc.—2/12, 1/10, 1/8... 210 F. B. M.....

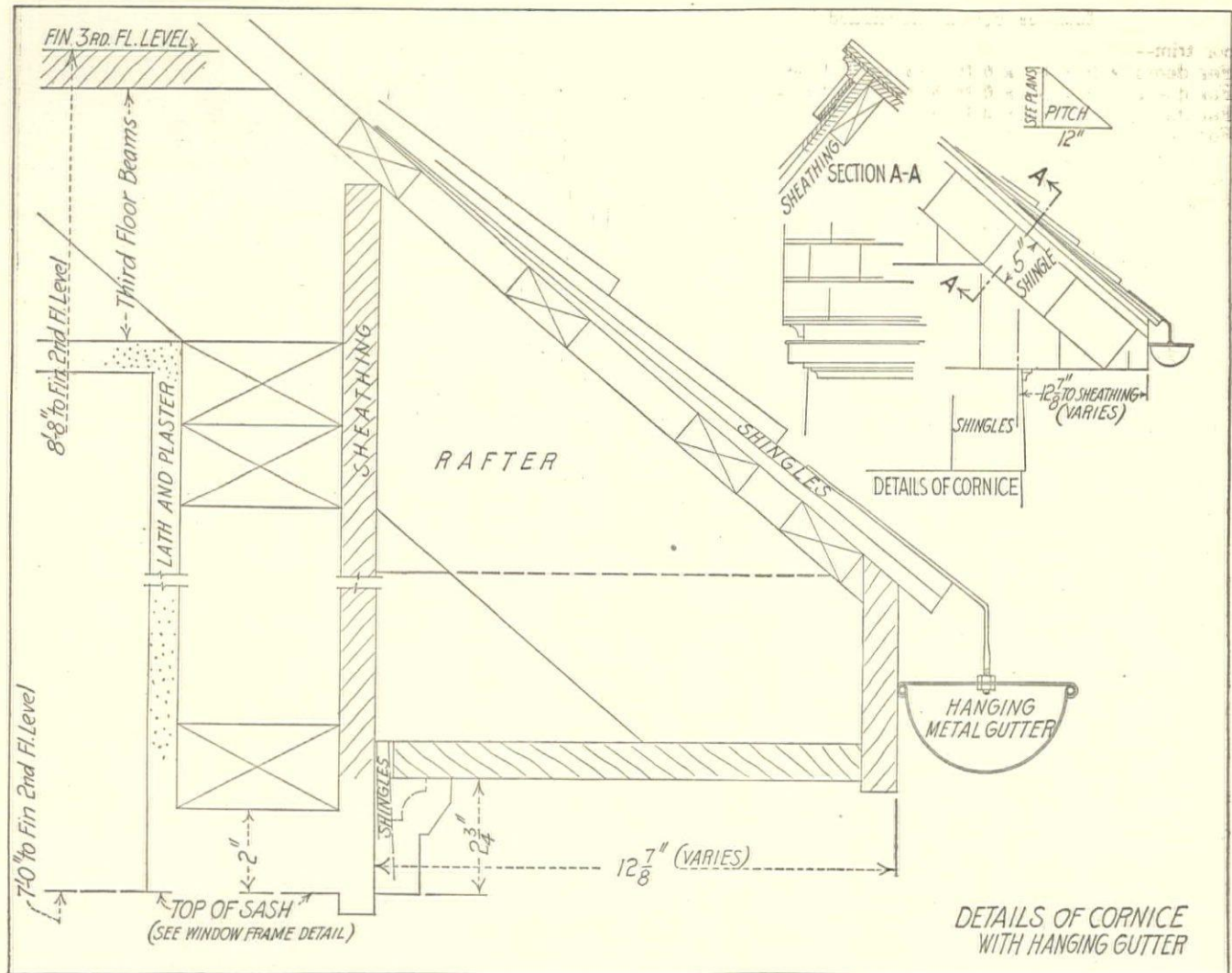
**B**LUE Print Plans and Specifications of many Beautiful Homes of Moderate Cost can be supplied at a nominal price by Building Age and the Builders' Journal, 912-920 Broadway, New York.





Cellar girder—Continued			
3 in. x 10 in. spc.—2/8.....	40 F. B. M.....		
2 in. x 3 in. nailer—94 lin. ft.....	47 F. B. M.....		
Sills—			
4 in. x 6 in.—4/18, 1/16, 2/12, 4/10..	304 F. B. M.....		
Posts—			
4 in. x 6 in.—10/10, 1/8.....	216 F. B. M.....		
Studs, girts and plates, first floor—			
2 in. x 4 in.—210/8.....	1150 F. B. M.....		
Studs, etc., second floor—			
2 in. x 4 in.—240/8.....	1280 F. B. M.....		
First floor joists—			
2 in. x 10 in.—24/14, 7/12, 14/8....	886 F. B. M.....		
Second floor joists—			
2 in. x 10 in.—31/14, 4/12, 23/10....	1187 F. B. M.....		
Second floor ceiling beams.....			
2 in. x 6 in.—32/14.....	448 F. B. M.....		
2 in. x 4 in.—10/10.....	67 F. B. M.....		
Rafters—			
2 in. x 6 in.—52/12, 6/10, 10/8.....	764 F. B. M.....		
Ridge—			
2 in. x 8 in.—3/12, 1/10.....	62 F. B. M.....		
2 in. x 6 in. rafters (cut to rad.)—50/4	40 F. B. M.....		
Floor bridging—			
2 in. x 2 in.—350 lin. ft.....	117 F. B. M.....		
Cornice outlookers—			
2 in. x 4 in.—200 lin. ft.....	133 F. B. M.....		
Cellar partition studs—			
2 in. x 4 in.—8/8.....	43 F. B. M.....		
Sheathing (7/8 in. x 8 in. shiplap), no outs—			
Walls—to cover.....	2150 sq. ft.....		
Sleeping porch floor, etc.....	140 sq. ft.....		
Sheathing paper (waterproof).....	2200 sq. ft.....		
Shingle lath—7/8 in. x 2 in.....	3560 lin. ft.....		
Grounds—			
3/4 in. x 2 in. surfaced one side....	2000 lin. ft.....		
Sheathing for cellar partitions—			
7/8 in. x 8 in. shiplap—to cover....	90 sq. ft.....		
Rough flooring—			
7/8 in. x 8 in. shiplap (1st floor)—			
to cover.....	650 sq. ft.....		
Furring—7/8 in. x 2 in.....	200 lin. ft.....		
Shingle roofs (18 in. stained shingles)			
14 squares.....	9560 shingles.....		
Shingle sides (24 in. stained shingles)			
18 squares.....	6000 shingles.....		
<b>Exterior Finish</b>			
Watertable (7/8 in. x 2 in. strip)....	136 lin. ft.....		
Main cornice—			
7/8 in. x 4 in. fascia.....	170 lin. ft.....		
1 in. cove.....	170 lin. ft.....		
5/8 in. x 4 in. M. & B. ceiling (to cover)	160 sq. ft.....		
Raking cornice—1 in. x 1 1/2 in. cove.	158 lin. ft.....		
Entrance porch—			
Seat, 3 ft. 1 in. long x 4 ft. high, with back, etc.	1.....		
Lattice panel, 1 ft. 6 in. x 7 ft. 10 in.	2.....		
Sleeping porch—			
5/8 in. x 4 in. M. & B. ceiling—to cover	102 sq. ft.....		
7/8 in. cove.....	42 lin. ft.....		
8 5/8 in. x 1 3/4 in. x 8 ft. plank sill.	1.....		
8 5/8 in. x 1 3/4 in. x 6 ft. plank sill.	2.....		
7/8 in. cove.....	20 lin. ft.....		
Flower boxes—			
(1 1/8 in. stock, zinc lining, etc.)			
12 in. x 12 in. x 7 ft. 6 in.....	1.....		
12 in. x 12 in. x 4 ft. 8 in.....	1.....		
Sawed wood brackets.....	6.....		
Lattice panel—4 ft. x 4 ft. 8 in.....	2.....		
Louvers—			
1 1/8 in. fixed slats, frames, outside trim, etc. Wire screen on back.			
8 in. wide x 1 ft. 6 in. high.....	2.....		
Windows—			
Frames complete with sash, outside trim, etc.			
Sash, 1 1/2 in. thick, glazed D. T...			
Cellar windows—Trim both sides.			
Single top hung casem. sash, 3 ft. x 2 ft.—4 light.....	5.....		



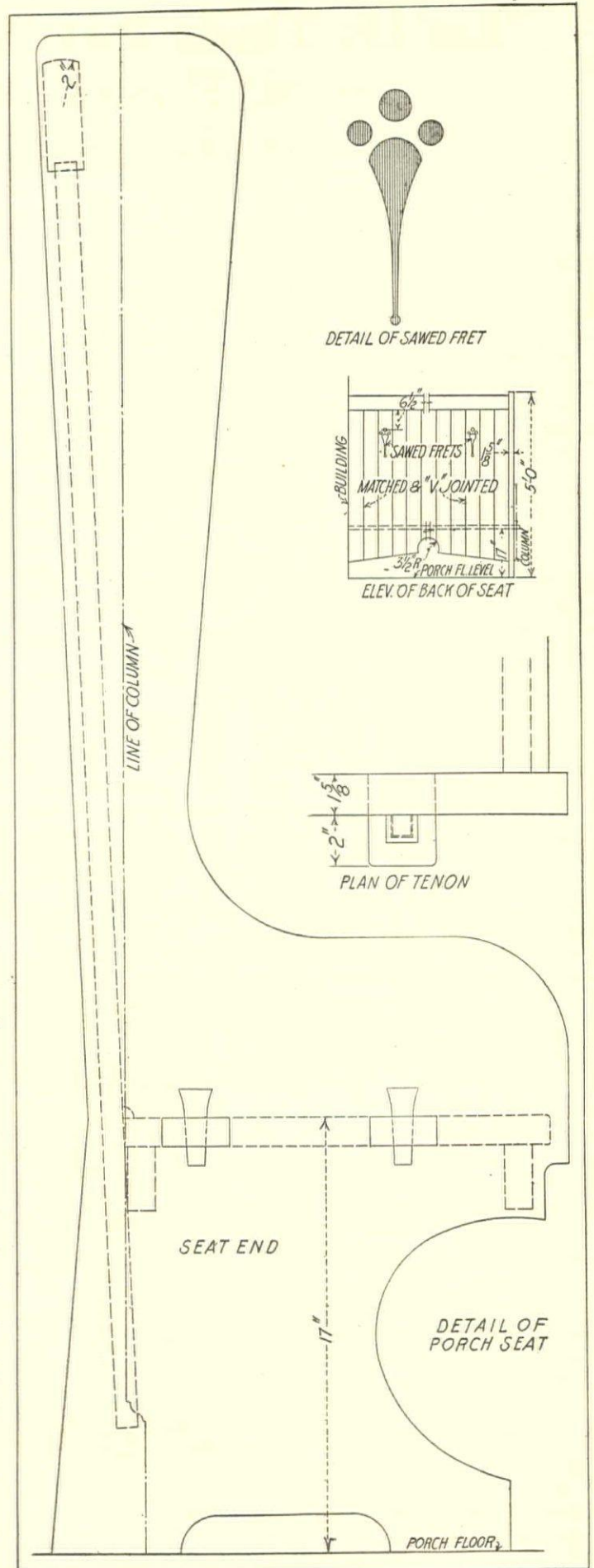


<b>First floor windows—</b>					
Single D. H. sash, 3 ft. 6 in. x 4 ft. 10 in.—20 light.....	1		2 ft. 10 in. x 4 ft. 9 in. pr.....	5 pr.....	
Mull. D. H. sash, ea. 2 ft. 10 in. x 4 ft. 10 in.—16 light.....	2		3 ft. 4 in. x 3 ft. 1 in. pr.....	1 pr.....	
Group of 4 D. H. sash, ea. 2 ft. 10 in. x 4 ft. 10 in.—16 light.....	1		<b>Exterior door frames—</b>		
Triplet D. H. sash, ea. 2 ft. 6 in. x 3 ft. 2 in.—12 light.....	1		1 3/4 in. thick, rabbeted, complete with outside trim.		
Single D. H. sash, 2 ft. 10 in. x 2 ft. 6 in.—16 light.....	2		Front ent. door, frame, 3 ft. x 7 ft..	1	
Mull. D. H. sash, ea. 2 ft. x 4 ft. 10 in.—12 light.....	1		Frame for doors to sleeping porch—	2	
Single D. H. sash, 1 ft. 8 in. x 4 ft. 10 in.—12 light.....	2		2 ft. 6 in. x 6 ft. 8 in.....		
Single D. H. sash, 3 ft. x 3 ft. 2 in.—16 light.....	2		Frame for rear ent. door, 2 ft. 8 in. x 7 ft. ....	1	
<b>Second floor windows—</b>			<b>Exterior doors (all to detail).</b>		
Single D. H. sash, 2 ft. 6 in. x 3 ft. 2 in.—12 light.....	1		Front ent. door, 3 ft. x 7 ft. x 1 3/4 in. glazed D. T. and paneled.....	1	
Single D. H. sash, 2 ft. 10 in. x 4 ft. 8 in.—16 light.....	5		Doors to sleeping porch, 2 ft. 6 in. x 6 ft. 8 in. x 1 3/4 in. glazed D. T..	2	
Mull. D. H. sash, ea. 1 ft. 8 in. x 3 ft.—12 light.....	1		Rear ent. door, 2 ft. 8 in. x 7 ft. x 1 3/4 in. glazed D. T. and paneled.	1	
<b>Attic windows—</b>			<b>Finished flooring—</b>		
Single casm. sash, 3 ft. 2 in. x 1 ft. 7 in., half circ.....	1		First and second stories, 7/8 in. x 2 1/4 comb. grain Y. P.—to cover.	1160 sq. ft.....	
<b>Shutters—</b>			Lining paper under floors.....	570 sq. ft.....	
1 1/8 in. thick, solid paneled.			Slat floor under laundry tubs, 3 ft. x 4 ft. ....	1	
3 ft. 6 in. x 4 ft. 11 in. pr.....	1 pr.....		Cement filled pipe cols. in cellar, 4 in. dia. x 7 ft. 6 in. long, with cap and base .....	6	
2 ft. 6 in. x 3 ft. 3 in. pr.....	1 pr.....		Joist hangers (1/4 in. x 2 in. W. I.)—		
3 ft. 0 in. x 3 ft. 3 in. pr.....	2 pr.....		For 2 in. x 10 in. beams.....	6	
<b>Blinds—</b>			For 4 in. x 10 in. beams.....	6	
1 1/8 in. thick, fixed louvres, etc.			<b>Interior Finish</b>		
2 ft. 6 in. x 3 ft. 3 in. pr.....	1 pr.....		<b>Door trim—</b>		
			7/8 in. jambs, 1/2 in. stops, 7/8 in. x 4 1/4 in. moulded and mitered trim. Trim both sides.		
			For doors, 2 ft. 6 in. x 6 ft. 10 in..	4 sets.....	



Interior Finish—Continued

Door trim—	
For doors, 2 ft. 4 in. x 6 ft. 10 in..	1 set.....
For doors, 2 ft. 6 in. x 6 ft. 8 in..	4 sets.....
For doors, 2 ft. 4 in. x 6 ft. 8 in..	4 sets.....
For doors, pr. ea., 2 ft. 4 in. x 6 ft. 10 in. ....	1 pr.....
Trim for inside of exterior doors—	
Front entrance, 3 ft. x 7 ft.....	1 set.....
Rear entrance, 2 ft. 8 in. x 7 ft....	1 set.....
Doors to sleeping porch, 2 ft. 6 in. x 6 ft. 8 in.....	2 sets.....
Trimmed openings finished same as for doors—	
Opg. 4 ft. x 6 ft. 10 in.....	2 sets.....
Arch openings—	
Opg. 2 ft. 4 in. x 7 ft.....	1 set.....
Window trim—	
7/8 in. x 4 1/4 in. moulded and mitered trim.	
1/2 in. stops, 1 1/8 in. moulded stool, 7/8 in. moulded apron, 5/8 in. x 7/8 in. cove under stool.	
For windows, single, 3 ft. 6 in. x 4 ft. 10 in.....	1 set.....
For windows, mull. ea., 2 ft. 10 in. x 4 ft. 10 in.....	2 sets.....
For windows, group of 4, ea., 2 ft. 10 in. x 4 ft. 10 in.....	1 set.....
For windows, triplet, ea., 2 ft. 6 in. x 3 ft. 2 in.....	1 set.....
For windows, single, 2 ft. 6 in. x 3 ft. 2 in. ....	1 set.....
For windows, single, 2 ft. 10 in. x 2 ft. 6 in.....	2 sets.....
For windows, mull., ea., 2 ft. x 4 ft. 10 in. ....	1 set.....
For windows, single, 1 ft. 8 in. x 4 ft. 10 in.....	2 sets.....
For windows, single, 3 ft. x 3 ft. 2 in.	2 sets.....
For windows, single, 2 ft. 10 in. by 4 ft. 8 in.....	5 sets.....
For windows, mull., ea., 1 ft. 8 in. x 3 ft.....	1 set.....
Base—	
7/8 in. x 6 1/2 in. moulded.....	390 lin. ft.....
7/8 in. x 4 in. plain (closets).....	60 lin. ft.....
2 in. base mould.....	390 lin. ft.....
1/2 in. quarter round floor moulding.	450 lin. ft.....
Picture moulding (7/8 in. x 2 1/4 in.)	360 lin. ft.....
Mantel for living room, with paneled breast	1 unit.....
Bookcase for living room, 3 ft. 8 in. x 4 ft. 6 in.....	2 units.....
Seat for dining room, 2 ft. x 9 ft., fixed top	1 unit.....
Interior doors—	
Two-cross panel, birch veneer.	
Door, 2 ft. 6 in. x 6 ft. 10 in. x 1 1/2 in. ....	4 .....
Door, 2 ft. 4 in. x 6 ft. 10 in. x 1 1/2 in. ....	1 .....
Door, 2 ft. 4 in. x 6 ft. 8 in. x 1 1/2 in. ....	4 .....
Door, 2 ft. 6 in. x 6 ft. 8 in. x 1 1/2 in. ....	4 .....
Glazed D. T.	
Pr., ea., 2 ft. 4 in. x 6 ft. 10 in.....	1 pr.....
Scuttle to attic—	
2 ft. 6 in. x 3 ft., with trim, etc.....	1 .....
Closet finish—	
Closet shelving (7/8 in. x 12 in. pine)	30 lin. ft.....
Hook strip (7/8 in. x 4 in.).....	46 lin. ft.....
Rabbeted shelf cleat.....	20 lin. ft.....
1 in. dia. pipe clothes rod.....	14 lin. ft.....
Pantry cupboard—	
Front, 7 ft. x 8 ft., counter-shelf, drawers, doors, etc.....	1 unit.....
Main stairs, first to second story, 14 risers, 3 ft. wide, box pattern, balustrade at second floor, etc.....	1 flight.....
Cellar stairs, 12 risers, 3 ft. wide, box pattern, wall handrail, etc.....	1 flight.....





# Let Us Think that We Build Forever, *or the Present Magnitude of the Building Industry*

By H. A. BRICE

**I**N a talk before the Birmingham, Ala., Kiwanis Club the author stated that few are aware of the magnitude of the great construction industry and what it represents. Reliable data recently compiled show it to be second only to that greatest of all industries, agriculture.

It has been called the key industry in that it unlocks practically all of our activities and resources. It reaches into the mines and forests and into a multitude of factories, and draws from them the raw material and finished products which are wrought into buildings and other construction enterprises.

Approximately 90 per cent. of all iron ore, copper, zinc ore and 95 per cent. of lead production are consumed by construction. About eleven million persons, either as workers or as members of workers families, derive their living from construction. The support given to agriculture and trade by the annual expenditure of this great number of persons is too apparent to require discussion.

The value of new capital issues during 1920, so far as data have been reported, reaches the high figure of four and one-half billion dollars, consisting of State, municipal, railroad and industrial securities; and of this total approximately 60 per cent. were issued for construction in some form or another.

While it is true that the builders who handle the final assembling of materials represent only a limited part of this industry, they may be likened to the keystone of the arch. On them depends the great responsibility for safeguarding the industry and the nation.

Looking into the future of construction we seem to be faced with a situation unparalleled in its history. Aside from the development

**W**HEN we build, let us think that we build forever. Let it not be for present delight nor for present use alone. Let it be such work as our descendants will thank us for; and let us think, as we lay stone on stone, that a time is to come when those stones will be held sacred because our hands have touched them, and that men will say, as they look upon the labor and wrought substance of them, "See! This our father did for us."—John Ruskin.

we might expect from the normal growth of this country and the great highway building program now under way throughout the country, we have an accumulated shortage resulting from that period of restricted building during the war when the industry was practically at a standstill. It has



The Memorial Arch at Valley Forge in Honor of the Patriots Whose Efforts and Sacrifices Made Possible Our United States. Let Us Be Grateful This Coming Thanksgiving Day That "They Did Build Forever"

been conservatively estimated that it would require approximately ten years to catch up this shortage.

For the period including from about the first of the year 1915 until the beginning of the present year, if one were to plot a curve representing the average change in construction costs, he would find that the line would rise gradually, though with periods of fluctuation, until about the middle of 1920, when it would reach a peak at approximately 250 per cent. above the level at which it began. From that date a more rapid descent takes place until the fall of 1921, when general business conditions began to improve. From that time up until the present, the line maintains practically a level.

In the face of the fact that at the present time many of the larger cities are announcing building programs for the coming months that are staggering to contemplate, it would seem hardly possible for one to expect further decline in construction costs within the near future.

The activities of our company are devoted mainly to building construction. We have our problems from day to day in common with every other business enterprise. But it has been our earnest effort at all times to give to every obligation, whether it be a contract for a store front, alteration involving a few hundred dollars or a monumental building costing hundreds of thousands, the last ounce of effort toward the single aim—a duty well performed.

There is one thing about the Kiwanis Club which has always impressed me very much; that is the slogan, "We Build." The spirit back of this slogan is the spirit which we endeavor to instill into our work in such a manner that we may be able to quote the words of John Ruskin.



## Colonial Architecture Lends Character to Modern Bank

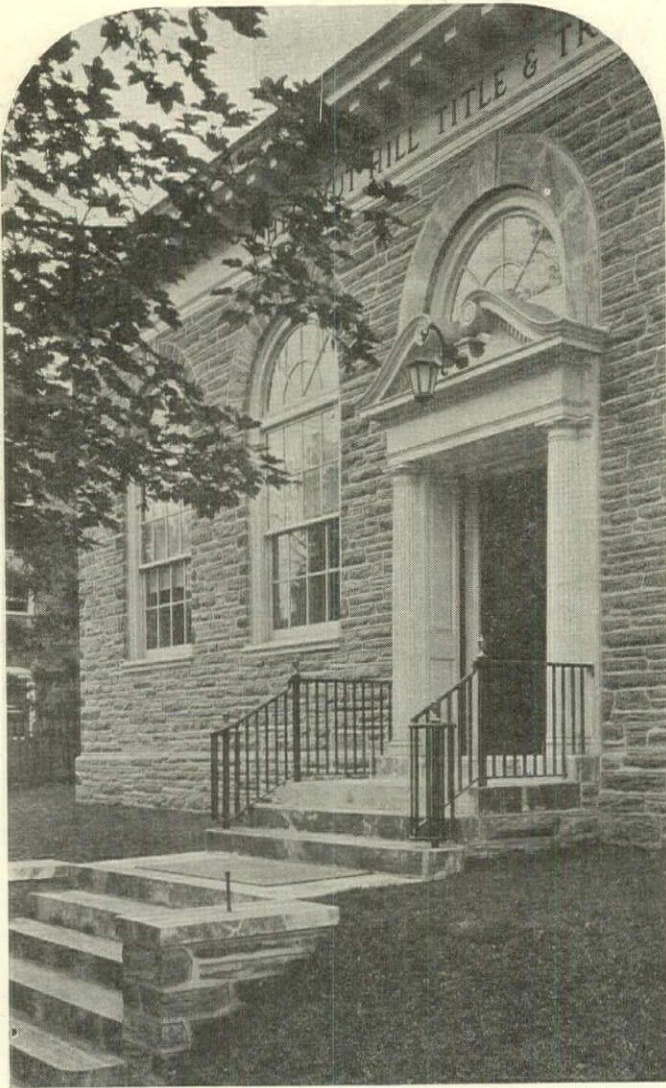
ARTHUR H. BROCKIE, Architect

**W**ELL designed bank buildings are in demand in even our small cities. A bank building in every detail must typify the strength, dignity and stability of the institution it houses. In a way, its quarters must be more or less in keeping with the surrounding traditions and customs.

Quite often the architecture adopted for the bank building follows the style for which the district is more or less famed. What could be more appropriate for a Pennsylvania bank than to follow out the lines of its old buildings known to us as the Dutch Colonial style?

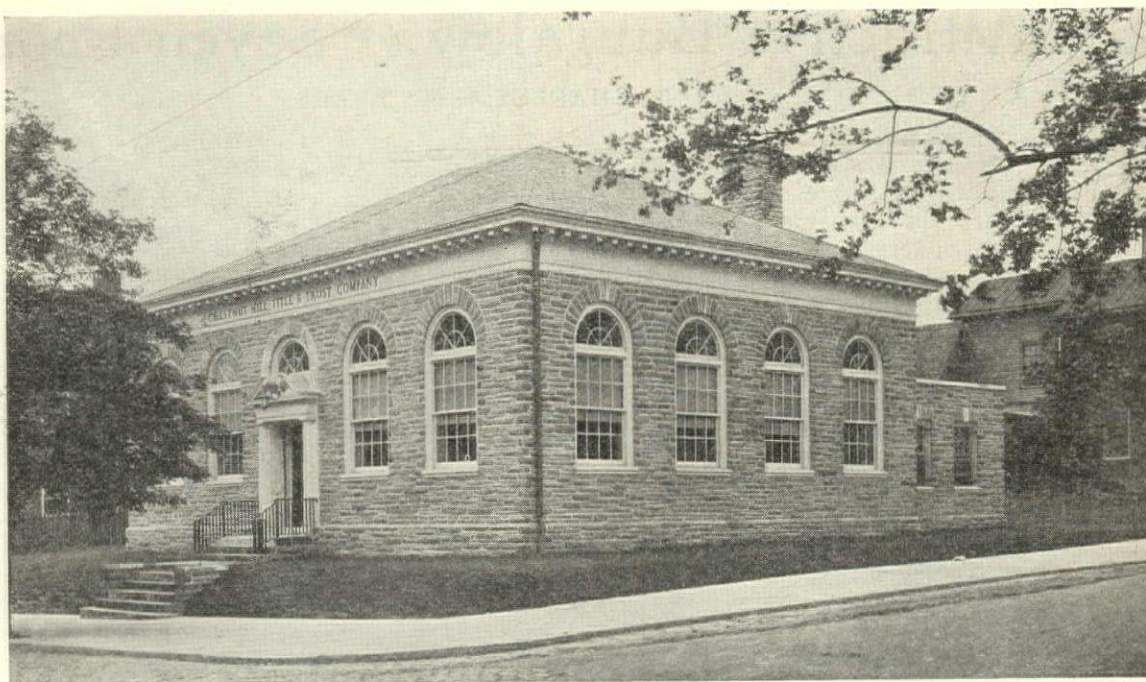
The interesting bank design shown here is that of the Chestnut Hill Title and Trust Company building in Philadelphia and in its construction stone was used from a nearby quarry. The architect has faithfully carried out the exterior details along the lines of some of the older buildings that have made Pennsylvania famous for its dignified architecture.

The interior planning of this bank deserves special mention. When one enters from the vestibule,





NOVEMBER  
1922  
Grey Stone and  
White Trim  
Produce a Very  
Pleasing Exterior.



Observe Large  
Detail of the  
Entrance on  
Opposite Page

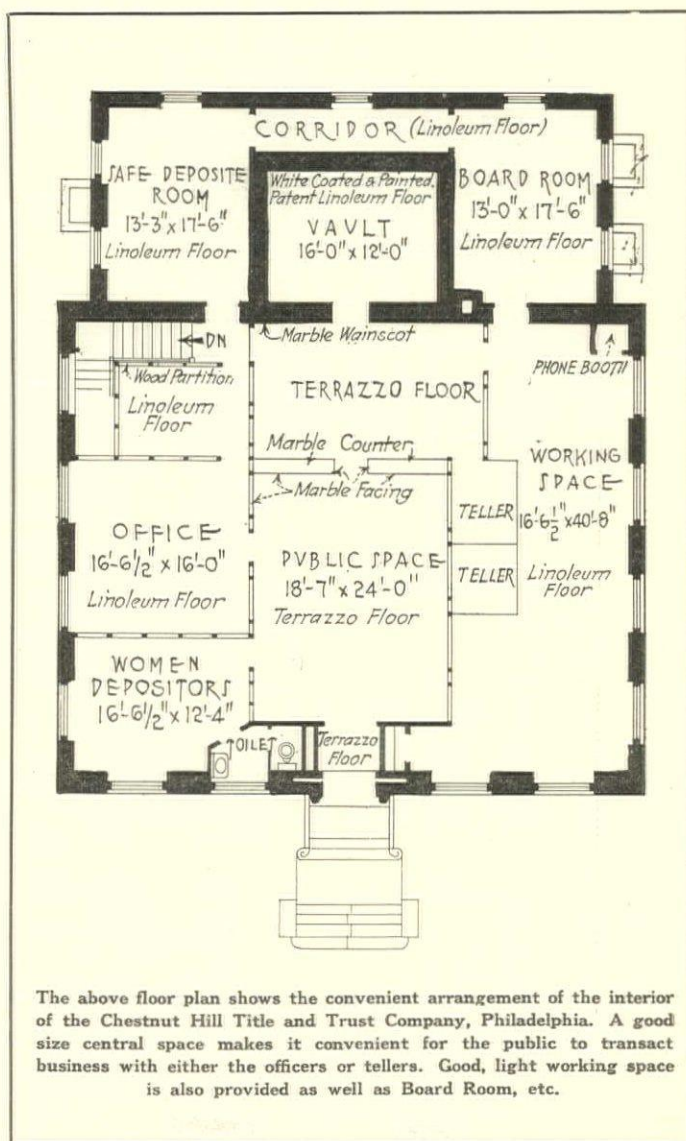
practically the entire bank interior is in view, disclosing a large open space, well lighted by windows on three sides. Directly opposite the front entrance is the entrance to the safe deposit vault. This is located in sort of an extension built in the rear of the main structure. The different office space is railed off into smaller compartments by marble counters.

The area devoted to use of paying and receiving teller, etc., has an additional bronze and glass screen on top of the marble counter. A special section has been railed off especially for women depositors and off this is a small toilet room.

All of the public space is floored with terrazzo laid on a concrete base. The balance of the concrete floors are covered with linoleum cemented down so that it is an integral part of the floor just the same as though it were wood. Here the bookkeepers, etc., are assured of plenty of daylight while at work. In the rear, on one side of the vault, is located a good sized room for board meetings and on the opposite side a room of the corresponding size is specially devoted to the use of the safe deposit customers.

The entrance itself is interesting in detail but very dignified and artistic. A hanging lantern overhead illuminates the steps at night. A well designed cornice with brackets supporting the overhang surrounds the main portion of the building. The roof on the main portion of the structure is of slate and the flat surface over the vault extension is of tin.

This building was erected from plans prepared by Mr. Arthur H. Brockie, architect, of Philadelphia, and was erected by J. C. Cornell & Son, building contractors of Philadelphia. The different views that we show of this building were taken by Mr. Philip B. Wallace, photographer, of Philadelphia.



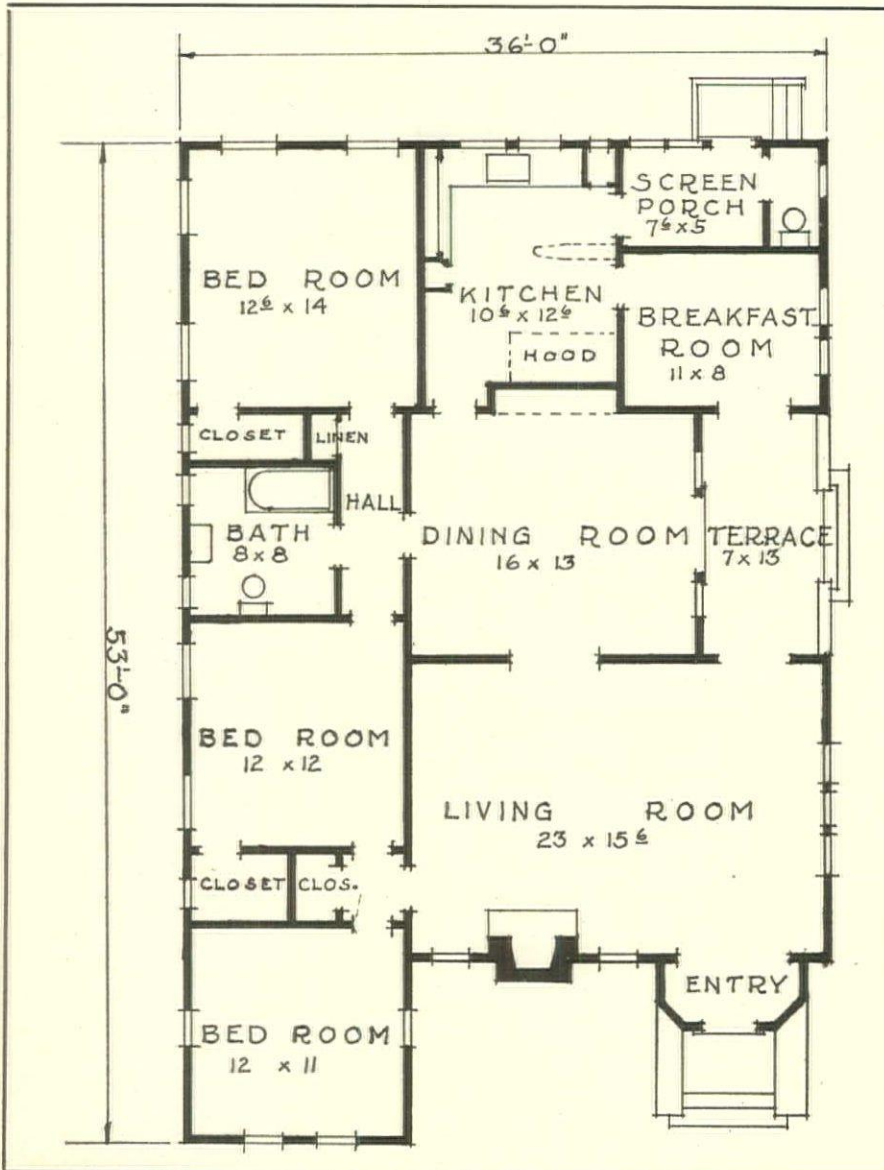
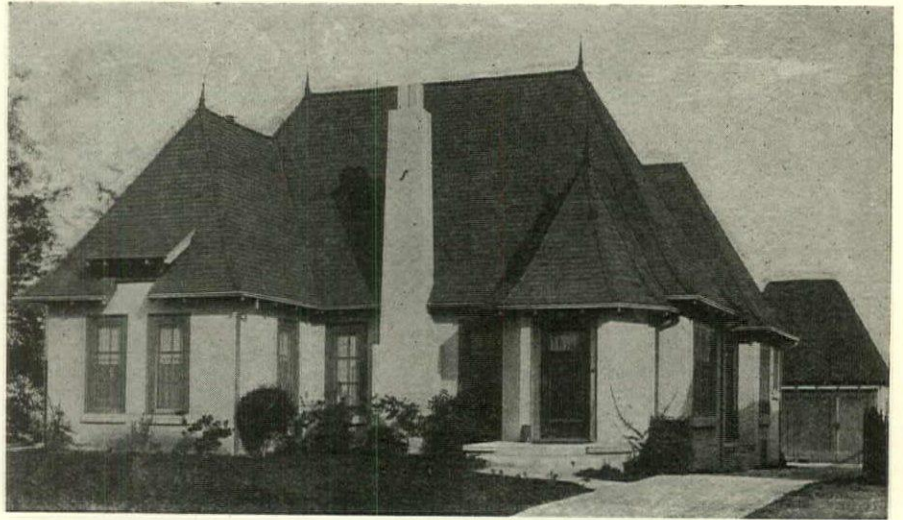


# Attractive Bungalow of Seven Rooms

By CHARLES ALMA BYERS

THE steeped-roofed little house illustrated here commends itself to the interest of prospective builders in a number of ways. In the first place, it is uncommonly attractive in outward appearance, and it is, moreover, of a style architecturally to be practical for any climate.

Having seven rooms, it is a much roomier house than its dimensions of thirty-six by fifty-three feet lead one to expect, which means that the floor space is handled most economically. The interior is further arranged very conveniently, and there are many excellent closets and built-in fea-



tures to win the especial delight of the housewife.

The steep roof with its ornamented peaks, the chimney prominently situated on the front, the octagon-like entrance extension and various other well-handled details, together with a very effective color scheme, all combine to make the street view of the little house particularly attractive.

In studying the accompanying floor plan, it should be especially noticed that but very little space is required for providing hallway connections, and yet all parts of the house are conveniently accessible. A possible change or two in the use of rooms also deserves to be brought to attention. The front bedroom, for instance, might be utilized as a den, and the little breakfast room would make either a very delightful sewing room or a play room for children.

The house has neither basement nor furnace. However, had either been desired, a stairway might have been substituted for the little toilet room on the rear-entry porch.

The heat is furnished by several built-in gas radiators, and every modern convenience is provided. The house is located in Los Angeles, California, and was designed by E. B. Rust, architect, of that city.



# Reducing the Cost of Building by Year Round Construction

**W**INTER work in the various departments of the building industry keeps the mechanics busy the year round and reduces the contractors overhead as it enables it to be distributed over more jobs.

A rather interesting work was recently undertaken by the New York Building Congress tending to initiate a program to reduce the cost of building by adding more seasons to the industry, thereby eliminating both the rush periods when bonuses are frequently paid and the periods of unemployment. A survey has just been completed analyzing the building situation. The findings are such that it is believed with the co-operation of all the elements contributing to the building industry a workable program can be put in operation that will be a material benefit to every phase of society from the laborer to the investor.

The congress conducted its investigation over a period of four months and the findings cover twenty-nine distinct occupations as affected by the average employment variation of upward of 150,000 workmen annually during the past ten years.

Recognizing that the basic factors in the seasonal demand are winter and weather conditions, opportunity for investment, general business tendencies and emergency needs, attention is being focused on new construction subject to control.

In summarizing its investigation the congress finds that custom is really the biggest influence in causing the peak loads on the demand for labor, especially during the renting seasons. Careful business foresight is what is needed more than anything else to effect lower costs, with less waste, higher quality of workmanship and greater production, according to the reports.

It is pointed out that investment and speculative construction on

new buildings classifies itself in general into three main divisions: Apartment houses, commercial buildings and loft buildings. The periods for renting these types of construction are based largely on custom and tradition, and have an important bearing on labor demand. Large apartments are commenced so as to allow twelve or fourteen months for completion, the finished buildings to be ready for occupancy by October 1, which custom has decreed is the moving season for residents of New York City.

**T**HE general recommendation is for the Owner, Investor, or Representative to place Building Trades work to include the heretofore dull periods of employment.

This will reduce non-productive expense and waste, and increase production, as a result of having skilled help available instead of relying on incompetent workmen.

It will eliminate excessive labor expense, lower the cost of materials, and decrease the contractor's margin of profits as he prefers to keep his organization in employment as steadily as possible.

The advantages are many and the benefits go to the community generally, being incidental in their value to labor, employer, and owner.

Commercial buildings usually call for commencing work on May 1 and completion on or before the following May. Loft buildings are often built in six, eight or nine months, and have a strong demand for occupancy on February 1.

Thus one of the vital factors in the new construction is the established rental period. It is also important to remember that the volume of building in the three types of new construction above mentioned varies from year to

year, due to the opportunity for investment and the supply and demand, so that one year of large development in any one division may be followed by a decline in volume the next, and vice versa.

**T**HE new construction most subject to control aside from construction for investment and speculative purposes is the large amount of building done for the Government, State and city. This can be open to regulation by the governing boards in control of their development. Religious and educational structures are also a factor and new buildings and additions that are erected for the owners' prearranged occupancy without regard for investment or speculative returns are important.

In prefacing a detailed statement of recommendations for adding more seasons to the building trade, the New York Building Congress Bulletin states:

"While the congress feels fully aware of the fact that an entire cure for seasonal employment is impossible on account of weather conditions, opportunity for investment, emergency and the will of the owner and speculator, still the opinion is general that much can be done to adjust elements that affect peak demands and as a result decrease much of the unnecessary cost and loss to which the building industry is now subjected.

"With this understanding the following recommendations are made in hope that they will be suggesting to owners, investors, real estate brokers, architects, engineers, material manufacturers, contractors, labor and others who may be interested in reducing costs and eliminating unemployment periods:

"1. Establish a wider range of rental period dates.

"2. Regulate Government, State city, religious and educational building construction so that it will come during the low period of employment wherever possible.



"3. Regulate the construction of new buildings and additions that are erected for owners' pre-arranged occupancy without regard for investment returns so that it will come during the low period of employment.

"4. Encourage beginning work on new construction March 1 instead of the customary date of May 1, thereby bringing its labor demand two months ahead of the demand peak, with a greater supply available.

"5. Plan maintenance and repair work so that it will come during the season for which there is a low demand for the labor involved, subject to emergency conditions that must be considered.

"6. Whatever possible, adapt the demand for 'inside' and 'outside' work to labor available."

The committee framing the above resolutions, which have been unanimously adopted by the New York Building Congress, includes Charles E. Mack, of Mack, Jenny & Tyler; Walter Roberts, chairman, William Bradley & Son; Fitz-Henry Faye Tucker, of Renwick, Aspinwall & Tucker; Roswell D. Tompkins, New York Building Trades Council; H. H. Watters, Otis Elevator Company, and Frank L. Glynn, managing director, Apprenticeship Commission of the New York Building Congress, Grand Central Terminal, New York.

utilities service, transportation of materials and drayage of equipment. Not a single item would be visible to a visitor to the building site, and yet they may constitute 10 per cent. to 15 per cent. of the cost. Then there is bank interest, because the owner does not advance money for payrolls and material bills. There is also ice and coal, oil, stationery, carfare, postage, rope, perishable tools, scaffolding, demurrage, war taxes and other miscellaneous items which are consumed.

On a job of any size at all, the contractor must provide labor-saving equipment, such as concrete mixers, steam shovels, derricks, hoisting machines, power saws and similar machinery. While they are truly labor-saving and produce economy, they cost about 4 per cent. of their value each month. Then, there is the greatest of intangibles, brains, which, mingled with experience, knowledge, good judgment, aptitude and industry, produce that supervision which makes for good results. Brains insure satisfactory service. This is represented in the contractor's organization in many ways. The ablest superintendent, for instance, makes the fewest mistakes, has initiative, plans his work ahead, keeps his men working cheerfully together and gets a quality job done ahead of time within the estimated cost. Such men earn good wages and are worth it. Every merchant and manufacturer knows how scarce leaders are.

Then appear such contingency items as frost, rain, labor strikes, railroad delays and accidents, many of which are common to most industries, but all of which frequently confront the contractor. The law of averages applies the proper charge on such items to the work. Finally, to the actual outlay for materials and labor must be added a remuneration for the contractor sufficient to induce him to remain in business, subject to hardships and risks, and yet keep his financial credit good enough to start the next job.

Do you still think men and materials embrace all building costs?

(Paper prepared for the Associated General Contractors of America.)

## What *Are* Building Costs?

### The Contractor as a Manufacturer

By A. P. GREENSFELDER

Fruin-Colnon Contracting Co., St. Louis, Mo.

PEOPLE frequently discuss building costs as if bricks and bricklayers, materials and labor were the only items worthy of consideration. Broadly speaking, men and materials do comprise the total expense in construction work, just as they do in any other article produced for civilized man.

What we wish to emphasize, however, is that most people really think that the walls and floors of a building, the visible completed objects, are the only costs that enter into the expense of erection. They think differently, however, when they find it necessary to buy a stick of wood at the lumber-yard or a pair of hinges at a hardware store, which may be needed for an extra partition after they have moved into the new building.

From their own books business men know just the sort of expense items they must add to the cost for fixed charges, operating expense and legitimate profits. They understand that their selling prices must include rent, taxes and insurance, contingency charges, interest and profits.

The builder is a merchant. He is also a manufacturer, differing

from the usual producer in that the builder's factory is portable and frequently without a roof, at least until nearly the end of the job. The builder has a fixed office, a warehouse and yards for storage of machinery and materials. The annual upkeep of these adjuncts must be sustained by field construction executed during the year.

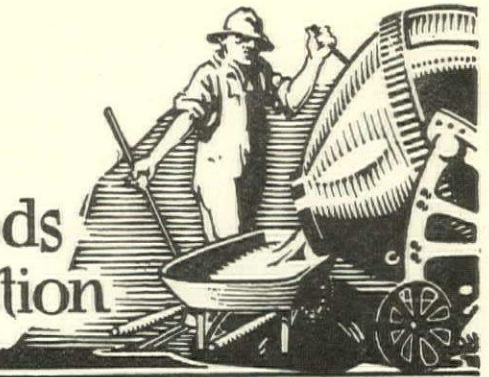
The builder also has selling expense. He must advertise and call upon architects, engineers and owners before he secures a customer. He must pay his estimator to make a quantity survey of the plans, because the owner does not tell him what he tells everybody else he buys from—the quantity of materials he wants to purchase. The builder's purchasing agent then locates the materials at market prices; and, after careful estimates are made, conferences held and a financier consulted, a contract is made with a future owner and the builder assumes the title and agency of a contract.

