

AMERICAN BUILDER

THE WORLD'S GREATEST BUILDING PAPER

Vol. 38.

CONTENTS FOR NOVEMBER, 1924

No. 2.

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AROUND THE FAMILY TABLE



Homes and Gardens in Colors

New Home Design Section in Colors Enthusiastically Received By
American Builder Readers

THE reception accorded our October offering of 16 pages in full colors illustrating attractive home designs has indeed been gratifying.

Hundreds of letters and telegrams of congratulation have come in.

Builders and dealers we have talked with say that this beautiful colored feature will be a wonderful assistance to them in selling the home building idea to their clients and customers. These designs, they say, will illustrate and visualize their own ideas better than anything they have ever had before.

We are very glad to go to the very heavy expense of preparing and presenting this four-color 16-page section if our readers will really make use of it, and if it will help them toward more building, and better building. We will be glad to continue this unique service every month for the benefit of our readers and the building industry in general.

A New Idea This Month

Notice that the homes in colors this month contain a new idea differing from the October offering. In the designs this month we are featuring a home and garden idea; and we think that these beautifully colored paintings of well designed homes, placed in natural settings of shrubs and flowers are just about the most attractive we have ever seen.

Garden ornaments easily constructed of wood or of cement, and the proper selection and planting of flowers, shrubs and trees in connection with home building are things no builder can afford to overlook or be ignorant of.

We all know that the garden and grounds complete the house. Landscaping, even of a simple nature, and in a small space, takes away the raw, new look from the newly built house, and makes it seem to fit the building site in a natural, attractive way.

Just as a good picture must have a good frame to set it off, and bring out its beauties, so the new house should have its frame of lawn and shrubs and trees.

Those building to sell know that property doesn't

move at the right price until the lot is graded and seeded down. The wise builder, if he is also a good salesman, will not stop with grass seed. He will invest a hundred dollars or so in shrubs, and trees, and will include some little clever garden feature, such as pergola or rose arbor "as a talking point."

You will find the colored pages in the *AMERICAN BUILDER* full of good suggestions for such lawn and garden decorations.

Interiors, Too

For each home design presented, there is also a sketch in colors of some interesting interior feature or detail. These present attractive and authentic suggestions for interior decoration or furnishings.

Your clients and customers, especially among the women, are often more taken with a well planned decorative effort for living room, dining room, or some other part of the house, than they are with the details of construction. *AMERICAN BUILDER* readers will, of course, make their construction details thorough and good. We all believe in building well. But we will not fail to include the clever little accessories and appointments which mean so much to the feminine home buyers.

We are proud of the home designs presented in our color section this month. Mr. Radford has personally selected these from the best work of architects and builders in every section of the United States. We would like to have you use them as suggestions in your own designing and home planning work, and also in your efforts to interest prospective home builders.

Next month another new idea for these homes in colors! Don't miss it! There will be 16 pages of home designs in colors in December and every month thereafter. Tell your fellow builders about this. Let's make these designs work, and work hard in the hands of at least one hundred thousand active men in the building industry for a bigger and better building business in 1925!

EDITOR *AMERICAN BUILDER*.

BISHOPRIC

Base and Stucco

Recommended Very Highly

Office—The Suburban Construction Co., Leonia, N. J. Bishopric Base on Exterior.



Residence built by Suburban Construction Co., Leonia, N. J. Architect; Herman Frits, Passaic, N. J. Bishopric Base on all exteriors.



GENERAL ARCHITECTURAL ENGINEER

ALBERT G. BELDEN & CO.

ALBERT G. BELDEN COMPANY

ROOM 40
SMITH BUILDING

BUILDERS
TERRE HAUTE, INDIANA

PHONE
DREXEL 537

February 18, 1924.

Bishopric Manufacturing Company
Cincinnati, Ohio

Gentlemen:

I recommend your Bishopric Board and stucco very highly. I believe that the Bishopric board is the best stucco base on the market, and I have used your stucco with very satisfactory results.

It might be of interest to you to know that up until last week, the building ordinance here has required all houses to be sheathed, but that two test panels were made; one 7/8" sheathing and common lath on the other side, and another with your Bishopric board and common lath. The panel with the Bishopric board stood a much greater horizontal thrust than did the panel with the sheathing. As a consequence the city ordinance was changed, making it allowable to use your stucco board directly upon the stud.

Where a high class stucco is required, I will not hesitate to specify and use your products.

Yours very truly,

ALBERT G. BELDEN COMPANY

Albert G. Belden, Jr.
A. G. Belden, Jr.

AGB:JP

The Roll and the Drum

Bishopric Base is shipped in rolls 100 square feet to the roll. It is easily handled, quickly cut to desired size and there is no waste.

Bishopric Stucco is packed in air-tight metal drums preventing deterioration and loss, either in transit or storage, or on the job.



Bishopric Stucco and Bishopric Base offer to builders two priceless ingredients,—quality and integrity. Back of these is eighteen years' experience in the manufacture of building materials that endure.

Bishopric materials are carried in stock by dealers everywhere for instant delivery. If you wish further information concerning Bishopric, we have prepared for you an interesting book, "Bishopric for All Time and Clime," that will be sent without obligation. Write for it today.

The BISHOPRIC MANUFACTURING CO.
5 ESTE AVE. CINCINNATI, OHIO.
NEW YORK CITY CINCINNATI OTTAWA, CANADA

The BISHOPRIC MFG. CO. OF CALIFORNIA
LOS ANGELES

BISHOPRIC

"A Complete Wall Unit for all Time and Clime"

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER



AMERICAN BUILDER

Formerly AMERICAN CARPENTER AND BUILDER

Reducing Building Costs

YEARS of experience in the building field bring a wisdom that none can afford to overlook. Particularly is this true when this experience has brought with it an outstanding success. It is for this reason that the sound advice below is reproduced. It originated with J. W. Pinnell, founder and head of J. W. Pinnell & Co., an organization operating fifteen retail yards and a number of planing mills in Indiana, with the general offices at Indianapolis. Mr. Pinnell in twoscore years has seen this organization grow under his management from a one-yard concern to its present strength. Therefore his advice is worthy of consideration, particularly so when it deals with a topic of almost universal interest, such as keeping costs down. Mr. Pinnell says:

"Confine your specifications to standard sizes regularly carried in stock if possible. A variation of one or two inches in the width or height of a door or window from standard size, makes it odd size, and costs, sometimes, double or more. There are hundreds of sizes that are standard and you can get with a variation of an inch or two most any sized window or door that is standard. There is an additional saving in cost to confine your specifications to sizes commonly carried in stock. Where a special pattern of moulding, casing, base, ceiling or exterior or interior trim is specified, necessitating setting up a machine and sometimes making new bits on a small order, runs up the cost several times over the regular stock and makes it seem unreasonable to the customer. This should be avoided where the cost is a consideration. Buying lumber is like buying other merchandise, but is not generally given the same consideration. It is assumed that a lumber dealer can furnish anything that comes in the mind of an architect or builder at about the same cost as that which is regularly carried in stock. This is a mistaken idea. Confine your specifications on dimension, timbers and other lumber to standard sizes and lengths regularly carried in stock on which a lumberman can make you a much better price than that which he has to order special.

"It is always best and more satisfactory when figuring on a bill to look at the stock. The same grades vary in quality. Some stock is much better in the same grade and better than the grading rules require. It takes an expert to determine the different grades of lumber. In figuring or purchasing a bill of material, advise with the lumber dealer and talk over the

various items of material and the purposes for which it is to be used. He may be able to suggest to you something that will suit the purpose better and at a less cost. The lowest figure on a bill of material is not always the best and cheapest; and may turn out expensive. There are few bills of material that are complete and on which there are no changes or extras, giving a dealer a chance to increase the price, if so inclined. Consider reputation, reliability, facilities and available stock in placing your order.

"There are plenty of competent, reliable, trustworthy lumber men to whom you can go with your building problems, who will be glad to give you valuable information and help you in the cost and your building plans.

"The man who seeks information on any subject, by consulting and advising with those who are posted and reliable, make few mistakes. There would be but little need of blue sky laws and less worry and heartaches over worthless purchases and investments were this rule followed."



Construction Council Optimistic

THERE are a number of interesting statements in the semi-annual statement of the American Construction Council, issued through its president, Franklin D. Roosevelt, recently. The statement was formulated at the meeting of the Council held in New York City. Especially significant are the passages from the statement which follow:

"The increasing demand for better building, a movement which the Council sponsored on a national scale last spring, is accompanied by a general undertone of increasing confidence as to the greater stability in the construction industry throughout the country as a whole.

"There has not been the marked seasonal decline appearing so noticeably in the past with the coming of the fall and winter months. On the contrary the amount of new work contracted for and begun has held up, for this time of year, unusually well. This shows a very favorable response on the part of the public to the general movement the scheduling of building operations so as to take advantage of the relative slack in materials and labor during the fall and winter months.

"Even a more significant fact stands out as to the present type of building operations. There is a larger ratio of commercial and industrial structures contracted for than there has been for some time."

We have interesting booklets for
Architects, Contractors and Dealers.
Please tell which booklet you want.



Home of Adam Stock, River Falls, Wisconsin.
Built in 1905. Photo taken November 8, 1923.

Good For One Hundred Years More

ADAM STOCK built his home near River Falls, Wisconsin, in 1905, and hauled the frames from the Andersen Factory which was then located at Hudson, Wisconsin. Today those frames are in excellent condition and with reasonable care should last for one hundred years more.

That's the kind of frames to buy—made of clear White Pine that will last as long as the building itself.

Reasons Why Andersen Frames Are Preferred:

1. Immediate delivery—no expensive delays waiting for special frames.
2. 121 sizes ready for every purpose.
3. Delivered in two compact bundles plainly marked for size and easily handled.
4. 7 units instead of 57. No small parts to become lost or broken.
5. No sorting, measuring or refitting. The complete frame nailed up with pockets and pulleys in place in ten minutes.
6. Accuracy gives smooth running windows, yet excludes weather.
7. Double shoulders on the sills, against which the sash and storm windows or screens rest, make Andersen Frames much warmer and proof against wind and rain.
8. Better results in frame, brick or stucco buildings.
9. White Pine preserves original accuracy and gives continuous service.
10. Made by largest exclusive standard frame manufacturer. The trade-mark is absolute protection.

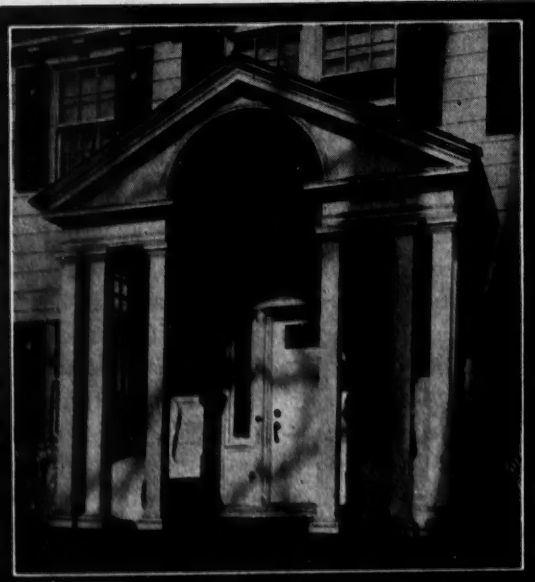
Andersen Lumber Company

Dept. A-11

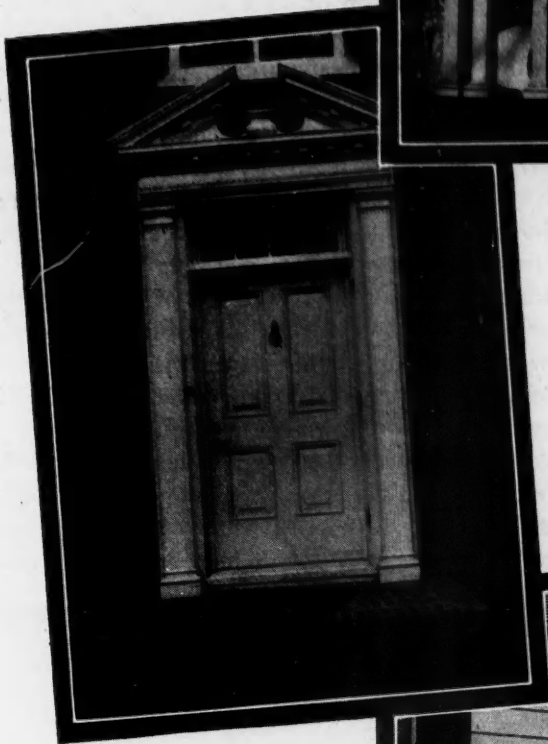
Bayport, Minnesota

Andersen
FRAMES

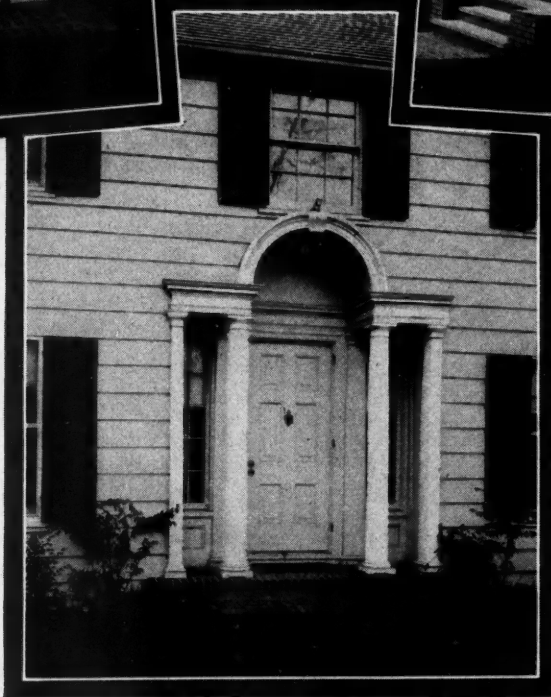
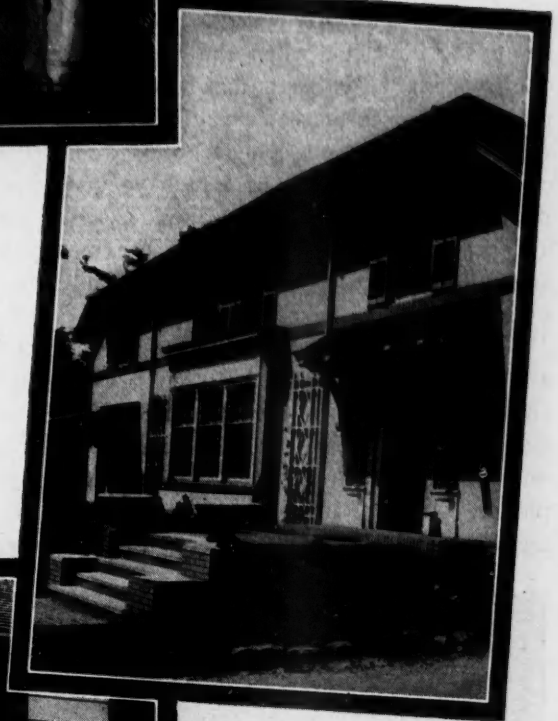
To Right; the Architecture of This House Is Pure Southern Colonial and Suggests Warm Weather Comfort and Hospitality. The entrance is particularly inviting. This residence is located at Evanston, Illinois, and was built from plans by Lowe & Bollenbacher, architects, Chicago.



Below; the Terrace, Brick Walk, Urns, and Portico Add Greatly to the Attractiveness of This Handsome Cleveland Home. Note also the clever use of a belt course of brick to relieve the monotony of the stucco and the square bay with triple windows suggesting a light and airy interior. From plans by Frank B. Meade, architect, Cleveland, Ohio.



Above; This White Painted Doorway, with Its Classic Design, Stands Out in Striking Contrast to the Stained Shingle Siding of the House. The knocker and latch handle of antique design add further distinction. Plans for this home were drawn by Robert E. Seyfarth, architect, Chicago.



To Left; Classic Columns Add Grace and Beauty to This Colonial House Design. The recessed entrance is somewhat unusual and the ample sidelights assure a well lighted hall or vestibule. The winding brick walk adds interest to the approach. Plans by Robert E. Seyfarth, architect, Chicago.

Entrances of Beauty Add Greatly to the Attractiveness of these Homes

Nebraska University Stadium

Setting for Athletic Games Erected of Concrete; to Accommodate
40,000 Persons; Cost, \$1,000,000

By DALE R. VAN HORN

IN a number of ways the new University Stadium recently completed at Lincoln, Neb., is unique. Any building enterprise of this nature is unique for that matter because the builders and manufacturers involved are not serving a standard job when they tackle a proposition of this sort.

A large sum of money is often involved and sometimes the bidders may wonder if their pay is going to be in the envelope when the time arrives. That is one problem. Another is that the people to be directly pleased are often men of every walk of life—men who formerly sang those college songs and yelled those college yells—but who of late have gone into enterprises so far apart that to present a set of plans that are practical, that come within the means available and to have these plans suit everybody, is nothing much short of a phenomenon.

Nebraska for several years has been recognized as a formidable athletic foe by other like institutions and she has been holding her own with the best of them. But her football field was almost a disgrace. Flanked on both sides by rickety, wooden seats whose underpinning on more than one occasion caused, by giving away under extra weight, about as much excitement

as the game itself; only those vitally interested in the contests seemed to care to go.

The athletic board realized that to match the local team with hardened warriors of distant states required a tremendous expense, an expense that the old field could not return because the seating capacity was so limited. This realization brought about the first definite movement for a stadium. At once money to pay for the thing was the paramount issue. To swell the ranks of the alumni, all former students, whether graduates or not, were granted a place on the list.

With this host of loyal people, a subscription drive was started and the amounts as they came in were made known through the press and by bulletin boards. And in time \$700,000 had been pledged.

But what about the plans? We talk of loyalty. We say we would go the limit for the sake of the old school. But how many of us would finance the drawing for all working plans from the preliminary to the finished set and with an elaborate wash drawing thrown in?

To Mr. John Latenser and Mr. Ellery Davis, both former students and graduates, goes the credit in large part for the putting over of the enterprise. Both men are successful architects. Both men still retain that



The \$1,000,000 Memorial Stadium Erected at the University of Nebraska, Lincoln. John Latenser & Sons and Davis & Wilson, Associate Architects.

subtle thing—college spirit and college loyalty. And these men put their heads together and decided to go the limit.

The result was the complete plans drawn to scale, all dimensions of value shown, together with other necessary data logically coming from the designers. After long hours, and days, and weeks of work the plans were given—gratis!

Actual work was commenced May 20, 1923. The concrete work bid was awarded the Parsons Construction Company of Omaha, Neb., for \$456,000. Work in the form of a sub-contract and for a consideration of \$76,000 was given to the Roberts Construction Company. This covered the excavations.

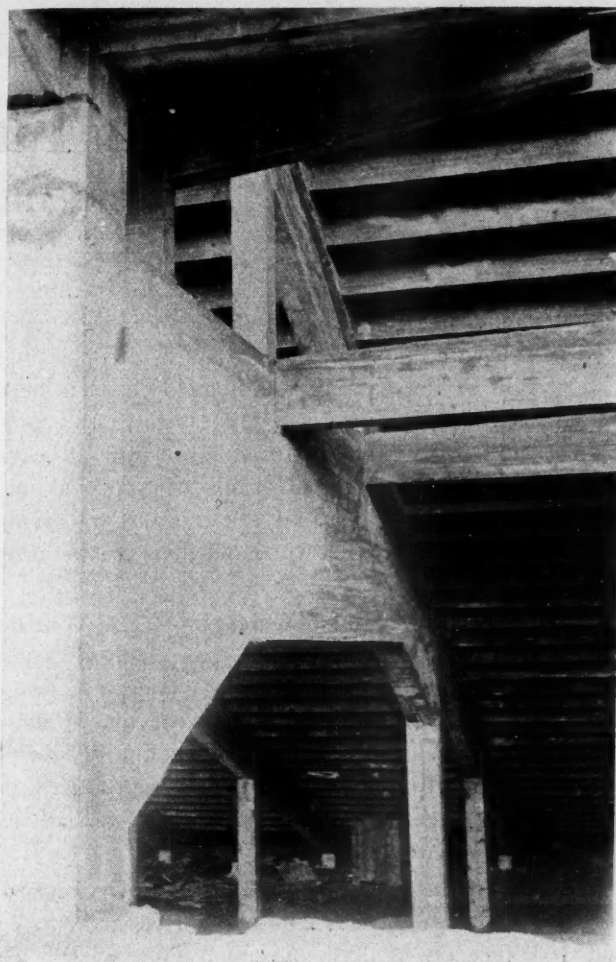
Ground was broken on May 25, 1923. The soil at the location is of clay and gravel sub-soil. For the most part, the construction is of concrete, reinforced and of the cantilever type.

There are two units of seats. The field runs north and south and the banks of seats are connected at the ends of a colonnade which will eventually form a continuous running track under cover.

The seating capacity is 40,000. With the balconies full length, one-fifth of the capacity is taken care of here. Each side is divided into seven sections with an arc of 80 feet on the outside. The forms used were standard and were used for all of the work with the exception of the ends which are true halves of the other sections.

The concrete work was done in a novel way. The mortar was mixed on the ground, hoisted to the top, and thence by hopper cars running on track laid on top of the structure to chutes which delivered the concrete to its proper place.

Tracks laid about the stadium made it possible to shunt the gravel gondolas direct to the work from the railroad yards. This saved an extra handling, as



The Concrete Construction on the Under Side of the Stands. Everything shown above the ground is concrete.

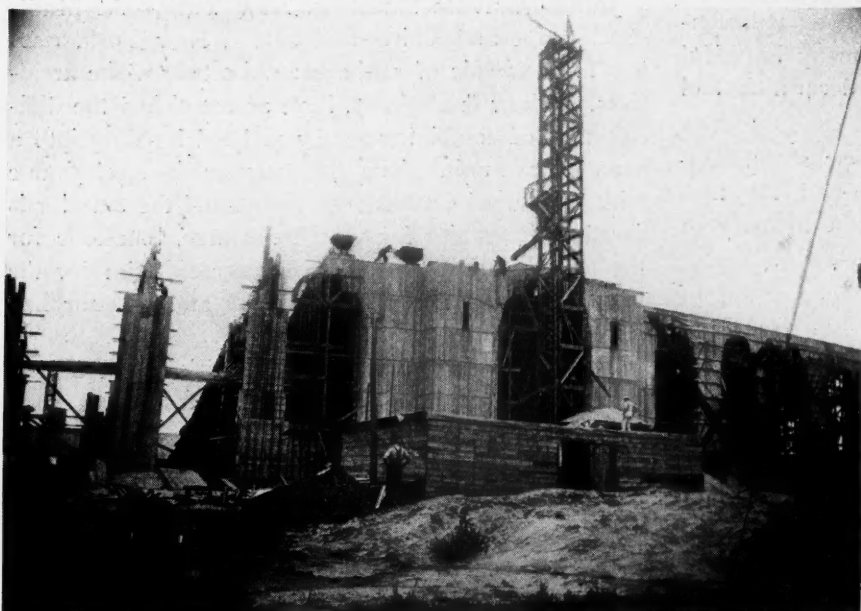
the gravel was scooped directly out of the cars and into the mixing hopper.

