

Copyright, 1922, by American Carpenter and Builder Company.



Formerly AMERICAN CARPENTER AND BUILDER

Member of the Audit Bureau of Circulations—Circulation Audited and Verified April, 1923

### American Builder

Entered as second-class matter July 1, 1905, at the post office at Chicago, Ill., under the Act of Congress of March 3, 1879.

Published on the first day of each month by

#### AMERICAN CARPENTER AND BUILDER COMPANY

WM. A. RADFORD, *President, Treasurer and Editor-in-Chief.*  
E. L. HATFIELD, *Vice-President and General Manager.*

BERNARD L. JOHNSON, *Editor.*  
ROLAND D. RADFORD, *Secretary.*

DELBERT W. SMITH L. H. REICH..... ) *Advertising*  
C. R. W. EDGUMBE E. B. WOLFROM..... ) *Staff*

#### Publication Offices:

Radford Building, 1827 Prairie Ave., Chicago

TELEPHONE: CALUMET 4770

EASTERN OFFICE: 261 BROADWAY, NEW YORK CITY

#### SUBSCRIPTION RATES

One year, \$2.00; six months, \$1.00; single copies, 35 cents. Extra postage to Canada, 50 cents; to foreign countries, \$1.00.

#### PROTECTION FOR OUR READERS

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

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

#### ADVERTISING RATES

Furnished on application. Advertising forms close on the 15th of the month preceding date of publication.

VOL. 36

December, 1923

No. 3

### Table of Contents

Around the Family Table..... 61	"Glass Farming" on Increase..... 88	Weatherstrip Rolls Like Cord Off Spool and Sews Up Home Snug and Tight for Winter.....117
Friendly Chats with the Editor..... 65	Two Kinks..... 91	Improved Combination Woodworker.....117
An Example of Good Architecture..... 66	The Butler Grade School at Hinsdale, Ill. 92	An Electrical Bench Scroll Saw.....118
The Entrance to Silsbee House..... 67	A Record Moving Job..... 93	Finishing Off Prepared Roofing at Bave Edges.....118
Built-in Bookshelves..... 67	Windows "Sell" the Store..... 94	Portable Concrete Drill Strikes 1,000 Blows Per Minute.....118
Topping Tall Trees..... 68	Building Has "Milk-Bottle" Entrance 95	Meets All Demands for Low-Price, Compact Water System.....120
No More Black Patches on Concrete... 68	Keeping Concrete Construction Costs Down in Winter..... 96	Handy Lettering Instrument.....120
Our Front Cover Home..... 69	When to Paint and the Paint to Use... 97	Making More Money by Making More and Better Brick.....120
Pleasing Western Colonial Style, Complete Working Plans (4 full page plates.)	Wall Board, the Indispensable..... 98	Motor Trucks and Trailers.....124
At Yuletide..... 74	Shingles for Side-Walls.....100	Truck-Mounted Concrete Mixer Saves Time and Labor for Contractor.....124
Blue Ribbon Homes Insert Section..... 75-82	To Fireside Happiness.....101	Truck Dimensions.....126
1—Reminiscent of the French Country-side.	"Selling" the Public Library.....102	News of the Field.....128
2—Town or Country Home.	Insulated Construction.....104	Construction Increased 25 Per Cent in October.....128
3—A Favorite Colonial Adaptation.	Building the Ice House.....104	Electrify All Buildings.....130
4—Favorite Brick Bungalow.	Rust Is Fly in Plumbing Ointment.....106	Our Home Electrical No. 9.....130
5—A Well-Handled Moderate-Sized Brick Residence.	Overburned Lime Cause of "Popping" in Plaster.....108	Lighting Installation.....124
6—Here is Your Villa in France.	Books, Booklets and Catalogs Received..108	Bulletin No. 135—An Investigation of the Fatigue of Metals, Series of 1922-128
7—Popular Style Two-Flat Building.	A Mountain Home.....110	
8—Genuine Homelike Appeal.	What's New?.....114	
A House of the Pennsylvania Farmhouse Type..... 83	A New Roofing Nailer.....114	
More Cheerful Home Walls..... 84	A Radiator Cover Top Which Is Useful and Attractive.....114	
Installing Steel Basement Windows in the Poured Concrete Job..... 87	Kerosene Flame Heater Heats Aggregate for Winter Concreting.....114	

**AN INVITATION TO YOU**

*The AMERICAN BUILDER cordially invites and urges you to enjoy the privileges and benefits of its Correspondence Department. Any phase of any building question may be profitably and instructively discussed in this department. If your problem is a knotty or technical one submit it to the Correspondence Department and secure the benefits of the opinions of other experienced builders. It's a "give" as well as a "take" department, and you are asked to relate your achievements and tell how you have conquered difficulties as well as to ask for information and advice. Rough drawings are desired, for they make clear involved points. We will gladly work over the rough drawings to meet publication requirements. The Correspondence Department is your department. Use it freely and frequently.*

**Why Architects,  
Contractors and  
Dealers  
Recommend**

## *Andersen* FRAMES

1. Immediate delivery—no expensive delays waiting for special custom made frames.
2. 121 sizes ready for every purpose.
3. Delivered in two compact bundles plainly marked and easily handled.
4. 7 parts instead of 57. No small parts to be lost or broken.
5. A frame up in ten minutes. No sorting, measuring or refitting. Pockets and pulleys in place.
6. Accuracy gives smooth-running windows, yet excludes all weather.
7. Modern machinery, methods and specialization lowers cost at factory; quickness of assembly saves you time, labor and money on the job.
8. Better results in frame, brick or stucco buildings.
9. White Pine preserves original accuracy and gives continuous service.
10. Made by the largest exclusive standard frame manufacturer. The trade-mark is absolute protection.



## Why Andersen Frames Fit Better Than Others

A VISIT to the Andersen factory would quickly show you why windows run so smoothly, yet fit so snugly, in Andersen Frames.

Each section of the frame must be absolutely accurate. Special machinery and skilled workmen turn out the parts with such exactness that any carpenter can nail up the seven units of an Andersen Window Frame in ten minutes, without any tinkering or truing.

The original smooth-running qualities stay with the frame because its White Pine construction resists warping, shrinking, cracking or rotting.

In addition to satisfactory service, Andersen Frames give the immediate advantages and economies listed here in the margin. Insist upon frames that have all these features.

### Free Booklet on Request

Write direct to us for the complete story of Andersen Frame savings. Please tell whether you are building your own home, or whether you are interested as an Architect, Contractor, Carpenter or Dealer.

**Andersen Lumber Company**  
Dept. A-12 Bayport, Minnesota

# *Andersen* FRAMES

# FRIENDLY CHATS *with the* EDITOR



## Uncle Sam Writes a "Best Seller"

IN announcing the sale of more than 200,000 copies of "How to Own Your Home" within less than two months of publication, the Department of Commerce states that orders have come very largely from building and loan associations, savings banks, dealers in lumber and other building materials, furniture companies and other organizations that have bought the booklet for distribution among their customers.

Many banks and industrial concerns have distributed the booklet to their employes, and it has also been purchased in quantity for the use of school and college classes in which housing and home economics are studied.

Although the number of single copies of "How to Own Your Home" sold at five cents a copy has been very great, orders for large lots have been especially stimulated by the low rates charged for quantity purchases. The Superintendent of Documents, Government Printing Office, Washington, handles the sales and makes quotations as follows: \$4.00 a hundred, \$35.00 for one thousand, and \$20.00 for each succeeding thousand on large orders.

The book discusses how much to pay for the home, how to finance the transaction, lot location, how to check the value of the property, selection of the contractor and how to compute maintenance cost.



## At the Close of 1923

EVERY reader of AMERICAN BUILDER will agree that the year now closing has been one of the most notable in the history of building construction.

Construction mounted during the war, but it was building of a kind which peace time must doom to destruction. That is the tragic waste of war; that we must build as securely for its short, terrible life as if it were for centuries, and, after it is over, level billions of tons of structural material to dust.

But in time of peace it is different. Now we are building up more toward the vision of the great, beautiful America we wish to leave as a legacy to our children's children. This year construction activity

reached the immense total of \$5,000,000,000.00. It baffles computation. This year the architects and builders of America have handed over to their country \$5,000,000,000.00 in improved home, institutional and business properties that have already begun to be profit and revenue producing assets.

AMERICAN BUILDER is continually in touch with a host of active architects, builders and building material producers everywhere. Basing our figures on what they tell us, we confidently expect to see 1924 surpass 1923 by over the 25 per cent in which 1923 is surpassing 1922.

The only bar to continued construction activity will not come from lack of demand or building materials, but from lack of sufficient labor in the building trades. That is why the apprentice everywhere should have the ungrudging support of everyone identified with the building industry.



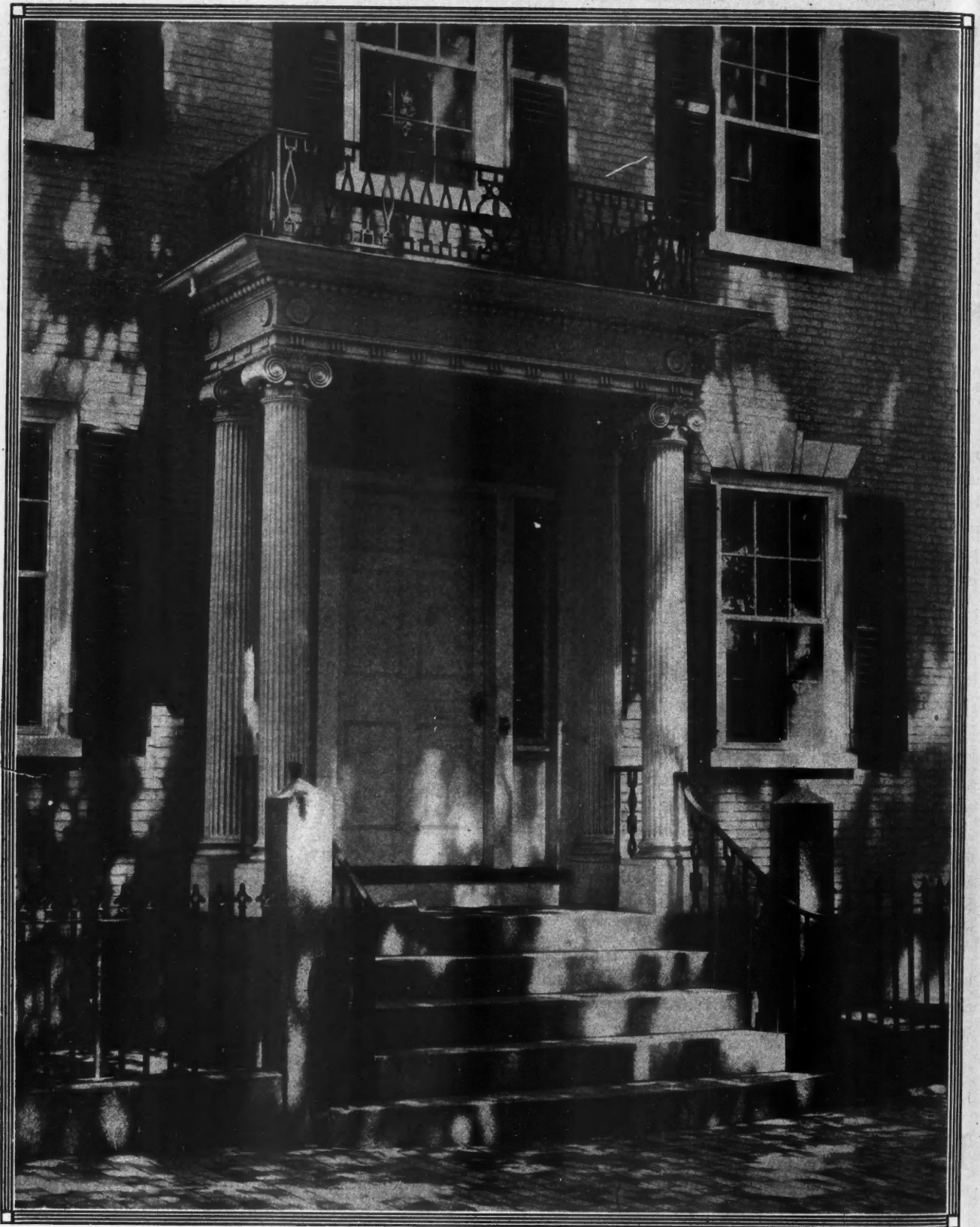
## Encourage Home Building

WE present this thought for your consideration this winter: Work with every other interested business man in your locality to encourage home building. Get together with your local building material and plumbing supply dealers, grocery, furniture and dry goods stores. Plan to keep people "sold" on homes.

Do you realize that the automobile, for instance, has diverted a tremendous amount of capital away from home-building in recent years? "Keeping up with the Joneses" has caused many people to mistakenly acquire an automobile, when the same amount of suggestion along the lines of sound living and home ownership would have put them in the ranks of comfortable property owners in the community.

We have no fight with the automobile. It is a modern necessity. But it should remain in the background of the home where it belongs.

Planning well, building well, furnishing well within the bounds of reason and good taste, makes the well-kept home. The more well-kept homes you have in your locality the bigger is the advertising appeal you make to non-owners in favor of home ownership.



AN EXAMPLE OF GOOD ARCHITECTURE

*The Entrance  
SILSBEE HOUSE  
ESSEX STREET  
N. SALEM, MASS.  
House Designed and  
Built Prior to 1700*

# Built-in Bookshelves

Easily Accessible Height Imperative if Bookcase Is To Be Really Useful, and Architectural Results Must Be Cared For in Advance

By ESTELLE H. RIES

**O**F all the various forms of built-in furniture that the home-builder knows today, none is better liked than the bookcases that are part of the house.

The first point to be decided is whether the bookshelves shall reach from floor to ceiling or only part way up. This must be determined by the number of books to be accommodated, and must be answered if possible by the prospective occupants of the house. It would be unwise to have shelves the full height of the room unless it were expected to fill them, and it would be equally unwise to build them only part way up if inadequate facilities were the result.

When you have a choice between having one wall completely filled from top to bottom, or two walls each partly occupied by shelves, the latter arrangement would ordinarily be more acceptable. All the books would thereby be kept in reach, and space would be left for window openings above the shelves, to admit more air and light. The library that is lined with books from floor to ceiling sounds picturesque and inviting, but

it is really an annoyance in practice, as many of the books are always inaccessible.

You will next have to determine whether the shelves are to be built out into the room or flush with the wall, and this is based largely on preference. To me there seems a far greater intimacy and companionableness in the projecting shelves. You would not know a person very well if you could see only his full face and never his profile, and similarly, you do not appreciate a shelf of books to the limit of its possibilities unless you can see its three dimensions.

The projecting arrangement has the further advantage of providing a top shelf standing out from the wall and upon which one may conveniently place a book for a moment out of one's hands.

There is another consideration, and that is the fact that the shelves built into the wall so that the books are flush with it, are usually more expensive to construct, and less flexible in case a change should be desired. You could hardly take them down and use the wall as a solid background for another purpose

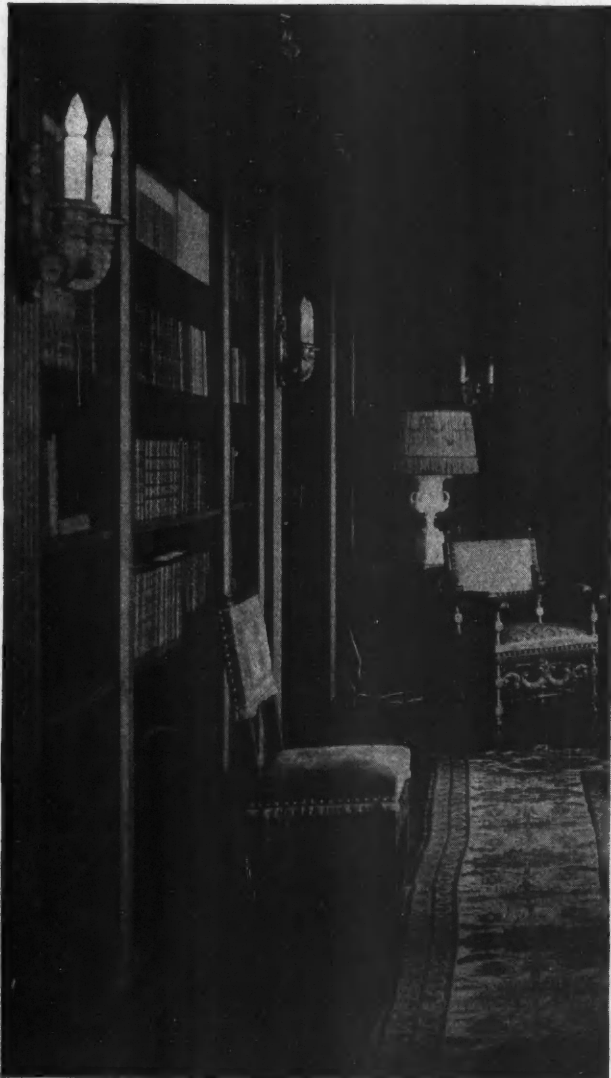


We Like This Room, Not Because It Is So Palatial, but Because These Books "Belong." How can one tell? Ah, there's the rub! Notice that these books were bought, one at a time, over a period of years, and not all at once like a load of potatoes.

should it become necessary.

Architectural results must be cared for before final plans are decided. Shelving built up to the ceiling gives a sense of height to the low room. Shelves built into the wall add somewhat to the apparent floor space what they detract from intimacy or coziness. But flush shelving is entirely good form and good taste, and when properly considered as suggested herein, is architecturally commendable.

All books should be within convenient access, both the low ones and the high ones. They should not be stacked from the floor level, and the shelves may well start above a low dado usable if desired as a chest or closet for the storage of infrequently wanted things. It is also a mistake to place the shelves too high. Aside from the inconvenience of having to stretch on tiptoe or mount a chair in order to reach the volumes, the books will be subjected to a higher temperature the nearer they are to the ceiling. Continuous heat, enough to give comfort to the people in the room, is certain to be hot enough above to injure the bindings. A leather binding loses all its natural oils by long exposure to much heat. Dampness is also harmful



To Case or Not to Case—That Is the Question. Whether the books should be behind glass or no is purely a matter of taste—and local atmospheric conditions.



A Good Arrangement of Built-In Bookcases, Flanking Either Side of a Living Room Window.

to books, moisture causing the glue that fastens the cover to soften, and both paper and bindings become mildewed. It therefore seems advisable when possible to select an inside wall for the flush shelves as they are better protected against rain.

It is well to build adjustable shelves which rest on pins that may be screwed into holes at different heights provided for the purpose. If shelves are constructed of soft wood of about  $\frac{5}{8}$  inch in thickness, they should not be much more than two feet in length. If they are longer, they will gradually bend in the middle under the weight of the books.



### Topping Tall Trees

IN the big tree countries of California, Washington and Oregon one of the most perilous tasks of the loggers is to "top" a tall tree. In felling very high trees it is necessary for the loggers to remove the limbed top so that the limbless trunk below may have a better chance of being felled without breaking. Some of the big fir and redwood trees have a diameter of 2 or 3 feet at the topping point, which may be as much as 160 feet or more above the ground, with the tree rising fifty or a hundred feet high. The topping is done by one man who climbs to the dizzy height and it often takes him three or four hours to sever the trunk. Usually, the topper stays on the job high in the air while he drops the towering top to the ground. Sometimes, however, he contents himself with cutting partially thru the tree and finishing the job with a charge of blasting powder detonated electrically from the safety of the ground.



THE Department of Agriculture has developed a material which will eliminate the unsightly black patches, which mar the appearance of concrete roads, after repair work has been done. It has the same color as concrete and consists of 12 parts rosin and one part crude rubber, with sufficient barium sulphate to give the desired color.

# OUR FRONT COVER HOME



## Pleasing Western Style Colonial

**Either in Winter Colors or Summer Landscaping, This 6-Room, Sun-Parlor, and 2-Bath Home Wins on the Three Essentials—Economy, Convenience and Good Looks**

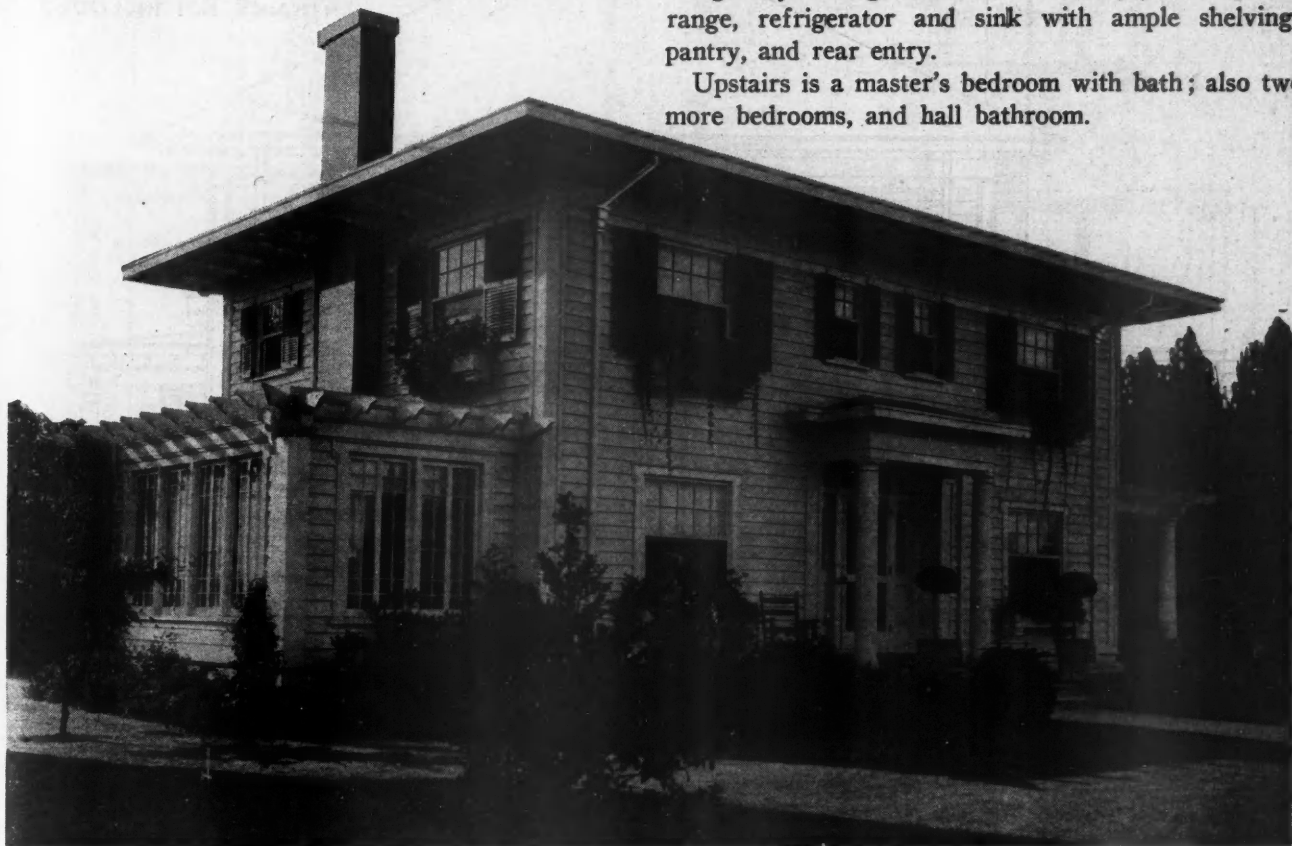
**T**HIS month AMERICAN BUILDER shows one of the most attractive homes we have ever presented to our readers. We consider it so good, both exteriorly and interiorly, that we have felt justified in devoting to it six pages of the December AMERICAN BUILDER: Front cover, this page, and the four pages of plans following. These are shown in exact scale, enabling you to reconstruct this splendid home to meet the requirements of any intending home builders in your locality.

The pleasing outward appeal of this house is due to the intelligent use of comparatively simple structural details. The interior arrangement is no less admirable, the porch giving into a roomy reception hall, with a handsome Colonial staircase, and closet at the end for outdoor wraps. To the left of the hall opens the living room, 23 feet long by 13 feet 3 inches wide, and with

a well proportioned fireplace. Observe the clear wall spaces which lend themselves to the proper backgrounding of the home furnishings; and how the sun parlor, reached through its double French doors, helps give a most agreeable impression of airiness and comfort.

Crossing the hall again and going through double French doors we are in the dining room. This is 13 feet 3 inches by 14 feet, and will display any dining room furniture to good advantage. Double French doors lead out to the porch, and give a very pleasing prospect, as dining room doors and windows should. At the rear of the dining room we find the breakfast nook, for morning meal or children's lunch or before bedtime snack. The built-in china closet close by saves steps. Now we are in the kitchen, with everything truly arranged to make work a joy; well-placed range, refrigerator and sink with ample shelving; pantry, and rear entry.

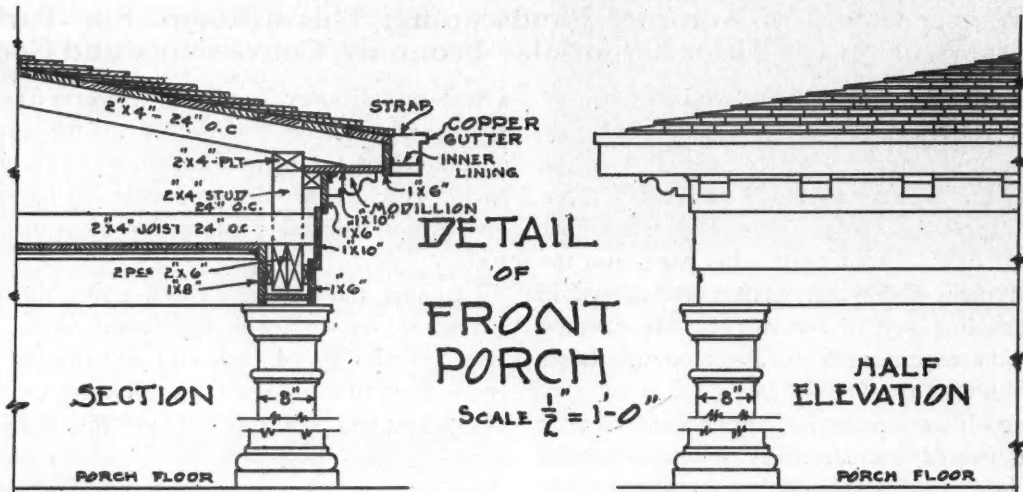
Upstairs is a master's bedroom with bath; also two more bedrooms, and hall bathroom.



**This Shows Our Front Cover Home in Its Summer Dress. Simple but intelligent landscaping helps to make it doubly enjoyable. It is a modified Colonial design, suitable to any locality. Working plans presented on the four pages following.**

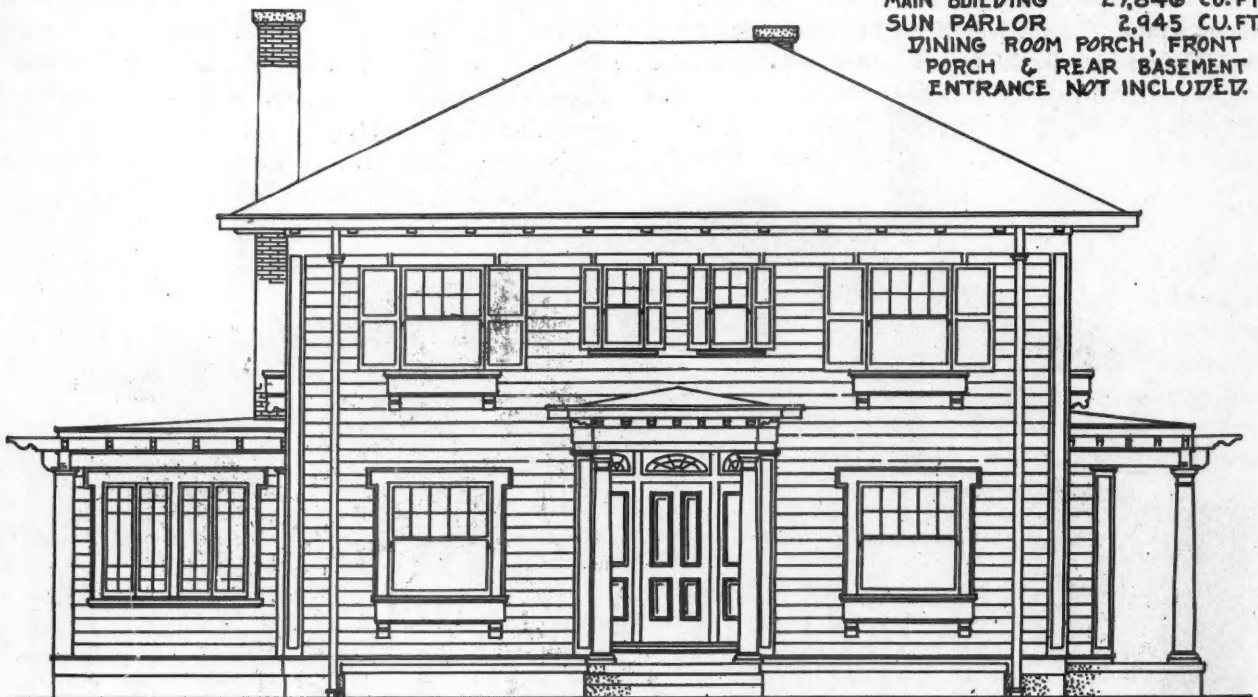
# WORKING PLANS OF AMERICAN BUILDER FRONT COVER HOME

SIX ROOM TWO-STORY RESIDENCE WITH  
SUN-PARLOR & 2-BATH ROOMS



**CUBICAL — CONTENTS**

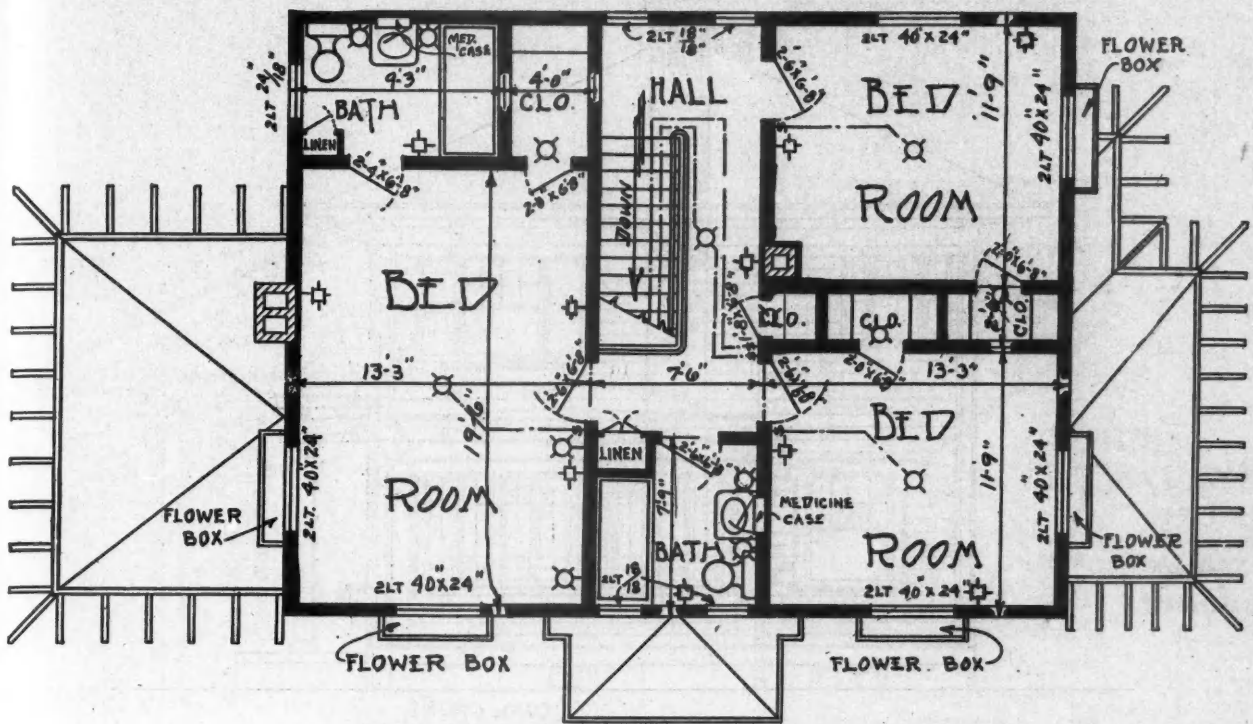
MAIN BUILDING	27,846 CU. FT.
SUN PARLOR	2,945 CU. FT.
DINING ROOM PORCH, FRONT PORCH & REAR BASEMENT ENTRANCE NOT INCLUDED.	



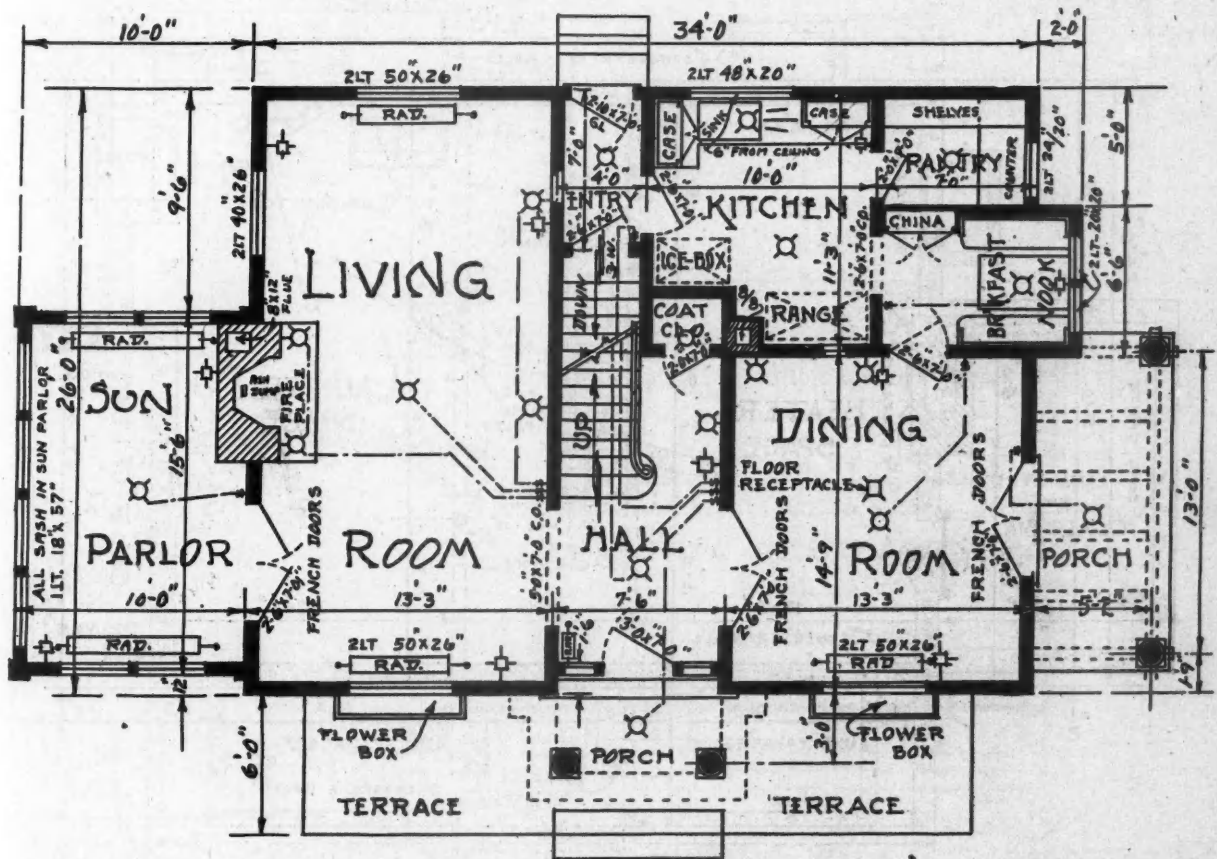
**FRONT ELEVATION**  
SCALE  $\frac{1}{8}$ " = 1'-0"

Our Front Cover Home for December Has a Simple Rectangular Plan. This offers the utmost saving in construction costs and gives most room in the interior. The over all dimensions are 46 feet by 27 feet.