As agent, the contractor arranges to incur the following expenses: surety bonds, liability, fire and tornado insurance, building permits, water license, city inspection fee, temporary public



# CONCRETE

## Form Work-Reinforcing Methods Monolithic and Block Construction



### Methods of Placing Concrete in Cold Weather

By A. J. R. CURTIS

**N**ONE of the radical departures in building operations during the last few years carries greater economic possibilities than that of carrying on these operations continuously or nearly continuously throughout the year. Frequently, closing down for the winter means the loss of valuable time in the fall as well, because of the fear that work

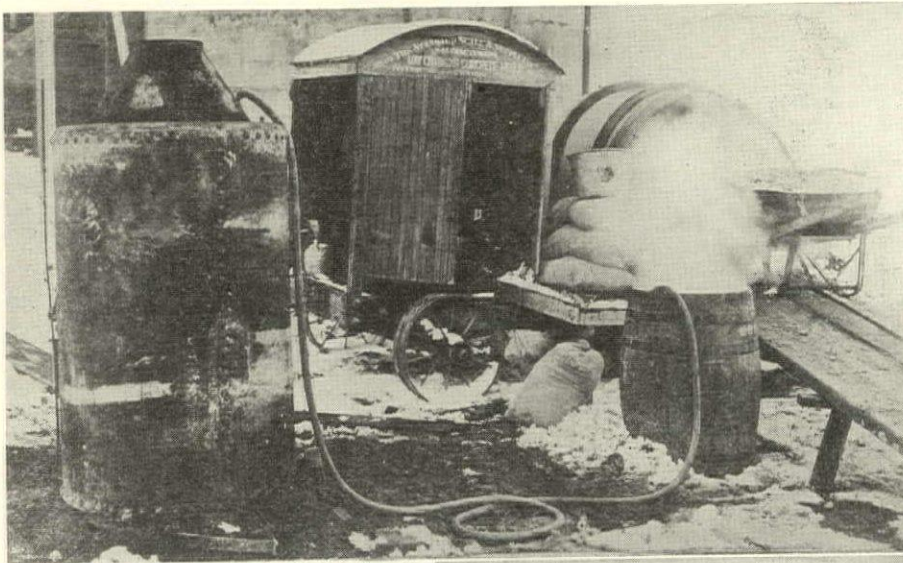
rebuild almost an entire trained organization—frequently including technical and superintending forces and fifteen or more different trades—every spring.

Winter construction costs are usually somewhat higher, but nearly always worth more than they cost to the owner, because his income or benefits from the struc-

ture start months sooner and to the contractor because he can complete the work, take out his payments and look ahead to the next job. The construction season is thus profitably lengthened for both owner and contractor.

About the only important obstacle to winter construction has been the lack of an understanding and application of the relatively simple precautions necessary to successful winter concrete work. Much winter concreting has been done successfully during the past ten years and some of the largest and finest construction work of the war period was completed with the thermometer around the zero point.

A concreting outfit ready for business, with the thermometer at eight degrees below zero. The steam boiler at the right furnishes power for the mixer, steam for heating the aggregates and boiling-hot mixing water



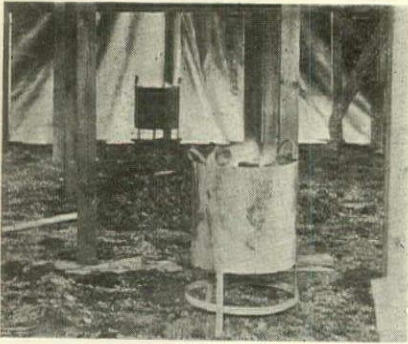
An old boiler supplies steam to heat mixing water and aggregates and warms up surfaces of the forms

started in moderate weather may continue after cold weather sets in.

Most building materials are easier to procure in the winter and sometimes at lower cost. Labor is usually more plentiful and labor turnover is less. Winter interruption to his business often means that the contractor has to







Salamanders furnishing heat within building shown below, which is protected with canvas covering

The contractor who carefully plans ahead can often complete all concrete portions of a job before severe cold weather sets in so that the remainder of the work may proceed regardless of outside temperature conditions. Concrete work started in October and November is usually subject to considerable economies, for concreting crews work most efficiently during moderate or cool weather.

#### Planning for Winter Concreting

The contractor who expects to undertake building work likely to involve placing of concrete in freezing weather will do well to arrange as early as possible for necessary supplies of sand, gravel and stone. Rail priorities given to facilitate the movement of coal have already made it difficult to obtain cars for the movement of concrete materials and this situation can hardly be expected to improve until coal requirements have been taken care of.

Gravel pits cannot operate in the winter and they are usually compelled to close down with the first hard freeze. Materials wet in transit and frozen in the car are difficult and expensive to thaw out and unload. These facts are stated to emphasize the importance of arranging early and carefully following up deliveries of concreting materials.

upon to react with cement, has changed to ice and, as is well known, cement and ice do not react nor does concrete harden while frozen; but the formation of ice is accompanied by expansion which may spall or disfigure the surface of the work or interfere considerably with the strength.

For a period during the fall, the temperature at night may go down



Hand mixing outfit within canvas enclosure using live steam for heating the water. A salamander heats the enclosure

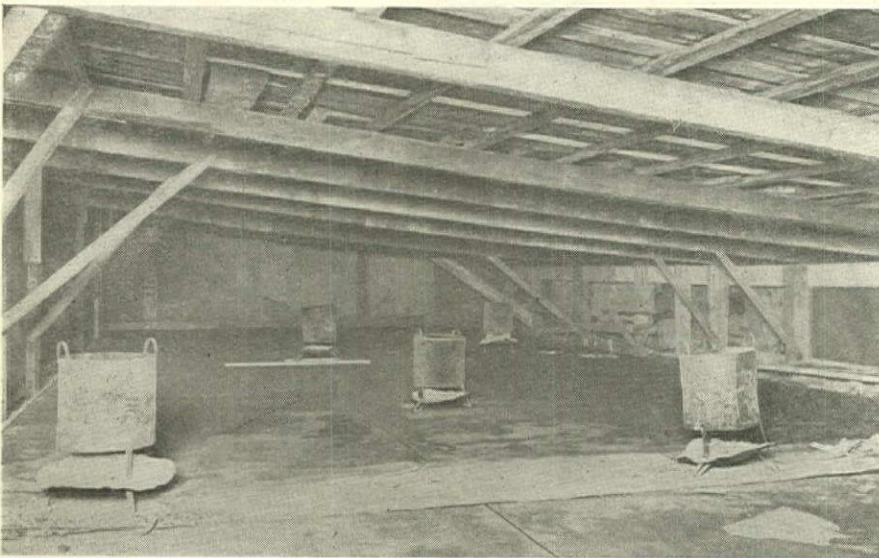
Principal preparations for cold weather concreting consist of providing or conserving heat in the presence of sufficient moisture so that the concrete can harden uniformly and with reasonable rapidity. If concrete freezes, the hardening action stops, for the water, which must be depended

to freezing, although quite moderate or even warm during the day. It is usually possible under these and similar weather conditions to take care of concrete work satisfactorily by covering the work carefully in order to trap the heat present, when the concrete was placed, keeping out cold winds, rain and sleet. Even where the temperature does not go below freezing, covering the work is beneficial in hastening the hardening.

#### Protective Coverings

The nature and duration of this protection depends upon the character of the work to be protected and prevailing temperature conditions. Every covering should be tight, to resist and keep out wind and water. Beware of holes, tears or openings of any kind and be particularly careful to amply protect exposed protruding portions of the work.

Contractors generally prefer tarpaulins as the most adaptable covering for concrete work of various kinds, large and small. Tarpaulins may also be effectively



Salamanders (coke stoves) arranged to heat a low wooden and canvas enclosure over a newly-placed sidewalk on a city street



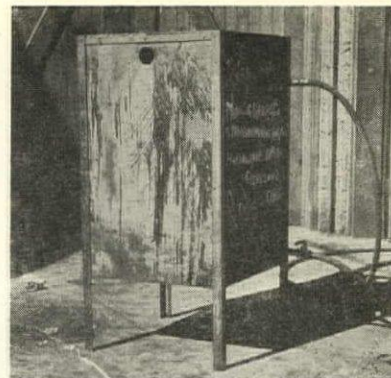
used to cover exposed piles of aggregates. Wooden housing makes the most substantial covering for whole buildings, floors of buildings, small and moderate size bridges and similar work, and where the expense can be justified or compensated by re-use of the lumber, it is commonly preferred.

Straw or manure is commonly used around low forms and for

which is adaptable wherever live steam is available;

(2) By running the water through a coil of pipe supported over a fire, perhaps the easiest arrangement where there is running water but no live steam, and

(3) By the use of kettles or tanks supported over a fire—suitable where neither live steam or running water can be obtained.



Several modern heating devices have been made available recently. This heater, in addition to its function as a salamander for keeping the enclosure warm where desired, contains a coil of pipe by means of which the water may be heated to a desired temperature

#### Heating Aggregates

As the weather grows colder it is even more desirable to get the concrete into the forms at high temperature and heating of the aggregates—sand and pebbles or stone—is usually the next of the progressive methods employed. Contractors are in a habit of heating these materials to from 100 degrees to 150 degrees, striving to



Sections of a discarded smoke stack in use on the Chicago Union Station job for heating aggregates

foundations and low walls. Manure must not touch freshly placed concrete. Building paper, where it can be properly supported, is an efficient protection against cold winds and is used over walks and floors, frequently carrying a covering of straw or manure.

#### Heating the Mixing Water

When it becomes necessary to impart heat to the concrete in order to have it come through the first 48 hours at a temperature of 50 degrees or more which is recommended, heating of the mixing water is usually resorted to as the cheapest and easiest method. An effort is often made to deposit the concrete at a temperature of 80 or 90 degrees. To do this the water may be used at the boiling point. It may be well to observe that since it is only the water in concrete that freezes, a reduction of the mixing water somewhat from the quantities ordinarily used will be found beneficial.

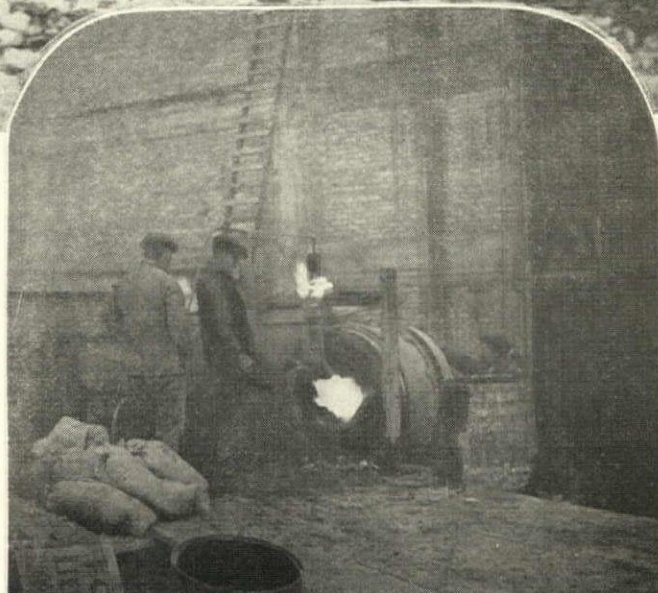
The three most common methods of heating mixing water for concrete are as follows:

(1) By exhausting live steam in the water tank or barrel, a method

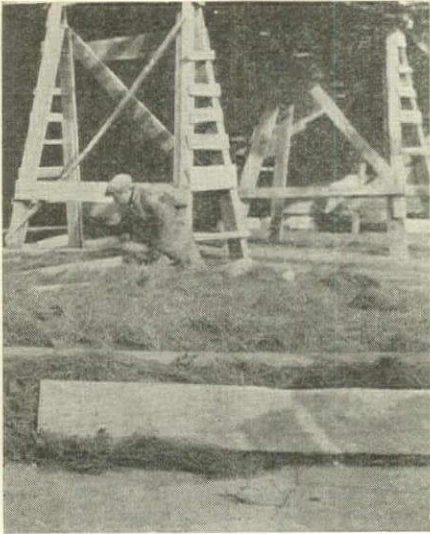


"Pipe heaters" in use showing the desirable method of keeping sand and pebbles in distinct piles. The materials should be turned frequently so that they will be heated uniformly

A new and practical apparatus is the kerosene heater, which keeps the mixer drum and its contents warm



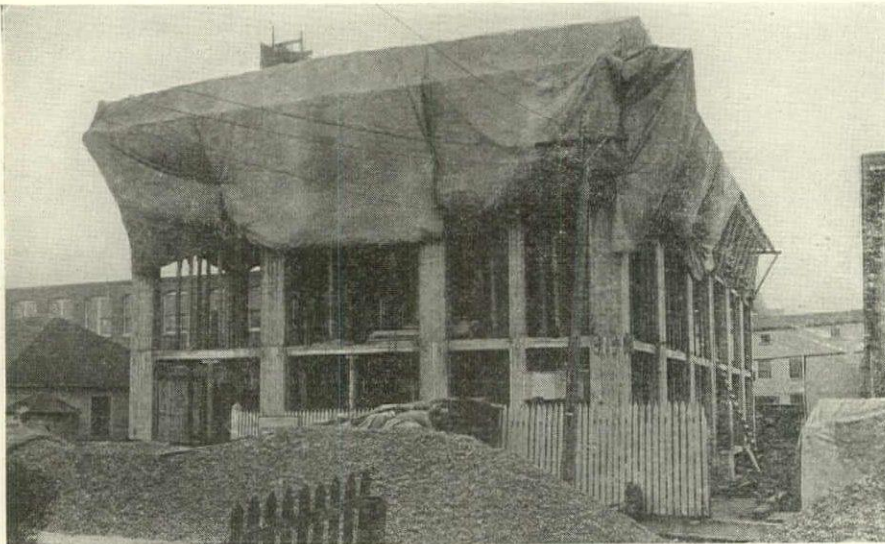




Walks and floors and other low work are frequently protected by covering with heavy paper covered with straw. Heavy planks are used to weight the covering

is not used as frequently as formerly, experience appearing to show that where steam is available it is more efficient and convenient to supply the heat through a grid of steam pipes, laid upon the floor where the aggregates are piled. In this case the pipes do not exhaust the steam into the pile, but simply supply heat in the same manner as an ordinary steam coil. Tarpaulins are frequently used to cover the pile and retain the heat.

Cement forms a relatively small portion of the bulk of a concrete mixture and, therefore, need not be heated. It should be stored where well protected from moisture and extreme cold. Never depend upon the heat generated by the action between cement and water. It is inconsiderable.



Large tarpaulins are very commonly used to cover the forms as soon as concrete has been deposited, or frequently to enclose entire floors or sections of buildings

deposit the concrete at 90 degrees or as near thereto as possible.

Fireboxes, made of sections of discarded smokestack, iron pipe or boilers, serve as efficient heaters, the materials being banked around them and turned occasionally to insure reasonable uniformity of heating. Some concrete contractors prefer to construct their heaters of steel plates laid on concrete blocks or similar supports, the materials being heaped on the flat plates from which it is easier to remove them.

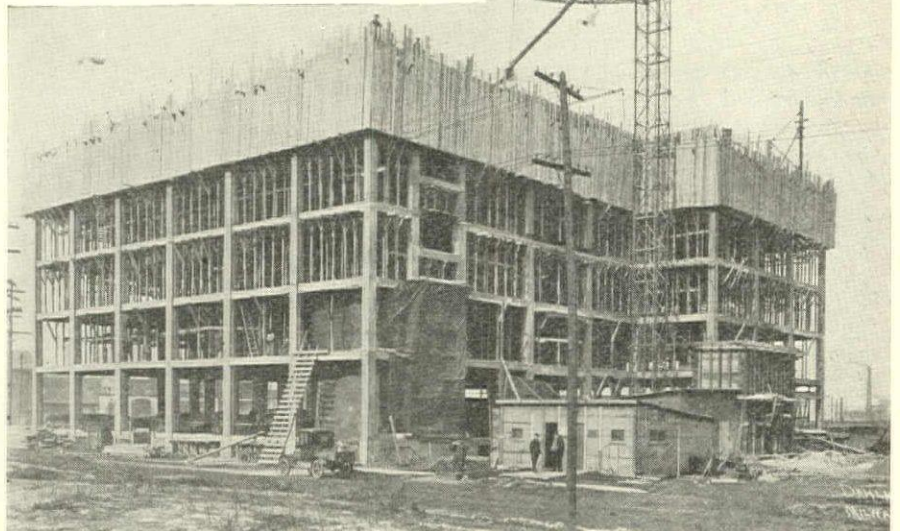
Steam jets are occasionally used being long perforated pipes which are thrust into the piles and used as a means of exhausting steam into the materials. This apparatus

#### Some Other Suggestions

In extremely cold weather heat is frequently supplied at the mixer. This has been done by exhausting steam in the mixer drum and providing the latter with "flaps" if necessary to retain the heat. Recently very efficient kerosene torches have been introduced for the same purpose. Location of the mixer and other details should be arranged so that concrete will be carried in the quickest possible time to the forms, and with the least exposure.

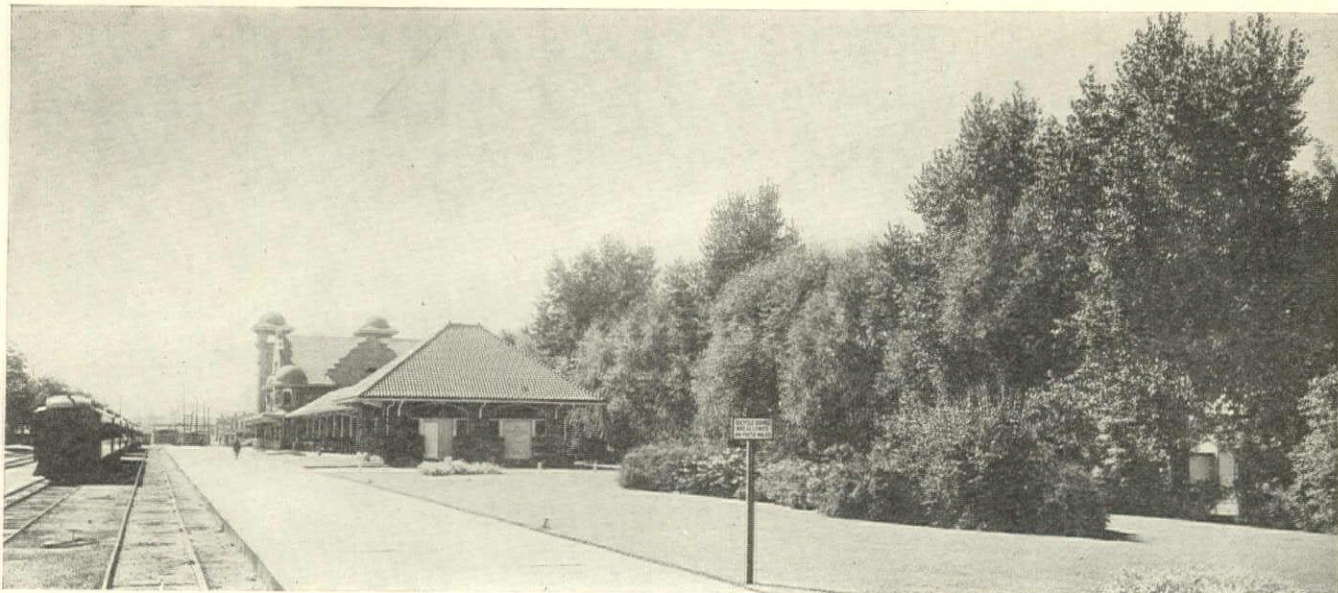
Immediately before filling each small portion of the form, the ice is removed if any be present. A steam hose is a great help in melting ice and warming form surfaces. In the absence of steam an ordinary blow torch may be used to heat the surface of steel forms.

Salamanders (coke stoves) and steam coils are the more commonly used pieces of apparatus for heating enclosures. A recently invented salamander having a water pan to provide moisture as well as heat in the enclosure is considered particularly efficient. Oil stoves and large lamps are quite frequently used on smaller work in rural districts where they are more easily accessible.



Wooden housing is frequently found economical on such large jobs as this and, in a few cases, entire buildings have been enclosed with wood. The material so used is employed several times, so that each use represents only limited investment in lumber





## Railroad Sets Example in Beautifying Homes

**T**WO ideas have animated the Grand Trunk Railway in beautifying the stations along its right of way in Canada and the United States. One is to make the station an ornament to the town in which it is located. The other is to furnish an example in landscape gardening and attractive building to rural owners of homes.

By carrying out these ideas, the railway has become recognized as a civic benefactor. For several years the road has had a few show stations in the larger towns. Here its stations were built with striking architectural effects and surrounded by patches of fairyland gorgeous with flowers, shrubbery and fountains. But in the last year the road has adopted a comprehensive plan for the beautifying of all its stations—a plan that makes the small towns and the cities alike sharers in beauty.

Distinct progress has been made in carrying out this plan. Waste land and cinder beds on which the stations stand have been transformed into green lawns and flower beds.

The amount of ground available around the stations was, as a rule, not extensive and nothing of an elaborate nature was attempted, the main object being to have some simple arrangement of lawn, shrubs and annual flowers in

By **GEORGE A. BARCLAY**

keeping with the general surroundings. In order to obtain results with the minimum of expense, the general land contour was not changed.

Considerable care was given to the collection of the shrubs and flowers as they were required to grow under conditions not conducive to the best of plant health. The work has been carried out entirely by the track forces and station staffs of the railway, and the fact that a large portion of the upkeep has been done by the men on their own time shows how they have supported the plan.

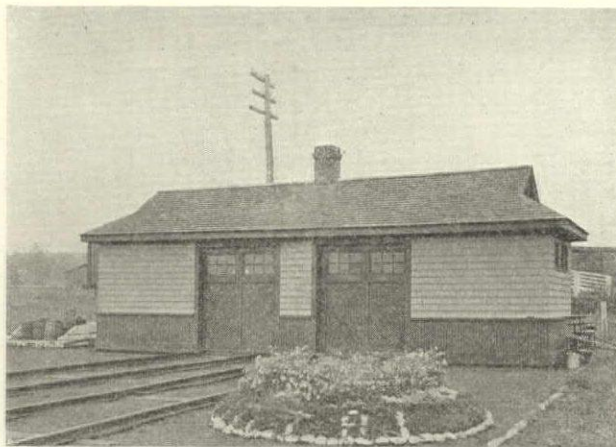
The men in charge of the various stations were supplied with the plants, and in the majority of cases they did

their own arranging. The ultimate results of their work, as seen from the passing trains, were in every way satisfactory, and reflected great credit on the men, who, previous to the company's taking up the subject, had done little or no horticultural work. As there has been a marked awakening of interest in the improving of home surroundings, the work accomplished by the Grand Trunk employees in beautifying the railway premises will serve as an inspiration to the citizens of many towns in what can be done in a simple and inexpensive way in improving their own home grounds.

Besides neat and artistic grouping of shrubbery one can use lattice screens, pergolas, fences of wood, stone, brick or concrete, with neatly designed gates. All help to make the "home beautiful."

Usually the chicken house, woodshed, dog house, garage, etc., are eyesores. A few dollars spent for architectural advice will be well invited to obtain an artistic result.

Wash poles are usually no ornament to a lawn or landscape scheme, yet they can be made so—one pole can have a piece of lattice work with vine; another a bird house on top; another a part of a pergola, etc. It only costs a small amount to do these things, and they surely pay.



Even a Tool Shanty Can Be Attractive by Giving a Little Thought to the Design



# Making Convenient New Homes from Old

A Woman's Idea of a Properly Electrically Equipped Home  
A Profitable Line of Winter Work for Builders

By LILLIAN CASSELS

of the Society for Electrical Development

**W**INTER gives builders an opportune time of putting old houses through a process of revamping, and promises large returns in both profit to builder and pleasure to owners, and no one thing has such a bearing to comfort as a proper electrical equipment.

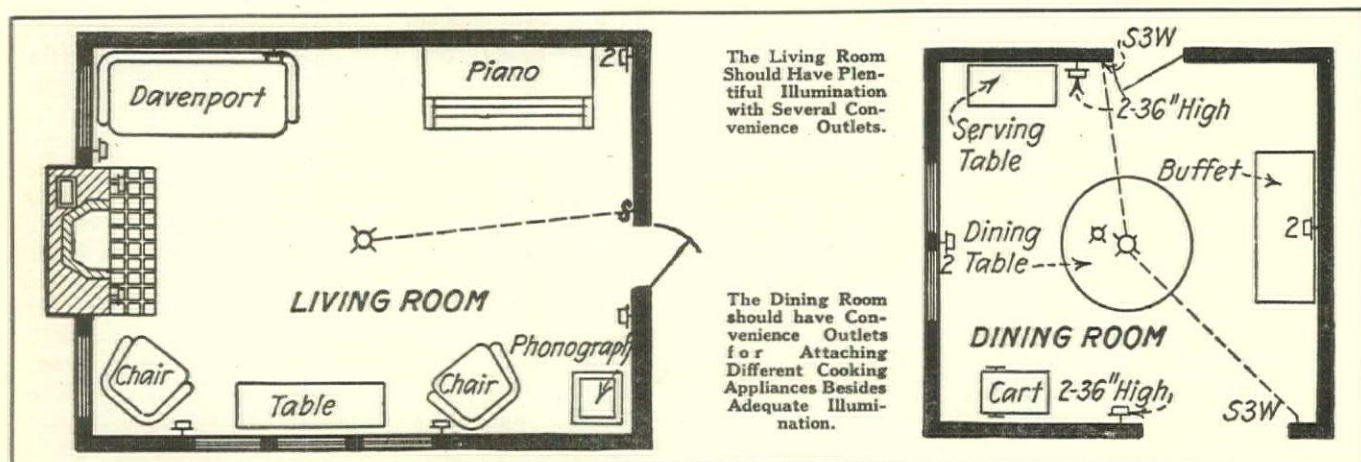
The profit accrues in transforming squalid buildings, melancholy and untenable in their present shabbiness, into property whose selling or renting values increase tremendously by reason of the small investment.

This has been done in many places. But not by any means to its fullest possibilities. Scarcely a city in the country does not contain street after street filled with houses which while sound at heart have been permitted to shed paint and paper and to grow generally disreputable for want of repairs.

The vagaries of a growing city have in most instances made these neighborhoods unfashionable—and they have been turned over to that sad poverty-bitten element of society

demand for decent habitations should make a strong appeal to builders possessing public spirit.

In this process of making new homes from old ones New York City has long ago shown the way. Thousands of old "brownstone fronts," each soaked with traditions and memories, are being made over yearly into clean, trim, comfortable apartments of one, two, or three rooms with baths and kitchenettes. As fast as carpenters and painters and electricians can function, parquet floors



The pleasure comes in achieving large results in possible comfort and happiness for many families through minimum expenditures of money and labor. Especially in cities is this true, where concentrated humanity makes housing one of the biggest problems of progress.

Reclaiming the desert, making it bloom and blossom as the rose, turning sterility into fruitful loveliness, is one of the proud accomplishments of the twentieth century.

Reclaiming those shabby down-at-heels sections that seem to be an integral part of every city, making them over into clean, shining avenues of homes, with faces newly washed and pinafores and underthings freshly starched, would seem to be an accomplishment equally valuable to humanity.

known as The Poor, who live in some sort of hand-to-mouth fashion in the crumbling homes which once sheltered substantial citizens.

The Poor we may have always with us—but it is decidedly questionable whether these would not be more self-respecting, consequently more ambitious, and less of a reproach to society, if there were no opportunities offered them to congregate in houses whose condition emphasizes their own misery.

## Is a Civic Improvement

It is undeniable that the making over of old houses into clean, comfortable dwellings is a possible and a promising public improvement. Building is still far in arrears of demands the country over. Consequently the revamping of old houses so as to meet a part of the constant

where once belles and beaux stepped daintily to the strains of the Blue Danube Waltz are finding their still substantial surfaces broken and divided by partitions which may cut a ballroom of noble proportions into a cozy suite—living room, bedroom, and vestibule. Closets where once hung lacy petticoats and sealskin sacques have become tiny tiled baths; butlers' pantries, their shelves and sinks perhaps still intact, are convenient little kitchenettes.

While other cities may not be so crowded as to necessitate making one old home into six or eight apartments, as is being done in New York's cross streets from Washington Square northward to Central Park, yet it is true that the fashion of the day is for smaller dwellings than those which flourished when the substan-



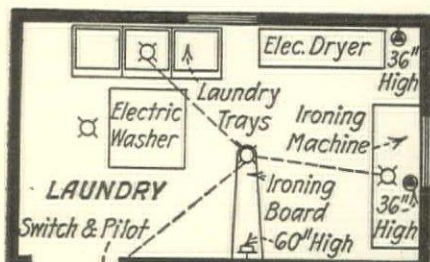
tial old houses which are candidates for rebuilding were erected. These are now in many instances being divided into two-family houses or apartments, and the comforts and conveniences made possible to them by the ingenuity of architects of today may be added to turn them into homes nearly, if not quite, as attractive as those being built outright.

#### Wiring Is Most Important

Most important among the changes made to bring old homes up to new standards is the system of electric wiring which will be installed. Striking differences between housekeeping of today and that of yesterday has grown out of the evolution of electricity. Housekeeping is not alone in this — business, commerce, and industry have been "sped up" by the same magical power. But builders are slow in sensing the change as regards housekeeping; they have failed to keep up with progress in this, a most important development in home-building; they are prone to relegate wiring and electrical fixturing to an obscure place in the budget of building costs, instead of putting it where it belongs among the essentials.

Yet if homes are to be up to date there must be wiring installations which will provide ample current and ample connections for the fast-increasing tribe of electric servants which women are using and demanding.

That builder who is first to get the habit of incorporating a generous electrical installation in his other plans will certainly reap pleasing returns in the popularity of the homes he builds or remodels. This fact has had ample proof in the sales of homes throughout the country which have been fitted up with elaborate electrical installations as showplaces. Without exception, it has been demonstrated that sales have been quick on these homes; and that prices because of the electric equipment were considerably in advance of the differences in cost incurred by the inclusion of that equipment.

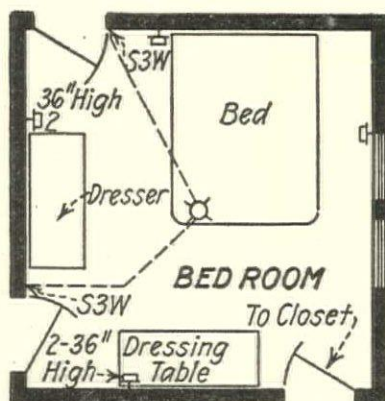


in the accompanying illustrations are embodied suggestions for electrical installations which may be made a basis of plans to be used in remodeling homes and bringing them level with present-day requirements.

These diagrams designate the average number of outlets for electricity, lighting outlets or convenience outlets, switches, etc., required in each room of a home. They must be read flexibly, and their designs adapted to the size and the floor and wall plans of the home being remodeled; but they should not be cut down if a truly modern wiring plan is wanted.

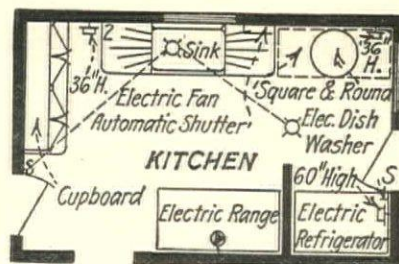
#### Rooms in Detail

The living room plans provide for plentiful illumination. There is a ceiling fixture, also wall brackets; in addition to this the prevailing popularity of portable lamps is recognized



in the numerous convenience outlets where these may be attached for providing light in individualized areas. These outlets will also be wanted for fan, talking machine, electric cleaner, portable heater, electrified teawagon, and many other appliances. There can scarcely be too many; it must be remembered that furniture is occasionally moved and rearranged, and that abundant convenience outlets make this easy.

The dining room plans call for an adequate table lighting fixture. Considerable discussion has taken place of late concerning the type of lighting suitable for this purpose. While the old-time dome was, if planned and hung just right, satisfactory in that it lighted the table brilliantly and left the rest of the room in shadow there were so many times it was anything but just right in this placing that it grew to be regarded with suspicion. Lights frequently were so



low diners were annoyed by glare in their eyes. Or the dome interfered with vision across the table. In many instances the dome was a clumsy, ugly affair, taking up so much room that it was an eyesore when the table was under it and a nuisance when the table was removed.

Yet the theory of directing light on the table is a pleasing one. Today there are made many efficient fixtures which will accomplish this hemming in of those at the table without the objections of the old-time dome.

In the dining room, as elsewhere plentiful convenience outlets should be installed to care for the table appliances, and the other labor-saving electrical equipment which will be used there. Especially obnoxious is the practice of hooking electrical table cooking appliances to lamp sockets. Convenience outlets, adequately wired, preferably on a separate circuit from that devoted to lighting, make appliances decidedly more practical and convenient than when they are unprovided with these connections.

This plan of placing power and heating equipment on a separate circuit from lighting is promising to be popular, and is certainly efficient. Wiring in this instance may be sufficiently heavy on the power circuit to permit the use of all the devices a woman's heart can desire without the chance of overloading the lighting circuit, with consequent annoyances.

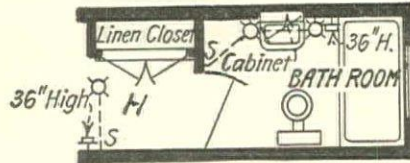
#### Let's Have Abundant Light

Bedroom comfort will demand an equally generous allotment of outlets. In addition to the places where heater, sweeper, heating pad, curling iron, or any of the other electrical comforts will call for connections, there must be ample and plentiful lights in the bedrooms so that each mirror and each bed shall have its individual illumination. Other lights than this should be considered for sewing, or for general use. There may be a desk where a portable lamp is needed. Lights in closets, etc.



Good lighting in the woman's workroom is as essential as is good lighting in factory workrooms; yet it is frequently omitted in kitchens and laundries. There should be central lighting in the kitchen which really illuminates the room. Supplementary brackets should be added if necessary over stove, sink and kitchen cabinet. Convenience outlets should be provided for iron, fan, dishwasher, motor, plate warmer, fireless cooker, every labor-saving device which may be adopted to give kitchen ease. There should also be wiring for an electric range; though this be not installed at the time the house is first occupied, yet it is very likely to be purchased later, and wiring will then be more difficult. And don't forget outlet for an electric exhaust fan in the kitchen.

In the laundry lights must be as conscientiously chosen as in the kitchen. There should be an overhead fixture with a carefully devised shade so as to flood the room with brilliant, pure white light. This is

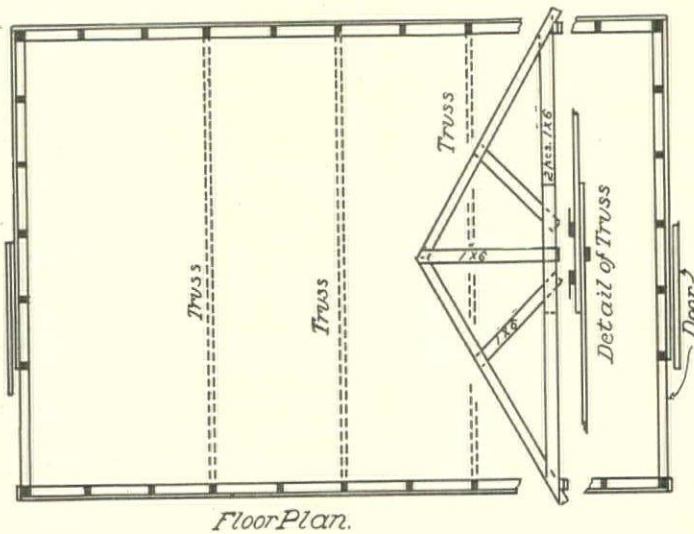


better for the searching vision required in laundering clothes than the yellower light popular in other parts of the home. Supplementary brackets may also be needed here. Convenience outlets for connecting washing machine, ironer, and iron and fan are requisite. For attaching the washing machine, an outlet high in the wall

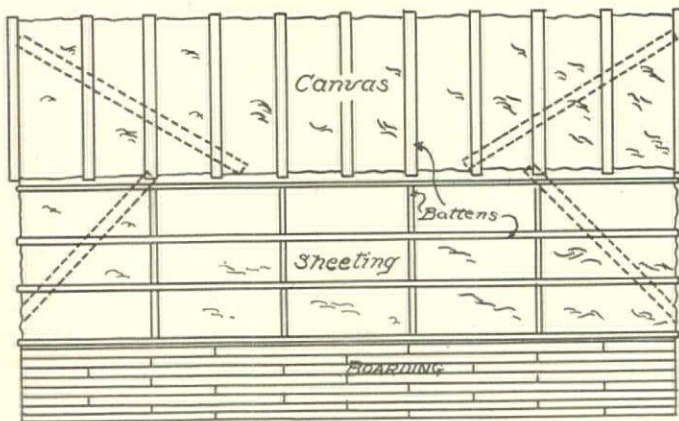
is preferable to one near the floor, as this keeps the cord protected from dampness.

In the fall of the year, when there is a rush to get a job done, work can be carried on at night by having electric lights around on the job. For outside work large nitrogen lamps with reflectors are the thing. In the majority of cases, however, a great amount of work that is to be done during the winter is done under cover, and, of course, here electric light can be used to advantage. In fact, the entire twenty-four hours is really available working time. This is quite important when there is a rush to get a building completed. This temporary lighting is very easily accomplished; while portable lamps produce adequate illumination at any particular point of the work desired.

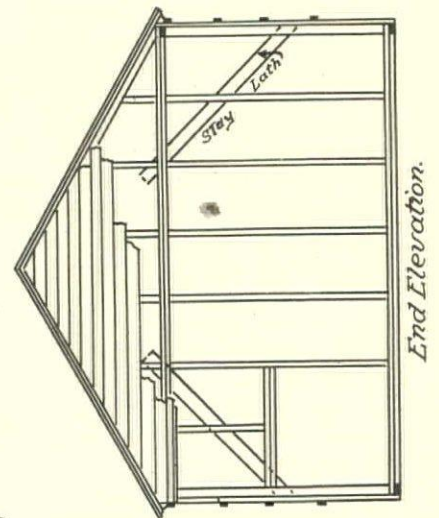
# TEMPORARY SHELTER for WINTER CONSTRUCTION.



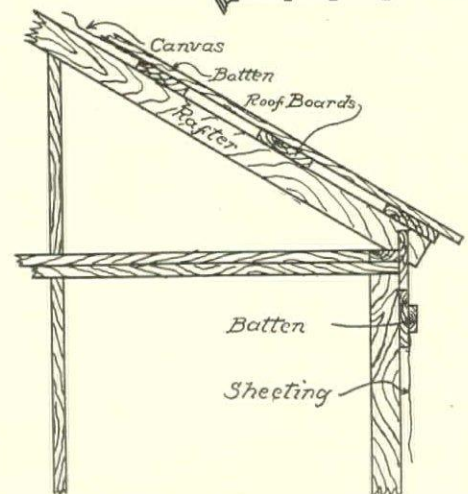
Floor Plan.



Side Elevation.



End Elevation.



Detail.

Type of Temporary Building Recommended to Protect Winter Work Described on Opposite Page



# How to Protect Work and Workers During the Winter Season

By LAWRENCE S. KEIR

**M**ORE than usual consideration is being given lately to the protection of work in cold weather. Perhaps a little more on the subject will do no harm. We still put off too many jobs until warm weather that could, with a little protection, be done in cold weather.

Naturally it costs something to protect a job from cold and storm, but often the extra cost is small, and our only real reason for not going on with the job is lack of gumption. I ought to know, I have been the same myself.

Frequently the owner is willing to pay extra to have his work pushed along. Perhaps the loss of rent or use of the building will cost more than the added cost of winter work. Lots depends on the character of the work. On some jobs it would hardly pay to go ahead in cold weather, while on other jobs the building may be urgently needed or perhaps the job is of such a character that considerable hours of labor will be required in a small space. Such jobs as waiting stations, auto service stations, comfort stations, new fronts, etc., are examples. Many small structures are easily protected by erecting temporary frame buildings to enclose the entire job.

Sure, it costs something. Perhaps a bigger price can be asked for doing the work in winter. Even if not, small protecting buildings do not take

long to erect and the materials used can be made use of again on some later job. Some small jobs have considerable labor attached to them, what with excavating, foundations, plumbing and the building proper, and a "half loaf is better than none" any time. There is also an advantage when spring comes if you and your cash are free for new jobs. Also you have added a little of your reputation, and that is worth something.

**Y**OU may even take advantage of chances for some good advertising by use of a proper sign on the premises, giving the builder's name and address and calling attention to the fact that Jack Frost can't phase you. Where small jobs are entirely closed in houses of the general type shown by the drawings are usually used. The lower four or five feet of the structure and also the gable ends are boarded solid. This gives stiffness and adds protection.

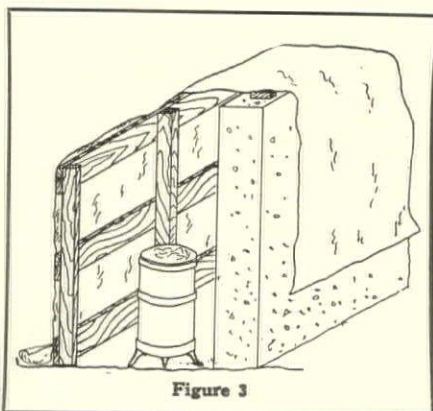


Figure 3

The studs and rafters are usually four feet on centers and braced by nailing stay lath to the inside of the framing.

The upper portion of the side walls is closed in with unbleached muslin. This is a cheap material and furnishes both cold and storm protection and light. The roof is covered with canvas or roofing paper. If canvas is used it may be made up in several sections of convenient size to handle, and if well taken care of it can be used for many other purposes from time to time.

These buildings are generally heated with open salamanders, and it is well to provide some sort of shutter or door in the gable ends of the building to provide ventilation. Often it happens that it would hardly pay to go on with a building during severe weather, but it would be a big advantage to have the foundations all ready the first thing in the spring and not be obliged to wait until frost goes out of the ground to get started.

If trenches are dug wide enough so that forms can be carried down to the bottom, the forms can be filled with concrete and then covered with tar paper, canvas or litter. Warm concrete when protected in this way is not harmed by cold (Fig. 1).

**C**ANVAS hung over the sides of the forms or paper lining on outside of them adds considerably to the protection of the concrete (Fig. 2).

Forms may be lined both inside and outside. This gives slightly more protection from frost and prevents the forms sticking or freezing to the concrete. Where one side of a wall is against a bank and the other side exposed a canvas can be hung over the wall, and at some convenient point held away from the wall, by use of some sort of frame work, far enough to allow a salamander or even one or more oil stoves to be placed beneath it safely (Fig. 3).

Another way is to hold the canvas away from the wall a few inches by

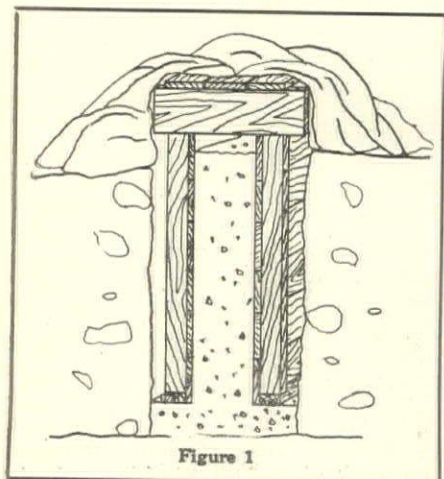


Figure 1

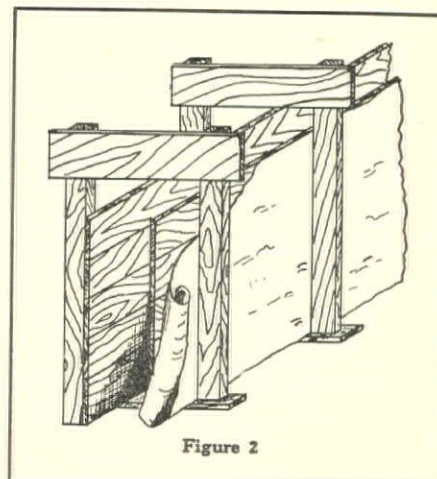


Figure 2



using brackets, the same brackets supporting a steam pipe as shown in Fig. 4.

Where a foundation wall runs only two or three feet above ground, a simple wind break on the north side of the wall will make it possible to take advantage of many sunny days that would otherwise be lost. Even when using warm concrete in protected forms it is sometimes desirable to erect wind breaks to protect the workmen. A couple of portable

a man engaged on some tedious exposed work (Fig. 6).

Plastering can usually be done in winter, especially if there are chimneys in the house. Where there are no chimneys, salamanders can be used, and if the sash are not in place the window openings can be covered with muslin.

Where attic floors are not boarded over tight a lot of warmth escapes. Building paper laid between the attic joists will help to prevent the escape

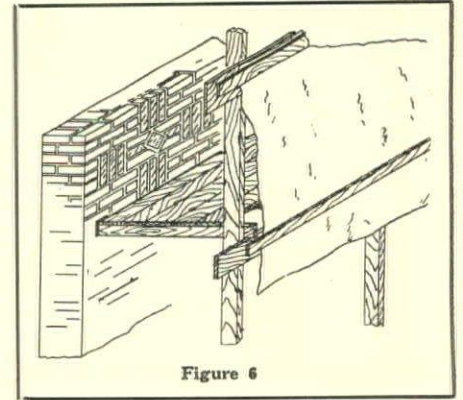


Figure 6

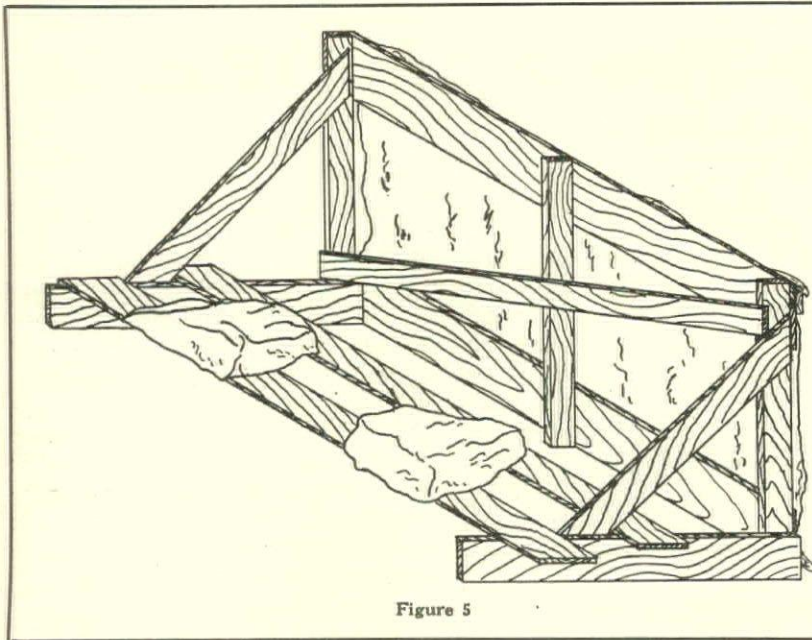


Figure 5

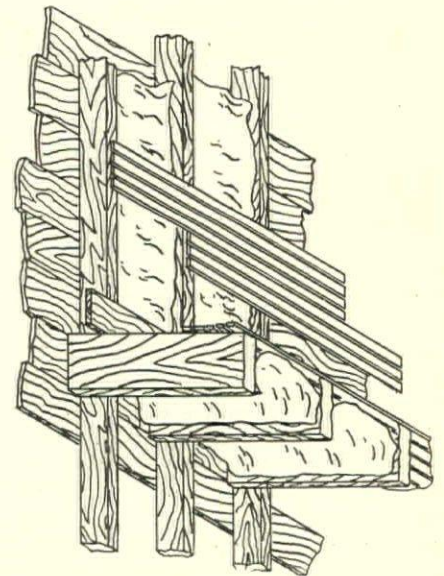


Figure 7

windbreaks covered with canvas or boards or roofing paper are sometimes handy to have (Fig. 5).