According to the contractors, the feature of having the indoor track is a bit unusual. This is three feet above the field proper. Provision is being made for indoor baseball, football, tennis courts, etc., under the stands.

The concrete girders are 47 feet long, 8½ feet high and 20 inches wide. This is the first time this sort of space has been utilized, according to reports.

Drainage of the field is assured by a sub-layer of cylinders 6 inches thick covering the whole playing area. These are augmented by catch basins 50 feet apart which empty into the storm sewer.

Mr. E. G. Hawkins was general superintendent of construction, Mr. K. J. Hawkins chief engineer and Mr. James Fiddock business manager of concrete work.



Detail of the East Side of the Stadium During Construction. The concrete was hoisted up the tower, dumped into the cars and moved to the chutes where it was dumped.

Art Illustrations of Modern Architecture Arouse Much Favorable Comment

By **BERNARD L. JOHNSON**
Editor American Builder

THERE is a genuine and widespread interest in modern architecture which should be very encouraging to those engaged in the planning and erection of the nation's buildings. This has been proved by the flattering reception given to this new department of *AMERICAN BUILDER*. From all over the country have come expressions of approval and admiration. The architects of the country are giving us generous support in this work and their co-operation is greatly appreciated.

The New Palmer House, Chicago.—"The World's Largest Hotel," is a title which has changed hands many times, but will undoubtedly come to Chicago with the completion of the magnificent new Palmer House, now under construction. The fine rendering by Holabird & Roche, the architects, reproduced on the adjoining page, shows this new building to advantage in duotone lithography.

This enormous structure will have a frontage of 245 feet on State Street, 249 feet on Monroe Street and 163 feet on Wabash Avenue, will be 301 feet high and will contain 2,268 guest rooms, each with bath. Building and site together will have a value of \$40,000,000.

Some idea of the magnitude of this splendid steel frame fireproof building may be gained from the fact that the corridors on the guest room floors will be four miles long. The total floor area of the building will be 40 acres. There will be two large banquet rooms and a number of dining rooms. The hotel will contain \$3,000,000 worth of furnishings, many beautiful paintings and much that is novel in decoration and entertainment.

The old Palmer House was a historic structure—the first fireproof hotel in America—and the new Palmer House will do full justice to the memory of late Potter Palmer, his vision and foresight.

Good progress is being made on the erection of the steel work under the Thompson-Starrett Company, who have the general contract.

Union Station, Chicago.—Here is a building of great national importance and interest; many *AMERICAN BUILDER* readers and travelers from all over the world will pass through its portals. It will be used as a joint terminal by the Pennsylvania, Burlington, Chicago & Alton and Chicago, Milwaukee & St. Paul railroads. This fine new terminal is almost completed for the Chicago Union Station Company under the general direction of Mr. J. D. D'Esposito, chief engineer, for whom the plans were drawn by Graham,

Anderson, Probst & White, architects. John Griffiths & Sons Company are the builders.

The station building occupies the block bounded by Canal Street, Adams Street, Clinton Street and Jackson Boulevard, and is seventeen stories high. Directly opposite this building, on the east side of Canal Street, and connected with it by using the space under the street, is the concourse building, which will constitute a component part of a unified plan all at one level. New street entrances are provided with inclined ramps, stairways, special ticket offices, parcel rooms and other conveniences.

The principal feature of the main building, or headhouse, consists of a waiting room 100 feet wide by 270 feet long and 112 feet high, brilliantly lighted by means of a great arched glass ceiling rising 100 feet above the sidewalk.

Exterior of the main building will be Bedford Stone and the interior of the main waiting room faced with imported Travertine.

There will be ten tracks to the north and fourteen to the south, or a total of twenty-four passenger tracks. The undertaking will provide for an increased capacity of three times the present requirements. It is conceived upon the most magnificent scale, both in its architectural effect and in its track convenience, thus equaling in general scope, as well as in detail, the finest examples of the modern railway stations of the world.

Johns-Manville Building, New York.—At Madison Avenue and Thirty-first Street, New York, rises this fine example of set-back architecture. The architects, Ludlow & Peabody, have accomplished the difficult task of combining a new and old building into a symmetrical unit. The construction is steel frame with reinforced concrete slab floors and the exterior is faced with granite for the base course, limestone for the lower stories, brick with terra cotta trim for the upper stories. The entrance lobby and elevator hall have walls and floor of marble.

Buhl Building, Detroit.—Detroit's newest skyscraper will be notable for the somewhat unusual cross-plan, which provides additional light and air, while, at the same time enhancing the beauty of the building. This, too, will be a steel frame building resting on caisson foundations. Floors will be of steel and concrete slabs. Exterior walls will be faced with a special finish terra cotta laid up in random sizes. There will be a base course of granite at the street level. Smith, Hinchman & Grylls, the architects, are to be congratulated upon the beauty of this building.

ART SUPPLEMENT *of* NOTABLE ARCHITECTURE



PLATE V

The PALMER HOUSE, Chicago; Holabird & Roche, Architects; steel work now going up for Wabash Avenue wing of this world famous Chicago hostelry.

The AMERICAN BUILDER, Nov. 1924

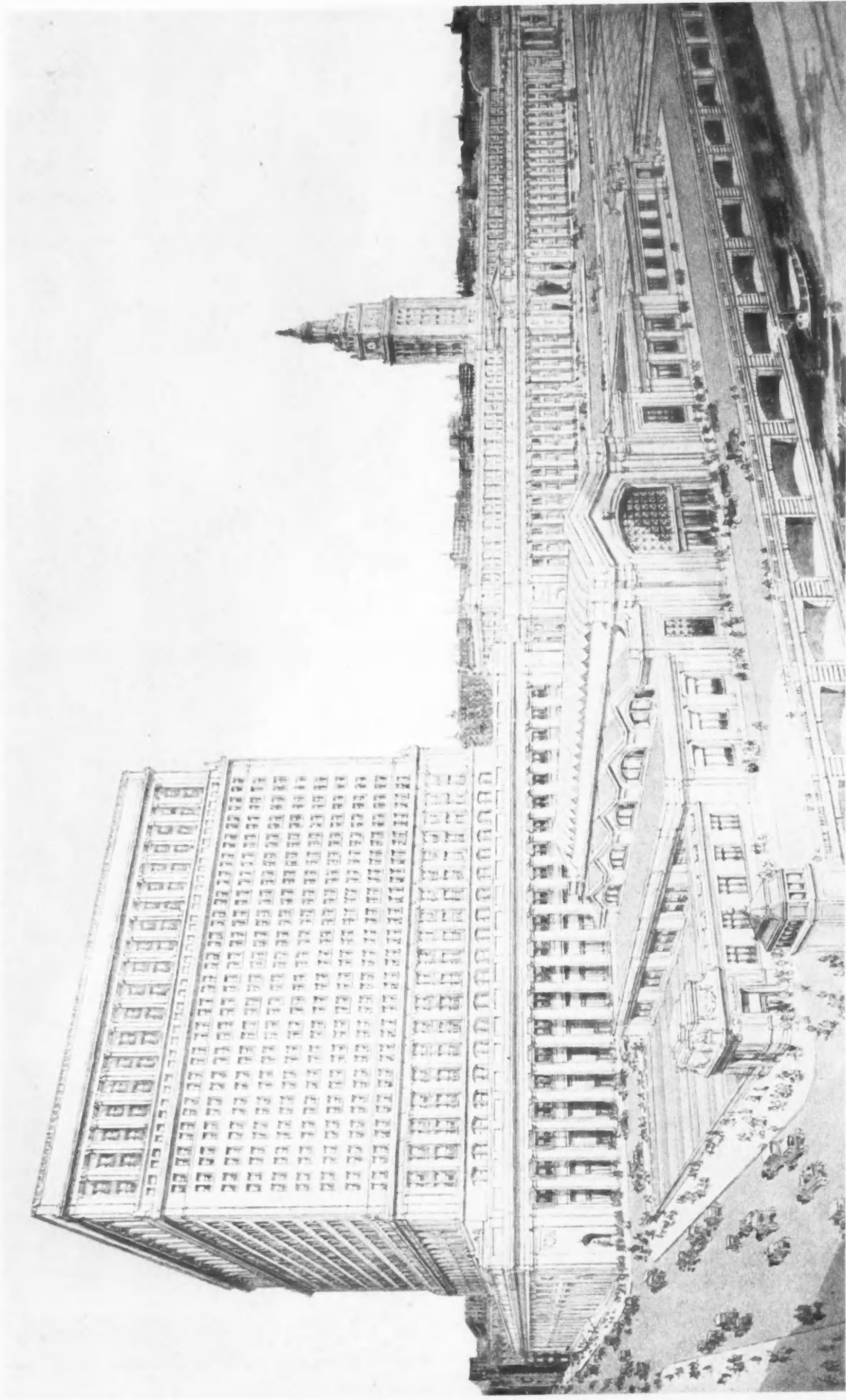


PLATE VI

The New Union Station, Chicago; Graham, Anderson, Probst & White, Architects; now well under construction and occupying two entire blocks bounded by Jackson Boul., Clinton St., Adams St., and the River.



PLATE VII

The JOHNS-MANVILLE BUILDING, New York; Ludlow & Peabody, Architects; recently completed on Madison Avenue.



PLATE VIII

The BUHL BUILDING, Detroit; Smith, Hinchman & Grylls, Architects and Engineers; makes use of unusual cross plan above the Basement Stories.

Quality Small Homes Win Success

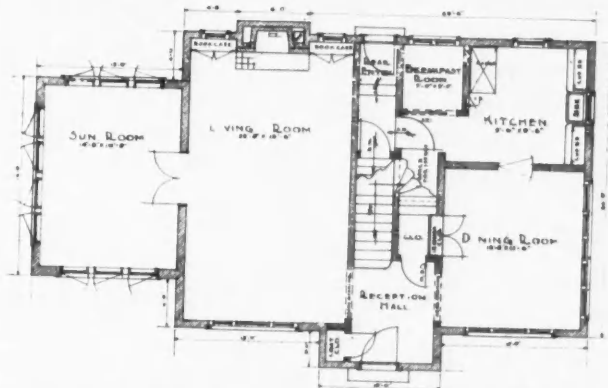
Burns Brothers, Investment Bankers of Des Moines, Iowa, Find a Ready Market for Smaller Dwellings Well Planned and Built.

MORE than thirty-five homes built and sold in little more than a year is the record established by the Burns Brothers, Investment Bankers of Des Moines, Iowa, since building first was made a department of their business in the spring of 1923.

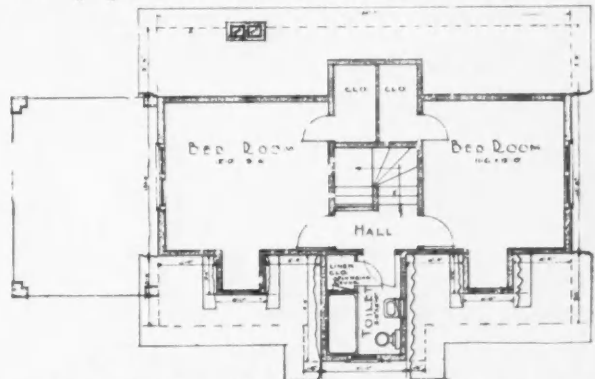
No doubt two factors had much to do with the success of their building activities, and the one was directly responsible for the other. For the firm did not decide that they knew all about building and from the first all of their building operations have been under the direction of an expert builder with years of experience—Mr. J. H. Lincoln.

Mr. Lincoln believes that much of the success of the Burns Brothers venture into investment building is due to the fact that from the first it was realized that those persons in the market for small homes of five and six rooms demand the high type of construction and the convenience which more usually is associated with the building of dwellings of ten or more rooms. How well this high ideal has been maintained is shown by the home illustrated in these pages, typical of the Burns Brothers construction.

This cottage type dwelling of brick and stucco in pleasing combination could not have been more carefully planned and built if it had been twice



The Floor Plans Allow for the Efficient and Economical Use of Lumber and Other Materials.



Two Adequately Large Bedrooms with a Bath and Large Closets Are on the Second Floor.



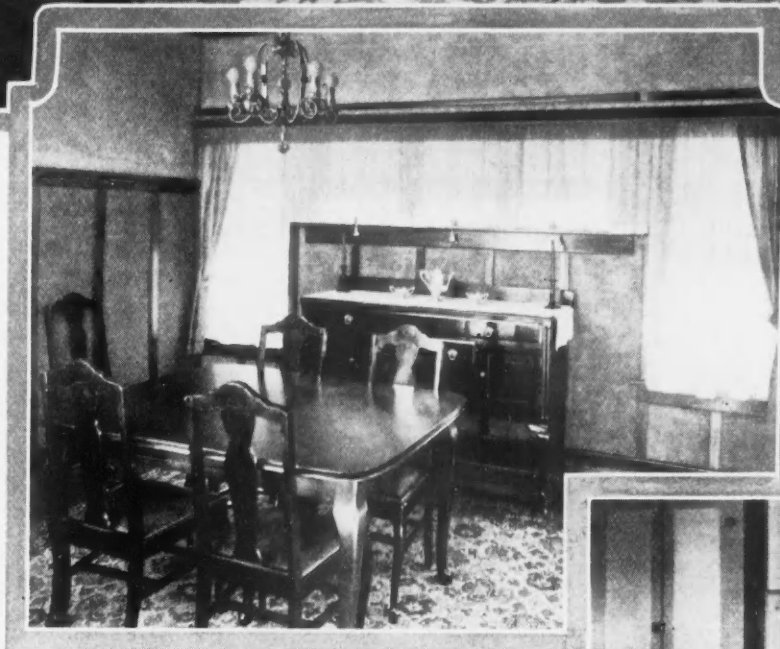
A Home Typical of the 35 Built in the Past Year by the Burns Brothers, Investment Bankers of Des Moines, Iowa, Under the Direction of J. H. Lincoln, Frank Scalise, Architect.



Building the Comforts and Conveniences Ordinarily Found in Much Larger Homes Has Contributed Greatly to the Success of the Building Department of Burns Brothers, Investment Bankers of Des Moines, Iowa. Above is a sunparlor made a part of a small but exquisite five-room home shown on page 97. Additional views of the home are shown on the page following.



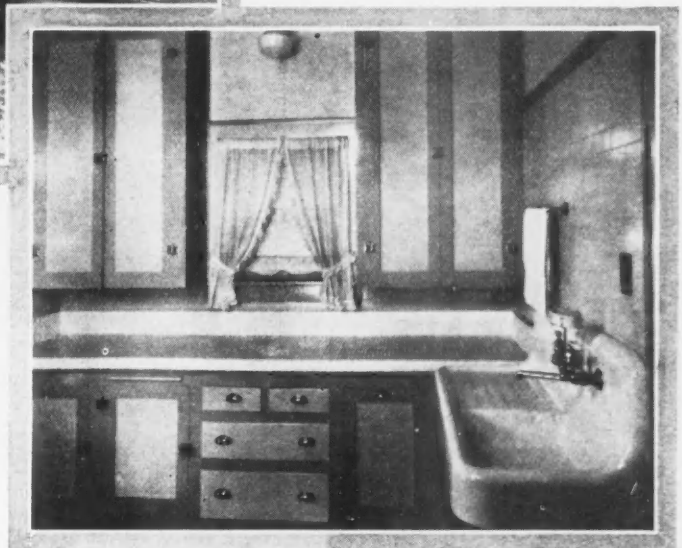
The Fireplace, with Its Flanking Bookcases, Is an Attractive Feature of This Pleasant Living Room.



The Dining Room of the Burns Brothers Home Is a Light Cheerful Place for a Family to Gather.

as large and costly. Though it has only three major rooms and a sun porch on the first floor and two bedrooms on the second, all of these rooms are designed to give the owners the maximum amount of comfort and allow for beautiful interiors.

The pictures of the interiors presented on this page tell the story of a beautiful small home built through the use of standard materials and units well known to readers of the AMERICAN BUILDER.



In the Spotless Kitchen the Glistening White Tile and Dainty Curtains Will Attract the Housewife.

Apartment Shows Moorish Influence

Los Angeles Building Has Many Unusual and Interesting Exterior Features as Well as an Efficient Arrangement of Suites; Harley S. Bradley, Architect

By CHARLES ALMA BYERS

BUILT in Los Angeles, Cal., where it is quite truthfully said that one may find representations of nearly every type of architecture in the world, the apartment building shown in the accompanying illustrations is perhaps, at first glance, most interesting on account of the very pronounced Moorish style of its exterior. However, it also possesses a number of other points well worth studying, particularly with respect to the floor plan arrangement, for it really constitutes in every way an unusually attractive, practical and economical apartment building.

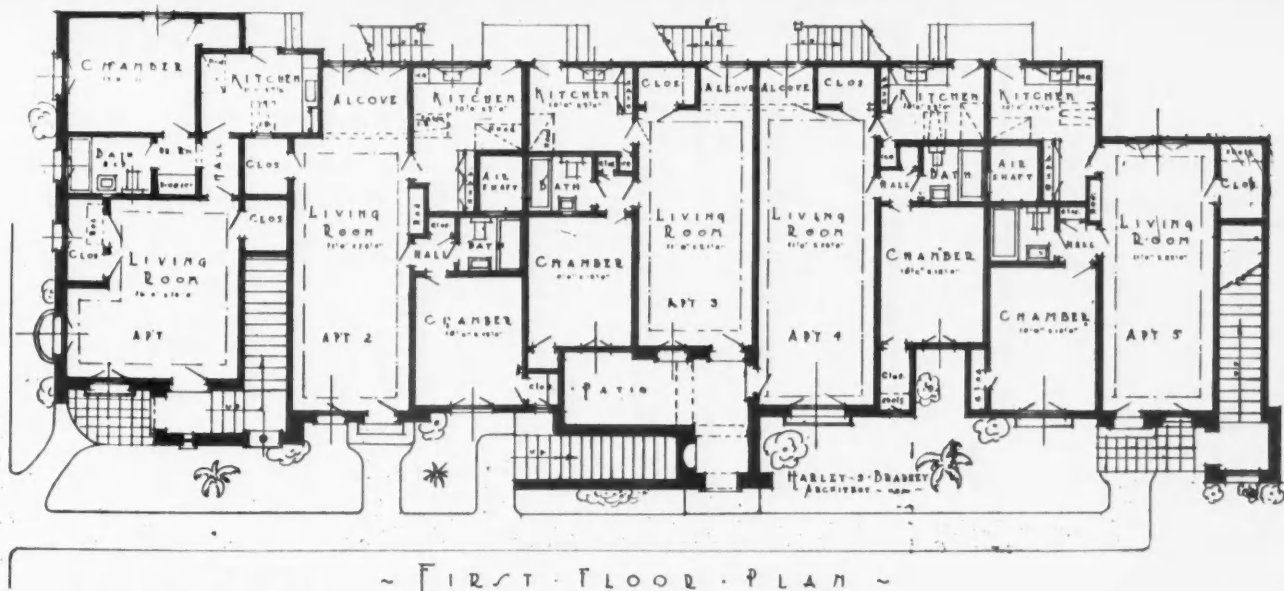
The Moorish influence achieved in the building's exterior not only has been well conceived and handled, but also is productive of uncommonly effective results. While the construction and finish of the walls and the liberally broken roof and wall lines naturally contribute materially in bringing the influence to realization, it is through the detail work especially that the

Moorish character of the building is given emphasis. Note, for instance, the arched design of the entrances, the two or three miniature-sized balconies with their wrought-iron enclosures, the occasional extension through the walls of false ceiling joists, the small art-glass dome over one of the second-story entrance vestibules, and the various other details to be seen in the illustrations. Even the awnings and the outside curtains used at the windows, of weatherproof material in bright Mediterranean colors, help in stressing the Moorish atmosphere.

An especially interesting feature of the building is found in the designing of its entrances. Two stories in height, it contains a total of 10 complete sets of living quarters, or five on each floor, and each of these apartments possesses its own private front entrance, as well as an individual rear entrance. In this respect, the planning is doubtless more typical of the usual small



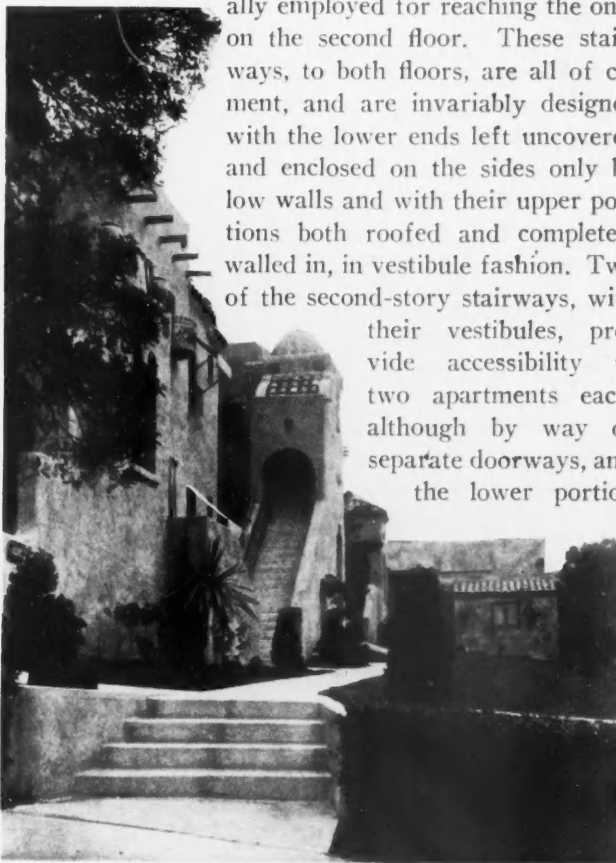
Unusual Distinction of Exterior and Convenience of Interior Are Combined in This Los Angeles Apartment Which Contains Ten Sets of Living Quarters, Each with an Individual Entrance. The irregular lines of the building, the outdoor stairways and the careful ornamentation, with the bright awnings and outdoor curtains are in character with the Moorish architecture of the building. Harley S. Bradley, architect.