SECOND FLOOR PLAN

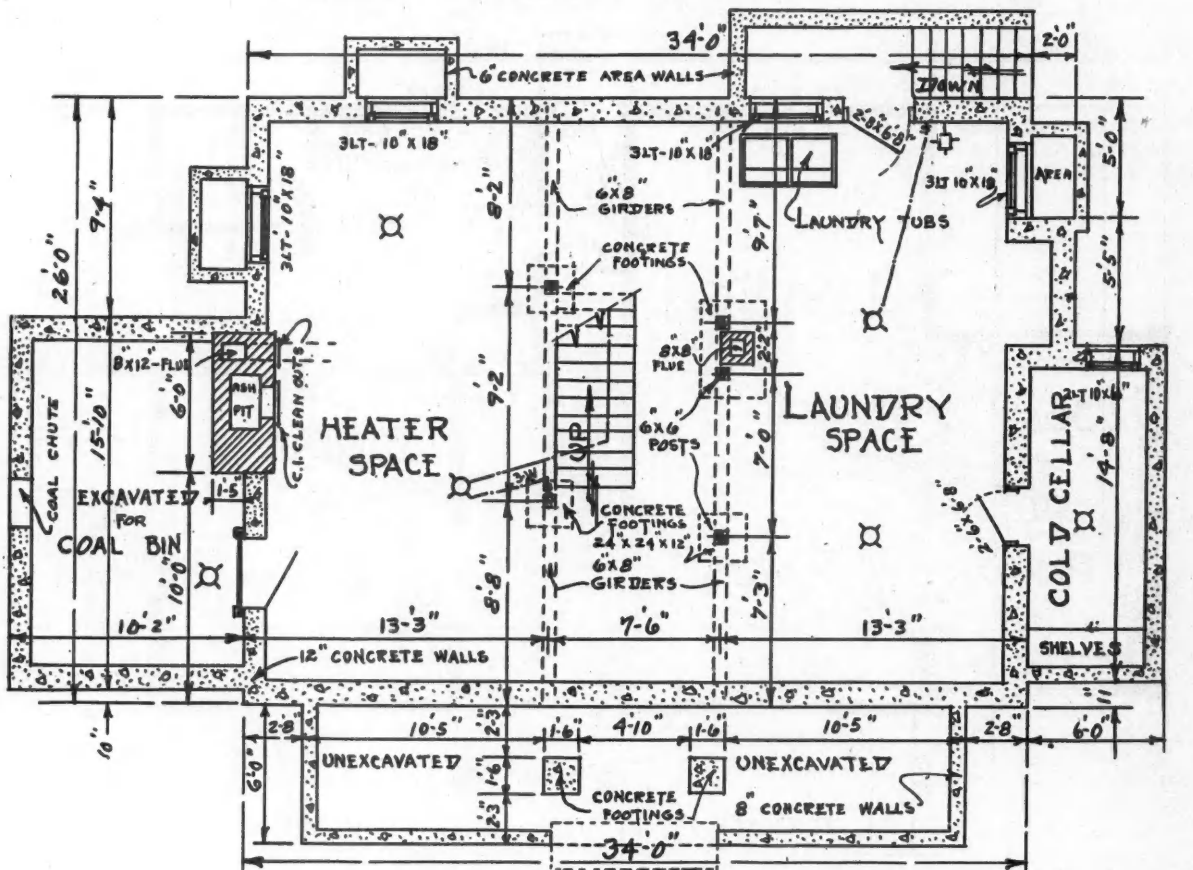


FIRST FLOOR PLAN SCALE  $\frac{1}{8} = 1'-0''$

On the First Floor of Our December Front Cover Home We Have Reception Hall, Living Room, Sun Parlor, Dining Room, Kitchen, Breakfast Nook, Pantry and a Rear Entry Hall. On the second floor are master's bedroom and bath, and two other bedrooms, with bathroom off hall. Full provision is made for modern use of electricity.



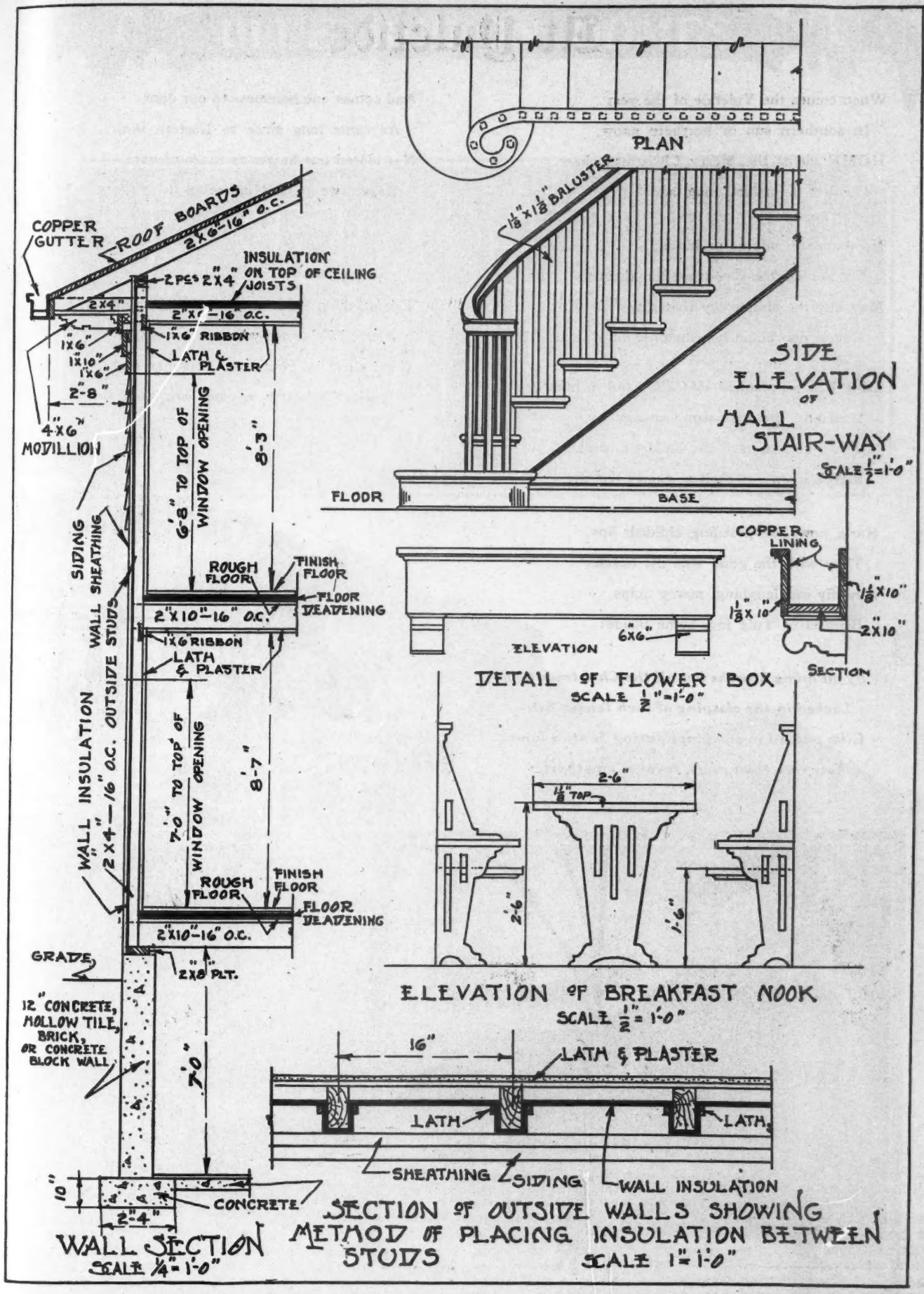
END ELEVATION



BASEMENT PLAN

SCALE  $\frac{1}{8}'' = 1'-0''$

The End Elevation of the December Front Cover Home Is Calculated to Present as Pleasing an Appearance as the Front, and Therefore Makes the House Position Reversible, to Fit a Narrower Lot. The house has commodious, well-arranged basement, with coal bin, heater and laundry space.



The Walls of the December Front Cover Home Are Designed to Give a Summer-Cool and Winter-Warm Interior, Through the Use of Modern Wall Insulating Material. The staircase is an exceptionally graceful design. The breakfast nook design is planned to give plenty of seating room in small space.

## At Yuletide

When comes the Yuletide of the year  
 In southern sun or northern snow,  
**HOME** yields the Merry Christmas cheer,  
 Caroled of angels, long ago.

No pomp of palaces or kings;  
 No golden treasure-trove or throne  
 May buy the simple joy that rings  
 'Round our home hearthstone, ours alone.

Long had we planned **HOME**, hand in hand,  
 Hoarding the hard-won savings by,  
 'Till fair and staunch the builder's hand  
 Raised its warm shelter 'gainst the sky.

Hark, now, the prattling childish lips,  
 They with the good wife me beside;  
 How fly our laughing, merry quips  
 Brimful of Yule joy, home inside!

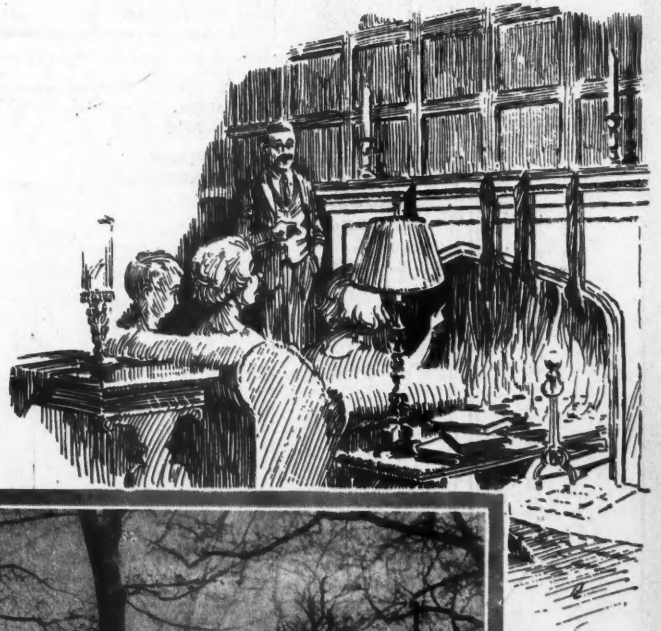
*By all home hearths lies all the Christmas pow'r,  
 Locked in the clasping of each tender fist;  
 Gifts packed in stockings during Santa's hour,  
 More rare than pearl, royal as amethyst!*

And comes one homeless to our door  
 As came long since to Eastern inn,  
 Not closed our hearts as those of yore,—  
 Eager, we pray Him enter in!

\* \* \*

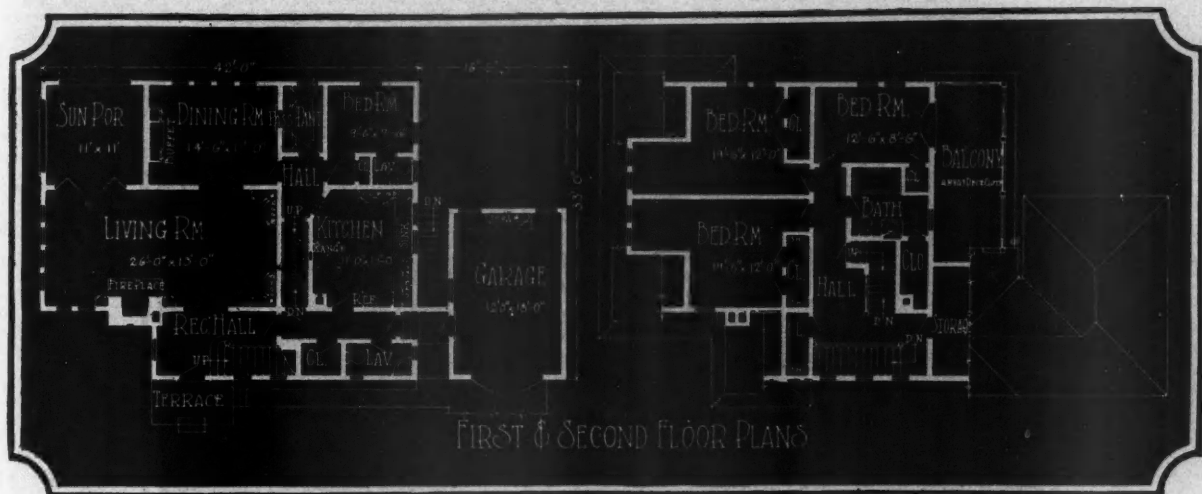
Friend, though our ways may ne'er unite  
 Along Life's road whereon we roam,  
 Good cheer be yours on Christmas night  
 Beside the hearth in your own home.

*Donn Terry.*



## Home Designs That Win

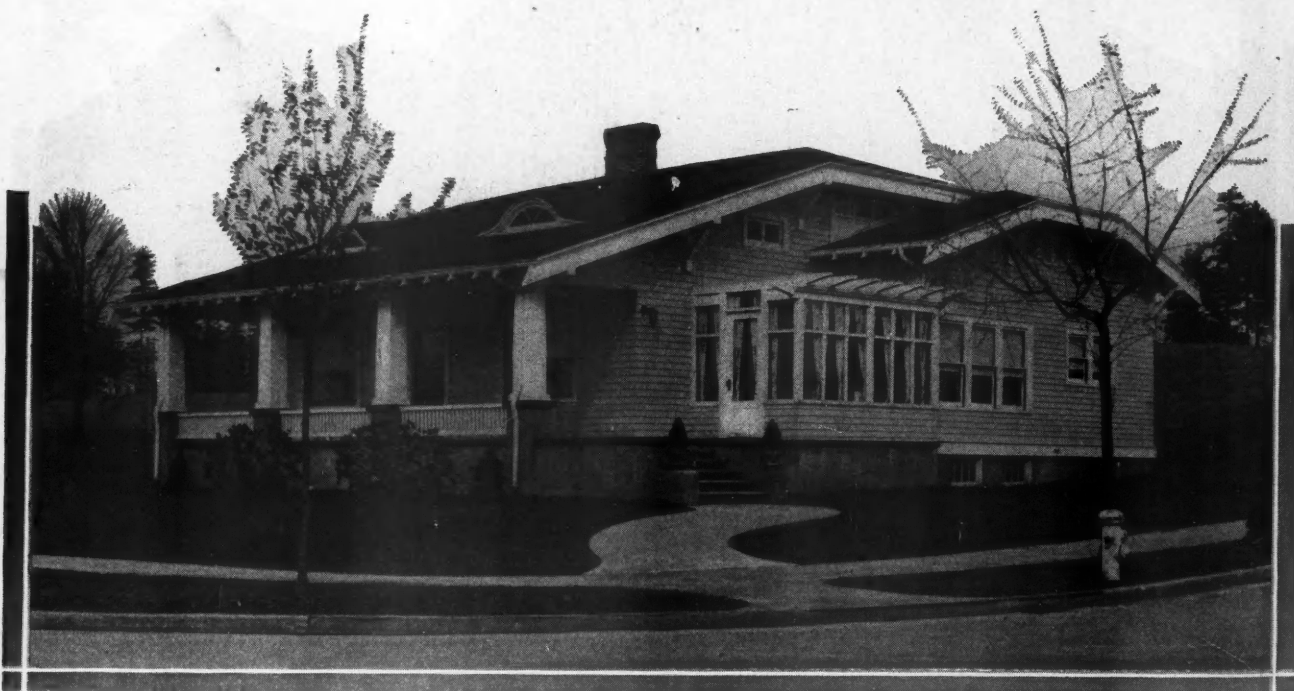
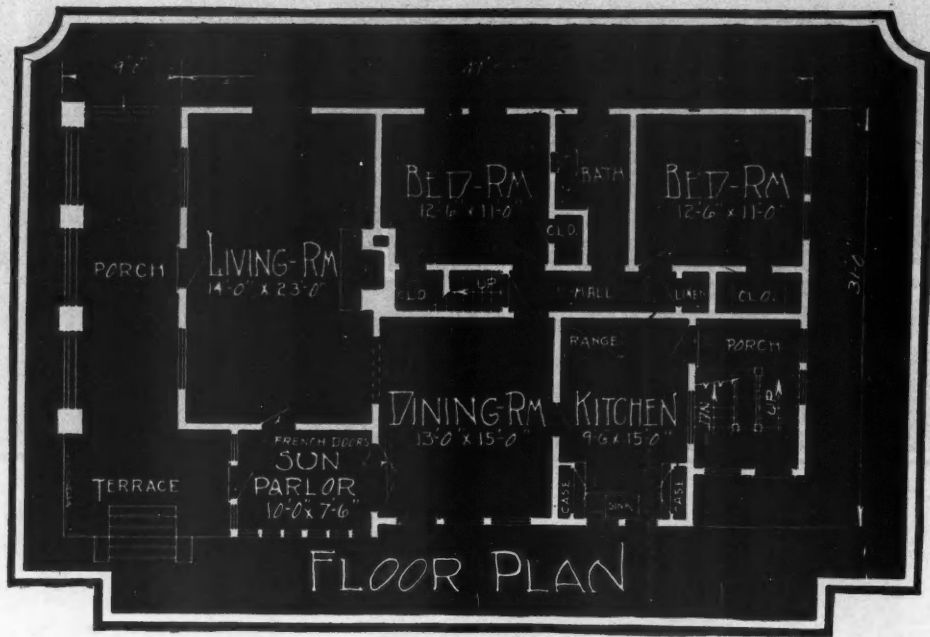
# BLUE RIBBON HOMES



**R**EMINISCENT OF THE FRENCH COUNTRY-SIDE. The French peasant cottage influence is becoming marked in American bungalow and house architecture, and this adaptation is one of the most successful ways in which one can use this very picturesque style. The chief characteristics are the broad peaked gable, with a suggestion of timbered construction about the attic window; the quaint arrangement of windows; the recessed side entry; the garage integral with the house design, just as

the stable is in French villages—these help to give this its piquant foreign air. The overall dimensions are 58 feet 6 inches by 33 feet, and the walls are stucco—over tile, lath or concrete block, as you will. The floor plan is an ideal one. The reception hall is truly splendid, with its rising tier of windows reaching to the second floor; the living room is very well balanced, and dining room and kitchen have proper relation to each other. There is one bedroom downstairs and three upstairs.

# BLUE RIBBON HOMES

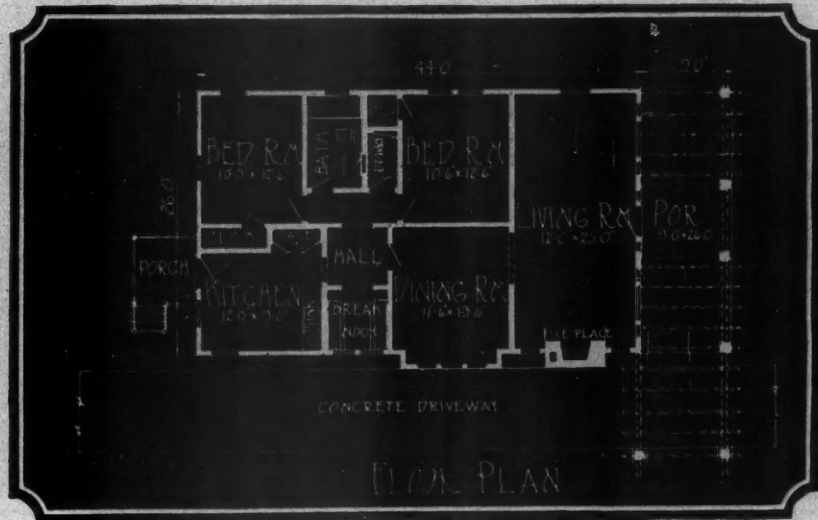


**TOWN OR COUNTRY HOME.** This has points which commend it to the farmer as well as the city dweller, for it would appear to advantage anywhere. The overhanging eaves and the snubbed gable ends give it the impression of nestling down comfortably and making a snug, restful place for the occupants. The dimensions over all are 31 feet by 47 feet, and there is an unusually large porch, with its end terrace terminating in a sun parlor. With the latter there are six rooms, includ-

ing two bedrooms. Notice that there is a staircase immediately off the dining room, giving access to the attic. The living room is well proportioned, has a fireplace and nice arrangement of wall space for proper hanging of pictures and placing of furniture. Both bedrooms are 12 feet 6 inches by 11 feet, connect with bathroom, and the kitchen has sufficient shelving to do away with the need for a pantry.

## Home Designs That Win

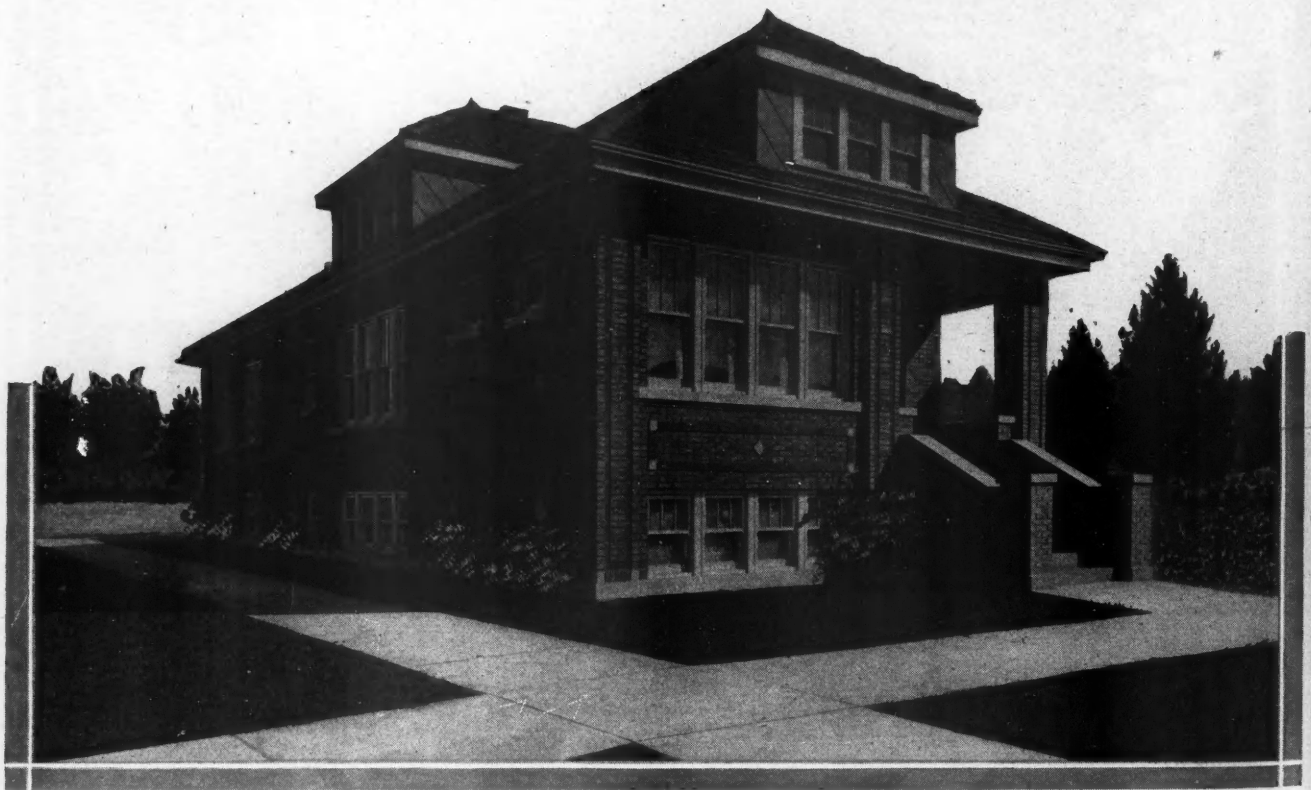
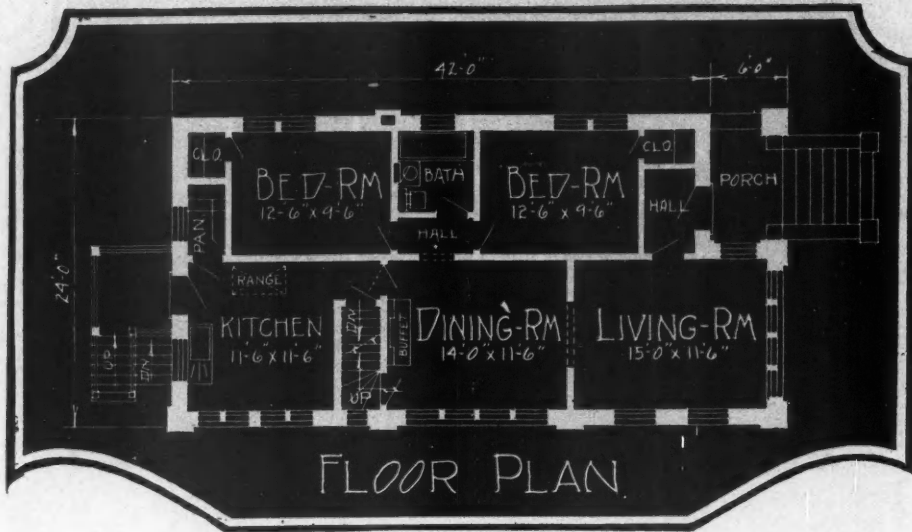
# BLUE RIBBON HOMES



**A FAVORITE COLONIAL ADAPTATION.** Here is a handsome little place which has gone back to Colonial days for its inspiration, but has been planned to fit in more with the needs of the present day's smaller family. Yet nothing of the good detail of its architectural forebears has been lost; we have a pleasing Colonial doorway, with quaint side-lights, set in a wall over which the porch centers itself both usefully and decoratively. The pergola which extends along the terrace in front and over the

driveway is another attractive touch. Within, the living room extends the full width of the house, 26 feet. It is 12 feet 6 inches across, and has a fireplace, with a long expanse of wall to set off pictures and furniture. A double door leads to the dining room, with a hall separating the latter from the kitchen. This hall turns aside into a breakfast nook, saving steps for the morning meal or for the children's noonday lunch. The two bedrooms are likewise reached through this small hall, as is also the bathroom.

**BLUE RIBBON HOMES**



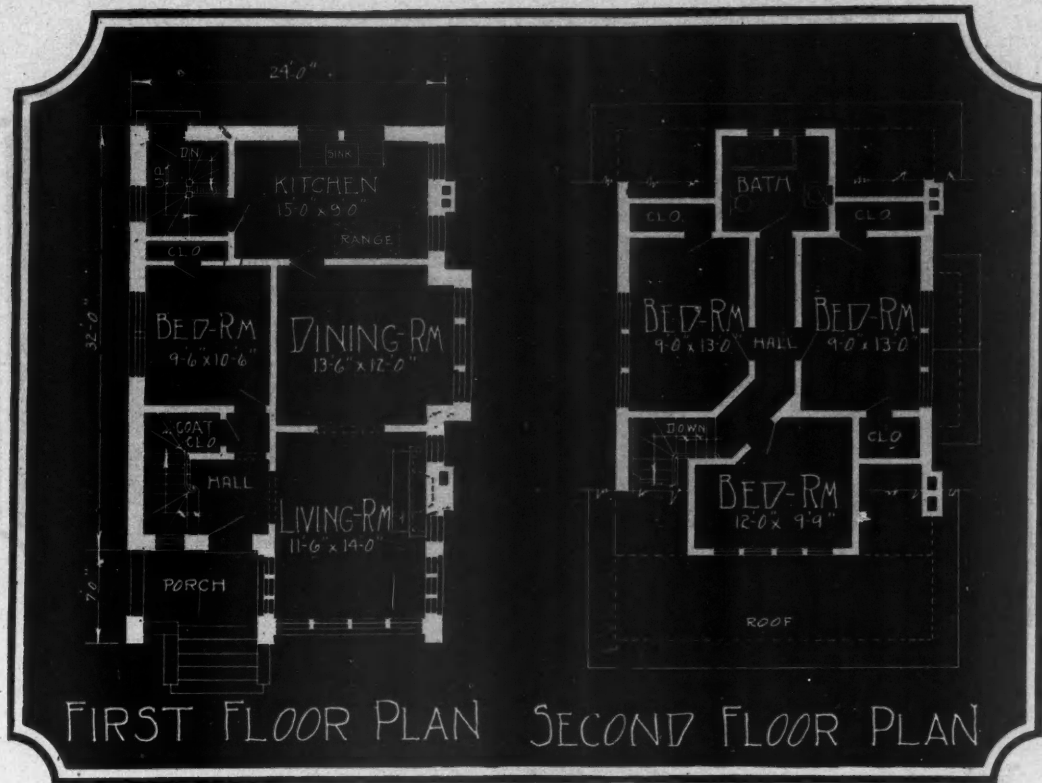
**FAVORITE BRICK BUNGALOW.** A home which is meeting with general favor is this attractive brick bungalow. Not only is it durable and of a type which makes low upkeep cost possible, but by making suitable provision beforehand a second story can be added later for renting out. Thus the building can help pay for itself, since a two-flat brick building always invites a very good class of tenant in any good city locality. The fair-sized porch leads through the entrance into a small reception hall; thence

into the living room. There is nice space for an electrically-equipped fireplace here, and small windows below which could be built bookcases. A colonnaded doorway leads into the dining room, with a four-light window and built-in buffet. The staircase here in the dining room could be moved to the entrance hall, to care for future second-story building, if desired. There are two bedrooms, with bath; a well-lighted kitchen with pantry, and outside icing door; also a rear porch.



Home Designs That Win

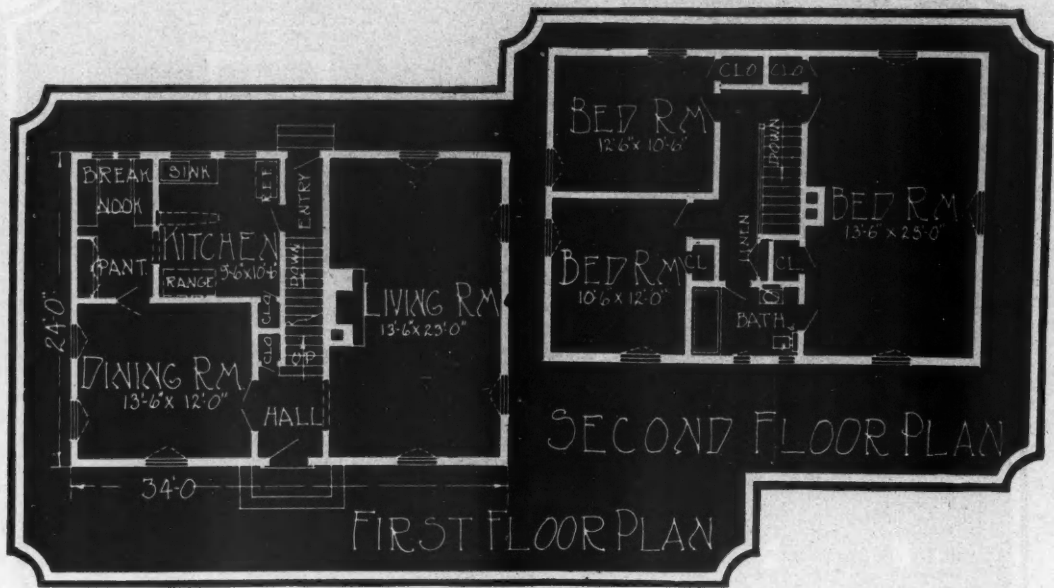
# BLUE RIBBON HOMES



**A WELL-HANDLED MODERATE-SIZED BRICK RESIDENCE.** Worth observing are the pleasing roof lines of this home, the snubbed-off gable ends helping add to the general impression of solidity one gains from the whole structure. It is a two-story home, with the second floor space gained by not greatly increasing construction expense over that of a one-story structure. The roomy porch leads into an entrance hall. Here we have the stairway that leads to the second floor; a coat closet, reaching

through to the downstairs bedroom, and with the side door opening into the living room with its fireplace. The dining room wall is handled so as to give added space economically. The kitchen at the rear has a window-lit sink and area-way leading down to the basement. Upstairs we have three bedrooms and a bathroom, all ample of size. Inexpensive landscaping with evergreen shrubs helps improve the lot, and a simple stone ornamentation sets off the wall space very attractively.

# BLUE RIBBON HOMES



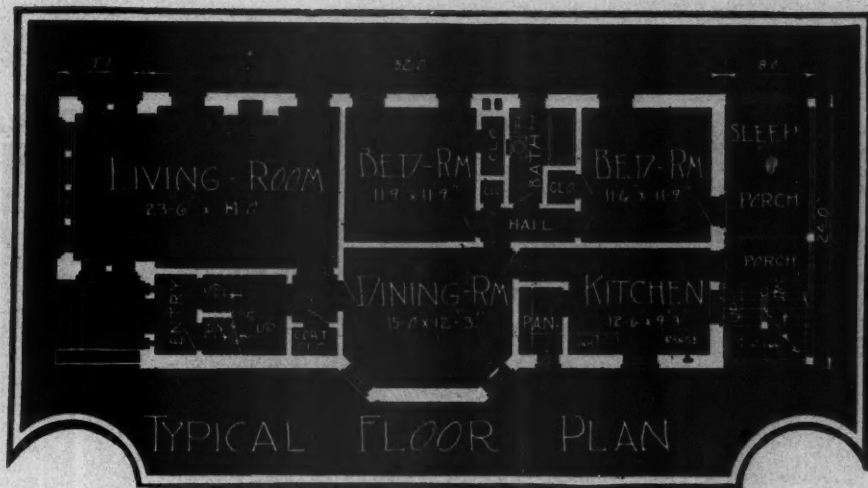
**H**ERE IS YOUR VILLA IN FRANCE. We hear of "Castles in Spain"—why not a Villa in France? The latter is more tangible. You will find houses like this dotting the hilly vineyard section of France, and while it naturally looks well in a hilly setting, it will fit equally well in other locations—in the residence section of a rambling town or on the more restricted residence street of a suburb or city. The exterior is of stucco, white or cream tinted, with molded concrete at cornice and lintels. The floor plan is a

spacious one, with the living room on one side of the entrance hall, and the dining room on the other. There is a breakfast nook at the rear, handy to the kitchen; also a rear entry. Upstairs is a master's bedroom with fireplace, and two smaller bedrooms. Although this design gives a broad effect, the over-all dimensions are but 34 feet by 24 feet. Observe how the garage duplicates the house design. This lot requires formal landscaping.

P  
fav  
own  
each  
sho  
ing  
abl

## Home Designs That Win

# BLUE RIBBON HOMES

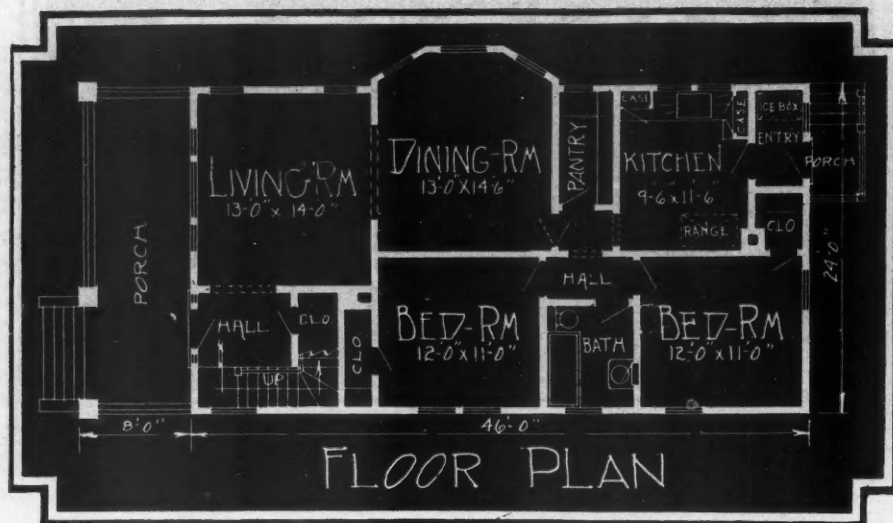


**POPULAR STYLE TWO-FLAT BUILDING.** This typical American residential development has come into favor because it is both home and investment in one. The owner occupies one of the floors, the tenant the other, and each flat is self-contained, with absolute privacy assured each tenant, as will be noted from the typical floor plan shown above. With rents running from \$40 to \$100, depending upon locality, one could build this home with a reasonable assurance of having the debt clear in a comparatively

short space of time. Each floor has five rooms. The living room is handled to include the sun porch part as a section of the whole room, and is 23 feet 6 inches by 14 feet; fireplace in it also. The dining room is so arranged as to gain light from two directions, no matter how closely the building may be built up against, the intention being to allow for a light court for the bedrooms on the opposite side, for this will go on a narrow lot. The building is 27 feet wide and 67 feet 7 inches deep.

## Home Designs That Win

# BLUE RIBBON HOMES



**G**ENUINE HOMELIKE APPEAL. A thoroughly satisfactory frame bungalow which is so well handled as to design that it looks wider than the 24 feet it is. The depth is 46 feet. Observe what a fine roomy porch we get by recessing under the attic floor. Neat white columns supported on concrete block bases help dress the appearance of the front up greatly. There is fine wall space for the triple window, and the entrance door is flanked with sidelights which light up the vestibule. There are five rooms, a rear

porch, a bay window in the dining room, window-lit pantry, and provision for staircase in the entrance vestibule, to serve the upstairs. This second story need not be finished until later, saving expense. It would give three extra bedrooms upstairs. In milder climates one might glass in the front porch, gaining an extra sun room for winter. In any event, it could be screened easily. This is a home that looks good anywhere.