A few slats tacked across the scaffold poles and a canvas hung over them is a worth-while protection to

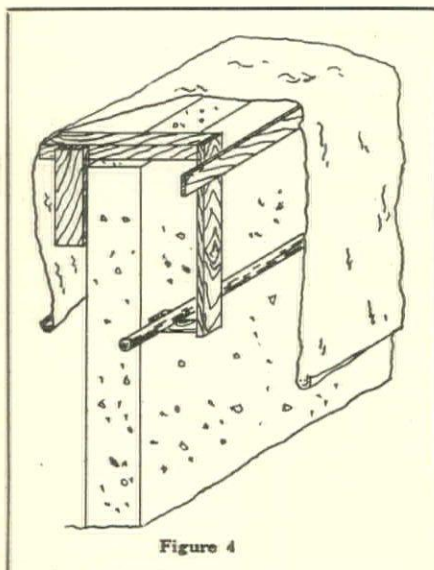


Figure 4

of heat and also help protect the fresh plaster on the bedroom ceilings from frost. Paper laid in loosely will not interfere with plastering. The same idea can be used inside the studs on sections of outside wall where for some reason the siding or other outside covering has not been put on (Fig. 7).

Where the stair well extends to the attic, a lot of heat will be conserved by covering the well with canvas or other covering. If the house can be best kept warm by heating only one portion at a time, the building can be divided into sections by using canvas or paper over the studs or lath and the heated part of the house plastered first, etc.

In some houses considerable bench work is done on the premises. A room, preferably on the sunny side of the house, can be partitioned off with canvas and heated comfortably warm even before other parts of the house are closed in.

There are endless jobs that can be done in winter by a little added planning and protection. Only a few suggestions have been made.

Unbleached muslin or sheeting may be had in the following widths: 36", 54", 72", 81", 90". Canvas covers are usually made to order and can be had in several weights and any shape or size desired, and in either white or khaki. It pays to buy good ones.

In the words of H. Colin Campbell, of the Portland Cement Association, "Let's Keep Building Going All Winter." There is no excuse for anything less than a twelve-months' construction season — except the excuse of bad habit. There is no reason why the winter months should not take some of the burden of keeping things going. It can be done and is being done every year by builders and contractors who know the profit of keeping their efficient organizations together and working. Let's all do it!





# PAINTING

## Practical Points of Interest to the Builder

### *Painting in Winter-Time: and Its Difficulties*

By A. ASHMUN KELLY

**W**HICH is the best season of our year for doing exterior painting? This question has been discussed for many years, and still without having been decided one way or the other. This because each season has its advantages and disadvantages for this kind of work. The Spring has its showers, catching wet paint and hindering the work. Summer has dust and flies, which spoil the paint. Autumn comes nearest to scoring perfect. Winter has its frost, snow and freezing, all bad for painting, though I cannot say positively bad for paint.

Some wise man has said that the best time for outside painting is when you are ready to have it done. And that is not very far from the truth.

Now, as to winter painting. Winter is at or around the corner as I write. There will be plenty of painting to do, inside and out. So I will discuss this matter of winter painting here.

There are two main difficulties that we painters have to meet with when doing outside work in cold weather. The oil becomes stiff, making it difficult to spread, and taking more time than in warm weather. Also the paint does not get rubbed out enough.

It is very important that a coat of exterior paint be brushed out thin and even; if too heavy a coat, or uneven in its brushing out, it is liable to crack or peel in the

future. The only way to do, is to warm the paint once in a while, to keep it in a working condition, and this takes time, too. But it will pay in the time saved in its application and in the better coating it will give.

**B**Y having the paint mixed in quantity in a warm place, one can run in and get a fresh pot of paint whenever the paint we are using becomes too stiff. Some painters make the mistake of thinning the paint, sometimes with oil, sometimes with a little turpentine. This is a mistake, as it makes the paint thinner than it should be.

Turpentine is often added to the paint in mixing for cold weather, for that makes it easier to spread, but for a last coat I never want turpentine added. A little might do in previous coats. It tends to harden the paint a little, and also assists the drying.

I have mentioned the difficulty of spreading oil paint in cold weather. In addition to that there is the discomfort of working in cold weather, for the painter does not have the exercise that other mechanics have in working, hence feels the cold more. The situation may be greatly improved for him by working in the least exposed parts, as on the sunny side when the sun happens to be in evidence.

That used to be my practice, though most employers insist on taking the building right around regardless of weather conditions.

Now as to the character of painting done in cold weather. Is it as durable, and will it make as nice a job? Yes, quite as durable provided the paint has been properly rubbed out, as I have already pointed out. There are two important points here to be taken into consideration, namely, the character of the wood that is to be painted; is it as dry as it would be in warm weather? Usually it is not, and therefore the paint does not do as well as in dry, warm weather.

**O**N the other hand, the sun bites the life of paint, which is the oil, so that it may not be as durable as winter-applied paint. Also, if the paint that has been applied in the winter afternoon is fanned by a raw, damp breeze at night it is sure to affect the fresh or undry paint and give its surface a rubber-looking appearance, which, while no harm is done to the integrity of the paint, spoils the finish. When such a case occurs all you can do is to either remove it, or rub it well with raw linseed oil, which may restore its luster. To prevent is, in this case, the best policy. Try to avoid painting that part in late afternoon that may be exposed to a possible damp night air.

I have painted in winter on the north side of a house, when the breeze was in that quarter, and the cold so intense that I have had to run to shelter every little while, to knock my frozen fingers to get the blood to going in them.





# CARPENTRY

## Good Practice in Frame Construction and Finish

### Profitable Work *for* Winter Time

Little Things That Can Be Made and Sold When Big Jobs Are Few

By DALE R. VAN HORN

ONE can often find good money in an almost virgin field during the slack months of the contractor-builder's season. In other words, when no large jobs appear on the horizon and the wallet grows thin, go out and create a market for some useful thing, and then push it. It will provide enough to live on, if nothing else.

When the contractor or carpenter has finished the house he usually thinks that his presence there is no longer needed and sets out for new ventures. When work is scarce it behooves the man with an eye to his income to seek additional work about the place which will bring in money.

#### Beautifying the Home Surroundings

Almost every new building site presents a good field for such effort, if the financial status of the owner is

such as to warrant it. In the photo is shown a corner of a western home site. The bungalow, recently erected, shows in one corner. This lot upon which the house has been built was low and below the roadway. For this reason the owner was able to buy it cheap. After it was graded up to the proper level its value was almost doubled.

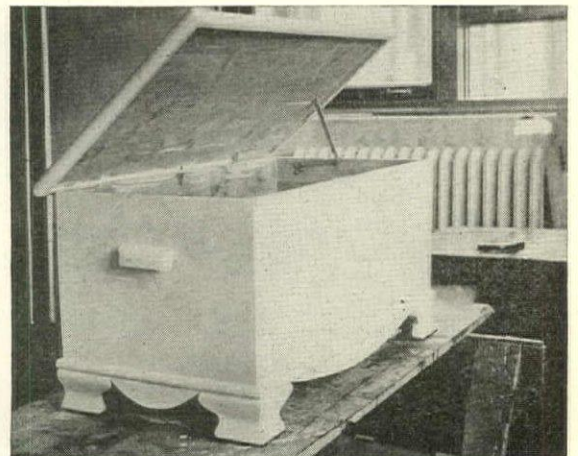
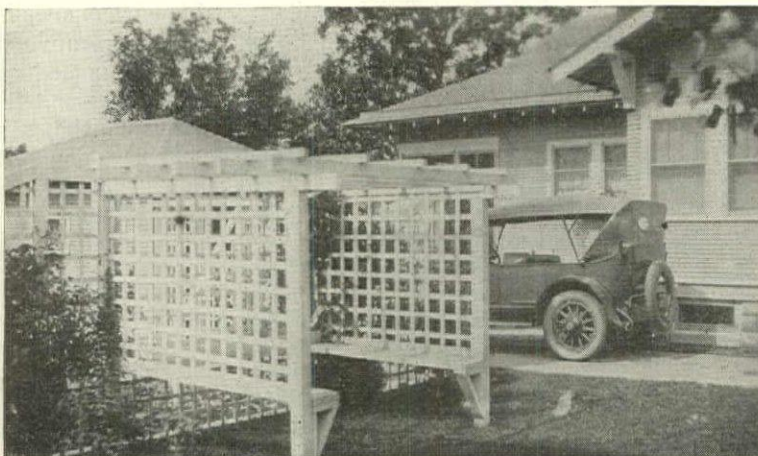
But at the back of the lot there was an abrupt drop of several feet to the old level. The builder, noting this, brought the matter to the attention of the owner, who, after hearing a suggestion or two, turned over the matter to the contractor with the result shown.

The attractive lattice fence of one inch white pine strips runs the full length of the lot, and on the front side a few feet from the drive to the garage the pergola was built. Though

the material costs practically nothing, the contractor was able to realize handsomely on the job because the work required was nominal compared to the result thus obtained, which was what the owner wanted.

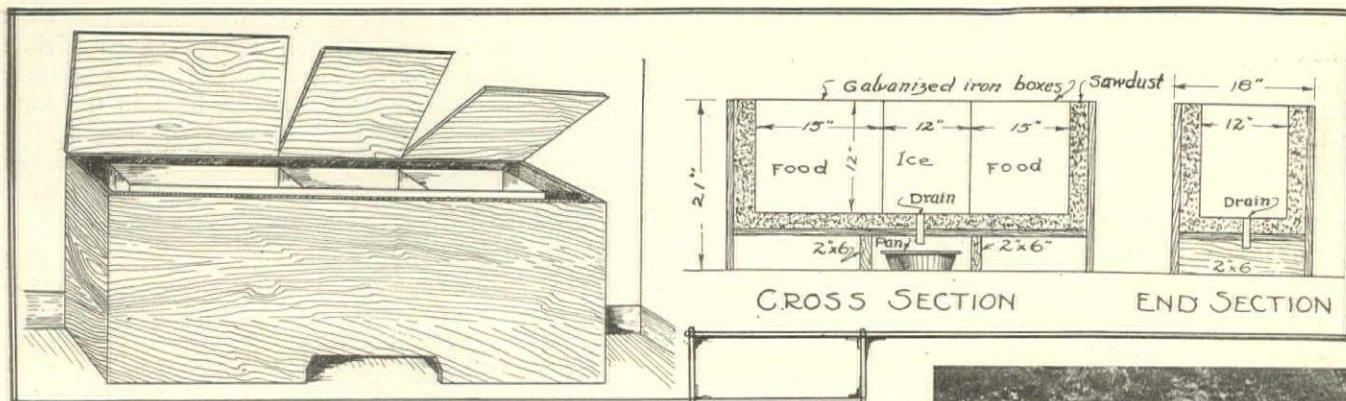
#### Cedar Chests to Conform to Room Colors

One seldom sees a cedar chest finished in anything but the natural colors, yet often a chest of this wood is built of such a light or inferior material that the effect is anything but pleasing. A chest built of the red cedar should be made from pieces carefully selected to give the variegated finish found on the best pieces of work. When this is not possible and only second quality lumber available the chest can be made to fit in with the color scheme in any room by giving it the proper treatment and the desired finish.



Making Lattice Fences, Pergolas, Summer Houses, Cedar Chests, etc., are Profitable Lines of Winter Work





Simple Ice Box That Can Be Made in Dull Times and Sold to Campers, etc.

Also, where the chest is wanted of cedar only for its peculiar properties, namely, to keep away insects and pests, considerable of the purchase price may be saved by a chest made of the cheaper wood and then painting it the proper color.

The cedar chest shown in the accompanying cut has been finished a soft cream color to harmonize with the color of the woodwork in the room for which it was intended. It was first given two coats of shellac to keep the rosins and oils in. After this had dried thoroughly a coat of the flat color was applied. Two days later the first coat of the interior cream finish was put on, and ten hours later, the second coat.

#### Combined Kitchen Seat and Refrigerator

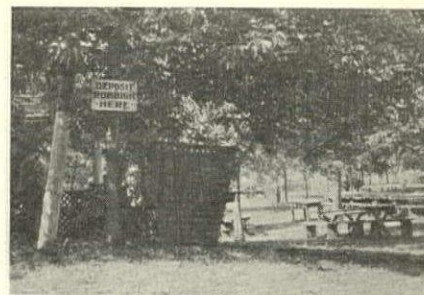
Briefly, the ice box, which is shown in the accompanying drawings, consists of a wood box made in the shape of an ordinary window seat. Within are three compartments, the center one containing the ice, and the two on the outside being used for food and other things in need of ice. The

wood box forms the outer wall, then comes two inches of sawdust, with a galvanized iron box partitioned off into the three spaces mentioned above. The front side is cut away as shown in figure one for the drip pan, and the hinged top which extends over the edge on three sides one inch is cut into three sections, so that one compartment may be opened without disturbing the others. Cleats which may be nailed on the under sides of the doors will prevent them from splitting and will further add to the strength of the box.

The outside dimensions of the box are: Height, twenty-one inches; length, four feet; width, eighteen inches.

The outer walls should be made first. The floor is supported above the floor of the kitchen by 2"x6" pieces running from front to back. Upon these are laid matched lumber for the floor. Suitable hardwood to take an interior finish should be used for the outside.

Measurements for the iron box may be taken to the hardware store



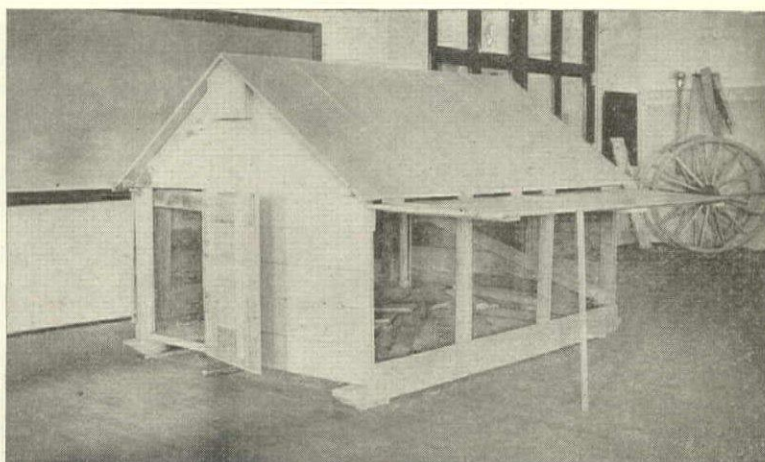
Waste Receptacles Sell Readily and Are Easily Made in the Shop

and there made. See that all joints are tight and a short length of pipe fitted into the center of the floor of the ice compartment to drain away the water.

This is then set into the box, after the bottom has been covered with two inches of sawdust well packed, and then the sides filled. When full, strips of linoleum should be tacked over the top of the sawdust filling to prevent occasional working out.

The metal partitions between the ice and the two adjacent compartments readily permit the passing of the cold and save space. Moreover, it makes a tight inner lining and keeps the sawdust dry.

By altering the size and construction of the box it can be made to suit



Portable Hog Houses Are Easily Made in the Shop During Winter Time and Sell Quickly in Farming Sections



a number of individual conditions. The drip pan may be done away with by attaching a short length of hose to the end of the drain pipe and running it to some convenient place outside. And if a hole is cut through the side of the house to open into the ice compartment, filling may proceed without having the kitchen floor tracked.

This box can be used in the spring and fall as a simple cooler, by leaving this door from the outside open, if it has been provided. The outside air will circulate freely within, keeping the whole box at an even, low temperature.

#### Waste Receptacles Are Easily Made from Waste Lumber

One Sunday while spending the afternoon in a city park a carpenter noted that the campers and picnickers were often forced to carry their waste paper and empty pie plates a long distance to throw them in the discard. They did it, of course, most of them, but the receptacles should have been more frequent and not so far apart.

The next day he sought an interview with the park commissioner. He argued the wisdom in providing these containers at frequent intervals over the parking area, and in less than thirty minutes he had an order for twenty-four such as are shown in the photo. These sold at a nominal figure, and yet represented a neat profit, for they were all made from scrap lumber.

While he was at it, the carpenter built a dozen more and disposed of them readily. The investment was labor alone, and he realized on an otherwise waste product.

#### Individual Hog House Proves Good Sideline

The cut shows a small individual or colony hog house of the portable type. It has been designed by the University of Nebraska and is proving good success on the farm. An idea of the way it is proving up in the field can also be obtained by the large number of orders which come in from out in the state for blueprints of the house.

During the winter season when work slackens up some such sideline will come in handy. Being portable the houses can be built in the shop and then sold when completed. Being portable and easily handled the farmer will not mind the idea of hauling it home.

This house is six feet wide and eight feet long. The runners are four by sixes, which are bolted to the frame. The floor is of plank on stringers, and a plank pig rail about the four sides protects the young pigs.

One unique feature of this house is the large number of doors. There are two doors in each side of the roof, and each side is also hinged to swing up. The entrance is two feet wide and three feet four inches high, which is large enough for the biggest brood sow, with a rare exception.

Ventilators, one at each end, insure a maximum amount of fresh air when the building is closed. A farmer who raises hogs could readily afford the small amount asked for one or more of these.

## Some Points on the Use of Metal Lath

THE use of metal lath as a plastering base for suspended and vaulted ceiling is resulting in an ever increasing use of this form of construction. It is being quite extensively used for decorative purposes in the better class of residences, theatres, schools, institutions, public and office buildings, etc.

Its economy and ease of erection compared with other methods of obtaining equal effects has resulted in greatly extending its use throughout the country. In places where this material is not used to any great extent, it has been probably due to a lack of realization of the advantages of its use by local lathers and plaster contractors who sometimes fight shy of a suspended ceiling job that is out of the ordinary.

After much research in connection with the common practice in different localities throughout the United States a form of specification has been approved by the Associated Metal Lath Manufacturers for the safe erection of suspended ceilings.

In a great many cases, suspended ceilings were erected in a manner that violated some rules of good construction and several failures have occurred. Now, this was not due to any fault of the metal lath or hanging equipment, but rather to faulty knowledge of the proper way of erecting the work. Following are specifications that if followed will result in a good job:

**HANGER**—The vertical member which carries the steel framework.

The minimum size for hangers shall be No. 8 galvanized wire 1 3/16 in. flats or 7/32-in. round mild steel rods. The wire is to be attached by twisting three times, —flats attached by bolting with 3/8-in. bolts,—rods by twisting twice, or by right angle bends and wiring. They shall be spaced not to exceed 4-ft. centers in either direction.

**RUNNER CHANNEL**—The heaviest horizontal member.

Runner channels are to be not less than 1 1/2-in. channels with a

minimum of .442 lbs. per lineal foot. They shall be spaced not to exceed 4-ft. on centers.

**FURRING CHANNEL**—The smallest horizontal member, to which the lath is attached.

Furring channels shall be not less than 3/4-in. channels with a minimum weight of .276 lbs. per lineal foot, attached to runner channels by at least three loops of No. 16 galvanized wire at each crossing. They shall be set on various centers, depending upon the lath to be used. A maximum of 11 3/4-in. centers shall be used for 3 lb. flat lath, 15 3/4-in. centers maximum for 3.4 lb. flat lath, 19-in. centers maximum for 3 lb. Rib Lath.

**METAL LATH**—The plastering base and reinforcement.

Metal Lath shall weigh not less than 3 lbs. per square yard. Metal Lath shall be attached to the furring channels by No. 18 gauge annealed galvanized lather's wire, every 6-in. along the furring channels.



# USEFUL CATALOGS



## Portable Woodworker

**W**ELL illustrated is the large folder describing the Master Woodworker, a copy of which will be sent to any of our readers by writing to the Woodworker Mfg. Co., Inc., 612 Brush Street, Detroit, Mich. Such a machine on the job will prove a well paying investment in the time it saves, to say nothing about the grade of work done.

## Better Piping for Homes

**W**ATER service piping is subject to a good deal of deteriorating influences, and brass pipe successfully withstands these. An interesting book on brass pipe and piping is issued by the Bridgeport Brass Company, Bridgeport, Conn. It deals with corrosion, laying out installations and figuring cost. It will be exceedingly valuable to the builder who really wants to put out a good job. The catalog will be sent to any interested reader.

## Keeping Out the Cold

**F**OR overhanging sections of rooms, that project as bays or built over an open porch, there is considerable difficulty in keeping that portion of the room warm in the winter time unless some good insulating material is used. A sample of sheathing quilt for this purpose together with descriptive catalog may be obtained by the makers, Samuel Cabot, Inc., 141 Milk Street, Boston, Mass. This material when properly used certainly is an excellent insulator against the cold. It is made of eel grass, does not burn and is low in cost.

## Casement Windows

**T**HE attractiveness of many homes can be enhanced by having several casement windows. Even in houses that are already built when a room is to be remodelled, casement windows can be substituted with an artistic result. Builders would do well to keep themselves posted regarding what can be done and for this purpose the catalog of Henry Hope & Sons 103 Park Avenue, New York City, will be of considerable interest and value.

**O**N this page we give short descriptions of some very interesting catalogs, etc., that have just been issued by different manufacturers.

They will be sent free on application to any of our readers who are interested, but should you prefer to write us, give the date of this issue and title of the catalog desired, and we will have them sent to you.

## Electrical Equipment

**B**UILDERS are keen about installing proper electrical wiring with adequate convenience outlets so that different forms of electrical equipment can be easily installed. This is always an attractive point in selling the house, as people now-a-days look for and demand these convenient things. To select proper switches and outlets will be easier if one has the catalog of the General Electric Company which may be obtained by builders, by writing them at Bridgeport, Conn.

## Spring Hinges

**D**DOUBLE swinging doors are being used in practically every modern home for some particular place. They have many decided advantages but to take the proper advantage of their convenience, one must have the proper hardware. Builders will be interested in the forty-four page catalog describing spring hinges made by the Chicago Spring Butt Company, 1500 Carroll Avenue, Chicago, Ill. A copy of this catalog, No. 39, will be sent to any of our readers.

## Surveying for Builders

**B**UILDERS on every job have use for a transit and level, therefore, they will be interested in the description of the Sterling transit and levels as described in the new catalog just issued by Warren-Knight Company, 136 N. 12th St., Philadelphia, Pa. This interesting book of thirty-six pages will be sent to any of our interested readers.

## Plumbing Supplies

**A** FALL building bulletin has just been issued by the Hardin-Lavin-Company, 4533-39 Cottage Grove Avenue, Chicago, Ill., which contains descriptions of several different styles of plumbing equipment for modern cost homes and it is well worth sending for as it contains a number of new ideas.

## Copper Roofs

**E**XCEEDINGLY interesting is the 22-page booklet on the use of copper for roofs that has just been issued by the Copper and Brass Research Association, 25 Broadway, New York City.

Some very valuable information is given, amongst which, we may mention, is a handy table on the weights of different roof materials. This booklet is worth while having by anyone interested in the subject of proper roofing.

## Porch Columns

**W**E all know that porch columns when set directly on porch or terrace floors have a tendency to rot due to moisture at the bottoms. To prevent this decay, iron bases are often employed and an interesting catalog describing the Zimmerman patent iron base has just been issued by S. Cheney & Sons, Manlius, N. Y. It describes their bases which are carried in stock sizes to fit 4 to 16 inch diameter columns.

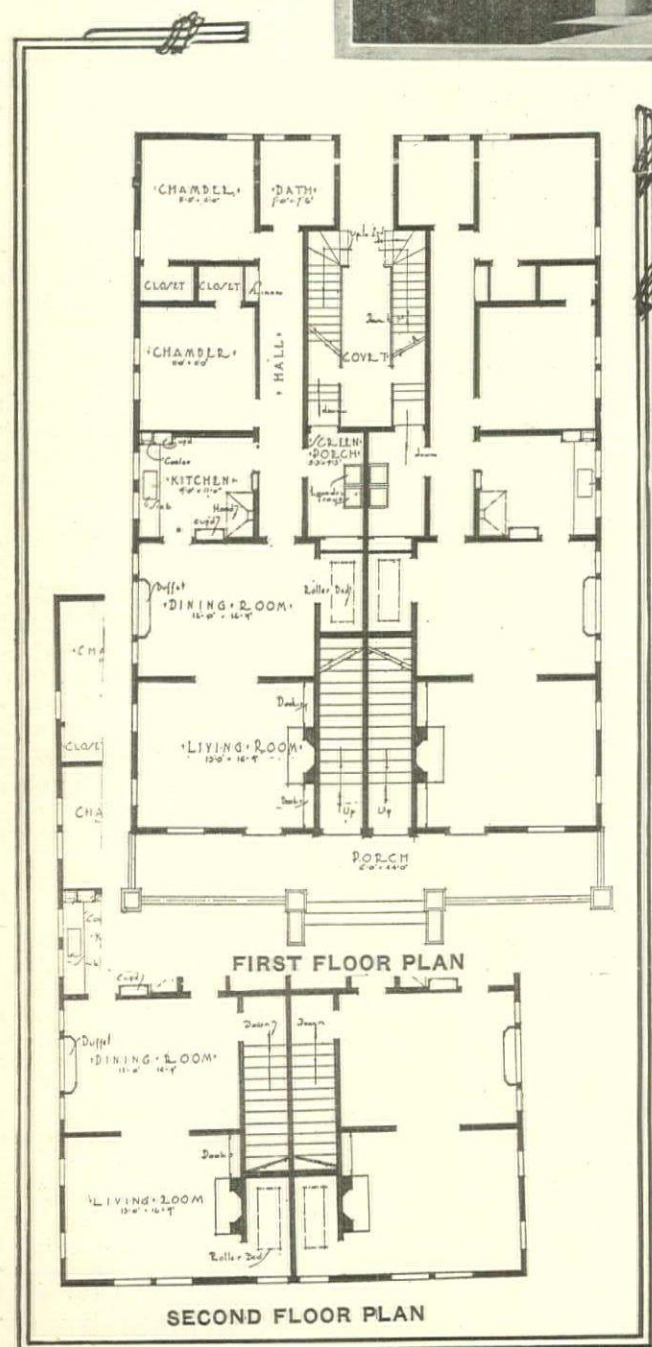
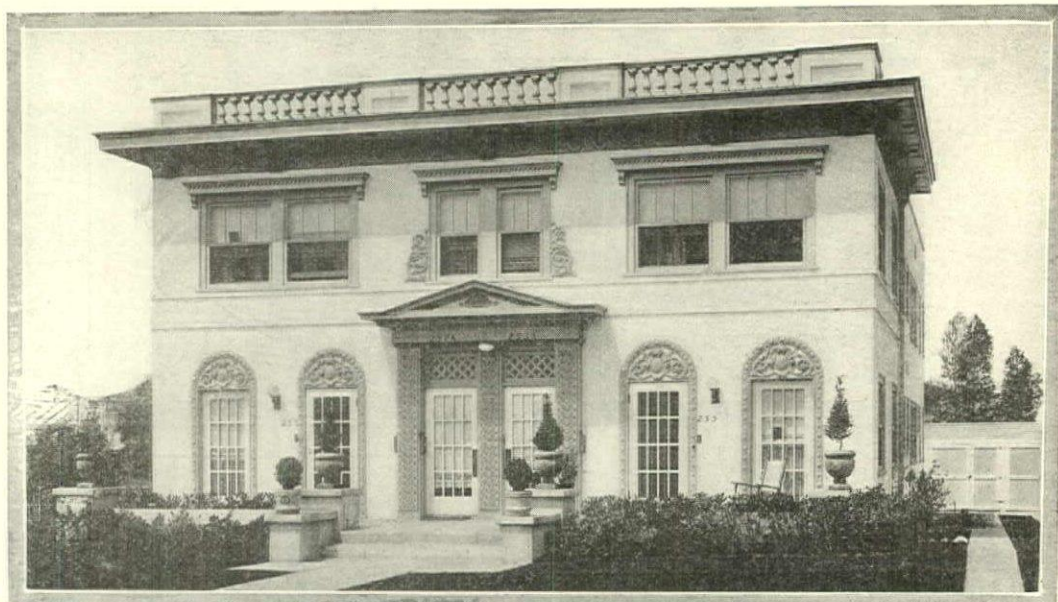
## House Moving

**F**ROM LaPlant-Choate Mfg. Co., Cedar Rapids, Iowa, comes a very interesting catalog of thirty-four pages devoted to the special trucks, rollers, jacks, capstans, etc., for the moving of houses. With such equipment on hand a builder will find the moving of a building far simpler than when old fashioned methods are employed. Besides containing the description of the different equipment the catalog contains a number of illustrations and descriptions of different house moving jobs and it certainly will make most interesting reading matter for any builder.



# Four-Family House

Each  
Apartment  
Has Separate  
Outside Entry



HERE is a design for a four-family apartment which consists practically of four separate homes as each apartment has its own separate outside entrance. The construction of this apartment building is of frame covered with stucco, but it could be of hollow tile or brick, if preferred.

The room arrangement has been well planned and each kitchen has a sink with drainboard on each side with cupboard below; this occupying the entire side of the kitchen and gives a good working space under the double mullion window. The gas range is located on the opposite side of the kitchen. The laundry tubs are located on the rear entrance porch which is a more convenient place than having them either in the cellar or in the kitchen. There is also sufficient space on this porch for washing machine, ironing board, etc., besides a refrigerator. This attractive apartment was recently erected in Los Angeles, California, by the De Luxe Building Company of that city.

In this day of handsome, modern, comfortable apartments and dwelling houses it is interesting to reflect that the earliest human dwellings were probably natural shelter places such as caves, overhanging rocks and densely interwoven foliage. But a form of human architecture had been developed by the time the progress of man reached the Neolithic period and these most primitive dwellings had much in common with the homes of burrowing animals, says a writer in S. W. Straus & Co.'s Investors' Magazine.

The primitive man went into the earth and sought warmth and protection from the elements in pit dwellings, but the habit of living in pits must have been developed after the disappearance of those huge animals which in earlier times would have broken through the roof of such a place.

It does not require much reflection to discover how things have improved since those ancient days. Today, if he can afford it, the master has a comfortable six-room apartment and can seclude himself for weeks from his servants if he is lucky enough to keep them for that length of time.



# What the Editor Thinks

## Winter Building

**N**OVEMBER in our Northern States will bring to completion many building projects, and there will be but comparatively few new jobs started until next Spring, but this is no reason why builders should let up and not do any work. There are many things that can be done to keep one profitably occupied during the next few months even though the winter should be very cold.

In several articles in this issue different suggestions are made on how construction work can be carried out during cold weather—profitable side lines, and other work that will tend to eliminate this seasonal difficulty in the building industry.

## Elimination of the Cellar

**M**ANY changes are occurring in the building of homes. The tendency of late years has been the making of smaller and more compact homes, so that work will be reduced to a minimum. In the old days when "servants" were plentiful at small wages, large houses were the rule. Today when "maids" are an expensive luxury, house work duties are cut to a minimum. This has brought into being the kitchenettes and dining-ettes, door beds, etc.

Another step in eliminating work will be the omission of the cellar. The constant going up and down stairs takes time. Nowadays heating plants, etc., can be arranged on the floor level. Another point that is of considerable importance is the saving in expense of excavation and foundation work. To take the place of cellar a storage room can be added to the floor plan.

## How Long Can Workers Labor Efficiently?

**L**ABOR efficiency is higher with three shifts of eight hours each than with two shifts of twelve hours each. This was indicated in a careful survey and report made by a committee of the American Engineering Council.

Continuous operations, according to the committee, were found to constitute a great industrial problem about which almost nothing is known either by labor, the employee or the public. In the building industry, continuous labor is but seldom resorted to, but in the case of large buildings work is frequently carried on day and night, artificial illumination being provided.

It is a curious fact that a great percentage of the accidents occur on Monday or the day following a holiday. The day of rest seems to make men a trifle less careful.

## Our Cover Design

**B**RICK work lends itself to make the very interesting home shown on our front cover. This was designed by S. Edson Gage, architect, and was built at Rye, New York, for Mr. E. Brophy. In the chill days of November, there is something very comfortable looking about a house of this sort with its glass enclosed living porch.

## Quantity Surveys

**R**ATHER interesting was the experiment of the Master Carpenter Association of Milwaukee, in clubbing together to hire special estimators to take off a quantity survey from plans submitted by architects to different members of their organization. Sometimes as many as ten members were asked to figure on the carpentry work of some particular building and this would mean that each would have to figure out the quantity separately.

The subject of the quantity survey is an interesting one. Why should builders make this up? It is really part of the architect's work as well as plans and specifications. We may as well expect the builder to furnish plans, specifications and everything, and, of course, that is frequently done on most small jobs, but for larger operations a quantity survey should be an essential part of the data given the builder when asking for his bid.

The fault, however, is largely due to the owner. He wants to get plans and specifications as cheaply as possible and should an architect suggest to have a quantity survey, in most cases he will be over-ruled on account of expense. Little does he think that the builder must, in all fairness to himself, charge in his time for taking off this quantity survey and not only that, but he must also charge in his time spent for making estimates on jobs that he does not get.

The owner actually pays for all this, and if he was required to give a quantity survey with plans and specifications, the architect would be more than willing to give it as part of his service. It would result in an actual saving to the owner, better satisfaction to the architect and a better and more definite bid from the contractor, as he would not have to add a safe percentage for items that may be called for.

The construction industry as a whole should try to educate the public to know what constitutes the proper preliminaries for a building. In very few other occupations or industries is anyone asked to do a whole lot of hard work for nothing. Why should it be in the building industry?

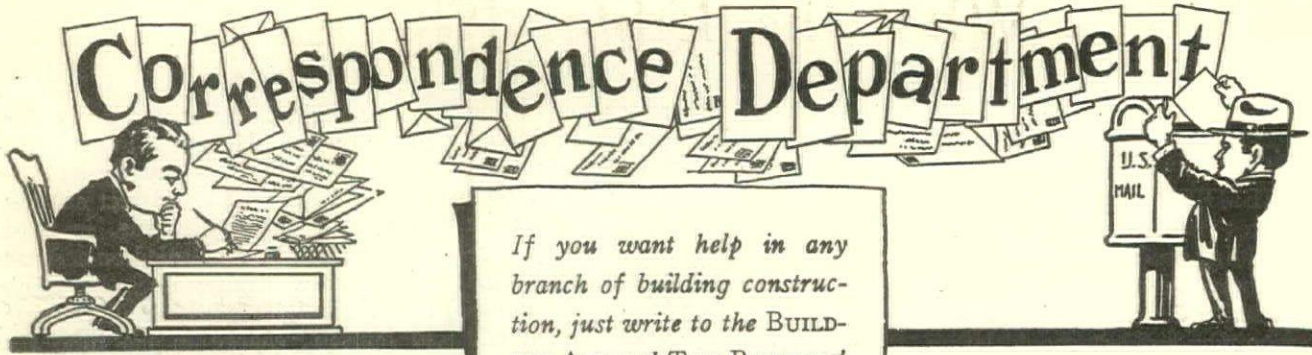
## Give the Boy a Chance

**W**ATCH the boy that hangs around a building operation. Give him an encouraging word once in a while instead of chasing him away. He is usually a bright youngster that looks with awe on the workmen doing their appointed tasks. He is interested in building. A word or two of encouragement will instill in him a desire to join the building craft when his school days are over.

If this kindly interest had been taken universally in this country, we perhaps would not be feeling the present lack of skilled labor to such an extent. The boy is the hope of the building industry.

It is absolutely nonsensical for Americans to deplore the fact that skilled mechanics are not coming from Europe. We have the best material here—give the boy a chance.





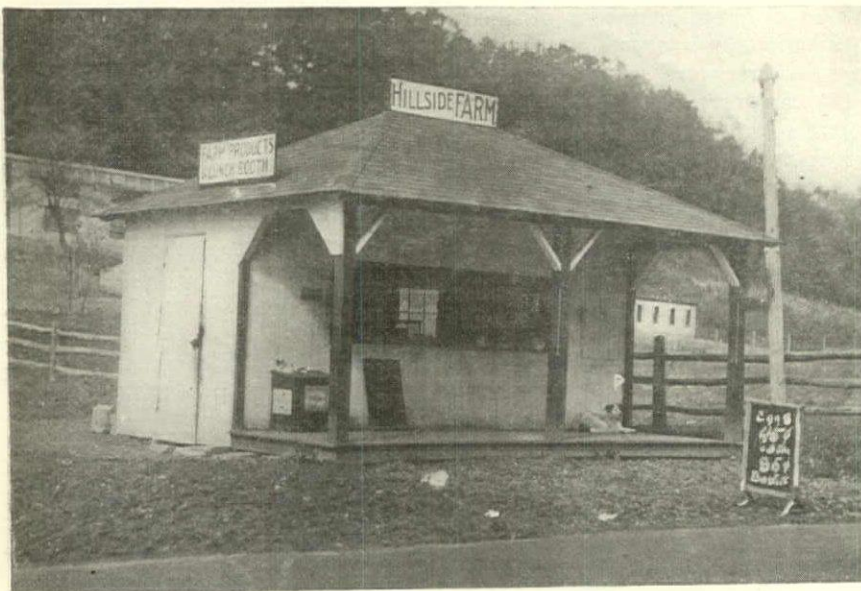
## Roadside Markets

SEEING an article in a recent issue of BUILDING AGE and THE BUILDERS' JOURNAL about the desirability of building roadside markets, I think it will be of interest to your readers to see a picture of one.

At Avondale, Penna., on Route 131, Charles H. Sweigart, a man who has made a success of farming and chicken raising, has built for himself a farm products booth along the highway, in which he sells the things that are raised on his farm. This building is all his own idea, and while not pretentious to any great extent, still, is very well executed and answers the purpose most admirably, being both near and serviceable.

The roof is of asphalt shingles and the building is well planned and put together. It is not an eyesore and the neat signs help to carry out the idea of a service station for the selling of farm produce.

This little building was erected for a modest sum and as you suggested in your editorial similar structures could be used along many roadways by other people with changes to suit, obtaining perhaps a more artistic design, but this venture is a pioneer one and is certainly a step in the right direction.—C. H. Thomas.



*If you want help in any branch of building construction, just write to the BUILDING AGE and THE BUILDERS' JOURNAL Correspondence Department. We will be glad to answer all your questions without charge.*

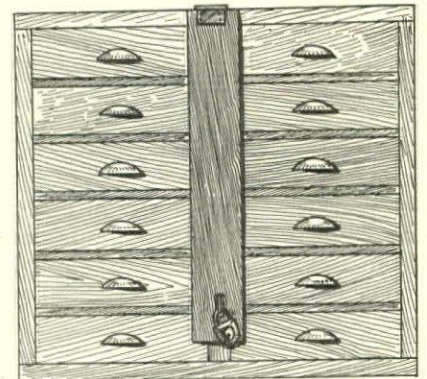
*All readers are invited to discuss the questions and answers published.*

## Locking Several Drawers With One Padlock

OUT in the middle west a farmer employed three tractors and several men throughout the summer months. To keep the tractors and other machines in repair he fitted up a small shop and laid in a supply of plenty of tools. At first the tools were kept in a drawer in the bench. He found, however, that these tools, small wrenches, a hammer now and then, and chisels and punches were frequently used and not replaced. In time, a hasty inventory disclosed the fact that some eight dollars' worth of tools were missing. Not that the men were suspected, yet he knew that they were the ones who failed to replace the articles.

A set of drawers were built between two studding, each large enough to take the small things which are the most easily lost about the place, and then instead of leaving them without a lock of any kind, or providing every one with a separate lock, he hinged a strip at the top, cut a hole near the lower end, and drove a hasp staple into the center strip between the two rows of drawers so that the hole in the wood strip would fit over the staple. In this way one padlock kept all of the drawers locked.

The plan seemed to work very well, a point was made with the hired help to do most of the repair work, and it was always necessary to get the key



before the contents of any of the drawers could be touched. Later a list of the articles to be kept in each drawer was pasted on the front of each.—Dale R. Van Horn.

## Successful Rust Remover

THE most thoroughly rust-covered metal may be restored to its original bright color and condition by rubbing with a red eraser, or—better yet, a sand eraser. A too coarse sand eraser should not be used if scratching the metal's surface is to be avoided. This method of removing rust is effective on any metal and will restore rust-covered carpenter's and builder's tools and draftsmen's instruments, to their original appearance. To those trying it for the first time, the result is surprisingly satisfactory.—C. Nye.



## What One Builder Did With Cobblestones

THE attractive bungalow shown here is thirty-four feet by sixty feet. It was designed by Mr. Durbin Swartzell, of Cincinnati, as a suburban home at Brookville, Indiana.

The house has a wide veranda along both its front and side. Two doors open from each of these porches. The one gives access to parlor and sitting-room, the other dining-room and kitchen.

The house has been built, as far as possible, of cobblestones brought from the bed of Whitewater River nearby.  
—Felix J. Koch.

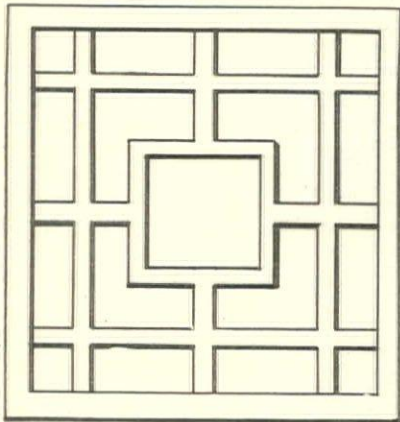
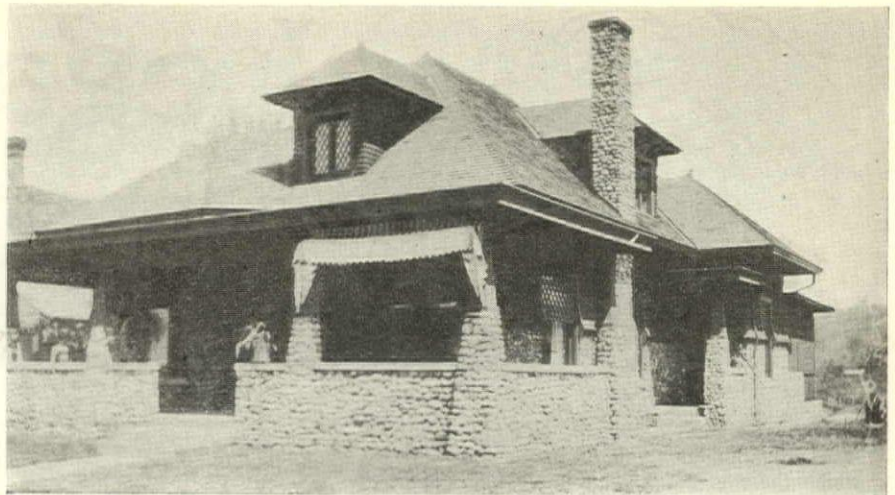


Figure 1

## Ornamental Lattice Easily Produced

IN building fences where certain portions are to have ornamental pieces of lattice work, it sometimes puzzles the carpenter how to get the desired effects shown, except at an immense amount of labor.

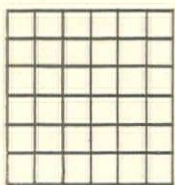


Figure 2

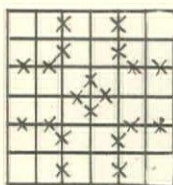


Figure 3

I follow quite an easy method. For instance, the design shown in Fig. 1 does look a little bit complicated, but it can be very easily finished. I simply nail my lattice strips in the frame as shown in Fig. 2. This is just plain cross pieces. At every junction point, I put in a small nail and clinch it. Of course where a large quantity of this work is being done and especially when it is being erected in position, it is necessary to have a helper on the other side to help in this clinching. Sometimes there are thousands of these clinches to be made. In all cases it is not necessary to nail every crossing,

but every other one will give the required amount of rigidity.

When the different crossings are firmly fastened together by this clinching process, then proceed to cut away with a small saw the different pieces marked XX as shown in Fig. 3. When these cut portions fall away, the result will be the ornamental design shown in Fig. 1.—Albert Fair.

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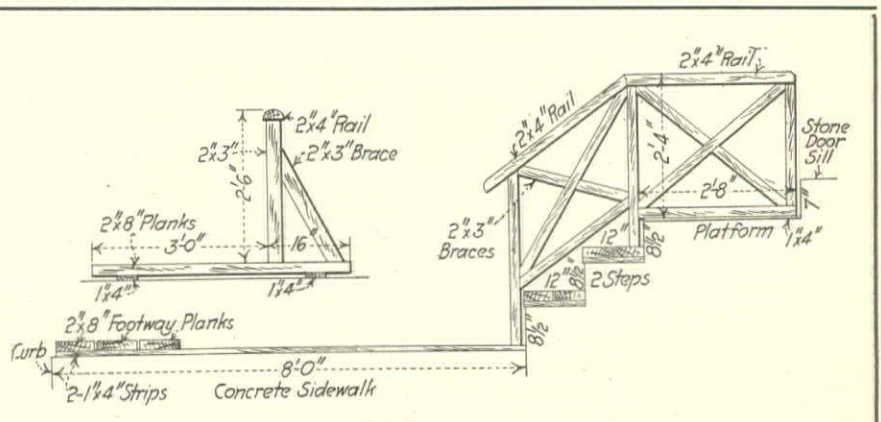
## Storm Platforms and Steps

THE attached sketches show how simple platforms and steps across and on either stone, brick or concrete sidewalks, stoops, piazza, etc., may be cheaply and quickly constructed.

The covering or footway from the curb line to the bottom of the first step is 8-0 feet in length made up of 1x4 yellow pine flooring strips on which is placed 2x8 good spruce planed planks nailed from the under side and spaced 3/8" to permit rain or snow to percolate through and keep the top surfaces dry. The width is 3 feet to permit two persons to pass each other conveniently. The steps are made up of 2" x 6" spruce planks nailed as before to the flooring strips underneath. A hand rail 2" x 3" and 2" x 4" scantlings is placed on the right-hand side of the steps and entrance platform.

By reason of the frost and snow rendering concrete and stone surfaces slippery and dangerous to life and limb these platforms and steps which are portable should be provided for Winter weather for houses, flats, apartments, offices and public buildings.

They can be removed in the spring, stored away carefully in cellars and basements for use the following Winter. Any janitor who can use a hammer and screwdriver can put them up and take them down in a short time.—Owen B. Maginnis.







**F**UNDAMENTAL legal principles prevent litigation in a suit of matters as to which there is not a joint interest on the part of several plaintiffs and a joint responsibility on the part of several defendants. It was unsuccessfully sought to invoke the rule in the case of *R. R. Kitchen & Co. et al. vs. Local Union No. 141 et al.*, 112 Southeastern Reporter, 198, a suit brought by members of the Building Construction Employers, an association, to restrain various building trades labor unions, their officers and members, from carrying on a conspiracy to prevent plaintiffs from executing their construction contracts, by threats, violence, picketing and other illegal strike measures. Upholding the right of the several plaintiffs to maintain the single suit against the several defendants, the West Virginia Supreme Court of Appeals says, in part:

"Ordinarily, one class of contractors might not have any interest in wage scales pertaining to the business of other classes and not directly affecting them. However that may be, this bill alleges the extraordinary case of an association of contractors to enforce a demand for a reduction of wages in all vocations, and the organized workmen in all the building branches of labor to resist it. In the effort to maintain their position and accomplish their declared purpose, the former have jointly proclaimed inauguration of the open shop in all of their respective departments of industry and are endeavoring to maintain it, by prosecution of their business with labor employed at what they conceive to be reasonable and fair wages and without reference to affiliation with any labor organization.