Large Living Rooms, Closet Beds and Other Built-in Features Are Utilized to Increase the Comfort of the Apartments. Because of the sloping character of the ground, the entrances were slightly changed from the design shown in the floor plan.

flat building than it is of the ordinary apartment structure. As will be discerned from the photographs and the floor-plan drawing, these front entrances are somewhat variously handled. Due to the quite pronounced slope of the ground constituting the site, even the first-floor apartments require rising approaches of more than customary height, while real stairways are naturally employed for reaching the ones

on the second floor. These stairways, to both floors, are all of cement, and are invariably designed with the lower ends left uncovered and enclosed on the sides only by low walls and with their upper portions both roofed and completely walled in, in vestibule fashion. Two of the second-story stairways, with their vestibules, provide accessibility to two apartments each, although by way of separate doorways, and the lower portion



From the Street the Stairways to the Apartments Present a Particularly Novel and Pleasing Appearance. Notice how the palm and evergreen trees are used together on the lawn.



The Entrances to the Apartment Are Along the Long Side of the Building, at Right Angles to the Street.

of the one nearest the street also constitutes even the approach to one of the first floor sets of rooms. The other entrances, however, are virtually quite individual.

The ground actually occupied by the building is rather narrow in street frontage but of considerable depth. The respective dimensions of the structure are, in fact, approximately 43 feet by 115 feet, although those of the lot utilized are naturally materially greater. Therefore, in order to work out the arrangement with respect to the entrances, the building has been designed with its face or front on one side, instead of on the customary street exposure. In consequence, the grounds on this side are laid out into an attractively planted garden, with a cement walk traversing the space from front to rear and connecting with the several entrances. The result of such planning is, in this case, very pleasing indeed.

The building is of frame construction with the outside walls finished with cement-stucco on metal lath. The surface coat of the stucco is of almost putty-like texture, and rough troweled—with the corners and all other edges slightly rounded off. It is tinted a very deep, rich cream, possessing a tinge of pink.

The tile roof, so fitting for this type of structure, adds materially to the general effect, exposed as it is by the broken and irregular lines of the building.

A Well Planned Clubhouse

Spacious, Well Arranged Quarters Add Comfort—Even Luxury—to Athletic and Social Life at Oak Park (Ill.) Club

CLUB life has a place in every community—no less in the suburbs than in the cities. Oak Park, while still a village in organization, has a population of 40,000, which exceeds that of many Illinois cities.

Certainly, the Oak Park Club building, pictured herewith, would do credit to a city of any size. The well-known Chicago architects, Holmes &

Flinn, and the builders, Guy & McClintock, of River Forest, Illinois, deserve great credit for the manner in which the building has been designed and executed.

It stands at the corner of Oak Park Avenue and Ontario Street, occupying, together with the Annex, a lot about 160 feet square. The new building is rectangular in the main portion, with an ell in which are located, on the ground floor, the boiler room, fan room, pump room, coal and storage room. The other main features on this floor are the swimming pool, steam, massage and locker room, handball court, etc.

The main entrance is from Ontario Street connecting with the main corridor. Card room, lounge and billiard room form a fine connecting suite along the Oak Park Avenue side, the lounge having French windows which open out on to a terrace with ornamental wrought iron railings.

This floor also contains a fine large dining room and completely equipped kitchen, as well as ladies' waiting room, check room and offices.

The main feature of the second floor is the ball room, but here are



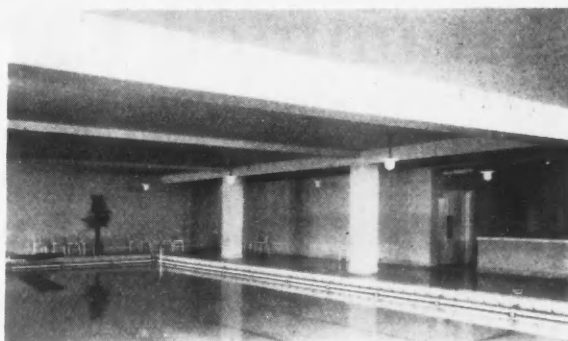
Library of the Oak Park Club. This room is 34 by 32 feet and is well stocked with current magazines. Simple comfort is the keynote here.



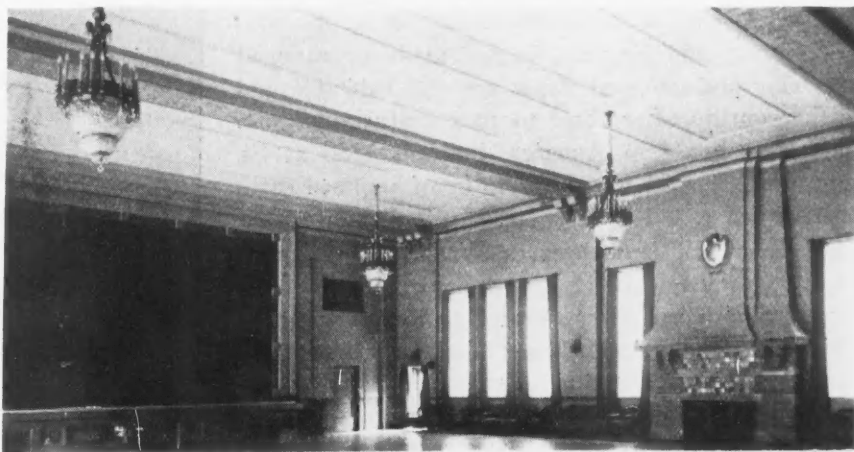
The Oak Park Club, Holmes & Flinn, Architects; Guy & McClintock, Builders. Built of brick with light stone trimming and colored tile roof. Note the graceful effect of the arched windows on the Oak Park Avenue side. The Annex and driveway are at the left of the main entrance.

also located the library, writing room, directors' room, women's club room, lounge, dressing room and check room. The ballroom will accommodate 200 couples, without counting the space under the balconies. At one end of the ballroom is a stage, 30 feet wide and 16 feet high. The balcony, at the other end, will seat 300 people, and is provided with a complete motion picture projection room. Outside the ballroom is a promenade deck, and, across the ballroom foyer, a directors' room and writing room. Next to this, towards the front of the building, is a fine large library and a women's club room, lounge and dressing room. The Annex, a separate building, contains apartments for the club superintendent, dormitory for club members and a club laundry on the ground floor.

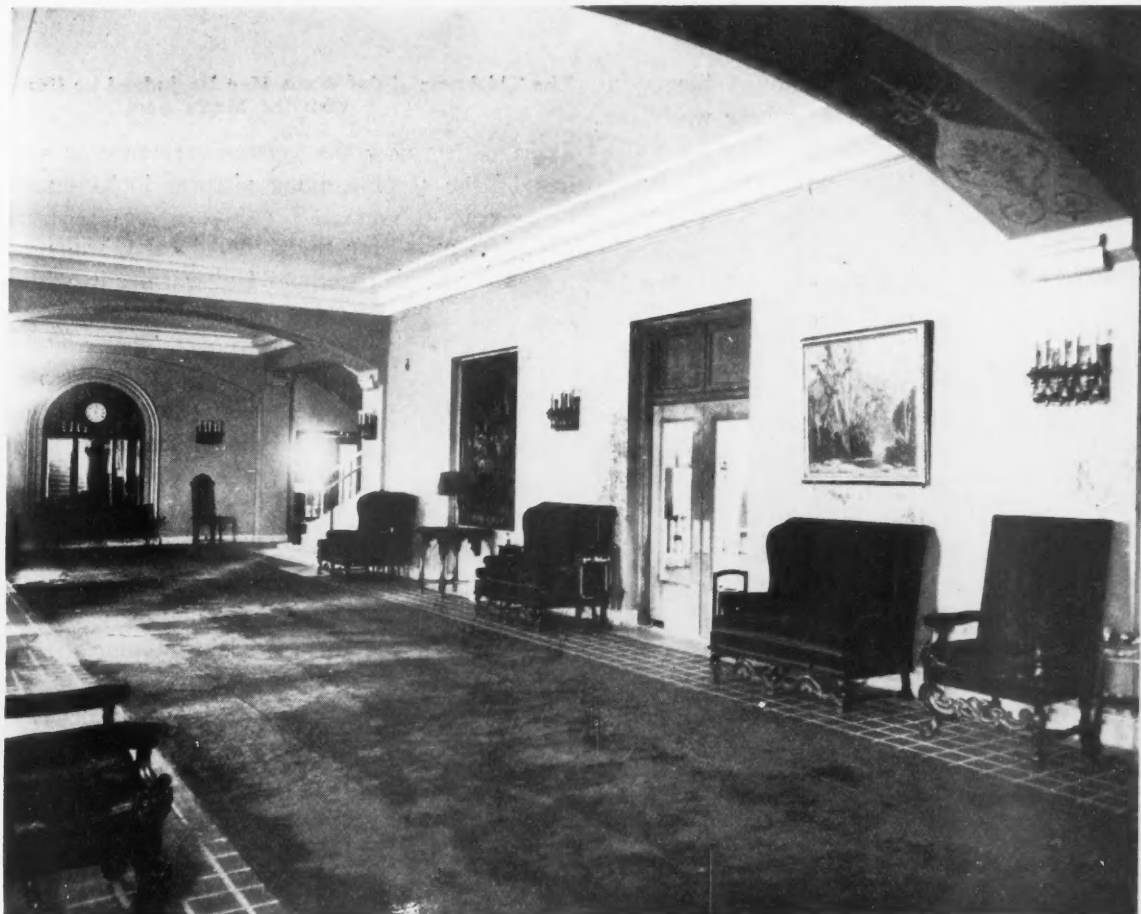
The Oak Park Club, among its officers and membership, has many who are prominent in business and social life, including such men as John L. Davidson, president; Carl Howe and Calvin H. Hill, vice-presidents; C. Burton Crandell, treasurer, and Robert C. Hutson, secretary.



The Swimming Pool of the Club.



The Stage and a Corner of the Ball Room.



The Main Corridor of the Oak Park Club. The decorated beams, tapestry, the paintings and furniture, the soft pile of the carpet suggest comfort, even luxury.

Rammed Earth for Building

A Washington Scientist Utilizes an Ancient System of Construction in Building His "Pise' De Terre" House

By GEORGE H. DACY

RAMMED earth as a building material was used in Africa and Spain as early as 124 B. C. by Hannibal in constructing quarters for his soldiers.

The durability of this construction is evidenced by some of the earthen watch towers built by Hannibal centuries ago which are still standing in Spain.

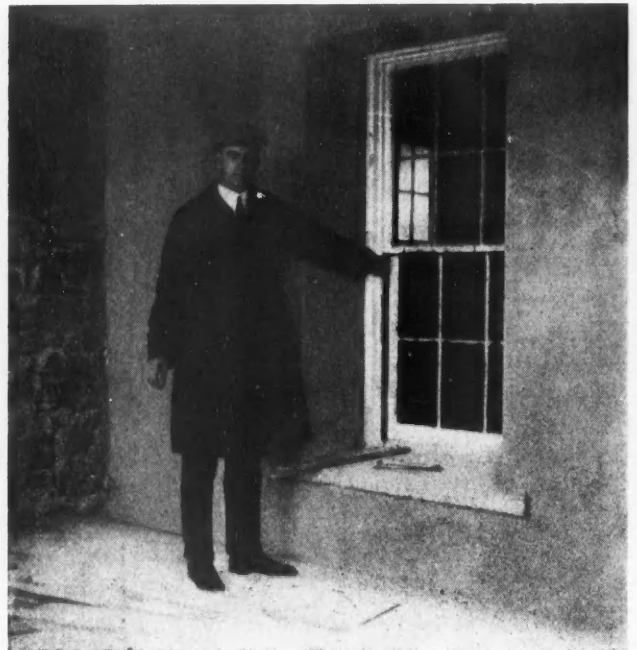
In France and England houses made of rammed earth clay and chopped straw are still habitable and weather-worthy after three to four centuries of use. The oldest house in America, built in 1556 at St. Augustine, Florida, is reputed to be of rammed earth construction.

Dr. Harry B. Humphrey, a Washington scientist, recently decided to build a new home in a National Capital suburb and after thoroughly investigating the subject he finally decided to make the walls of his mansion of rammed earth. Perusal of all the literature in the Congressional Library at Washington which pertained to "pise de terre" construction and correspondence with architects and contractors in South Africa and England were the basis for a short-cut course in construction which qualified the scientist to undertake his unique task.

Dr. Humphrey found an old-fashioned house in Washington which was built in 1773 whose walls are made of rammed earth. Strange to tell, these walls now are as strong as stone as the exposure and chemical action of weathering have made these walls durable as concrete.

When the owner, several years ago, attempted to

wreck this house, he found the walls so substantial that he finally abandoned the razing operations and re-finished the exterior with a dressing of white pebble



The Thickness of the Walls May Be Judged by Comparison with the Man's Arm.

dash so that now the veteran structure as shown in one of the accompanying pictures looks durable for many years to come.

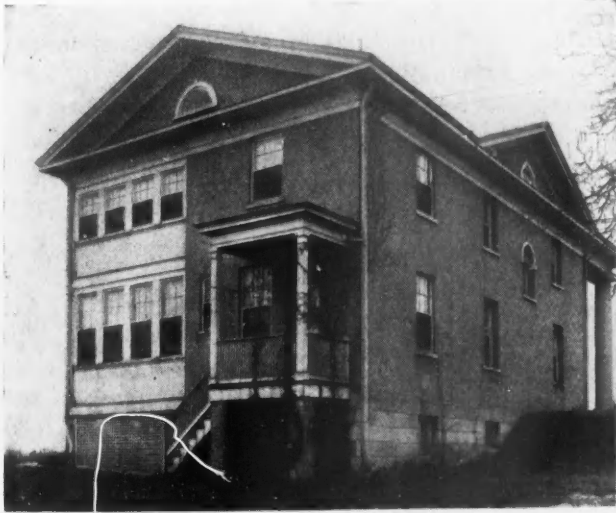
Claims made for the rammed earth walls are that they are cooler in summer and warmer in winter than ordinary construction. They are vermin-proof. The contention is made that the walls are stronger and more resistive to the weather with age. It is the common practice to surface the exterior of the walls with a waterproof coating of hot tar, lime and tallow or cement wash.

National experts made a strength test of a sample of the rammed earth used in building the Humphrey house. A small column of compacted soil 18 inches square and 42 inches high after drying for 16 days showed a crushing strength of 18½ tons. A small cylinder 2 inches high and 1¾ inches in diameter supported a load of 280 pounds in these tests before it fractured.



This Home with Walls of Rammed Earth, Recently Erected in Washington, D. C., Revived a Method of Building Used During the Time of Hannibal.

An outstanding feature of the "pise de terre" buildings is that they are permanently fireproof. Many of these houses in foreign countries have passed through several severe fires without being seriously damaged.



This Dwelling of Rammed Earth Was Built in 1773 and Recently Remodeled.

The top three or four inches of soil must be removed in obtaining satisfactory material for building "pise" walls. The earth must be free of all debris such as sticks, grass, organic matter and other foreign material. All the soil must be sieved carefully to remove such material. Material containing about one part of clay to three or four parts of loam is desirable for rammed earth construction. The material excavated when the basement of the house is dug is usually satisfactory in sections where the soil is not excessively sandy.

Stout wooden forms, even stronger than those ordinarily used in concrete work, are employed, as they are exposed to great pressure in ramming and compacting the earth. Three ordinary laborers who never previously had made any earthen walls were able to lay two cubic yards of "pise" in an eight-hour day on the Humphrey job. This indicates that a solid wall 18 inches thick, 3 feet high and 12 feet long can be installed at a labor cost of approximately \$10.

Usually the best plan is to make the foundation walls of the house of concrete. The earthen walls are raised upon these when the wooden forms are adjusted in place. A 4-inch layer of sifted soil is shoveled into the forms. Then the workmen, armed with tamps or rammers of hardwood weighing 15 pounds apiece and shod with iron, compact the earth into place in the form until it rings when struck and

will show no impression of the rammer after a blow is delivered. Then another 4-inch layer of soil is tossed into the form and rammed into position. Three such courses of material may be safely laid in one day. The forms are raised when a stretch of wall 3 feet high is finished exactly as in monolithic concrete construction. The wooden forms for the doors and windows are set in position by an expert carpenter and then the earth is rammed in place around them. Strange to relate, this wooden material lasts for many years. Abroad, "pise" walls have been carried successfully to a height of 50 feet. If the walls of the ground floor are 18 inches thick, those of the second story may be 15 inches and those of the other floors still thinner, although it is inadvisable to make the upper walls thinner than 8 inches.

In ramming the earth, the strokes must alternate as where they are delivered in unison the tendency is to loosen instead of compacting the earth below the surface struck. Wooden moulding, mopboards and similar wooden material removed from "pise de terre" buildings in Europe have been in good condition after one to two centuries of service. This shows the remarkable moisture resistant properties of the rammed earth walls.

Those experienced in "pise" construction say that this building method is considerably cheaper than the brick, frame or concrete construction. The Humphrey home in Washington is the first rammed earth house to be built in the eastern United States during the last century. Five years ago, at the David Rankin Trade School in St. Louis, a Missouri architect who



The Wooden Forms for Rammed Earth Construction Must Be Stronger than Those Used for Concrete. Notice in the picture the rams of different shapes.

had traveled extensively in Europe build a small storage structure of rammed earth for experimental purposes. This building has proved satisfactory and has been resistant to the vagaries of Mississippi Valley weather.

Rammed earth walls may be finished on the interior as the owner desires. The surface of the firmly compacted soil is as smooth as marble. Decorative paper may be applied directly to the walls. Scientific tests have demonstrated that plaster adheres more tightly to such surfaces than to wood lathe. Fresco decorations were commonly painted over the walls in the early days. When dark loam soil dries out, it presents a brownish surface while red-colored clay changes to a brownish-pink hue.

There is no patent on the forms shown in the accompanying photograph nor are there any restrictions whatsoever on this method of building. The building material costs practically nothing except in regions where the local soil conditions are unsatisfactory. Then the necessary earth would have to be imported from a favorable district.

On account of its reputedly low cost, rammed earth can be used effectively for farm buildings, garages and similar buildings which may be constructed by ordinary laborers. For low buildings, walls from 6 to 12 inches thick, depending on the roof weight, are efficient. Rammed earth will support from 10 to 30 tons of load per square foot.

Fireplaces may be finished with rammed earth walls as the material is resistive to heat and flames. It costs approximately \$130 for a set of forms such as were used in building the house described in this article. Four men can erect the walls for a six-room two-story house in from 8 to 10 days by hand. If they use a mobile power plant and an air compressor to perform the ramming, the job should be done in about three days.

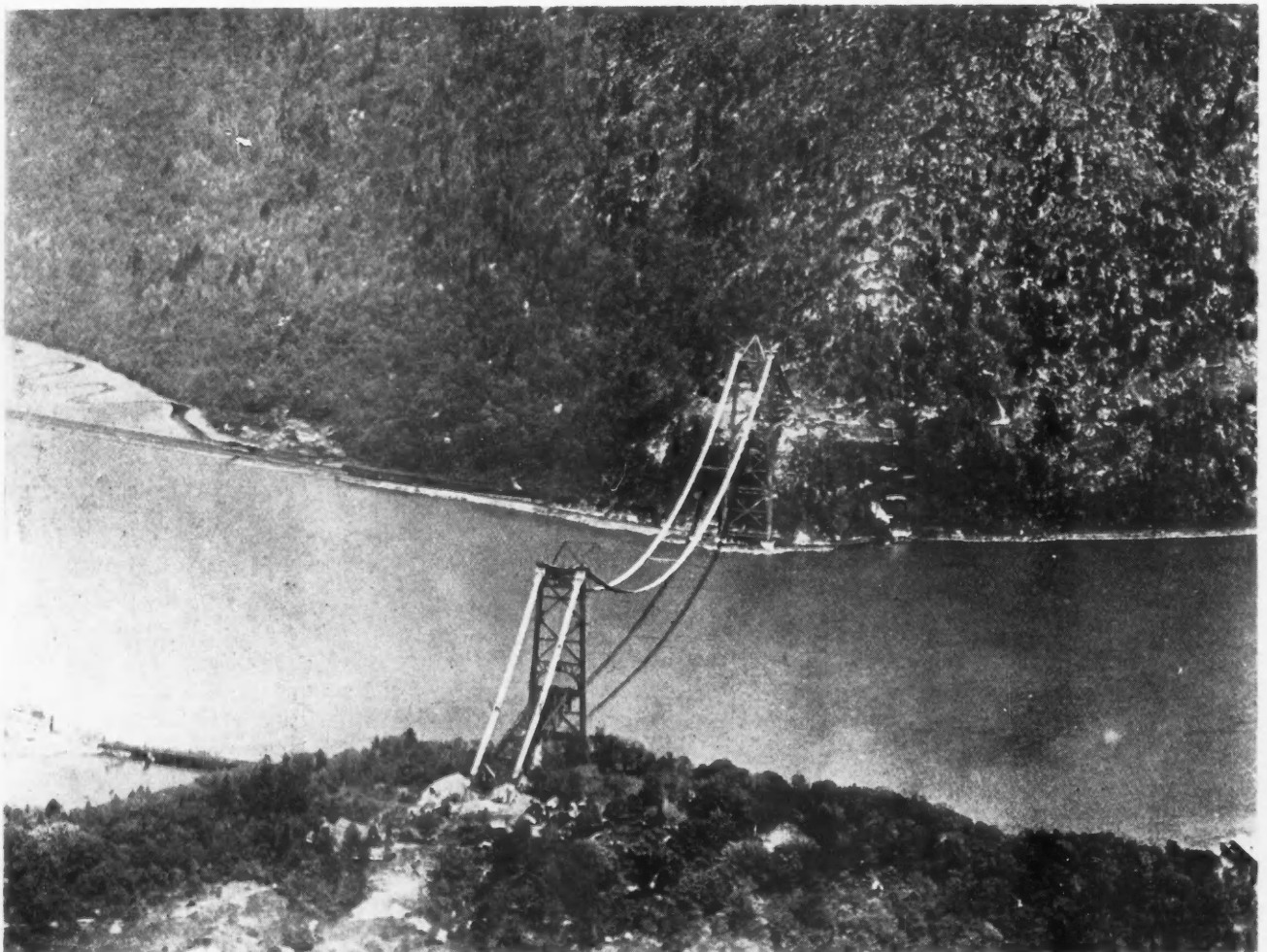


Why They Are Called "Penny" Nails

IT should really be "pounds," not "penny," when you ask for a six-penny or an eight-penny nail. Years ago it used to be that a thousand nails of a certain size weighed six pounds, of another a bit larger the same number weighed eight pounds—hence, eight-pound nails, six-pound nails, which, hurriedly spoken, soon became contracted to six-penny, eight-penny.—J. A. MOUNTFORT.



SHOW the Home Designs in colors in this magazine to your friends who ought to build. They will be persuaded.