# Pennsylvania Farmhouse Type

By R. C. HUNTER & BRO., Architects, New York

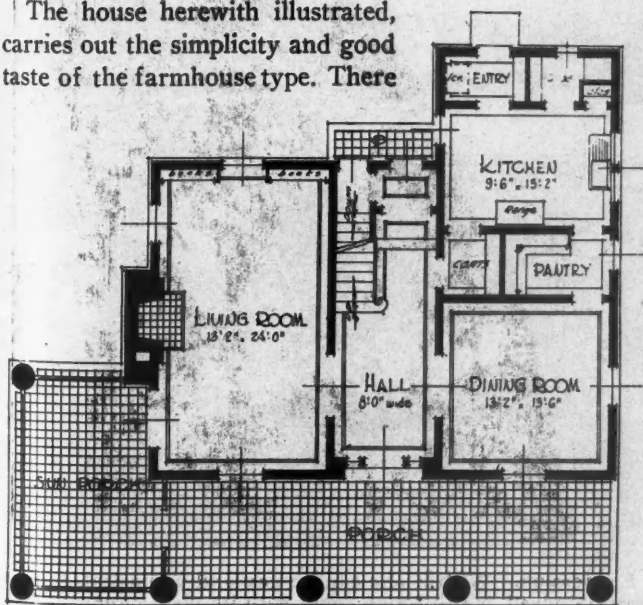
**A**FTER all, what type of house is more pleasing, more homelike and fitting for a rural setting, than the good old fashioned Pennsylvania farmhouse?

It seems at once to appeal through its quiet dignity, as a place to live—a home that is truly American. This type of house of course requires generous grounds, that is, it should not be crowded in closely between neighbors, it demands free space on all sides. It is distinctly a rural house and not one for the thickly settled suburbs or the city.

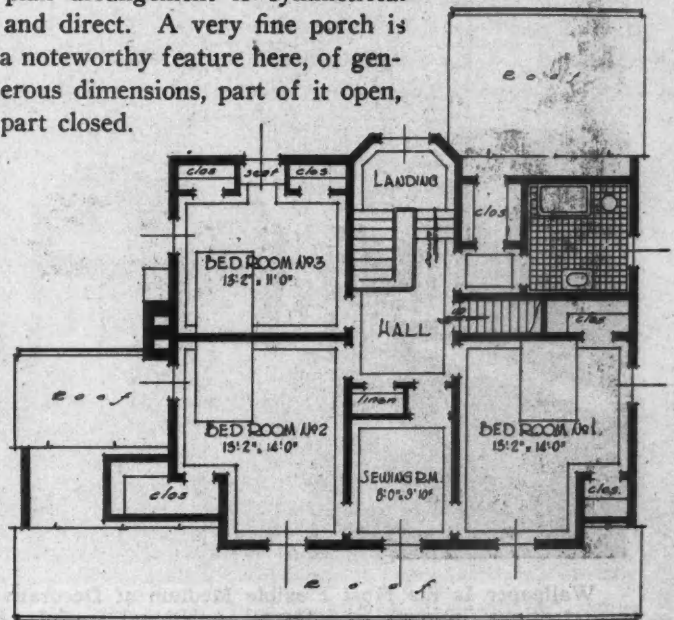
The house herewith illustrated, carries out the simplicity and good taste of the farmhouse type. There

is no detail on the house that does not serve a useful purpose, nothing applied for show. The setting is also approximately simple, the large oak trees were the deciding factor in locating the house and the yard was developed as an unbroken lawn, no formal garden-ing having been attempted. It is this simplicity, held to throughout, that gives much of the effect of fitness, a quality always to be sought in a home.

The simplicity of the exterior and the landscape work is also to be found in the interiors, even the plan arrangement is symmetrical and direct. A very fine porch is a noteworthy feature here, of generous dimensions, part of it open, part closed.



First Floor Plan.



Second Floor Plan.

# More Cheerful Home Walls

How Wallpaper Produces Distinctive and Companionable Interiors Far Out of Proportion to the Small Investment Represented

By C. W. COUSENS

**F**ROM the beginning of time the adornment of the home began with the decoration of its walls. Primeval man brightened his gloomy interiors with crude figures in gay colors. The Egyptian beautified his walls with the stories of his time in weird flat drawings. Our ancestors of the sixteenth and seventeenth centuries decorated their dwellings with rich, gorgeous tapestries and hand-painted papers.

The feeling for beauty and the desire to express it in the adornment of the home finds its happiest and simplest expression today in wallpaper. Decorators' shops are full of bright, cheerful, living papers in warm, rich colors at inexpensive prices; no home need now be dull and unattractive. There are gay chintz patterns for bedrooms in quaint old fashioned designs, soft two-toned papers best for living rooms and all sorts of queer bizarre effects that are fun to try out in the kitchen.

By some virtue peculiarly its own, wallpaper gives warmth and interest to an interior hard to obtain otherwise. Wallpaper blends with furniture and hangings and gives an intimate friendly air. It reflects personality even, for it makes an otherwise barren room a setting of character and interest. A papered wall becomes an active, truly decorative part of a room,

about which everything else centers. It becomes the major theme of a composition, with the hangings and furniture carrying out harmonious details.

Wallpaper is the most flexible medium of decorative expression; with it one can be gay and whimsical or solemn and pretentious, or intimate and informal, or quiet and restful. There are papers for every room and every need, every expression and too, for every purse.

Wallpaper has an economical as well as a decorative value, for aside from the charm and life that wallpaper adds to the home, it is indispensable in protecting plaster walls. When the walls are cracked or blemished it is absolutely essential. It is clean, fresh, sanitary and the means by which any desired effect can be obtained most easily and economically.

In choosing your wallpaper there are three things to consider in order to get the effect you desire: the color, the pattern and the texture. They are very simple things, tremendously effective when correctly, but disastrous when incorrectly used.

Colors in themselves have a very definite effect on the average person. Red stimulates, warms and excites. Blue and green chill and depress. The middle colors of the spectrum, yellow and green yellow, are



Wallpaper Is the Most Flexible Medium of Decorative Expression. With it one can be gay and whimsical, solemn or pretentious, intimate or informal, quiet and restful. Restful, indeed, is this living room with its plain oatmeal paper and simple decorative border.



These Four-Poster Beds Lend the Required Contrast to the Cretonne or Chintz-Patterned Wallpaper. Small sprays of flowers powdered in a plain ground, fabric effect stripes, or birds—any of these suggest themselves for the bedroom walls.

emotionally indifferent, though yellow by its association with the sunlight seems warm. The so-called neutral colors, the tans and grays, give warmth or coldness according to the dominant note in each. Tan with a yellow or red component is warmer than a tan bordering on gray. Gray may be cold in blue or violet gray and warm in pink or orange grays.

All this is significant for the home-maker. A room that is too brilliant can be tempered with cold colors. A room that must be as quiet and undisturbing as possible can safely stay in the yellow range or yellow grays. The warm colors, probably because they are exciting and interesting, are more intrusive. They enclose a room and make it smaller. The cold colors tend to recede so that a small room would look larger with light blue or light green paper.

In combining colors, every color has its own complementary. The complementaries of most of the important colors are:

- Red—green—blue
- Orange—blue
- Gold—yellow blue
- Green—yellow violet
- Pure Green—purple.

These complementaries can be used in fascinating ways. If, for instance, you have decided upon a gold yellow room then a touch of blue, if only in a vase or a piece of pottery or a sofa cushion will give character to the setting—each color will emphasize the other.

The most immediately pleasing combina-

tions of colors are usually found, however, not in the exact complementaries but in shades approaching the complementaries.

Wallpaper as an actively contributing factor in the plan of decoration should proclaim the dominant colors of the room and determine all the other color selections. It should always be of a clean tone with some vibrancy, some interest and some reason for existence in itself.

Texture should always be taken into account. Skillfully used it has an expressive value of its own. A



An Always Popular Handling of the Dining Room Walls. White enameled panelling and above that tapestry effect wallpaper in any of the splendid range of patterns now available.

rough decided texture increases the appearance of strength in a room. In a living room or library where there are many books this texture is best, for the books are not only heavy but look heavy so that a firm wall is needed to uphold them. Roughness of texture gives a feeling of strength just as the soft depth of a velvet surface gives the feeling of luxury and richness. Damasks and poplins have a mixture of strength with something of the richness of silk. All these textures and many more are available in wallpaper.

Another factor which is most important in the choosing of wallpaper is the nature of the line and the scale of the pattern. There is as definite a response to line as there is to color and texture. The vertical line is erect. It is dignified, aloof and rather restrained. A room with a strongly emphasized vertical line seems formal and a trifle remote. The horizontal line, on the other hand, is the line of rest and repose. So it is evident that a pattern with an emphasis on the horizontal line would serve to make a room restful, to put it at ease. Too strong and too unrelieved a horizontal, however, might make it seem lifeless and inert.

Broken and curved lines both give the feeling of movement. The broken line in proportion to the shortness of the sections and the angles and also the variety of directions in which it scatters is nervous, agitated and conflicting. A pattern consisting of many broken

lines going in various directions would therefore be incorrectly used in a room where a quiet, peaceful effect is desired. A line isolated in long sections moves with more control and ease. Its effect is more calm. The long gradual flat curve moves slowly and with repose. The short, deep, heavy curves move rapidly. For a quiet effect horizontal or long gradual curves are best. If one feels the need of freshness and vitality, short broken lines and deep curves are best. Patterns with sets of lines running in different directions can be used effectively as long as the lines compensate each other, so that the whole pattern can be brought to a balance.

The importance of line cannot be overemphasized. An informal room cannot be definitely vertical and still retain its ease and relaxation. Many rapid curves and sharply broken lines are necessarily destructive of a restful effect. A room that wants to be gay and cheerful can obtain its effect only by playing upon curves and broken lines. So a room in very bright colors that are themselves intentionally gay should not in line contradict this character by being stiffly vertical or quietly horizontal. The quality of the line, in short, must be consistent with the purpose of the room.

The living room is perhaps the most difficult to choose suitable paper for, because it is so heterogeneous in character. It usually combines the three functions of the drawing-room, sitting-room and library and contains a widely assorted combination of furnishings. There are a few wedding presents, some pieces donated by relatives and all kinds of ends of ornaments and books. Two-toned damask has, therefore, been found successful in many living rooms. This has quiet necessary for the background as well as the touch of dignity that is desirable. Especially attractive are grass cloths or grass cloth finished papers. For a little more vitality and interest there are these same cloths in damask patterns with the pattern lightly outlined in metal—silver or gold. The self-color stripe with the stripe indicated only by a different texture can also be used to advantage. If the room is very informal as is, for instance, the living room of a country cottage or a New England farmhouse, the stripe might be one of those that are lightly dotted in a contrasting color, faintly reminiscent of cotton prints.

For a rich background that will not be too decided there are the tapestry papers. These range all the way from the vague verdure effects, that are hardly more than massed lights and shadows in two or three tone of the color to the rather clearly drawn landscapes, and they come not only in the conventional greens and blue but in soft



An Informal Room Cannot Be Too Definitely Vertical and Still Offer Ease and Relaxation. Curves and intentionally gayly patterned wall paper give distinction and comfort.



grays and browns as well. Especially interesting is a recent issued English paper of which the design is adapted from a French Gothic tapestry with medieval gentlemen pursuing quaint beasts through a thick and flowery wood indicated in flatly drawn superimposed shrubs and flowers.

Where there is opportunity for more decided patterns the closely drawn, continuous designs such as those which William Morris made so beautifully are very good. Ideal examples are his Pimpernel and Honeysuckle. And finally for the living room that is quite English and rather more like a morning-room in character there are the chintz papers. But these forbid much ornament in the room.

For bedrooms in country houses there are cretonne or chintz patterns having bright colors on a white or light colored ground. Small sprays of flowers powdered in a plain ground, narrow floral or fabric effect stripes, or in all-over scrollage, sometimes introducing birds among the foliage and flowers are all appropriate designs.

Perhaps, after all, the greatest fun in decorating can be had with the kitchen. That is the one room in the house that should not be taken too seriously. Here one can try out all those papers that are too strange, or too vivid and bizarre to be attempted elsewhere. There are delightful garden effects with fruit trees showing bright, ripe fruit and informal landscapes, landscapes that give a widening effect. The kitchen because it is devoted to dull labor need never be dull. Out-of-door effects are especially satisfying, further help to relieve the long weary hours that often must be spent in the kitchen.

With the great variety of papers to choose from today every room in the house can be dignified, gay and cheerful. In color and designs are mediums of expression that can be nicely attuned to every varying need and pocketbook. Wallpaper makes cheerful, livable homes more possible than ever before and gives an opportunity for the expression of individual character and taste within the means of everyone.



### Installing Steel Basement Windows in the Poured Concrete Job

By N. A. HARRIS

PERHAPS a few suggestions as to an easy method of installing steel basement windows in poured concrete jobs may prove of interest to contractors and builders who are specialists in this type of construction.

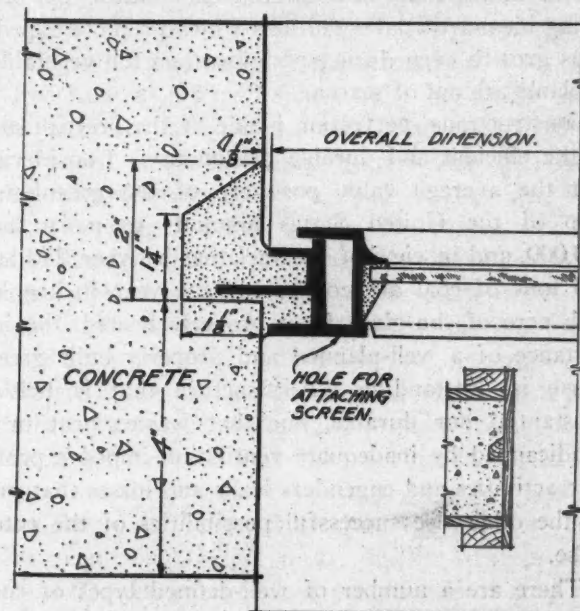
The prepared rebate, shown in the detail, is a logical adoption of the prepared jamb that has proven so satisfactory for installing steel sash in industrial, reinforced concrete buildings. Notice the method of building the form as illustrated in the small drawing.

Build the form so that the perpendicular side of

the rebate will sit in four inches from the outside of the wall. The width of the window opening should be approximately one-fourth inch more than the over-all dimension of the sash which is measured from the edge of the channel legs. The fin is not included in this measurement as it sits into the rebate.

The height of the opening should be approximately four inches more than the height of the sash, to allow for building up a suitable wall.

Secure basement windows with the channel frame all around and a fin at the jambs, if possible, as they are easier to install. The channel frame enables the contractor to set the window without bracing while



This Cross-Section Shows an Easy Method of Installing Steel Basement Windows in a Poured Concrete Job.

the fin secures exceptionally strong anchorage in the jamb.

When you are ready to install the window, set a 4-inch block on the sill at each rebate and lay a rich mixture of concrete between them. Then set the sash on the blocks and press the channel frame firmly into the concrete. Keep the ventilator (sash) closed and locked. The locking device, a special feature of these particular windows, keeps the ventilator "centered" in the frame and the whole window "square."

Set the fin of the sash against the perpendicular side of the rebate and grout in securely. If your mixture is too thin to handle easily, place a board against the rebate opening and pour the grout in. Then point off, using the edge of the channel leg as a guide, so that the jamb will not foul the ventilator.

Next build up the sill and trowel it off smooth with the bottom edge of the frame. Be sure that you do not imbed any part of the locking device or chain. Do not open the ventilator until the grout has thoroughly set. In this way you will be able to secure an absolutely "true," and hence a good, workmanlike job.

# "Glass Farming" on Increase

Requires Well-Planned Greenhouse to Circumvent the Seasons and Produce Flowers, Fruits and Vegetables at a Profit

By GEORGE H. DACY

**G**LASS farming—the growing of flowers and vegetables in greenhouses—has developed into such an important industry in the United States that there are now in excess of 17,000 establishments covering a total area of more than 3,800 acres and annually producing in excess of \$77,000,000 worth of marketable products.

This curious business circumvents nature by providing ideal artificial conditions which promote expeditious growth even during periods when the vegetables or plants are out of season.

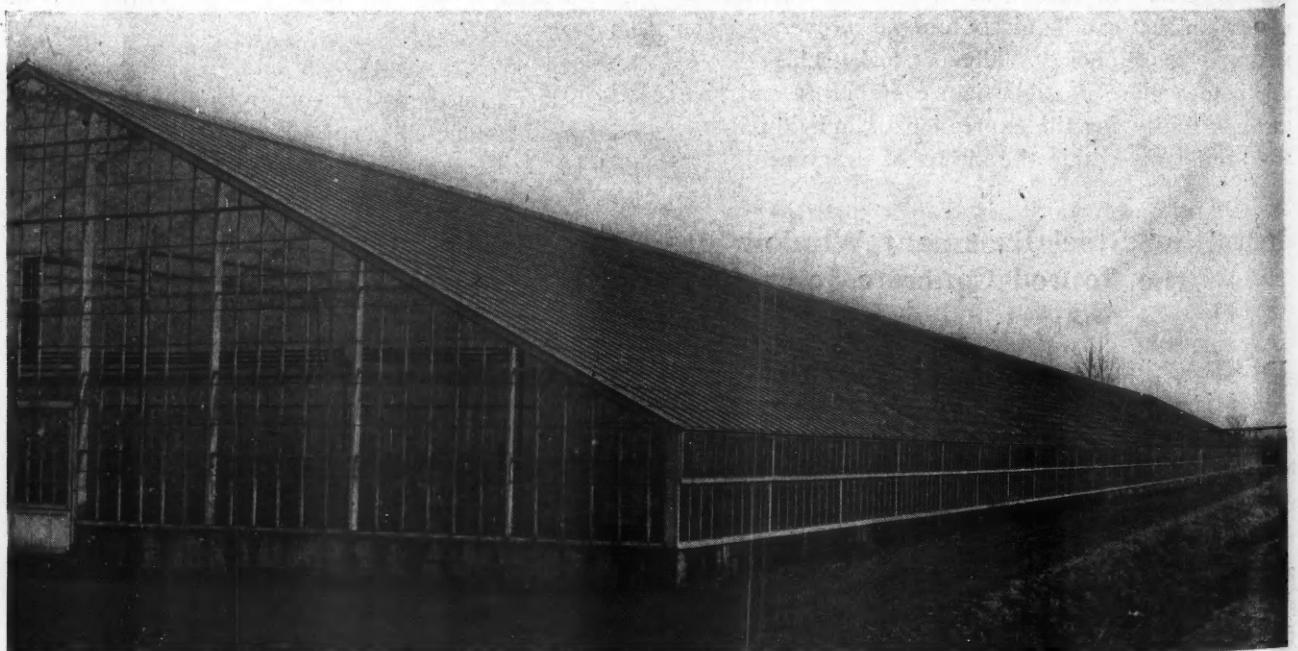
Constructional perfection is one of the prerequisites of the efficient and durable greenhouse. Considering that the average value per acre of the greenhouse crop of the United States amounts to more than \$20,000, and in view of the fact that between 250 and 500 tons of coal are consumed each year in keeping each acre of the glass farm properly heated, the importance of a well-planned and properly built greenhouse is outstanding. A structure that is neither substantial nor durable, one that wastes heat or is handicapped by inadequate ventilation impedes profitable activities and engenders leaks and losses that prey on the otherwise successful possibilities of the enterprise.

There are a number of well-defined types of commercial greenhouses now in use throughout the United States, the simplest of which is the lean-to house with the shed roof that is built against some existent struc-

ture. The detached house—a popular model—is an independent structure and may be of any size up to that of a glass building covering from one to two acres of ground. Ordinarily, detached greenhouses are built in rows and connected by a special head house which links together the ends of these individual buildings. A "contiguous" greenhouse consists of several independent units built side by side and using the same interior walls. A "ridge and furrow" house is made up of units similar to those of the "contiguous" house except that the inside walls are omitted, the gutters being carried on special posts.

For small-scale operations the lean-to house is satisfactory, but for more extensive enterprises, the "ridge and furrow" and the detached houses are most popular. Naturally, the lean-to greenhouse always has a roof sloping one way, while the other houses are equipped with even-span or uneven-span roofs, those of the latter sort being especially desirable for sidehill locations with southern exposures. When the purpose is to produce vegetable plants and some of the more common ornamental bedding plants, such as geraniums and scarlet sage, a house of simple construction is all-adequate. If the plan of the glass farmer is to grow winter vegetables and flowers for sale, the greenhouse must be more elaborate and expensive.

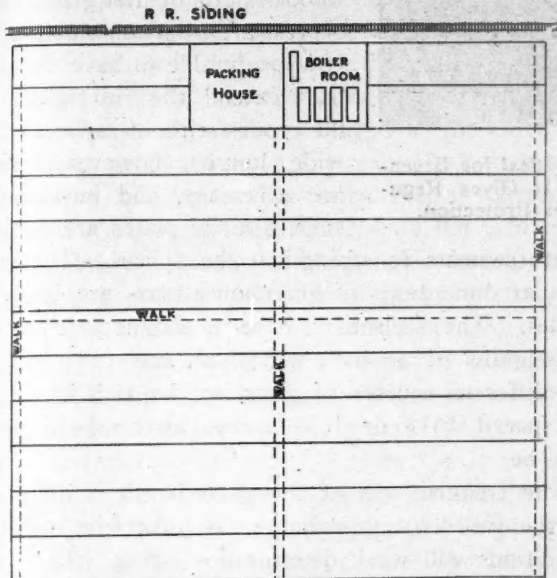
Every greenhouse should be satisfactorily located so as to be readily accessible to fuel supply, labor, marketing facilities, soil and water. A large plant should



In Glass Houses Such as This \$77,000,000 Worth of Marketable Products Are Produced Annually in the United States. This Peculiar Business Offers Particular Inducements to Builders, and a Profitable Field of Local Operation.

be built close to a railroad or canal so that fuel may be unloaded directly into the boiler room. Some nurserymen have established their greenhouses in localities proximate to coal mines, as they claim that it is cheaper to ship the crops long distances to market than it is to pay the freight on the great quantities of coal which they use each year.

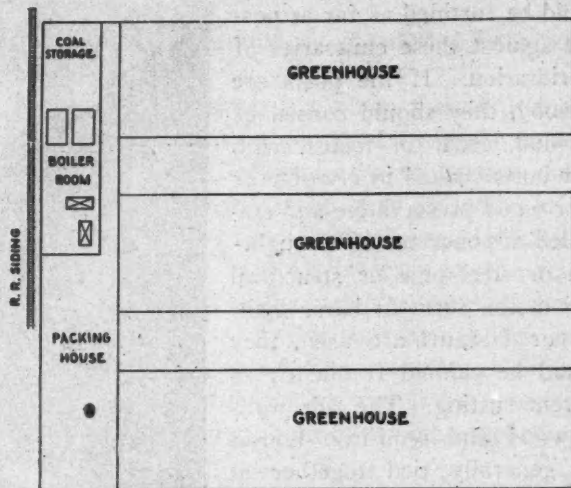
Most of the small houses feature the use of greenhouse benches, the buildings being of such width as to most economically divide the space between the walks and benches. When the house is of such length that a truck or wheelbarrow are unnecessary, a walk two feet wide is ample. The bed or bench can then be made four feet wide, this being about the maximum



A Range of Ridge and Furrow Houses That Are Well Planned to Insure Economical Operation.

width that the average person can reach across. A house 10 feet wide allows for a two-foot walk in the middle and two 3½-foot benches. A 20-foot house allows for two walks, two side benches and one middle bench about seven feet wide, the central portion of which can be reached readily from either aisle. Houses not fitted with benches can be most any width, as in such cases the crops can be cultivated with garden tools. At present the tendency is to build very large houses that are 60 to 80 feet wide and 500 to 600 feet long.

The greenhouse foundation has to carry the weight of the building, anchor it to the ground and support it against the force of wind and the weight of snow and ice. The style of foundation will depend on the type of house and the character of the subsoil. Simple houses supported on wooden posts may only require concrete or masonry footings under such posts, while with semi-iron or steel frame houses, continuous footings are desirable under the walls, these to extend below the frost line and to be of sufficient size to support the structure during the heaviest snowstorms and the highest winds. Inadequacy of foundation facilitates settling and causes the glass to loosen or be broken, the doors to sag, gutters to get out of line

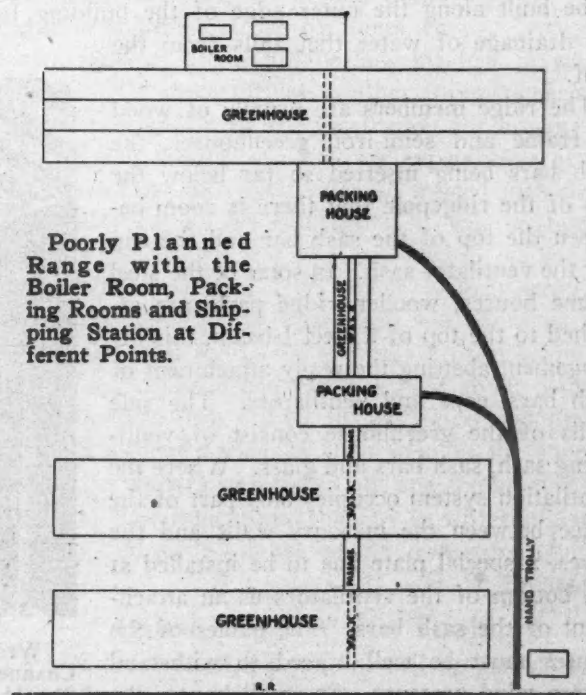


Arrangement of Detached Houses.

and a general weakening of the structure.

Greenhouses ordinarily are built of wood or a combination of wood and steel. The wooden house has wooden posts, sheathing, gutters and sash bars. Below the ventilators, such a house is sheathed, covered with paper and then sided. The braces, ties and purlins used inside the building frequently are made of steel pipe where the width is sufficient to need such support. The semi-iron house usually has pipe posts embedded in concrete side walls and an angle-iron eave plate or an iron gutter attached to the posts and sash bars by special fittings. The steel frame house is again different in that the roof is supported by built-up structural members carried by side posts set in the side walls. Houses of this type up to 40 feet width require no inside posts, but in structures as wide as 80 feet, two rows of posts made of steel are used.

The moisture conditions in the ordinary greenhouse are particularly favorable to decay or corrosion, so that the posts supporting the side walls and roof



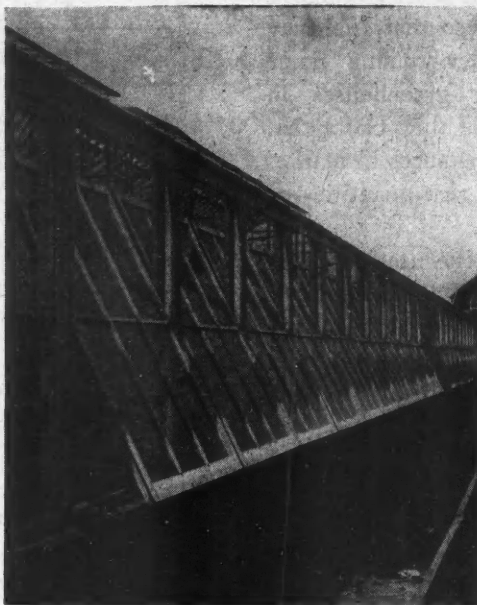
Poorly Planned Range with the Boiler Room, Packing Rooms and Shipping Station at Different Points.

should be fortified as far as possible against these emissaries of deterioration. If the posts are of wood, they should consist of redwood, cedar or locust, with their butts soaked in creosote or other wood preservative and embedded in concrete. If wrought-iron or steel pipe or structural steel in the form of bars, channels or I-beams are used, they should be painted frequently to prevent rusting. The side walls of wood and semi-iron houses are generally tied together at the eaves with rods fitted with turnbuckles. Such ties counteract the tendency of the houses to spread, due to the excessive weight of the roof. The roof is also braced against twisting by tie rods running in diagonal

directions from the purlin braces to the eaves. These supplementary braces are usually installed over every third or fourth set of purlin braces, and even in steel frame houses such bracing is desirable.

Authorities who have had long experience in greenhouse construction report the wooden gutter undesirable, as unless it is kept well painted it is short lived and very liable to leak at the joints. Well-painted cast iron and steel gutters are efficient. In "ridge and furrow" houses, inside gutters of simple construction are employed. Many detached houses are now being equipped with angle-iron eave plates, as such provisions are long lived, strong and do not allow snow and ice to collect on the eaves of the house. These equipments do not collect water from the roof and deliver it to special sewers, but instead gutters have to be built along the outer edge of the building for the drainage of water that falls from the roof.

The ridge members are usually of wood in frame and semi-iron greenhouses, the sash bars being inserted so far below the top of the ridgepole that there is room between the top of the sash bar and the cap for the ventilator sash. In some of the steel frame houses, wooden ridge parts are attached to the top of a steel I-beam, this arrangement abetting the ready attachment of sash bars, caps and ventilators. The side walls of the greenhouse consist of ventilating sash, sash bars and glass. Where the ventilation system occupies only part of the space between the masonry walls and the eaves, a special plate has to be installed at the bottom of the ventilators as an attachment of the sash bars. The gables of the houses must be well braced to withstand severe wind pressure. In small houses the



**This Type of Window Is Ideal for Greenhouse Construction, Since It Gives Regulated Ventilation and Storm Protection.**

purlin ends furnish the necessary bracing. In semi-structures, a set of posts and purlin braces is sometimes placed at each end to strengthen the building. In steel houses the gables are anchored to special roof trusses placed at each end of the building.

The sash bars are really the house rafters of the greenhouse. They carry the glass roof. Although there are several kinds of metal sash bars on the market, wooden parts of first grade heart cypress are most commonly used. It is preferable to have the sash bars extend the full length of the roof without splices. In wide houses, however, splices are necessary, and in such instances metal plates are used as reinforcements to strengthen the splices. The most popular dimensions of greenhouse glass are 16 by 24 inches. The sash bars have a tongue one-half or five-eighths of an inch wide, and this falls between the different courses of glass, so the sash bars must be spaced  $16\frac{1}{2}$  or  $16\frac{5}{8}$  inches apart, as the case may be.

The frequent use of the paint brush is obligatory in the well-kept greenhouse, as otherwise moisture conditions will work deterioration havoc. The materials should all be painted before the structure is erected, and after the house is up, two coats of paint should be applied, and another once a year thereafter. A white lead, zinc and linseed oil paint is best for wooden parts, while a red lead oil paint should be applied to the metal work. New sash bars require at least two coats of paint before the glass is placed, as



**Wrought-Iron or Steel Pipe or Structural Steel in the Form of Bars, Channels or I-Beams Are Used to Support Side Walls and Roof, and Should Be Painted Frequently.**

otherwise the putty is liable to loosen as a result of having its oil absorbed by the dry wood.

It is imperative that a good grade of glass be used in the building of a satisfactory modern greenhouse. It is not necessary to use the best glass, designated as "AA," as it is very expensive, but grade "A" glass, that is less costly, should be used. The large panes of glass are usually lapped one-eighth of an inch to eliminate all possibilities of air leakage. The glass is bedded in putty or some other suitable glazing compound in order to make the roof water tight and to exclude cold air. In setting the glass, the panes should be placed with the slightly curved side up, so that the joints will be perfectly tight.

The ventilators in greenhouses are usually placed in the sides and roofs and are of either the detached or continuous pattern. In the case of the roof ventilators, the sash ordinarily is hinged at the ridge, the joint being protected by a cap extending over each side of the ridgepole. Generally, special ventilating machines are used to open or close all the ventilators simultaneously. In small, inexpensive houses, such temporary expedients as notched sticks or flat iron bars with holes every two inches may be used to hold the ventilators open after they have been adjusted by hand. This eliminates the extra expense of a ventilating machine. Side ventilators are hinged at the top or pivoted at the middle, with the latter style preferable. It affords better ventilation but demands superior workmanship to prevent trouble from sticking. Planning the greenhouse so that standard-sized sash can be used for ventilators makes it possible to secure these along with the other greenhouse material.



## Two Kinks

**E**VERY simple way of cutting studding for an incline is outlined by the illustrations given herewith. Square one end of the material to be used, then place it side by side as shown on Fig. 1. With a straightedge and a steel square line up and square the squared ends. When this is done mark off the

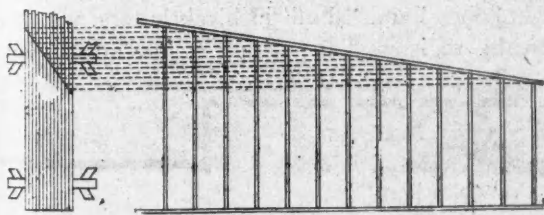
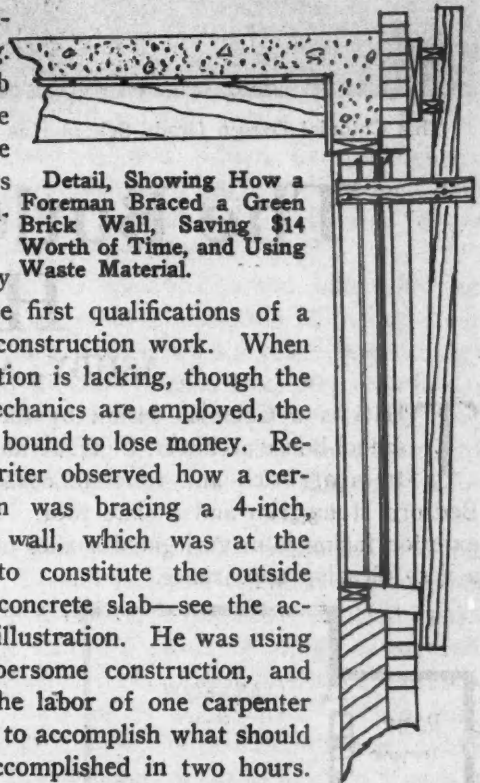


Diagram of a Very Simple Way of Cutting Studding for an Incline.

length of the longest studding, of the section, on one of the outside pieces, and the length of the shortest on the other—being careful to place the mark on the same side of each studding. Lay a straightedge to these marks and with a pencil make a line from one to the other. The intersection of this line with the studdings, on the side that the mark was placed on the two outside pieces, will give the exact length of

each. This is illustrated by the dotted lines on the two figures.

A section of 12 pieces is used on these illustrations, but the sections can be governed by the number of studdings that can conveniently be placed on the trestles. For example, if you have an incline of 200 feet run and 10 feet rise, divide the run into ten sections and you will have an increase on the rise of 12 inches for each section, commencing at the low point, and vice versa, if you start at the high point. These points can be obtained by geometry or ratio and proportion; but a still simpler way is by stretching a line from the high point to the low point, supporting the line at intervals to prevent sagging. Then plumb up to the line to get the measurements



Detail, Showing How a Foreman Braced a Green Brick Wall, Saving \$14 Worth of Time, and Using Efficiency Waste Material.

is one of the first qualifications of a foreman of construction work. When this qualification is lacking, though the very best mechanics are employed, the contractor is bound to lose money. Recently the writer observed how a certain foreman was bracing a 4-inch, green brick wall, which was at the same time to constitute the outside form for a concrete slab—see the accompanying illustration. He was using a very cumbersome construction, and it required the labor of one carpenter for two days to accomplish what should have been accomplished in two hours. Figuring the labor at \$1 per hour, the contractor was losing \$14 besides the loss in wasted material. On the same job another foreman used the construction shown by the illustration for bracing the walls of the next story with an expenditure of but two hours time, and practically no wasted material.

By referring to the illustration it will be noticed how this was done. A 2 by 4 was tied to the window frame with a piece of 1 by 4 (or 7/8-inch scrap) in such a manner that the upper end was about as high as the wall, and the lower end was a little below the window sill. The upper end was kept about 3 inches from the wall; then a 2 by 10 was placed against the wall and wedged as shown. As soon as the concrete was set the wedges were taken out and the bracing was removed. The wedges and the 2 by 4s with the 7/8-inch ties were laid aside for use on the next story.



H. H. SIEGELE.

## Oiled Sawdust for Tools

A box of sawdust, oil-soaked, will keep tools from rusting by placing them in it.



This Colonial Design Grade School Has Its White Trim Contrasting with Red Brick. Its plan has good features Applicable Anywhere.

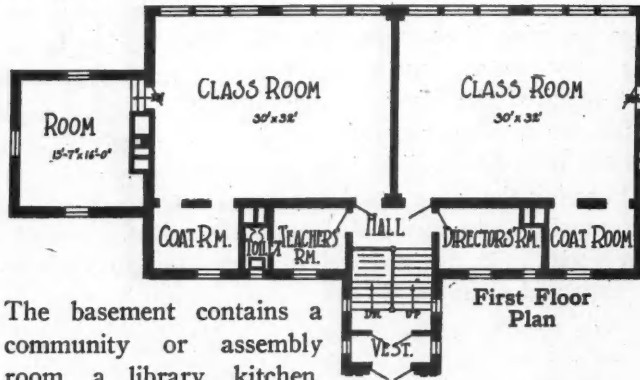
# The Butler Grade School at Hinsdale, Ill.