"The allegations of inducement to the breaking of contracts of service, by persuasion, express and implied threats, and actual violence, and of joint perpetration or procurement thereof are as full, complete and definite as such charges can be made, ordinarily, in cases of this kind. The wrongful acts are alleged to be of constant occurrence and unrestricted scope. They occur around the employment agency, along the streets, at the places of work,

**A**LL readers are invited to ask any questions that will help them solve any legal difficulty that they may be in. Our legal adviser will answer direct by mail and give his opinion as to the correct procedure. Questions and answers of general interest to the trade will be published in these columns. All inquiries must be accompanied by the name and address of the correspondent so that he may be answered direct or that he may be requested for further information if necessary to the intelligent answering of his question. No names will be published, only initials or a *nom de plume*. Remember that this service is free to subscribers. Address Legal Department, Building Age and The Builders' Journal, 920 Broadway, New York City.

and about the lodgings and homes of the employees. They are directed against the business of the plaintiffs through their employees, wherever and whenever they can obtain any workmen. Their generality, pervasiveness, constancy, and similarity are significant of concert and direction, such as might characterize the activities of a committee of action representing all of the defendants, and the bill alleges that they are emanations of confederacy and conspiracy on their part. In our opinion, the sufficiency of these allegations is beyond doubt."

**F**ROM a New England builder our views are asked on the following stated case: He contracted to build certain structures "at actual cost of labor and materials, plus five per cent. profit. It is understood that liability and builder's insurance is to be placed on the above work and considered part of the cost," etc.

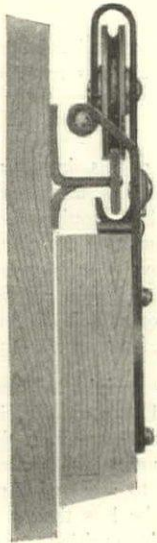
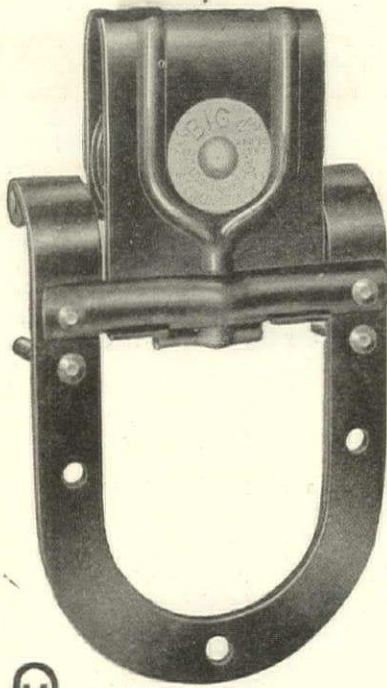
The work was completed and paid for, excepting an item covering the cost of the liability insurance. The owners claim that the builder did not carry "the right kind of policy" for his and their protection.

In the absence of more particulars, and especially as to what the claimed defects in the insurance effected were, we are unable to give a definite opinion which we should be willing to have followed without regard to the undisclosed points. However, it may be found that the case will fit with one of the general rules of law stated below.

If no binding insurance was effected, and if the builder did not reasonably pay premiums to effect such insurance, the owners' non-liability appears to be clearly established by a decision of the highest court of the land. In the case of *Tillson et al. vs. United States*, 9 Supreme Court Reporter, 255, the United States Supreme Court decided against the right of petitioners to recover for premiums for insurance covering granite sold and shipped to the Federal Government. The court said:

"The first claim is based upon the clause in this contract by which the United States agreed to pay to the petitioners 'the full cost of the said labor, tools, and materials, and insurance on the same.' The petitioners contend that the insurance thus agreed to be paid for is insurance on the cost of labor, tools, and materials used; that is to say, on that part of the value of the cut granite which was represented by the cost of the labor, tools, and material used in cutting and boxing it. We have not found it necessary to consider whether the words 'insurance on the same' mean insurance on the granite, or insurance on the cost of the labor, tools and materials used in cutting and boxing it, or only on the materials so used; because, it being found as a fact that the petitioners never did effect or pay for any insurance whatever, we are clearly of opinion that they are not entitled to recover anything for insurance. The United States have not agreed to obtain insurance, or to become insurers themselves, but only to pay to the petitioners the 'cost of insurance,' which is as much as to say, 'reasonable premiums of insurance paid by the petitioners.' By the terms of the contract the United States are no more bound to pay for insurance which has not been effected, than for tools or materials which have not been used, or for labor which has not been performed."





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Such time as we have been able to bestow on this inquiry has failed to reveal any court decision having a closer bearing on the subject than this decision of the Supreme Court. But we deem it sufficient to indicate the true principle applying to cases of this kind. We interpret it as saying that the contractor is entitled to credit for premiums *reasonably* paid.

If a reasonable effort was made to effect binding insurance, and if premium for such insurance was reasonably paid, we are convinced that the builder is entitled to recover on the disputed item. A lawyer undertaking to obtain proper insurance would not be regarded as impliedly making an absolute guaranty that the insurance would be binding, under pain of losing right to compensation for his services in the matter and reimbursement for his expense. The lawyer would merely be held to the exercise of such care and skill as would be required by the circumstances. For stronger reasons, a builder, under a contract like that here presented, is not bound at his peril to make sure that court-proof insurance is effected. If he does what a reasonably prudent builder would do under the same circumstances he does all that the law requires of him.

The language of the contract here presented and the remarks of the United States Supreme Court in the case presented to it show that agreements of this kind place the builder's duty concerning obtaining insurance on the same plane as his duty concerning the obtaining of labor and materials and their use in the construction work. Both duties merely require the exercise of reasonable care and skill.

The general rule as to a builder's duty being merely to use ordinary or reasonable care and skill is stated at pages 749-750, 9 Corpus Juris, with a citation of numerous decisions of courts of last resort. And that this rule applies to cost and percentage contracts is shown by the decision of the New York Supreme Court in the case of Title Guaranty, etc., Co. vs. Pam. 155 New York Supplement, 333. The court states this as the limit of what an owner may expect under such a contract: "He has the right to expect the same skill and ability to be applied to his work that it (the construction company) would give to a work where its profit was dependent upon its ability to do the work at a cost less than the contract price."

Let it be supposed that the builder in this case, after using all due and proper diligence to employ only honest and industrious men on the work, had found that some of the employees were dishonest and inefficient, doing more harm on the work than good, but that the builder immediately discharged them on discovering their shortcomings. Clearly enough, he would not have been deprived of right to full credit on account of wages paid to them be-

fore discovery or opportunity for discovery of the unfitness of such employees.

Or, let it be supposed that despite the exercise of all reasonable skill and care in selecting building materials it should have later appeared that, because of latent conditions, some of the materials had proved worthless. The builder's right to credits in his accounts for money reasonably paid for such materials would seem to be clear.

For the same reasons, it must be held, in our opinion, that the builder's right to reimbursement for insurance premiums actually, fairly and reasonably paid is undeniable.

But if he paid a premium without any policy issuing at all, or if he vitiated the insurance by inexcusably making some material misrepresentation of fact in applying for the policy, or if he did something else which must be said to have been careless or wrongful and thereby failed to effect any binding insurance, it is both just and lawful that he be denied allowance against the owners for an expense which so proved to be fruitless through his own failure to use that skill and care which a reasonably prudent builder would have used under the same or similar circumstances.

A STONE cleaner and general contractor agreed in writing "to clean down thoroughly all the front and side of defendant's building. The front was of

#### Performing Stone Cleaning Contracts

stone and the side of brick. The contractor, by the use of chemicals, steel brushes, sponges and water, cleaned the superficial area of the front and side, but on completion of the work stains on the stonework were plainly visible. These stains appear to have been the outward evidence of saturations several inches in depth.

When the contractor sued for his compensation defendant resisted liability on the ground that the contract had not been sufficiently performed. The trial judge upheld the defense and ordered dismissal of the suit. But in the case of Krauth vs. Harris, 194 New York Supplement, 526, the Appellate Term of the New York Supreme Court reversed the decision and ordered a new trial, holding that the trial judge erred in permitting plaintiff to testify that before the contract was entered into the stains were mentioned and defendant undertook to remove them. The presiding judge of the appellate court said:

"I think the agreement, as it was expressed in the writing, is susceptible of but one construction, which is that the plaintiff undertook to do no more than clean the superficial area, and thus it was error to admit parol evidence to show the meaning of language that we think is plain, and refers only to superficial area."

The higher court says that if the written contract failed to express the true agreement defendant should have sought a reformation of the instrument by court proceedings.

A SHORT time before I graduated from a school of architecture," writes a young New Yorker, "I was employed by a man to prepare a set of plans to build a five-room house. After Right of a I got bids from the Student Architect contractor and informed to Compensation the owner of the total for Services cost of the house, he refused to pay me for my services; claiming that the building will cost more than he intended to pay. I expect my architect's license soon. Can I recover in this case?"

If you represented yourself to be an "architect," without disclosing that you were merely an ungraduated student in architecture, we are of the opinion that you have no right to recover.

Section 77 of the General Business Law of New York, as amended in 1921, declares that one who did not practice architecture in the state before the act took effect (1915), "shall before being styled and known as an architect, secure a certificate of his qualification," etc. As amended, the law provides that it shall not "prevent persons other than architects from filing applications for building permits or obtaining such permits."

It seems, under this law, that if you held yourself out as an architect your violation of the law would preclude your recovering compensation for your services. However, if the owner understood that you were still a student we do not believe that he could invoke your lack of certificate as an architect to defeat your compensation.

On establishing a right to compensation, the amount would be controlled in the first instance by any agreement on the subject. If no rate or amount was agreed on, you would be entitled to reasonable pay, which might be held to be less than a registered architect would be entitled to under the same circumstances.

Assuming that your lack of registration is no bar to your recovery, your letter still fails to show a right to recover anything, because you do not state the nature of the agreement you had with the owner. However, the mere fact that it may cost more to construct the house than the owner expected will not defeat your right to pay. If he did not disclose to you a cost limitation beyond which he was unwilling to go, and if you prepared plans in accordance with the ideas he gave you as a basis for doing your work, no reason is perceived why you should not recover.

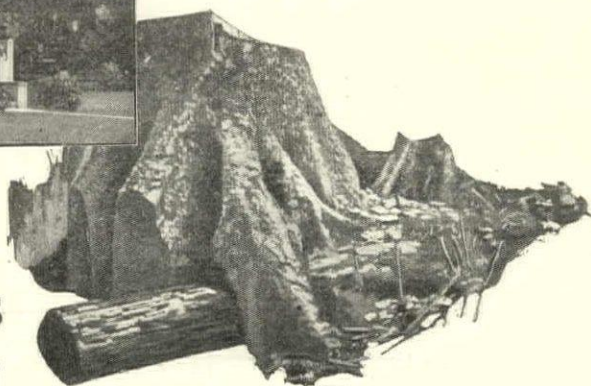
As a practical matter, your proper course is to place your claim in the hands of a local attorney if the owner refuses to make a satisfactory adjustment.





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# OFFICE and JOB MANAGEMENT

## Things the other man has found out that save money



## Designing and Estimating Roof Work

By I. P. HICKS

**T**HE styles of roof, methods and cost of construction, and easy ways of estimating the material and labor for the same is a matter of considerable importance and interest to the carpenter and contractor.

First we want to say a little about the styles of roofs. The styles of roofs and the proportions of their shapes and sizes, to fit the house have just about as much to do with the appearance of the house as selecting an appropriate hat for a lady.

Figures 1, 2, 3, and 4 represent four styles of roof in general use. These, when used singly or in combination and with variations to meet the different requirements of different buildings, constitute the larger part of the roofing of the average building.

Figure 1 represents a plain gable roof, which is one of the most common and easily constructed roofs. As to the style of this roof, it is almost always of the plainest type. Yet to choose a proper pitch for the roof and a proper width for the cornice, according to the width and height of the building, will have much to do with its general appearance.

If it is a building with 12 to 18 feet studding, 18 to 26 feet wide, with a plain box cornice, the horizontal projection of the cornice plancer should be from 18 to 24 inches and the pitch of the roof from 7 inches to 12 inches rise to the foot run of the common rafter, using the wider cornice and steeper

roofs on the higher and wider buildings.

Where buildings are finished with a bungalow cornice, the projection of the cornice is often 2 feet to 2 feet 8 inches, and in some cases as much as 3 feet, even 4 feet in some of the so-called "prairie designs" of houses.

We will not attempt to lay down any definite rule for determining all these variations in dimensions, as it is a matter mostly of good judgment with the designer, but it is a sure thing that good proportions in designing the cornices and roof add very much to the general appearance of the completed building, and it is well worth while for the carpenter and contractor who has more or less of this to do to study up some on the art of designing and proportioning of his work so that it will produce the most pleasing results.

In our opinion a plumb cut on the ends of the rafters, so that the fascia stands plumb, always looks best, although it is not always the easiest of construction.

### Estimating the Roof

**N**OW, something about estimating the material and labor for the roof. This can quite readily be estimated by the square. Sometimes in making an estimate the length of the rafter is not quite exactly known and it may be that the contractor has no way at hand to determine the length of rafter, or does not want to take the time to figure it out just at the moment.

It is easy to figure the cost of this work without stopping to figure the length of rafter required. Add the horizontal projection of the cornice to the size of the building, on each side and each end of the building and proceed as follows:

Multiply the length of the building by the width, and for the different pitches add the following per cents, which will make the amount of space to be covered for the different pitches:

- For a 6 x 12 pitch add 12%
- For a 7 x 12 pitch add 16%
- For an 8 x 12 pitch add 20%
- For a 9 x 12 pitch add 25%
- For a 10 x 12 pitch add 30%
- For a 12 x 12 pitch add 42%
- For a 15 x 12 pitch add 60%
- For an 18 x 12 pitch add 80%

The above figures will give the exact amount of roof surface, and it is applicable to either gable, shed or hip roofs of any shape or size, or where there are both hips and gables on the same roofs of about the same pitch. We do not use it on gambrel roofs because there is too much difference in the pitch of the two roof sections.

In the case of dormers on roofs it is necessary to add the number of feet included in the dormer cornice because the dormer cornice projects over the main roof. The dormers cut out a portion out of the main roof where they are placed, and the roofing of the dormer just about equals this space plus the amount necessary to cover the dormer cornice.



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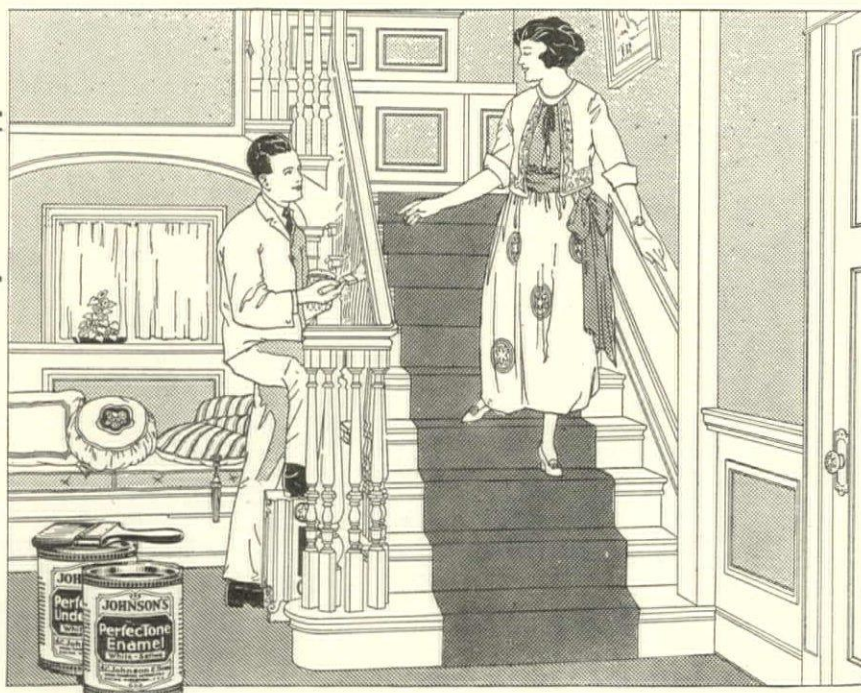
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## ARTISTIC INTERIOR FINISHES

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This makes easy figuring when it is thoroughly understood. It is also advisable to put in some for good measure, for there is liable to be more or less waste cutting in and finishing around dormers.

Having obtained the number of feet roof surface, divided by 100, which will give the number of squares of roofing, the roof sheathing can be figured from the number of feet at the local price of lumber per M.

Where the roof sheathing is put on about 2 inches apart, as for shingle roofs, it is not necessary to figure any for waste, for the spreading of the boards will fully make up for the waste. If the roof is to be sheathed tight, then add to the above amount 6 per cent to cover the waste in cutting.

The feet board measure per square required for rafters in ordinary roof framing is about:

Size of timber	16-inch centres feet	20-inch centers feet	24-inch centers feet
2x4	64	56	48
2x6	96	84	72
2x8	128	112	96

On the framing the labor can be figured at from \$16 to \$20 per 1,000 feet of timber, figuring the higher rate for roofs that are complicated and require more cutting and framing. By this method the feet of sheathing can be readily found, the number of squares of roof, the feet board measure of rafters, and then the cost of labor on any part, or the entire roof can be determined.

The number of shingles required per square laid  $4\frac{1}{2}$  inches to the weather will be about as follows: On plain roofs, 900. On hip and valley roofs, where there is much cutting, 1,000. The labor can be figured at \$3.00 per square on plain roofs and \$4.00 per square on hip and valley roofs where there is lots of cutting to do.

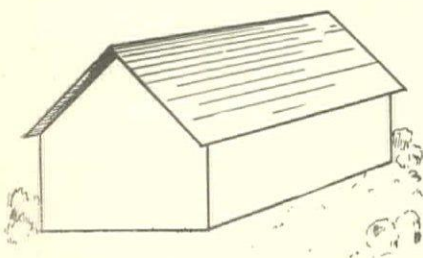


Fig. 1—Gable End Roof.

### Other Common Roof Types

FIGURE 2 represents a shed roof, which is one of the simplest forms of roofs. It is used principally on additions to the main roof and in the construction of dormer roofs, particularly on roofs of the bungalow type. Shed roofs as a rule do not have a very pleasing appearance, yet by taking care to proportion the cornice so that it does not look out of place or botchy in construction, they can be made to look fairly well and sometimes very good for the places where

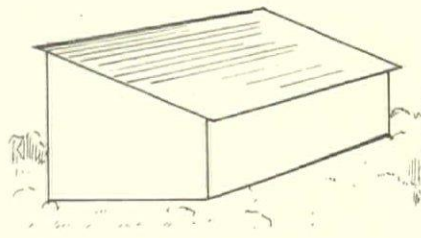


Fig. 2—Shed Roof.

they are used. As a rule, they are cheap in construction as regards material and labor and can be figured on the same basis as the plain gable roof. The shed roof is one rectangle, while the gable end roof is simply two rectangles.

Figure 3 shows the outlines of a plain hip roof. In this kind of a roof there is, of course, more time consumed in the framing, sheathing and shingling, and it is neces-

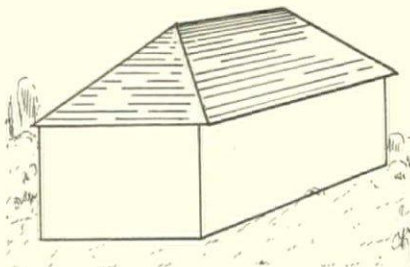


Fig. 3—Hip Roof.

sary to figure more for labor. If the roof has numerous hips and valleys, then the framing should be figured as high as \$20 per thousand feet and the shingling as high as \$4.00 per square.

Figure 4 shows the outline of a gambrel roof. There is nothing difficult or expensive about this form of roof, and it can be figured on a basis of \$16 per thousand for the framing and \$3.00 per square for the shingling.

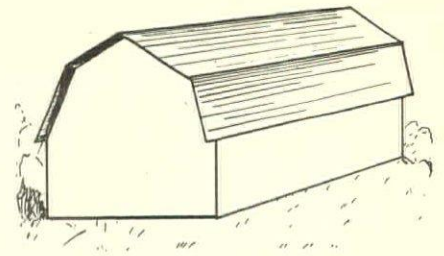


Fig. 4—Gambrel Roof.

The gambrel roof has no real pleasing effect, so far as appearances go, but it makes a fairly strong roof, and in house building it makes nearly a two story house out of a one story building, because the first section of the roof is so steep it makes the second floor space nearly all available for use in the rooms. In house building, the first roof section is seldom sloped in more than two feet at the top.

GOOD roofing tin is considered one of the standard roofing materials for buildings of the better type. It has qualities which peculiarly fit it for roofing purposes.

A good tin roof is light in weight and requires light roof construction. Tin is easily put on and is adaptable to any surface, whether it be a flat deck or a vertical wall.

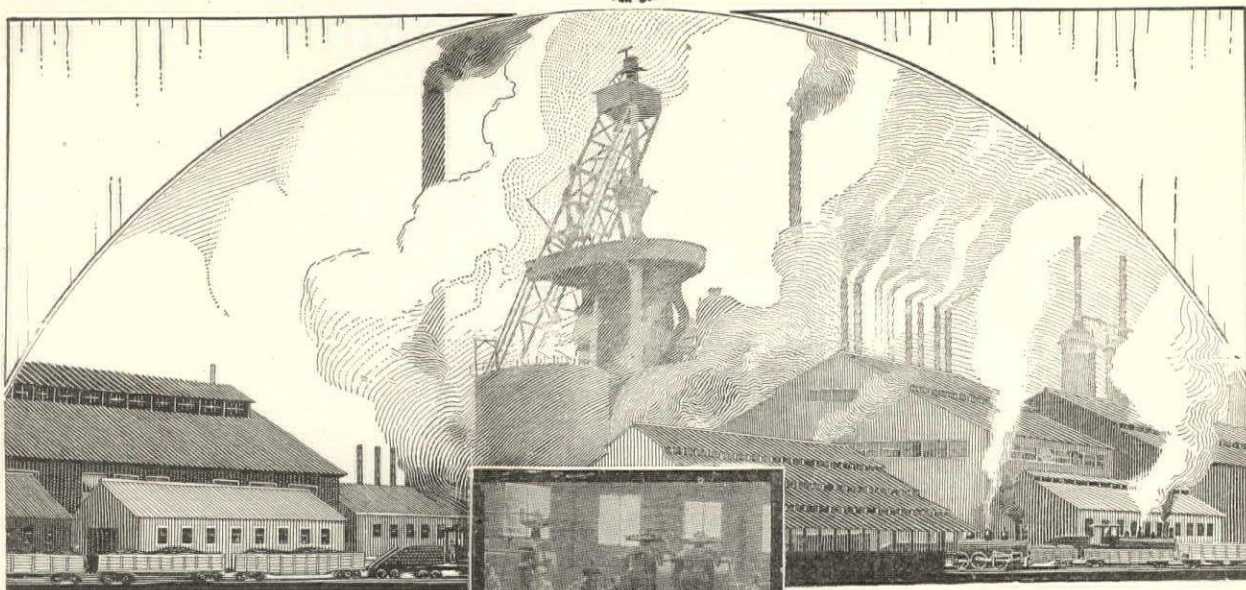
If it should become damaged, it can be quickly and cheaply repaired, a leak being permanently fixed in a few minutes. It is impervious to moisture, as it covers the surface of the roof with a continuous, unbroken sheet of metal, no seams serving to admit rain.

In case of fire from within, the tin roof acts as a blanket for the flames, smothering them and preventing the upward draft which often carries burning embers to a distance.

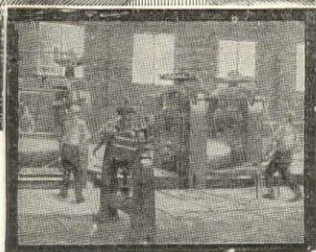
Before laying, a tin roof should be painted with one coat on the under side, and the upper surface should be carefully cleaned and immediately painted, all coats to be applied with a hand brush and well rubbed on.

Inasmuch as gutters are the natural receptacle for dirt, leaves, etc., they should be swept and painted every two or three years. The roof itself will not need painting more than at five or six-year intervals. Each painting restores a roof of good tin to its original condition.





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results of actual  
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proved their claims  
for excellence.

# SEVERE Service Conditions

demand better material. The metal which goes into the roofing, siding, and structures of great steel mills and industrial plants, must *resist rust* to the highest possible degree. Keystone Copper Steel Sheets and Roofing Tin Plates give *maximum service and rust-resistance* not only for industrial uses, but for residences, public buildings, and all forms of construction work to which sheet metal is adapted.

The high reputation of our products is recognized wherever sheet metal is used. Each brand of our manufacture has behind it a service—the scope of which has a tangible value to every architect, contractor and builder. This service begins with the planned care and skill in the making, which is carried through to the thorough system of distribution which keeps these products obtainable in every part of the country. For roofing, siding, gutters, spouting, eaves trough, sheet metal and tin work, use Keystone Copper Steel Galvanized Sheets and Roofing Tin Plates—best for both builder and property owner. Sold by leading metal merchants, and used by the leading contractors.



Keystone Copper Steel is an alloy made by the addition of a certain percentage of Copper to well made Steel, thereby greatly increasing its lasting and rust-resisting qualities under actual service conditions. It has been scientifically developed and tested—and its use is strictest economy.

## American Sheet and Tin Plate Company

General Offices: Frick Building, Pittsburgh, Pa.

### DISTRICT SALES OFFICES

Chicago Cincinnati Denver Detroit New Orleans New York Philadelphia Pittsburgh St. Louis  
Export Representatives: UNITED STATES STEEL PRODUCTS COMPANY, New York City  
Pacific Coast Representatives: UNITED STATES STEEL PRODUCTS COMPANY, San Francisco, Los Angeles, Portland, Seattle





## News, Notes and Comment



### Fire Protection for the Small Houses

FIGURES published by the National Board of Fire Underwriters indicate that the loss to buildings for a five-year period from 1916 to 1920 amounted to a total of \$1,672,722,677. This is equivalent to 334,000 dwellings costing \$5,000 each. Of this sum, figures show that a \$223,000,000 loss was sustained through roof fires, that is, from sparks and flying embers carried by high winds to the roofs of nearby buildings.

As there are a very large number of buildings with wood shingle roofs in our country, a simple plan to make them safe from this danger has been suggested and this is to run a perforated pipe along the ridge of such buildings and have this connected with the water supply. By opening a valve a spray of water will fall on the roof and form a water curtain, which would effectively stop any small flying embers from igniting the roof.

The water could be controlled by a valve at a convenient location either inside or easily reached from the outside.

The perforated pipe should preferably be made of brass or lead as they would stand the exposure to the weather.

This little scheme does not cost much to install and it would give some desired protection from such fires.

### Planning for the Future of New York

CITIES have a habit of growing in directions not exactly looked for by their original planners; still proper planning has accomplished wonders. Many people who have visited Washington have wondered why the Capitol has its back to the principal part of the city. When Washington was originally laid out, it was intended that the city should grow eastward, and therefore the Capitol was faced that way.

The Russell Sage Foundation has

undertaken the work of planning for the future of New York and its environs. The committee in charge will propose no abnormal expansion of public expenditure. With a wisely conceived plan public funds which will be expended in any event can be directed into projects of permanent constructive value; without a plan millions are likely to be wasted in desultory or ill-considered public works.

City planning requires imagination, it requires vision; it requires a long continuing study of facts, and it costs a substantial sum of money. There is no public treasury which can be drawn upon to create such a plan, for no one governmental agency has jurisdiction over all of that area which includes portions of three states and many municipalities.

After these inquiries have laid solid foundations upon which to base sound planning, the man, or the group of men, will be found to plan for New York and its environs as George Washington and Pierre l'Enfant planned for Washington, or Burnham and Bennett and their committees of business men planned for Chicago; to create a plan which, with wide public participation and approval, shall embody and record the best thought of our engineers, our artists and architects, our public servants, our social workers and economists, and far-seeing business men.

### Why Lumber Is Steamed During Kiln Drying

FROM the questions asked by numerous students taking the short courses in kiln drying at the Forest Products Laboratory, Madison, Wis., it is evident that many who operate kilns and handle lumber do not understand the object of steaming lumber in a kiln. There seems to be a common impression that the purpose of steaming lumber is to "remove the sap." This is far from being the fact, for when lumber is steamed it takes on moisture, as a rule, instead of giving off anything.

The reason for steaming lumber during drying depends on when it is done, but nearly always the treatment

is given for one of the following purposes—(1) to heat lumber through quickly at the start; (2) to relieve stresses which otherwise would produce checking, casehardening and honeycombing; (3) to equalize the moisture content and condition the lumber ready for the use at the end of the run; (4) to kill fungi and insects in the wood.

When lumber should be steamed, how long the treatment should last, and what temperature should be maintained are points which have been determined at the Forest Products Laboratory by experiments on many species of wood. A thorough understanding of the steaming operation is essential, because the whole kiln charge can easily be ruined by too severe a treatment. One of the chief needs of many commercial kilns is proper steaming facilities, without which a high degree of success in the artificial seasoning of wood is impossible.

### Book Notices

*The Home Painting Manual*; 168 Pages; Published by the Sherwin-Williams Company, Cleveland, O.; Price, 50c.

Here we have a really practical book on the subject of painting the house both inside and out. It is excellently illustrated by a number of colored illustrations besides black and white illustrations in the text. The chapters on the right use of painting and estimating will prove of interest and value to any builder as well as the remarks on finishing the interior woodwork and floors. Its many practical points will form a guide of what to do to get best results on this important branch of the building industry.

*The Sanitation of Bath Houses* by Wm. Paul Gerhard; 16 Pages; Price, 60c.; Published by Wm. T. Comstock Company, New York.

To any builder who is called upon to erect a swimming pool or bath house, this pamphlet contains some very interesting information and data. It is well illustrated by pictures and plans of different bath houses, both public and private.

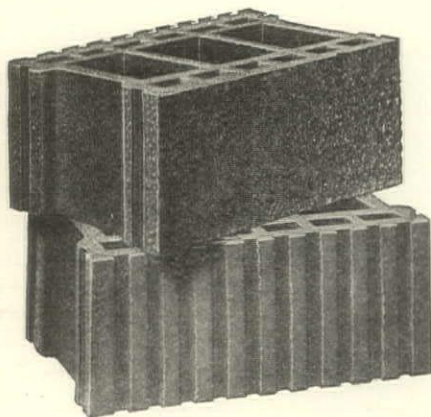




*Hospital, Wilberforce University, Wilberforce, Ohio, F. L. Packard, Columbus, Ohio, Architect*

## Permanence, Safety and Beauty— With Economy

**T**HE walls of this attractive and modern school hospital assure lasting fire-safety, protection and comfort for generations to come. Built of beautiful NATCO Tex-Tile with its blended rich, dark brown shades, it is a worthy addition to the group of buildings of which it is a part.



*NATCO glazed Tex-Tile, outside face 5 inches x 12 inches. Inside dovetail scored. Easily and quickly handled and laid.*

Each year more architects, builders and building supply dealers realize the merit, popularity and profit of NATCO Tex-Tile. The hollow spaces of the tile form a blanket of protecting air that insures interior comfort through summer heat and winter cold. By the use of NATCO Hollow Tile, through-the-wall mortar joints are eliminated, so that there is no chance for the penetration of moisture. Last, but not least, NATCO Tex-Tile is decidedly economical, because its units are large and easily laid.

"The Home Beautiful," a small circular describing NATCO Tex-Tile in detail and showing Tex-Tile wall sections in color will be sent free on request. This piece of advertising literature is worth while for showing building prospects.

*Write for it today*

**NATIONAL FIRE-PROOFING COMPANY**

1429 Fulton Building, Pittsburgh, Penna.

# NATCO HOLLOW TILE



# Review of Building Situation

**B**UILDING statistics for September, just published by F. W. Dodge & Company, show that the volume of contracts awarded for the past nine months of this year is greater than any total recorded and is 51% greater than the figure for the first nine months of 1921.

The total of contracts awarded for September, 1922, is the highest September total on record, being 11% greater than the figure for the corresponding month of 1921. This, despite the fact that September, 1921, total was a 16% decline from August. Of course, a seasonal decline is to be expected at this time of the year, but the fact that the total is higher than last year indicates continued healthy prosperity.

Business and industrial buildings show a very active condition in all districts. This is especially

true of the Middlewest District which has been rather behind in the building program. Residential construction in this district also shows signs of a healthy increase.

Residential construction in practically all districts still leads and a surprising fact is that although this is the time for a seasonal decline, the total is a little greater than that of the August record. Residential construction in the Pittsburgh, Middlewest and Northwest districts shows a decline from the August figures, but the New England, New York and Middle Atlantic districts show increase, the largest being nearly \$5,000,000 in the New York district.

The total amount contracted for residences during September, amounts to \$101,428,000, this representing 9,269 separate buildings, bringing the average cost of a structure to a little over \$10,900.

It is rather interesting to compare the amount of residence construction in the different districts, especially the figures for contemplated construction.

Of the \$134,093,600 worth of residential construction contemplated the sum of \$81,319,300 will be expended in the Eastern states. This amounts to a little more than 60% of the entire total which shows that the demand for residence construction has still to be met very decisively in the East and it is one of the best signs for builders of this class of structures as a forecast for next year's business.

This amount of money is contemplated to be spent on 12,089 separate buildings, 2,889 are to be built in the Middle and North West Districts with 1,753 in the Pittsburgh district, while in the Northeastern states, the number is 7,447, or 60% of the total.

## Record of September, 1922, Building Contracts Awarded

Classifications of Buildings	SECTION OF COUNTRY						Totals
	New England District	New York District	Mid Atlantic District	Pittsburgh District	Middle West District	North West District	
Business .....	\$9,100,000	\$10,873,000	\$5,355,500	\$6,425,800	\$12,378,000	\$1,774,700	\$45,907,000
Educational .....	1,529,600	6,075,200	3,749,600	2,637,800	6,623,900	597,400	21,213,500
Hospitals and Institutions....	2,103,600	653,000	640,200	986,200	934,000	13,500	5,330,500
Industrial .....	2,092,300	2,709,400	2,266,600	10,338,200	8,702,000	276,000	26,384,500
Military and Naval .....	.....	32,000	120,000	.....	110,000	.....	262,000
Public Buildings .....	100,000	837,500	116,000	121,100	150,000	.....	1,324,600
Public Works and Utilities....	2,219,800	4,681,000	7,470,700	11,480,200	24,469,400	58,000	50,379,100
Religious and Memorial.....	533,000	1,394,400	911,300	1,334,000	3,053,500	32,500	7,258,700
Residential .....	12,125,200	33,720,100	18,017,400	13,327,500	22,136,200	2,101,600	101,428,000
Social and Recreational.....	565,000	2,006,400	1,104,400	1,490,200	6,732,900	106,000	12,004,900
Total .....	\$30,368,500	\$62,982,000	\$39,751,700	\$48,141,000	\$85,289,900	\$4,959,700	\$271,492,800

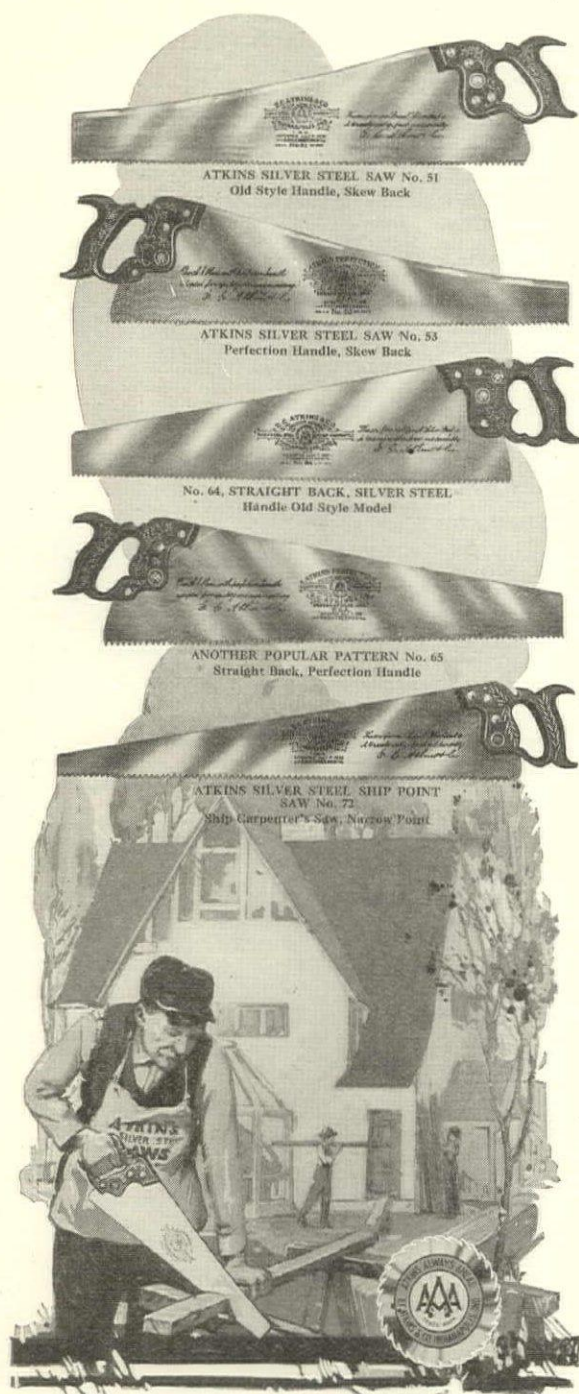
## Building Projects Contemplated, September, 1922

Classifications of Buildings	SECTION OF COUNTRY						Totals
	New England District	New York District	Mid Atlantic District	Pittsburgh District	Middle West District	North West District	
Business .....	\$4,586,400	\$13,800,500	\$5,322,900	\$4,924,200	\$12,173,500	\$1,604,700	\$42,412,200
Educational .....	2,560,500	3,621,200	2,095,200	5,126,000	7,013,000	1,290,500	21,706,400
Hospitals and Institutions ...	625,800	4,842,000	1,386,000	885,000	1,631,000	13,500	9,383,300
Industrial .....	2,687,300	6,550,600	4,099,000	13,451,200	8,981,000	2,310,000	38,079,100
Military and Naval.....	15,000	10,000	60,000	30,000	100,000	.....	215,000
Public Buildings .....	99,500	544,500	37,000	684,500	4,082,100	146,600	5,594,200
Public Works and Utilities....	2,379,400	9,960,300	5,959,700	7,841,700	40,906,100	1,962,500	69,009,700
Religious and Memorial.....	1,387,000	1,394,400	659,300	315,000	2,299,500	43,500	6,098,700
Residential .....	14,611,100	40,362,400	26,345,800	15,261,800	33,302,500	4,210,000	134,093,600
Social and Recreational.....	938,100	2,083,500	2,043,000	2,661,200	5,333,000	1,150,000	14,208,800
Total .....	\$29,890,100	\$83,169,400	\$48,007,900	\$51,180,600	\$115,821,700	\$12,731,300	\$340,801,000



# ATKINS

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Narrow point saws have become very popular among carpenters who like a light saw. To meet this demand we are making ship point saws in all our popular numbers.

Notice the last saw in the illustration—this is a ship point saw, fitted with our Perfection Handle.

We can furnish Atkins Saws—wide or narrow point—straight or skew back—fitted with either the old style straight across handle or the new Perfection handle.

Take no substitute, demand genuine Atkins Silver Steel Saws.

Send twenty-five cents for carpenter apron, pencil and "Saw Sense" booklet.

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Minneapolis	San Francisco	Vancouver, B.C.



# Trend of Material Prices

THE following are wholesale prices of basic building materials in the three markets which set prices for the rest of the country.

These prices are presented to show the trend of the wholesale market, which forecasts prices in the retail market. They are not prices which the average contractor

can buy at, but are quoted to show him the movement of materials so that he can buy to better advantage.

Followed in conjunction with the Review of Building Conditions, these prices will prove invaluable.

All prices are for carload lots, F. O. B. market quoted, unless otherwise noted.