For the First Time the Great Hudson River Has Been Spanned by a Bridge South of Poughkeepsie, N. Y. Workmen building the Peekskill-Bear Mountain vehicular bridge have recently linked the two shores and this largest of suspension bridges is now rapidly nearing completion. This airplane view of the structure gives an excellent idea of what the engineers had to cope with and the nature of the bridge which will have the longest suspension span in the world. It will have an over all length of 2,255 feet, a main span of 1,632 feet and a clearance at high water of 153 feet.

WHO'S WHO IN THE BUILDING INDUSTRY

A Department of Late New Photographs of Men Who are Right Now in the Public Eye



HENRY R. ISHERWOOD
Of St. Louis, International Secy.-Treas., The Concatenated Order of Hoo-Hoo, the fraternal organization of Lumbermen, is the author of a new book, "Friends of the Forests."
Strauss Photo



JOHN M. COOPER
Architect, general contractor and engineer, Los Angeles, has brought out some new principles of mass concrete design in the Maxfield Building, which will be built soon on Santee street, Los Angeles.
Witzel Photo



C. A. UPSON
President and director of the manufacturing division, The Upson Company, Lockport, New York. Under his aggressive leadership Upson manufacturing experts have pioneered many of the accepted modern improvements in fibre-wall-board products.
C. Amplatz Photo



W. H. UPSON, JR.
Secretary and Treasurer and Director of Commercial Division, The Upson Company, Lockport, New York. Originator of most of the progressive sales policies which have helped bring The Upson Company from a small beginning to its present dominant position in the wallboard industry.



FRANK D. DINKLEBERG
Chicago, architect of new 42-story Jewelers' Building which will grace new South Water Street. Mr. Dinkleberg was for many years a colleague of the late Louis H. Sullivan.
Brand Photo



P. W. SAWYER
Pres., Wausau Abrasives Co., Wausau, Wisconsin, on Nov. 1 celebrated his 31st anniversary as a manufacturer of sandpaper and other abrasives.



CLINTON B. ROGERS
Sales Mgr., Sandusky Cement Co., Cleveland, O., recently celebrated his twenty-fifth year in the Portland cement business.
Radtuch Photo



JOHN B. KELLY
Philadelphia building contractor, who, with his friend, Costello, won the double sculling championship of the world at the 1924 Olympics.



WM. H. GOMPERT
Architect, Supt. of School Buildings, the City of New York, where 82 school buildings are now under construction and 40 more being planned—a program totaling \$150,000,000.
Fach Bros. Photo



ERNEST T. TRIGG
Well-known paint manufacturer of Philadelphia, who was chairman of the President's Conference on Unemployment, which has done so much to take the seasonal element out of building.
Photo-Crafters Photo



I. W. PINNELL
Prominent lumber dealer of Indianapolis is the author of some very pertinent advice on "Reducing Building Costs" appearing on page 87 of this magazine.



ARTHUR M. EAST
of Philadelphia, Bus. Mgr. Save the Surface Campaign, took a leading part in the annual deliberations of the Paint and Varnish Industry at the Atlantic City Convention, Oct. 15 to 22.
Phillips Photo

Is the Bathroom the Most Important Room in the House?

By **KARL WILLIAM ZOELLER**

Author of Merchandising the Plumbing Business.

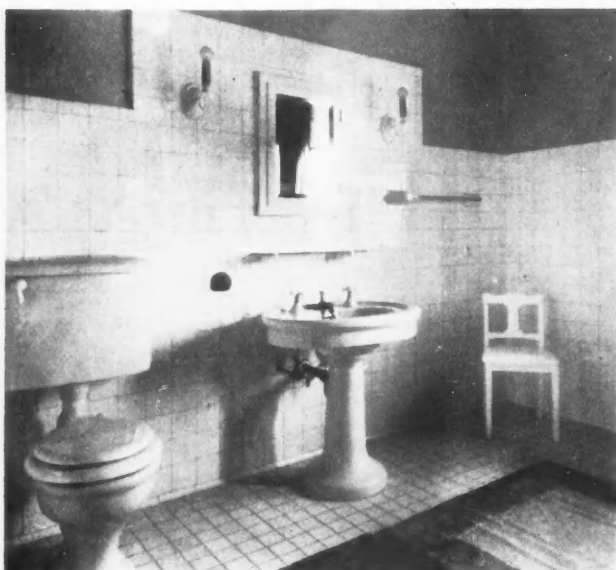
EDITOR'S NOTE: *This is the second of a series of articles by Mr. Zoeller, dealing with the importance of plumbing equipment in building. The first article of the series appeared in the October issue of the AMERICAN BUILDER.*

SALESMANSHIP is an important adjunct to the building industry. It is quite as important to sell or rent a building after it is constructed as it is to build it; building contractors are fast becoming the best salesmen on earth, as is evidenced by their constant improvement in building materials and by their close attention to public demand.

And after all filling public demand is the best salesmanship. The salesman whose only interest lies in a one time sale limits his ability and earning capacity. To recognize public demand it is necessary to study carefully the improvements that are going on at all times in every industry and to realize that these improvements are the crystallization of public demand.

In keeping with this thought, we offer here some facts concerning a subject that should have the earnest consideration of every building contractor.

For health and hygiene the bathroom may be said to be a temple of health where we all worship at the shrine of happiness and efficiency. Frequent bathing is recognized by medical authorities as the most necessary and practical basis for good health. America with its greatest percentage of bathtubs stands out as the healthiest of nations. The subjects of the ancient Roman Empire were healthier than those of the nations that succeeded them and who destroyed the beautiful public baths



The Bathroom Is a Temple of Health Where We Worship at the Shrine of Happiness and Efficiency.

where was spent a part of the daily life of Roman citizens. If you will remember your history, you will recall that one of the enduring monuments to the conquering armies were the Roman Baths which were built in conquered territories. Disease scourges and epidemics were prevalent among the conquerors of the Romans who destroyed the baths and did not bathe themselves.

Second only in importance to health is efficiency; the one usually comes with the other. Hot and cold baths are stimulating to the nerves. Dr. Thomas Darlington, former director of public health for the city of New York and a recognized authority on the subject of hygiene, has said that if a hot and then a cold shower is indulged in, after a hard day's work, the poison toxins which have caused the tiredness will be driven from the system and the bather will be as fresh as after a refreshing sleep.

The bathroom is first aid room for sickness in the family. Here are kept the medicines and the various appliances that help ease pain or comfort the indisposed.

It is the first place we go in the morning when we leave our beds and the last place at night before we retire. The bathroom is the one room that every member of the family finds necessary and it is also one luxury all may enjoy.

The hostess in welcoming her guests immediately after greetings are over, conducts them to the bathroom to refresh themselves after the journey. Thus the bathroom is usually the first room the guest has opportunity to closely observe and first impressions of the home are formed by the appearance and modernness or luxuriousness of the bathroom and its equipment.

Building contractors should know the sales psychology of the bathroom in its relation to the balance of the house and give due importance to the part it plays in the lives of their prospective clients. When the foregoing facts are considered it is not difficult to understand why a majority of people looking for a home ask to see the bathroom first. And this is particularly true of women. People generally appreciate the importance of the bathroom and the wise contractor is he who anticipates the wishes of his patrons.

What Kind of a Bathroom Should a Home Have?

Only a few years ago the cost of a luxurious bathroom equipment was prohibitive, and the things which are considered necessities now were luxuries then; but the increased demand for more and better bathrooms has reduced price so that a very fine bathroom

may be had today at the cost of an ordinary one of a generation ago.

Manufacturers are constantly creating new designs, bathroom equipment is becoming more luxurious with each passing season, a much wider selection may be had. We have arrived at a point where it is possible to be individual and even original in the fitting of the equipment.

Some of the manufacturers are now showing bath tubs in beautiful colors and tints; tile manufacturers have given us much assistance in this particular. It is no longer necessary to build bathrooms in the monotonous and prosaic white. Sunken bath tubs that only a millionaire could afford a short while ago are now found in modest bungalows. Much additional equipment has now become a standard part of the bathroom and has added to its utility and attractiveness. The dental lavatory is obviously a much needed convenience for cleanliness and hygiene; its wide use in Pullman car wash rooms was a forerunner of its practicability and adoption as necessary in the home.

The dressing table adds a new note to the efficiency and comfort of many bathrooms.

The bidet, which until recently was considered a convenience only in homes of the very wealthy and was more popular in Europe than America, probably on account of our false modesty, has now come into its own and is considered an important essential to every perfectly appointed bathroom. Bathroom scales are built into the floor, affording an additional note of comfort and protection to the health of every member of the family.

Medicine cabinets have come to mean much more than cupboards built into an odd space in the wall. The modern cabinet is a well constructed affair, very practical and large enough to house the many articles that are a necessary part of the accessories of bathrooms. It is usually constructed of steel and is easily accessible.

Towel bars, soap dishes, hand rails, tooth brush and tumbler holders, towel racks, hooks of every description and for every need have not only been perfected and made substantial, but are of such beauty of design that they actually affect the appearance of the room. As a matter of fact, a bathroom that has been perfectly equipped with modern tub, bowl, lavatories and so on, may be ruined in appearance with the addition of the wrong kind of cheap accessories.

Manufacturers of these accessories have made big strides in recent years and they are to be had in brass, enameled iron or in solid china. Some are attached to the wall while others are built in and are permanent installations.

In some of the more expensive rooms, the closet bowl is set in a small closet by itself. Shower stalls are often built in a separate cabinet where the bather may

have unlimited enjoyment of this type of bath and may have as many kinds of sprays and needle sprays as his fancy dictates.

Tile makers have perhaps contributed the most important addition to bathrooms from the selling angle. There is a saying in the retail selling business that no matter how meritorious your article may be, it is not appreciated by the public unless you present it in a proper package. In fact, it has been remarked that medium priced goods have often outsold a much better grade for the reason that they were more handsomely packaged. The walls of the bathroom, therefore, are the package the contractor delivers his creation in, and in this the tile manufacturer has lent considerable assistance. The wide variety of designs and colors permits of many beautiful effects and permits the contractor to set forth his bathroom to its best advantage. Plaster material manufacturers are also co-operating by producing bathroom wall coverings in many new designs and colors that are very effective.

To the above thoughts must be added another quite as important and is regarding the number of bathrooms. There should be at least one for each two persons in the home. The greatly increased use has developed its need and hence more bathrooms are required in each home to take care of the requirements of every member of the family.

Is the Bathroom the Most Important?

We have tried to set forth briefly a few of the many uses and the need for more and better bathrooms and equipment. It is believed that building contractors with these facts before them will see the importance of better bathrooms and the reason for them, and above all will see where this knowledge will help in satisfying public demand.



Guests Often Form First Impressions of the Home from the Appearance and Modernness of the Bathroom Equipment.

Sheetmetal Work on the Roof

The First of a Series of Articles on Proper Flashing Methods Sponsored by the
Copper and Brass Research Association

FLASHING of roofs, and sheet metal work, important as it is in any building construction, presents many problems which are bothersome to the builder, even though he be exceptionally well informed. Realizing this, and that there is a real need for information as to the best practice in this field, the Copper and Brass Research Association has compiled, with the help of a group of experts, a body of data as to the best methods of handling all roof sheet metal work.

This work the AMERICAN BUILDER, through the co-operation of the Copper and Brass Association, will present to its readers in a number of installments, illustrated with remarkably clear detail drawings, of which this is the first.

Concerning the plates presented on the opposite page and those which will be shown in the following installments a number of general comments should be noted and applied.

The drawings are intended to show the details for every trade involved in any particular type of construction and are suitable for use by the drafting room in designing details. The distortion of the details will be apparent at the first glance, but this has been done for emphasis and so that the treatment will be clear.

The notes on the drawings have been simplified as much as possible to avoid too much lettering. For this reason the word "shingles" refers to all small piece roofings, such as slate, shingles, shingle tile and other like materials.

The expressions "cap" and "counter" flashings are used as synonymous terms throughout.

The practice of folding back all loose or exposed edges of flashings, as shown in the plates, is recom-

mended. The return is about $\frac{1}{2}$ inch and may be done either in the shop or on the job. It stiffens the edge considerably and prevents lifting by the wind, clogging with snow and ice and attendant troubles. It also makes a neat finish. The edges are flattened slightly together. In the drawings they have been shown slightly open for clearness.

The use of building paper under all flashings is recommended. It purposely has been omitted from the drawings to avoid confusion.

Practically no details involving patented roofing devices have been shown. There are many of these on the market, most of which are practicable. We recommend the use of those devices which are made of heavy gauge metal because they represent a quality product, the result of the best workmanship by reputable manufacturers.

The flashings for metal shingles have not been shown. They are, in almost every case, of special design and are supplied by the manufacturers.

Here are some general rules which should be applied to all metal work.

Prepare the laying surface carefully and see that it is smooth and even.

(A) All flashings, gutter linings, etc., should be laid on rosin-sized paper or asbestos felt.

(B) Sheathing boards should be shiplap, tongued and grooved or splined.

(C) All nail heads should be set.

Avoid sharp bends in metal sheets.

(A) Do not crease or bend sheets more than 90 degrees.

(B) Bend the sheets as little as possible before laying.

NOTES FOR DRAWING ON PAGE OPPOSITE

Flashing for Dormer Window

Fig. 1.—The flashing for a dormer window covered with shingles and on a shingle roof is shown in Fig. 1. The flashing sheets should be so placed that each sheet will lap the one below at least 2 inches and be separated by one shingle thickness. The sheets should extend up on the walls at least 4 inches and be nailed near the top with one or two copper nails as shown. The flashings will not be visible on the roof or walls except on the roof below the front wall where they lap over the top of the shingles 4 inches. Care should be taken to see that each sheet extends up above the shingle on which it rests, so that it may be nailed without nailing through the shingle.

For the Chimney on Roof Slope

Fig. 2.—A chimney on the slope of a shingle roof is flashed as shown in Fig. 2. The base flashings on the roof are formed and fastened as in Fig. 1. The cap flashings should be built in as the chimney is con-

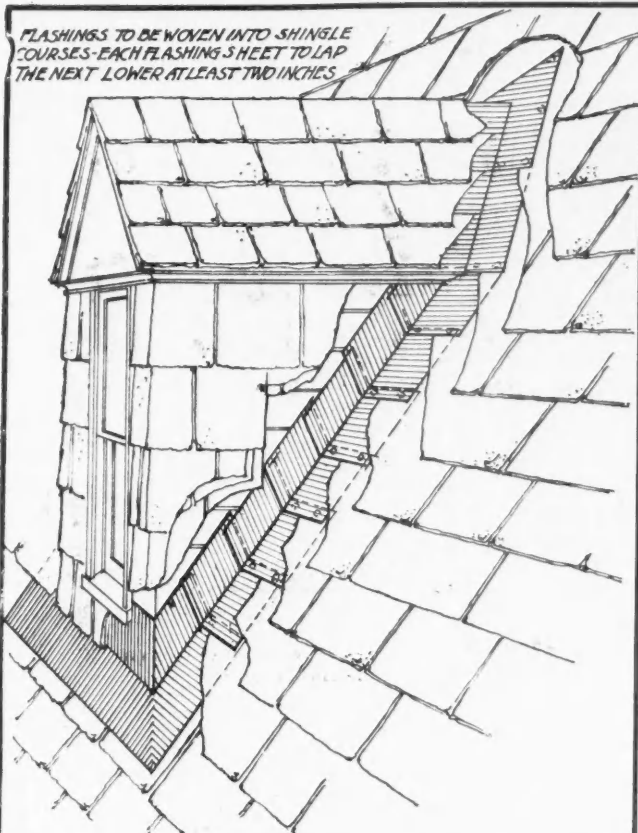
structed and stepped as required by the slope of the roof. They should be built into the joints of the brick work about 2 inches and each sheet should lap outside the sheet below at least 2, and preferably 3, inches.

Forming a Cricket

Fig. 3.—A cricket, or saddle, should be formed back of all chimneys to throw the water to either side of the chimney as shown in Fig. 3. It is generally formed of wood with sufficient slope to serve its purpose and covered with copper in the same manner as a base flashing turned up on the brick work, and cap flashed as described in Fig. 2.

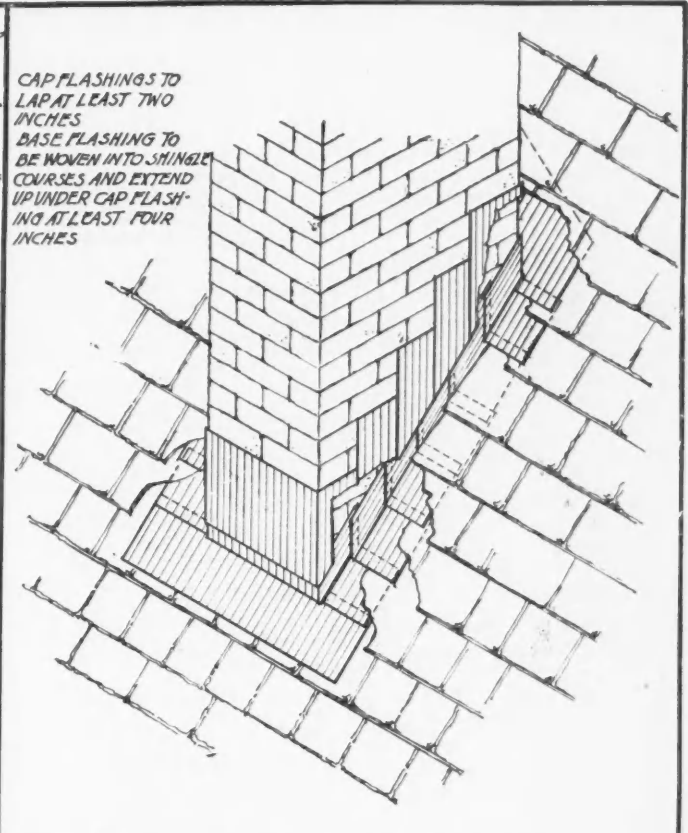
Flashing Chimney on Ridge

Fig. 4.—The method of flashing a chimney on the ridge of a shingle roof is shown in Fig. 4. The base flashing is here shown in one large sheet, but it may be made in small sheets as described in Fig. 2, if desired. The cap flashing is formed as described in Figs. 2 and 3.



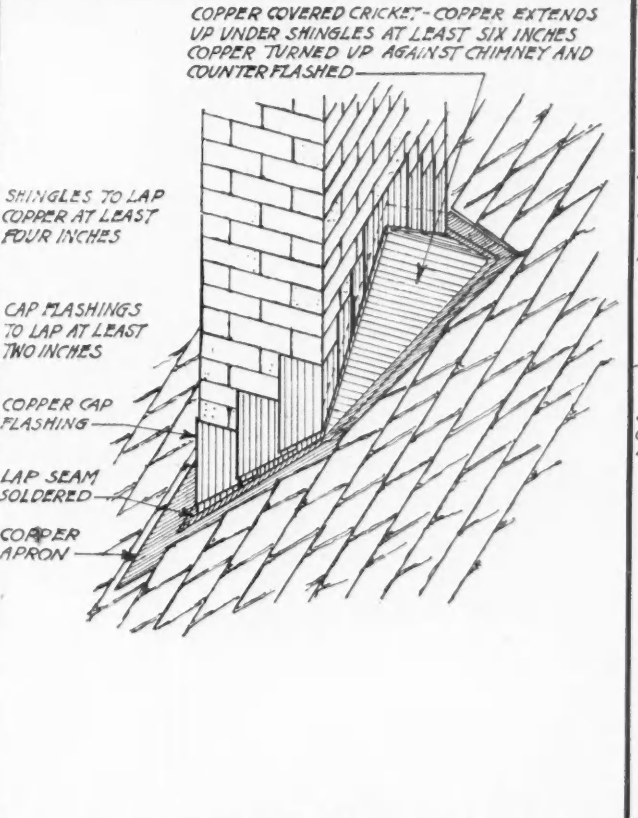
FLASHINGS TO BE WOVEN INTO SHINGLE COURSES—EACH FLASHING SHEET TO LAP THE NEXT LOWER AT LEAST TWO INCHES

BUILT IN BASE FLASHING FOR DORMER WINDOW ON SHINGLE ROOF ①



CAP FLASHINGS TO LAP AT LEAST TWO INCHES
BASE FLASHING TO BE WOVEN INTO SHINGLE COURSES AND EXTEND UP UNDER CAP FLASHING AT LEAST FOUR INCHES

BUILT IN BASE FLASHING FOR CHIMNEY ON SLOPE OF SHINGLE ROOF ②



COPPER COVERED CRICKET—COPPER EXTENDS UP UNDER SHINGLES AT LEAST SIX INCHES
COPPER TURNED UP AGAINST CHIMNEY AND COUNTER FLASHED

SHINGLES TO LAP COPPER AT LEAST FOUR INCHES

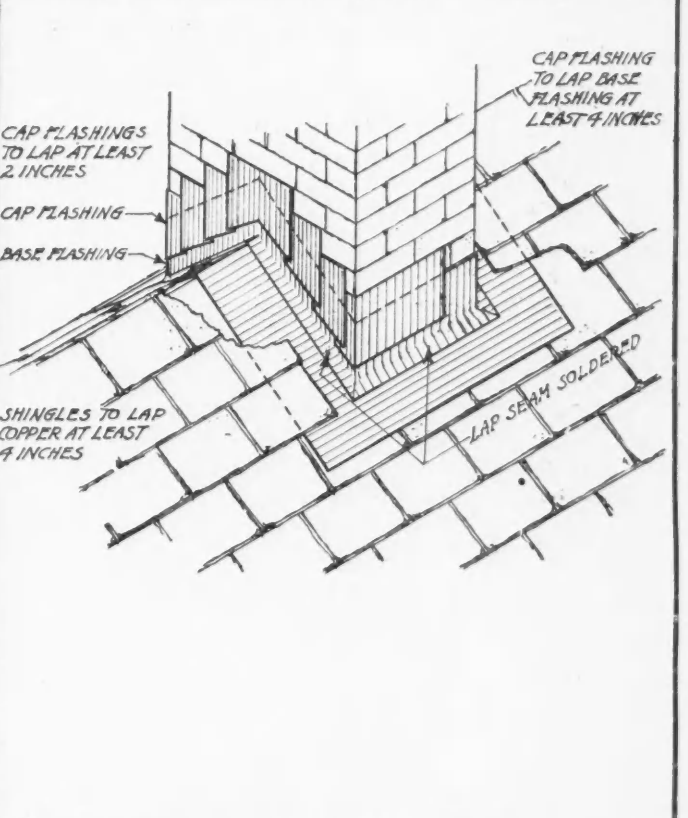
CAP FLASHINGS TO LAP AT LEAST TWO INCHES

COPPER CAP FLASHING

LAP SEAM SOLDERED

COPPER APRON

FLASHING FOR CHIMNEY ON SLOPE OF SHINGLE ROOF ③



CAP FLASHINGS TO LAP AT LEAST 2 INCHES

CAP FLASHING

BASE FLASHING

SHINGLES TO LAP COPPER AT LEAST 4 INCHES

LAP SEAM SOLDERED

CAP FLASHING TO LAP BASE FLASHING AT LEAST 4 INCHES

FLASHING FOR CHIMNEY ON RIDGE OF SHINGLE ROOF ④

Detailed Explanations of These Drawings Will Be Found on the Preceding Page.