ASHBY, ASHBY & SCHULZE, Architects

**T**HIS is a Colonial design by the well known school house architect, G. W. Ashby, of Chicago. It is of brick and concrete construction, with Bedford stone trim and a slate roof. The brick for exterior facing is in variegated shades of red, making a very pleasing appearance.

birch. All wood trim except the library is plain sawed red oak, the library being white. All wood floors are clear maple. The floors in the boiler, coal, toilet rooms and store room are cement.

All gutters, downspouts, roof ridges, flashing and counter flashing are of 16-oz. copper. The blackboards are slate, 4 feet high.



A gravity system of low pressure steam heating and ventilating with direct-indirect and direct radiation is used. The sectional steam boilers sit on concrete foundations. Direct-indirect radiators are equipped with adjustable air-diffusers extending from a box base to within 2 inches of the top of the radiator. The diffuser has an indicator at the top, with the words "open" and "shut" in black letters, which automatically registers the position of the adjustable con-

The basement contains a community or assembly room, a library, kitchen, boiler and coal room. The first floor contains two classrooms seating 40 pupils each, with adjoining coat rooms; a teachers' rest room, a director's room, and boys' and girls' toilet rooms.



For the slate roof one thickness of slater's felt was laid horizontally with a 4-inch lap over the roof boards, with a 12-inch lap on hips and valleys. The slates used for the roof are mottled green and purple, 9 inches by 16 inches, and are fastened with copper roofing nails.

The exterior doors are solid white pine, the interior doors oak, and the doors facing the library white

trolling fresh air damper in the box base. The direct-indirect radiators are also equipped with a removable air moistener with an automatic filling supply valve, assuring not less than one gallon of water at all times while the system is in operation. The wall boxes and

extension sleeves extend through the wall at each radiator.

Vent ducts are provided in the coat room adjoining each class room and are carried through the roof. Each vent duct is equipped with aspirating coil or radiator, to draw the foul air from class rooms and coat rooms. Thus in rainy weather the teachers' and children's clothing is given the benefit of the ventilating and drying air current.

The boys' and girls' toilet rooms have seat-operating water closets with vitreous bowls, and oak seats. Urinals are of solid porcelain 18 inches wide with enameled iron automatic tank. Lavatories are vitreous, with pedestal self-closing faucets and pop-up waste. Drinking fountains are of the wall hung vitreous bubble cup type with self-closing supply valve. All piping connected with the plumbing fixtures is nickel plated, both hot and cold water is supplied, and there is complete ventilation.

All electric wiring is in concealed metal conduits of 100 watt capacity. Each class room has 4 outlets controlled by a push button switch supported in a steel box in the wall.

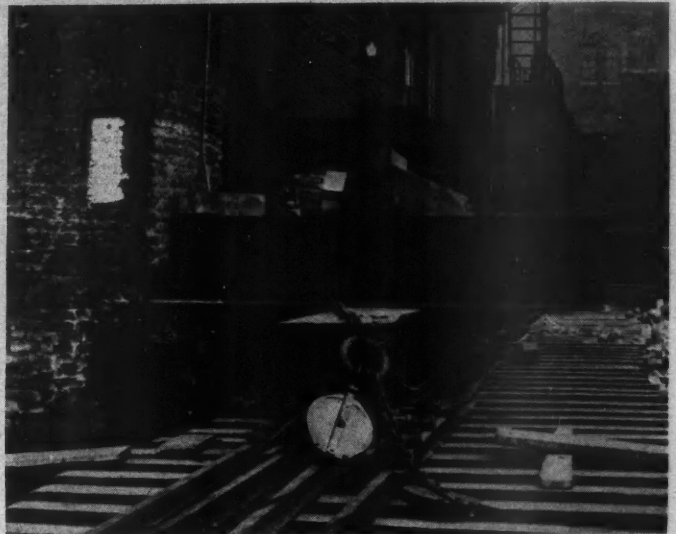
The school is located in one of the better class residential suburbs near Chicago, Ill.



### A Record Moving Job

**A** NEW record was made in moving large buildings when the Illinois Central R. R. Co. decided to move a seven-story structure at Michigan Ave. and 12th St., Chicago, a distance of 84 feet.

The building, of brick construction, was estimated



Giant I-Beams, 90-Foot Timbers of Douglas Fir and 90-Foot Rails Were Pressed Into Service for the Moving.

to weigh at least 8,000 tons. Illinois Central engineers passed upon the feasibility of moving it without damage, and the contract was let to the William H. Brown & Co., Chicago moving experts.

The building was carefully jacked with 1,400 jack screws. Two pieces of Douglas fir 20 inches square and 90 feet long, and thirty-six other large timbers ranging from 90 to 60 feet, and 16 or 20 inches square, were used; 90-foot rails were also pressed into service, as will be noted in the smaller illustration, and their combined length (it took 11 carloads) would total 8 miles.

After the underpinning was completed the pull began. Five two-horse teams operated five capstans, 14,000 feet of steel cable gradually eased the immense structure along its carefully prepared track toward the new foundation which had been prepared. When eased down it fitted its new resting place within a thirty-second of an inch. Not a pane of glass had been cracked, and the Illinois Central office force continued to use the building the same as though there were no moving operation going on.

The actual moving required but 5 days, as follows:

First day.....	9 feet 3 inches
Second day.....	41 feet 1 inch
Third day.....	11 feet 5 inches
Fourth day.....	18 feet 6 inches
Fifth day.....	4 feet 3 inches

Total ..... 84 feet 6 inches

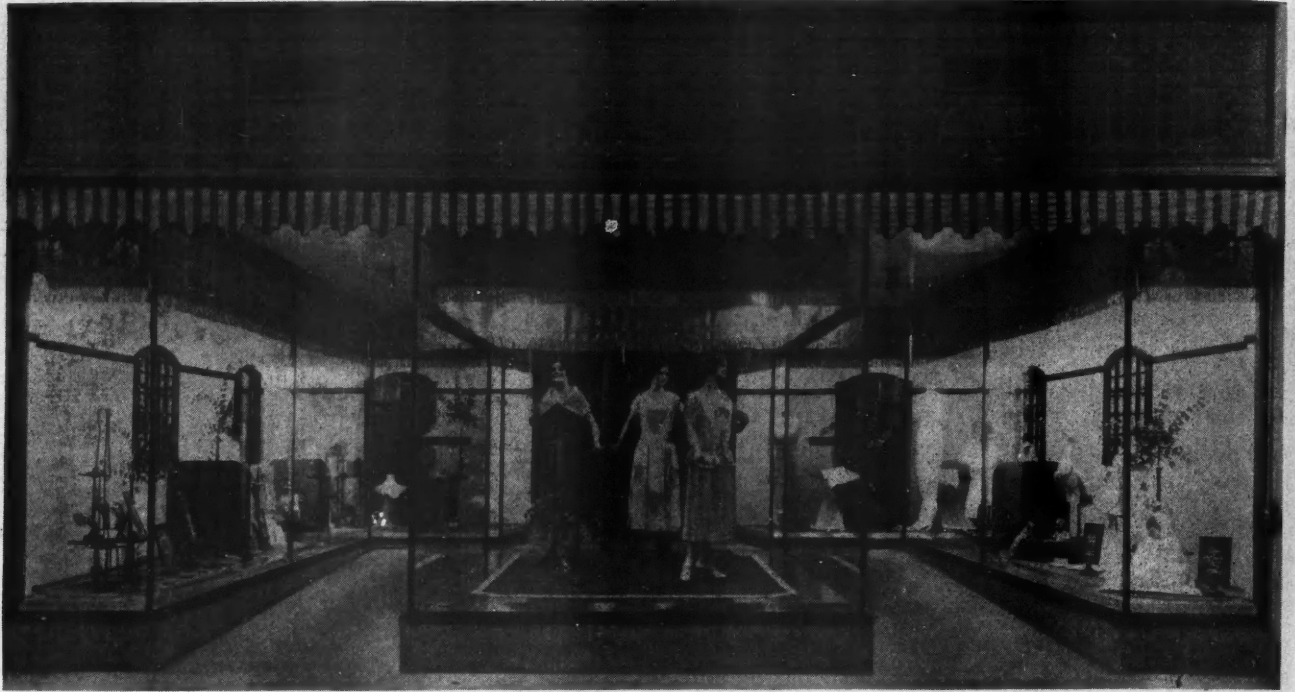
The moving of the building is part of a vast plan for improvement by the Illinois Central Railway Co., including the substitution of electric for steam power, and development of the passenger terminal in Chicago.



**L**ET us help you over the rough places. Tell us your troubles—we probably can find a solution.



This Seven-Story Building Was Moved 84 Feet, with All Occupants Keeping on with Their Work, and Not Even a Pane of Glass Cracking.



The Modern Store Front Offers the Greatest Expanse of Window Glass Held in Place by Bronze or Copper. So coaxingly is it arranged that the window-gazer is inside the store before he knows it,—a Customer.

## Windows "Sell" the Store

Merchants Recognize Profit-Making Power of Modern Display Windows and Up-to-Date Store Fronts, and These Offer Profitable Field of Operation for the Builder

By T. O'DONNELL

ONE of the truly worthwhile developments in modern business is the increased recognition given to the store front as a means of creating more customers. Nowhere is this proved so well as in the case of drug stores—those department stores in miniature, which retail almost everything nowadays except drugs. Not only do they have a large expanse of window display space, but they shift these displays with clocklike regularity, so that week by week the passersby see something which brings them inside—to buy.

The store front itself has changed. Don't you remember the cast iron pillars done in the classic Gingerbread period of architecture, the heavy wood and iron mouldings, the five or six steps which seemed to say each winter day: "Mount me, if you dare!" These have gone; the window occupies a greater expanse of store front; the entrance is on the sidewalk level, and the merchandise behind the windows is so coaxingly arranged that the window-gazer is inside the store before he knows it.

A good field of operation lies ready to any contractor's or builder's hand in his home city, in the modernizing of old store fronts to make them up-to-date and money-making; and in the construction of new store buildings where the most approved modern methods of store front construction insure the store being a

long-standing and profitable investment.

Setting show window glass in wood or iron, which rots or rusts and deteriorates in a short time is no longer considered good construction. The modern show window has mouldings of copper or bronze in proper gauges which hold plate glass with a sufficiently rugged grip, have the give-and-take resiliency of a spring to eliminate the breakages caused by vibrations, and whose trim and attractive lines of design are enduring because of the copper or bronze out of which they are drawn. Heavy gauge metal in both gutter and face members gives a rugged strength so that the sash becomes self-supporting, and a machine screw adjustment gives easy control of the spring tension between the face and gutter members against the glass. In no case does the edge of the glass, its cross section, impinge against the bronze or copper in which it is held; a strip of leather remains always between it and the metal, to give it cushioning and deaden vibrating sound.

The corner bars of the windows, where these end for door or vestibule entrance, have been reduced from the old fashioned six or eight-inch diameter columns to the neat dimension of an inch or two. Special tube shape steel stiffeners are used to provide the rigidity required to meet the lateral pressure from larger plates of glass, but the stiffener members of the ordinary store





Drug Stores Were the Pioneers in Recognizing the Selling Power of the Properly Arranged Display Window. Prism glass reflectors overhead make the most of daylight.

or shop window are of copper or bronze like the moulding and, with a proper lintel overhead, are sufficient for practical requirements.

Division bars, used where an expanse of two or three plates stretches along a wide store front, hold the glass between a back piece and face members, held to tension by specially constructed machine screws, and since they are only an inch or two in breadth have no appreciable effect upon the display value of the windows as a whole.

Frequently removal of a supporting post in a store front would lead to extra expense of reconstruction difficulties which the owner may not see fit to undertake. In such cases a corner or division bar can be installed in front of the supporting post. Special purpose bars for a wide variety of window angles can now be secured from manufacturers of metal store front equipment, and right or left installations made by merely switching the back members of each.

Frame coverings, corner caps, transom bars, bulkheads, thresholds, pushplates, kickplates, and a wide variety of store moulding to dress up and give uniform character to the store front now make it possible for the architect, builder and contractor to plan and construct a store front and window structure in keeping with every modern requirement. In many cases elaborate planning is not necessary; it is sufficient to send to the manufac-

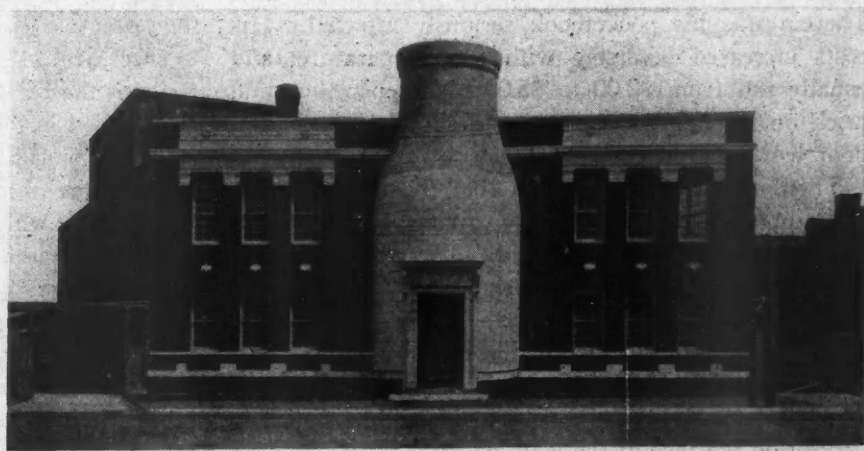
ture of store front equipment a rough sketch showing the number of necessary caps, setting blocks and accessories. Their engineering departments are glad to co-operate with the architect and builder freely, and is help distinctly worthwhile since it is natural that in the course of their furnishing material for thousands of similar jobs they have learned, and can give, many important points about designing and installing metal store fronts. This goes farther than the front of the store, even; it extends to equipment within the store, such as show case doors, mirror mouldings, etc.

It is understandable why the metal trim of a store front should be of bronze or copper. This metal lends itself to polishing and superior appearance due to weather-resisting qualities; *it lasts.*



### Building Has "Milk-Bottle" Entrance

**T**HIS handsome building was recently completed for a large milk company of Philadelphia. The construction is of red rug brick, concrete, steel and porcelain blocks. As can be seen by the picture, the trim and decorative elements are of white porcelain blocks, and the name of the company appears at the top of the building, depressed in the blocks. The most unique feature is the tower, which is in the exact shape of a large milk bottle. Up to a certain point in this "bottle" the porcelain blocks are pure white, but above that point, and extending to the rim of the "bottle," the blocks are a rich cream color, to suggest the amount of cream to be seen on a quart bottle of milk. The ornate doorway in the "bottle," which leads to the business offices of the company, adds just the right touch.—ROBERT F. SALADE.



The Home of a Large Milk Company in Philadelphia. The bottle is of porcelain blocks—white below and cream colored above to simulate the high cream content of the milk distributed by the company.



In Winter Concrete Construction the Contractor's Profit May Depend Largely on the Progress He Can Make Between the Temperatures of 32° F. and 18 or 20° F.

## Keeping Concrete Construction Costs Down in Winter

By E. L. McFALLS

**T**HE introduction of portland cement made it possible to erect masonry and lay concrete floors in freezing weather. It did not, however, leave the contractor without problems, many of them difficult to solve, and all of them affecting the soundness of the construction as well as his pocketbook. He found that cold slowed up the set of concrete mortar. When the temperature fell below fifty degrees F. the set of concrete was perceptibly retarded, forcing him to keep crews of floor finishers on over-time work and reducing the number of brick laid per man per day. Therein was his pocketbook seriously affected. His costs increased inversely with the temperature, and usually ran from \$2.00 to \$5.00 higher per thousand brick on masonry, and showed a similar increase on floor work.

Then it began to be found that the mortar joints of winter-laid masonry were giving trouble, even where cement mortar was used. The exterior of the brick or stone facing would show unsightly blotches of white deposit—efflorescence—salts from the common brick backing (which had been dissolved by moisture absorbed into the porous joints) were brought out when the sun drew the moisture out, and remained in deposit on the face of the wall.

The absorption of water frequently caused damage to the interiors of buildings. It was evident that win-

ter masonry would have to provide for water-proof mortar if these two faults were to be eliminated.

Below thirty-two degrees F. the water in mortar froze, forcing a closing down of the job, or necessitating shelter and heat, both involving considerable expense.

To offset this the use of a colorless liquid compound in connection with the gauging water has been developed and placed on the market.

It is a combination of several elements, each producing its characteristic effect in the concrete mortar. One of these elements that is of primary importance to successful masonry is its waterproofing function. It contains the basis of all waterproofing media, resulting where used in the positive and permanent waterproofing of all mortar, either in floors or in masonry. This prevents the absorption of moisture, and thus eliminates efflorescence which is the result of such absorption. It does so by increasing the density of the concrete, which is another way of saying that it decreases the natural size of the voids and reduces to a minimum the porosity of the hardened concrete. Lime, often used to fatten the cement mortar and to make it more water-proof, is unnecessary. Mortar hydrated with this product is buttery and works easily under the trowel; men like to handle it.

The second element incorporated in the compound

is a hardener, which renders cement floor toppings dustproof and extremely wear-resisting. There is not only a high initial tensile strength but permanent high tensile and compressive strengths in concrete so treated. The additional adhesive and compressive strengths of brick mortar made by this method has been demonstrated.

Of greatest importance is the speeding of the set of mortar in cold weather, accelerates the set of cement mortar, completely offsetting the slowing-up effect of the cold, and thus makes it possible for floorfinishers and brick-layers to maintain a constant warm-weather pace. Masons can strike a clean, fast joint; there is no sloppy mortar to clean off the walls, on the contractor's time. Where  $\frac{3}{4}$ " joints are specified it gives mortar a set that holds the joint at that width; there is no time lost by masons waiting for a set.

When the temperature falls below 32° F. salamanders, fuel, firemen and canvas help accelerate construction. At 25° F. masons find mortar frozen on the board; jobs shut down when this occurs. This compound, when used in the proper proportions in the mixing water prevents mortar from freezing down to 15° F. making it possible to keep the job going until it is too cold for men to work.

The use of this liquid material is simple. It is stirred into the mixing water in proportions that vary with the temperature—and the mixture is used to gauge the sand and cement. Above 32° F. one part is used to twenty parts of gauging water—well stirred.



Salamanders Are a Necessity in Very Cold Weather, and Make It Possible to Keep the Job Going.



Heating the Concrete Aggregate with a Kerosene Torch Gives a Warmth Which Insures Perfect Set.

From 20° F. to 32° F. one part to ten parts gauging water; and from 15° F. to 20° F. two parts to ten parts water.

In winter construction the contractor's profit may depend largely on the progress he can make between the temperatures of 32° F. and 18 or 20° F. Any factor that will enable him to maintain a satisfactory headway and which will to a great degree check the rising costs incident to cold weather deserves his fullest consideration.



### When to Paint and the Paint to Use

THE busy season for master painters is generally from April to October, a period when most exterior work is done. The master and his journeymen usually have comparatively little to do in some of the winter months. For this reason the interiors of structures should be painted from November to March. The warm room surfaces are in a better condition to receive paint, and better and more economical results will attend such practice. The adoption of this principle will moreover tend to make a straight line of the high peaks and low valleys of employment, and thus make the painting occupation a year 'round work, with consequent economic advantages.

The best types of wall finish are those which have the greatest hiding power, the maximum resistance to fogging under sunlight, the most negative toward yellowing in dark rooms, and the most washable and elastic.

There are two ways to buy paint. One is to select a brand made by a reputable manufacturer, which in previous tests on large scale use, has proved satisfactory. If such a paint is kept up to a high standard and sold at a reasonable price, it would in most cases prove advisable for the purchaser to stick to the brand regardless of competitive offers. Another method is to purchase on specifications, as is required by the United States Government in the purchase of wall paints for government buildings. Federal Specification Board specifications for interior lithopone flat wall paints and for exterior lead and zinc white and light tinted paints are Nos. 21 and 10, respectively. Copies of these may be obtained from the Government Printing Office, Washington, D. C.

If a painter will have a number of panels prepared and painted with various paints offered him, he will gain much information regarding their resistance to yellowing if he keeps them in a warm, dark and damp room for a month.

# Wall Board, the Indispensable

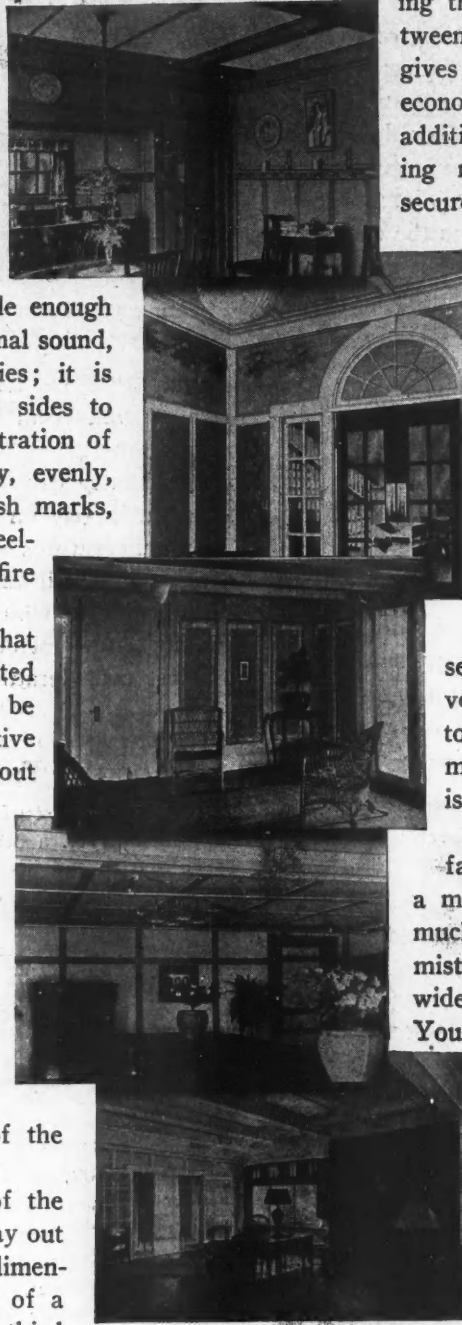
In the Home, in the Store, in the Factory, in the Office, on the Farm,  
Wall Board Fits in as the Unequalled and Versatile Wall  
and Ceiling Material

IT is not surprising to account for the vogue of wall board if you consider the unusual nature of the product. It is lumber in perfect form, wider than can be had in its natural shape, of even thickness, without cracks or knots or grain, split-proof when nailing, clean-sawing, tough and durable, and just pliable enough for perfect fitting. It has exceptional sound, heat and cold insulating properties; it is double-sized and primed on both sides to seal it completely against the penetration of moisture; it holds paint smoothly, evenly, economically, without leaving brush marks, and without chipping, cracking or peeling. It discourages vermin and is fire resisting.

It is in its use for interiors that wall board holds the most unlimited decorative possibilities. It would be impossible to give all the distinctive treatments that have been worked out by leading interior decorators, using wall board, in the sixteen years since it first became the perfected product it now is. The things which largely determine the finished effect of a wall-boarded room are the paneling arrangement, the style of mouldings and the color scheme employed. These also bear on the cost, as does also the selection of the wood for trim.

With a definite idea in mind of the finished result, the next step is to lay out the work. A rough sketch, with dimensions entered, enables the making of a finished sketch, drawn to scale. A third sketch gives the paneling design, and from it can be ordered the right sizes and the number of wall board panels required, likewise the correct amount of each type of wood trim necessary to finish off the job.

Next is the consideration of the determining factors in selecting the panel arrangement. The simplest is an even division of the walls and ceiling, using either 32-inch or 48-inch panels, practically following the spacing of the studding and the joists. Using wide wooden strips over the panel intersections and secur-



Only with Wall Board Is This Enjoyable Range of Wall Paneling and Patterning Possible in Any Type of Private or Public Building.

ing the right relation of color tones between them and the painted panels always gives a pleasing effect, and the most economical one. However, with a little additional expenditure in time and moulding material, greater distinctiveness is secured, also a greater variety throughout the building.

There are two main schemes of paneling the walls themselves. One is with the panels running from baseboards to ceiling, and the other is with the use of frieze, dado, or both, constructed with horizontal panels above or below the vertical ones. As a general rule, the second plan should not be used in a room under nine feet in height, because its effect is to make any room seem lower. However, when narrow vertical side wall panels are employed to offset that effect, the frieze or dado may be used even though the room is below standard height.

The tendency of those who are not familiar with the value of paneling as a medium of design is to eliminate as much paneling as possible. This is a mistake. It is not always best to use wide panels, especially in the small room. You will find attractive rooms pictured

in connection with this article in which panel strips have been placed even between the intersection of the wall board panels.

Whatever the wall design used, symmetry must be secured. This would be comparatively simple were it not for the doors and windows, although with a little study balance is easily secured on each wall and for the room as a whole. Each wall should be considered first as one

unit and the openings as continuing the full height of the room, then dividing the intervening spaces as evenly as possible, being careful not to get a noticeable difference between the designs of the different walls.

In paneling the ceiling, the main consideration is to have it conform in simplicity or elaborateness with the walls. It may vary from the simple division of



the paneling design has been determined. There are three main classes of moulding work; the plain flat strip, the more decorative style, in which a panel mould dresses up the flat strip, and the box beam used on some ceilings. These each are varied in turn.

Decorating wall board is eminently satisfactory. Since the best brands are already sized no priming coat is necessary. A good quality, flat oil paint will always give the best results. It saves time to give the ceiling panels their first coat before nailing in place, though more care in handling is required by this method. Two coats are sufficient and advisable as compared with single coat work, though wall board takes paint very economically. The

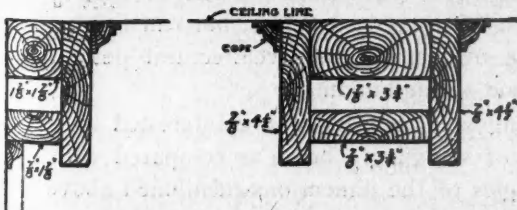


The Same Room Is Shown with Three Different Wall Board Treatments on This Page. Here is a simple arrangement, shown photographically and in cross-section.

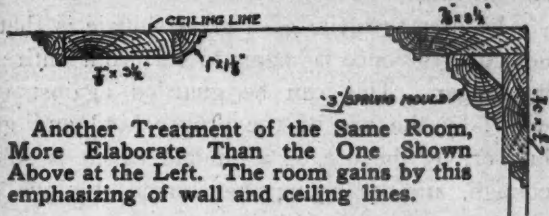


the space to the working out of various symmetrical designs. A border, crossing at the corners, a border with large corner squares, a center square with a border mitred to the corners, and even more elaborate variations are used.

Though a few paneling designs limit the style of wood trim, generally there is a wide variation in the type that can be selected after



A Massive Paneling Treatment in Connection with Wall Board Which Gives Added Dignity to This Living Room, and Gives It Comfortable Expressiveness.



Another Treatment of the Same Room, More Elaborate Than the One Shown Above at the Left. The room gains by this emphasizing of wall and ceiling lines.

popular mottled effect is especially easy to get on wall board. Stenciling adds a decorative touch many seem to admire, and is a simple process, as every painter knows.

Wall board makes very decorative folding screens. By framing three or four panels, and then hinging these together, each on one side, a very good screen for the double door or cosy corner results. Painting and stenciling give them added attractiveness.

Genuine wall board of standard make is carried in stock by leading lumber and building supply dealers everywhere, and thanks to persistent education of their trade by manufacturers, good carpenters everywhere know how to apply it in the way best suited to the individual job.



For the Colonial or Bungalow Types of Houses Shingles Lend a Touch of Quaint Beauty, and Are as Economical as They Are Attractive.

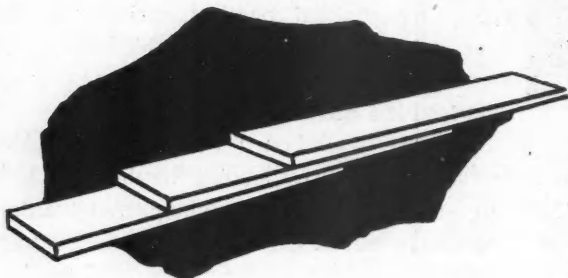
## Shingles for Side-Walls

By H. L. ROTHSCHILD

**T**HE all-shingled home owes its popularity just as much to its economy as to its attractiveness. For Colonial or bungalow types of houses shingles lend an undeniable touch of quaint beauty, but this first satisfaction will not be lasting unless the builder exercise care in the choice of the quality and kind of material used. This is even more important than in selecting any other kind of outside covering, for a thin shingle of poor grade is more susceptible to the weather than would be siding of the same grade and thickness.

The first requisite of a good shingle is that it will not curl, for once it begins to curl your entire wall is in danger. This can be guarded against in three ways: by the use of the proper kind and grade of lumber, by the use of a shingle which is substantial enough, and by laying the shingles to give greatest resistance.

There is a decided preference for white pine in this connection, not only because it gives unusually long service, but because it is especially noted for its ability to withstand warping, shrinking, cracking or rotting. White pine will insure a properly laid side-wall against



The Proper Way to Lay Shingles, Insuring Greatest Resistance.

changes that ordinarily result from action of time and the elements.

Much depends upon the size and weight of shingles and the way they are laid. One builder who planned to shingle a number of houses experimented along this line over a period of time, and at last decided that he could obtain best results from a shingle  $4\frac{3}{4}$  in. wide, 16 in. long, measuring  $\frac{5}{8}$  in. thick at the butt and  $\frac{5}{16}$  in. thick at the tip. The shingles were laid 7 inches to the weather, and no place was the covering less than one inch thick on the wall. This particular shingle was more substantial than the average, and gave a good strong exterior of just the proper weight to give greatest protection to the home. The heavier type of shingle also offers little fire hazard, and is by no means the highly inflammable affair that it is often pictured to be.

Another economy lies in the fact that stained wood shingles do not require as frequent painting as siding. The quality of paint naturally has much to do with this, but all things being equal the shingled home will retain a pleasing and fresh appearance longer than the average insofar as the paint is concerned. Many builders are favoring a shingle which is manufactured smooth on one side and rough on the other. With this double surface they can either lay the smooth side to the weather and paint it, or the rough side can be stained and faced outward. Neither is the builder limited to a few standard colors, but can finish them to suit the owner and the architectural design and color scheme of the building.

One thing you are particularly interested in is the labor cost of shingling a home as compared with siding. Shingles of the dimensions mentioned above can

be laid as cheaply as beveled siding as far as labor goes, and they cost practically the same as clear beveled siding. So at the same cost you can equip homes with a more durable white pine covering that is approximately twice as thick as ordinary siding.

The same beauty and economy that may be obtained in homes through the use of shingled side-walls can also be carried out in other buildings adjacent to them. The garage, barn, servants' quarter—all can be made more attractive and substantial.

There is no doubt but what shingled walls can have advantages over siding. But these advantages cannot be obtained unless you give as much conscientious attention in choosing them as you would in weighing the merits of any other important material in the home.

Shingle nails should not be driven closer to the butt-end of the shingle than two times the distance that the shingles are laid to the weather. This will keep the nails dry and prevent them from rusting—the wood around the nail will also be prevented from rotting, as is usually the case where the nails are driven closer to the butts.

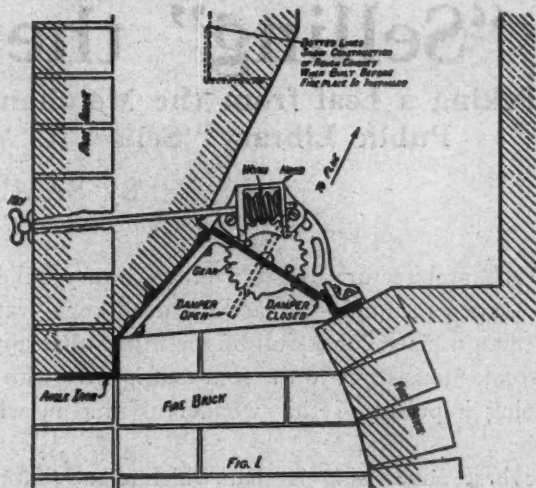
If shingles are extremely dry they should be laid so the joints will be at least  $\frac{1}{8}$ -inch open, but if wet and water-soaked shingles are used, they should be laid tight.

### ❖ "To Fireside Happiness"

IT would be hard indeed to find a better mantel than this, whether you build a mansion or a cottage. Yet it is not a special, but a "stock" design, produced in large enough quantities to bring its cost within the reach of all homebuilders. The motif of the design can be traced back in the annals of domestic architecture for hundreds of years, and shows excellent proportions and beautiful dignity without over-elaboration. Ornate mantels are one of the crimes against good taste which have helped to make some builders decry the fireplace. With such material as this to choose from, no home should be without a fireplace.

In case of building a fire in a fireplace where the chimney is cold or in putting fresh fuel on a fire when it is very low or almost out, smoking can be prevented and a strong draft induced by the simple means of holding a newspaper over the fireplace opening so as to give an air passage about five inches to ten inches wide at the bottom. Holding it there for a few seconds of a minute will turn the trick. It is never an indication of a faulty fireplace if it smokes the first few minutes after building a fire when the chimney is cold. A perfect fireplace will do this, but this can be entirely overcome by the simple use of a newspaper over the opening for a few seconds.

Size of chimney flue should be not smaller



**Good Fireplace Construction.** If a fireplace back wall is carried up straight, heat is not deflected into the room and goes up the chimney.

than one-tenth the area of the opening of fireplace. The top of the opening of a fireplace should be kept as low as possible, 25 to 28 inches making a good proportion. High fireplaces are used so little nowadays that the proportion does not look good to the eye and makes a fireplace that will smoke very easily with the least provocation. The back wall of the fireplace should lean forward as soon as it is carried up to about eight to ten inches high. This has the effect of throwing the heat down and out into the room.



**The Hearth Is the Chief Decorative Element in a Room and Should Not Be Cluttered with Useless Bric-a-brac. A mirror or picture, andirons and fire screen complete it.**

# "Selling" the Public Library

Taking a Leaf from the Merchant and His Display Window, the Modern Public Library "Sells" Its Wares by Attracting Readers' Eyes

By SAMUEL H. RANCK

*Librarian, The Grand Rapids Public Library*

**T**HE architecture of the average library building suggests a tomb—a place for dead ones—rather than a place chock-full of the things that appeal with tremendous force to the soul that is alive with the throbbing impulses of this wonderful time in which we live.

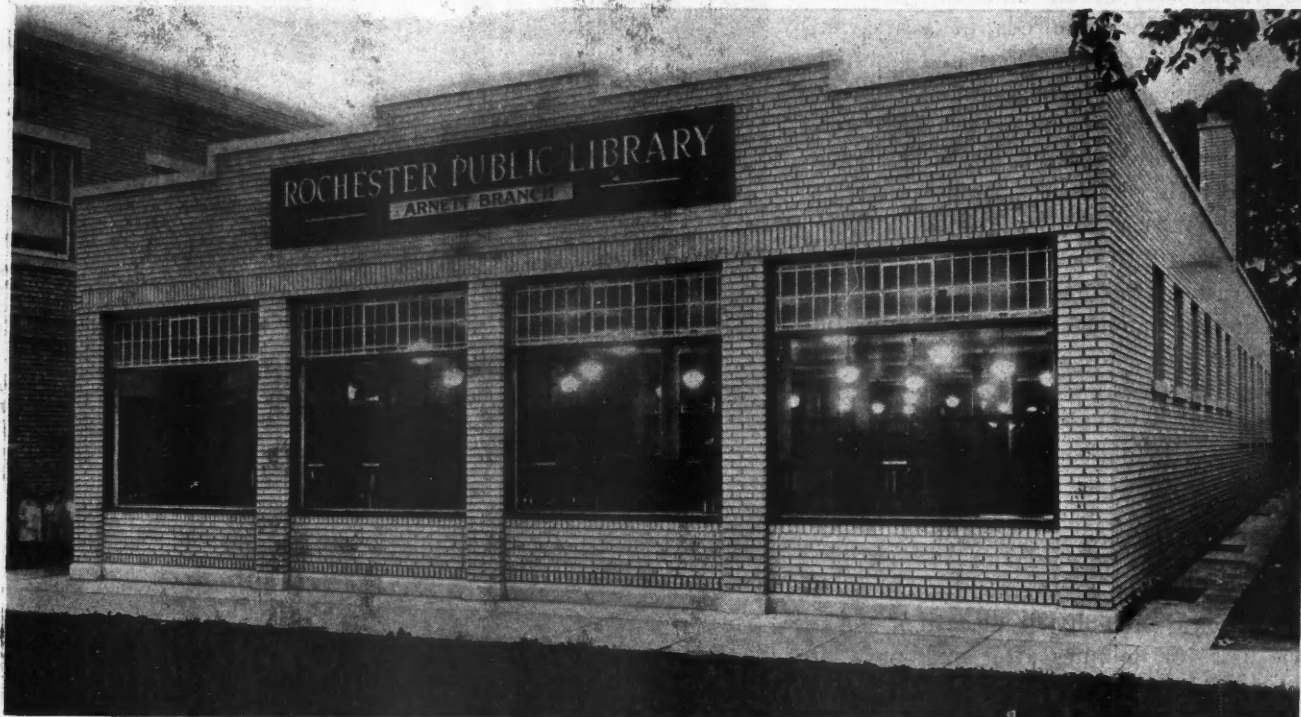
The best advertising is that which comes from a well served patron. But our libraries have thrown away one of the best means of publicity by locating their buildings where people must go out of their way to find them and by so arranging them that the passerby sees nothing but stone, brick and glass—things that suggest nothing of the joy and usefulness of books. Seeing crowds enjoying and using books, as well as seeing attractive things in print through properly arranged show windows, would appeal to the average library user in a way that would simply compel his interest and attention in the things we have for him.