## NEW YORK PRICES

	Sept. 28	Oct. 28
<b>LONG LEAF YELLOW PINE—</b>		
B. and Better Edge Grain Flooring, 13/16x2 1/4" Face...	\$83.50	\$91.00
Dimensions, S1S1E, No. 1 Common, 2x4", 10'.....	37.00	44.00
Timbers, Merchantable, 705, 12x12", 10 to 20'.....	53.00	58.50
B. and Better Ceiling, 1/2x3 1/4".....	47.00	47.00
B. and Better Partition, 3/4"x3 3/4".....	63.00	65.00
B. and Better Finish, 1x4".....	67.00	67.00
No. 1 Common Boards, 1x8".....	49.25	49.25
<b>NORTH CAROLINA PINE—</b>		
No. 2 and Better Flooring, 13/16x2 1/4".....	\$65.00	\$66.00
Roofers, 13/16x5 1/4".....	33.50	35.50
<b>DOUGLAS FIR—</b>		
No. 2 Clear and Better V. G. Flooring, 1x3".....	\$75.00	\$75.00
No. 1 Clear V. G. Flooring, 1x4".....	73.00	75.00
No. 2 Clear and Better Ceiling, 1/2x4".....	53.50	50.50
No. 2 Clear and Better Novelty Siding, 1x6".....	54.00	54.00
No. 2 Clear and Better V. G. Stepping.....	94.00	91.00
<b>WESTERN RED CEDAR—</b>		
B. C. Perfection Shingles, per M.....	\$7.68	\$7.68
Washington Perfection Shingles, per M.....	7.42	7.42
Clear Bevel Siding, 1/2x6".....	52.50	52.50
<b>CANADIAN SPRUCE—</b>		
No. 1 Lath, 1 1/2".....	\$9.25	\$9.25
Dimension, 2x4", 10 to 16'.....	34.00	34.00
<b>HARDWOOD FLOORING—</b>		
Clear Quartered White Oak, 13/16x2x2 1/4".....	\$157.50	\$158.50
Clear Plain White Oak, 13/16x2 1/4".....	113.50	113.50
Clear Plain Red Oak, 13/16x2 1/4".....	113.50	113.50
Clear Maple, 13/16x2 1/4".....	103.00	103.00
(All lumber prices furnished by National Lumber Merchant)		
<b>COMMON BRICK—</b>		
Per M. f. o. b. job.....	\$20.60	\$20.60
<b>PORTLAND CEMENT—</b>		
Bbls. in car lots to contractors, delivered.....	\$2.90	\$2.90
<b>STRUCTURAL STEEL—</b>		
Per 100 lb. at warehouse.....	...	\$3.14
<b>CRUSHED STONE (cu. yd.)—</b>		
1/4 in. ....	\$2.85	\$2.90
1 1/2 in. ....	2.70	2.75
<b>WALL BOARD—</b>		
Per 1,000 sq. ft. in lots under 1,000 sq. ft.....	\$50.00	\$50.00
Per 1,000 sq. ft. in lots 1,000 to 2,500 sq. ft.....	45.00	45.00
<b>METAL LATH—</b>		
2.3 lb.—26 gauge price per 100 sq. yd. delivered.....	\$20.00	\$21.00
2.8 lb.—24 gauge light price per 100 sq. yd. delivered.....	22.00	23.00
3.4 lb.—24 gauge heavy price per 100 sq. yd. delivered.....	22.00	23.00
Add 5 cents per sq. yd. for galvanized.		
<b>LIME (Hydrate)—</b>		
Finishing, per 50 lb. bag.....	\$0.60	\$0.60
Masons, per 50 lb. bag.....	.45	.49
<b>SAND AND GRAVEL—</b>		
Sand (per cubic yard).....	\$1.65	\$1.55
1/4 in. Gravel (per cubic yard).....	2.85	2.90
1 1/2 in. Gravel (per cubic yard).....	2.85	2.90
<b>FACE BRICK—</b>		
Tapestry (delivered).....	\$46.00	\$46.00
Caledonian (delivered).....	43.00	43.00
Smooth Grey (delivered).....	47.00	47.00
Fisk Lock f. o. b. factory.....	36.00	36.00
<b>SHINGLES—</b>		
Asphalt, Single (per square).....	\$8.25	\$8.25
Asphalt, Strip (per square).....	6.50	6.50
<b>STAINED WOOD SHINGLES—</b>		
16 in. Extra Clear (per square, delivered).....	\$11.00	\$11.00
18 in. Eureka (per square, delivered).....	11.00	11.00
18 in. Perfection (per square, delivered).....	12.00	12.00
24 in. Royal (per square, delivered).....	12.25	12.25
24 in. Imperial (per square, delivered).....	12.50	12.50
<b>VITRIFIED SEWER PIPE—</b>		
4 in. (cents per foot).....	\$0.12	\$0.12
6 in. (cents per foot).....	.18	.18
<b>SLATE ROOFING—</b>		
Bangor or Slatining, 8x16 in. (per sq. at quarry)...	\$8.40	\$8.40
<b>CORNER BEADS (Galvanized)—</b>		
Per Foot.....	\$0.06	\$0.05
<b>WALL TIES (Galvanized)—</b>		
Per Thousand.....	\$5.00	\$5.00
<b>FLUE LINING—</b>		
8 1/2 x 8 1/2 in. Per Foot.....	\$0.30	\$0.33
8 1/2 x 13 in. Per Foot.....	.47	.50
<b>HOLLOW TILE—</b>		
8 x 12 x 12 in., heavy. Each, delivered.....	\$0.27	\$0.22 1/2
<b>HAIR—</b>		
Per Bushel.....	\$0.60	\$0.60

	Sept. 28	Oct. 28
<b>PLASTER BOARD—</b>		
32 x 36 x 1/2 in., Each.....	\$0.30	\$0.25
<b>MAGNESITE STUCCO—</b>		
Per Ton.....	\$65.00	\$65.00
<b>TILE—</b>		
1 in. Square or Hexagon, White, per sq. ft.....	\$0.25	\$0.25
3 x 6 in. White Wall.....	.60	.60
8 x 8 in. Red Floor.....	.45	.45

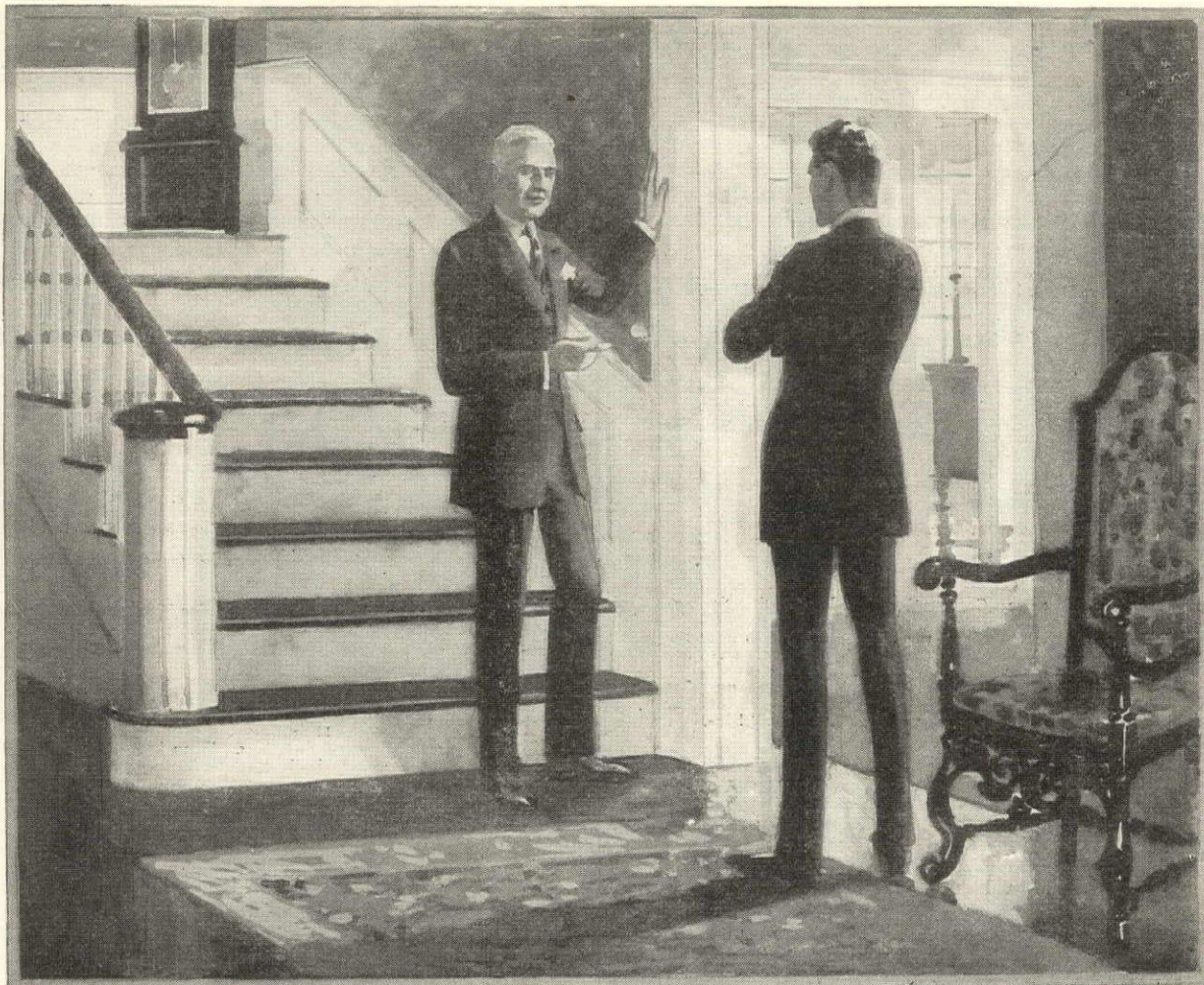
## CHICAGO PRICES

<b>YELLOW PINE—</b>		
Boards, 1x8, No. 1 Com.....	\$43.00	\$43.00
Ceiling, 1/2x4, B. and Btr.....	50.00	48.00
Dimension No. 1, 2x4, 12 to 14 ft.....	40.00	36.00
Drop Siding, 1x6, B. and Btr.....	57.00	55.00
Finish, 1x4, B. and Btr.....	64.00	62.00
Flooring, B. and Btr. E. G., 1x3.....	80.00	85.00
Lath, 4 ft., No. 1.....	8.00	8.00
Timbers, Long Leaf No. 1, 10-20 ft., S4S, 6x12 to 12x12	44.00	47.00
<b>HARDWOODS—</b>		
Maple Flooring, 13/16x2 1/4, clear.....	\$99.75	\$99.75
Oak Flooring, 1/2x2, Cl. Pl., White.....	74.00	74.00
Oak Flooring, 13/16x2 1/4, Cl. Pl., White.....	108.50	108.50
<b>REDWOOD—</b>		
Bevel Siding, S1S1E, 10 ft., 20 ft., 1/2x4, clear.....	\$42.25	\$44.25
Finish, S2S or S4S, 1x6 to 8 in. clear.....	91.50	91.50
<b>WESTERN RED CEDAR—</b>		
Bevel Siding, 1/2x4 in., Clear.....	\$53.00	\$53.00
Shingles, Extra Clears, 16 in.....	5.41	5.16
<b>COMMON BRICK—</b>		
Per M. f. o. b. job.....	\$12.00	\$12.00
<b>PORTLAND CEMENT—</b>		
Bbls. in car lots* to contractors, not including con-		
tainers.....	\$2.20	\$2.20
<b>STRUCTURAL STEEL—</b>		
Per 100 lbs. at warehouse.....	...	\$2.90
<b>CRUSHED STONE (cu. yd.)—</b>		
1/4 in. ....	\$3.50	\$3.25
1 1/2 in. ....	\$3.50	\$3.25
<b>WALL BOARD—</b>		
Per 1,000 sq. ft. in lots under M.....	\$45.00	\$45.00
Per 1,000 sq. ft. in lots 1 M to 2 1/2 M.....	50.00	50.00
<b>SAND AND GRAVEL—</b>		
Sand (per cubic yard).....	\$3.50	\$3.25
1/4 in. Gravel (per cubic yard).....	3.50	3.25
1 1/2 in. Gravel (per cubic yard).....	3.50	3.25

## ST. LOUIS PRICES

<b>YELLOW PINE—</b>		
Boards, No. 1 Com., 1x4.....	\$47.00	\$48.50
Partition, 1/2x3 1/4, B. and Btr.....	57.25	57.25
Dimension, No. 1, S1S1E, Short Leaf, 2x4 in., 12 & 14 ft.	37.00	37.00
Finish, S2S, B. and Btr., 1x4, 6 & 8 ft.....	63.00	62.50
Flooring, B. and Btr., E. G., 1x3.....	79.00	84.25
Flooring, B. and Btr., F. G., 1x3.....	62.50	63.50
Lath, 4 ft., No. 1.....	7.75	6.75
Timbers, No. 1, rough, short leaf, 6x12 to 12x12 in.	39.50	39.50
<b>CALIFORNIA REDWOOD—</b>		
Finish, S2S, CL., 1x6 in.....	\$91.50	\$91.50
Siding, 4 in. Bevel, 10 to 20 ft.....	48.00	43.25
8 inch Colonial.....	70.75	69.25
8 inch Bungalow.....	70.75	69.25
<b>HARDWOODS—</b>		
Oak Flooring, 1/2x1 1/2 and 2 in., Clear Qtr. White.....	\$106.50	\$106.50
Maple Flooring, 13/16x2 1/4 in., Clear.....	91.00	91.25
<b>RED CEDAR—</b>		
Siding, 1/2x6, Clear.....	\$48.00	\$48.00
Shingles, Clears, Per M.....	5.51	5.25
<b>COMMON BRICK—</b>		
Per M., f. o. b. job.....	\$17.00	\$18.00
<b>PORTLAND CEMENT—</b>		
Bbls. in car lots to contractors, not including con-		
tainers.....	\$2.35	\$2.35
<b>STRUCTURAL STEEL—</b>		
Per 100 lbs. at warehouse.....	...	\$3.00
<b>CRUSHED STONE (cu. yd.)</b>		
1/4 in. ....	\$1.83	\$2.20
1 1/2 in. ....	1.83	2.20
<b>WALL BOARD—</b>		
Per 1,000 sq. ft. in lots under M.....	\$50.00	\$50.00
Per 1,000 sq. ft. in lots 1 M to 2 1/2 M.....	45.00	45.00
<b>SAND AND GRAVEL—</b>		
Sand (per cubic yard).....	\$1.10	\$1.20
1/4 in. Gravel (per cubic yard).....	1.30	1.45
1 1/2 in. Gravel (per cubic yard).....	1.25	1.40





"I AM DELIGHTED with Arkansas Soft Pine woodwork—it is the ideal wood for white enamel. We have lived in this home over twenty years and there is not a single sign of discoloration or raised grain in any of the woodwork. Moreover, it cost us just about half the price of other materials often considered as indispensable to a successful white finish."

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SATIN-LIKE INTERIOR TRIM

makes a *permanent friend* of every owner, builder and architect who installs it. It is the one moderate priced woodwork of such physical character as assures lasting satisfaction.

Arkansas Soft Pine is the logical woodwork for homes of every size, apartments, offices, and semi-public buildings. See Sweets Catalog and American Architect Manual for specifications, etc.

LITERATURE AND SAMPLES ON REQUEST

*Arkansas Soft Pine is trade marked and sold by dealers East of the Rockies*

## ARKANSAS SOFT PINE BUREAU

1117 Boyle Building • Little Rock, Arkansas





# Selected List of Manufacturers' Literature

FOR THE SERVICE OF BUILDERS, CONTRACTORS, ARCHITECTS AND ENGINEERS

The publications listed in these columns are the most important of those issued by leading manufacturers identified with the building industry. They may be had without charge, unless otherwise noted, by applying on your business stationery to BUILDING AGE & THE BUILDERS' JOURNAL, 920 Broadway, New York, or the manufacturer direct, in which case kindly mention this publication. Either the titles or the numbers may be used in ordering.

Listings in this Department are available to any manufacturer at the rate of \$5 per listing per month.

(See also Alphabetical Index, Page 120)

## ARCHITECTS' SPECIFICATION HAND BOOK

Truscon Company, Detroit, Mich.  
270. 52-page-bound, loose-leaf specification book. 8½ x 11 in.

## ASBESTOS PRODUCTS

- Asbestos Shingle, Slate & Sheathing Co., Ambler, Pa.
1. *Ambler Asbestos Shingles*. Catalog 5½ x 8½ in. 40 pp. Illustrated.
  2. *Ambler Asbestos Corrugated Roofing and Siding*. Catalog, 8½ x 11 in. 36 pp. Standard Purlin Spacing Tables.
  3. *Ambler Asbestos Corrugated Roofing and Siding*. Catalog, 8½ x 11 in. 20 pp. Illustrated. Prices and specifications.
  4. *Ambler Asbestos Building Lumber*. Catalog, 8½ x 11 in. 32 pp.
  5. *Engineers' Data Sheets*. Catalog, 8½ x 11 in. 40 pp. Illustrated. Specifications and working sheets for Ambler Asbestos Corrugated Roofing and Siding.

## ASBESTOS ROOFING—See also Roofing

## ASH HOISTS—See also Hoists

## ASH RECEIVERS

- Sharp Rotary Ash Receiver Corporation, 396 Bridge St., Springfield, Mass.
7. *Catalog E*. Booklet describing the Sharp Rotary Ash Receiver with illustrations of houses in which the furnaces are equipped with this device. 24 pp. Ill. 6 x 9¼ in.
  8. *Catalog F*. A book for architects and builders telling what the Sharp Rotary Ash Receiver is and what it does; together with tables of dimensions for installation. 8 pp. Illus.

## BALANCES, SASH

- Caldwell Mfg. Company, The, Rochester, N. Y.
9. *Suggestions for the Present-Day Architect*. Booklet, 6 x 9 in. 16 pp. Illustrated. Gives full-size dimensions and information for the purpose of writing specifications for Caldwell Sash Balances.
- Pullman Mfg. Co., Rochester, N. Y.
10. *Catalog* describes new form of sash balance that can be removed and inserted without removing sash from window.

## BAND SAWS

- American Saw Mill Machinery Co., Hackettstown, N. J.
11. *Catalog No. 22* describing a general line of band saws of various sizes.
  12. *Technical Data*. Four-page folder 8½ x 11 in. containing specifications, description, prices and approximate cost of installation. Everything the architect or contractor requires.
- Crescent Machine Co., Lectoria, Ohio.
241. Descriptive 144-page Catalog.

## BAR BENDERS AND CUTTERS

- Koehring Company, Milwaukee, Wis.
13. *Four-page folder* giving illustrations and sizes of Koehring Bar Benders and Cutters.

## BATHROOM FIXTURES

- Kenney-Cutting Products Corp., 507 Fifth Avenue, New York.
401. *Send for illustrated Folder*, "A Bath a Day Keeps You Fit Every Way."

## BEDS

- Murphy Door Bed Company, Majestic Bldg., Chicago, Ill.
402. *Eight-page illustrated*, "How to Use the Murphy Bed."

## BOILERS—See Heating Equipment

## BOOKS

- American Technical Society, 58th and Drexel Blvd., Chicago, Ill.
- Architectural House Planning Service Co., 20 So. 18th Street, Philadelphia, Pa.
- Arrow Book Company, 347 Fifth Avenue, New York City.
- Chicago Technical College, 1038 Chicago Tech. Bldg., Chicago, Ill.
- U. P. C. Book Co., 243 West 39th Street, New York City.

## BLUE PRINTS

- Peerless Blue Print Co., 347 Fifth Avenue, New York City.
403. *Splendid Drawing Board Outfits* are manufactured in conjunction with the making of blue prints.

## BRICK

- American Face Brick Association, 110 South Dearborn Street, Chicago, Ill.
15. *The Story of Brick*. Contains the history of, and basic requirements of building brick, artistic, sanitary and economic reasons, comparative costs, and fire safety with photographs and drawings, and illustrates ancient and modern architectural works of note in brick. Sent free.
  16. *A Manual of Face Brick Construction*. The history of brick making, types of face brick, showing details of construction for walls, chimneys and arches. Details of use of tile and brick construction and different types of bonds are given. A series of plans and elevations of small brick houses, descriptions, useful tables and suggestions are illustrated and described. Sizes 8½ x 11 in. 116 pp. Price \$1.00.
  17. *The Home of Beauty*. A booklet containing fifty prize designs for small brick houses submitted in national competition by architects. Texts by Aymar Embury II, Architect. Size 8 x 10 in. 72 pp. Price 50 cents.

18. *Architectural Details in Brickwork*. Three series of beautiful half-tone prints of brickwork detail, contained in closed folders suitable for standard vertical letter file. The three series contain 124 prints in all. Size 8½ x 11 in. Price \$1.50 per set.

Common Brick Manufacturers' Association of America, 1309 Schofield Bldg., Cleveland, Ohio.

19. *Brick—How to Build and Estimate*. 3rd edition, 32nd thousand, a manual of solid brick and Ideal wall construction. Contains data on the strength of brickwork, on mortars, bonds and joints and equipment, and contains complete estimating tables for quantities of brick, mortar, material and approximate mechanics' time for various thicknesses and square foot areas of solid and Ideal wall. 8½ x 11 in. 72 pp. Price 25 cents.
  20. *Brick for the Average Man's Home*. Book, 8½ x 11 in. 72 pp. Color plates. Book of plans for bungalows, houses and apartments for which working drawings are available. Price, \$1.00.
- Fiske & Company, Boston, Mass.
145. *Tapestry brick, other grades of front brick*. Manufacturers "Fisklock" Brick.

## BUILDING CONSTRUCTION—See also Garage Construction

- National Manufacturing Co., Sterling, Ill.
404. *An 80-page catalog*, profusely illustrated with various kinds of Garage Hardware.
- Truscon Steel Company, Youngstown, Ohio.
21. *Truscon Floortype Construction*. Form D352. Contains complete data and illustrations of Floortype installations. 16 pp. Ill. 8½ x 11 in.
  22. *Truscon Standard Buildings*. Form D-398. Describes Truscon Standard Steel Buildings, with diagrams, illustrations of installations, descriptive matter and list of users. 48 pp. Ill. 8½ x 11 in.
  23. *Truscon Building Products*. Form D-376. Contains a brief description of each of the Truscon Products. 112 pp. Ill.
  24. *Modern School Construction*. Form D-395. Contains illustrations of schools, with typical elevations, showing advantages of Truscon Products for this construction. 16 pp. Ill.

## BUILDING HARDWARE—See Hardware

## BUILDING STONE—See Stone, Building

## BUILT-IN CLOTHES HANGERS

- Knap & Vogt, Grand Rapids, Mich.
405. *16-page booklet*, describing the "Garment Care System."

## BUILT-IN KITCHENS

- Bisk Corporation, Brockton, Mass.
406. *16-page illustrated catalog*, giving the pictures and plans on the installation of the Built-In Kitchens. It describes in detail the various types and sizes.

## BUNGALOW AND SMALL HOUSE PLANS

- American Face Brick Association, 110 South Dearborn Street, Chicago, Ill.
25. *Four booklets* of small houses from 3 to 8 rooms, containing 98 reversible designs. (1) 3-4 rooms, (2) 5 rooms, (3) 6 rooms, (4) 7-8 rooms; size 8½ x 11 in. Each booklet 25 cents; set, \$1.00.
- Architectural House Planning Service Company, 20 South 18th Street, Philadelphia, Pa.

## CANVAS—See Roofing Materials

## CASEMENTS—See Doors and Windows

## CAULKING AND GLAZING COMPOUND

- Allmetal Weatherstrip Co., 126 West Kinzie Street, Chicago, Ill.
246. *Illustrated catalog* sent on request.

## CEILINGS, METAL

- The Edwards Manufacturing Company, Cincinnati, O.
33. *Pamphlet of 32 pages*, describing metal ceilings and wainscoting. Well illustrated, with list prices and rules for estimating. 7 x 10 in.
- Keighley Mfg. Co., 124 Third Avenue, Pittsburgh, Pa.
407. *Catalog "M"* describes the Lock Joint Metal Ceiling.

## CEMENT

- The Atlas Portland Cement Co., 25 Broadway, New York, N. Y.
37. *The Atlas Book on Concrete Construction*. A text book written for the average builder in concrete and from the practical rather than from the technical standpoint. Treats on both plain and reinforced concrete. 144 pp. 4½ x 7 in. Cloth bound. Price, \$2.00.
  30. *Set of Blue Prints*. Drawings showing how to apply Portland Cement stucco to the different standard types of wall construction. Appended are tables of the quantities of cement and sand required to cover a given wall surface.
  31. *Concrete on the Farm*. The most comprehensive book of its kind. Practical and thoroughly reliable instructions, with plans and pictures of all possible farm structures for which concrete can be used. Complete directions in practical terms for selection of aggregate and the mixing and placing of concrete.





John Falsch  
Architect

## 85 Beautiful and Well Planned Brick Houses Available to Every Contractor

An unusually wide range of carefully selected designs—modest bungalows to five and six-room homes and pretentious dwellings. Every plan a masterpiece—drawn by a competent architect.

Beautiful and distinctive, thoroughly practical—*every house has been actually built and lived in.*

### You Can Quickly Sell Homes Built From These Plans

These homes are so attractive in design and so practical in arrangement that once built they are *in demand*. They sell quickly, profitably.

They emphasize the value of good design for even with all their advantages over ordinary houses these fine brick homes are *simple and economical to build*. They offer a wonderful opportunity to every builder.

Plans, specifications and complete information are now available at nominal price. Send for "Brick for the Average Man's Home" (1.00) containing supplements which illustrate these 85 valuable plans.

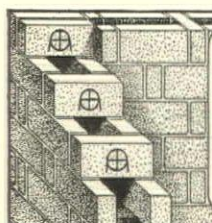
"BRICK — How to Build and Estimate" (25c) contains detailed information about the Ideal Wall and other money-saving methods, together with many estimating tables. \$1.25 brings both this book and "Brick for the Average Man's Home" with the wonderful supplements illustrating these exceptional plans.

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2133 CLEVELAND DISCOUNT BUILDING

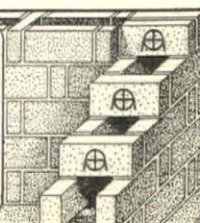
Cleveland, Ohio

*The Ideal Brick Hollow Wall is made of standard brick obtainable everywhere*



# Ideal Brick Hollow Wall

*"Brick Homes at the Cost of Frame"*





## SELECTED LIST OF MANUFACTURERS' LITERATURE—Continued from page 72

32. *Other Publications.* The Atlas Portland Cement Company has numerous other publications, covering nearly every phase of concrete construction. Their Service Department will give sound advice on any phase of concrete construction to anyone applying for it.

Koehring Company, Milwaukee, Wis.

38. *Concrete—Its Manufacture and Use.* Book, 4½ x 7 in. Illustrated. 207 pp. Comprehensive discussion from the practical standpoint of concrete.

Portland Cement Assn., Washington Street, Chicago, Ill.

511. "The Concrete Builder," vol. 4, No. 6, devoted to the use of Concrete for Farm and Home. This booklet gives the definite specifications for concrete block bungalows.

## CHAINS

Bridgeport Chain Co., Bridgeport, Conn.

29. *Catalog No. 14.* Contains 64 pp. Illustrated, of different chains that can be used in all parts of building construction.

## CLAMPS

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

408. *Descriptive catalog* of the various Clamps.

## COAL CHUTES

The Donley Bros. Co., 3700 East 74th Street, Cleveland, Ohio.

409. *An interesting folder*, describing the advantages of the Donley Coal Chute.

## COLUMN BASIS

S. Cheney & Son, Manlius, New York.

## COLUMN AND BEAM COVERING

United States Gypsum Company, 205 W. Monroe St., Chicago, Ill.

39. *32-page booklet*, 8½ x 11. Pyrobar Tile.

## COLUMNS

Hartmann-Sanders Co., Elston and Webster Avenues, Chicago, Ill.

233. *Catalog No. D-47.* 48 pages, illustrated. 7¼ x 10 in. Illustrating the Koll's Patent Lock-Joint Wood Columns.

## CONCRETE APPLIANCES

Universal Cement Mould Co., No. Milwaukee, Wis.

41. *Illustrated Folder*, describing mold for building hollow concrete walls for homes, garages, barns, silos, etc.

Van Guilder Double Wall Co., 77 South Avenue, Rochester, N. Y.

42. *A Catalog* describing the Van Guilder system of portable forms for the building of hollow concrete walls on the thermos bottle idea for the erection of homes, ice houses, barns, silos, etc. Walls are dry, as there is continuous air space around entire building.

## CONCRETE MACHINERY

A. S. Aloe Company, 513 Olive Street, St. Louis, Mo.

43. *Descriptive Illustrated Circular* of Magic Concrete Mixer.

The American Cement Machine Co., Inc., Keokuk, Iowa.

410. *An interesting 68-page illustrated catalog*, describing the "Boss" Labor Saving Construction Machinery.

Concrete Equipment Co., 535 Ottawa Street, Holland, Mich.

411. *Catalog No. 22* describes in detail the various products manufactured by this company.

Concrete Block Machine & Mold Co., 114 S. 2nd St., St. Louis, Mo.

253. *Catalogue No. 38.* Describes Building Block Machines. It is a 40-page book, 6 x 10 in.

C. H. & E. Mfg. Co., 259 Mineral Street, Milwaukee, Wis.

412. *Bulletin No. 1* describes the Portable Saw Rigs.

413. *Bulletin No. 2* describes the Power Driven Pumps, Centrifugal, Pistons, Diaphragm, Triplex.

414. *Bulletin No. 3* describes the Hoists, Mortar Mixers, Material Elevators, Engines.

415. *Bulletin No. 4* describes the Tractor.

Ideal Concrete Machinery Co., 1334 Monmouth Street, Cincinnati, Ohio.

416. *A 100-page illustrated catalog*, describing the Ideal Machine and also data for manufacturing and curing Ideal Concrete Blocks.

417. *Catalog No. 37* describes the Ideal-Cincinnati Batch-Mixers.

Jaeger Machine Co., 216 Dublin Avenue, Columbus, Ohio.

418. *A 40-page catalog*, well illustrated, describing the special features of a Jaeger Mixer.

419. *16-page folder*, illustrating a Jaeger for every mixer need.

Koehring Co., Milwaukee, Wis.

46. *Koehring Construction Mixers.* Booklet, 7¼ x 10½ in. Illustrated. 96 pp. Complete information on construction type concrete mixers.

47. *Koehring Dandie Mixer.* Booklet, 6 x 9 in. Illustrated. 24 pp. Illustrating and describing Koehring line of Dandie light mixers.

265. "Built to Endure." A beautifully bound booklet of 36 pages, 7¼ x 10 in., describing Comparative Examples of Notable Ancient and Modern Construction Embodying the Element of Permanency.

Little Whirlwind Mixer Co., 438 Gould Street, La Crosse, Wis.

420. *An eight-page illustrated folder*, describing the efficiency of the Master Mixer.

Republic Iron Works, Box 602, Tecumseh, Mich.

421. *An eight-page illustrated pamphlet*, describing the Republic "Ten."

Standard Scale & Supply Co., 1631 Liberty Ave., Pittsburgh, Pa.

422. *28-page illustrated catalog*, describing quick, efficient and money-saving concrete mixing.

## CONCRETE MARBLE

Art Stone Co., Waynesboro, Pa.

45. *Descriptive Circulars* with illustrations of different marbles in colors. Sent free to any interested party.

## CONSTRUCTION, FIREPROOF

Central Steel Co., Massillon, Ohio.

423. In the "National Steel Lumber" Handbook is embodied complete information and authentic data pertaining to the use of Steel Lumber Sections and kindred materials.

424. "National" Bulletin No. 19B describes the National Shelby.

National Fire Proofing Co., 250 Federal St., Pittsburgh, Pa.

226. *Standard Fire Proofing Bulletin 171.* 8½ x 11 in. 32 pp. Illustrated. A treatise on fireproof floor construction.

United States Gypsum Company, 205 W. Monroe St., Chicago, Ill.

48. *Pyrobar Gypsum Tile.* Booklet, 8½ x 11 in. 32 pp. Illustrated. Detail and specifications for fireproof partitions.

49. *Bulletins*, 8½ x 11 in. Containing details and specifications for Pyrobar voids for use with reinforced concrete joist floor construction; Pyrobar roof tile; and monolithic gypsum floors and roofs.

## CONTRACT AND ESTIMATE BLANKS

L. Fink & Sons Printing Co., Laurel Spring, N. J.

166. *Samples of contract sheets, estimate blanks, job tickets, time tickets, time sheets, wage receipts, etc., with prices.*

## CRYSTALS, MICASPAR

Crown Point Spar Co., 101 Park Avenue, New York.

276. *50-page descriptive catalog*, describing the advantages and uses of the Sparkling Micaspar Crystals.

## DAMPERS AND ASH DUMPS (Fireplace)

The Donley Bros. Co., 3700 East 74th Street, Cleveland, Ohio.

## DAMP-PROOFING

Amalgamated Roofing Co., 431 So. Dearborn Street, Chicago, Ill.

425. *Six-page folder*, describing the Nu-Tile 4-in-1 Shingle.

Asbestos Shingle, Slate & Sheathing Co., Ambler, Pa.

426. *Send for catalog* on the advantages of the Asbestos Shingle.

Illinois Zinc Co., 280 Broadway, New York.

428. *An eight-page folder*, describing the roof that is always new.

National Sheet Metal Roofing Co., 339 Grand St., Jersey City, N. J.

429. *68-page book*, illustrating the "Shingles That Last."

Rebond Co., Van Wert, Ohio.

430. *An eight-page folder*, entitled, "Fortifies Your Home Against the Element of Time."

F. C. Sheldon Slate Co., Granville, N. Y.

431. *A 16-page illustrated booklet*, describing "The Most Enduring and the Most Attractive Roof at the Most Reasonable Cost."

## DOOR CHECKS

Park Manufacturing Co., Worcester, Mass.

50. *Catalog* contains description of six models of the new improved Worcester-Blount Door Check.

## DOORS AND WINDOWS

The Bogert & Carrough Co., 30 Peach St., Paterson, N. J.

247. *BOCA steel sash. (E-22.)* A catalogue containing designing information, complete details and tables, and illustrations of standard installations of sidewall sash, monitor sash, mechanical operators, steel doors, and steel partitions. 24 pages. Illustrated. 8½ x 11 in.

Detroit Steel Products Co., 2355 E. Grand Blvd., Detroit, Mich.

432. *A 32-page catalog*, describing "Window Walls," their cost and their advantages.

Henry Hope & Sons, 103 Park Ave., New York.

51. *Hope's Casements and Leaded Glass.* Portfolio. Gives specifications, description and photo-engraving, of Hope Casements in English and American Architecture, full size details of outward and inward opening and pivoted casements, of residential and office types. Size 12¼ x 18½ in. 32 pp.

Truscon Steel Company, Youngstown, Ohio.

52. *Truscon Steel Sash.* This handbook has been prepared for detailers and specification writers. The descriptions are clear and the details are complete. 80 pp. Ill. 8½ x 11 in.

53. *Truscon Steel Sash.* A catalog containing designing data, tables and views of Stock Sash installations. 6 pp. Ill.

## DOOR AND WINDOW FRAMES

Andersen Lumber Company, South Stillwater, Minn.

55. *General Catalog* for architects, contractors, engineers, carpenters or builders. Describes and illustrates fully Andersen Standard White Pine Window, Cellar Frames, Sash Frames and Door Frames. Gives details of construction, variety of sizes and uses for ordinary as well as special construction, and method of assembly. Size 7¼ x 10½, 24 pages.

56. *Better Frames for Less Money* for consumers. Interesting folder showing advantages of Andersen Standard White Pine Frames. Uses, sizes and details of construction.

## DRAFTING MATERIALS

A. S. Aloe Company, 513 Olive Street, St. Louis, Mo.

433. *A 116-page book*, describing the advantages of "Direct-by-Mail" Buying.

Keuffel & Esser Co., Hoboken, N. J.

434. *A 486-page Bound Book.* This is the thirty-sixth edition of the catalog.

Peerless Blue Print Co., 347 Fifth Avenue, New York City.

- Warren-Knight Company, 136 No. 12th Street, Philadelphia, Pa.

435. *36-page booklet*, describing the "Sterling" Transits and Levels.

## DUMBWAITERS

Kimball Bros. Co., 1106 Ninth Street, Council Bluffs, Iowa.

436. *30-page illustrated catalog*, describing the various models of Dumbwaiters.

Sedgwick Machine Works, 156 W. 15th Street, New York.

57. *High grade Hand Power Elevators and Dumbwaiters for All Purposes.* Illustrated catalog, 52 pages; dumbwaiter service sheet, and pamphlets descriptive of many special types of outfits.

## ELECTRICAL DEVICES

Arrow Electric Co., Hartford, Conn.

General Electric Co., Schenectady, N. Y.

## ELECTRIC METER BOXES

The Donley Bros. Co., 3700 East 74th Street, Cleveland, Ohio.

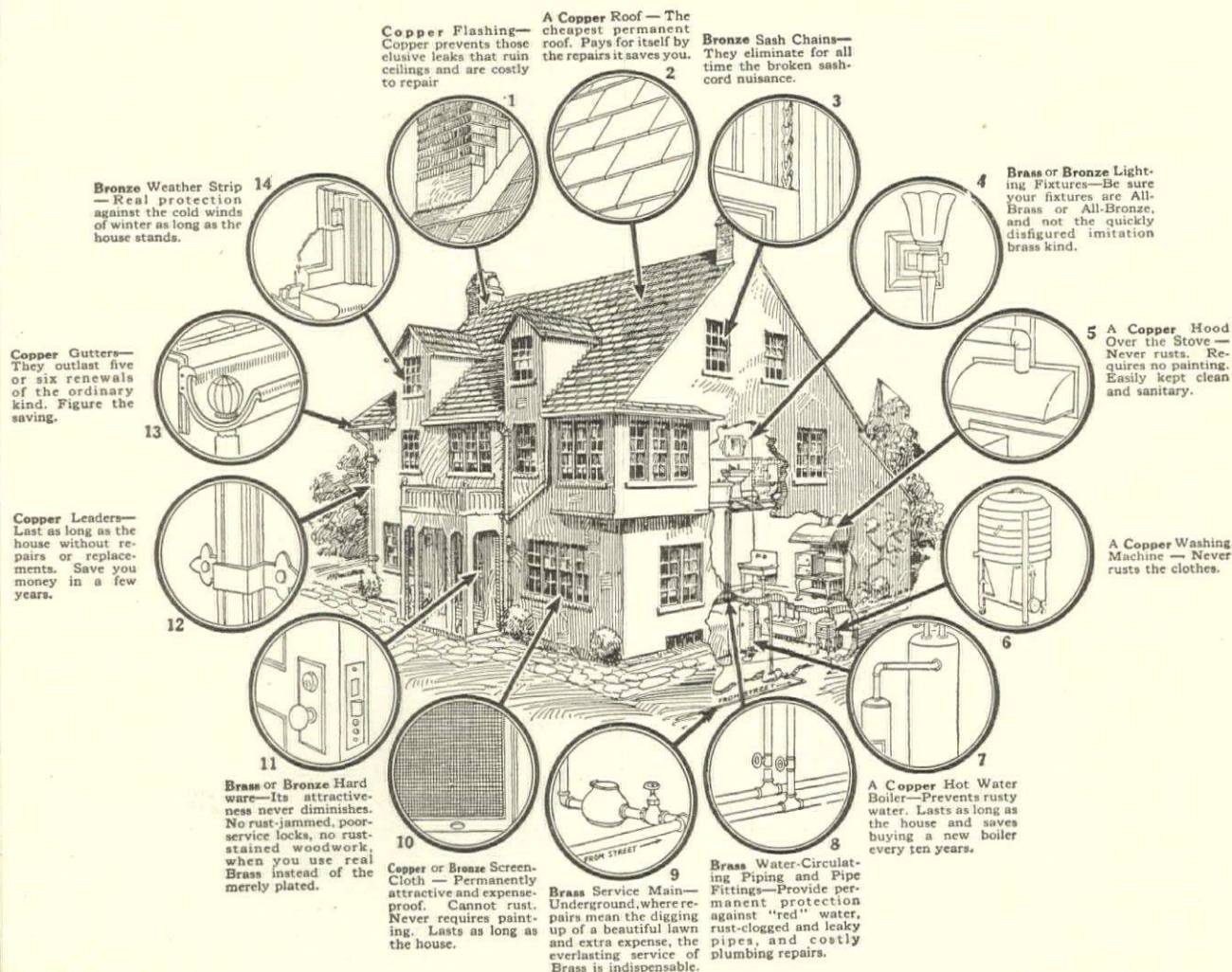
## ELEVATORS

Kimball Brothers Company, Council Bluffs, Iowa.

58. *Kimball Elevators.* An illustrated catalog of hand power, sidewalk, and garage elevators and dumbwaiters and electric passenger, freight and push button elevators. 32 pp. Ill. 7¼ x 10½ in.



# A Good House



**B**UILDERS everywhere are finding that the quality imparted to a house by *Copper* and *Brass* gives it attractiveness and value that bring big returns on the small additional outlay.

It's good business. The home buyer now looks for Copper and Brass. He knows that—

*Copper and Brass are cheaper because  
you pay for them only ONCE*

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RESEARCH ASSOCIATION

25 Broadway - New York

## Once Upon a Time

is a little tale of few words. The story is told mainly in pictures.

It is a good-humored little folder which will help you sell your clients better materials.

May we send you a quantity of "Once Upon a Time?" Ask for any number you can use. Your name imprinted. There is no charge.



## SELECTED LIST OF MANUFACTURERS' LITERATURE—Continued from page 74

- Richards-Wilcox Mfg. Co., Aurora, Ill.  
59. "Ideal" Elevator Door Equipment. Catalog showing elevator door hangers for one, two or three speed doors, also doors in pairs and combination swing and slide doors. Door closers and checks. 24 pp. Ill.  $8\frac{1}{2} \times 11$  in.  
Sedgwick Machine Works, 156 West 15th Street, New York.
- ENGINES—GASOLINE**  
New-Way Motor Co., Lansing, Mich.  
437. Write for helps and suggestions.
- FACTORY EQUIPMENT**  
The Edwards Mfg. Co., Cincinnati, Ohio.  
60. Edwards' Steel Equipment. Illustrated catalog. Showing steel lockers and shelving for factories, offices, stores, schools and hospitals, together with illustrations and description of "Edmanco" steel office furniture and filing cabinets. Size  $8 \times 11$  in. 32 pp.
- FIREPLACES AND MANTELS**  
Apex Fireplace Co., Urbana, Ill.  
503. An interesting four-page folder with blue prints attached.  
Colonial Fireplace Co., Chicago, Ill.  
Strait & Richards, Inc., Newark, N. J.  
62. Catalog describing fireplaces, electric and gas logs, heating supplies, heaters, etc.
- FLOOR HARDENERS**  
Truscon Laboratories, The, Cor. Caniff Avenue and Grand Trunk R. R., Detroit, Mich.  
61. Agate and Its Performances. Booklet.  $8\frac{1}{2} \times 11$  in. Describes the methods of hardening concrete floors by the application of a chemical which forms a new surface as hard as agate.
- FLOORING LUMBER**  
The Long-Bell Lumber Co., R. A. Long Building, Kansas City, Mo.  
63. The Perfect Floor. Tells how to lay, finish and care for Oak Flooring. 16 pp. 14 Illus.  $5\frac{1}{2} \times 7\frac{3}{4}$  in.  
Oak Flooring Advertising Bureau, 1014 Ashland Block, Chicago, Ill.  
64. Modern Oak Floors. Booklet.  $6\frac{1}{4} \times 9\frac{1}{4}$  in. 24 pp. Illustrated. A general book that tells the complete story on Oak Flooring.  
65. Oak Flooring, How and Where to Use It. Booklet.  $3\frac{1}{4} \times 6\frac{1}{4}$  in. 16 pp. Illustrated. A small, technical book showing the general rules, standard thickness and widths, how to lay, finish and care for oak floors.  
257. Oak Flooring for Factories and Warehouses. Booklet.  $3\frac{1}{4} \times 6$  in. 16 pp. Illustrated. Small general book featuring No. 2 Common Oak Flooring for hard usage in factories and warehouses, with testimonials.  
Pacific Lumber Co., 2070 McCormick Bldg., Chicago, Ill.  
438. A sixteen-page treatise on the construction Digest of Information on the Values and Uses of Redwood.  
United States Gypsum Company, 205 W. Monroe St., Chicago, Ill.  
66. Gypsum Poured, Steel Reinforced. Loose-leaf bulletins,  $8\frac{1}{2} \times 11$ . Pyrofill.  
Wood Mosaic Co., New Albany, Ind.  
227. Catalogue of wood-carpet, strips, plain and ornamental parquet, tongue and groove flooring in natural wood colors.
- FLOORING COMPOSITION**  
Everlastestos Flooring Co., Rochester, N. Y.  
439. Sixteen-page illustrated booklet, describing the really modern floor.
- FLOOR SURFACING**  
Amer. Floor Surfacing Machine Co., 521 So. St. Claire Street, Toledo, Ohio.  
440. An eight-page illustrated booklet, describing the "American Universal." Also opportunities of making money in the "American Universal Way."  
Wayvill Chappell & Co., 137 No. Jackson Street, Waukegan, Ill.  
441. Four-page folder, describing the "Little-Automatic Electric Surfacing Machine."  
M. L. Schlueter, 223 W. Illinois Street, Chicago, Ill.  
442. Eight-page illustrated folder, the various "Improved Schlueter" Floor Surfacing Machines.
- FLOOR VOIDS FOR USE IN CONCRETE**  
United States Gypsum Company, 205 W. Monroe St., Chicago, Ill.  
67. Loose-leaf Bulletins.  $8\frac{1}{2} \times 11$ . Pyrobar Gypsum Floor Tile.
- FURNACES—See Heating Equipment**
- GARAGE CONSTRUCTION**  
McKinney Mfg. Co., Pittsburgh, Pa.  
283. Interesting 16-page Catalog, describing the complete hardware for various types of Garage Doors.  
National Mfg. Co., Sterling, Ill.  
248. Catalog of Garage Hardware.
- GARBAGE DESTROYERS**  
Kerner Incinerator Company, 1027 Chestnut St., Milwaukee, Wis.  
68. The Sanitary Elimination of Household Waste. M-3 Folder. Description of construction, installation and operation of the Kernerator for residences. Illustrated by views of residences in which the Kernerator is installed, with cuts showing all details. 15 pp.  $4 \times 9$  in.
- GARBAGE RECEIVERS**  
The Donley Bros. Co., 3700 East 74th Street, Cleveland, Ohio.
- GLASS**  
American Window Glass Co., Pittsburg, Pa.  
69. Send for circular describing different varieties of window glass and how to select the proper kind.  
American Three-Way Luxfer Prism Co., Cicero (Chicago), Ill.  
70. Write for details and prices of glass prisms that will project daylight into dark interiors.  
71. Other literature with reference to apartment house installations.
- Plate Glass Mfgs. of America, 1st Nat'l Bank Bldg., Pittsburgh, Pa.  
443. Several folders, describing the necessity of Plate Glass.
- GYPSUM**  
United States Gypsum Company, 205 W. Monroe St., Chicago, Ill.
- HARDWARE**  
Bridgeport Chain Co., Bridgeport, Conn.  
444. Catalog No. 14. A 68-page illustrated book, describing an extensive line of chains, stampings and wire.  
Caldwell Mfg. Co., 5 Jones Street, Rochester, N. Y.  
445. Sixteen-page illustrated catalog, entitled "Suggestions for the Present-Day Architect."  
Casement Hardware Co., 250 Pelouze Bldg., Chicago, Ill.  
446. Illustrated catalog and price list of "Casement Window Specialties."  
Griffin Mfg. Co., Erie, Pa.  
447. Seventy-six page illustrated book, cloth bound, entitled "Hinges."  
Hess Warming & Ventilating Co., 1204 Tacoma Bldg., Chicago, Ill.  
240. 24-Page Illustrated Catalog.  $4 \times 6$  in. Describing the Sanitary Medicine Cabinet, Lockers and Lavatory Mirrors.  
H. B. Ives Co., New Haven, Conn.  
448. Write for their illustrated folder, describing hardware, window and door specialties.  
The Kawneer Co., Niles, Mich.  
72. Kawneer. Simplex Window Fixtures. Booklet illustrated. Drawings, photographs and text describes weightless, reversible window fixture, its ease of installation, ventilation and light control. Size  $8\frac{1}{2} \times 10\frac{1}{2}$  in. 16 pp.  
Knape & Vogt Mfg. Co., Grand Rapids, Mich.  
73. Garment Hangers. Send for illustrated booklet.  
McKinney Mfg. Co., Pittsburgh, Pa.  
449. McKinney's "Complete Garage Sets," an interesting illustrated eight-page folder.  
F. E. Myers & Bro. Co., Ashland, Ohio.  
450. Catalog, describing the No. 30 Simplex Garage Door Hanger.  
National Mfg. Co., Sterling, Ill.  
451. An interesting illustrated catalog on "Garage Hardware."  
Richards-Wilcox Mfg. Co., Aurora, Ill.  
75. Modern Hardware for Your Home. Catalog of hangers for varnishing French doors; "Air-Way" multifold hardware for sun parlors and sleeping porches; "Sidetite" garage door hardware. 24 pp. Illustrated.  $8\frac{1}{2} \times 11$  in.  
Sargent & Company, New Haven, Conn.  
452. Sixty-six-page illustrated booklet on "Planes."  
453. Thirty-six-page illustrated booklet on "Standard Steel Squares."  
The Stanley Works, New Britain, Conn.  
76. Wrought Hardware. New 1921 Catalog. This new catalog describes additions to the Stanley line of Wrought Hardware, as well as the older well known specialties and various styles of butts, hinges, bolts, etc. 676 pp. Illustrated.  $6\frac{1}{2} \times 9\frac{1}{2}$  in.  
77. Garage Hardware. Booklet, illustrated. Garages and their equipment, such as hinges, hasps, door holders, latch sets, chain and hand bolts, showing illustration and text with dimensions of garages, describing the Stanley Works product. Size  $6 \times 9$  in. 24 pp.  
78. Eight Garages and Their Stanley Hardware. Booklet. Plans, drawings and complete hardware specifications. Size  $5 \times 7$  in.  
79. The Stanley Works Ball Bearing Butts. Booklet, illustrated. Description, with full size illustrations of many typed butts and their parts, dimensions and finish. Size  $5 \times 7\frac{1}{2}$  in.
- HEATING EQUIPMENT**  
Bowman Supply & Mfg. Co., 886 Progress, Pittsburgh, Pa.  
513. Write for the permanent catalog. It is an excellent reference book.  
Co-operative Foundry Co., Rochester, N. Y.  
454. Sixteen-page illustrated booklet, describing the "Red Cross Empire Pipeless Furnace."  
Economy Heater Co., 108 S. La Salle St., Chicago, Ill.  
The Farquhar Furnace Company, Wilmington, Ohio.  
80. Healthful Helpful Hints. A discussion of furnace and chimney design and capacity for hot air heating and ventilation. 16 pp. Illustrated.  $4\frac{1}{4} \times 9\frac{1}{4}$  in.  
81. A Plain Presentation to Dealers. A book of selling talk for dealers in Farquhar Furnaces. Four model heating and layouts are shown and there is a page of useful "Do and Don't" advice. 24 pp. Illustrated.  $8\frac{1}{2} \times 11$  in.  
Hardin-Lavin Co., 4538 Cottage Grove Avenue, Chicago, Ill.  
455. Handy-Man Book, or Plumbing and Heating Encyclopedia. Price 50c.  
Hess Warming & Ventilating Co., 1205D, Tacoma Building, Chicago, Ill.  
82. Modern Furnace Heating. Catalog.  $6 \times 9$  in. 48 pp. Illustrated. Complete information on hot-air furnace heating useful to the architect and contractor regardless of what make of furnace he uses.  
B. Karol & Sons Co., 802 So. Kedzie Avenue, Chicago, Ill.  
Kelsey Heating Company, James Street, Syracuse, N. Y.  
83. Booklet No. 5.  $4 \times 9$ . 32 pp. Illustrated. A dealers' booklet showing the Kelsey Warm Air Generator Method of warming and distributing air. Gives dimensions, heating capacities, weights, kind of coal recommended, and shows the mechanical and gravity system of heating homes, churches and schools.  
84. Monroe Pipeless Booklet.  $4\frac{1}{2} \times 8$  in. 20 pp. Illustrated.  
85. Monroe Tubular Heater. Booklet.  $4\frac{1}{2} \times 8$  in. 20 pp. Illustrated. General Booklet giving capacities, dimensions, weights, etc.  
86. Syracuse Pipeless Booklet.  $4\frac{1}{2} \times 8$  in. 12 pp. Illustrated. General Booklet giving sizes and capacities.  
87. Valves, Syphons and Traps. A series of pamphlets to enclose in envelopes, describing the well known Thermostatic Return Line Valves and other heating equipment specialties made by this company.  
Magee Furnace Co., Boston, Mass.  
Strait & Richards, Inc., Newark, N. J.  
88. Catalog describing fireplaces, electric and gas logs, heaters, etc.