Oct. 17

1510194



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Whereas

WILLIAM A. RADFORD,
of

Chicago,

Illinois,

PRESENTED TO THE **Commissioner of Patents** A PETITION PRAYING FOR
THE GRANT OF **LETTERS PATENT** FOR AN ALLEGED NEW AND USEFUL IMPROVEMENT IN

BOOKS,

A DESCRIPTION OF WHICH INVENTION IS CONTAINED IN THE SPECIFICATION OF WHICH
A COPY IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND COMPLIED WITH THE
VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED, AND

Whereas UPON DUE EXAMINATION MADE THE SAID CLAIMANT IS
ADJUDGED TO BE JUSTLY ENTITLED TO A PATENT UNDER THE LAW.

NOW THEREFORE THESE **Letters Patent** ARE TO GRANT UNTO THE SAID

William A. Radford, his heirs

OR ASSIGNS

FOR THE TERM OF **SEVENTEEN** YEARS FROM THE DATE OF THIS GRANT

THE EXCLUSIVE RIGHT TO MAKE, USE AND VEND THE SAID INVENTION THROUGHOUT THE
UNITED STATES AND THE TERRITORIES THEREOF.



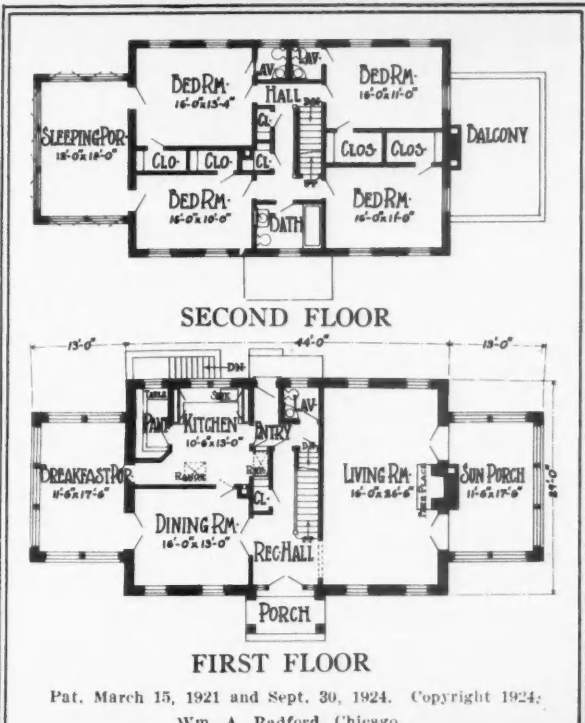
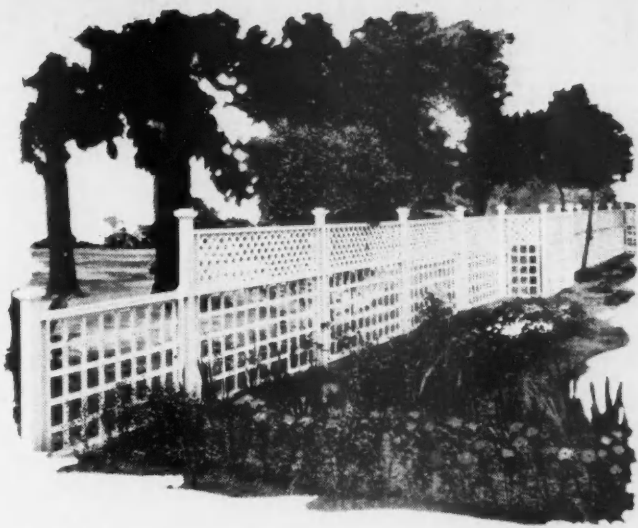
*In testimony whereof, I have herunto set my
hand and caused the seal of the Patent Office
to be affixed at the City of Washington
this thirtieth day of September,
in the year of our Lord one thousand nine
hundred and twenty-four, and of the
Independence of the United States of America
the one hundred and forty-ninth.*

Attest:

G. D. Tucker
Law Examiner.

Thomas E. Robertson
Commissioner of Patents.

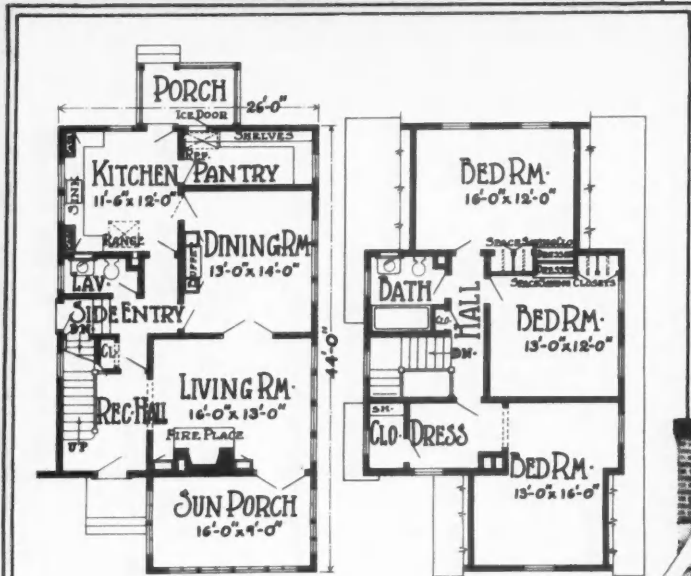
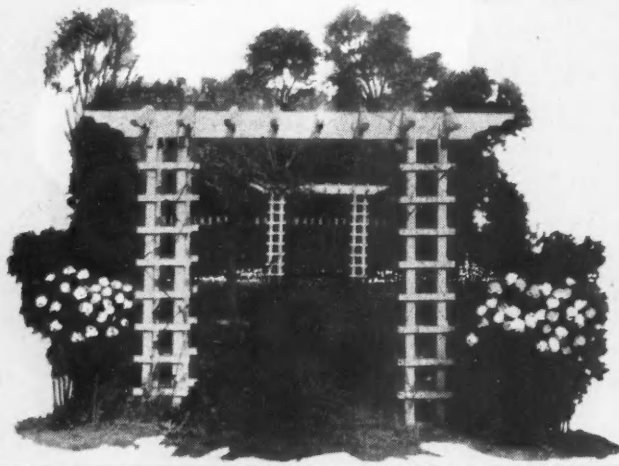
Here Is a Photogravure Reproduction of the Letters Patent Granted William A. Radford, Editor-in-Chief of the American Builder, to Protect Him from Infringement on the Four-Color Home Building Design Section on the Following Pages. This is recognition by the U. S. Patent Office that this method of presenting home building designs is original and worthy of protection against imitators.



The Belmont

COLONIAL in its dignity, but entirely modern in its construction and appointments is this home of brick. The breakfast, sun and sleeping porches are appealing features, not always found in dwellings of the Colonial type. The paneled living room of the home, shown here, gives a hint of the beautiful interiors possible.

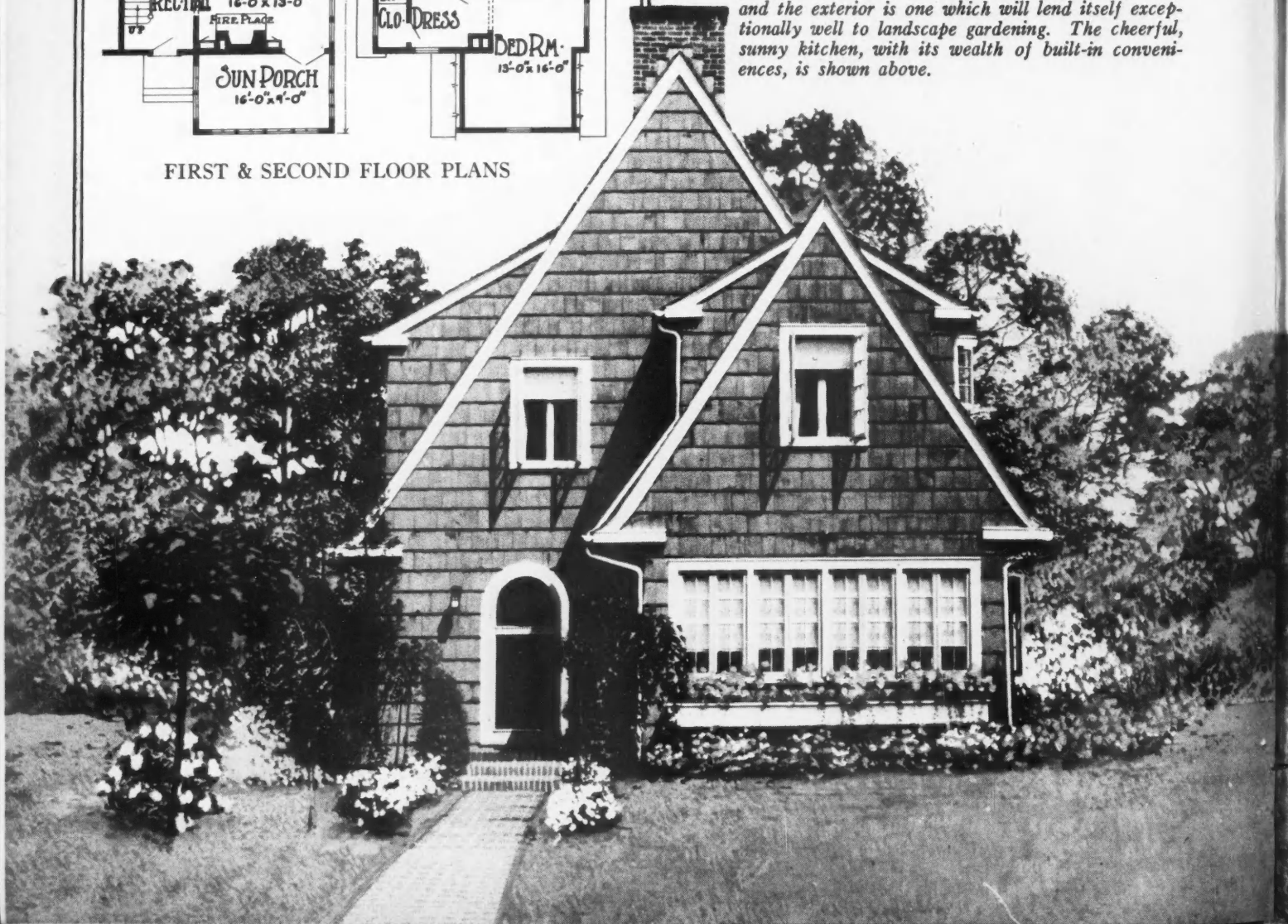


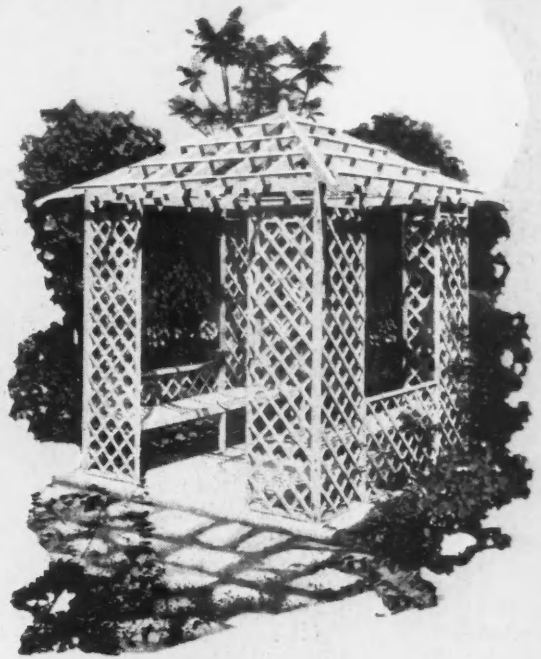
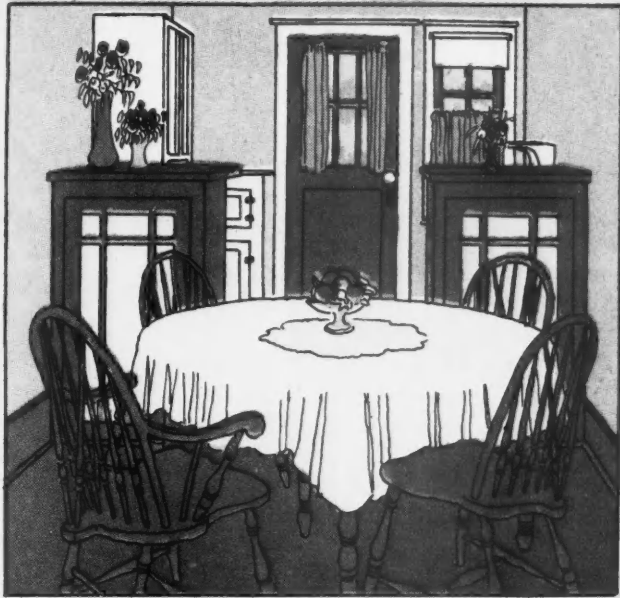


FIRST & SECOND FLOOR PLANS

The Baxter

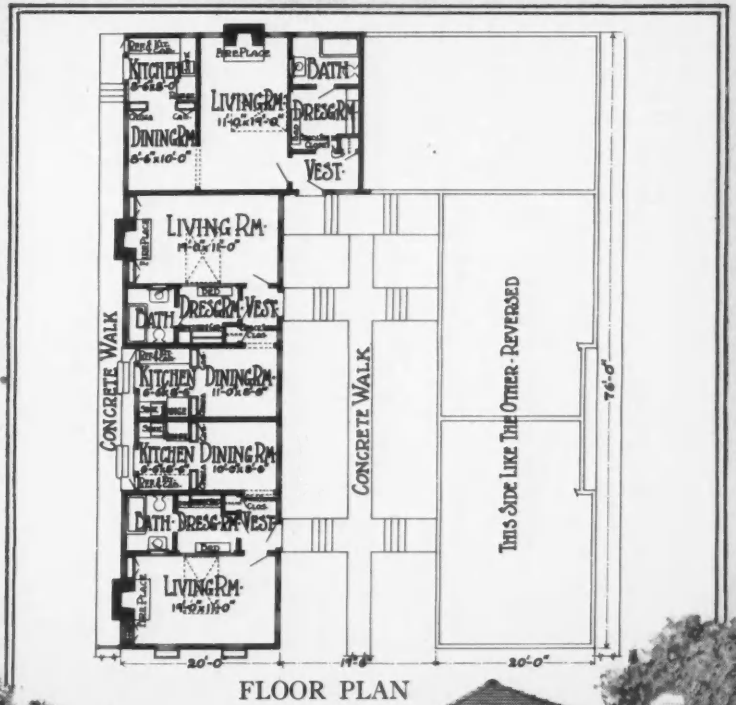
SHINGLES, laid wide to the weather, casement windows and well thought out roof lines constitute no small part of the attractiveness of this exceptionally well lighted home. Its width, twenty-six feet, makes it well suited to the lot of average size, and the exterior is one which will lend itself exceptionally well to landscape gardening. The cheerful, sunny kitchen, with its wealth of built-in conveniences, is shown above.





The Bancroft

SIX comfortable sets of living quarters are contained in this court building of the bungalow type. Each group contains a long living room equipped with a closet bed, an attractive combination dining room-kitchen, a dressing closet and a bath. The manner in which economy of space is accomplished and an attractive interior maintained in the kitchen-dining room is shown in the illustration above, where the kitchen section may be seen separated from the dining room by projecting cases.



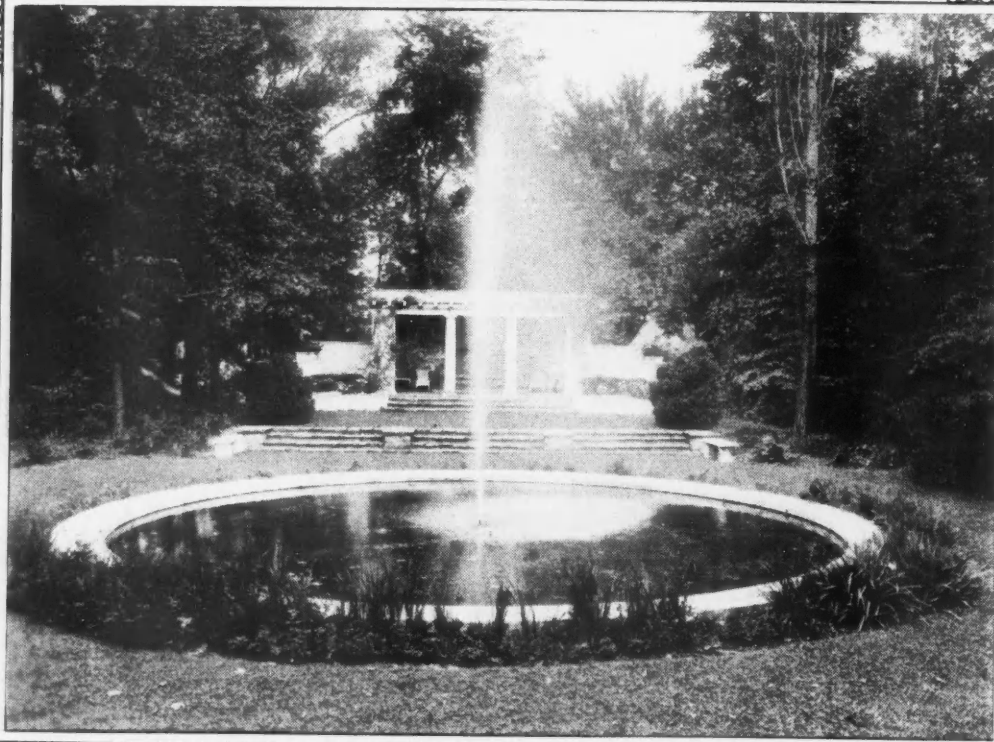
FLOOR PLAN





**PERENNIAL
BORDER
PLANTINGS.**

Winding garden walks are beautified by planting of perennials. Here is a mixture of ornamental grasses, tiger lilies, phlox, coreopsis and elephant ears. These plants being perennials they renew themselves year after year and only need trimming and thinning.



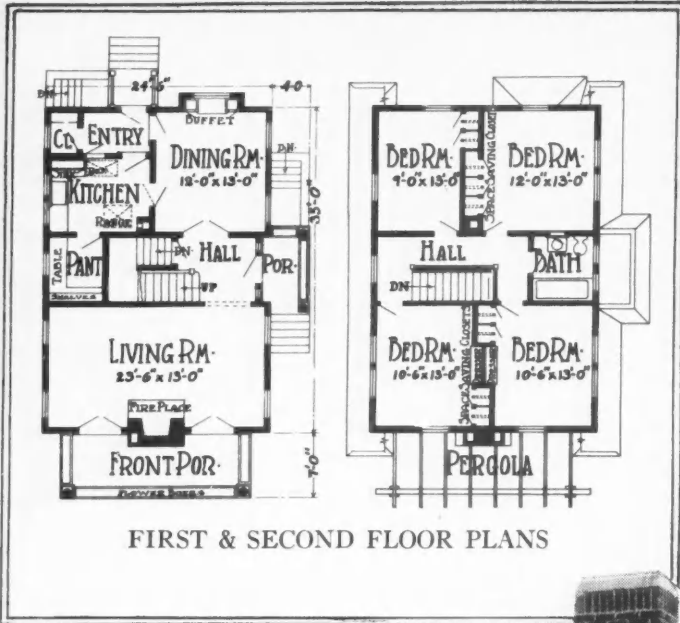
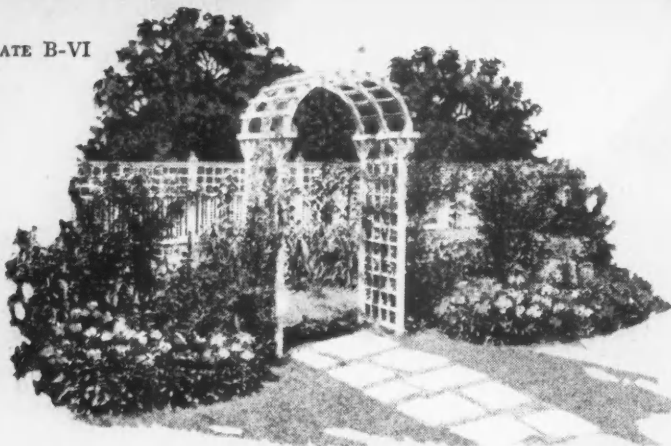
**SUGGESTION FOR SUMMER HOUSE,
FOUNTAIN AND POOL.** *Set in the seclusion of a wooded section of the grounds, the fountain and pool with a border planting, and the pergola type summer house make a very attractive group.*





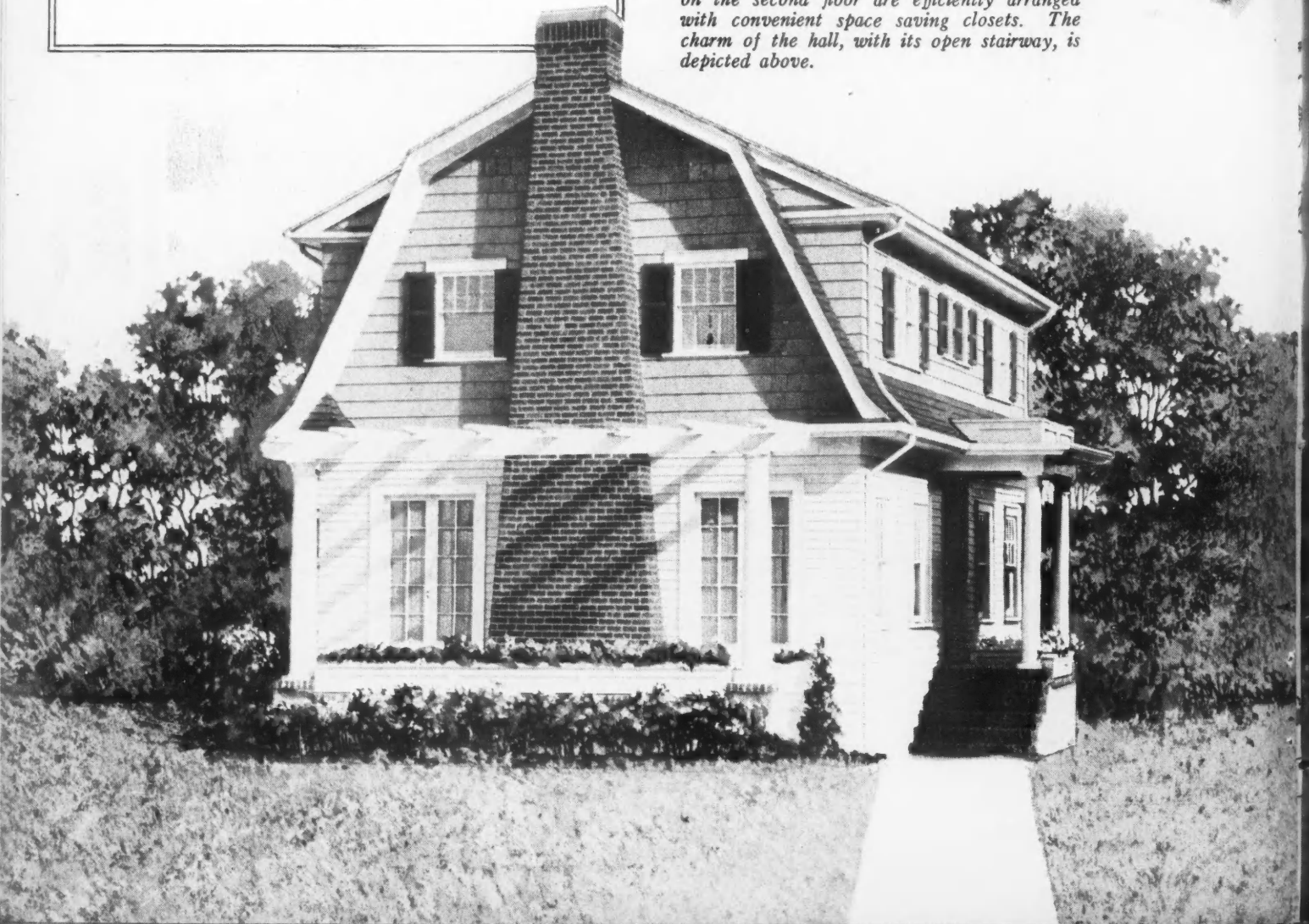
IN A CHRYSANTHEMUM HOUSE. The chrysanthemum has many variations, as will be noted by this interior view of a famous Chrysanthemum House. In the foreground is a border of daisy chrysanthemums, while back of them to the right are the chrysanthemums proper. Pompons of different varieties are banked in the left background. The hanging baskets are filled with Boston ferns, while the bowls hold Phoenix ferns.