The place to serve the people is where the people daily congregate and pass by in the largest numbers. This is never on a side street or in the "best" residence section of the city. Your average "best" citizen today gets more satisfaction out of his public library in showing his visitor from out of town the Greek temple

set back in a beautiful grove or garden as he whirls by in his six cylinder, 60 horse-power, seven-passenger touring car than in using the books and periodicals inside. Such a building in such a setting has a value as a work of art, but not as a library for service. Incidentally, it is only fair to say that business men in most of our cities are largely responsible that we have library buildings for show rather than for use.

The business man places his establishment so far as possible where it will serve the purposes of his business, and he spends loads of good money in the first place, and annually in the form of taxation, to get his building at the right place. Besides getting his establishment at the right place he also spends more loads of good money to arrange it for the economic and expeditious handling of his affairs in it. So far as libraries relate to serving the business man, as well as nine-tenths of the other people in the community, I am convinced that 95 per cent of the library buildings of the country are badly located, and furthermore that the large proportion of these buildings are badly arranged for the work they have, or ought, to do.

Every block that separates the library from the principal lines of the movement of the people, every foot that people must walk from the sidewalk to the en-



Arnett Branch, Rochester Public Library. William F. Yust, librarian, is a pioneer in advertising the public library to the public. From the sidewalk people can read the titles of books on shelves as well as in the window. The busier the street the more patrons.





Lincoln Branch, Rochester Public Library. Entrance is in center of long side. The delivery desk is in the center, directly opposite the entrance. Shelving extends around the walls, with few floor cases. Adults' room is at the front; children's at the rear, divided by low shelving surmounted by a three-foot glass partition.

trance of the building and then to its books, every step that must be climbed above the level of the sidewalk to reach the first floor, are all so many hurdles, barriers, which the people are obliged to overcome before they can get to their own books, whether it be to use them for business or pleasure, for education or recreation. The bad location and arrangement of library buildings in the United States are keeping hundreds of thousands of potential users and supporters of libraries away from them and out of them every day of the year. And there is no class of persons in the community more affected by such things than business men, for they recognize (consciously or unconsciously) better than any other class the commercial value of time and convenience.

Let me put this a little more concretely. The library building in which I work is better located and arranged than the average library building of the country. And yet the total distance walked to and from the sidewalk by all those who enter that building daily is nearly 35 miles to the point where the library begins to serve them. Furthermore each one of the thousand and more persons who daily enter this building, in addition to the energy he uses in walking 180 feet to and from the sidewalk must lift his own weight and the weight of the books he carries seven feet above the level of the sidewalk. In other words, the location and arrangement of this building with reference to the sidewalk requires the people who use it daily to take an extra walk of almost the distance from Baltimore to Washington and at the same time carry a weight equal

to that of a ton of coal 350 feet to the top of a skyscraper and down again. And all this is in addition to the walk of 450 feet from the nearest car line, which few people use, 800 feet from the car lines which are generally used, and over 400 feet from the nearest thoroughfare. The library to be a friend of man, and to serve him, must "live in a house by the side of the road where the race of men go by."

#### Rochester Makes it Easy

Five of the branch libraries of the Rochester Public Library are in commercial or rented buildings. William F. Yust, librarian, considers a corner lot most suitable, because it is possible to place the entrance in the center of the long side for convenience of administration. When the building is not on the corner a passage must lead from the street back to the entrance. In these branches the shelving extends around the walls, but few floor cases. The division between adults' and children's rooms is made by low shelving surmounted by a glass partition about three feet high. This gives the effect of one large open room and a small staff room in one corner. The entire front consists of three or four plate glass windows. Floor cases of books across the front are two feet from the window and four feet high. They shut off the view of readers sitting at tables, but are low enough to permit passers-by to get the full effect of the brightly lighted open room and easily read the titles of the books on display or on the shelves. The busier the street the better; each branch library circulated an average of 164,603 volumes each last year.



# INSULATED CONSTRUCTION

## Building the Ice House

The Ice House Presents No Extraordinary Building Problem, and with Cost Really a Small Factor Its Construction Offers a Welcome Chance When Other Work Is Not Pressing

THIS article concerns itself with the usual type of ice house which will be built to serve individual requirements. At the outset, let it be noted that the building of an ice house presents no unusual construction problem; the problem is one of

proper insulation. In addition to this there are the two essentials of drainage and ventilation.

Insulation naturally divides itself into two sections: the structural insulation and the packing necessary on all sides of the ice block. Structural insulation takes the shape of cork, hair, mineral wool, fluffed wood, treated paper or wood or flax or cotton composition

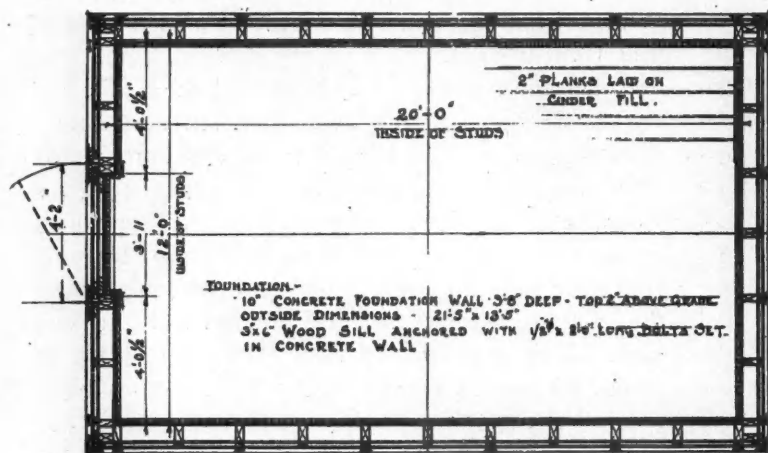
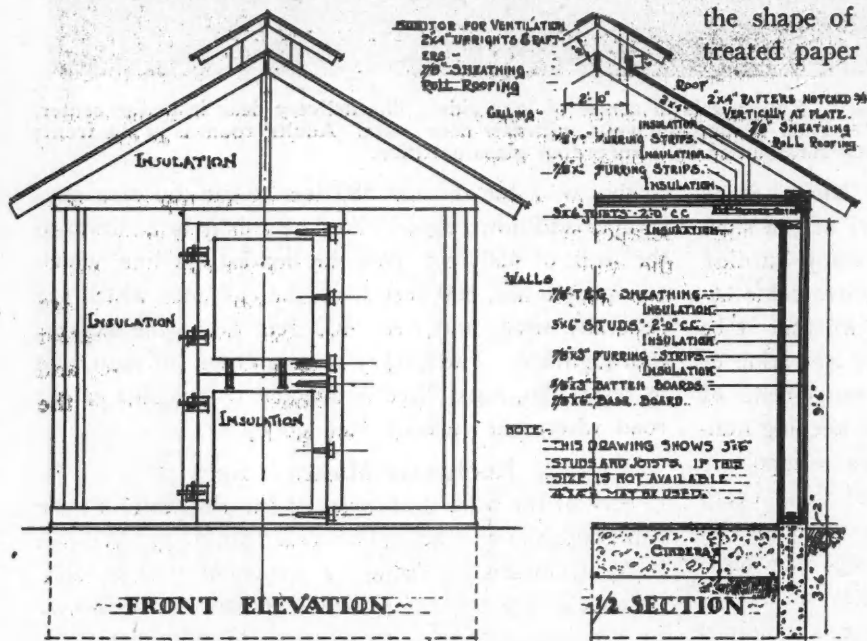
fibre sheets that are light, easily handled and genuinely efficient. The structural insulation is integral with the structure; it must be built in to be effective. The packing for the ice block may be mill shavings, sawdust or chopped straw, the latter being least effective and used only when the first two materials are not available.

Size is important. Assuming that one understands the tonnage which must be provided, 40 to 50 cubic feet will hold one ton of ice, and the area of the ice house can be computed on this basis. Thus, ten tons of ice will require 500 cubic feet of storage space.

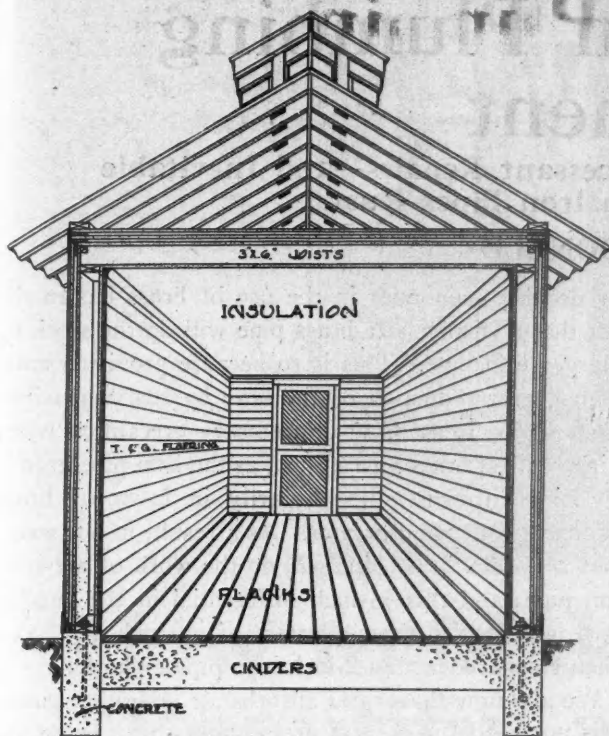
The ice should be packed in in a cube—say, in a pile 10 feet wide, 10 feet deep and 10 feet high. If we were to construct an ice house which would provide 10 tons of ice over a summer, provision would have to be made to store twice that much. Therefore, allowing two feet for packing insulation around the entire pile of stored ice, we would have to construct a building 14 feet square and 14 feet to the eaves.

Most ice houses are of frame construction. Hollow tile and cement blocks afford good ice house construction, when insulated with a good cork, wood wool or fibre. In any case a light concrete foundation is desirable, and the floor may be sloped to center to assist drainage.

A satisfactory ice house can be built by using ordinary wood framing for walls, ceiling and



The Ice House Presents no Unusual Construction Problem. Insulation is the prime essential, and after it drainage and ventilation.



Perspective of Frame Ice House with Cross Section Detail. Side elevation is shown at right, the lower one being of an alternate design with flat roof.

floor, as illustrated. In order to give ample width for nailing, studs, joists, sills and plates not less than 3 inches thick should be used. The width may be 6 inches or more, depending on the size of the house. The sills, laid on the foundation, should be bedded in cement or asphalt, and bolted down to assure a tight joint.

Studs should be set 2 feet, center to center, except at the doors and corners where extra studs are required. If the height of the wall should be greater than the stock length of the insulating material used, headers should be put between the studs where the horizontal joint occurs, and be made the same width as the studs. The plates should be securely spiked to the tops of the joists and spliced at the corners. In larger ice houses the plates should be made in two thicknesses, to facilitate aligning of the walls.

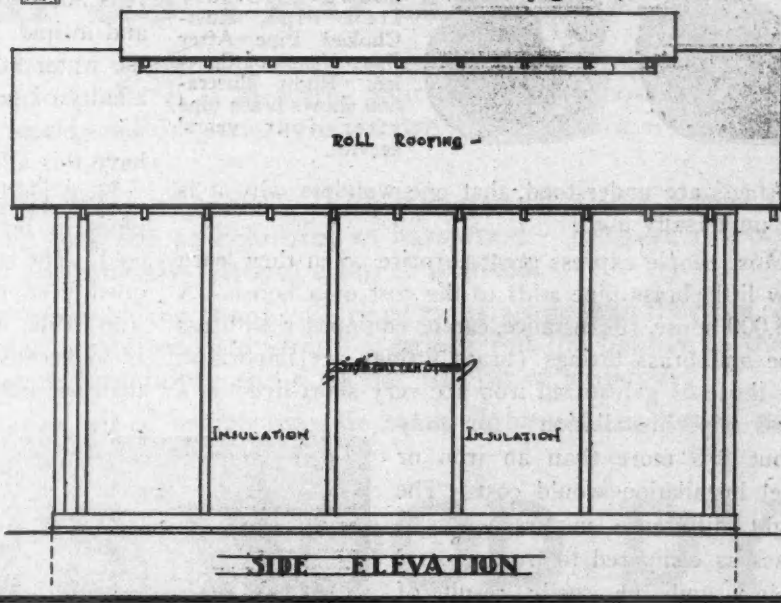
In the wall construction use three layers of insulation and one layer of D. and M. (dressed and matched) lumber. Apply one layer of insulation on the inside of the studs. On the inside surface of

this layer apply a coat of asphalt, roofing pitch, or other waterproof coating. Then put on the inside sheathing of 1-inch D. and M. lumber. Apply one layer of insulation on the outside of the studs. Over this attach wood furring strips  $\frac{1}{2}$  inch by 3 inches, placed along each stud, with cross strips fitted between at the sill, plate and headers. Then apply a layer of insulation over the furring. Put wood battens over the joints on the outside layer of insulation, and corner boards at the corners.

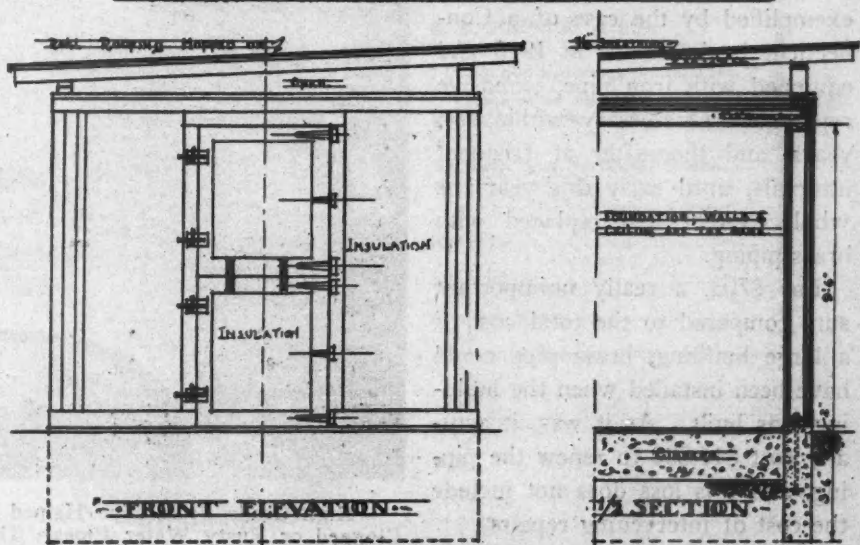
For the ceiling use four layers of insulation. Apply one layer of insulation on the under side of the joists. On the under side of this layer apply a coat of asphalt, roofing pitch or other waterproof coating. Apply one layer of insulation on top of the joists. On this attach wood furring strips  $\frac{1}{2}$  inch by 3 inches over each joist, with cross strips fitted between, over plates and headers. Then apply another layer of insulation, then furring strips, then the final layer of insulation.

For the walls the insulation should be applied vertically; for ceilings the insulation could be applied

(Continued to page 108.)



ALTERNATE DESIGN WITH FLAT ROOF



Two Ways of Roofing the Small Ice House.

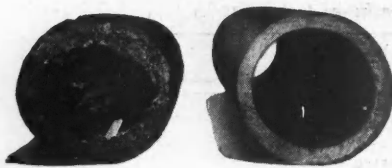
# Rust Is Fly in Plumbing Ointment

Rusty-Red Water, Clogged Pipes, Incessant Repairs—and Inevitable Costly Renewals When Iron Pipes Rust

By J. M. McDONALD

**W**ATER circulating piping is the least expensive part (about ten per cent of the total cost) of the plumbing installation; yet, it not only determines the useful life of the whole plumbing system but frequently becomes the heaviest item of upkeep expense.

Here, then, is a situation made to order for the manufacturers of high grade brass pipe; for brass is resistant to rust, and its use insures freedom from costly and inconvenient repairs and renewals which are sure to follow the installation of corrodible pipe. The use of brass plumbing pipe is so logical, once all



Left Illustration Shows Ordinary Iron Pipe, Rust-Choked Pipe After Four Years of Service. Right illustration shows brass pipe after four years' service.

the facts are understood, that one wonders why it is not universally used.

Most people express great surprise when they learn how little brass pipe adds to the cost of a house. A \$15,000 house, for instance, can be equipped with brass pipe and brass fittings (brass fittings are important, for those of galvanized iron are very short-lived in a brass pipe installation) for only about \$75 more than an iron or steel installation would cost. The slight difference in first cost of brass as compared to iron or steel piping, and the costly result of using substitutes for brass, is well exemplified by the case of a Connecticut bank. Built in 1915 and equipped with iron pipe, extensive repairs were necessary within two years, and thereafter at frequent intervals, until early this year the whole system was replaced with brass piping.

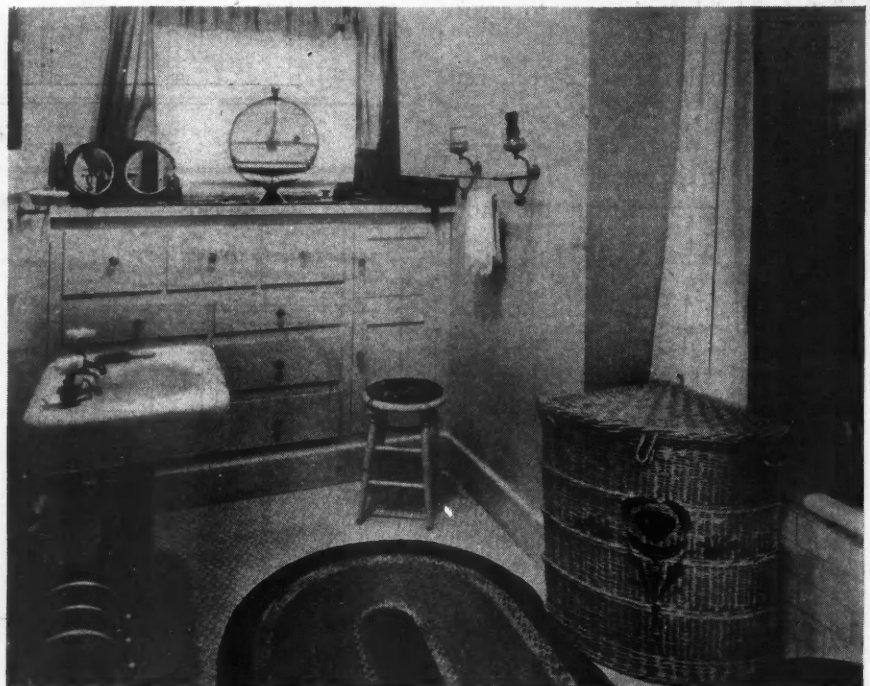
For \$703, a really unimportant sum compared to the total cost of a large building, brass pipe could have been installed when the building was built. As it was, it actually cost \$16,800 to renew the piping, and this loss does not include the cost of intervening repairs.

A further factor which makes

for decided economies in the use of brass lies in the fact that a smaller size brass pipe will do the work of a larger iron pipe. This is so because provision must be made for reduction of the bore by rust when iron or steel pipe is used, an unnecessary precaution when using rustless brass pipe. Then, as the iron pipe gradually fills with rust, this disparity in favor of brass becomes greater and greater. As a result, in hot water lines a ½-inch brass pipe will do the work of a 1-inch iron pipe; and this ½-inch differential in the smaller sizes increases to three-quarters of an inch and more when compared with a 2-inch iron pipe or larger.

We all know that water absorbs air and other gases. It is not good for general use without them, being flat and insipid. On entering an iron pipe, these gases in the water attack the pipe surface and because of the affinity of wet iron for oxygen, a chemical interaction takes place. Rust results. Oxygen and brass do not have this affinity.

Heat tends to release the gases more quickly; iron pipes in hot water service succumb sooner than in cold. The rusting of the interior of an iron pipe is frequently so rapid that the pipe becomes clogged with iron oxide, which is the technical name for rust. This is so because rust takes up a great deal more space than the iron it consumes, and as a result the rusting



High Grade Brass Pipe Helped Make This Bathroom Forever Free from Clogged or Rusty Water Pipes. The whole house was equipped with brass pipe and fittings for only \$75 more than iron or steel installation would cost.



## How to Make Soft Woods Beautiful as Hardwood

It is generally admitted that wood finished in its natural shade cannot be worked as successfully into color schemes of decoration as stained wood. It is also true that color brings out the grain and enhances the natural beauty of most woods. For these reasons we manufacture a line of wood color known as Johnson's Wood Dye.

Johnson's Wood Dye is for the artistic coloring of wood. With it inexpensive soft woods such as pine, cypress, fir, etc., may be finished so they are as beautiful as hardwood. Johnson's Wood Dye is very easy to apply—it goes on easily and quickly without a lap or a streak.

Johnson's Wood Dye is a dye in every sense of the word. It penetrates so deeply that the natural color is not disclosed if the wood becomes scratched or marred—it brings out the beauty of the grain without raising it in the slightest—it dries in four hours and does not rub off or smudge.

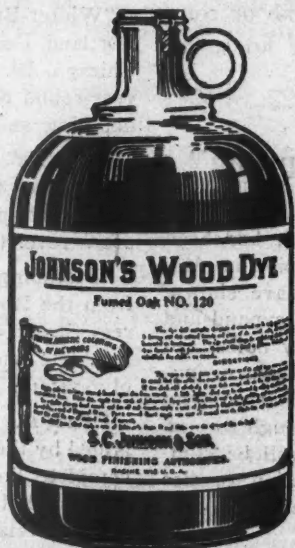
Johnson's Wood Dye is made in 15 shades, all of which may be easily lightened, darkened or intermixed—full directions on every label.

# JOHNSON'S WOOD DYE

### FREE—Book on Wood Finishing

It's the best book ever published on Artistic Wood Finishing—the work of famous experts—illustrated in color. This book is written for the practical man—it gives covering capacities, includes color charts, etc. We will gladly send it free and postpaid.

Use Coupon at Right



S. C. JOHNSON & SON  
Dept. A.B. 12, Racine, Wis.

"The Wood Finishing Authorities."  
Please send me free and postpaid your Book on Wood Finishing.

I usually buy varnishes from.....

My Name.....

My Address.....

City and State.....

of only 1/40th of the thickness of the wall of a 1-inch pipe can entirely close the pipe.

Brass pipe can be cut, bent, threaded and otherwise machined more readily than iron or steel. If a building equipped with brass plumbing is torn down, the old piping and fittings can be used again, or sold for a high scrap value, whereas the market price of corroded iron or steel pipe is practically nothing.



### Building the Ice House

(Continued from page 105.)

lengthwise of the joists. The stiff, board-like type of fibre insulation should be set in place so that it has a bearing for nailing along all four edges, and spaced to leave about a 3/16 space between each board of fibre. Nails might be spaced about 6 inches apart. For the layer of insulation next the studs and joists use 1½-inch roofing nails. For the additional layers use nails that will penetrate 1 inch into the wood.

The exterior walls of insulating material, if of the fibre-board type, may be painted, using a standard lead or zinc and oil paint, or cold water paint. A light color is preferable, or white wash made according to the U. S. Government formula may be used.

For the waterproof coating specified for the inside of the walls and ceiling, asphalt having a melting point of not over 200 degrees F., or any good brand of roofing pitch or roofing cement may be used.

In constructing a flat-roofed ice house the plates should be set above the finished ceiling construction, blocked up to give a drainage pitch. Set the roof joists on these plates. Cover the wood sheathing 1 inch thick, and over the sheathing apply any suitable roof covering. The spaces between joists must be left open at the ends to permit circulation, for the sun will heat the attic space, and ventilation will maintain the attic air at outside temperature.

The ice house should be located on well drained ground, where the water level is several feet below the surface. After the foundation is built grade the dirt up to within 2 inches of the top of the stone or concrete, and with a slope away from the ice house of about one foot in ten.



### Overburned Lime Cause of "Popping" in Plaster

**L**IME which has been overburned or which has been burned during hydration is the cause of popping in plaster, tests made at the Bureau of Standards have shown. In this type of failure small particles appear to expand and push themselves out of the plaster, leaving tiny holes. In extreme cases these holes may be sufficiently large or numerous to be unsightly. It has been shown that popping will not be serious if the lime is ground fine enough to pass a number 50 sieve, as in that case the lime will be completely hydrated during the mixing and application, or else the particles of defective lime will be too small to cause noticeable holes.

## BOOKS, BOOKLETS and CATALOGS RECEIVED



**T**HE literature and publications listed below are now being distributed and the concerns mentioned will be glad to send copies to any of our readers who will write and ask for them.

"Recommended Practice for Portland Cement Stucco" gives detailed specifications adopted for this class of work by the American Concrete Institute in 1920. Free on request from the Portland Cement Association, 111 West Washington St., Chicago, Ill.

"Auto Brik Machine" is the title of Bulletin No. 10 from the Lancaster Iron Works, Inc., Lancaster, Pa. It shows how to produce by the soft mud sand moulded process more and better brick at less cost, and create and maintain a profitable twelve months' business.

"Northern, King of Conveyors" is a folder describing these modern time and energy savers, made by the Northern Conveyor & Mfg. Co., Milwaukee, Wis. The "King" is shown in 16 to 100-foot lengths, and the Junior in 16 to 40-foot lengths.

"Barnes Motor Driven Wood Working Machines," made by the W. F. & John Barnes Co., Rockford, Ill., are described in a bulletin which should appeal to carpenters, contractors and pattern shops. The Barnes Bench Electric Driven Scroll Saw and the Electric Driven Former are worth investigation.

"Walls That Endure." This book will prove a revelation to architects and builders, and their clients. It shows walls in the new distinctive rough finishes, made with Kellastone Super Plaster. On request from the National Kellastone Co., 155 E. Superior St., Chicago, Ill.

"Better Entrances for Stores" is an instructive booklet on the use of revolving doors for improving the appearance and quality of fronts of buildings. Free on request from the Van Kannel Revolving Door Co., 250 West 54th St., New York, N. Y.

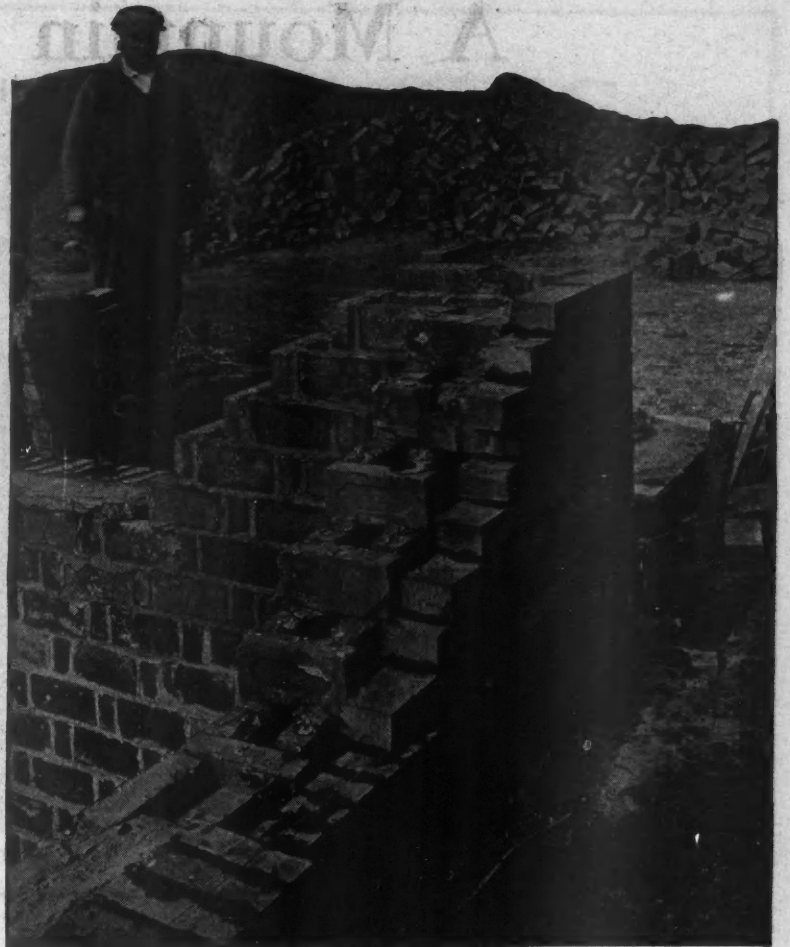
"Winter-Built Concrete." This is a timely book from the Portland Cement Association, 111 West Washington St., Chicago, Ill. It demonstrates the real economy of all-the-year-round construction, and is good ammunition to use on doubting and delaying prospects.

"Mantels" in wood and art stone are shown and described with prices in a catalog issued by the Fischer & Jirouch Co., Cleveland, O. The beauty of the designs and low cost are a revelation.

"Plumbing and Heating Supplies, Catalog D" is at hand from the Bowman Supply & Manufacturing Co., 886 Progress Street, Pittsburgh, Pa. It illustrates and describes a complete line of plumbing and heating supplies, water supply systems and lighting plants.

"The A. S. Aloe Catalog of Surveying Instruments," issued by the A. S. Aloe Company, St. Louis, Mo., lists their complete line of engineering instruments, architect's supplies, and drawing and tracing papers. A valuable guide to architects, builders and engineers.

# Ideal Brick Wall Saves 7 cents per square foot



THE contractor doing the apartment job pictured declares he can save real money by building Ideal Brick Walls. And the walls will be just as strong, dry and satisfactory as those costing nearly twice as much.

Comparison of material costs shows that:

12 in. Brick Ideal Backup	Using nine brick per square foot at the composite price of \$16.71 per M given in recent issue of American Contractor.	Costs <b>15c</b> per sq. ft.
12 in. Hollow Unit Backup	Using two 8x5x12 in. tile per sq. ft. at the price of \$110 per M given in recent issue of American Contractor.	Costs <b>22c</b> per sq. ft.

This saving of 7 cents per sq. ft. is in building material alone. The cost of facing is the same in either case. There is a substantial saving in every square foot of wall laid when Ideal Wall is used, even when labor and other mason materials are included.

There is always economy in using brick due to masons' preference for handling small unit. Any experienced mason can lay Ideal Wall at less cost than any other type. They rack their brick just as easily as on a solid brick wall.

Then, too, with the Ideal Brick Wall you can lay plaster directly on the wall surface; saving furring and lathing.

For apartments, schools and commercial buildings, as well as homes, the Ideal Brick Hollow Wall is lowest in cost and most satisfactory.

New reports of tests, giving strength of 8 and 12-in. Ideal Brick Hollow Walls are now included as a supplement to "Brick—How to Build and Estimate." Send for a copy now.

Send for reports of tests on strength of Ideal Wall.

## The Book of Modern Methods

**25¢**

Valuable tables of material and labor costs. Illustrations and data on modern, money-saving uses of common brick—including the Ideal Hollow Wall. Thousands of these books are in use by architects and builders. Send 25c for it today.

## Sixty Fine Brick Homes

**10¢**

Photographs and floor plans of 60 unusual brick homes—selected from thousands for beauty and interior arrangement. Every one has been actually built and lived in. A house for every taste and purse. Complete working drawings at nominal costs.

Send 35c—Get Both Books




### The Common Brick Industry of America

2131 CLEVELAND DISCOUNT BUILDING  
Cleveland, Ohio  
The Ideal Brick Hollow Wall  
Made of standard brick—cuts the cost one-third

# A Mountain Home

By THEO. M. FISHER

**A**MERICAN architects today who feel the creative urge strong within them have an unlimited field for their talents in the development of a

employed to fashion the structure. Consequently we feel almost as if the house had grown right out of the soil. This tied to the ground sense is, of course, a result



A Noteworthy Mountain Summer Home, Designed by J. B. Benedict, Denver Architect, for Dr. James J. Waring.

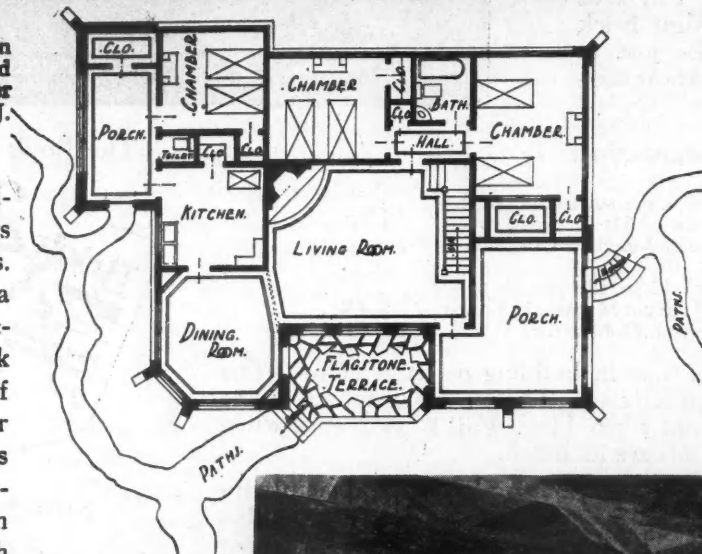
distinctive and appropriate type of dwellings for the mountain regions. In no section is there a finer opportunity for success in this sort of work than in the vicinity of Denver for every year sees many of its citizens of means and taste establishing summer homes in the neighboring "high country" along the streams and in the woods.

One of the most noteworthy of such homes is that designed by J. B. Benedict, of Denver, for Dr. and Mrs. James J. Waring, of that city, and built on a timbered hill high above the Bear Creek Valley, fronting Mount Evans and neighboring peaks of the Colorado Rockies. That the architect had brilliantly met the challenge of this rare setting and provided his clients with a home of real charm and indigenous character the accompanying photographs confirm. Stone and timber found on or near the site have been depended only largely for materials and native workmen familiar with their use em-

partly of the rough stone walls and especially of the use of buttresses. This quality is carried within also, for we find these walls either unsealed or finished with narrower strips. The living room further emphasizes the native atmosphere of the house by its massive stone fireplace with a wide stone hearth and low seats, and the high ceiling featuring massive cross beam construction. The timbers are of red spruce with some bark left on.

The architect has cleverly made the most of the westward outlook, placing on this front the dining room, living room, the open terrace paved with flagstones and the enclosed porch. All the wall space on this side not required for structural purposes has been devoted either to large windows or screened openings.

At Left, Floor Plan of Mountain Home.



Below, the Fireplace. Note the rough-hewn logs beaming the ceiling. We'll say this is only 1 per cent this side of paradise!





# FLOOR SURFACING

**\$48.00 a Day**

**Hand Scraping**



**A Low Grade Job at a High Price**

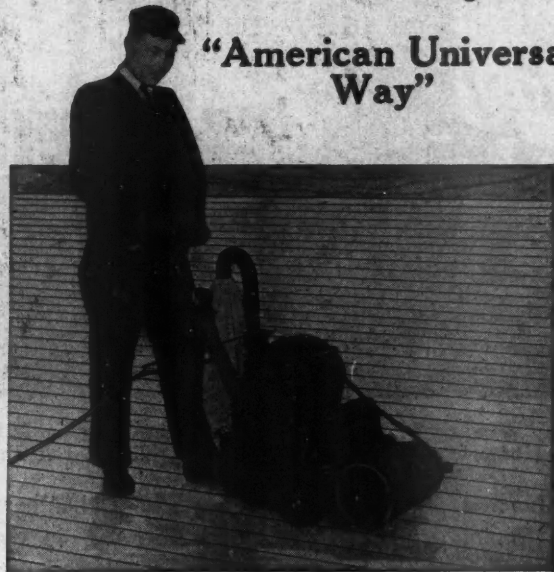
TIME BOOK			
NAMES	Rate per Day	AMOUNT	
		Dolls.	Cts.
<i>D. Reuter</i>	8.00	8	00
<i>C. Tooch</i>	8.00	8	00
<i>H. Moran</i>	8.00	8	00
<i>J. Malley</i>	8.00	8	00
<i>G. Clark</i>	8.00	8	00
<i>R. Duncan</i>	8.00	8	00
		48	00

**Old Hand Scraping Method Expensive—Unsatisfactory**

Hand scraping costs you \$48.00 where the "American Universal" will turn out the same amount of work for \$8.00. Besides being expensive, hand scraping is slow, and in most cases very unsatisfactory as compared with the smooth, uniform work of the "American Universal" floor surfacing machine. Hand scrapers are becoming more scarce because hand scraping is the hardest work there is.