# Eighty-six Cement Manufacturers Unite to Serve You

The Portland Cement Association means this: that valuable scientific, advisory and educational work which no one cement manufacturer could reasonably undertake alone is at your disposal. This means that you can be absolutely sure of yourself in using Concrete.

You can be sure in the first place of the cement you buy. Any manufacturer of Portland cement may join the Association, and no manufacturer has to belong to it. But Association By-Laws require that members' products shall measure up to the high standard of specifications of the United States Government and the American Society for Testing Materials. Cement bought from a member of the Association is therefore dependable.

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Supplying dependable information without charge, by booklet, or by personal correspondence or by conference when necessary, is the work of the Association. To supply it authoritatively, the Association maintains a large research laboratory and a staff of more than two hundred engineers.

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Suggestions as to how our work may be made more useful to you are invited.

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*A National Organization  
to Improve and Extend the Uses of Concrete*

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Salt Lake City

San Francisco  
Seattle  
St. Louis  
Vancouver, B. C.  
Washington, D. C.



## SELECTED LIST OF MANUFACTURERS' LITERATURE—Continued from page 76

## HINGES

- McKinney Mfg. Co., Pittsburgh, Pa.  
456. *Complete Garage Sets* for all types of hinges. An interesting 8-page folder.

## HOISTS—See Elevators

- American Saw Mill Machinery Co., Hackettstown, N. J.  
89. *Bulletin No. 10* describing several kinds of builders' hoists.  
C. H. and E. Mfg. Co., Milwaukee, Wis.  
90. *Bulletin No. 3*. Hoists and Mortar Mixers.

## HOLLOW TILE

- Fiske & Company, Boston, Mass.  
457. *Sixteen-page illustrated booklet*, entitled "Through the Home of Tapestry Brick."  
458. *Sixteen-page illustrated booklet*, entitled "Tapestry Brick and Tile Work for Floors and Interior Walls."  
Hollow Building Tile Association, Chicago, Ill.  
459. *Write for the "Handbook of Hollow Building Tile Construction."* This is an interesting and helpful book.  
460. *Seventy-page book*, called "Hollow Building Tile Manual for Builders and Masons," is of vast importance.  
National Fire Proofing Co., Pittsburgh, Pa.  
461. *Several interesting booklets can be procured*, namely: "Natco on the Farm," "Natco Grain Bins, Corn Cribbs and Storage Bins," "Fire Proof Buildings of Natco Hollow Tile," "Bulletin No. 171, Standard Fire Proofing."

## HOUSE MOVING

- La Plante Choate Co., Cedar Rapids, Iowa.  
510. *Descriptive Catalog of House-moving Appliances.*

## INCINERATORS—See Garbage Destroyers

## INSULATION

- Bishopric Mfg. Company, 103 Este Avenue, Cincinnati, Ohio.  
92. *Homes Built on the Wisdom of Ages*. Catalog. 6 x 9 in. 48 pp. Illustrated. Describing the use of Bishopric Stucco-Board and Bishopric Sheathing Board.  
Samuel Cabot, Inc., 141 Milk St., Boston, Mass.  
249. *Cabot's Quilt*. Catalog containing drawings and description.  
U. S. Mineral Wool Co., 280 Madison Avenue, New York, N. Y.  
94. *The Uses of Mineral Wool in Architecture*. Illustrated booklet. Properties of insulation against heat, frost, sound, and as a fire-proofing, with section drawings and specifications for use. It gives rule for estimate and cost. Size 5 1/4 x 6 3/8 in.

## JOISTS AND STUDS, PRESSED STEEL

- General Fireproofing Co., Youngstown, Ohio.  
462. *An interesting booklet*, called "Industrial Housing," has the actual blue prints in it.  
Central Pressed Steel Co., Massillon, Ohio.  
96. *Descriptive 4-page folder* on metal lumber for building construction.  
Truscon Steel Company, Youngstown, Ohio.  
95. *Truscon Steel Joists*. Catalog. 8 1/2 x 11 in. 24 pp. Illustrated. Information on Pressed Steel Beams and Joists for light occupancy buildings. Tables, specifications and views of installations.

## KITCHEN EQUIPMENT

- Bisk Corp., Brockton, Mass.  
463. *Several interesting booklets*, describing the various types of "Built-In-Kitchens." These are illustrated by actual blue prints.  
National Mill & Lumber Co., 2 Rector Street, New York.  
277. *10-Page Illustrated Folder*. Describes the necessity and advantages of a National Built-In Ironing Board.

## LATH, METAL AND REINFORCING

- The Bishopric Mfg. Co., 17 Este Avenue, Cincinnati, Ohio.  
Bostwick Steel Lath Co., Inc., Niles, Ohio.  
279. "Beautiful Permanent Walls." 22-page illustrated catalog. 4 x 9 inches.  
Central Pressed Steel Co., Massillon, Ohio.  
General Fireproofing Co., Youngstown, Ohio.  
97. *Catalog describes Herringbone Rigid Metal Lath*, how it is applied and used, with detailed drawings, specifications, etc.  
Truscon Steel Co., Youngstown, Ohio.  
99. *Hy-Rib and Metal Lath*. 18th Edition. Catalog. 8 1/2 x 11 in. 64 pp. Illustrated. Gives properties of laths, specifications, special uses and views of installations.

## LEVELS

- A. S. Aloe Co., 513 Olive Street, St. Louis, Mo.  
Eugene Dietzgen Co., 162 W. Monroe St., Chicago, Ill.  
Keuffel & Esser Co., Hoboken, N. J.  
Lufkin Rule Co., Saginaw, Mich.  
Warren-Knight Company, 136 North 12th St., Philadelphia, Pa.  
100. "Sterling" *Levels and Transits*. 32 pp. illustrated catalog. Description, specifications and structural advantages required in modern practice for establishing lines, levels, angles, etc. Vest Pocket Manual of adjustments.  
David White Co., 907 Chestnut Street, Milwaukee, Wis.  
464. *Catalog A*, "White's Improved Instruments," is a 36-page booklet with a hard cover and illustrated.

## LIGHTING

- American Three-Way Prism Co., 1307 South 55 Court, Cicero, Ill.  
98. *Descriptive Circular* on the use of prisms for directing light to dark corners.

## LIGHTNING RODS

- E. G. Washburne Co., 207 Fulton Street, New York.  
232. *Descriptive Catalog in Colors*. Showing different designs of weather vanes, lightning rods, ventilators, etc.

## LIGHTING SPECIALTIES

- I. P. Frink, Inc., 24th Street and 10th Avenue, New York, N. Y.  
250. *Lighting Service for Hospitals*. A booklet illustrated with photographs and drawings, showing the types of lights for use in hospitals, as operating table reflectors, linolite and multilite concentrators, ward reflectors, bed lights and mi-

croscopic reflectors, giving sizes and dimensions, explaining their particular fitness for special uses. Size 7 x 10 in. 12 pp.  
251. *Frink Reflectors and Lighting Specialties for Stores*. Catalog No. 424. A catalog containing description of the Frink Lighting System for Stores; the Synthetic System of Window Illumination; and a number of appliances to produce the most effective lighting of displayed objects. 20 pp. Illustrated.  
252. *Frink Lighting Service for Banks and Insurance Companies*. Reflectors. Catalog No. 425. A very interesting treatise on the lighting of offices; with details of illustrations and description of lamps and reflectors. Contains a list covering several pages, of banks using Frink Desk and Screen Fixtures. 30 pp. Illustrated. 8 3/4 x 11 in.

## LUMBER

- Arkansas Soft Pine Bureau, 802 Boyle Building, Little Rock, Ark.  
101. *Arkansas Soft Pine Handbook*. Catalog. 8 1/2 x 11 1/4 in. 62 pp. Illustrated. Concise, technical information regarding physical character, uses, and including Grading Rules and Standard Moulding Designs.  
102. *The Home You Long For*. Booklet. 8 1/2 x 11. 32 pp. Illustrated. Folio intended for the layman. Contains 18 homes by Robert Sayfarth, Architect, Chicago. Of general interest to architects, but does not contain technical information.  
Long-Bell Lumber Co., R. A. Long Building, Kansas City, Mo.  
104. *The Post Everlasting*. Booklet. 10 1/2 x 7 1/2 in. 32 pp. Illustrated. Information regarding creosoted yellow pine fence posts, barn poles, paving blocks, etc.  
228. *Poles That Resist Decay*. Booklet. 9 1/4 x 4 in. 16 pp. Illustrated. Poles for telegraph, telephone, high power transmission lines.  
105. "From Tree to Trade," a 48-page illustrated description of the manufacture of lumber from tree to use. Describes methods of logging, construction, etc.  
Pacific Lumber Company of Illinois, The, 1105 Lumber Exchange Building, Chicago, Ill.  
106. *Engineering Digest*. Redwood Information Sheets. 1. General Data Sheet on Redwood, its Production and Uses. 2. Tanks and Vats for Water Acid and Alkali Solutions and Oil. 3. Pipe for Water, Chemicals and Sewage Conveying. 6. Farm and Dairy Buildings and Equipment, Silos, Tanks, Pipes, Outbuildings, Irrigation Flumes, Drainage Boxes, Greenhouses, etc. 9. Railroad Construction and Equipment. 10. Industrial Building Materials. 11. Residential Building Materials.  
Southern Cypress Mfrs. Assn., 1227 Poydras Bldg., New Orleans, La.  
107. *Many interesting booklets* on the use of Cypress for all purposes.

## LUMBER ASBESTOS

- Asbestos Shingle, Slate & Sheathing Co., Ambler, Pa.  
108. *Ambler Asbestos Building Lumber*. Catalog illustrated. Describes uses of this fireproof product for both exteriors and interiors. Tables of sizes and illustrations of various types of buildings in which it has been used. Size 8 1/2 x 11 in.

## MARBLE, ARTIFICIAL

- Art Stone Co., Waynesboro, Pa.

## METAL LATH—See Lath, Metal and Reinforcing

## METALS AND METAL BUILDING SPECIALTIES

- American Sheet & Tin Plate Co., Frick Building, Pittsburgh, Pa.  
111. *Reference book*. Pocket Edition. 2 1/2 x 4 1/2 in. 168 pp. Illus. Covers the complete line of Sheet and Tin Mill Products.  
113. *Apollo and Apollo-Keystone Galvanized Sheets*. Catalog. 8 1/2 x 11 in. 20 pp. Illustrated.  
114. *Research in the Corrosion Resistance of Copper Steel*. Booklet. 8 1/2 x 11 in. 24 pp. Illustrated. Technical information on results of atmospheric corrosion tests of various sheets under actual weather conditions.  
115. *Facts Simply and Briefly Told*. Booklet. 8 1/2 x 11 in. 16 pp. Illustrated. Non-technical statements relating to Keystone Copper Steel.  
116. *Black Sheets and Special Sheets*. Catalog. 8 1/2 x 11 in. 28 pp. Illustrated. Describes standard grades of Black and Uncoated Sheets, together with weights, building tables, etc. Bright Tin Plates. Catalog. 8 1/2 x 11 in. 16 pp.  
The Donley Bros. Co. 7400 East 74th Street, Cleveland, Ohio.  
237. *28-Page Illustrated Catalog* on "Donley Devices and Building Specialties" 6 x 9 in.  
N. & G. Taylor Co., Philadelphia, Pa.  
117. *Booklet and Detail Sheet of Tin Roofing*. See Roofing.

## METAL TRIM—See Doors, Windows and Metal

## MILLWORK—See also Lumber—Building Construction—Doors and Windows

## MORTAR—See also Cement

## MORTAR COLORS

- Clinton Metallic Paint Co., Clinton, N. Y.  
118. *Clinton Mortar Colors*. Booklet. 3 1/2 x 6 1/2 in. 8 pp. Illustrated. Complete description of Clinton Mortar Colors with color samples.

## PACKAGE RECEIVER

- The Donley Bros., 3700 East 74th Street, Cleveland, Ohio.

## PAINTS, STAINS, VARNISHES AND WOOD FINISHES

- Samuel Cabot, Inc., Mfg. Chemists, 141 Milk Street, Boston, Mass.  
S. C. Johnson & Son, Racine, Wis.  
122. *The Proper Treatment for Floors, Woodwork and Furniture*. Booklet. 6 1/4 x 8 1/2 in. 32 pp. Illustrated in color. A treatise on finishing hard and soft wood in stained and enameled effects; also natural wood effects.  
123. *Portfolio of Wood Panels*. 5 1/2 x 10 1/4 in. 14 pp. Containing actual panels of finished woods. Also contains valuable information of finishing and re-finishing floors and woodwork.





Roof stained with Cabot's Creosote Stains. Walls finished with Old Virginia White. Lined with Cabot's Quilt for warmth.  
Prentice Sanger, Architect, New York

For Roofs, Siding, Timbers and all Other  
Outside Woodwork

### Cabot's Creosote Stains

They have *proved* their merit in every climate for nearly forty years. The colors are soft, rich and harmonious, the Creosote penetrates the wood, preserves it, and makes it less inflammable. Shingles make the warmest and cheapest outside finish, and a shingled house stained with Cabot's Stains is the ideal, cozy American country home.

### Cabot's Insulating Quilt

A scientific heat insulator and sound-deadener that makes houses warmer in winter and cooler in summer and deadens sounds in floors and partitions. Not a mere felt or paper, but a non-conducting mat that is about thirty times warmer than common papers.

You can get Cabot's Stains and Quilt all over the country. Send for samples and names of nearest agents.

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BOSTON, MASS.

342 Madison Ave., N. Y. 24 W. Kinzie St., Chicago  
Cabot's Conserve Wood Preservative, Stucco Stains, Brick Stains, Damp-Proofing

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Equip your buildings with the new and improved  
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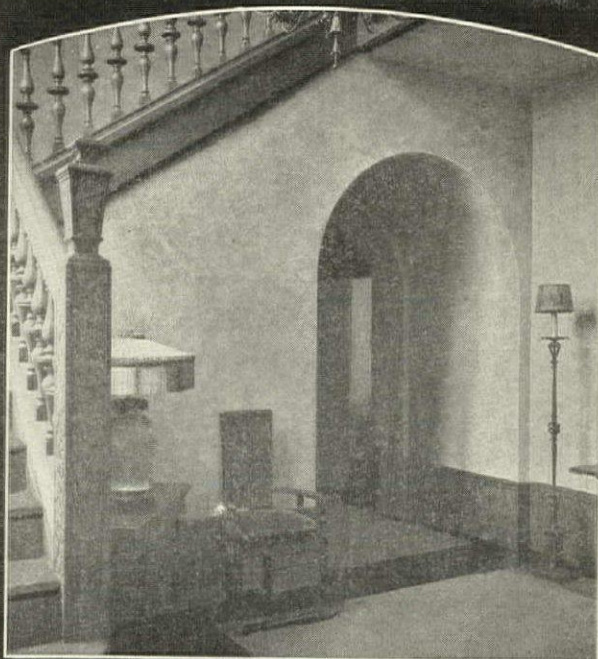
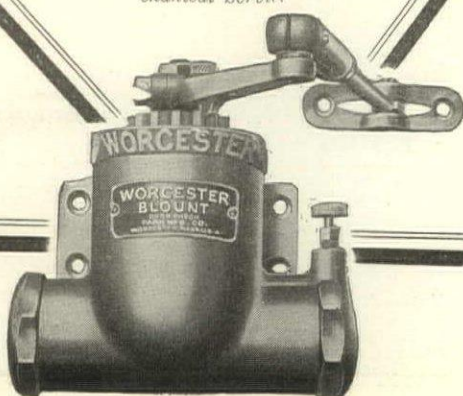
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*It Will Interest the Home Owner—and  
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For less than \$100.00 additional the plaster-base of walls and ceilings of the average home (costing in the neighborhood of \$5,000) can be Bostwick Truss-Loop throughout.

One thousand wood lath equals 60 sq. yds. of wall surface and costs \$12.00. This varies slightly in different localities. Wood lath, properly spaced, takes almost exactly the same amount of plaster as Bostwick Truss-Loop. Truss-Loop, therefore, costs only the margin between first cost of wood lath and first cost of Truss-Loop. This works out to from \$65.00 to \$100.00 more for the usual types of moderate-priced homes. Just this small margin secures lasting wall beauty and fire-protection.

In addition, Bostwick Truss-Loop will save for you in Time, Labor, Lath, Studding and Waste Plaster. Let us tell you how—write us for particulars and proofs.

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LATH COMPANY  
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**Bostwick**  
"TRUSS  
LOOP"



## SELECTED LIST OF MANUFACTURERS' LITERATURE—Continued from page 78

- John Lucas & Co., Inc., Philadelphia, Pa.  
264. 100-Page "Descriptive Catalog," 6 x 9 in. Published for the purpose of familiarizing "Lucas" distributors with the characteristics, purposes and uses of "Lucas Paints and Varnishes."

- National Lead Co., 111 Broadway, New York City.  
124. Handy Book on Painting. Book 5½ x 3¼ in. 100 pp. Gives directions and formulas for painting various surfaces of wood, plaster, metal, etc., both interior and exterior.

- Ripolin Co., The, Cleveland, Ohio.  
256. Ripolin Specification Book, 8 x 10¼ in., 12 pp. Complete architectural specifications and general instructions for the application of Ripolin, the original Holland Enamel Paint. Directions for the proper finishing of wood, metal, plaster, concrete, brick and other surfaces, both interior and exterior, are included in this Specification Book.

- Truscon Laboratories, The, Cor, Caniff Avenue and Grand Trunk R. R., Detroit, Mich.

131. Spread the Sunshine Inside. Booklet, 5 x 8 in. 24 pp. Describes methods for light saving by the application of light reflecting enamels to interior walls of factories.

## PARTITION SYSTEM

- United States Gypsum Company, 205 W. Monroe St., Chicago, Ill.  
133. Loose leaf bulletins, 8½ x 11 in. Jester-Sackett, consists of plaster board applied to metal channels with special clip, ready for plastering.

## PARTITION TILE

- United States Gypsum Company, 205 W. Monroe St., Chicago, Ill.  
134. Fireproof. 32-page booklet, 8½ x 11 in., including description, specifications, and working details of Pyrobar partition tile.

## PERGOLAS

- Hartman-Sanders Co., Elston and Webster Avenues, Chicago, Ill.  
235. Album No. 33. 7½ x 10½ in. 42 pages of illustrated literature regarding the various types of Pergolas.

## PLASTER BASE

- The Bishopric Mfg. Co., 17 Este Avenue, Cincinnati, Ohio.

## PLASTER BOARD

- United States Gypsum Company, 205 W. Monroe St., Chicago, Ill.  
135. Pamphlets, describes Sackett Plaster Board used instead of wood or metal lath.

## PLASTER INTERIOR

- National Kellastone Co., 155 East Superior Street, Chicago, Ill.

## PLUMBING SUPPLIES

- Bowman Mfg. Co., 886 Progress Street, Pittsburgh, Pa.  
512. Leather bound, profusely illustrated catalog of 84 pages describing the entire line of plumbing and heating equipment.  
Hardin-Lavin Co., 4538 Cottage Grove Avenue, Chicago, Ill.  
Hess Warming & Ventilating Co., 1205D Tacoma Bldg., Chicago, Ill.  
136. Hess Sanitary Steel Medicine Cabinets. Booklet, 4 x 6 in.  
B. Karol & Sons Co., 806 So. Kedzie Avenue, Chicago, Ill.  
465. Write for Catalog K, describing the complete line of Plumbing and Heating Supplies.

## PUMPS

- C. H. & E. Mfg. Co., Milwaukee, Wis.  
251. Bulletin No. 2 Pumps.  
The F. E. Myers & Bro. Co., Ashland, Ohio.  
137. General Catalog. 6 x 9 in. 392 pages. Shows complete line of Myers Products—Pumps for Every Purpose, Hay Tools, Door Hangers, Store Ladders, etc. Of particular interest to hardware and implement dealers; plumbers, architects, contractors and builders; mill, mine, factory and railway superintendents and purchasing agents; highway contractors and builders.  
138. Catalogs. 6 x 9 in. Devoted to separate lines: No. 55, Pump—Hand and Power Pumps; No. PP-55, Power Pumps; No. HT-55, Hay Tools, Door Hangers and Store Ladders; No. HP-22, Hydro-Pneumatic Pumps, Electric House Pumps, Direct Water Systems; No. SOP-21, Self-Oiling Power Pumps; No. MC-21, Cylinder and Working Barrels; No. SP-22, Spray Pumps and Spraying Accessories. All catalogs fully illustrated.

## REFRIGERATION

- McCray Refrigerator Co., 2264 Lake Street, Kendallville, Ind.  
466. Catalog No. 95—Refrigerators for Residences.  
467. Catalog No. 53—Refrigerators for Hotels, Restaurants, Clubs.  
468. Hospitals and Institutions. Catalog No. 64—Market Coolers and Refrigerator Counters.

## ROOF DECKS

- United States Gypsum Company, 205 W. Monroe St., Chicago, Ill.  
139. Loose leaf bulletins. 8½ x 11. Describing Pyrobar Roof Tile, which is laid directly on purlins or tee irons, joints grouted, and is then ready for roof covering.

## ROOFING MATERIALS

- Amalgamated Roofing Co., 431 So. Dearborn Street, Chicago, Ill.  
American Sheet & Tin Plate Company, Pittsburgh, Pa.  
140. "Better Buildings." Catalog. 8½ x 11 in. 32 pp. Describing Corrugated and Formed Sheet Steel Roofing and Siding Products—Black, Painted and Galvanized; together with directions for application of various patterns of Sheet Steel Roofing in various types of construction.  
112. Copper—Its Effect Upon Steel for Roofing Tin. Catalog 8½ x 11 in. 28 pp. Illustrated. Describes the merits of high grade roofing tin plates and the advantages of the copper-steel alloy.  
Asbestos Shingle, Slate & Sheathing Co., Ambler, Pa.  
141. Specifications and Price List. Descriptive booklet. Details of Ambler Asbestos Cement Roofing Slates, "Century" Asbestos Shingles and Asbestos Corrugated Sheathings. Tables and drawings. Size 6 x 9 in. 44 pp.  
142. Ambler Asbestos Corrugated Roofing. Catalog gives complete data for specifying, drawings, methods of applications, tables, etc. Size 8½ x 11 in. 20 pp.

- Wm. L. Barrell Co. of N. Y., Inc., 50 Leonard Street, New York.  
143. Prepared Canvas for Roofing. Samples can be obtained on application. A canvas for every use.

- Beaver Board Products Co., Inc., Buffalo, N. Y.

469. Illustrated catalog will be sent on request.

- Blue Ridge Slate Corp., Esmont, Va.

470. Samples and catalogs sent on request.

- John Boyle & Co., Inc., 112-114 Duane Street, New York, N. Y.  
154. Boyle's Bayonne Roof and Deck Cloth. List B 93. A prepared roofing canvas guaranteed waterproof for decks and the roofs and floors of piazzas, sun-parlors, sleeping porches, etc.

- Copper & Brass Research Association, 25 Broadway, N. Y. City.  
267. "How to Build a Better Home." 36-page illustrated catalog. 8 x 10½ in. This not only describes but teaches the prospective buyer the essential facts of building, finance, hardware and roofing.

34. "Copper Roofing," a manual for architects and builders. Weights of various roofing materials. Up-to-date practise in the laying of copper roofs—Batten or wood rib methods, Standing seam method, Flat copper roofs, Copper shingles. Suggestions for avoiding error and obtaining the full value of copper. Decorative effects and how to obtain them. Flashings, reglets, gutters and leaders. Cornices. Copper-covered walls. Specifications. 32 pp. Ill. 8½ x 11.

- Cortright Metal Roofing Co., Philadelphia, Pa.

236. Four-page circular describing the various shingles.

- Creo-Dipt Company, 1025 Oliver Street, North Tonawanda, N. Y.

153. Standard Stained Shingle. Samples of different kinds mailed.

154. Architectural Service Sheets. 8½ x 11 in. Illustrated. Working drawings of construction, with standard specifications for design and construction of same.

- Edward's Mfg. Co., 423 Eggleston Avenue, Cincinnati, Ohio.

471. Catalog No. 65 describes fully Metal Roofing, Siding, Ornamental Ceilings and other Sheet Metal Work. This is a 210-p. catalog well illustrated.

- C. G. Hussey & Co., Pittsburgh, Pa.

227. Copper Roofing and Flashings. Book No. 6. 34 pp.

- Illinois Zinc Company, 280 Broadway, New York, N. Y.

155. "Iaco," the Metal of Permanence. 8-page, illustrated booklet describing the durability, service and maintenance cost of Corrugated Sheets of Pure Rolled Zinc.

156. The Roof That's Always New. Booklet. 3½ x 6 in. 12 pp. Illustrated. Story of Illinois Zinc Shingles, their everlasting and artistic qualities. Information regarding a complete zinc roof, shingles, starting piece, valley ridge and hip piece.

- National Sheet Metal Roofing Co., 339 Grand St., Jersey City, N. J.

159. Manufacturers of Metal Shingles in various designs, both in painted tin or galvanized iron. Samples sent on request.

- Richardson Co., Lockland, Cincinnati, Ohio.

472. Four-page folder, describing the Flex-A-Tile Roll Shingle Roofing.

- F. C. Sheldon Slate Co., Granville, N. Y.

473. Sixteen-page colored catalog, describing the "Most Attractive Roof at the Most Reasonable Cost."

- N. & G. Taylor Company, 300 Chestnut Street, Philadelphia, Pa.

160. Selling Arguments for Tin Roofing. Booklet. 6¼ x 9¼ in. 80 pp. Illustrated. Describes the various advantages of the use of high grade roofing tin, gives standard specifications, general instructions for the use of roofing tin, illustrates in detail methods of application.

- United States Gypsum Company, 205 W. Monroe St., Chicago, Ill.

161. Gypsum Poured, Steel Reinforced. Loose-leaf bulletins. 8½ x 11. Pyrofill.

- Vendor Slate Co., Easton, Pa.

474. "A Book for Architects" is the title of the new 24-page well-illustrated catalog.

- Vulcanite Roofing Co., Buffalo, N. Y.

475. Interesting booklets, describing the "Better Shingle" and "Vulcanite Roll Roofings."

## RULES

- A. S. Aloe, St. Louis, Mo.  
Eugene Dietzgen Co., 162 Ft. Monroe Street, Chicago, Ill.  
476. Write for an instructive circular.  
Keuffel & Esser, Hoboken, N. J.  
Lufkin Rule Co., Saginaw, Mich.  
Sargent & Co., New Haven, Conn.  
Stanley Rule & Level Co., New Britain, Conn.

## SASH CHAINS, HOOKS AND ATTACHMENTS

- The Bridgeport Chain Co., Bridgeport, Conn.  
209. An interesting catalog describing fully Sash Chain in Steel (six sizes and six finishes), in Bronze (six sizes), Hooks and Sash Chain Attachments.

## SASH CORD

- Samson Cordage Works, Boston, Mass.  
477. An interesting catalog with actual samples of the various grades of cordage therein.

## SAW MACHINERY

- American Saw Mill Machinery Co., Hackettstown, N. J.  
162. Catalog No. 21, describing Circular Saws of all sizes.  
163. General Catalog No. 22 and special Bulletin No. 77, describing sawing machinery for use on the job in the shop.  
W. F. & John Barnes Co., 71 Ruddy Street, Rockford, Ill.  
478. Catalog No. 84 describes in full detail the Patent Foot and Hand Power Wood Working Machinery.  
C. H. & E. Mfg. Co., 259 Mineral Street, Milwaukee, Wis.  
164. Bulletin No. 1, Saw Rigs.  
Crescent Machine Co., 206 Main Street, Leetonia, Ohio.  
479. This 1921 catalog contains improvements on No. 3 and No. 5 Saw Tables No. 2 Motor-Driven Saw Table, New Motor-Driven Sharper, Hollow Chisel Mortiser.  
Huther Broc. Saw Mfg. Co., Rochester, N. Y.  
480. Catalog No. 38 describes the complete line of Saws.  
C. E. Jennings Co., 321 Winthrop Avenue, New Haven, Conn.  
481. An interesting 46-page Tool Chest Catalog may be had on request.



# How You Can Make Big Money Out of What Other Men Learned

Every day in your work you get up against new problems—sometimes it's only some old "sticker" coming in a new way. Just the same, though, it takes a lot of time to figure it out. *Don't do it.* That's where you lose out—doing work that someone else has already done for you. Here's everything worked out for you by twenty-five of the world's greatest building experts. Every problem, big or little, that you will meet in a day's work is explained. Here are hundreds of new ideas and better ways of doing things. Hundreds of ways that other

men are making more money. Hundreds of ways you can make more money out of the same work you are doing now.

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## Everything About Every Kind of Building

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pictures, plates, plans and diagrams. These books are not a one man proposition but the combined work of twenty-five well known experts who gathered their material from thousands of different sources. Every carpenter, every apprentice, every contractor, in fact every man who has anything to do with building, or who is interested in building in any way should have a set handy to study up with, or to use for quick reference when he is in doubt about something.

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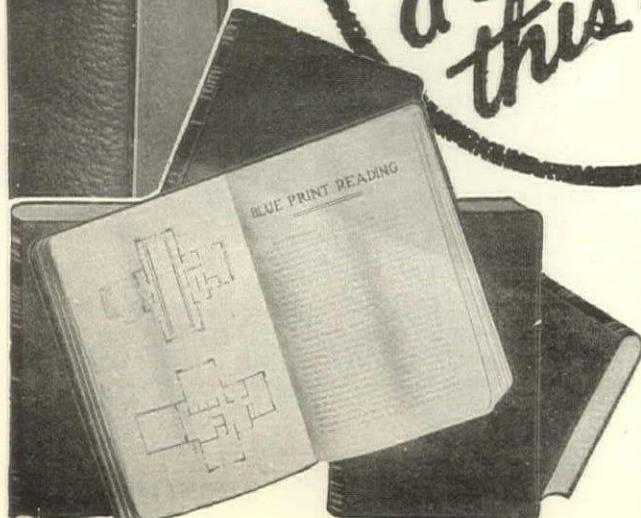
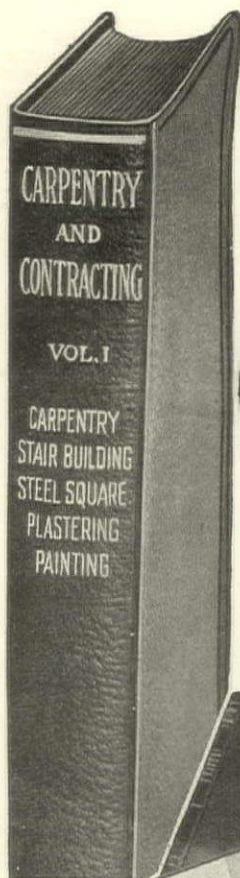
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## SELECTED LIST OF MANUFACTURERS' LITERATURE—Continued from page 80

- Parks Ball Bearing Machine Co.**, Station A, Cincinnati, Ohio.  
482. *Catalog B* describes in detail Wood Working Machines.  
**Sidney Machine Tool Co.**, Sidney, Ohio.  
483. *Twelve-page illustrated booklet*, describing the "Famous Universal Wood Workers."  
484. *One hundred-page pocket-size catalog*, giving full information on the "Famous Woodworking Machinery."
- SAWS**  
**E. C. Atkins Co.**, Indianapolis, Ind.  
286. Booklet and chart describing saws. Especially the cross cut saw.
- SCREENS**  
**American Wire Fabrics Company**, 208 So. La Salle St., Chicago, Ill.  
165. *Catalog of Screen Wire Cloth*. A catalog and price list of screen wire cloth, black enamel, galvanized, galvanoid, American bronze. 30 pp. Illustrated.  $3\frac{1}{2} \times 6\frac{1}{4}$  in.
- SHEATHING**  
**Bishopric Mfg. Company**, 103 Este Avenue, Cincinnati, Ohio.  
171. *Homes Built on the Wisdom of Ages*. Catalog.  $6 \times 9$  in. 48 pp. Illustrated. Describing the use of Bishopric Stucco-Board and Bishopric Sheathing Board.  
**U. S. Gypsum Company**, 205 West Monroe St., Chicago, Ill.  
173. *Eight-page Folder*. Describes Adamant Sheathing Board for use instead of wood sheathing.
- SHINGLES—ASPHALT**  
**Winthrop Tapered Asphalt Shingles**, 19 So. La Salle St., Dept. No. D-20, Chicago, Ill.
- SHINGLES—METAL**  
**Cortright Metal Roofing Co.**, 50 North 23rd St., Philadelphia, Pa.  
174. *"Concerning That Roof."* A complete catalog describing and illustrating Cortright Metal Shingles and Trimmings.  $7 \times 10\frac{1}{4}$  in. 32 pp.
- SHOWERS, CURTAINLESS**  
**Kennedy-Cutting Products Corp.**, 507 Fifth Avenue, New York.  
260. *4-page File and Reference Sheet* describing six different models of the shower.
- SLATE—See also Roofing**  
**Blue Ridge Slate Corp.**, Esmond, Va.  
**Knickerbocker Slate Corp.**, 153 East 38th Street, New York, N. Y.  
485. *Four-page folder*, describing the "Graduated Slate Roofs."  
**F. C. Sheldon Slate Co.**, Granville, N. Y.  
175. *Commercial and Architectural Roofing Slate* in all colors and textures. Also blackboards, structural and electrical slate. Slate Granules.  
**Vendor Slate Co.**, Easton, Pa.
- STAIRWAYS**  
**Bessler Movable Stairway Co.**, Akron, Ohio.  
169. *Illustrated catalog*, containing 24 pp., describes how the Bessler Movable Stairway saves floor space and adds an extra convenience to the home.
- STANDARD BUILDINGS**  
**Truscon Steel Co.**, Youngstown, Ohio.  
176. *Truscon Standard Buildings*. Fourth Edition. Catalog.  $8\frac{1}{2} \times 11$  in. 40 pp. Illustrated. Erection details, cross-section diagrams and adaptations are given.
- STONE, BUILDING**  
**Art Stone Co.**, Waynesboro, Pa.  
170. *Descriptive circulars with illustrations* of different marbles in colors. Sent free to any interested party.
- STORE FRONTS**  
**J. W. Coulson Co.**, Columbus, Ohio.  
278. *Store Front Construction* simplifies the problem for the builder and owner. It beautifies and enhances the value of store property. A special device prevents glass breaking.  
**Detroit Show Case Co.**, 1650 W. Fort Street, Detroit, Mich.  
486. *Write for "Full Size Details of Desco Metal Store Front Construction."* This illustrates by means of blue prints the various store fronts.  
**Kawneer Co.**, Niles, Mich.  
177. *Kawneer Store Front*. Illustrated catalog. Drawings and details of construction. Size  $8\frac{1}{2} \times 11$  in. 32 pp.  
178. *Full Size Details Kawneer Construction*. Blue prints. Size  $30 \times 30$  in.  
179. *A Collection of Successful Designs*. Portfolio. Shows 24 typical store fronts with elevations. Size  $9 \times 12$  in. 32 pp. Catalog B. J. 8.  $6 \times 9$  in. 68 pp. Illustrated. Key to Getting the People In.
- STRUCTURAL STEEL**  
**Central Pressed Steel Co.**, Massillon, Ohio.
- STUCCO—See also Cement**  
**American Materials Co.**, 101 Park Avenue, New York, N. Y.  
487. *A 32-page illustrated catalog*, describing "Elastica," the Stucco of Permanent Beauty.  
**The Atlas Portland Cement Co.**, 25 Broadway, New York, N. Y.  
182. *The Stucco House*. Contains many beautiful illustrations of houses finished with stucco and selected particularly for their architectural value. Detailed illustrations of stucco surface, textures and drawings showing wall construction with revised specifications covering application of stucco. 96 pp.  $8\frac{1}{2} \times 11$  in. Price 50 cents.  
180. *Guide to Good Stucco*. A book telling of the advantages of Portland Cement stucco, and how to apply it. Shows numerous finishes obtainable with ATLAS WHITE Portland Cement. 28 pages.  $8\frac{1}{2} \times 11$  in.  
**The Bishopric Mfg. Co.**, 17 Este Avenue, Cincinnati, Ohio.  
**Muller, Franklyn R. Co.**, Waukegan, Ill.  
**National Kellastone Company**, 155 E. Superior St., Chicago, Ill.  
183. *Specifications for Stucco Work*. A booklet containing complete specifications in detail for the use of Kellastone stucco for new buildings as well as the "overcoating" of old buildings. 13 sheets of text, 2 sheets of illustrations.  $8 \times 11$  in.
184. *The Story of Kellastone Imperishable Stucco*. In this most interesting book the merits of Kellastone are set forth in a convincing manner. Every page contains pictures of beautiful houses stuccoed with Kellastone, and there are two pages in color. 22 pp. Illustrated.  $8\frac{1}{2} \times 12$  in.  
**Rochbond Co.**, Van Wert, Ohio.  
268. *"Fortifies Your Home Against the Elements and Time."* 16-page folder.  $3\frac{1}{2} \times 6$  in.  
269. *"Better Homes."* 12-page booklet,  $7\frac{3}{4} \times 8$  in., describing the advantages of "Rochbond."
- STUCCO BASES**  
**Bishopric Manufacturing Co.**, 103 Este Avenue, Cincinnati, Ohio.  
181. *Bishopric for All Time and Clime*. Catalog.  $7\frac{1}{2} \times 11$  in. 52 pp. Illustrated. Describing the use of Bishopric Stucco and Plaster Base and Bishopric Sheathing.
- STUCCO-MAGNESITE—See Stucco**  
**American Materials Company**, 101 Park Avenue, New York, N. Y.; Weed Street and Sheffield Avenue, Chicago, Ill.  
185. *Elastica, the Stucco of Permanent Beauty*. Catalog.  $8\frac{1}{2} \times 11$  in. 32 pp. Illustrated. Treatise on composition and application of Elastica Stucco.  
**Natl. Kellastone Co.**, 155 East Superior St., Chicago, Ill.  
488. *An interesting handbook*, telling the story of "Kellastone."  
489. *Catalog No. 100*, giving the specifications for Stucco Work.  
**United States Materials Co.**, Weed Street and Sheffield Avenue, Chicago, Ill. See American Materials Co.
- SURVEYORS' INSTRUMENTS—See Levels**
- SUSPENDED CEILING**  
**U. S. Gypsum Company**, 205 West Monroe Street, Chicago, Ill.  
186. *Loose-leaf Bulletins*.  $8\frac{1}{2} \times 11$ . Jester-Saskett, consists of plaster board applied to metal channels with special clip, ready for plastering.
- THERMOSTATS—See Heating Equipment**
- TILE, HOLLOW**  
**Hollow Building Tile Association**, Dept. 1812, Conway Building, Chicago, Ill.  
187. *Handbook of Hollow Building Tile Construction*.  $8\frac{1}{2} \times 11$  in. 104 pp. Illustrated. Complete treatise on most approved methods of hollow tile building construction and fireproofing.  
**National Fire Proofing Co.**, 250 Federal Street, Pittsburgh, Pa.  
188. *Standard Wall Construction Bulletin 174*.  $8\frac{1}{2} \times 11$  in. 32 pp. Illustrated. A treatise on the subject of hollow tile wall construction.  
189. *Industrial Housing Bulletin 172*.  $8\frac{1}{2} \times 11$  in. Illustrated. Photographs and floor plans of typical workmen's homes.  
190. *Natco on the Farm*.  $8\frac{1}{2} \times 11$  in. 38 pp. Illustrated. A treatise on the subject of fire safe and permanent farm building construction.
- TIMBER CLAMP**  
**Schenck Timber Clamp Co.**, 501 Fifth Avenue, New York City.  
490. *Several interesting descriptive folders* may be had on request.
- TOILET PARTITIONS—STEEL**  
**Hart & Hutchinson**, New Britain, Conn.  
284. *Write for this Catalog*, describing the sanitary and durable usages of these partitions.
- TOOLS**  
**Mack Tool Co.**, Rochester, N. Y.  
491. *An interesting Carpenter's Catalog* may be had on request.  
492. *"Love Stories,"* a lively booklet, bound to be pleasant and worth while reading.  
**Progressive Mfg. Co.**, Torrington, Conn.  
493. *Twelve-page booklet*, describing the "Forstner Bits."  
**Sargent & Co.**, New Haven, Conn.  
**Stanley Works**, New Britain, Conn.  
494. *A 64-page catalog*, describing "Bronze and Steel Butts," by detailed drawings.  
495. *An essential catalog* of 380 pages, giving the entire line of Wrought Hardware.  
**James Swan & Co.**, Seymour, Conn.  
496. *An interesting 104-page catalog*, describing "Premium Mechanics' Tools."  
**The L. & I. J. White Co.**, Buffalo, N. Y.  
497. *Catalog No. 19A* describes Carpenters' Tools.  
498. *Catalog No. 20B* describes Coopers' Tools.
- TRACTORS**  
**C. H. & E. Mfg. Co.**, Milwaukee, Wis.  
275. *Bulletin No. 4*, Tractors.
- TRANSITS (See Levels)**  
**Warren-Knight Company**, 136 No. 12th Street, Philadelphia, Pa.
- TRUSS LOOPS**  
**The Bostwick Steel Lath Co.**, Niles, Ohio.  
279. *"Beautiful Permanent Walls,"* 22-page illustrated catalog.
- VENTILATION**  
**Danzer Metal Products**, Hagerstown, Md.  
**Royal Ventilator Company**, 415 Locust Street, Philadelphia, Pa.  
193. *Descriptive Catalog* of round and rectangular ventilators made in galvanized iron, copper, etc. Illustrated.  
**E. G. Washburne Co.**, 207 Fulton Street, New York, N. Y.  
194. *Illustrated Booklet* of metal ventilators, weather vanes, lighting rods, etc.
- WALL BOARDS**  
**Asbestos Shingle, Slate & Sheathing Co.**, Ambler, Pa.  
195. *Descriptive catalog and sample of Linabestos Wall Board* for interior construction. Flame-proof and fire-resisting wall board.



# The "Master" Woodworker

**Speedy  
Powerful**

Manufactured by

**The Woodworker Manufacturing Co.**

614 BRUSH STREET, DETROIT, MICHIGAN

**Accurate  
Sturdy**

**Cuts Your  
Rough  
Stuff At  
Racing  
Pace**

The motor rides on ball bearings, insuring ease of operation. The motor is connected direct to mandrels—no power lost in complicated transmissions—the cost of electric current is infinitesimal. No matter what you are doing the lumber always runs in the same direction. Machine can be used in a hallway, when necessary, and two men work at the same time.

**MODEL No. 7  
For Contractors and Builders**

Designed to  
be taken right on  
the job

Can be run from  
any ordinary 110 volt  
circuit

**"The Only Portable  
Woodworker  
That Can Be Taken from  
Job to Job"**  
(Inside the Building)

Underslung rip saw, overhead cross-cut that works like a swing saw. Bores, miters, dados, rabbets, planes, moulds, rips and joints on the bevel, makes jackrafters, fire cuts, houses stair strings and every cut necessary in building. Built to last a life-time, sturdy and wonderfully accurate. Two men can carry it. Powerful, goes through a 2' 6" door.

**8,500 in  
daily use  
in U. S. A.  
and Foreign  
Countries.**

**A Master Woodworker Does All the Hard Work**

## A PORTABLE ELECTRICALLY DRIVEN MACHINE

Equipped with 2 H.P. Continuous Duty Motor, developing  $3\frac{1}{2}$  H.P. Cross-Cutting Capacity, 4 in.; Ripping Capacity, 4 in. Will cut 24" wide by  $2\frac{3}{4}$ " thick, with a 10" saw, 4" with a 14" saw. It will rip 10" wide and 3" thick with 14" saw.

Model No. 7, complete length over all, 5 feet; width over all, without table,  $2\frac{1}{2}$  feet (will go through a 2' 6" door by folding the brackets). Weight complete, 700 pounds; shipping weight complete 1,100 pounds. Weight and size include 6 inch jointer 42 inches long. All machines taken down in four parts by removing 4 bolts; the heaviest part to carry is 175 pounds. Machine set up, ready in 5 minutes.

## The Master Woodworker is the Best Labor Saver on the Market

In the Shop or on the Job the Master has no equal—12 machines in one without the extra expense of individual machines. For contractors and lumber yards is one of the greatest factors in cutting down the high cost of Woodworking.

The Master Woodworker appeals to all woodworkers such as cement contractors, builders, carpenters, cabinet makers, pattern makers, wagon makers, factories, etc., and is being used all over the world.

There are Master Woodworkers in use today that have seen over eight years of service without any repairs other than new belts and saws. There is nothing to get out of order, and any man who can file a saw and sharpen a plane can operate the machine.

The simplicity of construction, small number of parts, direct drive of motor from saw spindle, all contribute to make the Master Woodworker the most practical, portable and universal machine on the market.

The overhead saw carried on a slide, pivoted to swing to cut any mitre, and allowing the saw carriage and motor to be drawn back and forth is the new principle used on the Master Woodworker and can be utilized for a variety of purposes without adding a multitude of parts to the machine to enable it to do different kinds of work. All that is necessary is to change the saw or cutting head on the mandrel and swing the slide to suit the work.

The rip saw is always in position ready to operate independently of the overhead swing saw. The heavy underslung arbor also carries different kinds of moulding dados—base, sash, brick moulds, panel moulds, screen mouldings, etc., in fact, any shape of mouldings are cut with the greatest speed and absolute perfection.

No matter what you are doing the lumber always runs in the same direction. Machine can be used in a hallway when necessary and two men work at the same time without interfering with each other. The machine is sturdy, every pound is placed where it will give the maximum result—also is rapidly adjusted from one operation to another. The work is visible at all times. The Master Woodworker is indispensable where speed and power are required. The advantage over the old method of Pushing the lumber against the saw is obvious. The Master Woodworker proves itself in a short time.

Folder and Catalogue—on Request.