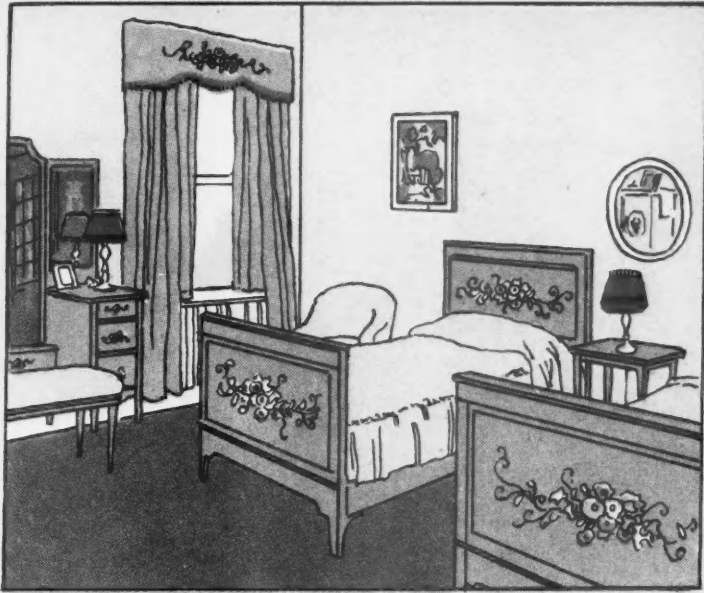




The Bedford

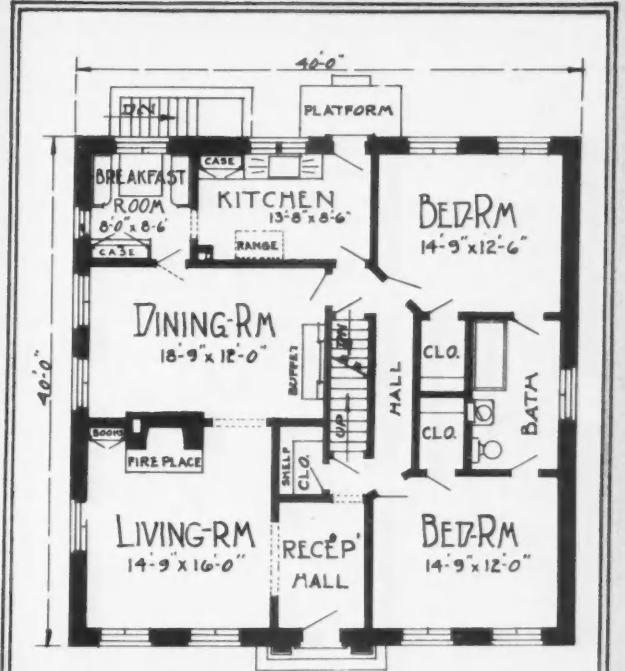
WHITE siding, shingled gables, pergola and entrance combine to make the Bedford a pleasing Dutch Colonial design. The long living room is well proportioned and the recess for the buffet adds much to the usable space in the dining room. The four bedrooms on the second floor are efficiently arranged with convenient space saving closets. The charm of the hall, with its open stairway, is depicted above.





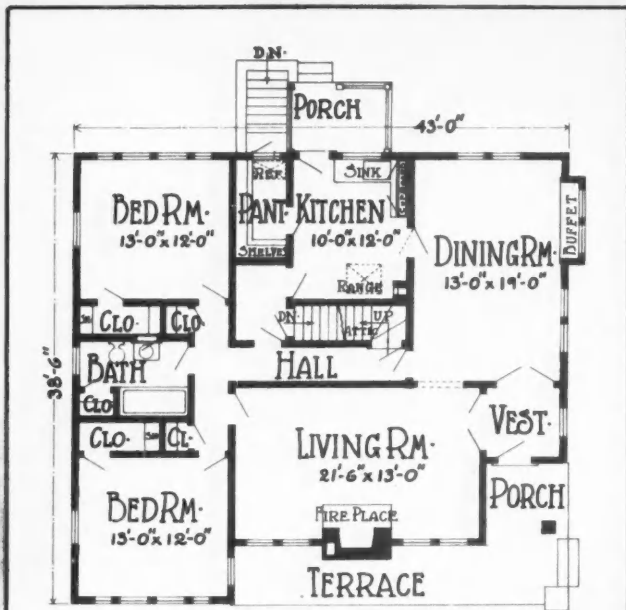
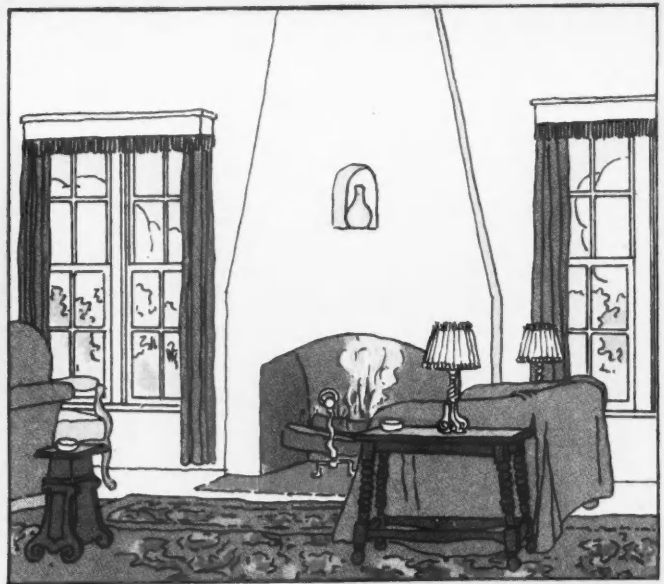
The Brunswick

THE well planned doorway and white painted lattice work are attractive features of this tile roofed home of brick. The square floor plan lends itself well to the efficient arrangement of the rooms, with the living room, dining room and kitchen occupying one side of the home and the two bed rooms on the other side of the reception hall. A suggestion for the decoration of one of the bed rooms is shown above.



FIRST FLOOR PLAN



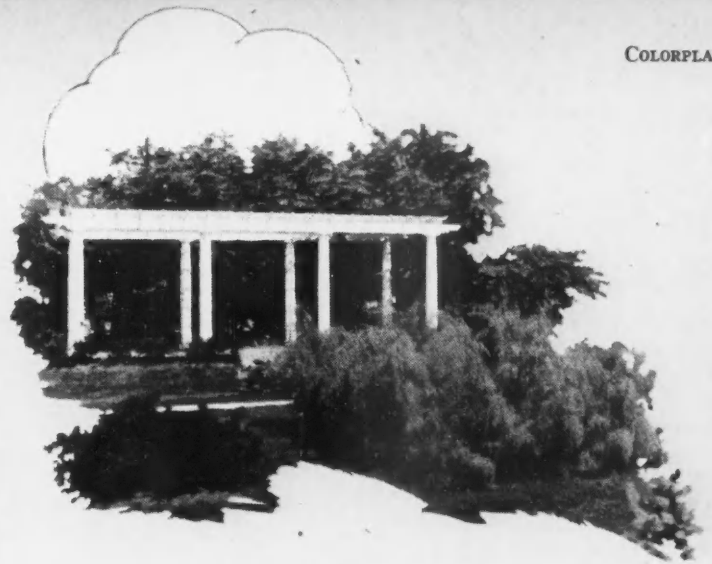
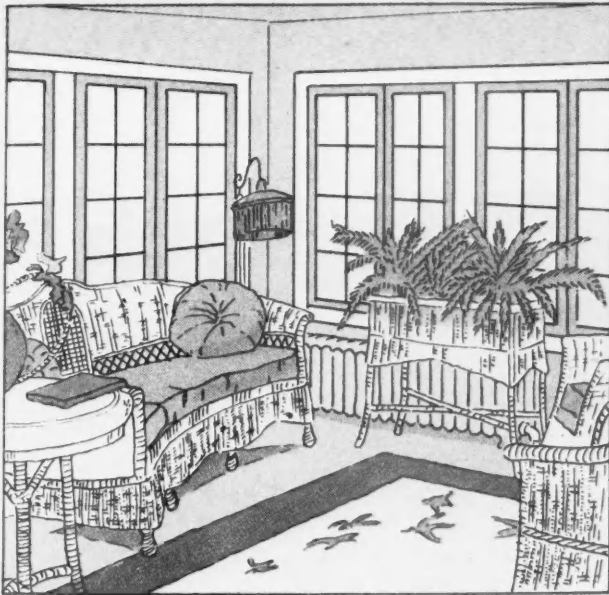


FIRST FLOOR PLAN

The Bellevue

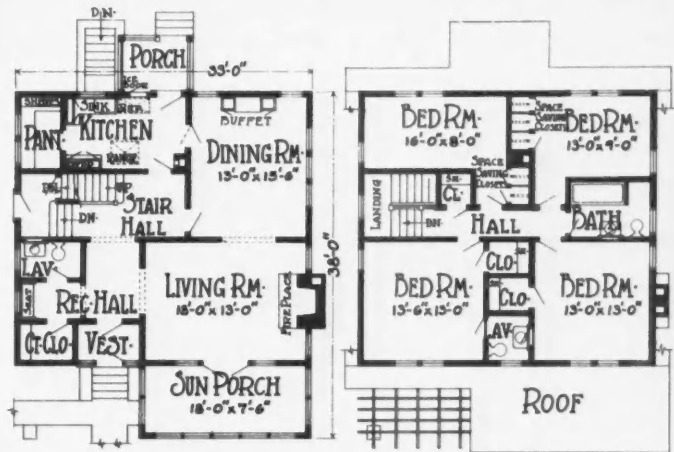
MULTI-COLORED shingles in the gables of the tinted stucco walls, the brick fireplace chimney against the background of the roof and the unusual entrance make this home particularly attractive from the exterior. The vestibule opens into the living room on one side and the dining room through another set of doors. The unusual and charming fireplace planned for the living room is illustrated above. The available space in the dining room is increased materially by the recess for the buffet.





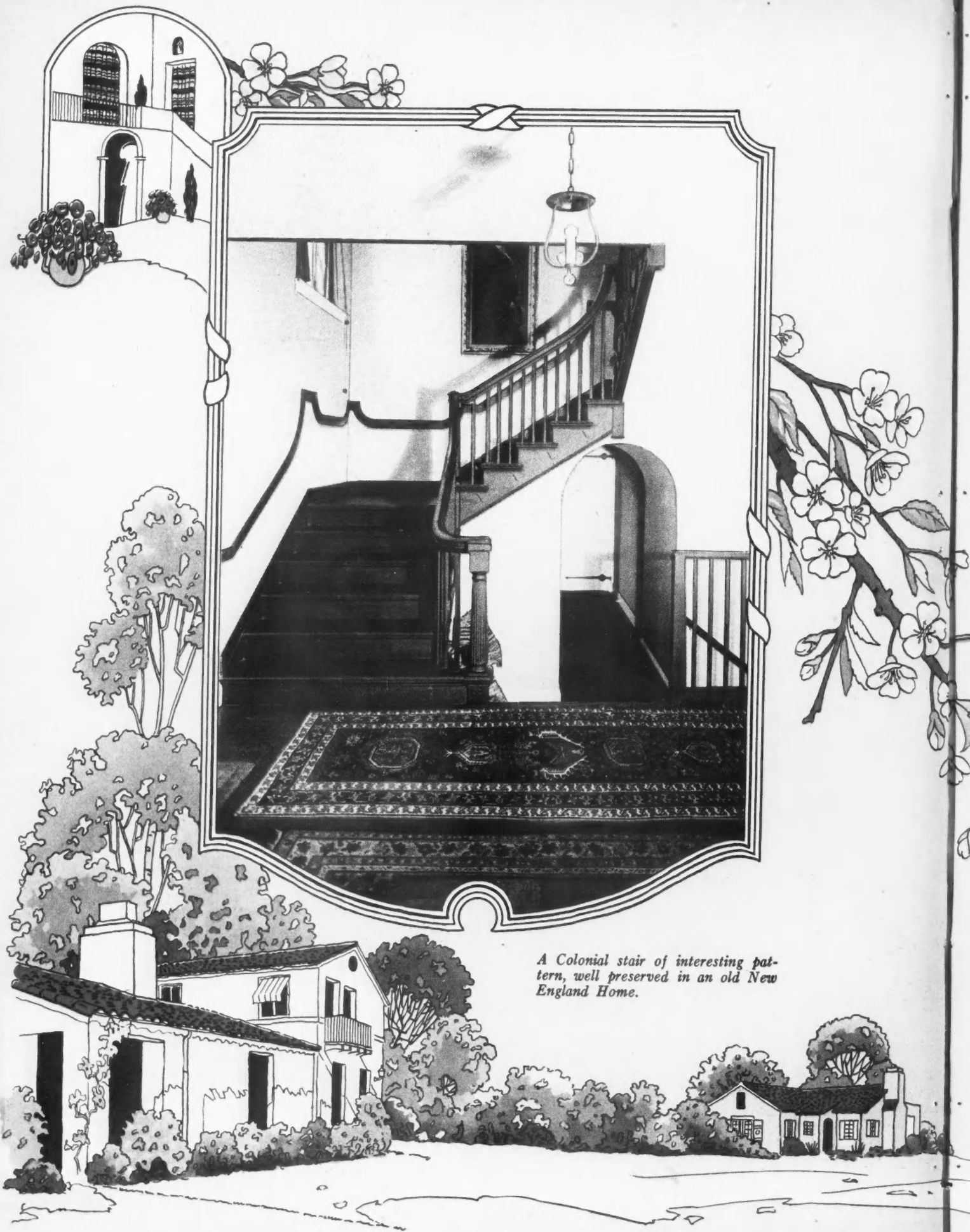
The Beverly

THE attractive white exterior of the Beverly conceals an especially efficient arrangement of the square type home with seven major rooms and a bath. The arrangement of the first floor is convenient and efficient while bedrooms on the second floor are arranged to effect a worth while saving of space. The interior of the sun parlor, shown above, gives a pleasant suggestion for its decoration and furnishing.



FIRST & SECOND FLOOR PLANS





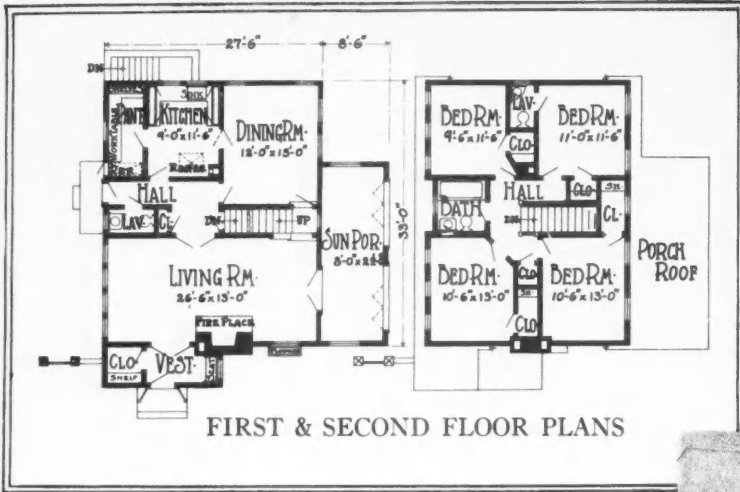
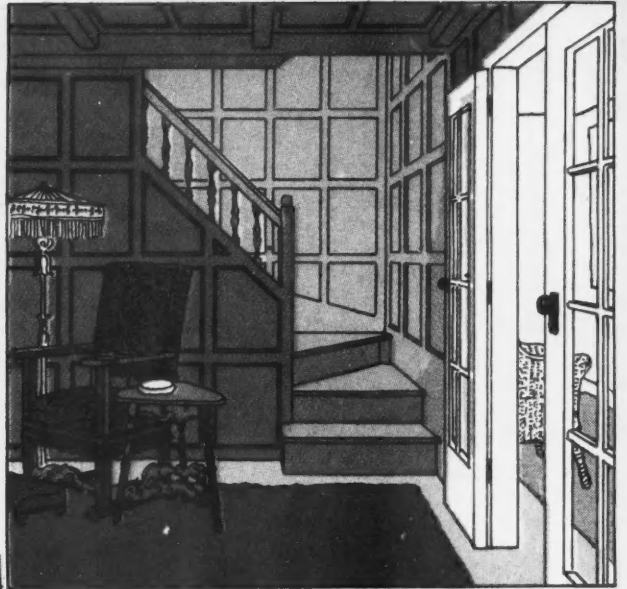
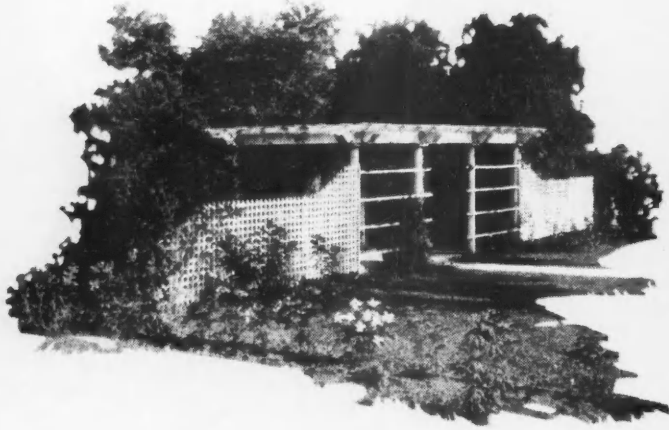
A Colonial stair of interesting pattern, well preserved in an old New England Home.



A California bedroom with vaulted ceiling and specially designed furnishings.