**\$8.00 a Day**

**"American Universal Way"**



**A High Grade Job at a Low Price**

TIME BOOK			
NAMES	Rate per Day	AMOUNT	
		Dolls.	Cts.
<i>J. Morris</i>	6.40	6	40
<i>Operating Expenses</i>			
<i>Larnet paper</i>			60
<i>Electric power</i>			1.00
			8.00

**Big Profits for You "The American Universal Way"**

The "American Universal" floor surfacing machine replaces six expert hand scrapers—reduces the contractor's payroll from \$48.00 to \$8.00 a day. Electrically driven, full ball bearing construction, the "American Universal" turns out smooth, uniform work far superior to the most expert hand scraping. Never grumbles or complains. Always on the job. Never sick. Never tired. Increases your profits and satisfies your customers.

**AMERICAN FLOOR SURFACING MACHINE CO.**  
515 SOUTH ST. CLAIR STREET TOLEDO, OHIO

**YOUR FIGURES LOOK GOOD—NOW SEND ME THE PROOF!**

American Floor Surfacing Machine Co.  
515 South St. Clair Street, Toledo, Ohio  
Send me at once, without obligation, full particulars and free catalogue on your "American Universal" floor surfacing machine.  
 I am a building contractor.  
 I want to become a floor surfacing contractor.

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



This Bay Window Dining Nook Proves That Camping Is Not Without True Home Comfort. Note How the Ashler Is Let Show Inside.

On the first floor there are two master's chambers with adjoining bath and a servant's chamber in the service section of the house. Each of the three has a small open fireplace. There is a second story reached from the living room by a stairway whose treads are

solid hewn logs. This is at the back of the house and the roof lines so handled that from all other viewpoints the structure has the appearance of being one story only. The treatment of the several gables is one of the ablest of many distinctive details. The roof is of hand dipped vari-colored shingles.



### Houses Take River Trip

**I**N order to clear the site for the new state capitol building to be erected at Charleston, W. Va., it was found necessary to move more than thirty residences. Of these houses twelve were so situated that they could be moved advantageously across the Kanawha River. To handle this work successfully has called for the building of substantial trestle work to carry the houses out on to the barges, but the operations have all been so carefully planned that the houses are reaching their new locations

without any damage being done to the plastering. In fact it has not been found necessary for the furniture to be removed from these houses while in transit. The result is that the families are agreeably surprised to walk back into their old homes in the new location.



In Clearing the Site for the New State Capitol Building to Be Erected at Charleston, W. Va., It Became Necessary to Move Thirty Residences. Here is how they were ferried across the Kanawha River, furniture left in, and not even a crack in the plaster when placed on new sites.

# Settle the Matter of Making a Bigger Income—Now

*Read How Men in the Building Trades Have Put Themselves in the High Pay Class*

## The Same Opportunity is Open to You

"How did he get there?" is the question you often hear asked when some man who has been working as a mechanic steps into a foreman's or superintendent's job or goes into contracting. And the same question is heard when some contractor who has been taking on only small propositions gets in on the big, profitable work.

Why do these men advance while so many of their fellow workmen continue at manual labor? There is no secret about it. They study. They learn the things a man must know if he is to work with his head instead of with his hands. Any man can get ahead who will train and any man can get the necessary training who wants it. He can get it without taking an hour's time from his present job.

J. D. Woodside of Oklahoma was a carpenter working at \$6 a day. He heard about the Chicago Technical College and the training it gives carpenters, bricklayers, plumbers and other men in the building trades. He wrote for information and enrolled in the Builders' Course getting his instruction by mail. As a result he was made foreman at \$8 a day, 3 months after he started. Then he was made superintendent and is now a successful contractor.

If you want to make more money, make your services more valuable. Learn more about your trade or business.

the direction and assistance of men who teach you what you need to know to get one of the paying jobs as foreman or superintendent or to make the best profits out of a contracting business.

You get the benefit of their experience instead of trying to pick up information at your work. They give you, at once, what you might not otherwise get in years. The men who give you this training are all practical building experts.

Samuel Schreir was working at the bench in Pennsylvania but saw that the way to take the limit off his earning power was to learn more. He also enrolled in the Chicago "Tech" Builders' Course and reports a pay raise of \$73.70 a week.

Stephen D. Stanton of Alabama was another ambitious workman who decided to get into the big pay class and enrolled with Chicago "Tech." He writes that his income has nearly doubled as a result of the training he received.

Shelby Patrick of Michigan also doubled his income by getting the training that made him a Building Expert.

Hundreds of other men who have taken this training in the higher branches of building have vastly increased their incomes as a result.

### Train by Mail in Your Spare Time

No matter where you live you can get this Chicago "Tech" training from practical builders. You get the lessons by mail and study in your spare time. At every step you have

They don't offer you a lot of theories to study, or dry text books, or useless studies. They take you right into the actual problems of everyday work and show you how and why things are done.

Every man who is in the building business knows that this kind of knowledge makes a man worth money to those who employ him. And as everybody knows, men who have this kind of training are going to be in greater demand than ever from now on because building is on the boom.

The man who trains as a building expert now will soon have the matter of a bigger income settled to his satisfaction.

### Some of the Subjects We Teach

#### PLAN READING

How to read a building plan. Floor plans and elevations. Use and meaning of different lines on the plan. Sections and section lines. Cross sections. How different materials are shown on the plan. How to read dimensions. Detail drawings. How to lay out work from the plans. Tracings and blue prints—how they are made. Practice in reading complete plans from basement to roof, etc., etc.

#### CONSTRUCTION

Brickwork: Footings and foundation walls of brick, concrete and stone. Brick laying, joints in brick work pointing, tuck pointing, etc. Brick and stone arches. Use of different kinds of stone. Carpentry: Kinds and uses of woods, cornices, interior details, framing, roof construction, bridging, miter joints, butt joints, etc. How plans

are made. Complete instructions illustrated by working blue print plans and specifications. Residences, apartment buildings, factory buildings, school houses, hospitals, store and office buildings, bank buildings.

#### ESTIMATING

Practical rules for figuring costs on all classes of construction. Problems worked out from the plans. Methods of practical building. Some of the points covered are—Figuring labor and material on brick, frame and concrete work—footings, walls, chimneys, fireplaces and cisterns. Fire proofing, tile flooring, arches, partitions, furring, terra cotta, etc. Lumber and timber; figuring board feet. Estimating posts, girders, sills, joints, stubs, bridging, rafters, etc. Estimating all kinds of roofs, floors, siding, cornices, etc. Estimating mill work. Labor and material for window and door frames, sash, blinds, baseboard, wainscoting and all kinds of closets, cupboards, etc. Lathing and plastering, sheet metal work, decorating, glazing, plumbing, heating, wiring, etc.

#### SUPERINTENDING

Methods of work on all classes of buildings. Uses and preparation of material. Hiring and handling men.

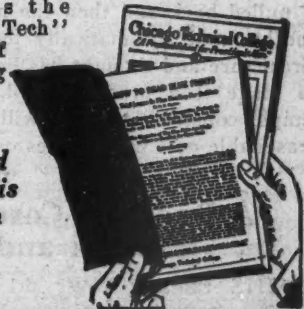
We also offer complete home-study courses in Architectural and other branches of Drafting. If interested in any branch of Drafting, mention subject and ask for Special Catalog "D."

If you are not satisfied with your job or your prospects, this is the time to prepare for bigger things. Expert training in building will make you the man wanted to handle important work at high pay.

## FREE 2 Books and Blue Prints

Your request brings our two books, one on "How to Read Blue Prints," containing a lesson in Plan Reading and with it we send blue prints, drawings, etc. With this lesson you can test yourself. See how easily you can learn by our method before you decide about enrolling. The other explains the Chicago "Tech" Method of training by mail.

Sign and Mail This Coupon—Today



### Chicago Technical College

Dept. 1236 Chicago Tech. Bldg.  
116 East 26th. St., Chicago, Ill.

Please send me your Free Books and Blue Prints for men in the Building Trades. Send postpaid to my address below.

Name .....

Address .....

Post Office.....State.....

Occupation .....



**EDITOR'S NOTE:** *The AMERICAN BUILDER does not accept payment in any form for what appears in our reading pages. In order to avoid any appearance of doing so, we omit the name of the maker or seller of any article we describe. This information is, however, kept on file and will be mailed to anyone interested; address AMERICAN BUILDER Information Exchange, 1827 Prairie Ave., Chicago.*

### A New Roofing Nailer

**H**ERE is a time-saver that relieves the workman of the awkward and tiring position he is forced to remain in when nailing roofing in the old way on a flat or pitch roof. He can say good bye to smashed thumbs and cuss words



**This Roofing Nailer Holds All Sizes of Roofing Nails Up to 1½ Inches, Feeding Them Out Automatically.**

and the necessity of competing with the dime museum nail eaters. Good this time of the year, especially, as he can use it with his gloves or mittens on.

The frame is made of malleable iron with a galvanized iron nail box, and the feeders and nail catch are made of steel with steel wire springs. The machine has a very attractive and durable finish. Most all sizes of roofing nails up to 1½ inches can be used, as the tool is provided with a thumb nut and bolt whereby it can be adjusted to the various nail lengths.

When the nail is set firmly in the material the machine is pulled back and then the nail catch springs up in place, another nail automatically feeding out for the next blow. Great care and thought has been put into this roofing nailer to make it a practical tool. It is light, convenient, of simple construction, and will last a long time, paying its reasonable cost many times over.



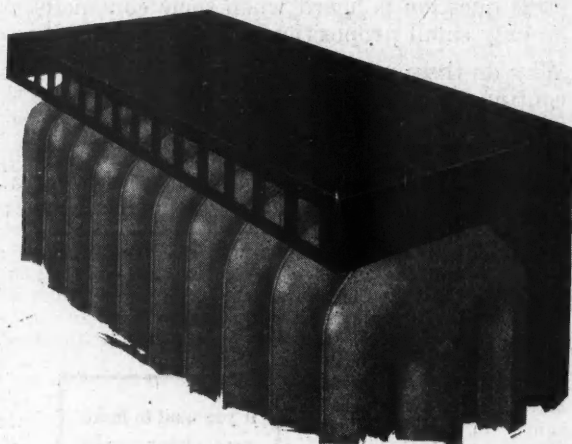
### A Radiator Cover Top Which Is Useful and Attractive

**T**HIS radiator cover prevents hot air, dust and dirt from following their usual upward course over radiators. Its back shield and deflecting plate distributes the hot air sidewise into the room. Walls and draperies are prevented from noticeable discoloration and dirt.

The radiator cover, besides this lessening of cleaners' bill and extra housework, brings harmony into the radiator arrangement of the home or office. Built of furniture steel and finished durably to match the woodwork, in mahogany, walnut, oak or enamelled colors, the radiator cover becomes an attractive flower or fern stand, or in the case of low radiators, it really makes an extra seat.

It does not interfere with the heating efficiency of a radiator. Observe that the front of the cover is open in

large 1½-inch squares, permitting good circulation of air currents. The radiator cover is made to order, and to fit any type of floor or wall radiator. It is fairly inexpensive



**The Radiator Cover Is of Furniture Steel, Finished to Match the Room Woodwork. It does not retard heat; it deflects it, and keeps walls and draperies clean.**

and easy to install, since it does not interfere with pipe connections either at the top or bottom of radiators.



### New Fulcrum Curved Front Fits Wheelbarrow for Concrete Pouring

**I**T gave us pleasure to receive the photograph and drawing shown here, which represent a patented wheelbarrow

(Continued to page 117.)



**Fig. 1. Fulcrum Curve-Equipped Wheelbarrow, With the Curve Caught Over the Edge of the Form and Lifted to Pour Concrete.**

(Continued from page 114.)

invented by an old subscriber to AMERICAN BUILDER.

The fulcrum curve which is attached to the wheelbarrow is indicated by (3) in the drawing. Numbers (1) and (2) show the method whereby the curve attachment is made part of the wheelbarrow proper.

Since concrete is usually transported to the forms in wheelbarrows, the advantages of this fulcrum curve attachment is evident.

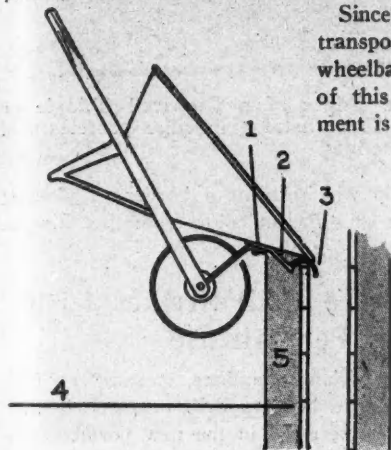
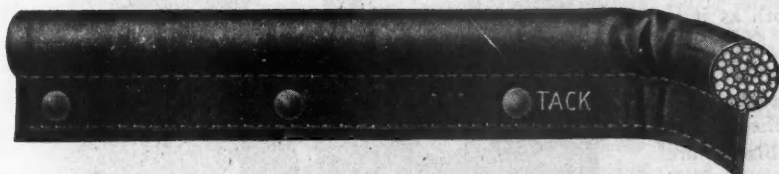


Fig. 2. The Fulcrum Curve Is Attached to the Wheelbarrow as Shown at (3). Nos. (1) and (2) show the method whereby the curve attachment is made part of the wheelbarrow proper.

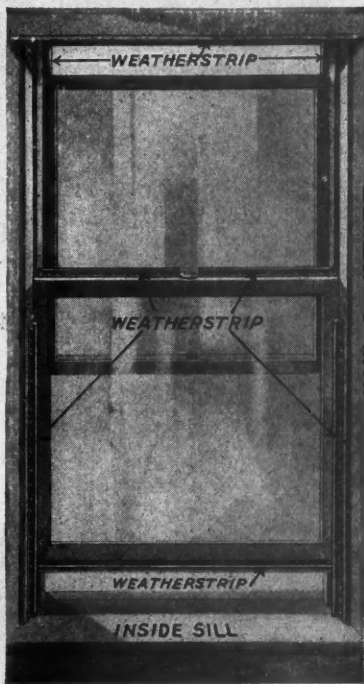


### Weatherstrip Rolls Like Cord Off Spool and Sews Up Home Snug and Tight for Winter

HERE is something new in weatherstripping—a woodless, metalless, rustless, flexible and extremely adjustable rubber coated round-edged fabric. It comes in continuous lengths in coils packed in cartons; you simply roll off the desired length like cord off a spool. Anyone can apply it quickly and permanently. In place, it forms a



This Rubber-Coated, Round Edged Fabric Comes in Continuous Lengths and Makes an Easily Applied Weatherstrip.



resilient caulk or fillet, similar to refrigerator door seals, and it adapts itself to varying surfaces, such as warped doors, angles, wavy surfaces, etc., without cutting. Being resilient it has a cushion effect on slamming doors and rattling windows, rendering them noiseless, and this fact also makes it a dustproofer as well as weatherstrip to keep out wind, rain, snow and sand.

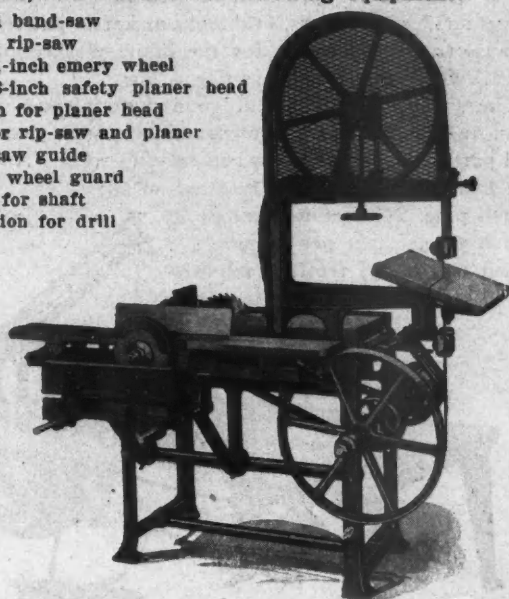
Being non-metal, it is nonconductive of heat or cold, lessening the transfer of heat or cold through doors and windows.

Weatherstrip Applied to Window. Note how easy it is to make a proper, weather-tight installation.

### Improved Combination Woodworker

THIS is made by one of the oldest and best concerns in its field, and includes the following equipment:

- ¾-inch hand-saw
- 10-inch rip-saw
- 8 by ¾-inch emery wheel
- 6 by 3-inch safety planer head
- Wrench for planer head
- Bolt for rip-saw and planer
- Band-saw guide
- Emery wheel guard
- Guard for shaft
- Extension for drill



A Very Well Made Combination Woodworker, Commended to the Man Who Does Not Want the Larger Machines of This Type.

The drive shaft of the machine may be mounted to an electric motor or gas engine. The maximum power needed is about 1 to 2 H. P. for the bandsaw, and up to 3 H. P. for the rip-saw, depending on capacity and feed.

The planer guide arrangement moves forward and backward in a slot or groove, locking in position with one thumb nut, thus saving time and giving a simple and accurate adjustment. It sets at any angle, for beveling purposes. The woodworker has a positive drive of the pinion and gear pulley type, the two pinions having a gear ratio of 2 to 1. The pulley pinion is cast in one piece, and the main shaft pinion keyed to the shaft.

Other important features are tight and loose pulleys, 8 by 3-inch, and handy belt shifter. Different parts of the machine may be run independently of each other, saving in power and wear on bearings.

The table for the cross-cut saw and rip-saw is of heavily ribbed cast iron, 37 inches long by 15 inches wide. The saw is standard make, 10 inches in diameter, and driven at a speed of 3,000 r.p.m. and makes a cut 2¾ inches deep. The table, hinged at one end, is raised or lowered to adjust the depth of the cut, and a cast iron cross cut guide is adjustable for varying angles.

The jointer is on the same spindle as the saw. Both sides of the jointer table are adjustable, and are 6 inches wide and 24 inches long, allowing for very accurate work. A half-inch reamed hole in the shaft end and a tap for a headless set-screw allows straight shank bits to be inserted. A slide table is provided, adjustable to different heights, to facilitate holding work to be drilled. If desired, an 18-inch disc sander may be placed on the lower bandsaw shaft.

The bandsaw is furnished with a well-finished cast iron tilting table 17½ inches long and 14¾ inches wide, locked to position by positive cam action and handle. Slippage and heat are reduced by an endless rubber band which acts as a face covering, and the non-friction type guide provided can be moved up or down, or removed entirely. The frame of the saw is made of cast iron in an H section, and the saw throat is 21½ inches deep. The entire woodworker is a very well made machine in every respect, and finished in a workmanlike manner. It is commended to those who feel they do not care for a larger machine.

### An Electrical Bench Scroll Saw

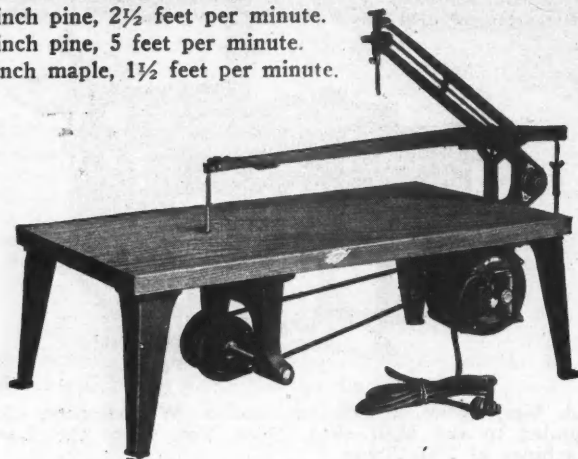
**T**HIS motor driven scroll saw with boring attachment is designed for practical service in the workshops of carpenters, contractors, cabinet makers, pattern shops, manual training schools; for the home workshop; in fact, for all woodworkers. The price is low.

The saw is well made, of good material and workmanship, and its mechanical construction is such that bearings and parts are easily adjusted to take up wear. An operator can saw at the following rates of speed:

2-inch pine, 2½ feet per minute.

1-inch pine, 5 feet per minute.

2-inch maple, 1½ feet per minute.



**A Motor Driven Scroll Saw Designed for Practical Service in the Workshops of Carpenters, Contractors, Cabinet Makers and Manual Training Schools.**

The saw is driven by a ¼ H. P. motor and a round belt runs from the motor to the balance wheel which drives the pitman wheel, a method of drive which insures a smooth and perfect running jig saw. The saw blade runs 1,200 strokes per minute, and leaves the work as smooth as it is possible for any saw to do.

The swing around blade under the arm is 24 inches; the table is 34 inches long by 20 inches wide. The height from the foot of the machine to the table is 11 inches. The motor is speeded at 1,750 r.p.m., and the saw blades are 7 inches long. It is equipped with one dozen assorted scroll saw blades, with lamp cord and plug ready for electrical operation. Boxed for shipment it weighs 80 lbs. If desired a floor stand to give added height may be purchased.

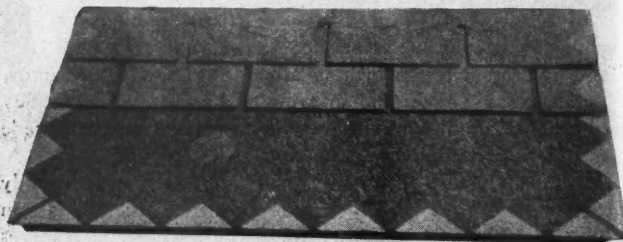
### Finishing Off Prepared Roofing at Eave Edges

**M**ANY people in winter time suffer the annoyance and inconvenience of having the inside of their buildings wet and stained by water from the roof.

This water gets into the building by being forced back up under the shingles and through the roof, by ice previously formed at the exposed eave edges from water resulting from the melting of snow on the roof over heated portions of the building.

To overcome this condition is recommended the use of a strip of prepared roofing, full width is best, along the eave edges with grip edge applied to protect and finish the lower and projecting edges of the roofing strip.

The shingles are then laid as usual from the eave. However only one layer is needed at the start since the strip of roofing serves in place of the usual first layer of shingles. Or the shingles may be started back three or four courses from the eave with a saving of shingles and still securing the same roof coverage at all points as though the shingles were started at the eave, because of the necessary opening between adjacent shingles when laid. The shingles laid back from the eave



**Protecting the Eave Edges of a Prepared Shingle or Roofing Strip Roof. This metal grip edge protects and finishes the projecting edges.**

exposes the roofing strip which forms a border of pleasing appearance of the same or different color from the shingles.



### Portable Concrete Drill Strikes 1,000 Blows Per Minute

**C**ONTRACTORS, electricians, plumbers, steamfitters, millwrights, and others who have to drill or chip concrete, brick, stone, etc., will be interested in the new portable concrete drill which is operated by compressed air, and which strikes 1,000 blows per minute. The device is strongly constructed; it weighs only 56 pounds, and therefore it can easily be carried from place to place enabling the operator to drill holes or chip in any direction without discomfort.



**This Portable Concrete Drill Makes the Drilling of Floors, Walls and Ceilings a Quick, Simple Matter. Weighs 56 lbs. Driven by electricity and compressed air.**



## Every Contractor Should Have This Portfolio of Store Front Ideas

You can make a big profit on the store front jobs illustrated and described in this new Brasco Portfolio of designs. Dry Goods Stores, Bakeries, Automobile Show Rooms, Shoe Stores, Haberdashers, Drug Stores, Department Stores—all of them have been reading our advertising and are sold on installing a better store front to attract more trade.

You can cash in on this advertising and get some good, profitable jobs by showing a few merchants in your locality this new Brasco Portfolio and suggesting their having the job done at once.

Over a decade of experience in studying window display methods and store front construction are crowded into this portfolio—new, proven, creative ideas that will help you on local jobs. **SEND FOR YOUR COPY AT ONCE.**

### Brasco Manufacturing Company

5029 South Wabash Avenue

Chicago

AB-12/23

BRASCO MFG. CO.  
5029 S. Wabash Ave., Chicago  
Send me a copy of the Brasco Portfolio of store front ideas to help me secure more new, profitable business.

Name.....

Address.....

City.....

# Brasco

**COPPER STORE FRONTS**

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

Drilling holes in concrete floors, walls and ceilings can be done rapidly and without difficulty.

Under actual working conditions, and with the use of the new portable drill, holes 1 inch in diameter and 10 inches deep were drilled in a concrete ceiling at the rate of 3 minutes and 22 seconds per hole. These holes were for hanging an electric motor. In other cases holes were drilled in concrete floors and walls, for setting machinery and hanging counter-shafting, and all of this work was done with a great saving of time and labor.

The portable concrete drill is of the type known as "Hammer drill," combining electricity with compressed air, the actuating force being electricity and the blow producing force being compressed air. The air is compressed in the usual manner but instead of being delivered to a receiver it is expanded in the same cylinder in which it is compressed. The hammer which strikes the blow is operated by compressed air, traveling at a high rate of speed and striking approximately 1,000 blows per minute. Each blow is delivered onto the drill steel with great force. The drill steel is rotated at the rate of 100 revolutions per minute for the purpose of changing the position of the cutting points and to withdraw the cuttings from the hole. When the machine is to be used for chipping instead of drilling, the rotating gear on the chuck is removed and then the cutting tool will not revolve. The universal motor may be operated from any lamp socket, as the power consumption is only 500 watts. The motor is completely inclosed and the windings are protected from oil by means of a special guard which permits use of the machine in any position without the possibility of damage to the windings. All of the working parts of the drill are completely inclosed, and drilling "up-holes" is as easy as drilling holes in any other direction.—

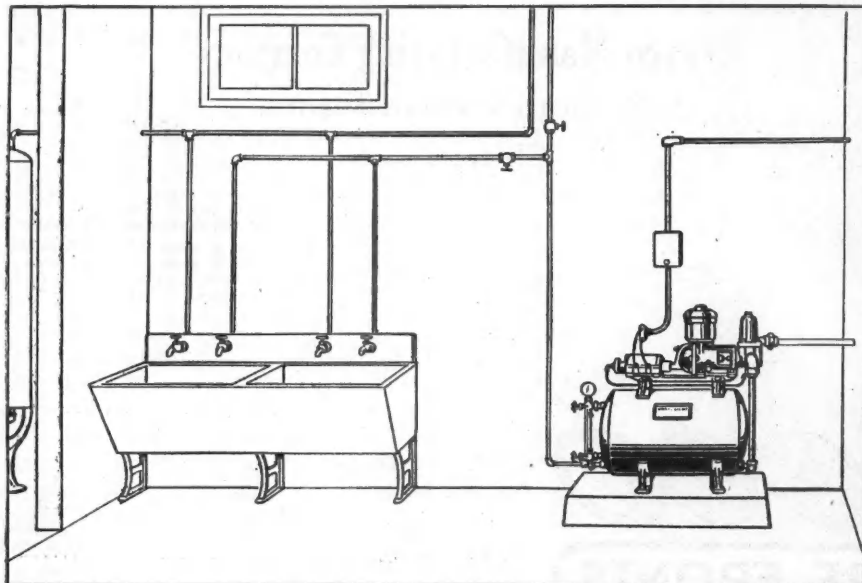
ROBERT F. SALADE.



### Meets All Demands for Low-Price, Compact Water System

A NEW water system meets all the demands of the modern home for water service which can be supplied from the small, electric pressure system.

It is compact, low-priced and complete with tank; a system that can be installed in very small space and that comes all assembled, a single unit, ready to set immediately into place. Only two pipe connections are necessary for installation.



A Compact, Low Priced, Electrically Operated, Water Pressure System; Complete with Tank, Motor and Pump.

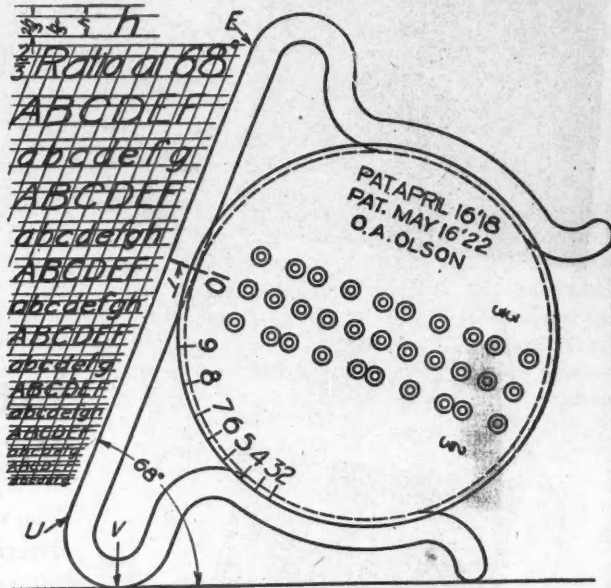
Motor and pump are direct-connected. There is but one place to oil. A worm gear drive does away with all belts or chains and insures efficient, dependable service.

The price compares favorably with any pump of similar capacity.



### Handy Lettering Instrument

A HANDY lettering instrument is shown in the illustration, consisting of a transparent celluloid disc which is grooved on the edge, and moves under pressure within its nicked steel frame. The celluloid is perforated with



This Is a Lettering Help for Draftsmen. The round part is celluloid. The holes are for pencil point to travel along in making the guide lines.

properly placed holes to give guide lines for lettering drawings and tracings.

In use, the instrument is placed on the drawing board, along the edge of T-square, straight-edge or triangle, with the readable side up. A drawing pencil about 6H hardness, must be in readiness, its lead sharpened to a conical point about five-sixteenths of an inch long.

It will be seen that it is possible to draw, thru its use, guide lines for letters varying in height from one-sixteenth

of an inch to an inch and a half, and of varying angles, for shifting the position of the instrument gives lettering slopes of 60 to 90 degrees. The instrument is a trifle over two by three inches in size, moves over thumb tacks readily and fits into the ordinary drawing instrument case.



### Making More Money by Making More and Better Brick

THE desire of all manufacturing plants is to produce a better product, produce it more economically, and reduce the uncertainty of the human element; in other words, to use automatic machinery wherever possible to the exclusion of slow, expensive hand labor. The progress of the United States and its industries has been due to quantity production by automatic machinery, which has cut the cost





## More Light, More Air Help Sell Your Houses

More light, more air *all through the house* make the homes you build more saleable. And Fenestra Basement Windows give *80% more light and air* in the basement—they make this business part of the house almost as bright and cheerful as the rooms upstairs.

A Detroit realtor who uses Fenestra Windows in all his houses writes, "We firmly believe that our light basements have enabled us to tip over more than one sale that has hung in the balance." You'll find the same thing true of the houses you build. Home buyers everywhere know about Fenestra advantages,

and are rapidly coming to demand these modern steel windows.

More and more investment builders are using Fenestra, not only because they offer a real sales argument but also because they cost less to install than wood windows and because they can be obtained quickly, already assembled, from Fenestra dealers everywhere.

You will find our folder the "How's and Whys of Fenestra Basement Windows" full of useful information for builders and contractors. We have a copy for you. Send us your name and address.

DETROIT STEEL PRODUCTS COMPANY, B-2260 E. Grand Boulevard, DETROIT, MICH.

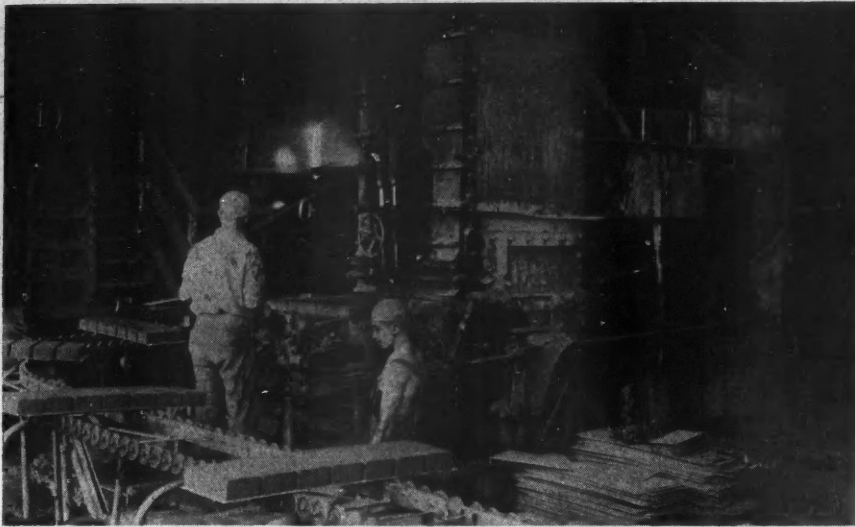
# Fenestra

## BASEMENT WINDOWS

**Fenestra**

The name of the ORIGINAL steel WindowWall.

The symbol of superior QUALITY in material, patented design, workmanship and service.



**This Machine Produces More and Better Brick by the Sand Molded Process. From tempering the clay until the empty return to machine for refilling all operations are automatic.**

and improved the quality of many products.

Here is a machine which offers to do that very thing for the brick industry. It will produce by the soft mud sand molded process more and better brick at less cost than heretofore. It will practically eliminate the ceaseless hunt for men who can stand the strain of bumping and dumping, and does not limit the capacity of the equipment through this uncertain human factor.

It tempers the clay in its twelve foot pug mill; it presses the clay into the molds; it strikes off the surplus clay as the mold comes out from under the die; and keeps the striking in the machine. It bumps the molds more uniformly than can be done by hand, and dumps the brick on to a pallet, then delivers the pallet of brick to truckers or on a cable conveyor. It puts the empty mold into the sander, where it is properly sanded, and then delivers it to the machine to be refilled. All these operations are done automatically, and far better than can possibly be done by hand.

The only hand work necessary is that of delivering pallets to the machine, and this can be done by one man.

The machine can be operated with wooden or steel pallets, and is equipped with an automatic sand feeder which feeds the sand to the sander in the proper amount while the machine is running. When the machine stops the flow of sand stops.

It is, in AMERICAN BUILDER'S opinion, a truly wonderful machine, and just as successful in fire brick plants as in common building brick plants.



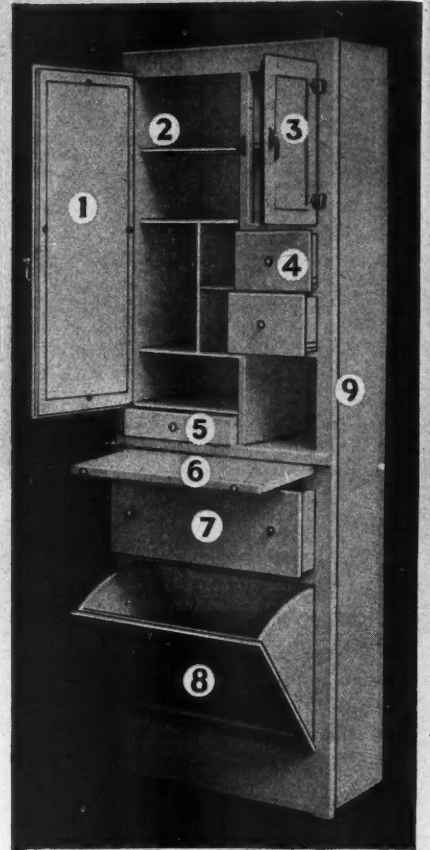
### A Genuinely Useful Cabinet for the Bathroom, with Built-in Laundry Chute to Basement

EVERY member of the family has his or her own favorite toilet or medicinal preparation or device, and the bathroom cabinet becomes woefully over-taxed for room unless provision is made before-hand to build in a bathroom cabinet which amply serves all the family needs. One firm has placed a built-in bathroom cabinet on the market which contains so many useful and unusual features that it is sure to meet with favor among architects, builders and homeowners generally. It is a real step-saving convenience.