**The Woodworker Manufacturing Company**  
614 BRUSH STREET, DETROIT, MICHIGAN



## SELECTED LIST OF MANUFACTURERS' PUBLICATIONS—Continued from page 82

- Beaver Board Products Co., Inc., Buffalo, N. Y.
196. *Illustrated folder*, describing various uses and the methods of handling Beaver Board to the best advantage. Samples with descriptive literature sent on application.
- Compo-Board Co., 5778 Lyndale Avenue, North, Minneapolis, Minn.
199. *Catalog sent on request with sample*. Describes many uses of Compo-Board.
- United States Gypsum Company, 205 West Monroe Street, Chicago, Ill.
201. *Walls of Worth*. Booklet. 8½ x 11 in. 24 pp. Illustrated. Describes Sheetrock, the fireproof wall board, its advantages and uses.
- Upson Company, Lockport, N. Y.
- WALL FURRING**
- United States Gypsum Company, 205 West Monroe Street, Chicago, Ill.
202. *Thirty-two-page Booklet*. 8½ x 11 in. Pyrobar. Tile.
- WATER HEATER**
- Hardin-Lavin Co., 4538 Cottage Grove Avenue, Chicago, Ill.
- WATERPROOFING—See also Dampproofing**
- Truscon Laboratories, The, Cor. Caniff Avenue and Grand Trunk R. R., Detroit, Mich.
206. *Science and Practice of Integral Waterproofing*. Pocket size. 33 pp. Illustrated. Contains full specifications for waterproofing MASS Concrete, stucco and Cement Plaster Coat. Entire chapter devoted to "Practical Application of Waterproofed Cement Plaster Coat."
207. *Technical Pamphlet No. 8*. Booklet. 4 x 7 in. 28 pp. A discussion of why concrete requires waterproofing and the properties an integral waterproofing must possess to operate effectively with the natural properties of concrete.
- WATER SUPPLY SYSTEM**
- Hardin-Lavin Co., 4538 Cottage Grove Avenue, Chicago, Ill.
- WEATHER STRIPS**
- Allmetal Weatherstrip Co., 126 West Kinzie Street, Chicago, Ill.
239. Six-page illustrated circular, describing the product as used for Hotels, Residences and Institutions.
- Diamond Metal Weatherstrip Co., Columbus, Ohio.
242. 34-page illustrated catalog. 8½ x 11¼ in. Containing blue prints of the various styles and sizes of Weatherstrip.
- Monarch Metal Products Co., 5020-26 Penrose Street, St. Louis.
210. *Cause and Effect*. A series of pamphlets describing Monarch Metal Weather Strips, which are made of bronze, brass and zinc. They differ from all other strips in that they are applied in spaces around doors and windows as elastic fillers and not over the space as covers. Each 4 pp.
- WEATHER VANES**
- Danzer Metal Products, Hagerstown, Md.
- E. G. Washburne & Co., 207 Fulton Street, New York, N. Y.
211. *Descriptive Catalog in Colors*. Showing two different designs of weather vanes, lightning rods, ventilators, etc.
- WINDOWS—See also Doors and Windows**
- The Bogert & Carlough Company, 30 Peach Street, Paterson, N. J.
280. BOCA steel sash. (E-22). A catalog containing designing

information, complete details and tables, and illustrations of standard installations of sidewall sash, monitor sash, mechanical operators, steel doors, and steel partitions. 24 pages.

Detroit Steel Products Co., 2355 E. Grand Blvd., Detroit, Mich.

Hope & Sons, Henry, 103 Park Avenue, New York.

212. *Catalog*. 12¼ x 8¾. 30 pp. Illustrated. Full size details of outward and inward opening casements.

## WINDOW CASEMENTS

The Bogert & Carlough Company, 30 Peach Street, Paterson, N. J.

## WINDOW HARDWARE

The Bridgeport Chain Co., Bridgeport, Conn.

266. *Interesting catalog* describing Sash Chains, Hooks and Sash Chain Attachments.

Casement Hardware Co., 250 Pelouze Bldg., Chicago, Ill.

The Kawneer Company, Niles, Mich.

213. *Kawneer Simplex Windows*. Catalog. 8½ x 10½ in. 16 pp. Illustrated. Complete information, with measured details, of Kawneer Simplex Weightless Reversible Window Fixtures, made of solid bronze. Shows installation in residences and buildings of all sorts.

214. *Detail Sheets and Installation Instructions*. Valuable for architects and builders.

Monarch Metal Products Co., 5020 Penrose Street, St. Louis, Mo.

282. 16-page illustrated catalog, 4 x 9 in., on Window Casements.

National Mfg. Co., Sterling, Ill.

500. *An interesting, well illustrated catalog*.

Pullman Mfg. Co., Rochester, N. Y.

502. *Catalog No. 37*, describing the "Unit Sash Balances."

Samson Cordage Works, Boston, Mass.

501. *Catalog*. 3½ x 6¼ in. 24 pp. Illus. Covers complete line.

Sargent & Co., New Haven, Conn.

Stanley Works, New Britain, Conn.

## WOODWORKING MACHINERY

American Saw Mill Machinery Co., Hackettstown, N. J.

217. *Contractors' Bulletin No. 77*. Describing various types of portable Variety Woodworkers. General catalog No. 22, describing a general line of woodworking machinery.

W. F. & John Barnes Co., 71 Rudy Street, Rockford, Ill.

218. *Catalog*. Containing description of rip and other machine saws, formers, mortises, tenoners, lathes. 38 pp. Illustrated.

C. H. & E. Mfg. Co., 259 Mineral Street, Milwaukee, Wis.

219. *Catalog* of portable saw rigs, pumps, compressors, engines, etc.

The Crescent Machine Co., 259 Main Street, Leetonia, Ohio.

220. *Catalog*. Describing band saws, shapers, jointers, planers, borers, mortises, etc. 144 pp. Pocket size. Illustrated.

R. E. Kidder Co., 35 Hermon Street, Worcester, Mass.

222. *Catalog*. Describing improved boring machine and how it can be used.

Parks' Ball Bearing Machine Co., Sta. "A," Cincinnati, Ohio.

223. *Illustrated Folder*. Describing Parks' Planing Mill Special, comprising circular saw, jointer, band saw, shaper, borer, tenoner, etc.

J. D. Wallace & Co., 1401 Jackson Boulevard, Chicago, Ill.

325. *Bulletin No. 219-K*. Describes portable electric punch machines, tools, planers, jointers, circular saw, etc.

Woodworkers Mfg. Co., 614 Bush Street, Detroit, Mich.

263. 18-page illustrated pamphlet, 10¾ x 7¾ in., called "The Master Woodworker." The Model No. 7 machine is described.

## Statement of the Ownership, Management, Circulation, Etc., Required by the Act of Congress of August 24, 1912.

Of Building Age and The Builders' Journal, published monthly at New York, N. Y., for October 1, 1922.

State of New York } ss.:  
County of New York }

Before me, a Notary Public, in and for the State and County aforesaid, personally appeared C. G. Pekar, who, having been duly sworn according to law, deposes and says that he is the editor of the BUILDING AGE AND THE BUILDERS' JOURNAL, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the act of August 24, 1912, embodied in section 443, Postal Laws and Regulations, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

Publisher—Building Age Publishing Corporation, 912-920 Broadway, New York City.

Editor—C. G. Pekar, 912-920 Broadway, New York City.

Managing Editor—C. G. Pekar, 912-920 Broadway, New York City.

Business Manager—David Meyers, 912-920 Broadway, New York City.

2. That the owners are:

Building Age Publishing Corporation, 912-920 Broadway, New York City.

That the stockholders owning or holding one per cent. or more of the total stock of Building Age Publishing Corporation are as follows:

B. A. & C. P. Holding Corporation, Times Building, New York City.

That the stockholders owning or holding one per cent. or more of the total stock of B. A. & C. P. Holding Corporation are as follows:

Frank Meyers, 912-920 Broadway, New York City; David Meyers, 912-920 Broadway, New York City; W. H. Parsons, 912-920 Broadway, New York City; W. A. Bardgett, 912-920 Broadway, New York City; M. & S. Meyers, Times Building, New York City; George Meyers, 1196 First Avenue, New York City; Michael Miller, 794 St. Nicholas Avenue, New York City; David L. Short, Columbia Avenue and Hancock Street, Philadelphia, Pa.; G. Friedman, 627 Broadway, New York City; A. Cowen & Son, 34 West 25th Street, New York City; John J. Robbins, 317 West 93rd Street, New York City.

3. That the known bondholders, mortgagees, and other security holders owning 1 per cent. or more of total amount of bonds, mortgages or other securities are:

Architectural and Building Press, 243 West 39th Street, New York City.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company, but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

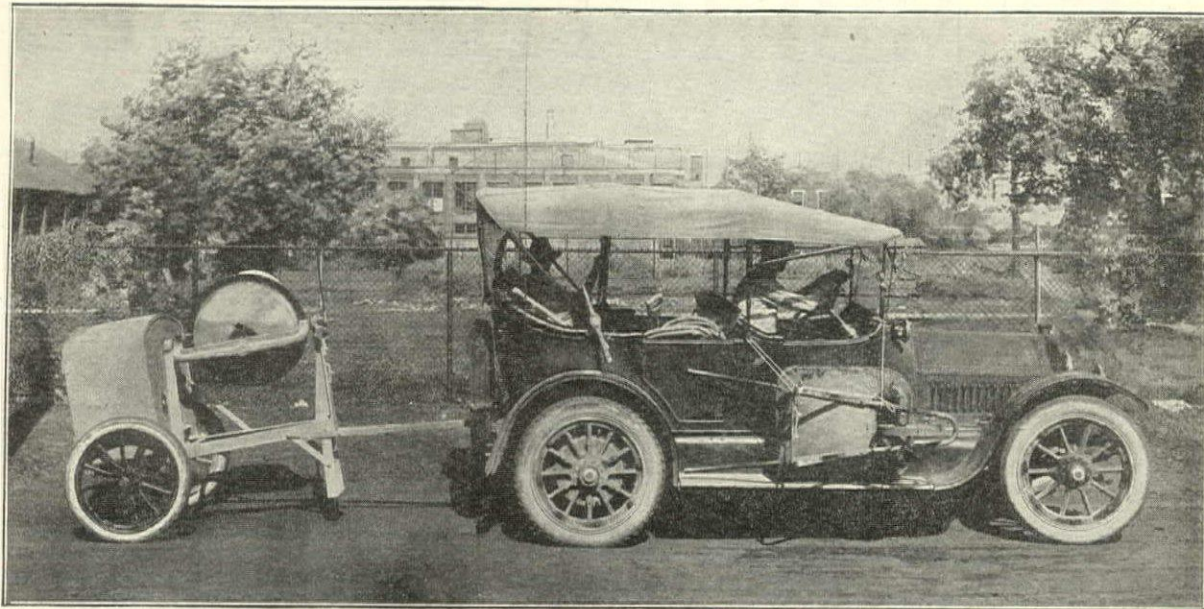
CHARLES G. PEKER, Editor.

Sworn to and subscribed before me this 13th day of October, 1922.

[Seal] HERMAN KINSLER, Notary Public.  
Brenx Co. Clerk No. 88 Reg. No. 194  
New York Co. Clerk No. 514, Reg. No. 4026A

My commission expires March 30, 1924.





# Travels 230 Miles in Two Days With Jaeger Trailer-Mixer

Columbus, Ohio, September 1st, 1922.

**W**ILLIAM FRAVEL'S work with his Jaeger Trailer - Mixer speaks for itself. His experience with this fast-moving, fast-mixing outfit gives you a better idea of the profit possibilities that lie in this Trailer-Mixer.

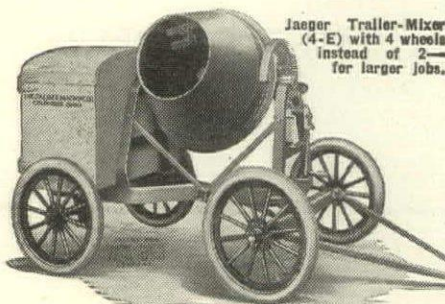
With this portable outfit you can get to a job—and finish it—before a big mixer can be placed and started in work. Here is portability plus. Here is speed. Here is quick work—and quick profits. Contractors the country over have placed their O. K. on this simple, sturdy Jaeger outfit. You, too, will agree with them that it is "just the outfit" for the contractor handling smaller and medium-size jobs. You'll be surprised at the extremely reasonable price on this new Trailer outfit. Write for full facts today.

## The Jaeger Machine Co.

216 Dublin Ave.

Columbus

Ohio



Jaeger Trailer-Mixer (4-E) with 4 wheels instead of 2—for larger jobs.

The Jaeger Machine Co.,  
Columbus, Ohio.

Gentlemen:

I want to say that when it comes to making fast mileage, as well as fast concrete, the Jaeger Trailer-Mixer (3-E) which I recently bought from you can't be beat. I'm rather proud of my recent two-day record with my Trailer-Mixer during which I traveled over 230 miles and put in two good size jobs.

With a contract for a rush job in Newark, Ohio, 35 miles away, and another rush job in Marietta, Ohio, some 65 miles further, I started out of Columbus with my Trailer hooked to my Cadillac. I made Newark in less than two hours, put in a 1025 sq. ft. concrete drive, hooked up my Trailer and made Marietta, 65 miles away, the same night. The next day I finished a sidewalk job there and made Columbus that night. There's a record of 230 miles with my Trailer-Mixer in two days time.

The Trailer is a wonderful little machine. You can trail along as though you had nothing attached to your automobile. There is no rattling, no vibration. I can't say enough for this outfit. I wouldn't buy one with iron wheels now.

Very truly yours,

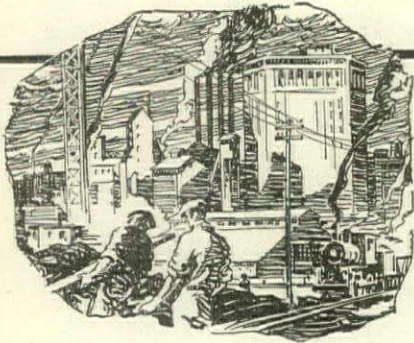
Wm W Fravel

You'll be vitally interested in the folder giving you the complete facts on the Jaeger Trailer-Mixer. Use the coupon today!

The Jaeger Machine Co.,  
216 Dublin Ave., Columbus, Ohio.  
Gentlemen:  
Please send me more facts regarding the Jaeger Trailer-Mixer.  
Name .....  
Address .....  
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# REMEMBER THE FABLE—



*how the different parts of the human body—the hand, the mouth, the heart—each felt it was the one essential. But when one refused to work they all perished.*

**A**TLAS Portland Cement is a complex product. First the raw stone from which it is made must have exactly the right ingredients. These must then be so proportioned that, coming from the giant crushers in a dust-like powder, they fuse into a perfect chemical and physical union.

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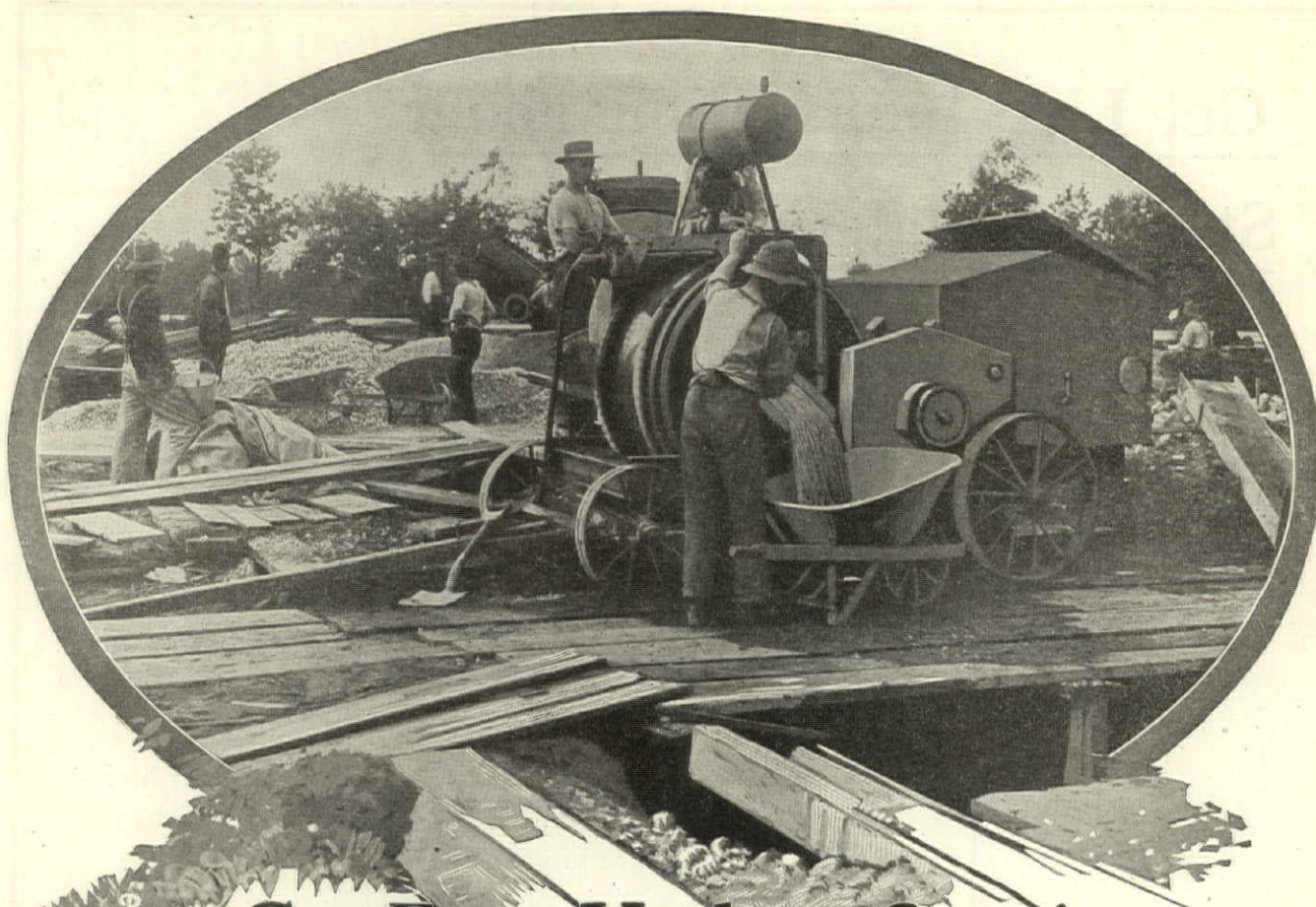
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**N**O, not the cheapest mixer! Yet the DANDIE is within the price range for light mixers. It is the *remarkable value* in the light mixer field.

Koehring safety-margin construction puts trouble-free, dependable, profitable service in the light DANDIE; fortifies you against costly delays and repairs. Big production and standardization of every part keeps the price down.



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Inform yourself on how to judge mixer values and dependability. Get the full details of what Koehring safety-margin construction means in service and profits. You will buy better if you send back the coupon. Of course, that obligates you in no way.

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# American Universal Floor Surfacing THE BIG PROFIT SYSTEM

The American Universal Floor Surfacing Machine is the best money maker the contractor can own. It is practically "fool proof" and can be operated by any man of ordinary ability and do only the best grade of work, for its operation is automatic. When your building is about ready to turn over to the owner, it does the last big job, the floors, when everyone is anxious, quickly and perfectly, leaving everyone feeling satisfied. One man and one American Universal does the work of six men and does it perfectly.

## Old Floors Made Like New—New Floors Made Perfect

Contractors owning American Floor Surfacing Machines keep them going all the time at big profits on old floors when they are not needed on the new work—this is an excellent source of profits. Often, too, floor surfacing contracts are taken on other jobs. Just read

what users say about the labor-saving, money-making ability of the American Universal. Hundreds of others have gone into the floor surfacing business and are independently well fixed.

### 1 Man—Big Profit

### 6 Men—Small Profit



**Saves Labor of Six Men and Does Better Work**  
We can surface more floor with our "American Universal" machine than six men can scrape by hand, considering the quality of the work.—Schneider & Hein, Nebr.

**Would Not Go Back to Old Way**  
The "American Universal" is a great labor saver, doing the work of about eight men, so naturally I would never consider going back to hand scraping again.—M. R. Warner, Colo.

**Surfaces 1500 Square Feet Per Day**  
The "American Universal" does all you claim, for it has surfaced 1500 square feet of flooring per day for me and is doing the work of six men.—L. F. Walls, Va.

**Customers Satisfied—Business Increases**  
The "American Universal" has replaced five men at least on my payroll, does better work than before, and so, as my customers are so well pleased, I have found my business increasing right along.—A. G. Thompson, Ark.

**Replaces 10 Men**  
The "American Universal" replaces ten men on my pay roll, and surely does excellent work.—I. O. Petter, Pa.

**Machine Does Better Work Than Hand Scraping**  
The "American Universal" has replaced five men on my pay roll, and I can do a better quality of work with my machine than by hand scraping.—L. L. Howard, Kans.

**Quality of Work Only Advertisement Necessary to Secure More Work**

I want to tell you that the "American Universal" is some labor saver—it replaces at least five men on my pay roll, and the quality of work it turns out is all the advertisement I need for my business.—Hugh A. Cox, Fla.



**Afraid to Go Back to Hand Work**  
Since the "American Universal" has proven such a great labor saver, would not dare to go back to the old method of hand scraping.—C. E. Andrews, Pa.

**Saves Six Men**  
The "American Universal" replaces six men on my pay roll and I find it to be a great labor saver.—E. A. Bittner, Pa.

**Light and Easy to Handle**  
In the first place the "American Universal" machine is light and easy to handle and does lots more work than the other sander of a different make which I have.—Kroffanz and Frank, Mont.

**No Kicks—Replaces Six Men**  
Want to tell you that I've never had a kick about unsatisfactory work from any of my customers ever since I bought the "American Universal" and it replaces six men on my pay roll, too.—A. F. Grow Brothers, Nebr.

**Saves Ten Men**  
Your "American Universal" floor surfacing machine is a labor saver. It will do the work of ten men in one and in much better shape.—M. B. Battien, S. D.



## The American Floor Surfacing Machine Company

521 So. St. Clair Street

Originators of Floor Surfacing Machines

Toledo, Ohio

THE AMERICAN FLOOR SURFACING MACHINE CO.,

521 So. St. Clair St., Toledo, Ohio.

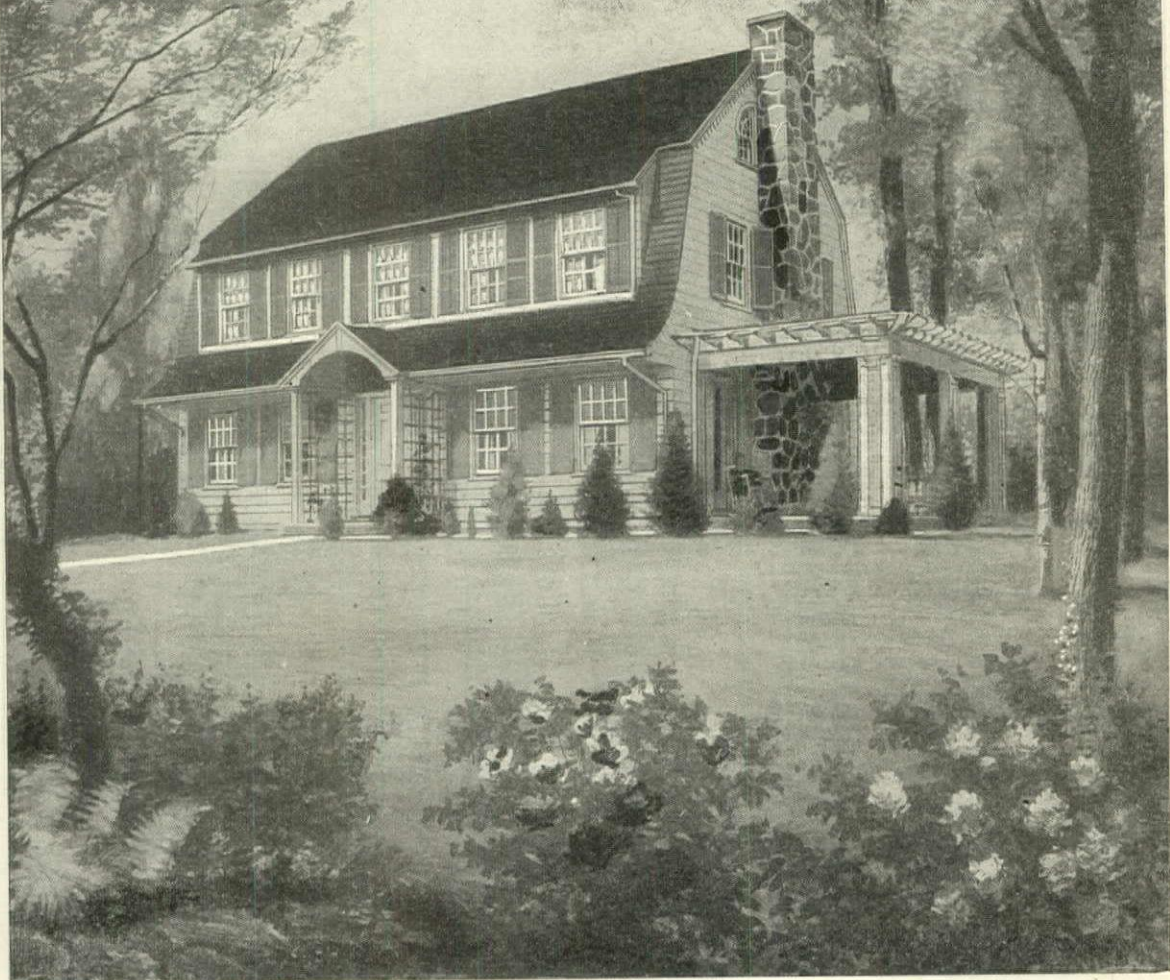
Gentlemen: Please send me without obligation to me complete information and literature on your proposition. The following information will no doubt assist you in advising me:

- ( ) I want to become a Floor Surfacing Contractor.  
( ) I am not now a contractor of any kind but was in the following business .....  
( ) I am a Building Contractor and want to use it on my own contracts.

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**BUILDING AGE AND THE BUILDERS' JOURNAL**  
920 BROADWAY, NEW YORK



# Know More—Earn More

## Plain Facts for Men in the Building Trades

Never in the history of this country have men in the building trades had the opportunities for money making that are offered today. Building is on the boom. Able men are needed on work already started and on work for which the plans are ready.

There is big money ready for men who can read plans, make estimates and superintend construction—and this is where the ambitious man who will train as an expert will find his chance.

As a workman, a man draws pay for what he can do with his hands. As a foreman or superintendent he gets paid for what he knows. And the contractor taking small jobs who gets posted on the higher branches of building can take on the big propositions which pay the largest profits.

Some men have reached the big money class only after years spent in picking up information as they went along. This is the slow way to success and comparatively few men get very far by depending upon their experience and hard work alone. The man who trains under experts and gets the benefit of their knowledge saves years of waiting—he gets quickly to the front. There—for instance—is a man in Oklahoma. His name is Woodside. He worked for years just as thousands of other carpenters are working, taking a job here and a job there, making a journeyman's wages and no more. He did the sawing and nailing and joining while other men did the planning and directing and made the real money.

Fortunately for Woodside, he saw an advertisement of the Chicago Technical College which offered to train him by mail in his spare time to do the very things which these successful men were doing. He wrote for the catalog, got information about the Builder's Course, and enrolled. Read what he says: "I was working as a carpenter receiving \$6.00 per day when I took up the course. In less than 3 months I got a job as foreman on a big apartment building at \$8.00 a day. Five months later I was superintending a reinforced concrete job covering nearly half a block. I am now in business for myself, specializing in theatre construction." And there is A. C. McEvoy, of Chicago, who says: "I have been greatly benefitted by taking your Builder's Course. I have received 5 times as much money as I paid to take the course, to say nothing of the material good that I derived from it. My advancement has been from

**The man who can work best with his head is the man who gets the big pay job or makes the largest profits in business. The world pays more for brains than it does for muscle.**

an ordinary bricklayer on the wall to foreman-in-charge, where a knowledge of plan reading is very essential.

Another man with Chicago "Tech" training is S. J. Dickerson of Rhode Island, who says: "When I started your Builder's Course I was making \$50 a month on the average. Now making \$150 a week.

These are only three examples of what this training has done for ambitious men who saw that "the big pay goes to the man who knows" and who put in some of their spare time to get the instruction of the Chicago "Tech" experts.

### Let America's Oldest and Largest School for Builders Give You the Training that Means Greater Success and More Money

Hundreds of men in the building trades attend our Chicago school. For 20 years we have been training ambitious men who are now foremen, superintendents and independent contractors, making big money while other men who started with just as good chances as they had are still at the bench. You can get this same training at home in your spare hours, for we teach the same courses by mail and you get the supervision of the same experts. No special previous education required to take up this course. Send the coupon below and get the catalog with full information about our courses and about our small fees and easy terms of payments.

### Get This Training in Your Spare Time

The hours that you have outside of your work time can be used to make you a building expert—the

man who can "boss" a job and draw a real salary or handle money-making contracts.

Learn to read blue prints as easily as you read these words. Learn to make estimates on time and material for all classes of construction—brick, frame, concrete. Get posted from the ground up on the direction of work—uses and preparation of material, handling help, getting the work done.

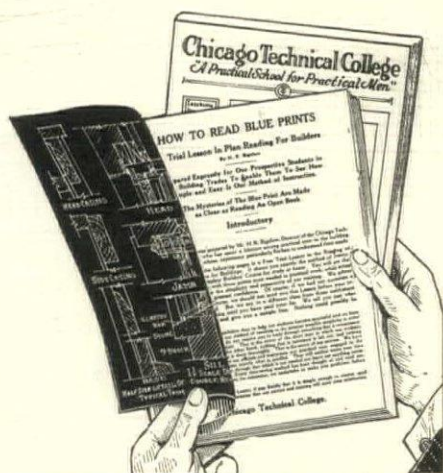
Have every branch of building at your fingers' ends. Then you can step ahead—get the pay your ability is worth.

## FREE 2 BOOKS AND BLUE PRINTS

Your request brings our 2 Books, one on "How to Read Blue Prints," containing a lesson in Plan Reading, with which we send blue prints, drawings, etc. With this lesson you can test yourself and see how easily you can learn by our method before you decide about enrolling. The other book explains the Chicago "Tech" Method of training by mail.

### Send the Coupon

Get these free Books and Blue Prints and see for yourself how Chicago "Tech" training will put you ahead. Just sign your name on the coupon and mail it today to **Chicago Technical College, 1138 Chicago Technical Bldg., Chicago.**



**Chicago Technical College,  
1138 Chicago Tech. Bldg., Chicago, Ill.**

Please send me your 2 Free Books and Blue Prints for men in the Building Trades. Send post-paid to my address below.

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Every corner of every building you plan or erect can be daylighted if you make use of the products we have perfected. Write our engineers your problems.

## 3 Way-Luxfer Prism Transoms

Project daylight to far ends of stores, shops, etc. Lazalite glass that does not turn pink or purple.

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Greatest glass area—strongest construction. Polariscopes tested Lazalite glass. Made with reground cement. Ready to set slabs or built on the job.

## 3-Way Simplex Skylights

Once installed need no attention—concrete construction—Polariscopes tested Lazalite glass. Made with reground cement.

## Steelead Skylights

The ideal skylight construction. Everlasting—no upkeep cost—no paint or putty. Better than best copper at no greater price.

## American 3 Way-Luxfer Prism Company

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**A Sign of Foresight**

Many home-builders consider the Kernerator as essential to comfort and convenience as first-class plumbing or an efficient heating plant. They appreciate how this modern system for disposing of household waste saves steps, how it eliminates the health menace of the insanitary garbage can, how it reduces the fire hazard by making unnecessary the accumulation of refuse.

The Kernerator is of simple construction—yet it lasts as long as the building in which it is installed, with no expense for repairs or upkeep. It consists of a brick incinerator, built into the base of the chimney when erected, and hopper doors in the flue on the floors above. It disposes of all household waste without cost because the refuse, itself, is the only fuel required. Every few months the ashes and non-combustibles are removed from the ash-pit.

Write for interesting literature, giving complete information regarding the Kernerator. Also see page 2124, Sweet's 1922 Catalog.

**KERNER INCINERATOR CO.**  
1027 Chestnut St., Milwaukee, Wis.

**THIS BUILDING EQUIPPED WITH THE KERNERATOR Built-in-the-Chimney**

NO GARBAGE OR REFUSE CANS USED ON THESE PREMISES

For Information see Local Agent of  
**Kerner Incinerator Co.**  
MILWAUKEE WIS.

ECONOMY CONVENIENCE SANITATION SAFETY



# Build a Roof as Lasting as the Foundation



Send for Our Dealer Proposition

Chicago, Ill.  
Beckman-Dawson Roofing Company  
19 S. La Salle Street, Dept. No. D-25

Detroit, Mich.  
Peck Asphalt Shingle Co.  
125 W. Jefferson Ave., Dept. No. D-25

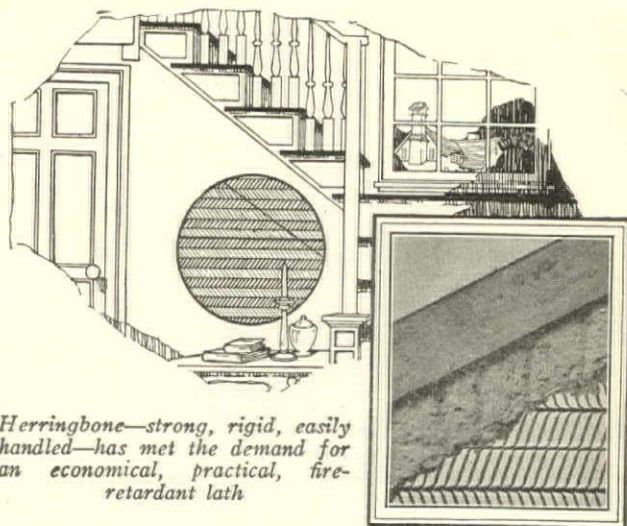
Brantford, Ont., Canada  
Brantford Roofing Co., Ltd., Dept. No. D-25

Lockport, New York  
Lockport Paper Co., Dept. No. D-25

Windsor, Ont., Canada  
Canadian Roofing Mfg. Co., Limited,  
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## Winthrop

Tapered Asphalt  
Shingles



*Herringbone—strong, rigid, easily  
handled—has met the demand for  
an economical, practical, fire-  
retardant lath*

## Protect the Stairs from Fire

The only fire escape in a house is the stairs. They must be protected. Fire comes upward. Protect the under side of the stairs and you protect all. Use metal lath and plaster.

For a dependable, fire-resisting lath use Herringbone. It spans sixteen inches. The increase in cost is but a small fraction of the increase in value.

*Send for illustrated literature*

# Herringbone

## RIGID METAL LATH

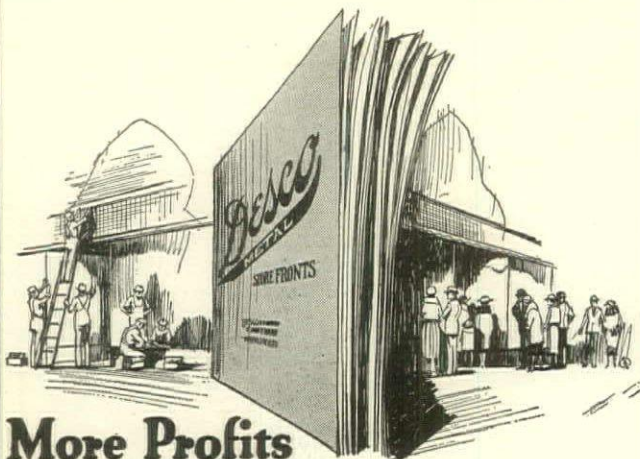
The General Fireproofing Company  
Youngstown, Ohio

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## More Profits for YOU — and the MERCHANT!

More profits for you because Desco Store Fronts are attractive and the cost of materials and installation is less; and because one job brings new contracts.

More profits for the merchant because the dollar-and-cents value of modern store exteriors is realized by business men everywhere.

How you can build up a profitable store front business—

How you can increase your profits without special knowledge or experience in store front construction—

How you can establish yourself as a store front specialist is information we will gladly give you. First, get the helpful Desco Book. It is a book that gives valuable information in designing and installing modern store fronts and will enable you to become a successful store front builder.

See Sweet's Catalogue.

Fill out the coupon today and this book will be sent to you by return mail.

### Detroit Show Case Company

1660 Fort Street West

Detroit, Mich.

Send for name of Desco Distributor nearest you.

(63)

## Desco STORE FRONTS

Detroit Show Case Company,  
1660 Fort Street West, Detroit, Michigan.

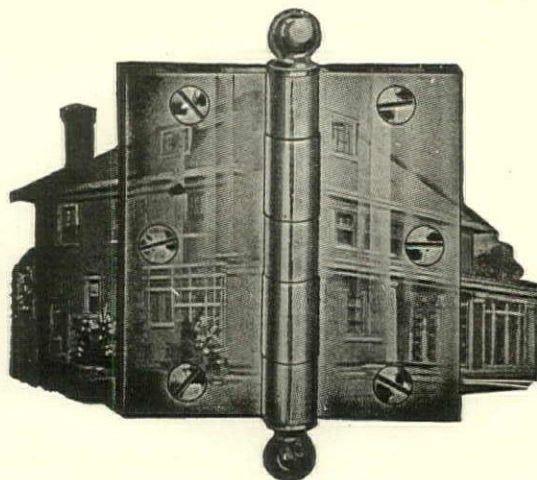
Gentlemen:

Without obligation upon my part you may send me a copy of your book containing information regarding store fronts.

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Street .....

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



## 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.

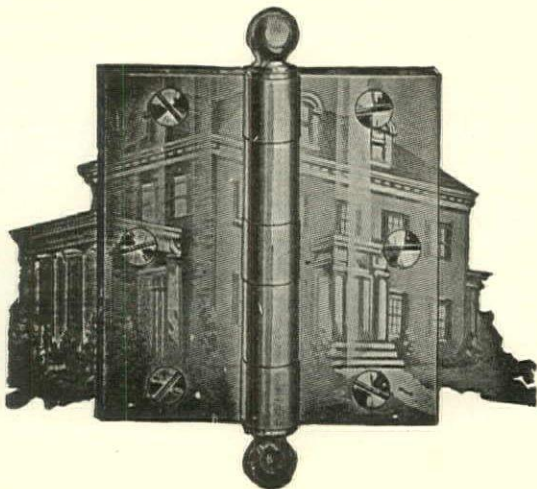
The Griffin operates freely and easily, it is amply strong for heavy doors and it is such a pleasing fixture that architects and home builders are glad to specify and use it.

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

### The Griffin Manufacturing Company ERIE, PENNA.

45 Warren Street  
New York

229 West Randolph Street  
Chicago





## Making Friends of Your Customers

The man who sells Heating Systems knows that Home Owners sometimes seem to expect the impossible from their heating plants. Under such circumstances it is easy to lose the friendship of a customer. It is easy to make lasting friends of every customer when you sell—

### THE FARQUAR HEATING AND VENTILATING SYSTEM

Because of these several exclusive and distinctive features, the FarQuar actually accomplishes the seemingly impossible:

- a copper-bearing steel fire-box, electrically welded into one piece, completely prevents escape of gas and fire poisons.
- firebox is specially shaped to avoid irregular faces, eliminate top surface, and minimize friction.
- the automatic control—a positive heat regulator and fuel saver—actuated by the fire-box itself.
- a large air chamber which conforms to shape of fire-box and provides the necessary capacity for handling a large amount of air.
- a construction which provides for an ample quantity of gently warmed fresh air instead of heating and reheating partially devitalized air.
- the FarQuar Vent and Return System carries off the air contaminated by occupancy, and maintains a uniform temperature in all rooms, thereby preventing hot and cold spots.
- heat evenly distributed between floors and ceilings—no drafts along floors.

All this is accomplished with a surprising economy of fuel due to the Scientific Principles of FarQuar Design and Construction.

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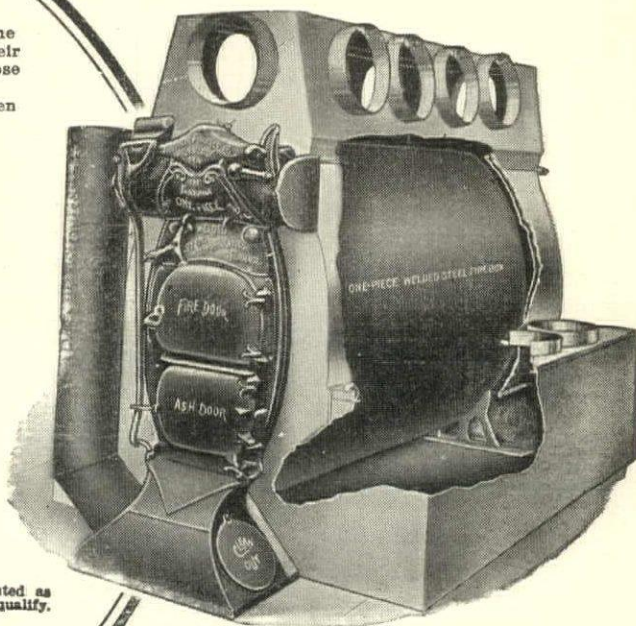
Cash in on FarQuar supremacy. High grade, responsible Dealers are wanted as exclusive FarQuar distributors. Unusual opportunities open to those who can qualify. Write today for particulars; ask for Free Booklet.

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Home Builders and Home Owners are continually asking for information about the FarQuar. It will pay you to have the facts. Write for Free Booklet giving complete information. If interested in Distributors' Proposition, ask for details.

**The Farquhar Furnace Co.**

511 FarQuar Building  
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# Long-Bell

Trade  
Marked

# L U M B E R

## "Know the Lumber You Buy"

It is a commonly accepted truth that trade-marks are guides to good merchandise. The reason is obvious. A manufacturer could not afford to put his name upon an article that did not stand up to the claims he made for it.

The Long-Bell Lumber Company takes

unusual pains to produce lumber, timbers and lumber products that will maintain a reputation for uniform high quality. It is, therefore, proud to put its name upon them.

You should know the lumber you buy—and the Long-Bell trade-mark provides the way.

ASK YOUR LUMBERMAN FOR  
LONG-BELL TRADE-MARKED LUMBER

### The Long-Bell Lumber Company

R.A. LONG BUILDING Lumbermen since 1875 KANSAS CITY, MO.

Southern Pine Lumber and Timbers; Creosoted Lumber, Timbers, Posts, Poles, Ties, Piling and Wood Blocks; California White Pine Lumber, Sash and Doors, Standardized Woodwork; Southern Hardwoods, Oak Flooring.



# The VENDOR SLATE CO.

## PENNSYLVANIA WEATHERING ROOFING SLATE

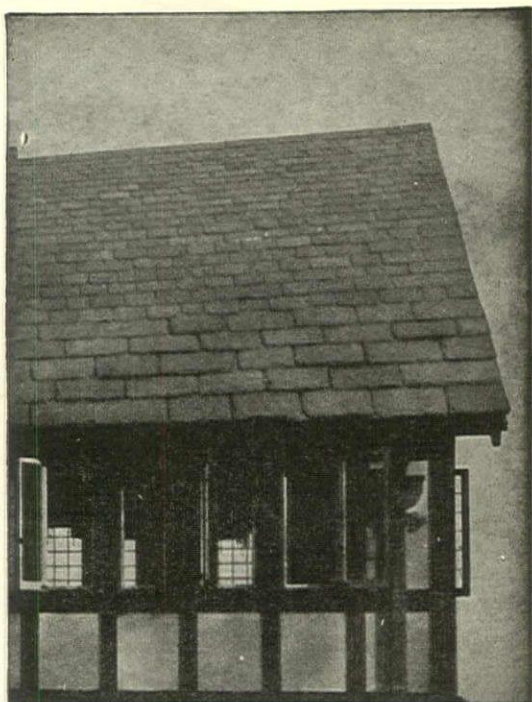
ARCHITECTS wishing to investigate the possibilities of this field are invited to use the Vendor Service in Architectural Roofing Slate.

Vendor Pennsylvania slates include plain or varied shades of dark grey and several weatherings, all predeterminable and suitable wherever a roof of dark value is in keeping: Warmth, texture and unerring dignity are a part of Vendor Pennsylvania Architectural Slates.

Colored Slates of every kind including Red are also regular Vendor products as well as are inexpensive and standard gradings for cottages and commercial structures.

*Send professional letter head for our Architectural Catalogue. Send blueprints—we promptly return them—for an estimate on roofing slate, plain or architectural, for any building anywhere.*

MAIN OFFICE AND DEPARTMENT OF ARCHITECTURAL SLATE  
AT EASTON, PA. SALES BRANCHES IN PRINCIPAL CITIES.



• Largest Shippers of Roofing Slate in the World •

• VENDOR SLATE CO. Inc. •  
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### 180 Cubic Feet per Hour of

heat escapes from every window in your building. 90% of Heat Units go up your chimney. Can you afford to waste from 20 to 40% of the 10% that is left? Of course, you can't.

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DIAMOND METAL WEATHER  
STRIPS



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If you have a building to heat and you PAY THE BILLS, let us prove how we can save you 20 to 40% on your fuel bills this year and every year your building stands.

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Let us send you some information and details on how we do it. We have been doing it for fifteen years for others, why not for you?

A building equipped with our product enables you to maintain an even degree of heat with less fuel.

Can be put in any building, old or new, anytime, anywhere.

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CALKING  
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WHERE  
OTHERS  
FAIL

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Wouldn't you be surprised if the one from whom you buy fuel would hand you back one-fourth to one-third OF EVERY DOLLAR you spend for heating your home or building? WELL, YOU KNOW he won't, but an investment in DIAMOND METAL WEATHER STRIPS will save you that much and will pay for themselves in from two to three years' time, and then go on doing it for at least ten years to come. Don't take our word for it, but let us refer you to people who are making this saving.

We have stripped thousands of homes, both old and new, in all parts of U. S. and Canada.

Not only do they save fuel, but they keep the heat in, the cold, dirt and storm out, and do it continually.

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Building Material and Specialty men, Contractors and Carpenters should write for our Agency Proposition. Some desirable territory still open. Volume of business is big the year round and profits are legitimate.

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DIAMOND METAL WEATHER  
STRIP CO.

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Columbus, Ohio



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(For Everlasting Economy)



### A Real Estate Investment as Good as a Bond

Ten straight carloads of 13-16 x 2 1-4 Clear Plain Red Oak Flooring were used in this mammoth apartment building, the Indian Village Manor, Detroit, Michigan, the largest building of its kind in the world. Only two of the six sections are shown here.

Besides giving the owner the usual advantages of Oak Floors, beauty and durability, these miles of Oak Floors will mean a saving of thousands of dollars annually in his cleaning bills.

And will increase his rental and selling values more than many times their cost spent in other decorative features.

Today's universal preference for Oak Floors is nowhere better shown than in the countless real estate advertisements which never fail to list them, where possible, as selling arguments.

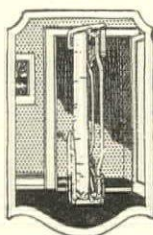
Our three booklets, in colors, containing accurate and up-to-date information on the whole subject of Oak Floors, mailed free to members of the building trades and professions.