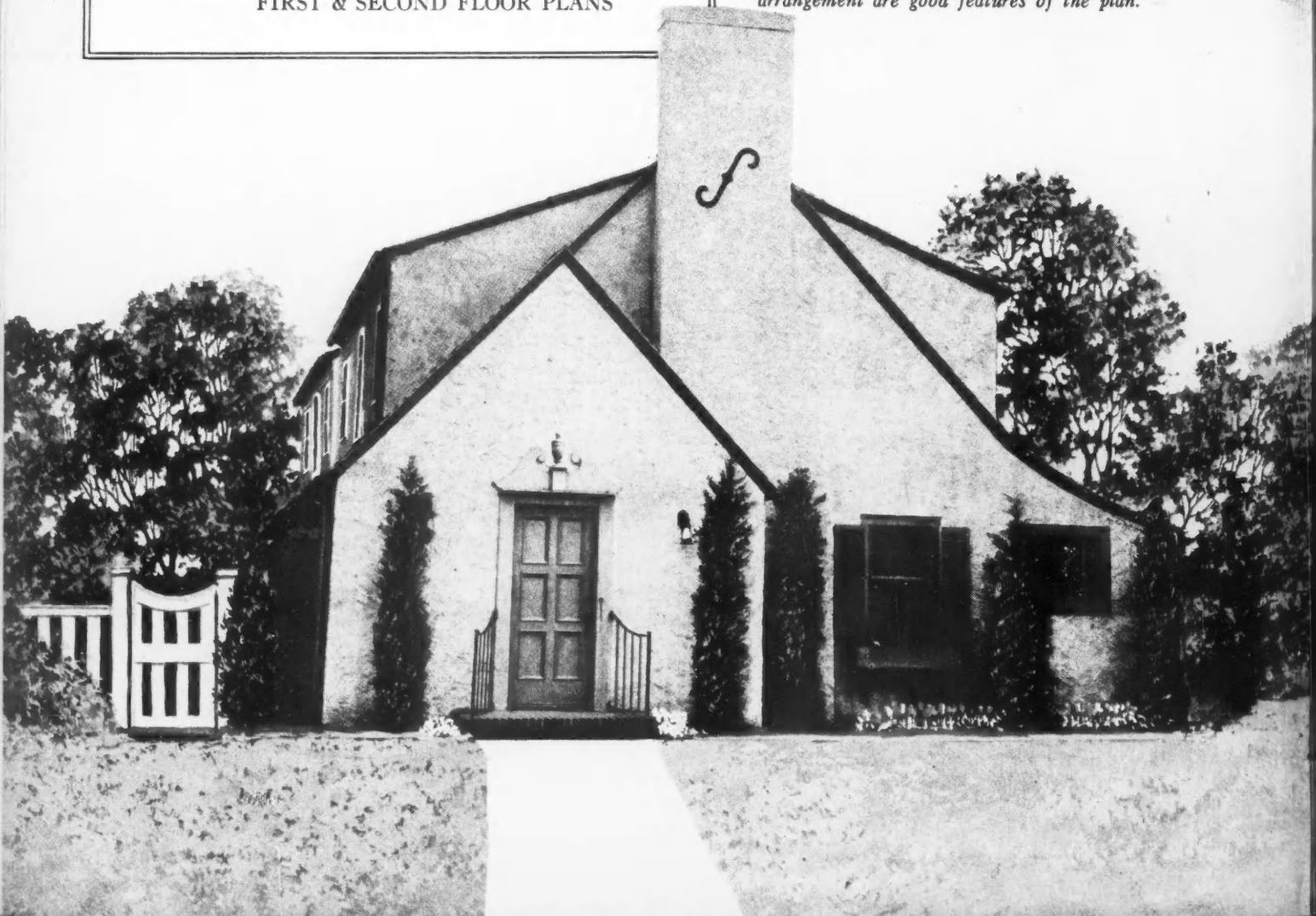


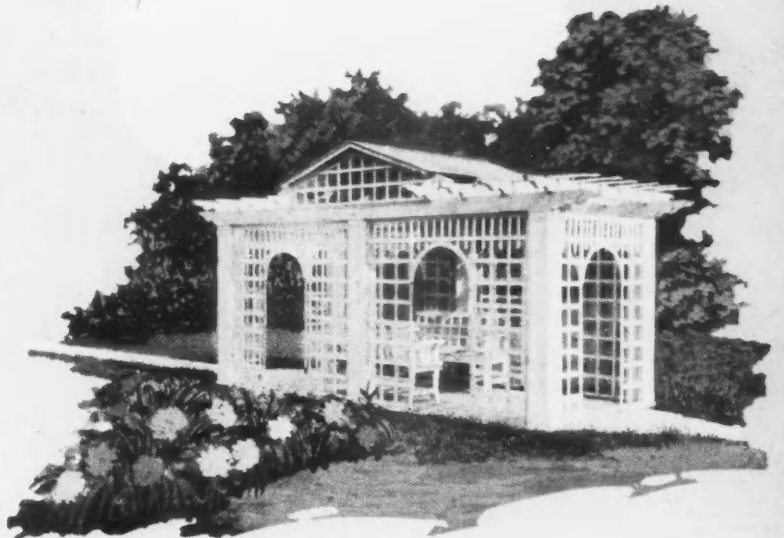
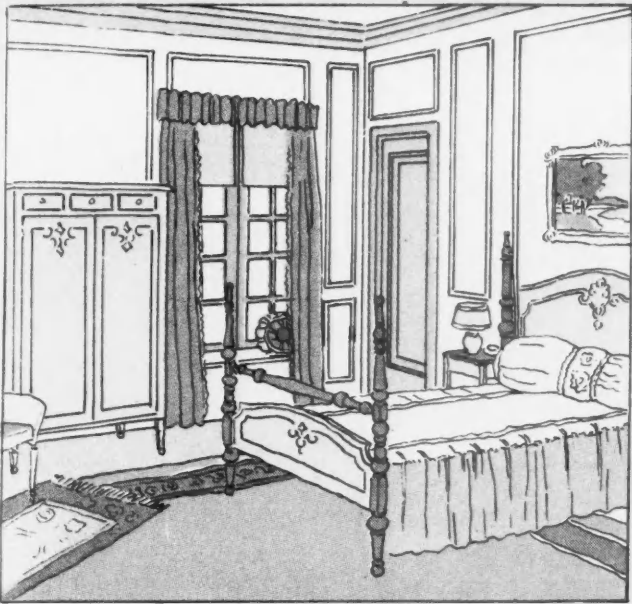
A Breakfast Porch of rare charm with reed furniture and a profusion of potted plants.



The Berwick

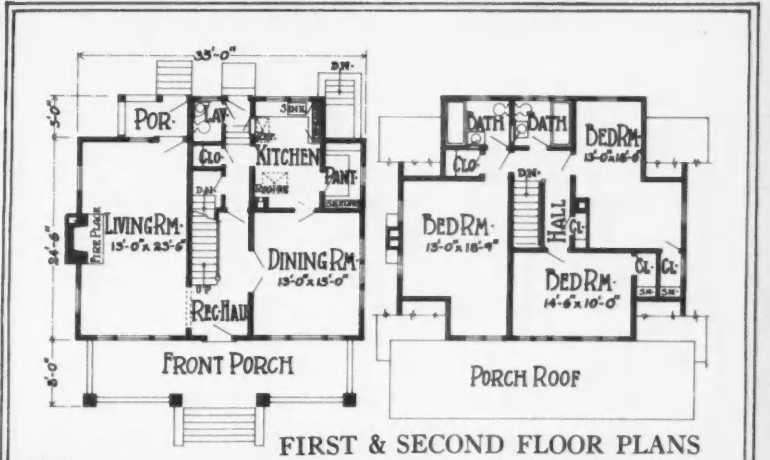
ROOF lines and gables, competently planned, are responsible for much of the undoubted charm of this stucco home. The brick step with wrought iron rails and the attractive door give a promise of an attractive interior which is fulfilled by the paneled living room, running the full width of the house. The sun porch, the vestibule and the kitchen-pantry arrangement are good features of the plan.

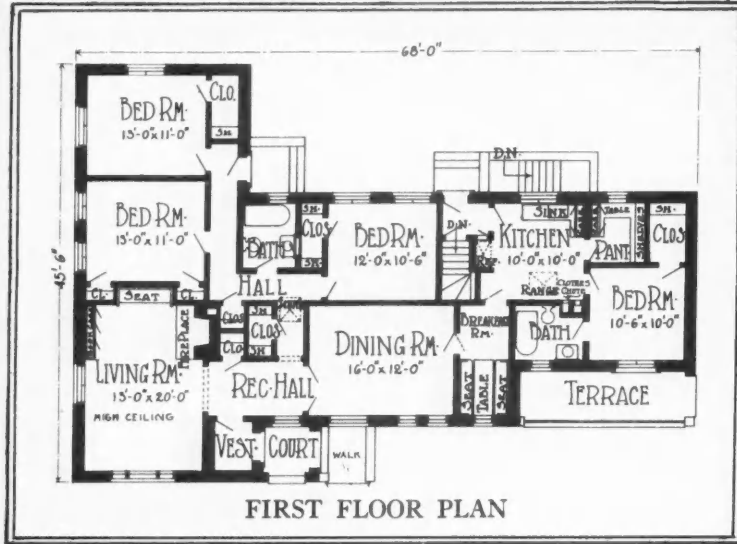
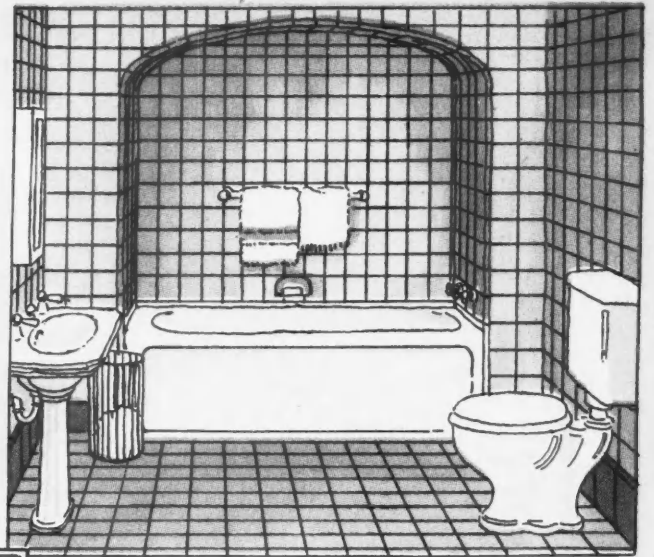




The Bridgeport

THE porch and fireplace, demanded as pre-dominating features by many builders, are well handled in the design for this white frame dwelling of seven rooms and two baths. The sleeping quarters on the second floor are well arranged. The attractive possibilities of the largest bedroom are shown in the illustration above.

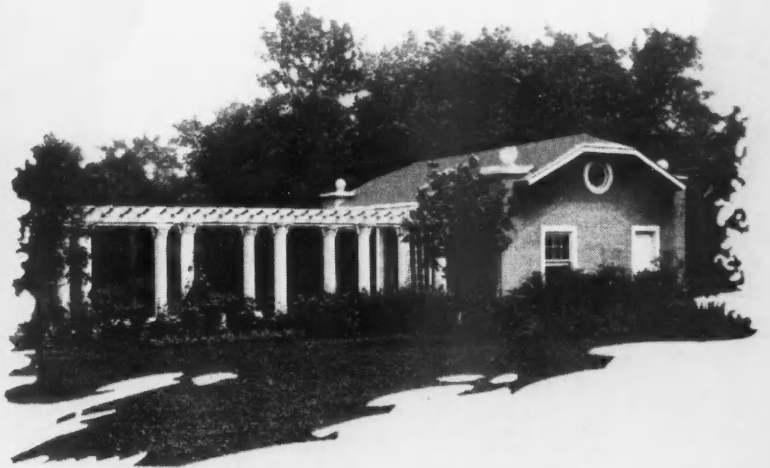
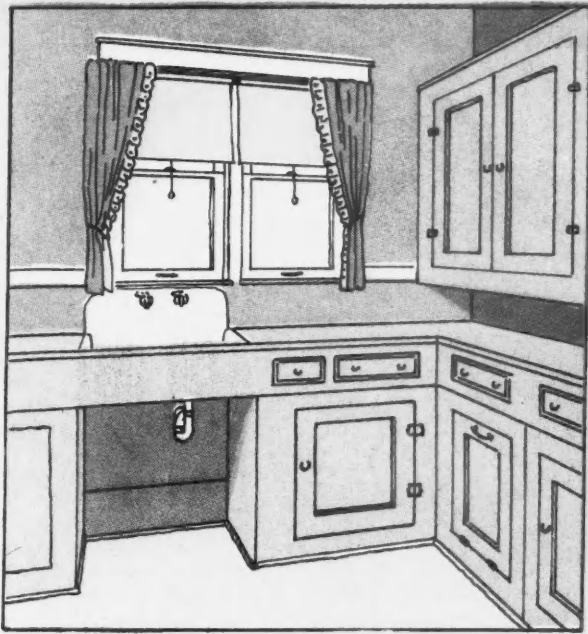




The Batavia

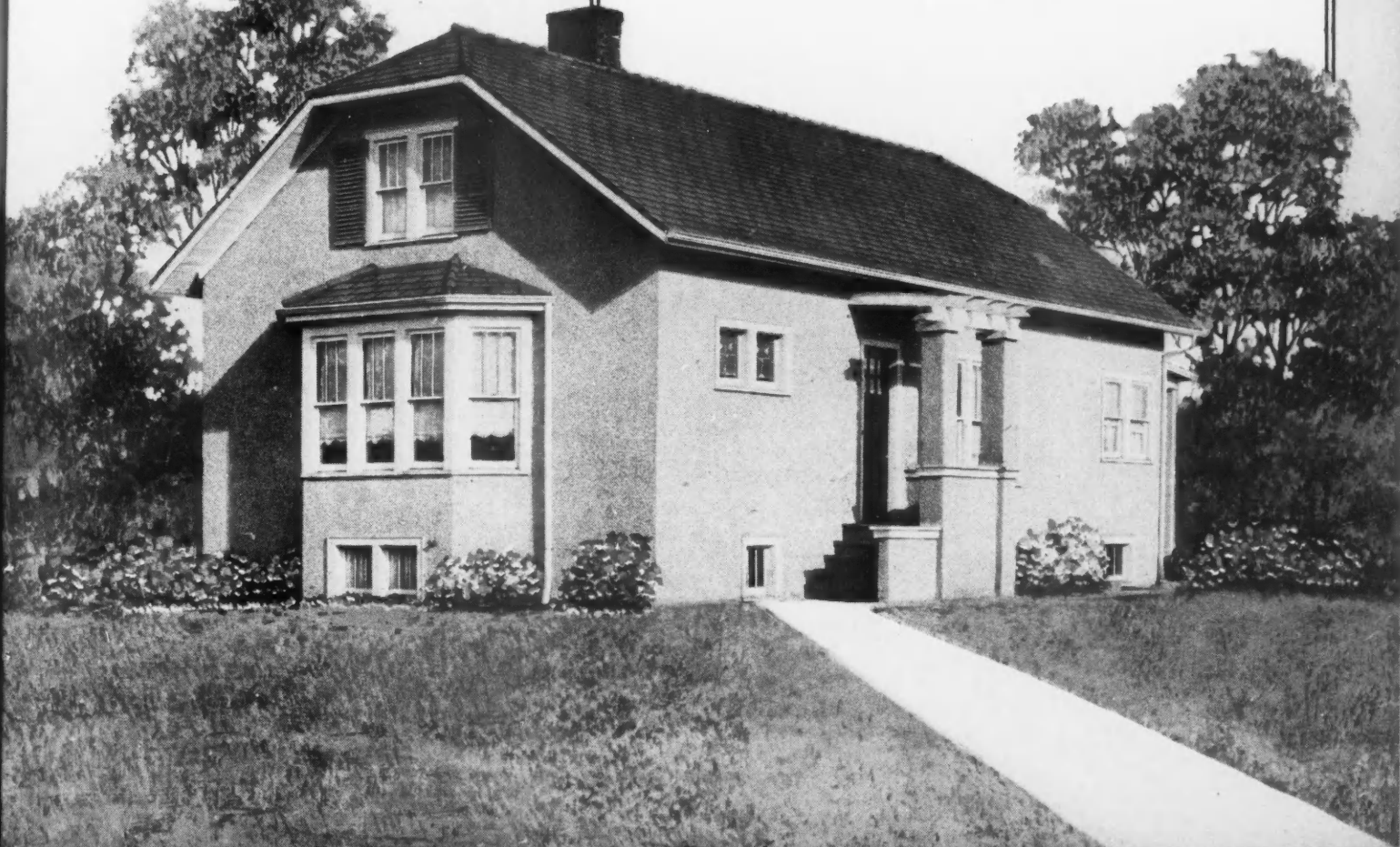
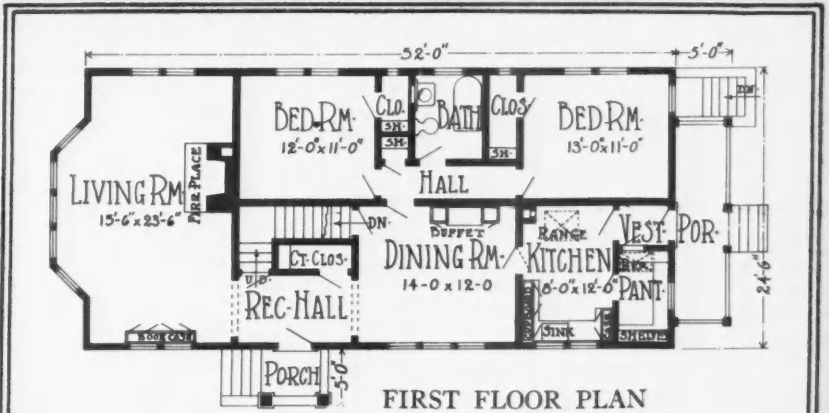
SEVEN rooms with two baths are shown in this plan for a home of the popular Spanish type. The living room, with its unusual grouping of the fireplace, the recessed seat and the bookcases is particularly good. The well proportioned dining room with the adjacent breakfast nook is worthy of notice. The hall leading to the main bedroom group opens directly from the reception hall.

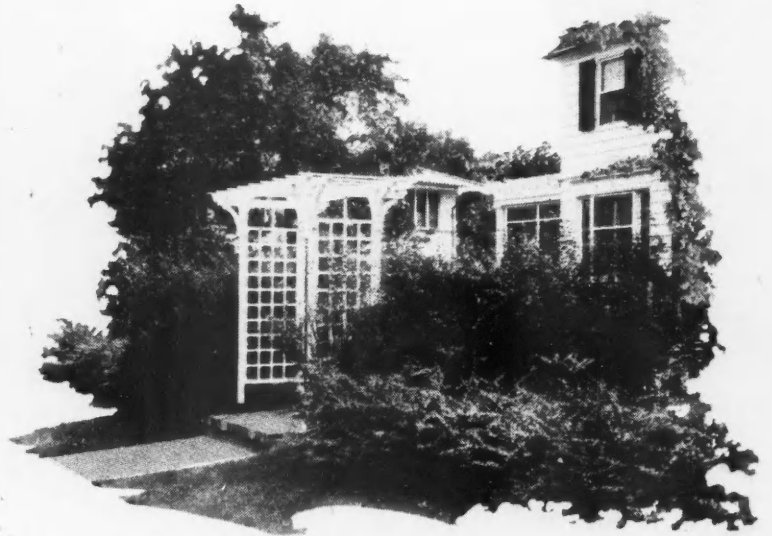
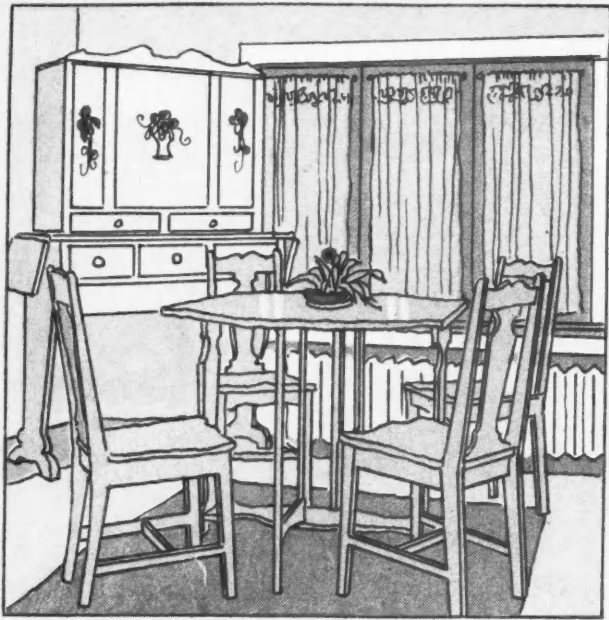




The Brighton

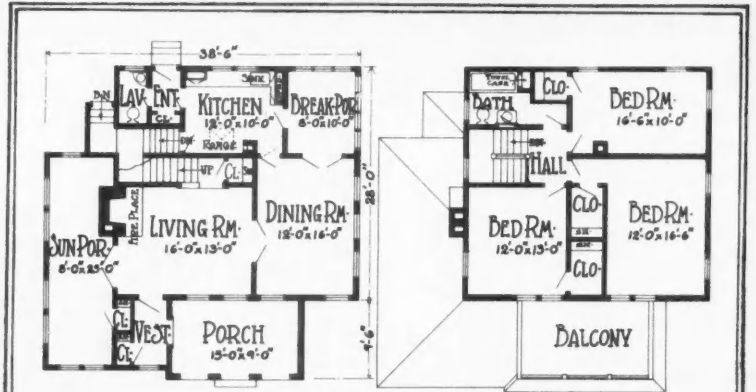
COMFORT and efficiency are the predominating qualities of this five room cottage, rendered attractive through the handling of the detail of the roof and the unusual side entrance. This entrance allows the reception hall to be placed so that it divides the living room from the rest of the home. A kitchen suggestion is given above.





The Bristol

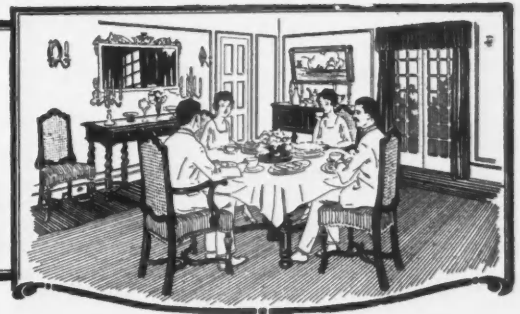
THE cool appearance of the porch, the bright awnings and the green shutters of this home combine to make it most inviting. On the first floor are the living room, the dining room, the kitchen, a sun porch and an exceptionally charming breakfast porch, illustrated here. On the second floor is a group of three bedrooms.



FIRST & SECOND FLOOR PLANS



OUR FRONT COVER HOME



Shingles Rounded at the Eaves in Thatch Effect Are the Finishing Touch for This Pretty Home

A HOME that quickly gives the effect of being lived in, of really being a home instead of maintaining the "new and for sale" aspect indefinitely, is presented for this month's Front Cover Home. The long sweep of the roof lines, the inviting doorway under its arch and the soft tone of the shingles, laid wide to the weather on the sidewalls, all add to the attractiveness of this dwelling for real home lovers.

The entrance, with its attractive side lights, admits one to a pleasant central hall, with open stairs to the second floor. This hall separates the dining room and kitchen from the living room and sun parlor. The living room is rather large and has an interesting feature in the grouping of the fireplace and the built-in bookcase. Folding French doors make the large sun parlor, with its separate entrance, virtually a part of the larger room.

The dining room is well planned to receive a maxi-

num amount of sunlight and is conveniently arranged with reference to the kitchen and the serving pantry, which will be found to save many steps. The breakfast porch, opening directly from the kitchen, is a pleasant feature of the home.