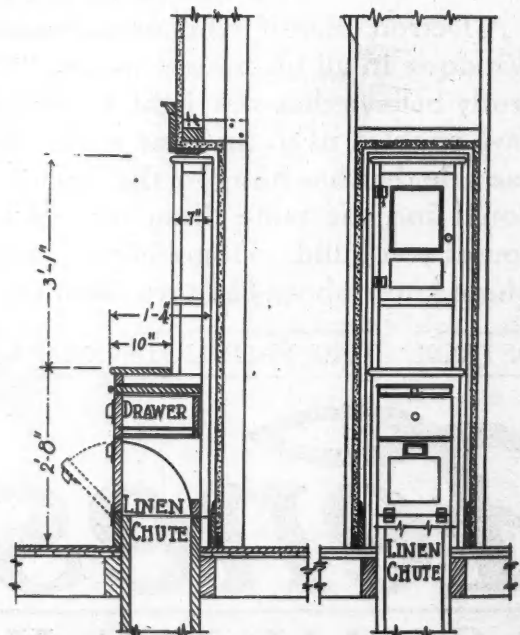
As will be seen from the illustration, it is finished in white enamel that matches the bathroom finish and appointments. It has a door, with a large mirror in its face; ample

cupboard space; a compartment with a secret lock, to keep dangerous drugs and poisonous antiseptics out of the hands of the children. Then there are ample drawers for small articles, a drawer tray for the manicure outfit, etc., an extension table

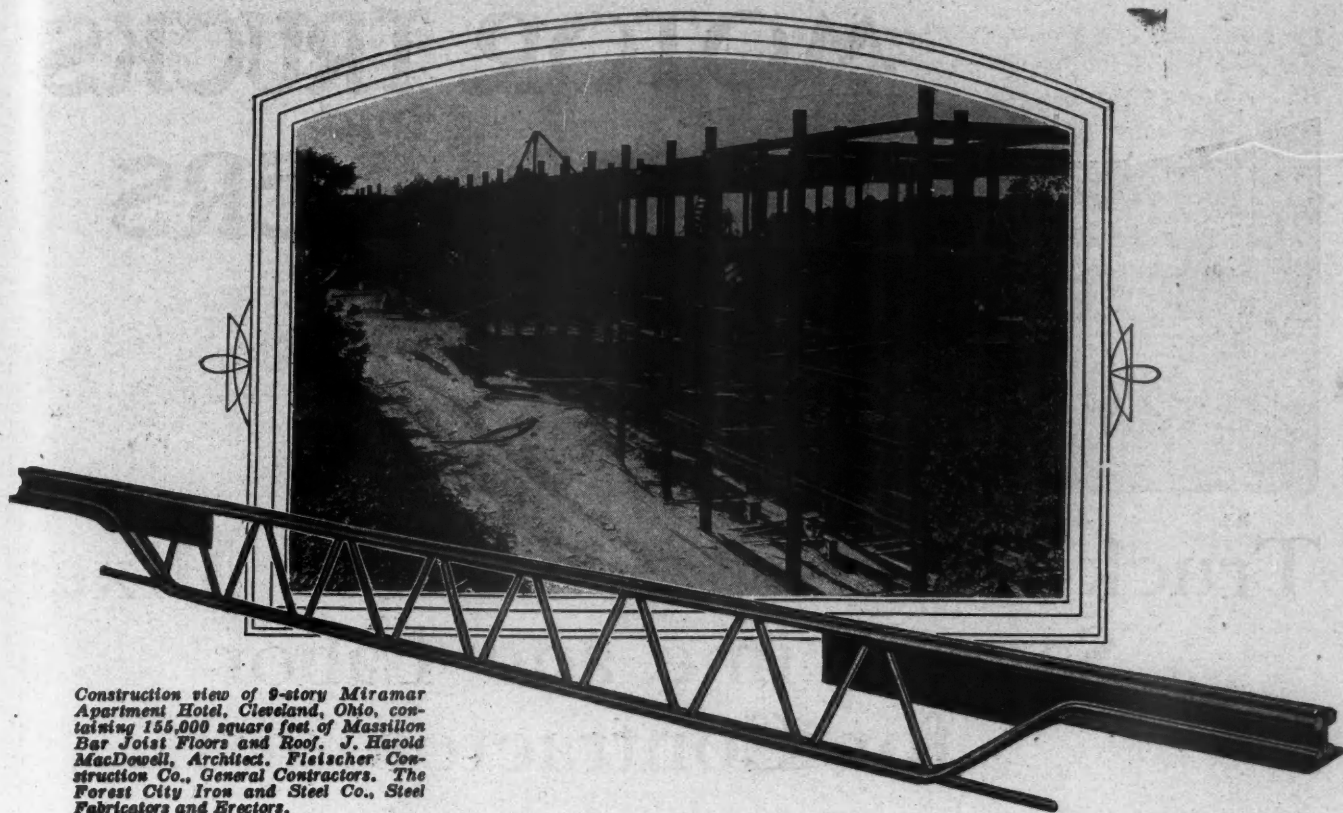
of porcelain baked on iron, and a drawer for clean washrags and towels, or for brushes, sponges, sprays, hot water bottles, etc. At the bottom is a chute receiver for soiled linen, carrying it down to the basement or to the laundry room. Any mother can appreciate how much this saves in labor, especially after the kiddies have their baths and towels and discarded underwear and other duds litter the bathroom.



**1, Mirror Door; 2 Ample Cupboard; 3, Locked Drug Compartment; 4, Drawers for Small Articles; 5, Drawer for Manicure Set; 6, Extension Table; 7, Linen Drawers; 8, Clothes Chute Receiver.**



**The Cabinet Can Be Built Right in the Wall and Takes Up None of the Bathroom Space. It is 5 feet 10 inches high, 24 inches wide, and 12 inches deep.**



Construction view of 9-story Miramar Apartment Hotel, Cleveland, Ohio, containing 155,000 square feet of Massillon Bar Joist Floors and Roof. J. Harold MacDowell, Architect. Fletscher Construction Co., General Contractors. The Forest City Iron and Steel Co., Steel Fabricators and Erectors.

## Standardized Structural Units for Fireproof Floor Construction

The Massillon Bar Joist is a Standardized Structural Unit, designed to function as a joist in floor construction. Eighteen standard sections, designed like a bridge, cover the ordinary range of loads and spans.

Unequaled opportunity is afforded for the efficient, economical installation of all kinds of piping. Designing and erection costs are greatly reduced. No shelf angles, bridging or lath clips are required.

Every section is thoroughly inspected and individually tested to twice its rated load

carrying capacity. For sheer merit, dependability and true economy these joists will command your respect.

Massillon Bar Joists are sold by thoroughly reliable concerns located in all principal centers. You should be familiar with the joists and the distributing organization behind them. We will be pleased to send you complete information and safe loading tables.

The Massillon Steel Joist Company  
Massillon, Ohio

# M A S S I L L O N

PATENTS PENDING

# BAR JOISTS

Also sold by Building Supply Dealers,

Lumber Yards and Hardware Stores

# MOTOR TRUCKS *and* TRAILERS



## Truck-Mounted Concrete Mixer Saves Time and Labor for Contractor

**A** VALUABLE tip for the contractor using concrete mixers may be obtained from the experience of George Leavens, of Lansing, Mich., who has been able to effect savings of approximately 25 per cent in labor and even greater amounts in time by the use of a mounted mixing machine.

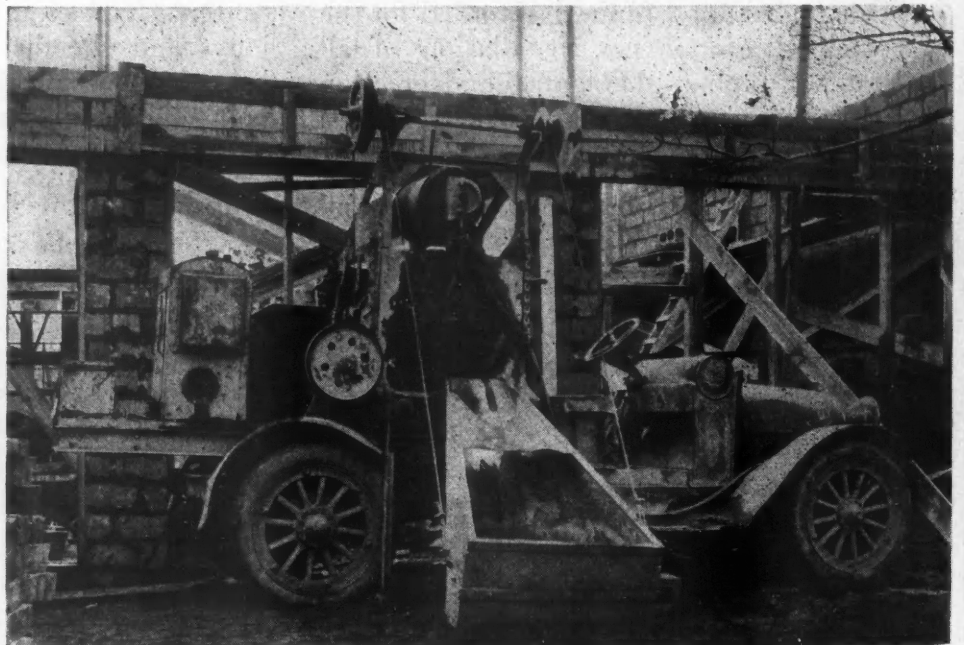
As nearly as can be learned credit for rigging up the outfit belongs entirely to the contractor himself. The practicability of the plan dawned upon him almost simultaneously with the idea itself, and without hesitation he assembled the apparatus and put it to work. His results have vindicated his judgment according to the statements which he makes regarding the success of the machine.

Leavens mounted a ten-foot mixer, which is one size larger than the average machine used by contractors on light work, and mounted it on a speed truck chassis.

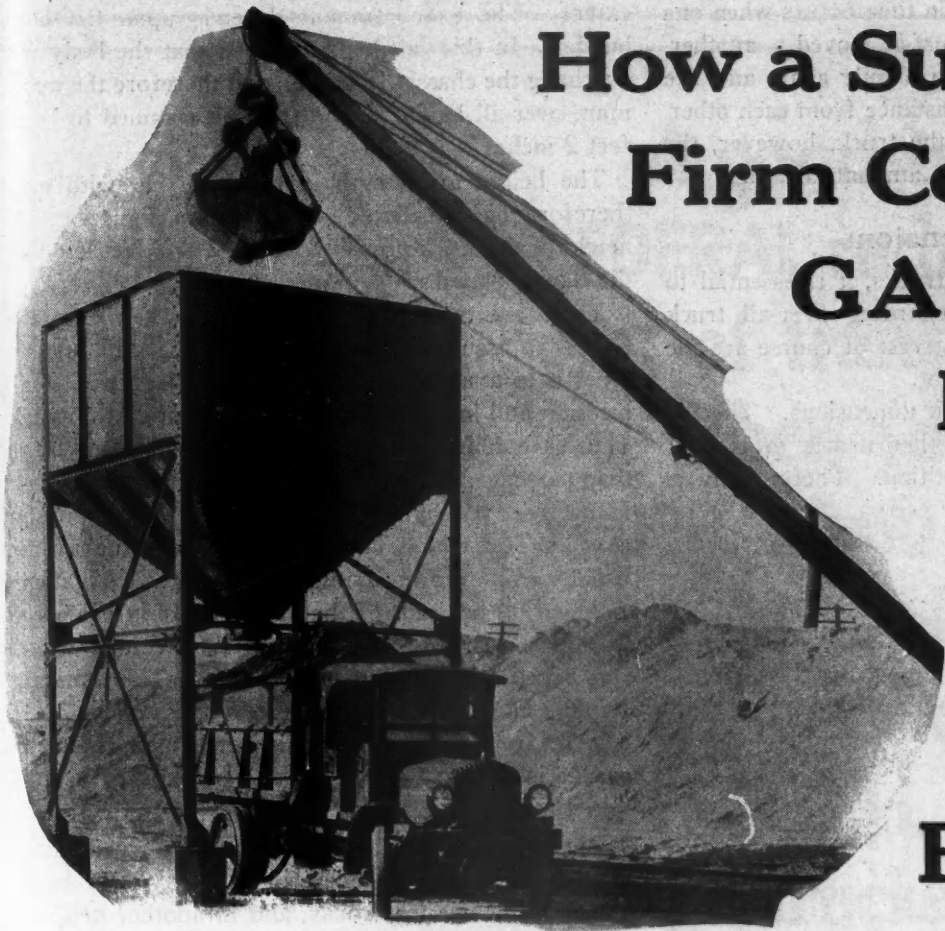
His knowledge of gasoline engines warned him that it would be far from economical to attempt to run the mixer from the forty-five horsepower engine of the truck when a six horsepower engine would furnish ample power for the work. Using the truck engine for this work would also have meant wear and tear on the transmission parts which might

have decreased the life of the chassis by a couple of years. For these reasons a six horsepower engine was mounted to the rear of the mixer and is now serving very satisfactorily in turning the mixer.

Leavens saves in labor because by the use of his mounted mixer he can eliminate a lot of handling after the concrete is mixed. For instance, in pouring for a sidewalk, he drives the truck parallel to the sidewalk pouring as he goes. The same system is employed in pouring outside foundation walls, while in pouring inside walls, the truck is driven as close as possible to the point at which the work is being done and much wheeling is saved in this way.



A Lansing Contractor Mounted This Ten-Foot Mixer on a Speed Truck Chassis, and Mounted a Six H. P. Engine on the Rear of the Mixer for Power. It has made good.



# How a Successful Firm Combines **GARFORD** Haulage With Flexible Loading Facilities

The Wisconsin Lime and Cement Company, one of the largest and most progressive firms in the middle west, has devised a way of making their Garford equipment doubly profitable by reducing loading time 30 minutes on each truck load.

This is accomplished by flexible, speedy, loading with a traveling crane and multiple steel hopper equipment.

The truck is driven under a hopper—is loaded directly and goes on its way with no delay.

Garford Engineers will explain how you can accomplish similar results with efficient haulage equipment.

Write and we will place your name on our subscription list to receive "Haul-Age," a magazine of highway transportation for truck operators, without obligation.

**The Garford Motor Truck Company, Lima, Ohio**

Manufacturers of Motor Trucks 1 to 7½ Tons

# **GARFORD**

## **DEPENDABLE TRANSPORTATION**

Perhaps the greatest saving in time occurs when one job is finished and the outfit must be moved to another. The jobs are seldom less than a mile apart and are often two or three times this distance from each other. With the mixer mounted on the truck, however, the changes are made in negligible amounts of time.



### Truck Dimensions

**I**N laying out a garage for trucks, it is essential to have some information regarding over-all truck dimensions. The figures of interest of course are the over-all length, width and height.

Below are some typical truck dimensions. The list is not complete, but adding other names to the list would merely be useless repetition. There really is sufficient data here to meet any need.

	Ton Capacity	Height	Width	Length
Vim	½	7' 8"	5' 1"	13' 1"
Reo	¾	7' 10"	5' 3"	15' 2"
Ranier	¾	8' 0"	5' 6"	16' 2"
Federal	1	8' 0"	5' 5"	17' 11"
Ford	1	7' 6"	5' 6"	13' 0"
Mack	1½	8' 8"	5' 8"	18' 10"
Maxwell	1½	8' 3"	5' 10"	16' 11"
Packard	1½	8' 6"	5' 7"	17' 7"
Autocar	2	9' 5"	5' 10"	13' 6"
Federal	2	9' 4"	6' 4"	15' 5"
Mack	2	9' 4"	5' 8"	18' 0"
Packard	2	9' 2"	5' 9"	19' 1"
Ranier	2	9' 2"	5' 3"	19' 6"
Federal	3	10'	7' 2"	20' 2"
Mack	3	10'	5' 8"	20' 3"
Packard	3	10'	6' 9"	21' 1"
Packard	4	10' 10"	6' 11"	21' 1"
Federal	5	11' 1"	7' 6"	22' 2"
Mack	5	11' 1"	7' 9"	20' 3"
Packard	5	10' 11"	7' 2"	21' 1"

In using this table, the reader is likely to fall into serious error unless he fully understands just how the table should be used. In the first place, the over-all width of the trucks mentioned were obtained from manufacturers' specifications. The width is always the same for any particular make and model, but this does not hold true for the over-all height and length. These two figures are determined by the body builder, and it should be remarked that truck bodies are usually built locally and the truck manufacturer has no control over the body dimensions. Because of this situation, it is correct to say that a 3½-ton Federal truck, for example, has a width of 7 feet 2 inches, but it is impossible to say what length or height it will be, because these things depend upon the kind of body fitted to the truck. If the sides of the body are low, the total height of the truck may not be over 7 feet. On the other hand, if the body with high sides is fitted, the height may be about 10 feet more or less. The over-all length of this chassis is 224 inches, but nearly all truck bodies overhang the rear end of the chassis to some

extent. The exact amount depends upon the body builder. In this case it is assumed that the body will overhang the chassis 18 inches, and therefore the maximum over-all length of the truck is assumed to be 20 feet 2 inches.

The height and length in the table herewith must therefore be considered as maximum figures. The height of the truck probably will be 2 or 3 feet less than the figures stated.

There are two ways of laying out a truck garage. One is to assume a single average truck size, and the other is to assume two or three truck sizes, say, small, medium and large. At least 50 per cent of the trucks in use are delivery cars and the like, and are no larger than passenger cars. These may be termed small trucks and a space 6½ by 15 feet is sufficient for parking one of these vehicles. This figure is the same as that usually employed in laying out passenger car garages.

About 40 per cent of the many trucks in use are of less than 2-ton capacity and on the average will fit very nicely into a space 7 by 18 feet. The remaining 10 per cent of trucks will require a space about 7½ or 8 by 20 feet. From these figures it is plain that if the garage is designed for a single average-size truck, the size should be about 7 by 16 feet.

But figures cannot be applied to every truck garage. A truck garage in one neighborhood may cater largely to three and five-ton trucks, and in another neighborhood to delivery cars. Some information regarding the character of the trade must be obtained before the garage building is designed. In many cases it is possible to obtain an extremely accurate analysis of the size of trucks used by prospective garage customers.

The problem of laying out a truck garage is even still further complicated by the fact that some of the floors may be used for passenger cars and other floors for trucks.

In a great many garage buildings it is possible to arrange the columns in such a way that in one direction economical storage for passenger cars and small trucks may be obtained.

AMERICAN BUILDER will be glad to have a layout of this character, free of charge, worked out for anyone who is interested in a particular plot.



Since a Garage Must Cater to Passenger Cars and Trucks the Builder Must Make a Careful Analysis of Space Requirements Before Building.

A good truck like  
**FEDERAL** reduces the  
cost of transportation  
∞∞ When you buy a  
**FEDERAL** you pay less  
per year and per ton  
for delivery operation  
∞∞ **FEDERAL** modern  
design trucks give you  
more miles per dollar.



**In the Building Trades**  
Motor Truck Transportation is  
essential to speed in building.  
Federal Trucks by the thousand  
are speeding up building. This  
one is operated by the American  
Concrete Company, San Francisco.

Write for Booklet S 27, "Making One Thing Better"

**FEDERAL MOTOR TRUCK COMPANY**  
DETROIT, MICHIGAN



## Genuine "BANGOR" Slate Roofs

**Rich BLUE-GREY SLATE  
of the highest quality**

"Genuine Bangor" Slate has been produced in the famous quarries at Bangor, Pennsylvania, for over sixty years and hundreds of thousands of roofs testify to their quality—not a single instance is known where "Genuine Bangor" Slate has gone wrong.

"Genuine Bangor" Slate is sold under two classifications—"CLEAR" and "SEMI-CLEAR"—the quality is the same—the appearance on the roof is identical, *but*, the cost of Semi-Clear is very low.

"Genuine Bangor" Semi-Clear Slate is specified by the United States Government on numerous structures—it is now being applied on the U. S. Veterans' Hospital buildings at various points and other projects of a similar character.

"Genuine Bangor" Slate is world-renowned and is constantly shipped to England, Ireland, Australia, New Zealand and even to Wales, the greatest slate-producing country in the world.

"Genuine Bangor" Slate is quarried on the "Genuine Bangor" vein by the following companies:

North Bangor Slate Company	Bangor-Vein Slate Company
Old Bangor Slate Company	E. Bangor Consolidated Slate Co.
Bangor Central Slate Company	Bangor Washington Slate Company
	Bangor Excelsior Slate Co.

NOTE: "Genuine Bangor" Slate needs no further recommendation than its name. To protect architects and users against the substitution of inferior grades, the producers have formed the "Bangor Slate Association," and with all shipments of "Genuine Bangor" Slate is furnished a certificate of the Association. It is safe to assume that any slate offered under any name hyphenated with Bangor, such as West Bangor, Albion-Bangor, Jackson Bangor, Northampton Bangor, or any other prefix to the word Bangor except "Genuine Bangor" is a substitution of much inferior material.

The entire production of the above named companies is sold exclusively by

**V** **VENDOR SLATE CO.** **V**  
INCORPORATED  
EASTON, PENNSYLVANIA

Largest Shippers of Roofing Slate in the World

New York Office, 103 Park Ave.

Chicago Office, Marquette Bldg.

Washington, D. C. Office, New York Ave. and 14th St.

500 Atlas Building  
Columbus (Ohio) Office

1548 S. Van Deventer Ave.  
St. Louis Warehouse

6600 Hamilton Ave.  
Pittsburgh Warehouse

American Industrial Bldg.  
Hartford (Conn.) Office

and at Detroit, Kansas City, Los Angeles  
Cincinnati, Waco (Texas) and London, England



### Construction Increased 25% in October

**O**CTOBER construction showed a surprising increase, according to F. W. Dodge Corporation. Total contracts awarded during the month in 36 states amounted to \$360,687,000. The increase over September was 25%, whereas the normal season increase is 7%. In 27 of these states the increase over October of last year was 26%.

The large October increase was heaviest in New York State and Northern New Jersey, and in the residential class. Apparently the fact that building costs have declined only slightly is not acting as a very strong deterrent on building operations. The October increase, coming after a steady decline since spring, is to be viewed from two angles. A fairly heavy construction volume, keeping the industry busy through the winter, is desirable. If the October record is a forerunner of abnormally high construction figures for the rest of this year and up to the opening of the next spring season, there is danger of a more severe reaction next year than there was six months ago.

Included in last month's record were the following important items: \$173,042,000, or 48% of the total, for residential buildings; \$63,499,000, or 18%, for public works and utilities; \$35,133,000, or 10%, for business buildings; \$32,721,000, for industrial buildings; and \$26,085,000, or 7%, for educational buildings.

The total amount of construction started during the first 10 months of this year has amounted to \$2,947,787,000, an increase of 2% over the corresponding period of last year.

Contemplated new work reported in October amounted to \$556,491,000, an increase of 43% over the September figure.



### Motor Trucks for Tokio Reconstruction

**F**IFTY 5-ton trucks were shipped by the General Motors Truck Company this week to Tokio, Japan. They will be used in hauling away debris and doing general construction work caused by the recent earthquake.



### Minneapolis Heat Regulator Co. Plans Larger Plant

**S**O great has been the demand for the comfort, convenience, health and economy features of automatic heat regulation in the home, that the Minneapolis Heat Regulator Company of Minneapolis, Minnesota, now has under way additions and improvements on its Minneapolis factory that will enable it to immediately increase its production 70 per cent. Actual factory space will be increased 40 per cent. The work will be completed within two months.





## Why So Many Builders Choose Sunbeam Warm-Air Heating

There are four important reasons why builders everywhere are repeatedly choosing Sunbeam Pipe and Pipeless Furnaces for the houses they build.

- 1** *They get MORE heating plant for the money invested.* Because of scientific design which means properly proportioned parts, because of experienced construction in the modern Sunbeam Plant and because of superior materials (Sunbeametal) Sunbeam Furnaces have an abundance of real heating capacity built into them. With Sunbeams at a surprisingly low price the builder is assured of a good heating result.
- 2** *They save time and money in installation.* Sunbeam Furnaces are so accurately built, all joints are so perfectly fitted, all parts are so uniformly made, that they can be quickly and easily installed.
- 3** *They make quick and profitable sales.* Builders have invariably found that Sunbeam Warm-Air Heating is a very real selling advantage. The name "Sunbeam" is nationally known. It stands for a thorough and economical heating service. It helps the builder SELL.
- 4** *They gain more satisfied customers.* Besides the monetary gain, builders find that Sunbeam Furnaces build business for them. By long and satisfactory performance Sunbeam Warm-Air Heating enhances the builders reputation and creates new business opportunities for him.

But "Sunbeam" stands for more than an efficient and easily erected heating plant. It's a complete heating service that is always available to the builders. Write today for "Literature for the Builder."

THE FOX FURNACE COMPANY, Elyria, Ohio  
 Boston Atlanta Cleveland Chicago Denver San Francisco

See our page in Sweet's Architectural Catalog.

# SUNBEAM

## WARM-AIR HEATING

Copyright 1923 by  
 The Fox Furnace Company

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

# ELECTRIFY ALL BUILDINGS

A Department of Up-to-date Information  
for all who Plan and Build

## Our Home Electrical No. 9

Pergola Entrance, Casement Windows, Stucco and Electricity Skillfully  
Compounded to Make an Ideal Home

**EDITOR'S NOTE:** *The Electrical Section of the AMERICAN BUILDER is written and edited by the experts of the Joint Committee for Business Development, an institution which comprises representatives of contractors, dealers, jobbers, manufacturers and central station organizations. It functions through an Executive Committee and a Headquarters Staff, office 29 West Thirty-ninth street, New York, H. A. Lane, Director.*

**O**UR Home Electrical this month is a very attractive one-story bungalow with a finished cellar, and when properly equipped from an electrical standpoint will make an ideal home.

A house even as small as this can be made most livable and comfortable by the use of electricity in all its possible phases, which enables the housewife to do

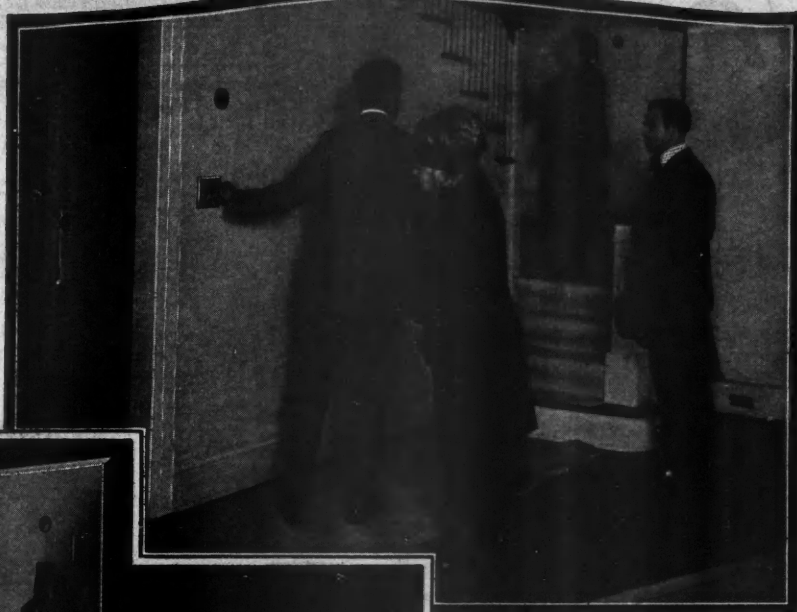
an infinitely greater amount of work than would be possible without the aid of this wonderful force.

The main entrance to the house is at right angles to the highway passing by and is reached by a small flight of steps to a pergola porch. Near the door on the porch can be seen an attractive porch fixture made of wrought iron with ground-glass sides. This light is controlled both from the porch itself and from inside the door in the living room. This three-way switch will be greatly appreciated by those living in the house, for it enables them to turn on the light and extinguish it from either of these two locations. It is possible to flood the porch with light before opening the door at night, and it is also possible to turn on the light on arriving home late, thus facilitating the opening of the door. The living room is equipped with a three-way switch for controlling the central ceiling fixture from the entrance to the room from the porch and near the dining room door. The side-wall brackets are controlled from the switch beside that operating the central ceiling fixture located near the porch door. The living room is furnished with two single and three duplex convenience outlets. The two single ones are located above the mantel and are designed to operate torcheres or some other form of lighting unit designed for such localities. In almost every instance in this house the duplex convenience outlet has been specified. The cost of their installation is but a few cents more than that of the single one, and the householder never knows when he will want to use an extra lamp or appliance, so to give him



The Living Room Is Equipped with a Three-Way Switch for Controlling the Central Ceiling Fixture. The side-wall brackets are controlled from another switch alongside. There are two single and three duplex convenience outlets.

## When they stop and ask



"How is the stairway lighted?"—you show them how you have provided switches—both downstairs and up—for flooding the steps with light and for turning the lights off as soon as you are up or down.

### Builders get better returns by putting in Electrical sales makers

Mrs. Prospective Buyer measures the value of the house largely by saved steps—saved time—saved labor.

She wants to see how much work Electricity will do for her.

And so, while she goes from room to room, the wiring devices—their number—their location—their character—become sales makers for you.

She is delighted with the convenience of G-E Twin Convenience Outlets, G-E Tumbler Switches and G-E Three and Four Way Switches. As she examines these modern devices, one after another, her desire for the house increases.

The knowing builder takes account of her interest in complete and dependable electrical equipment when specifying his materials, and gets a good return for the small additional cost.

G-E Reliable Wiring Devices, nationally known as the standard of excellence, are the home buyer's assurance of dependable electrical service.

Merchandise Department  
General Electric Company  
Bridgeport, Connecticut

G-E Two-Gang Tumbler Switches at every doorway give complete control of light from one room to another. G-E Twin Convenience Outlet gives simultaneous use of two devices.

All dependable and experienced contractors using General Electric Reliable Wiring Devices are prepared to cooperate with you in making your houses "complete electrical homes."

National distribution of the booklet "The Home of a Hundred Comforts" has focused the attention of hundreds of thousands of home builders and buyers on complete wiring and quality wiring devices. Send for your copy of this booklet today. Address Section AB-12.



# Wiring Devices

41.225

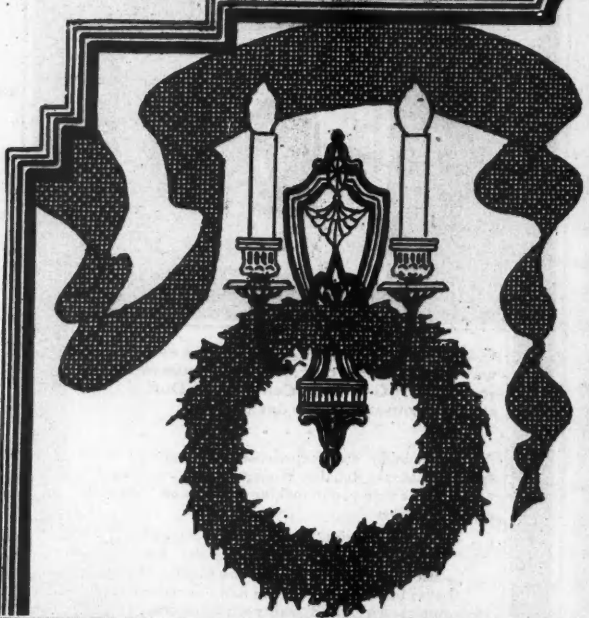
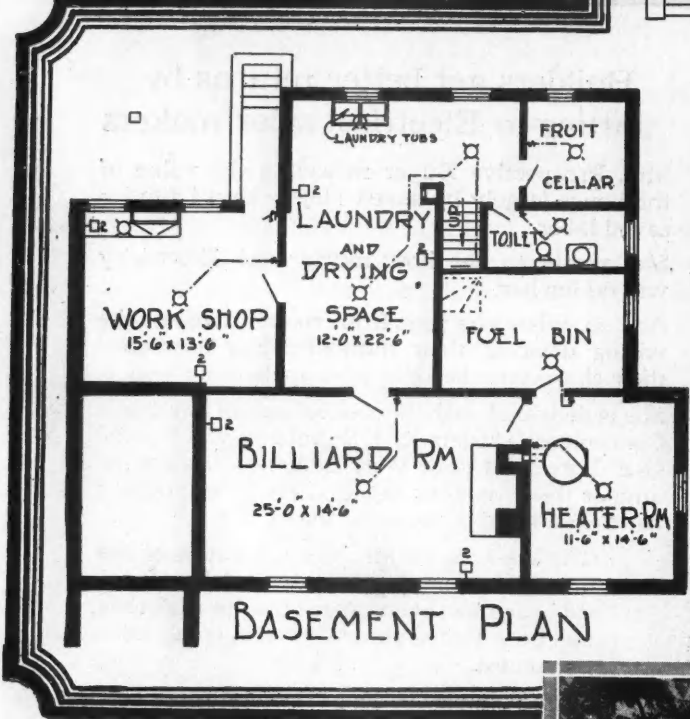
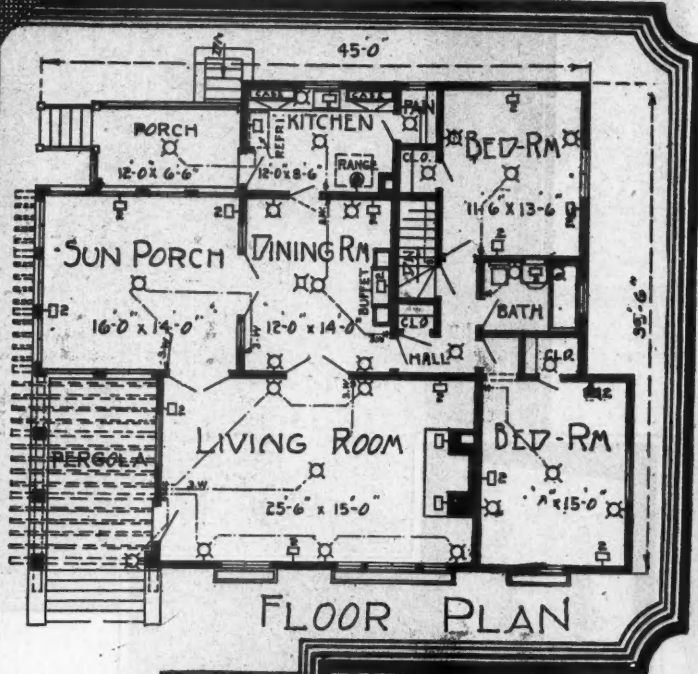
A GENERAL ELECTRIC PRODUCT

# Our Home Electrical

## The Ninth

**SYMBOLS**

- CEILING OUTLET
- ⊠ BRACKET OUTLET
- ⊞ CONVENIENCE OUTLET
- ⊞ FLOOR RECEPTACLE
- SPECIAL OUTLET
- S- SWITCH



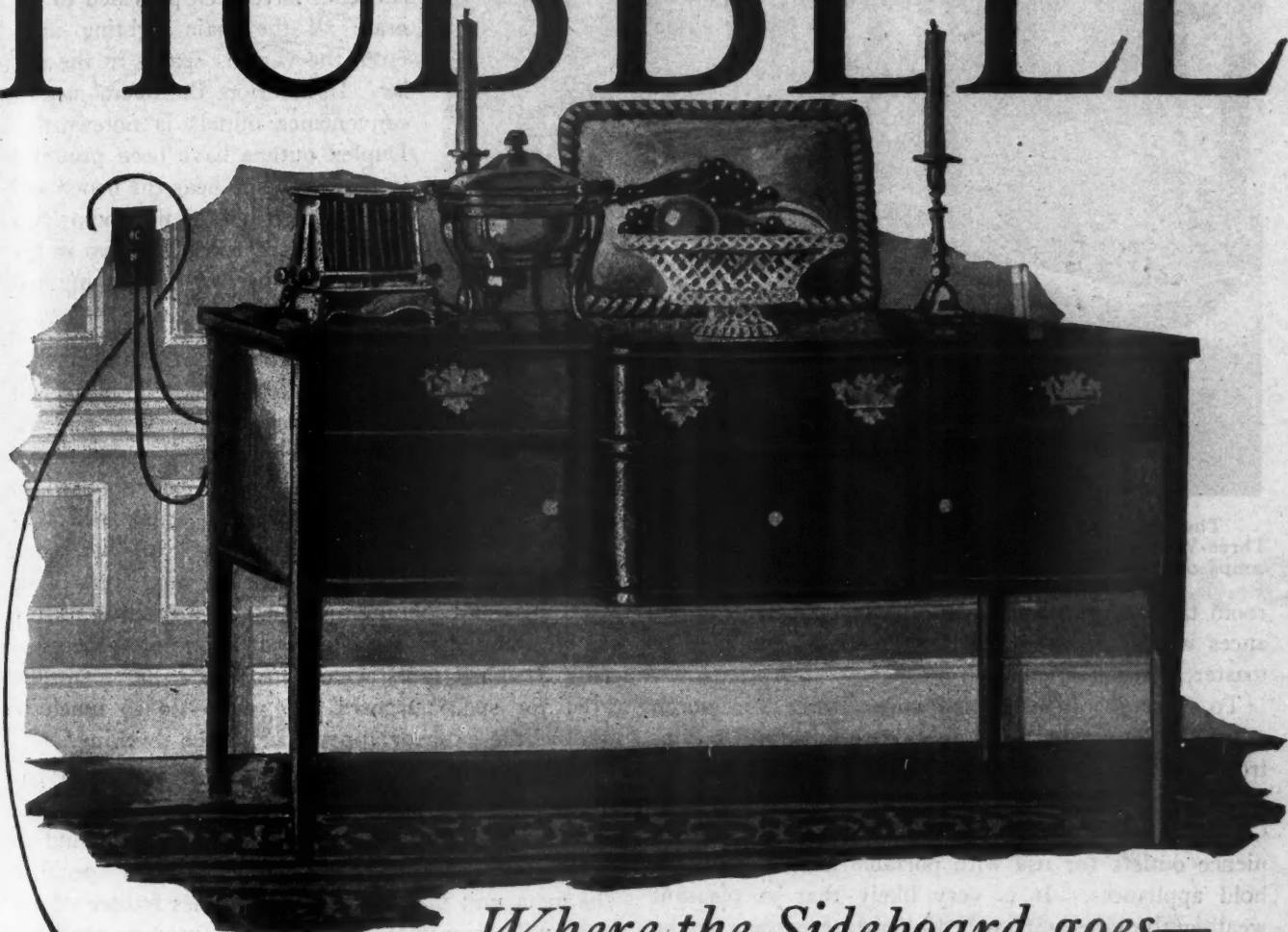
an opportunity to do so duplex outlets have been specified. After all an unrestricted use of electricity must be provided for in the modern home if those dwelling there are to enjoy its advantages to the utmost.