**Oak Flooring Advertising Bureau**  
1041 Ashland Block, Chicago, Ill.

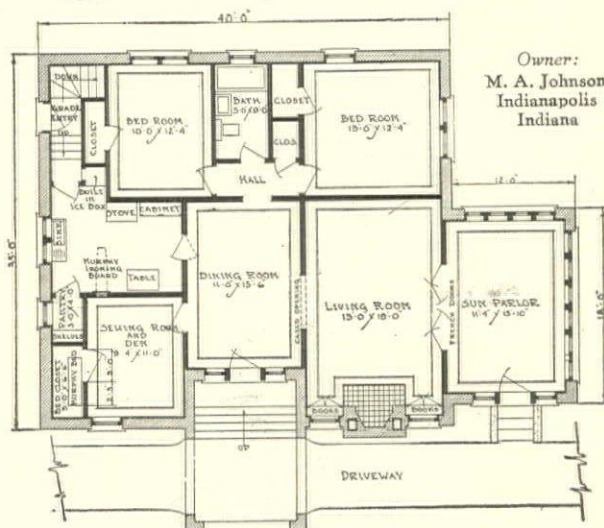


## The MURPHY IN-A-DOR BED

### ENHANCES THE VALUE OF ANY DWELLING—



and increases the salability and utility of any small house or apartment. Converts any room into a bed room at night—saves furnishing cost. Note the use of the Murphy bed in the home pictured above.



**OUR TECHNICAL DEPARTMENT** is always at your disposal. Architects and builders have found it most valuable on account of our fund of practical ideas based on years of experience—and the time-saving features. This service is gratis. Ask for full information.

Simmon's Springs are used exclusively  
in THE MURPHY IN-A-DOR BED.  
"Built for Sleep."

## THE MURPHY DOOR BED CO.

Offices in all Principal Cities

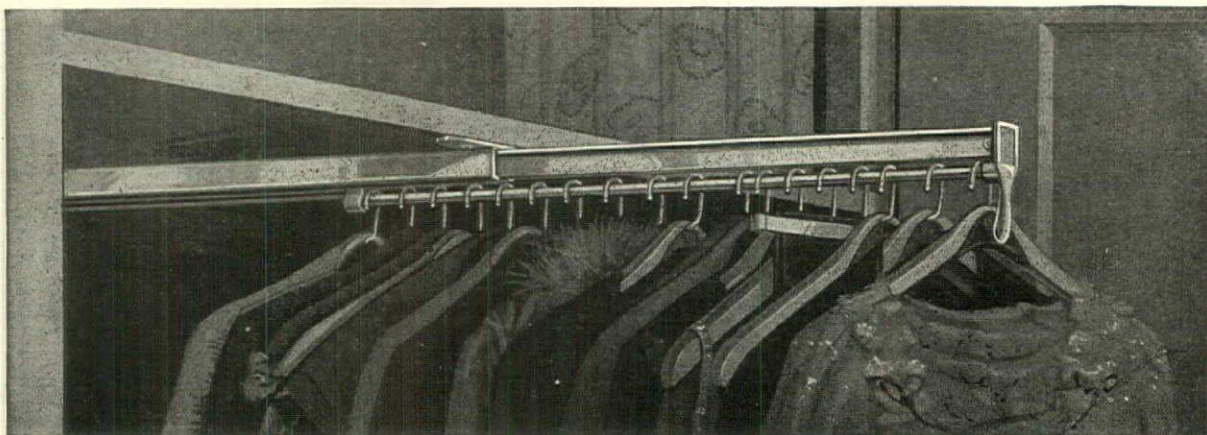
22 West Monroe Street, Chicago  
469 Fifth Avenue, New York  
1534 Blake Street, Denver  
912 Kresge Bldg., Detroit, Mich.  
205 O'Connor Street, Ottawa, Can.  
Crocker Bldg., San Francisco

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There is only one "In-A-Dor" Bed—THE MURPHY



# LOOK AT THIS PICTURE



**THE MODERN  
CLOSET FOR THE  
MODERN HOME  
SAVES SPACE AND  
CONSTRUCTION COSTS**

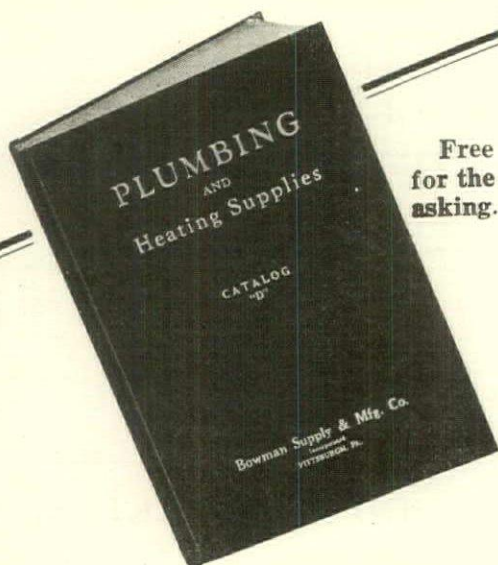
As much as 15 percent in the construction costs of new homes is actually saved when plans are made to use the modern

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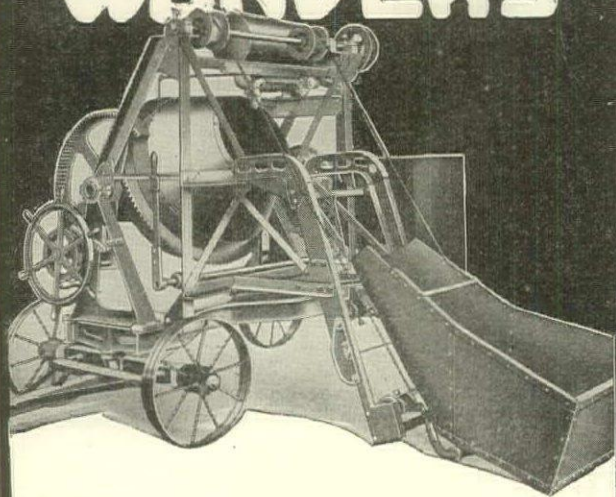
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Ask for catalog M-33. It takes you right into our plant.



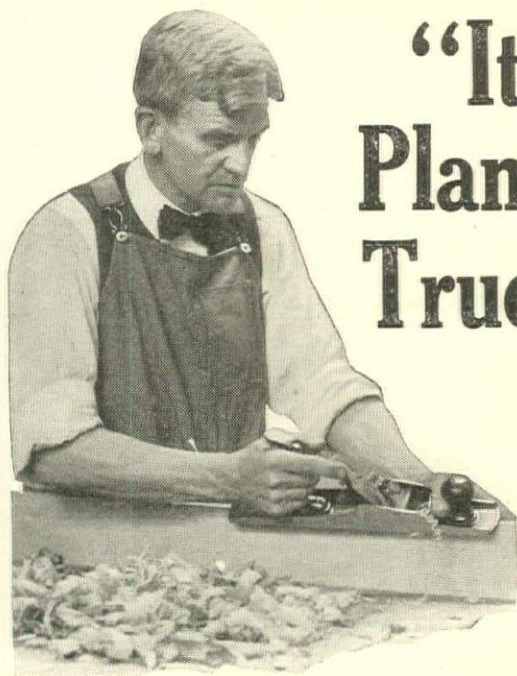
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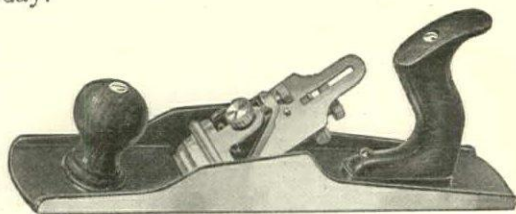
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That's what the building-craftsman say about the Sargent Auto-Set Bench Plane. He likes the way it gets down into the job—the way it takes hold of the wood. Cutting keenness is reflected in the character of its work and by the worker's undiminished vigor at the end of a busy day.



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**More Enduring  
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Better and Cheaper  
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Marble or Slate**

H & H Steel Partitions are rapidly replacing Wood, Marble and Slate.

More sanitary than wood, because they do not absorb odors—more enduring, too.

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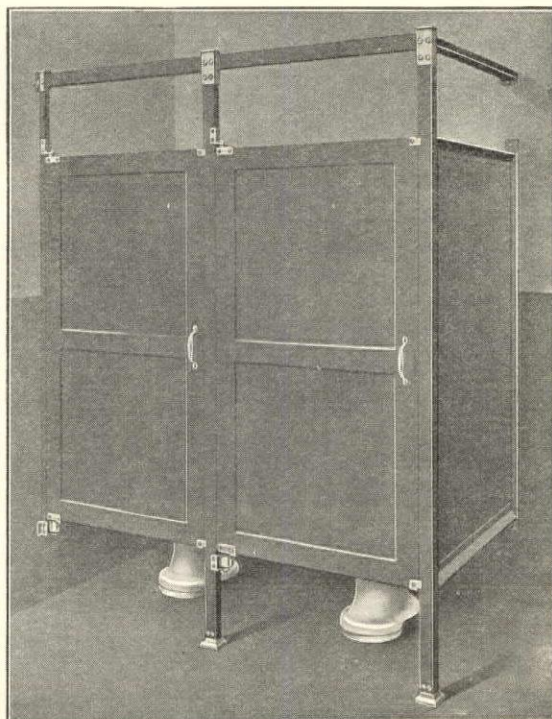
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501 Fifth Ave., New York; 73 East Lake St., Chicago; Real Estate Trust Bldg., Philadelphia; 141 Milk St., Boston, Mass.

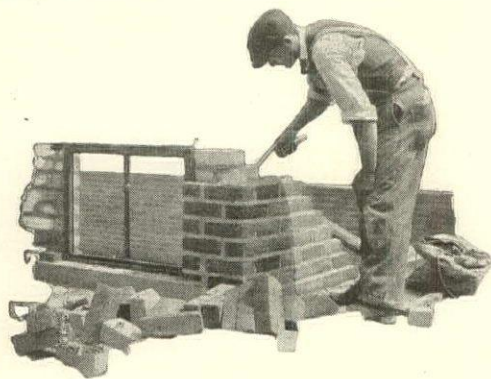
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Think how much time and money you could save by installing a basement window that comes COMPLETE!

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Steel Windows



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ORDINARY plasters which are mixed with water cannot be used with safety during winter periods. On the other hand, immunity to damage even in zero temperature is only one of the many individual characteristics of Kellastone. It is mixed with a magnesium chloride solution which is absolutely non-freezing.

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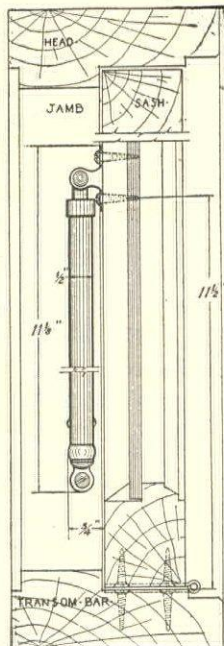
Porterville, Cal.

**KELLASTONE**  
IMPERISHABLE STUCCO

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### Automatic CASEMENT STAY

(See A. I. A. File No. 27c2)



Holds securely—prevents slamming. Can be applied to sash—right or left, top or bottom—concealed or exposed.

*Satisfactory friction assured by a slight hand-turn of outer tube.*

Fully described in "Manual of Casement Hardware Detail." If a copy is not in your files, a post card will bring it.

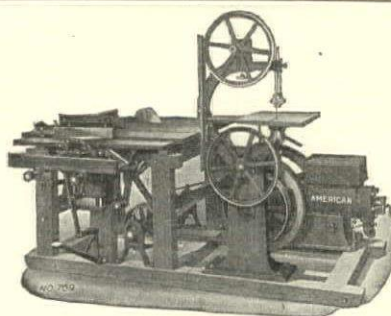
MONARCH METAL PRODUCTS COMPANY

Makers of Monarch Metal Weather Strips

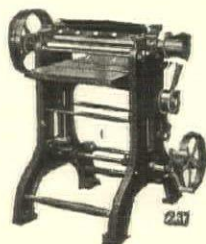
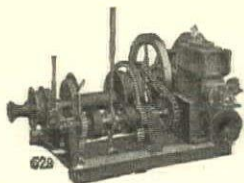
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An "American"  
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Woodworker  
with 20-in. Band  
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## Take Your Shop Right on the Job

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Those vexing delays and the costs of running back to the shop to do this or that are eliminated when there's an "American" on the job. Each one of its fourteen machines (all in one unit) are high grade woodworking machines—the equal of any single machine. You will actually save money on every building contract that has an "American" on the job.

Write for Catalog No. 77 that illustrates and describes our full line of woodworking machinery.

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# "AMERICAN" Woodworking Machinery

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**\$5<sup>00</sup>**

**BRINGS IT  
TO YOU**

### Better, Quicker Work

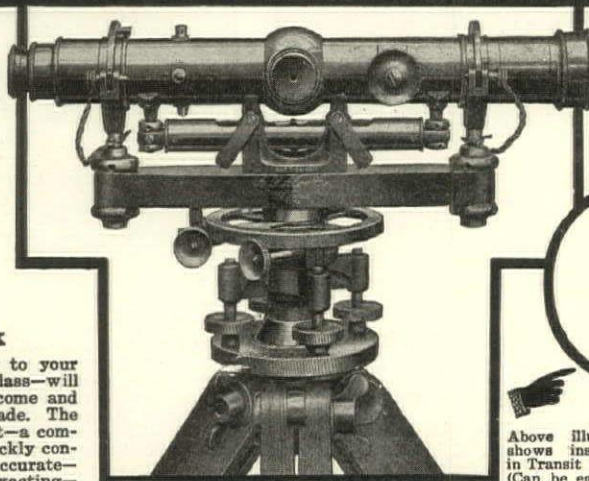
This instrument will add immeasurably to your efficiency and put you in the big builder class—will do more to increase your business, income and prestige than any investment you ever made. The Aloe Convertible Level is the world's best—a combination of both level and transit and quickly converted to the use of either. Absolutely accurate—satisfies the requirements of the most exacting—yet so simple that anyone can use it.

## Aloe Convertible Level and Transit Combined

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Above illustration shows instrument in Transit position. (Can be easily and quickly converted.)

**FREE  
Write  
for this  
Book**



### Easy Monthly Payments

Just \$5.00 brings it to you—for a free trial. If perfectly satisfied, pay the balance in small monthly payments. The instrument will be sent at once and from the first day it will be working for you—paying for itself by saving you the cost of borrowing an instrument or the fees you have been paying other men for this work.

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Our free book—"Be A Bigger Builder"—tells you how to increase your income—how to get the profitable jobs and become a bigger man in your community. Write for this book today.

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Is toward a combination of utility with beauty.

In the case of asphalt shingles it used to be merely a question of durability and fire-resistant qualities. Now, however, artistic appearance is required in addition to these other well-known features.

### Flint-Arrow Blue

the latest and most artistic slate  
surfacing for

### Asphalt Shingles

is sure to please. Its distinctive deep blue-black tone adds the finishing touch to the house; a touch in harmony with almost any style of architecture but particularly adaptable for houses of the Colonial type.

*Sample sent on request*

**BLUE RIDGE SLATE CORPORATION**  
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*Right  
in the  
Plans*

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The fireplace with Donley Damper, Fire Basket, and Ash Dump; the entry with a Donley Package Receiver; the basement wall with Donley Coal Chute and Meter Box are integral parts of a well-planned home.

DONLEY DAMPERS • PACKAGE RECEIVERS • COAL CHUTES • METER BOXES • CARGAGE RECEIVERS

ASH DUMPS AND  
FIREPLACE  
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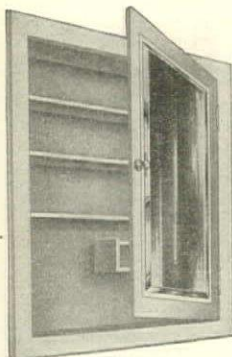
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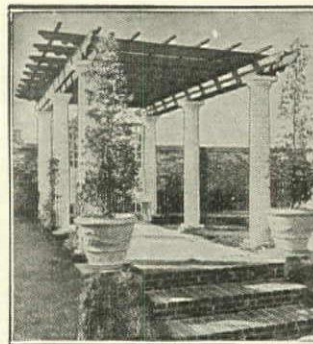


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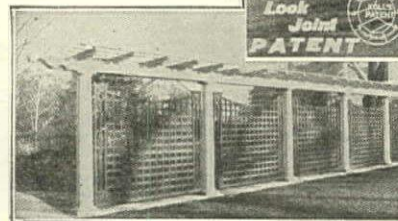
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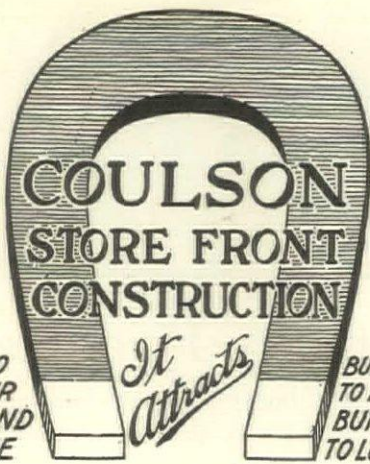
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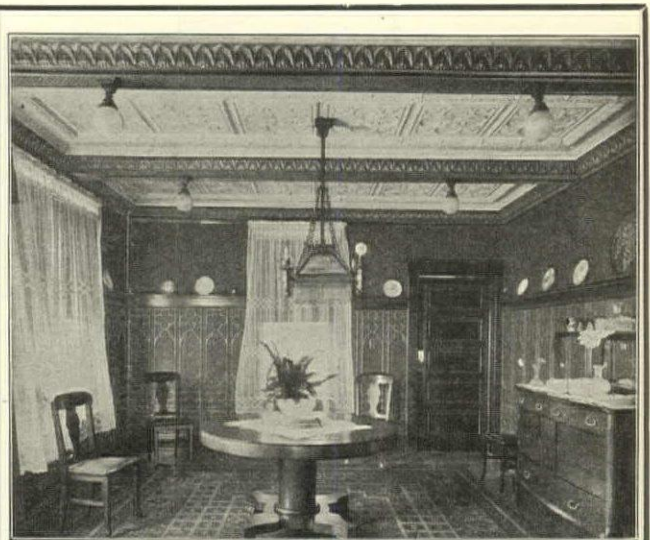
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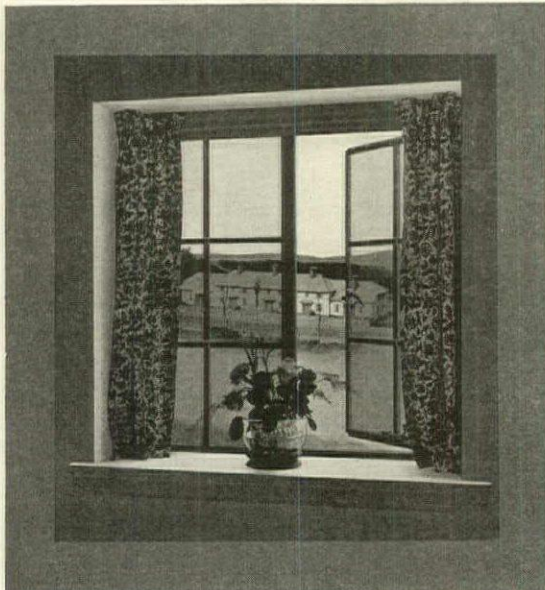
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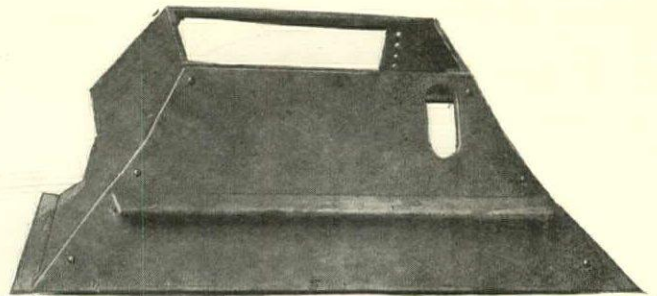
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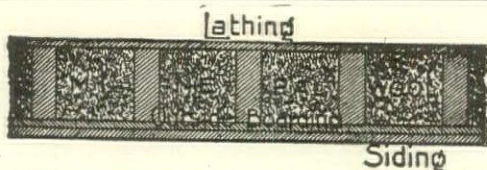
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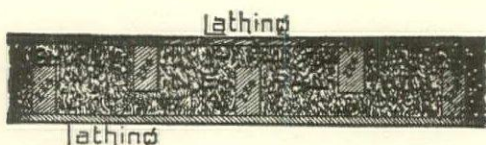
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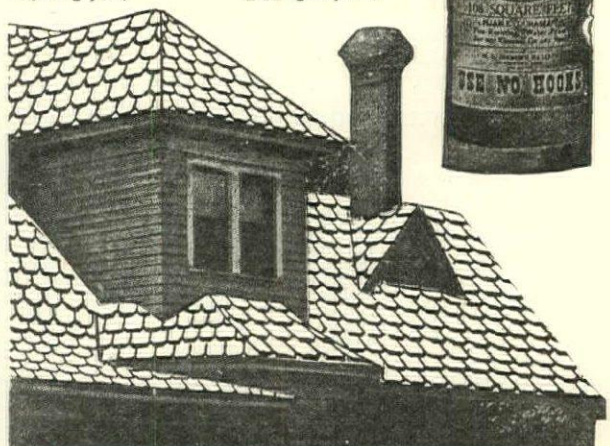
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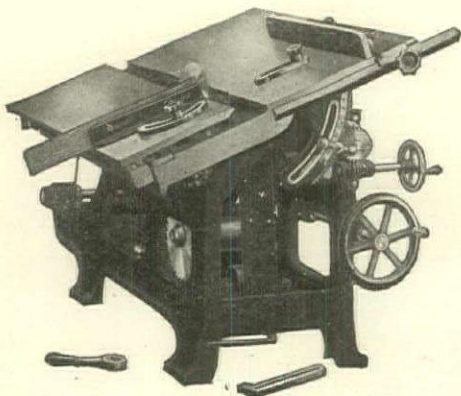
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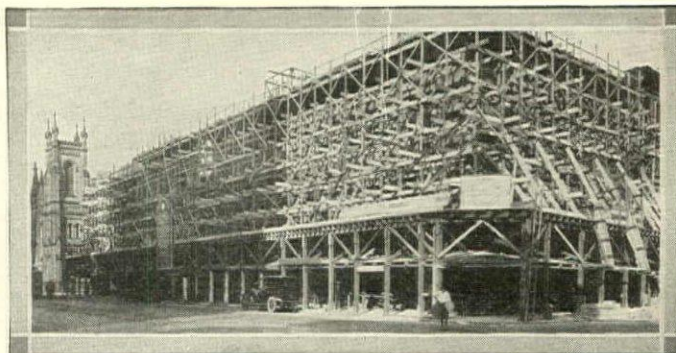
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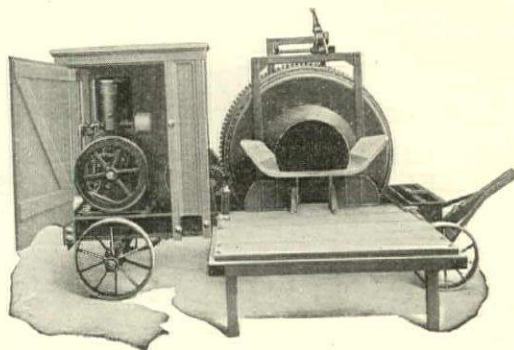
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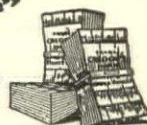
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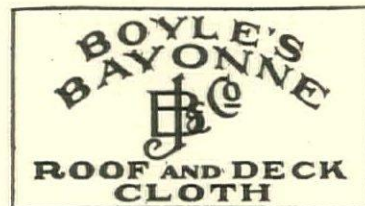
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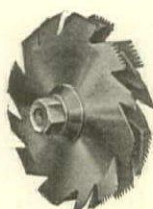
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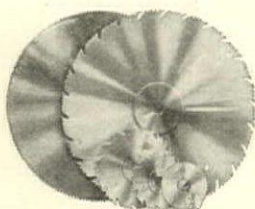


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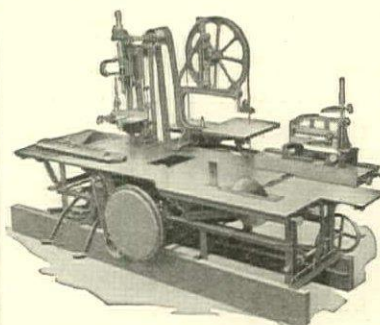
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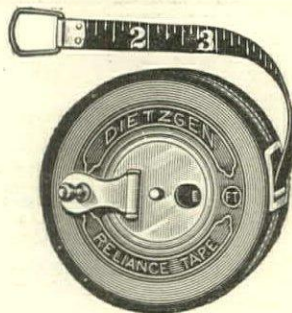
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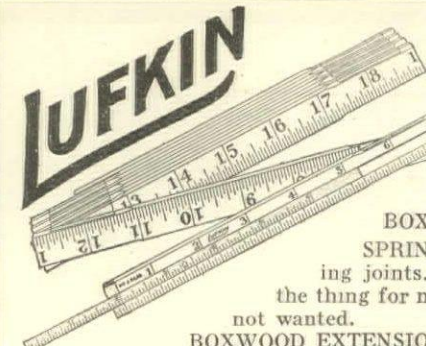
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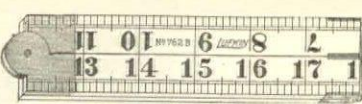


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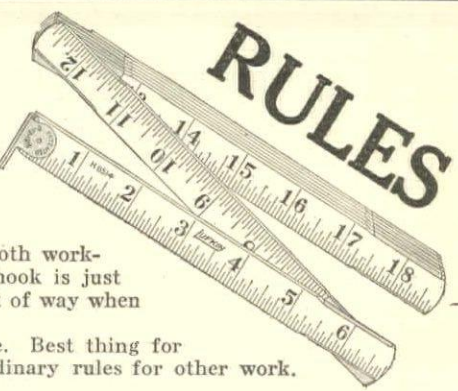


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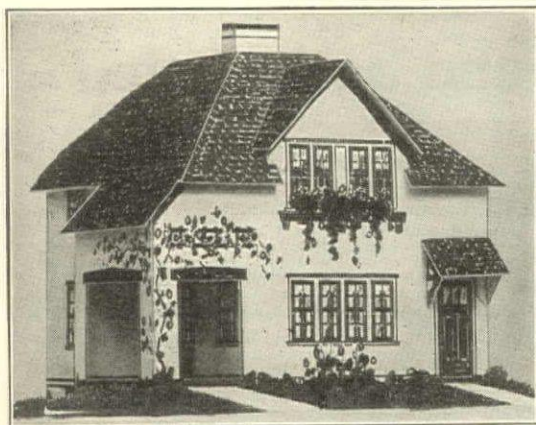
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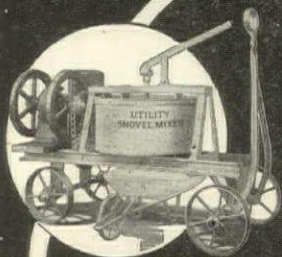
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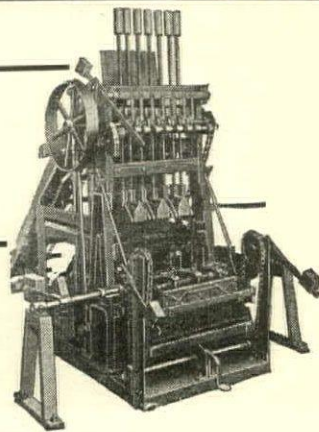
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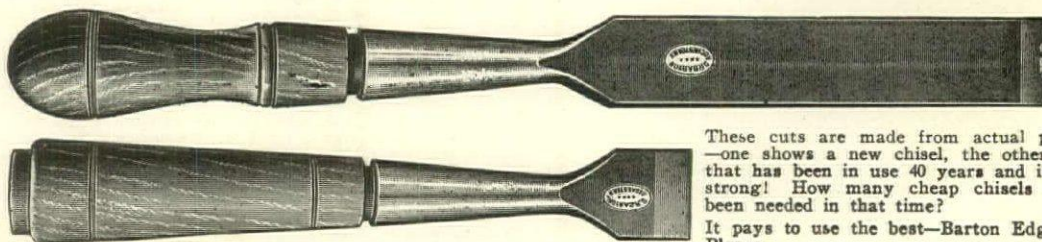


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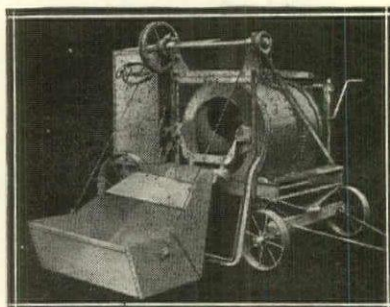
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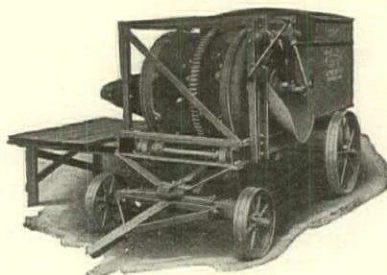
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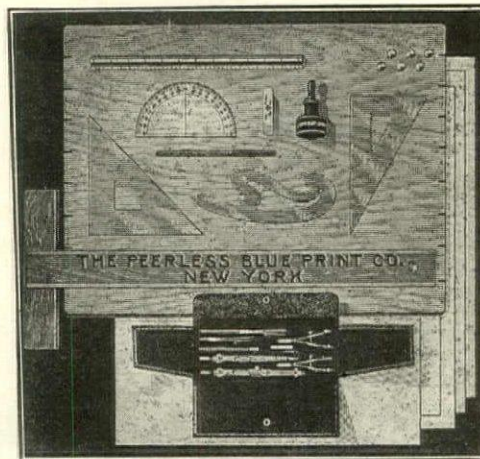
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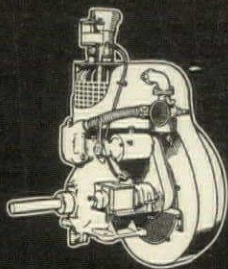
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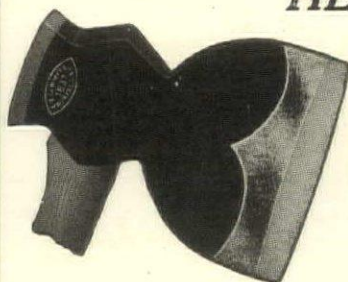
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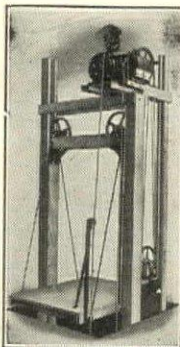
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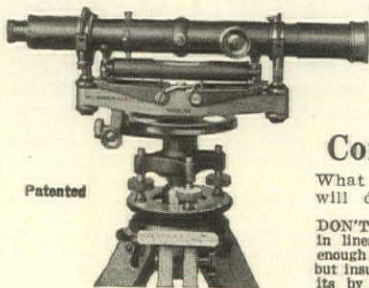
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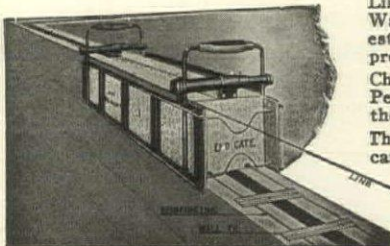
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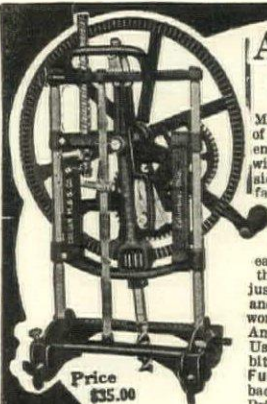
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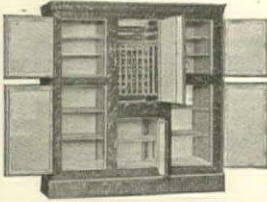


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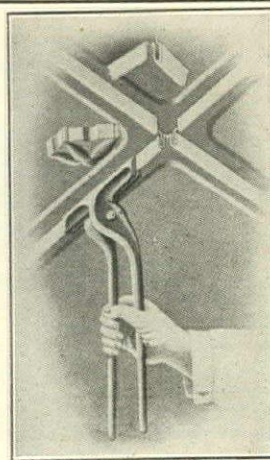


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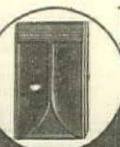
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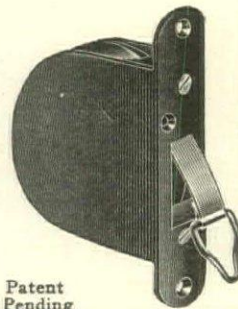
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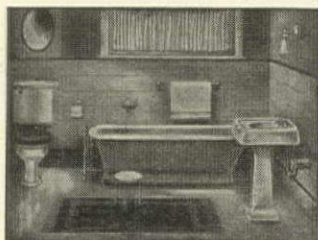


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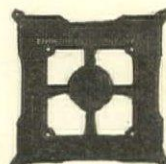
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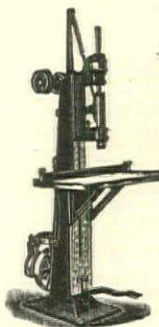
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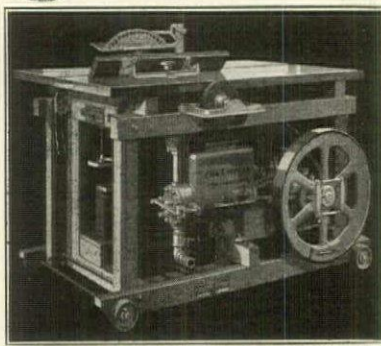
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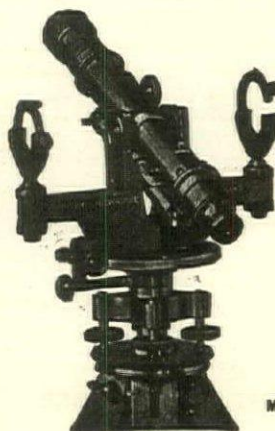


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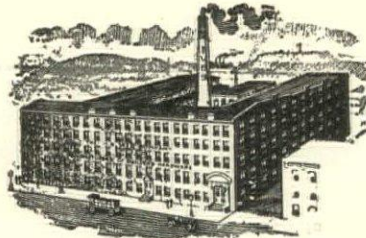
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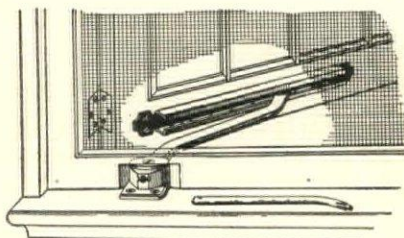


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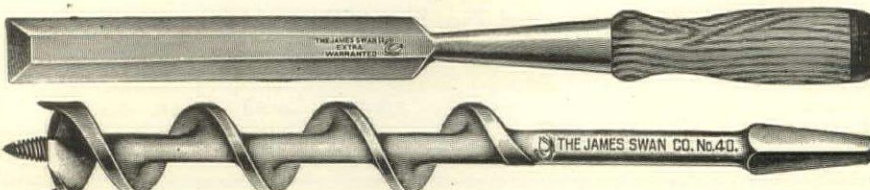
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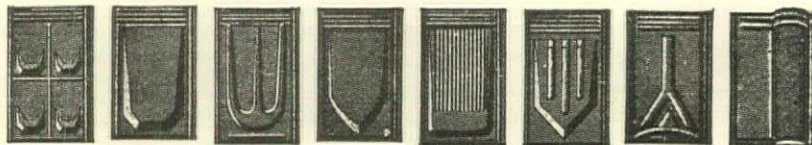
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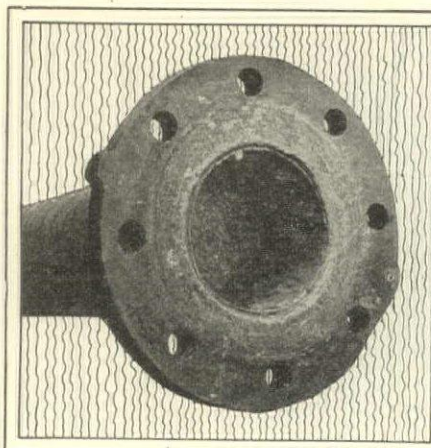
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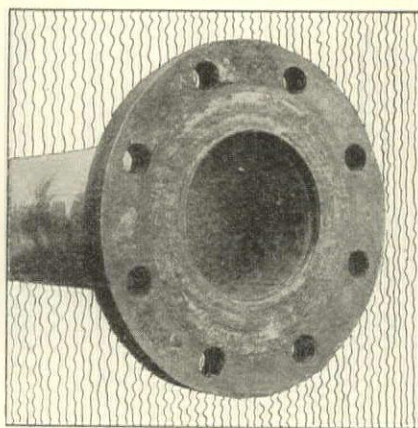
# The story of a HOT WATER FEED PIPE

## In Three Parts



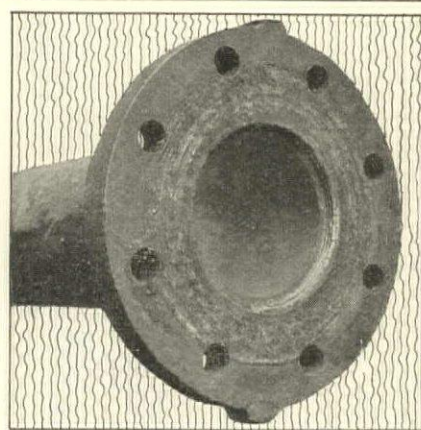
Part 1—Black Steel carried hot water at 200 degrees F. for eight years.

*Worn down to threads; rough, pitted.*



Part 2—Galvanized Genuine Wrought Iron carried hot water at 200 degrees F. for eight years.

*Worn down to threads; projecting nodules of rust.*



Part 3—Bridgeport Plumrite Brass Pipe carried hot water at 200 degrees F. for seven years.

*No wear; surface smooth and clean.*

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CONSIDER the relative amounts of friction in these three pipes—the color of the water delivered by the steel and iron pipes and their probable condition three years later. If experience counts they will be

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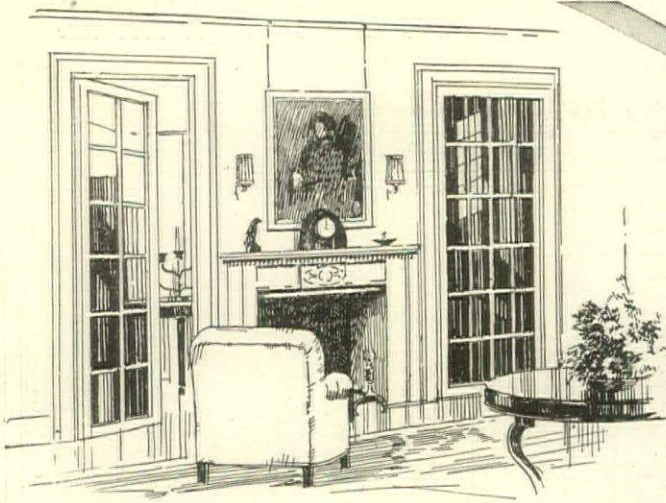
and prevention; discusses the advantages and disadvantages of the various pipe metals; and gives instructions for handling brass pipe, laying out installations and figuring costs. Copies are gratis on request—use this coupon.

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Seemingly something that it isn't, the mirrored door may add a witching air of mystery. It may hold the secret of balance essential to a restful room. It may compensate a window or a door, or break the tiresome space of blank walls.

A mirror is something more than merely an article of furniture to be hung up. Considered in the building of house or apartment, and in the hands of a skillful artist, it may play an important part in the architectural scheme.

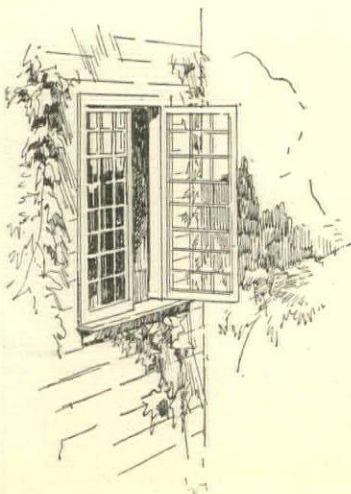
Plate glass mirrors made in America are unsurpassed in brilliance, clearness

and flawless perfection. They are made of selected plate glass silvered with the greatest care by skillful workmen.

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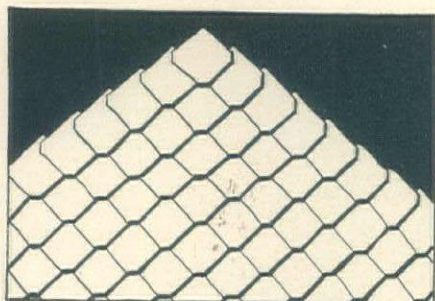


**Nothing Else  
is Like it**

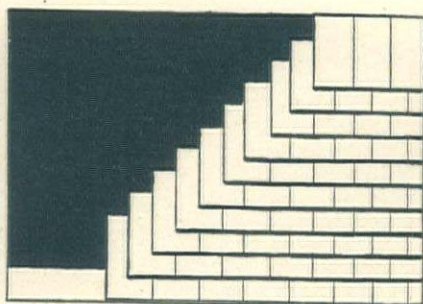
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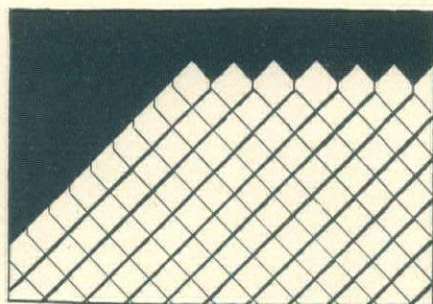




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DEPARTMENT C

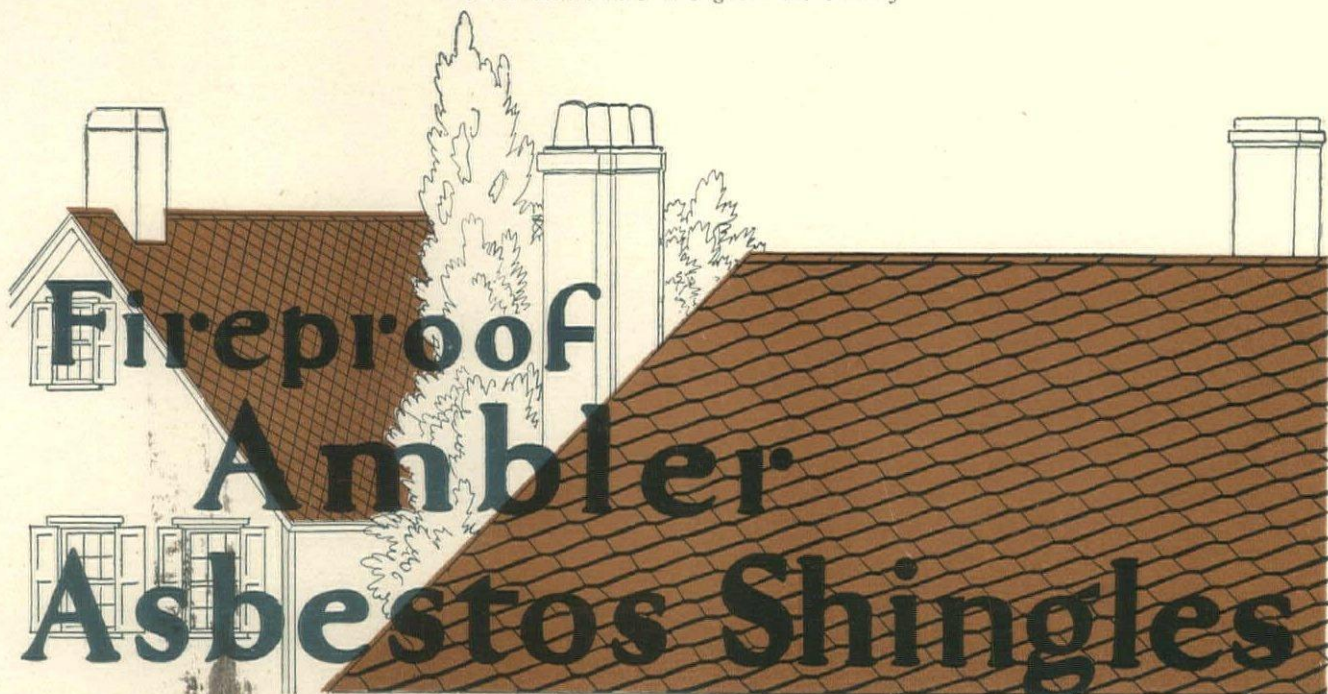
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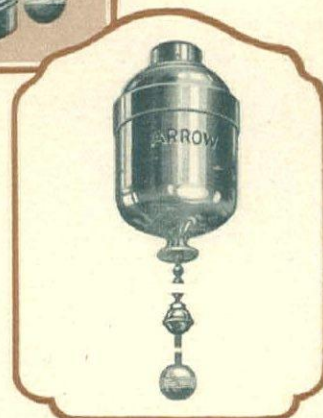
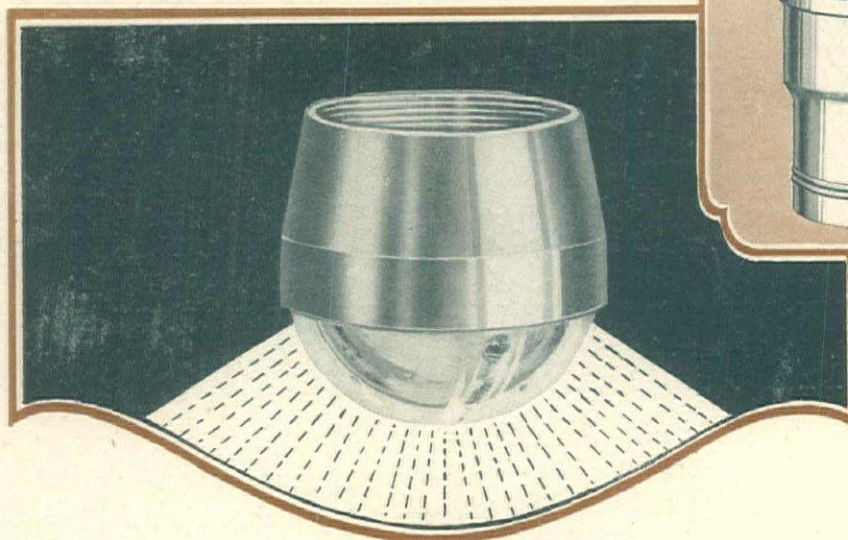
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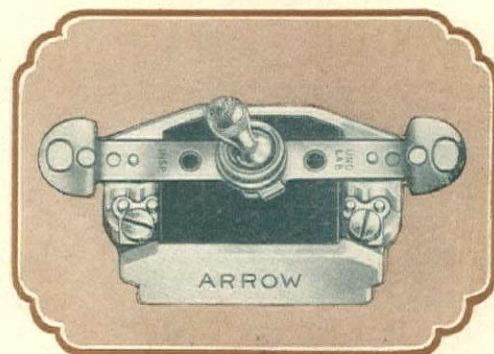
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