The dining room is equipped with a three-way switch for controlling the central ceiling fixture over the table and with two duplex convenience outlets located at places where they will be found valuable in operating various electrical appliances used in the preparation of food. There is also an outlet in the floor underneath the dining



This Delightful 6-Room Electrified Home Is an Inspiration to Better Living.

# HUBBELL

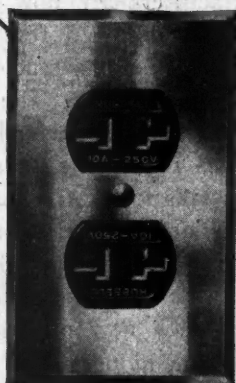


## *Where the Sideboard goes— a Duplex Outlet*

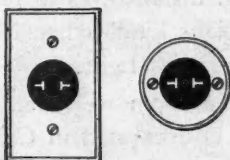
Whether making the breakfast toast and coffee, or an after-theatre rarebit, a woman client is always thankful for a builder's foresight in locating a Hubbell Duplex Convenience Outlet waist high, alongside the sideboard.

Hubbell Duplex Outlets provide double service without extra wiring. Their double Te-Slots take any standard cap, whether the blades be parallel or tandem. Made with shallow bodies for thin partitions.

Our fullest cooperation in advantageously locating outlets in any class of building is gladly extended.



Duplex Convenience Outlet.  
Composition body No. 5890;  
Porcelain body No. 6257.  
Stamped brass wash plate for  
either of above, No. 6258.



Hubbell Convenience Outlets  
are also made in the single  
types shown above, with round  
or rectangular plates.

**HARVEY HUBBELL<sup>INC</sup>**  
ELECTRICAL WIRING DEVICES  
BRIDGEPORT CONN. U.S.A.



*Remember it's the Te Slots, that make outlets "Convenient"*



The Sun Porch Is Illuminated by a Central Ceiling Fixture Controlled by a Three-Way Switch. There are two duplex convenience outlets for portable lamps or household appliances.

room table to which may be attached electrical appliances which are used right on the table, such as the toaster, percolator, etc.

To the left of the dining room is the sun porch which is illuminated by a central ceiling fixture controlled by a three-way switch. This may be operated either from the dining room or from the living room. On the porch there are specified two duplex convenience outlets for use with portable lamps or household appliances. It is very likely that in pleasant weather the housewife will do her entertaining on the sun porch, and these conveniences will be found very valuable when making tea, etc.

There is a switch in the kitchen for operating the main lighting unit and another for turning on the light in the rear porch. The kitchen is equipped with a single outlet for operating the electric refrigerator, a duplex outlet located about thirty-six inches above the floor, placed slightly higher than the workboard by the sink, and a power outlet to which an electric range may be attached. The outlet located over the workboard will be found especially handy for operating the various kitchen appliances, and its height makes it extremely handy because it eliminates the necessity of stooping to attach or detach the labor-savers.

Each bedroom is supplied with a main ceiling lighting fixture operated from a switch located near the door, and each is equipped with three duplex convenience outlets.

The bathroom illumination is controlled also by a switch located near the door, and there has been specified a duplex convenience outlet immediately above the basin, to which may be attached various appliances designed for heating water, drying hair, etc., to assist

milady in the preparation of her toilet.

The wiring in the cellar of this house is especially well laid out. Switches have been provided to operate all the main lighting units from the various spaces in the cellar. In addition, the liberal use of convenience outlets is noteworthy. Duplex outlets have been provided in the workshop near the bench and on the other side of the room; two in the billiard room and two in the laundry for use with a washing machine, ironer, etc.

### Lighting Installation

The selection of the lighting unit will do much to enhance or mar the artistic beauty of a home, and great care should be exercised in picking out units which will harmonize with the size of the room, the color scheme, etc. It will be

noted from the photograph that an attractive fixture has been placed on the porch. It is one of those especially designed units which are now being manufactured for such purposes and which do so much to improve the exterior appearance of the dwelling.

The lighting arrangement in the living room has been designed to be comfortable and restful and free from glare. There is a central ceiling unit and in addition five side-wall brackets have been specified. The main unit may be an antique brass fixture of the five-candle type upon which may be used to good advantage glass shades in warm brown tones. Lighting fixture and glass manufacturers are now producing most attractive glass shades designed for such purposes which diffuse the light and add a tone of warmth and an artistic touch to the room. The side-wall brackets should be selected to match perfectly the central ceiling fixture, both as regard the metal and the glassware. The liberal installation of convenience outlets permits the use of floor and table lamps which lend a tone of beauty and charm, and permit the light to be localized whenever general illumination is not desired. There is a tendency now to eliminate the central ceiling fixture in the living room, but those who are considering this move should bear in mind that on many occasions they will find it of great importance to have such a unit installed, as in the cases of formal gatherings of various kinds when it is desired to literally flood the room with light.

Directly from the living room we enter the dining room, which, let us say, is decorated in Chinese blue, which has become so popular for dining rooms. We will then select for this room a silver and globe pendant which can be used with a sixteen-inch or eighteen-inch glass dome partially enclosed and decorated with



**WORTHINGTON SERVICE STATIONS**

- Atlanta
- Batavia
- Birmingham
- Boston
- Buffalo
- Chicago
- Columbia
- Columbus
- Cincinnati
- Cleveland
- Cudahy
- Dallas
- Denver
- Detroit
- El Paso
- Harrisburg
- Houston
- Indianapolis
- Kansas City
- Los Angeles
- Lansing
- Minneapolis
- Mulberry
- New York
- New Orleans
- Omaha
- Philadelphia
- Pittsburgh
- Salt Lake City
- Richmond
- San Francisco
- Seattle
- Shreveport
- Sioux Falls
- St. Louis
- St. Paul
- Tulsa
- Washington
- Waterloo

*A list of these Stations, showing the one nearest you, will be gladly furnished upon request.*

# 'Phone Radius Engine Service

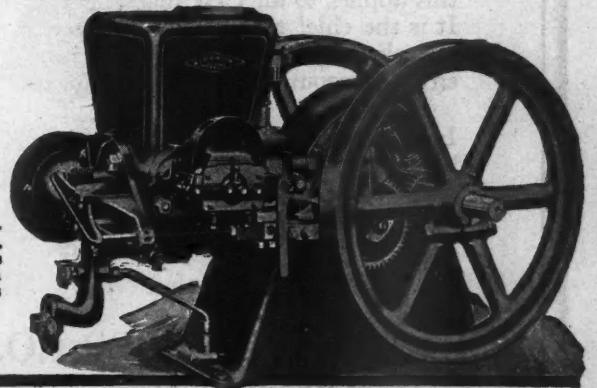
There are now almost 50 service stations ready to assist you in all gasoline-kerosene engine matters. Thus every Worthington engine user has, within telephone radius, a place where prompt, cheerful and accurate advice can be had on any engine question—and help in emergencies too.

## WORTHINGTON PUMP AND MACHINERY CORPORATION

Executive Offices:—115 Broadway, New York City  
 Branch Offices in 24 Large Cities  
 Gas Engine Works, Cudahy, Wis.

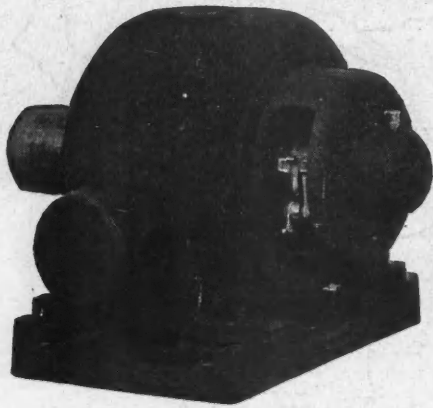
W-274.8

This is but one of the Worthington line of kerosene-gasoline engines. The complete list embraces engines from 1 1/4 to 25 H. P. Some with throttling governor and others hit-and-miss governing.



# WORTHINGTON





## CROCKER WHEELER Form L Direct Current MOTORS

115, 230 and 550 Volts

Motors  $\frac{1}{4}$  to  $7\frac{1}{2}$  H. P.—Generators  
0.35 to 5 K. W.

## TIME TESTED

The C-W Form L is a small motor used in hundreds of ways and known widely for its remarkable durability and trouble proof characteristics. Often subjected to rough treatment and neglect by laymen, this motor has been remarkably successful, not because of any one special feature, but because of the careful design and construction of every detail. And this applies to all C-W machinery. It is the chief reason why Crocker Wheeler equipment possesses its enviable reputation for reliability.

In small motor generator sets, as belted or direct connected exciters or wherever small amounts of direct current power are required C-W Form L Generators should be specified.

## CROCKER WHEELER CO.

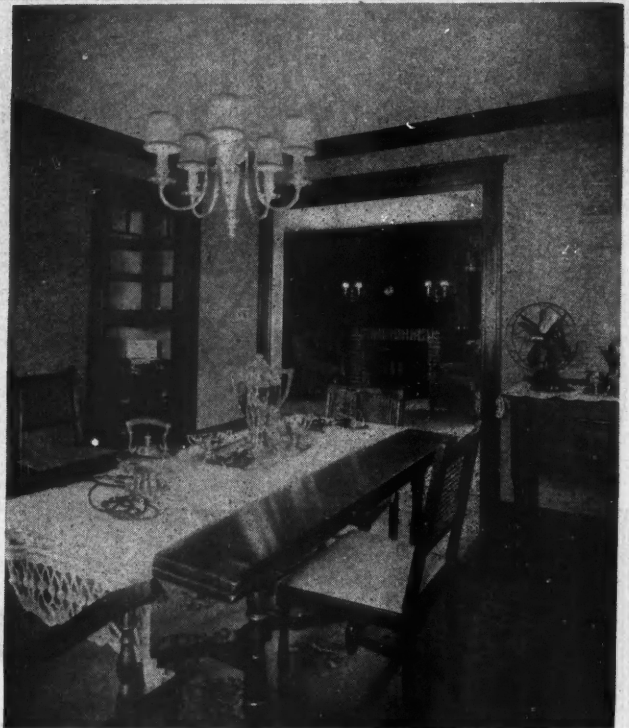
AMPERE, N. J.

New York	Chicago	Pittsburgh	Philadelphia
Boston	Cleveland	Detroit	Baltimore
Buffalo	Birmingham	San Francisco	New Haven

Foreign Distributors: International Western Electric Co.

## CROCKER WHEELER MOTORS

Niagara's Rival Dependable Power



This Is an Excellent Unit for Dining Room Use. Properly hung it throws the light on the white napery and silverware, and a lesser degree of light on the faces of the diners.

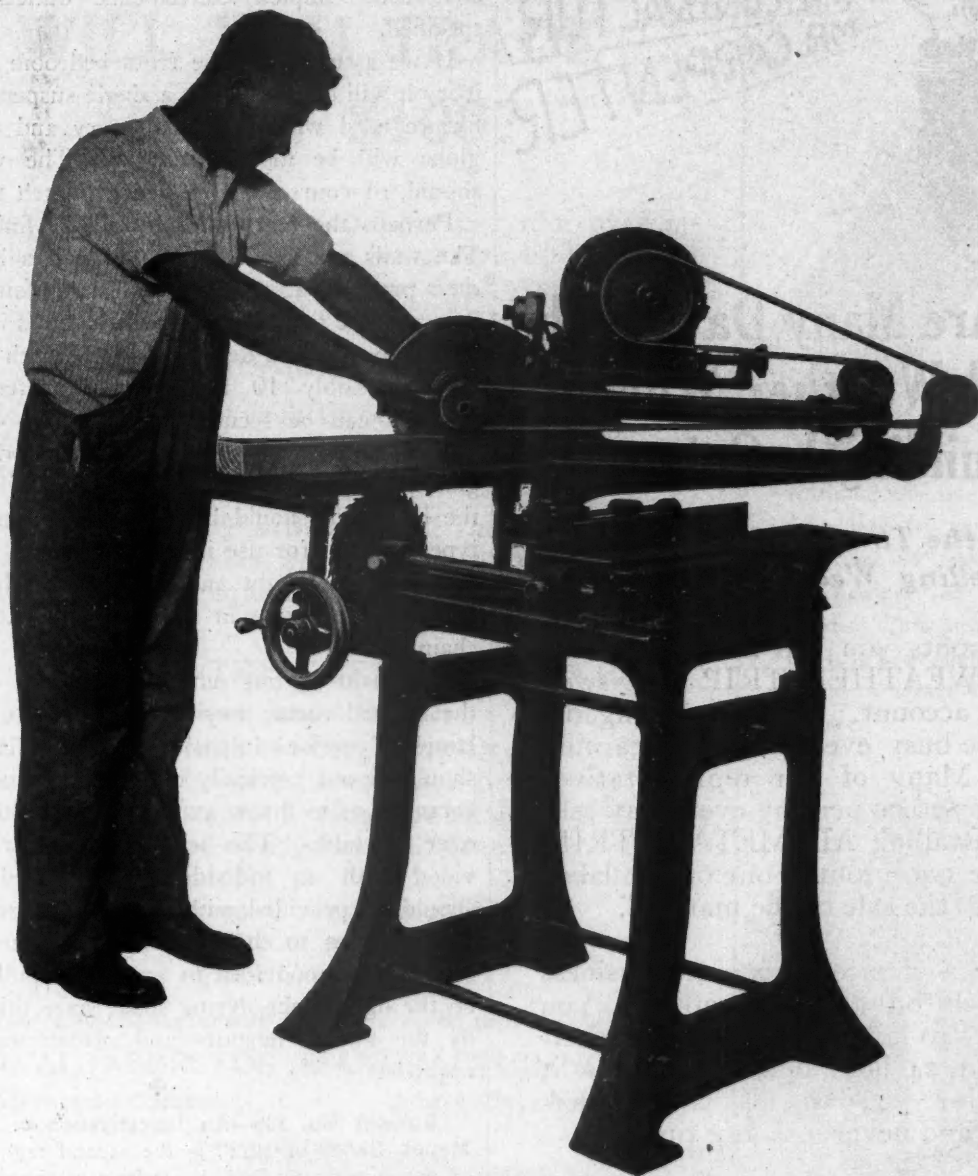
white color background and blue designs. Such a unit is an excellent one for dining room use and when properly hung throws the light on the table and a lesser degree of light in the faces of the diners. The direct light on the white linen and silverware on the table presents an attractive appearance and one which is desired by most housekeepers. The shades of the four side-wall brackets should be of the same design and color scheme of the main dome, and the metal work should harmonize with that of the ceiling unit. The duplex outlet located underneath the buffet permits the use of torcheres, electric candlesticks or some other attractive form of lighting unit designed to add a decorative touch to the surroundings.

In the kitchen there should be used one of the modern lighting units designed for kitchen use. It is of the greatest importance that adequate lighting be installed in the "workshop of the home," and electric men as a result of their numerous experiments have developed a unit which is so constituted that it diffuses the light in the most approved manner. A 100 or 150-watt type C Mazda lamp or a daylight Mazda lamp should be used. The globe of such a unit is of white diffusing glass with a high degree of efficiency and of the proper proportion to assure adequate distribution of the light. They are made all in white and the pull-chain socket over the sink should be the same general makeup. In the kitchen closet a pull-chain fixture has been specified. This must be located just inside the door where it can be easily operated. The light on the rear porch should be a simple globe ceiling-type holder with a 6-inch crystal roughed ball globe.



# 20TH CENTURY WOODWORKER

(Patents Pending)



UNIVERSAL IN ITS APPLICATION—PORTABLE.  
PERFORMS TWELVE OPERATIONS accurately and speedily  
STATIONARY MOTOR a distinguishing feature of this machine.

Operator pulls saw only.

AUTOMATIC ADJUSTABLE IDLER gives belt long arc of  
contact on pulleys.

IT WILL RIP and CROSS CUT 3" hard wood with 10" saw.

Will also Plane, Bore, Mitre, Dado, Rabbet, Joint, Sand,  
Bevel, Plow and Groove.

MANUFACTURED BY

## CRESSON-MORRIS CO.

PHILADELPHIA, U. S. A.



CALL FOR  
MR. BUILDER  
MR. CONTRACTOR  
MR. CARPENTER

# There Are Many Days in the Cold Weather When Building Is Quiet

*Now's the Time to Make Money Selling Weatherstrips*

The big profits you will make on ALL-METAL WEATHERSTRIP will swell your bank account. Instead of being idle you will be busy every day and earning money. Many of our representatives draw their \$20.00 per day every day selling and installing ALLMETAL STRIP. You make two profits—one on the labor and one on the sale of the material.

You have a chance to go into business for yourself on a small capital. You don't have to lay in a stock of weatherstrip. Our 24 hour deliveries makes it possible for you to fill your orders promptly and never lose any time.

ALLMETAL WEATHERSTRIP is easy to sell. It is the simplest strip on the market to install.

*Write for our agency plan*

**Allmetal Weatherstrip Company**  
231 W. Illinois Street, Chicago, Ill.

Gentlemen:

Please send to me without obligation, complete literature and selling plan of your proposition.

Name.....

Street.....

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

The sun porch unit may be similar in character to that used on the rear porch but should be considerably larger in size. The chances are that when the sun porch is occupied at night portable lamps would be used to a large extent, and to make them easily operated three duplex convenience outlets have been specified.

If we assume that the front bedroom is finished in ivory it will be found that a single suspended old ivory fixture used with an 8-inch ivory and tan enclosing globe will be most attractive. The wall brackets should, of course, be selected to match the main one.

Perhaps the rear bedroom will be finished in blue. The walls are blue, and the draperies have blue for their predominating color. To match such decoration it is possible to purchase house fixtures in ivory finish with delicate blue designs for use with semi-indirect bowls possibly 10 inches in diameter. The side brackets can be secured of the same design as the central fixture and having the same design on the glassware. The lights on either side of the mirror in the bathroom should be of white enamel and of the type intended for use in the bathroom.

The bracket light and the light in the hall should be suspended units in a glass globe fitted with pull-chain sockets.

The main lighting units in the cellar, except that in the billiard room, may be steel reflectors fitted with lamps of various intensities. The billiard room unit should be one especially designed for such use and so arranged as to throw an even distribution of the light over the table. The bench in the workshop is provided with an individually controlled light which should be provided with a pull-chain socket, and the same applies to the one over the laundry tubs. It might be a good idea to provide a pull chain socket on the light in the drying space since this is controlled by the switch upstairs and oftentimes will not be required.



"Bulletin No. 136—An Investigation of the Fatigue of Metals, Series of 1922" is the second report to be issued of the investigation of the fatigue of metals carried on at the University of Illinois in co-operation with the National Research Council, Engineering Foundation, and the General Electric Company. Since the publication of the previous report in Bulletin No. 124 a considerable amount of additional test data has been obtained for specimens subjected to reversed stress, and an extensive study, which includes a discussion of the Goodman diagram for the effect of range of stress on the fatigue of metals, has been made of the resistance of metals to repeated stress other than reversed stress. Several of the unsolved major problems in the fatigue of metals are enumerated and briefly discussed. Copies of Bulletin No. 136 may be obtained without charge by addressing the Engineering Experiment Station, Urbana, Illinois.

"Craftex Wall Finishes" are described in folders at hand from the Simmons, Gardner Company, 146 Summer Street, Boston, Mass. Craftex is a substance which lends itself to the creation of artistic wall finishes, and appeals to discriminating architects and builders.

# NATIONAL **A-an-A** SHINGLES

Asbestos  
Asphalt

**WILL YOU TRADE  
\$20 for \$100?**

National A-an-A cost about \$20 more per roof over ordinary asphalt shingles, but any house you build can be sold for \$100 more because with the deed you hand the purchaser our

**20-YEAR GUARANTEE—THAT**

1. Water will not leak through the material.
2. Fire will not burn through the asbestos.
3. The shingles will not curl.

If the house was roofed with some of the cheaper roofing materials, the chances are that before twenty years a new roof would be required, and this would cost two or three times \$100.

**NOTE THE DURABILITY**

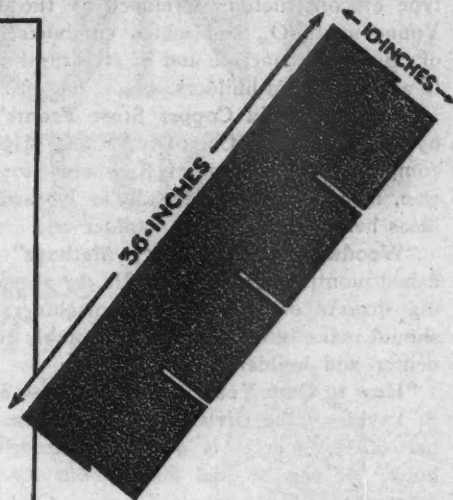
**National A-an-A Shingles**

Two-layer base of sheet Asbestos, *origin* mineral, consequently non-perishable and fireproof, plus double layer or 50% more of solid asphalt (the real weather resister).

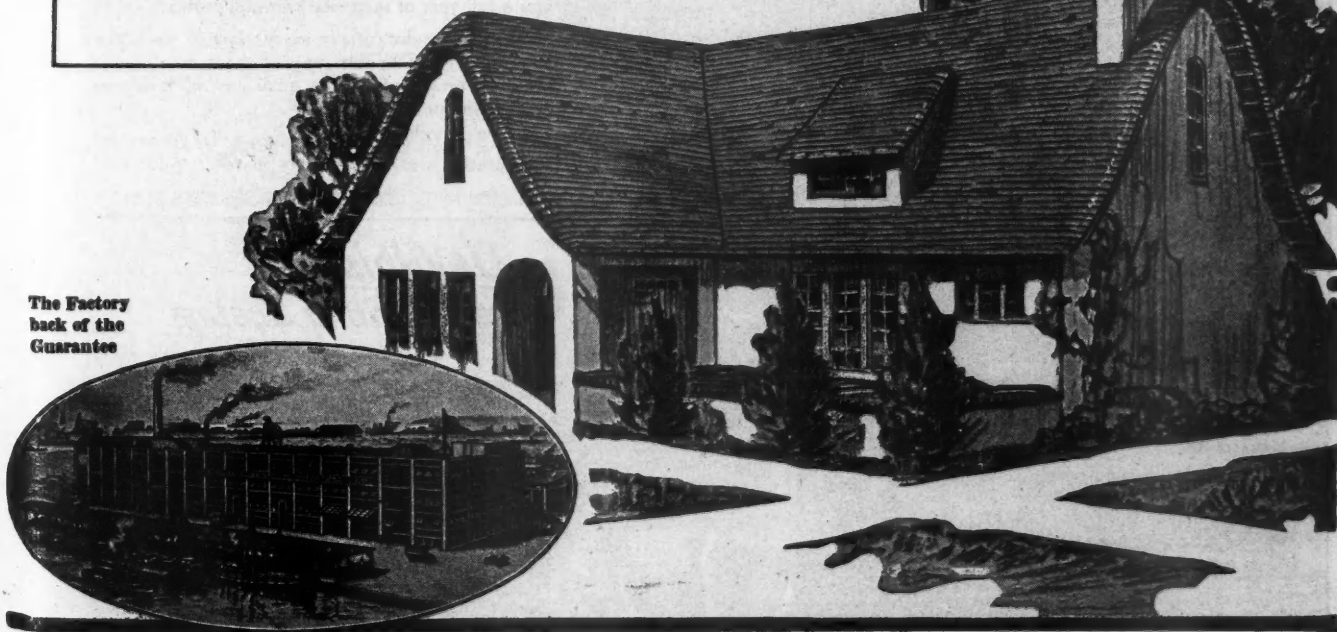
Class "B" Fire Underwriters' Rating (the highest awarded asphalt shingles).  
Guarantee against curling.

*If not obtainable at your building material dealer, write us direct*

**NATIONAL ASBESTOS MANUFACTURING CO.**  
163-193 Henderson Street      Jersey City, New Jersey



National A - an - A Shingles cost less to apply because they are 36" wide (4 in 1) as against 32" in other makes. This means a saving of 12 1/4% in nail and labor costs, or about 40 cents per square.



The Factory  
back of the  
Guarantee

"Platter's Utility Cabinets" as made by the North Vernon Lumber Mills, North Vernon, Ind., is a book which describes bathroom cabinets of a superior built-in type, with laundry chute to basement.

"Truscon-I Construction" is a bulletin describing a new type of construction developed by the Truscon Steel Co., Youngstown, O., and which combines all the advantages of reinforced concrete and of structural steel. Very helpful to architects and builders.

"Kawneer Solid Copper Store Fronts" is a book issued by The Kawneer Company, Niles, Mich., and shows the comprehensive system of Kawneer Store Front Construction, complete from sidewalk to I-beam. Many profitable ideas herein for architect, builder and store owner.

"Woodworking Machinery Methods" is a bulletin published monthly at Rockford, Ill., by a group of non-competing makers of woodworking machinery. It is free, and should make interesting and profitable reading for the carpenter and builder.

"How to Own Your Home," by John M. Gries and James S. Taylor of the Division of Building and Housing, Chamber of Commerce, is a most instructive and interesting book. It can be had direct from the Superintendent of Documents, Government Printing Office, Washington, D. C., and the price is 5 cents. It is the best handbook that can be put into the hands of a prospective home owner.

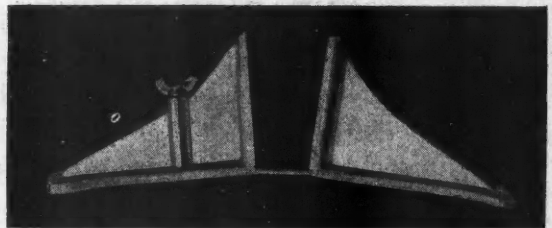
"Planning and Designing Small Houses" is a bulletin issued by the National Lumber Manufacturers Association, Washington, D. C., as part of its Construction Information Series, and is very full of helpful suggestions.

"Financing the Small Home" is a bulletin issued by the National Lumber Manufacturers Association, Washington, D. C., and gives dependable data on home financing methods and on the construction cost of varying types of wooden houses.

"Safety from Fire" is a worthwhile book on fire protection engineering as applied to construction and occupancy of buildings, and contains recommended building ordinances along these lines. Obtainable from Association Metal Lath Manufacturers, 123 West Madison Street, Chicago, Ill.

"Par-Lock Plastering, Cork Insulation, Waterproofing, Dampproofing" is a bulletin at hand from the Vortex Mfg. Co., 1978 West 77th St., Cleveland, O. Readers will be particularly interested in the bonding and waterproofing process for plastering directly on solid brick walls and concrete ceilings.

"Southern Pine Barns and How to Build Them" is a book issued by the Southern Pine Association, New Orleans, La. The price is \$1.00. All the different standard types of roof and frame construction are shown and described in an easily understandable manner.



### LION DOOR CLAMP

Adjustable to hold material from  $\frac{3}{4}$ " to  $1\frac{1}{4}$ ". Will hold doors on edge while sawing, planing, etc. It grips and releases automatically. Fits on bench or saw horse. Price \$2.00 in Aluminum. Weighs less than a pound. Send in your order at once. Check, P. O. Order, or C. O. D. Parcel Post.

AUTOMATIC TOOL CO., Maplewood, N. J.

## Winter Spray-painting

Increased Painting Profits  
for Every Month in the Year

The many available "cold weather" painting jobs can be DeVilbiss spray-painted to the same advantage as are the jobs of other seasons.

Year round operation of the DeVilbiss Spray-painting System insures a full year of increased painting profits.

At any time and on substantially every class of work, the speed of painting the DeVilbiss way averages 4 to 5 times faster than hand brushing, and the quality of work done is more thorough and uniform.

Further FACTS on DeVilbiss equipment and its year round profitable operation will be promptly mailed. Address—

THE DEVILBISS MFG. CO., 238 Phillips Ave., TOLEDO, O.

**DeVilbiss**  
**Spray-painting System**

# ASBESTONE EVERLASTING STUCCO

## How Many Pounds of Stucco Plaster Do You Get to a Ton?

The average buyer receives 2000 lbs., but when you order 1 ton of ASBESTONE Everlasting Stucco you receive delivery of 2375 lbs. of material, twenty 100 lb. sacks ASBESTONE Everlasting Stucco plaster plus 375 lbs. flake magnesium chloride.

### Full weight combined with a quality product

ASBESTONE Everlasting Stucco is unsurpassed in covering power, unequalled in tensile strength, resiliency and elasticity.

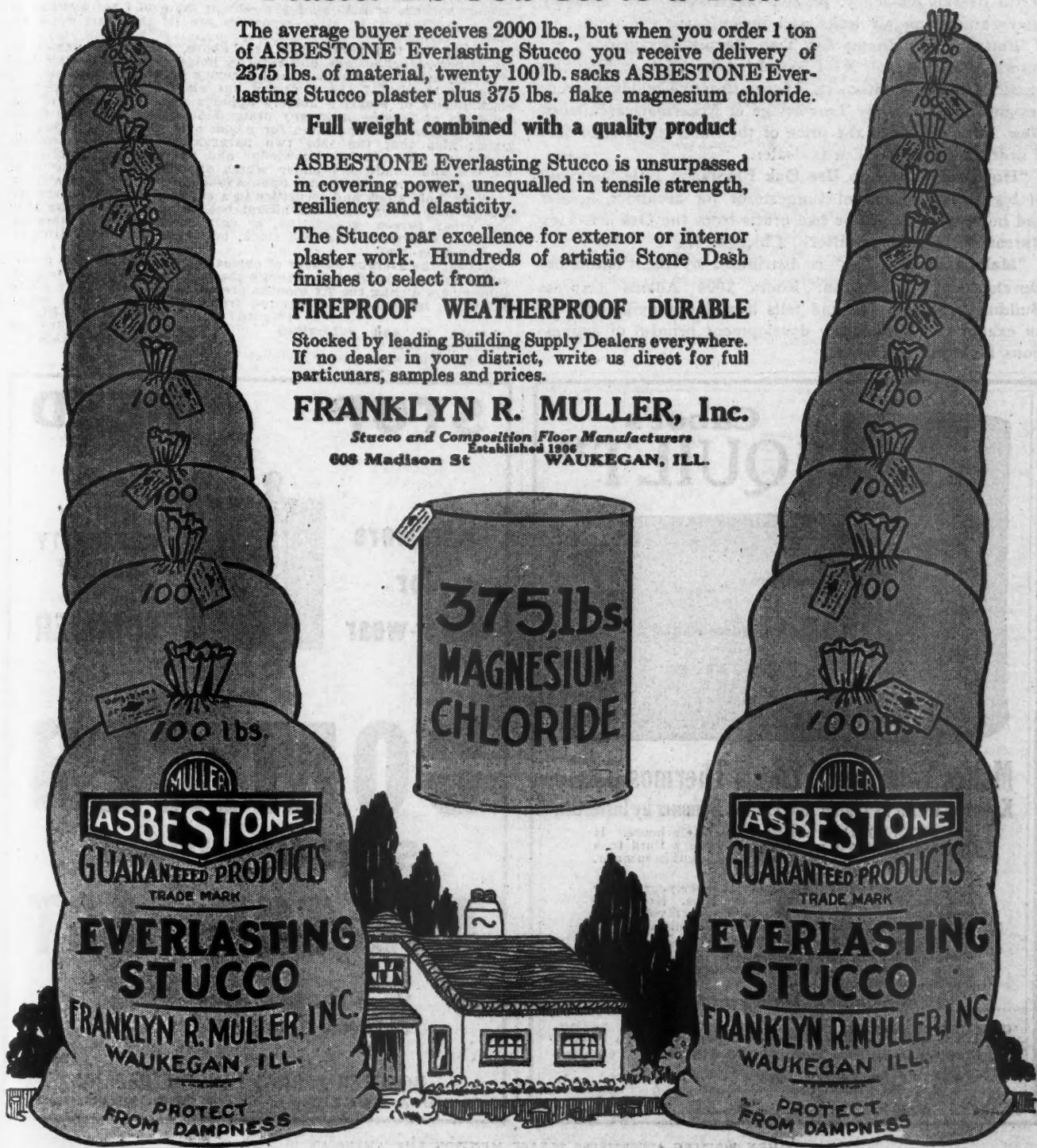
The Stucco par excellence for exterior or interior plaster work. Hundreds of artistic Stone Dash finishes to select from.

### FIREPROOF WEATHERPROOF DURABLE

Stocked by leading Building Supply Dealers everywhere. If no dealer in your district, write us direct for full particulars, samples and prices.

### FRANKLYN R. MULLER, Inc.

Stucco and Composition Floor Manufacturers  
Established 1906  
608 Madison St WAUKEGAN, ILL.



"The Cokal Chainless Stoker" is an attractive catalog issued by the Co Kal Corporation, 341 East Ohio St., Chicago, Ill., and describes its manually operated stoker for saving coal, reducing labor costs and increasing boiler capacity in plants.

"The New Giltedge Warm Air Furnace" is a folder issued by the R. J. Schwab & Sons Co., Milwaukee, Wis., describing the heating efficiency, economy, convenience and durability of their "Giltedge" furnace.

"Delivering More Lumber at Less Cost with White Trucks" is a stimulating book issued by the White Company, Cleveland, and worth the attention of the lumber and building material dealer generally. Illustrations and facts treat of actual users.

"Stanwood Fire-Tube Boilers" are described in Bulletin No. 800 at hand from the manufacturers, the Houston, Stanwood & Gamble Co., Cincinnati, O. They have wonderful overall efficiency, perfect combustion, low chimney temperatures, no air leaks and insignificant radiation.

"Better Built Homes for Two Family Occupancy" are described in this Vol. XIII issued by the Curtis Companies Service Bureau, Clinton, Ia. These attractive buildings were designed for Curtis by Trowbridge & Ackerman, architects, New York City, and the price of the book is \$1.00, or free if ordered through a Curtis dealer.

"How and Where to Use Oak Floors," a little book full of big facts and full of suggestions for architect, builder and home owner. To be had gratis from the Oak Flooring Bureau, 1014 Ashland Block, Chicago, Ill.

"Making Service Pay" is distributed by the Community Development Association, Room 1004 Adams Express Building, Chicago, Ill., and tells how Jacksonville, Ill., set an example of community development brimful of suggestions for other live towns.

STATEMENT of the ownership, management, circulation, etc., required by the Act of Congress of August 24, 1912, of American Builder, published monthly at Chicago, Ill., for October, 1923.  
State of Illinois }  
County of Cook } ss.

Before me, a notary public in and for the state and county aforesaid, personally appeared E. L. Hatfield, who, having been duly sworn according to law, deposes and says that he is the business manager of the American Builder 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, printed on the reverse of this form, to wit:

1. That the name and addresses of publisher, editor, managing editor, and business manager are:

Publisher—American Carpenter & Builder Co., Chicago, Ill.

Editor—Wm. A. Radford, Chicago, Ill.

Managing Editor—Bernard L. Johnson, Chicago, Ill.

Business Manager—E. L. Hatfield, Chicago, Ill.

2. That the owners are (give names and addresses of individual owners, or, if a corporation, give its name and the names and addresses of stockholders owning or holding 1 per cent or more of the total amount of stock): Wm. A. Radford, Chicago, Ill.; H. M. Radford, Chicago, Ill.; R. D. Radford, Chicago, Ill.; Wm. A. Radford, Jr. Chicago, Ill.; E. L. Hatfield, Chicago, Ill.; G. W. Ashby, Berwyn, Ill.

3. That the known stockholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are (if there are none, so state): None.

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 stockholders or security holders 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 as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the six months preceding the date shown above is. (This information is required from daily publications only.)

(Signed) E. L. HATFIELD.

Sworn to and subscribed before me this 25th day of September, 1923. ANDREW JOHN NAUMANN.

(My commission expires October 23, 1925.)

## Cabot's "QUILT"



**Makes Your House Like a Thermos Bottle**  
**Keeps It Warm in Winter and Cool in Summer by Insulation**

CABOT'S "QUILT" insulates the whole house. It saves the heat in winter—saves from a third to a half of your coal bill. It keeps the heat out in summer, making the house cooler.

Quilt lasts as long as the house. It saves your money and keeps you comfortable all the time. No investment that you can make will earn such dividends as Quilt in cutting down coal and doctor's bills and making the house cozy and healthful.

Quilt is not a mere felt or paper. One layer has insulating power equal to twenty-eight layers of common building paper.

*Sample of Quilt sent free*

**SAMUEL CABOT, Inc., Mfg. Chemists, BOSTON, MASS.**  
342 Madison Ave., New York 24 West Kinzie St., Chicago

*Cabot's Creosote Stains, Conservo Wood Preservative, Stucco and Brick Stains*

# STOP HEED

Hardware  
for  
Hard-wear



UTILITY  
DURABILITY  
BEAUTY  
IN THE  
BOMMER

# BOMMER

## SPRING HINGES

# ARE THE BEST

Your **JOBBER** handles them,  
Get New Catalog 47, go get it!

**BOMMER SPRING HINGE COMPANY**  
MANUFACTURERS BROOKLYN, N. Y.