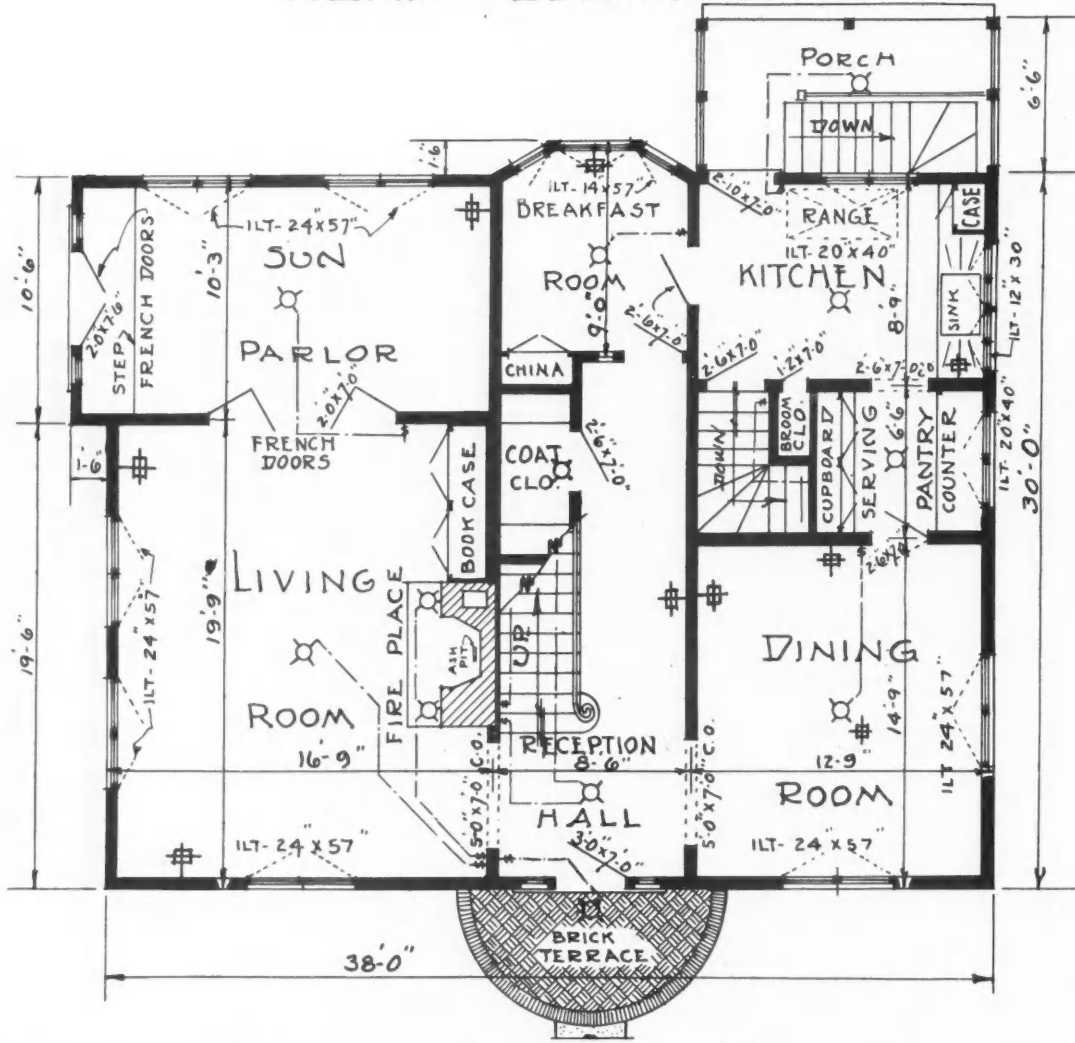
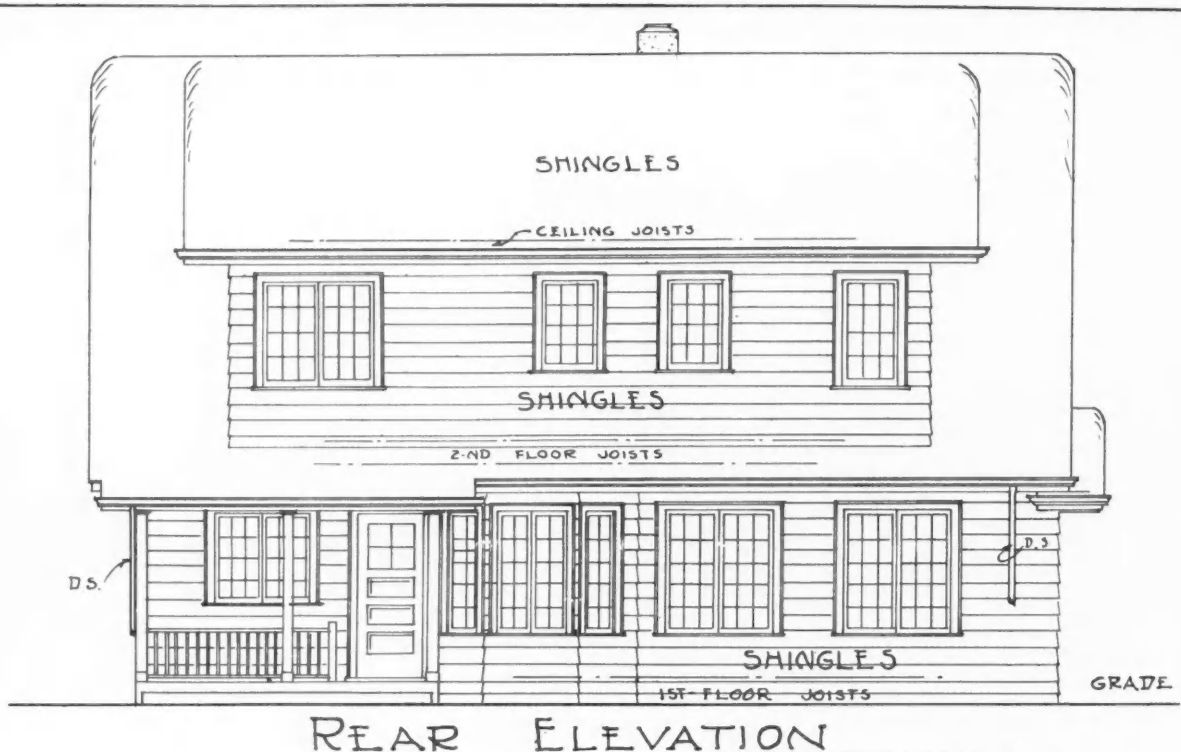
On the second floor are three bedrooms and two baths. The unusual amount of closet space shows at once that the wishes of the women who have to care for the home have been considered. The master's bedroom is roomy and its angles permit interesting arrangements of furniture. The large closet and individual bath are commendable.

The two additional bedrooms are of an adequate size and permit the convenient arrangement of the furnishings.

It will be noticed that the plans for the home, as shown in detail on the four pages following, call for adequate lighting equipment.

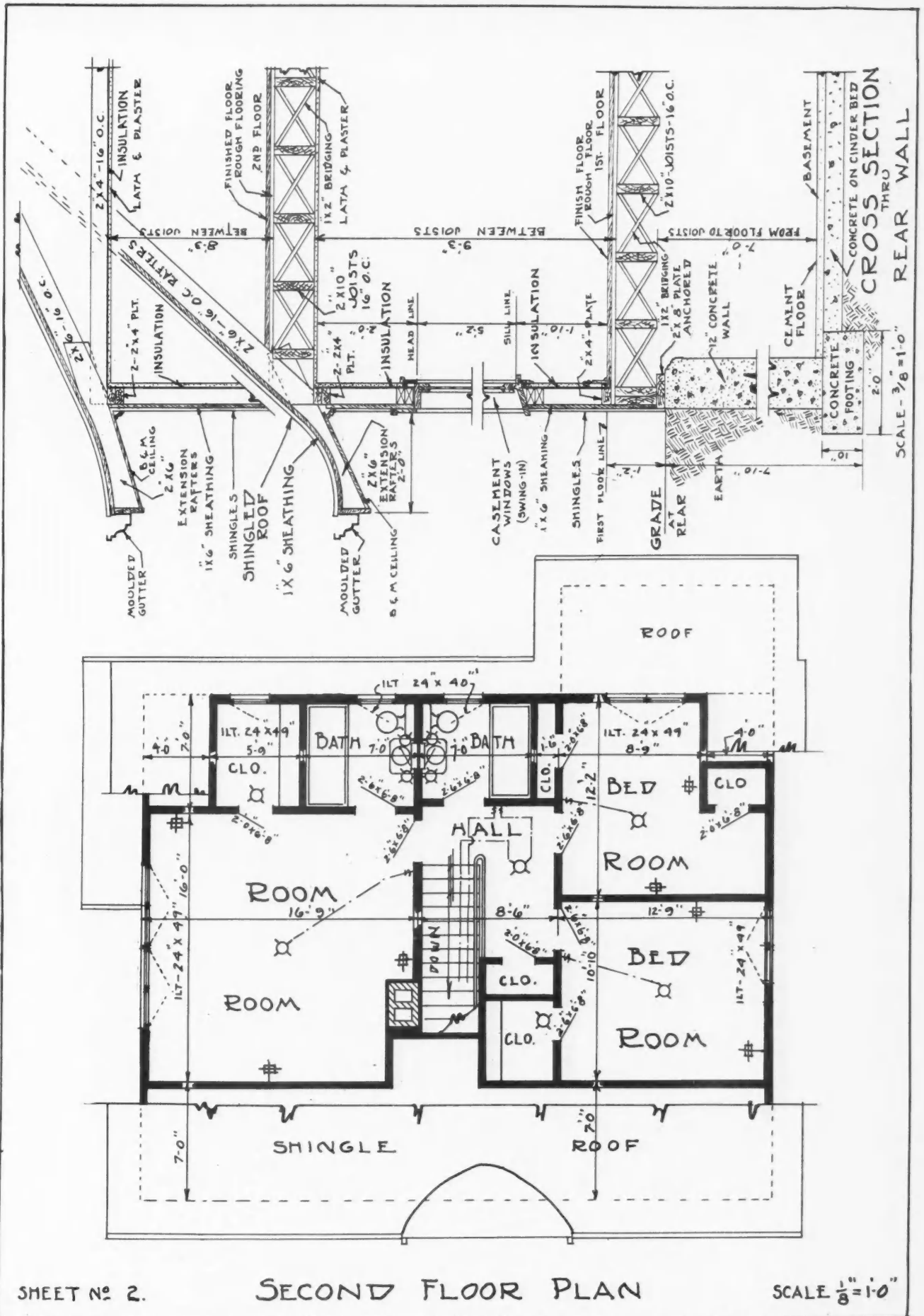


Shingles Rounded at the Eaves and Over the Arch of the Doorways Give to This Home a Delightful Air of Old World Snugness, Decidedly in Keeping With the Soft Tones of the Shingled Sidewalls. Full working details of this home will be found in the drawings on the four following pages.



SHEET No. 1. FIRST FLOOR PLAN SCALE $\frac{1}{8} = 1'-0''$

The Living Quarters of the Front Cover Home are Well Separated from the Noise and Bustle of the Preparation of Meals by a Central Reception Hall, as Shown in the First Floor Plan. The plan for the second floor and the cross section of the home are shown on the page opposite.

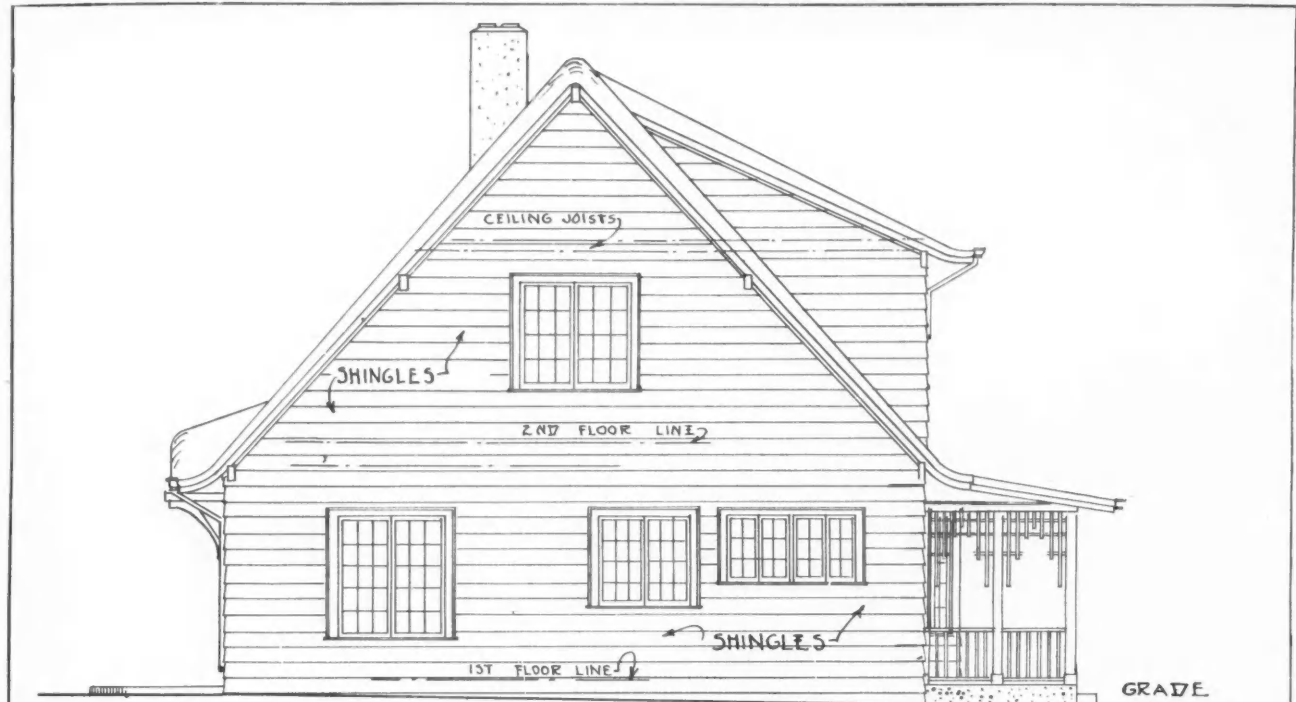


SHEET NO. 2.

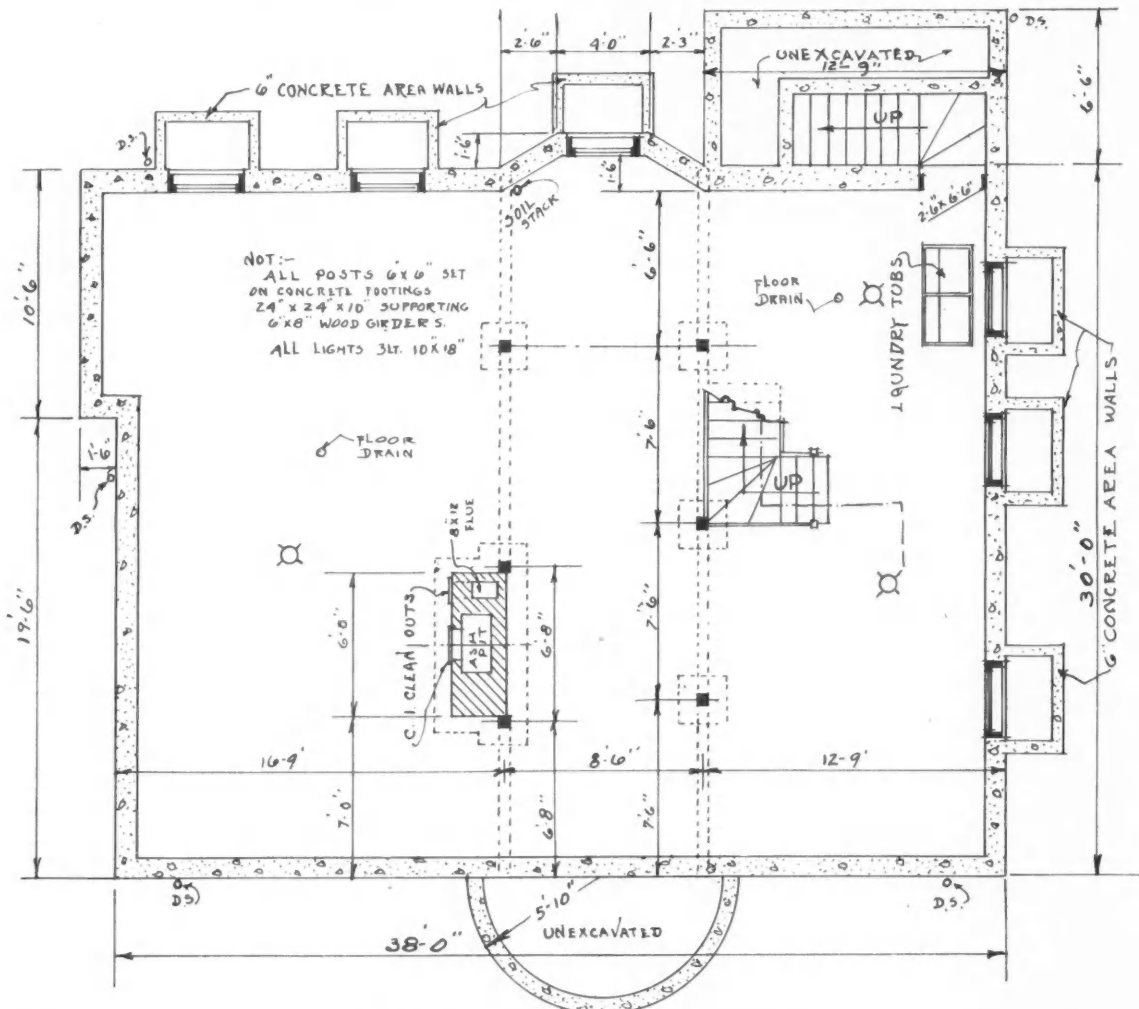
SECOND FLOOR PLAN

SCALE 1/8" = 1'-0"

Three Bedrooms with Two Baths Are Shown in the Plans for the Second Floor. The wealth of closet space will prove an attractive feature to feminine home seekers. The cross section detail is worthy of study.



RIGHT SIDE ELEVATION



SHEET No 3.

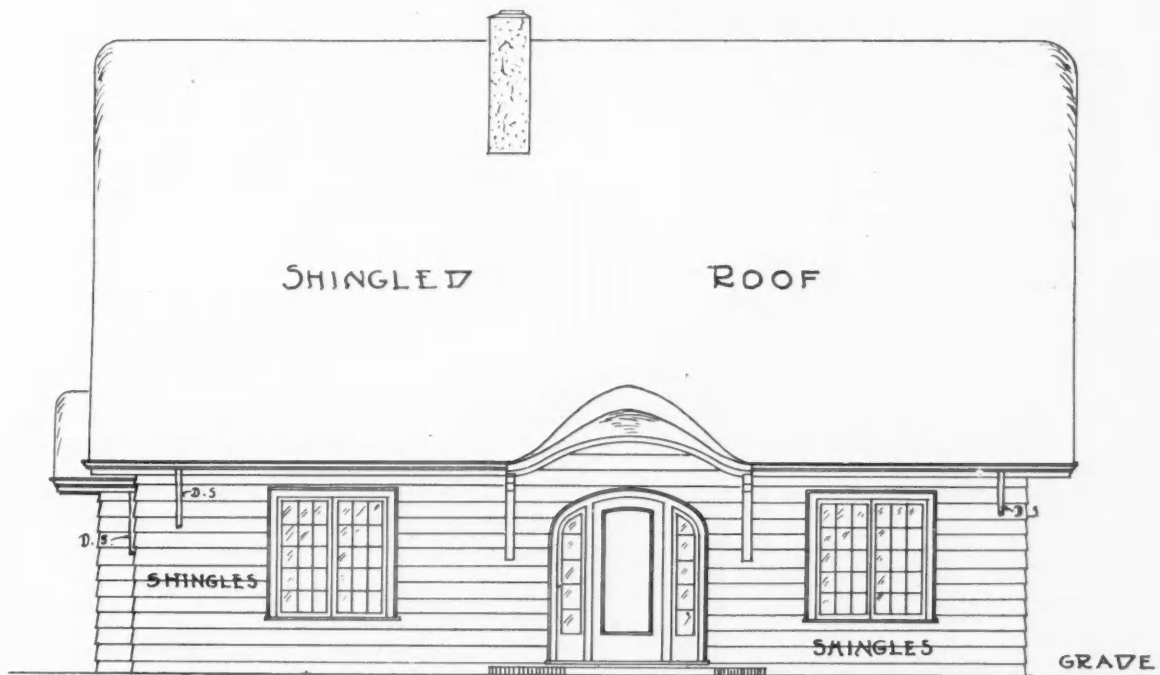
BASEMENT PLAN

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

The Plan Provides for Laundry Tubs in the Basement, Which Is Excavated Under the Main Portion of the Home and the Areaways Provide Light for This Portion of the Home, Despite Its Appearance of Setting Close to the Ground. The right side elevation is shown above, the left side and front elevations on the opposite page.



LEFT SIDE ELEVATION



FRONT ELEVATION

SHEET No 4.

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

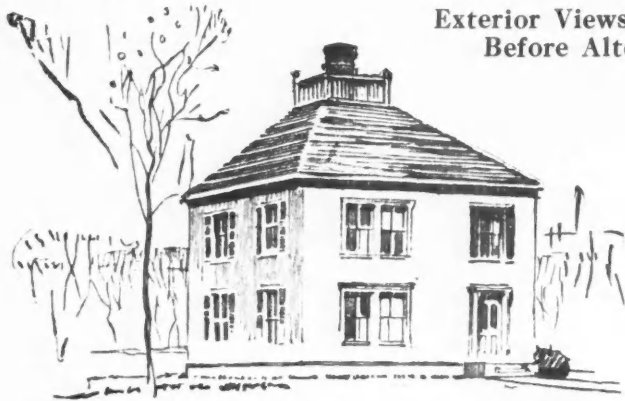
The Dormer on the Rear of the Home, as Shown in the Side Elevation Above, Presents an interesting Study in Roof Lines as Well as Providing Much Additional Space in the Second Story.

SUGGESTIONS FOR REMODELING

The concluding installment of a series of very helpful drawings from the book, "Better Homes from Old Houses," prepared and copyrighted, 1924, by The Barrett Company. This series began in the June issue of the American Builder.—The Editor.

Project No. 6—The Hipped Roof House

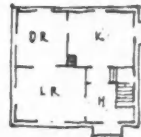
Exterior Views and Plans Before Alterations



View of Old House from Street Showing Left Side and Front.



Front and Right Side of Old House.



First Floor.



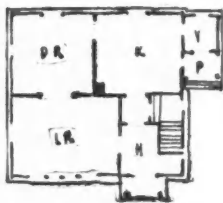
Second Floor.

Plans of Old House.

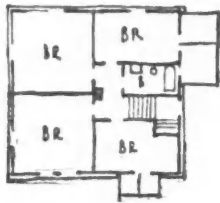
Alteration One

MANY examples of this type house are found in all sections of the country. As usually erected, it is square in plan and has a box-like appearance. It has a distinct advantage in its square rooms, and simple changes on the exterior that will remove the box-like look can be easily and economically made. The alterations suggested here show several ideas over a wide range of cost, any one of which will greatly improve the house.

A kitchen porch and ice chest vestibule and an attractive front porch are additions. The living room windows are changed to a row of casements with a shingled hood above. The approximate cost of new work is \$350.



First Floor.



Second Floor.

Floor Plans of Alteration One.



View of Front and Right Side from Street Showing Additions in Alteration One.

Alteration Two

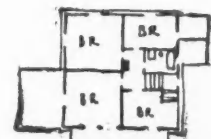


View of Left Side and Front from Street Showing Sun Porch and Improvements in Front. Alteration Two.

In this alteration the high and box-like appearance is removed by the long shingled hood across the front covering the new bay window in the living room and the front door. Brackets in pairs support the hood. A glazed sun porch with French windows from living room is added at the left side. On the right there is a new kitchen vestibule and porch as shown in alteration one. The approximate cost of these changes, exclusive of painting, is \$700.



First Floor.



Second Floor.

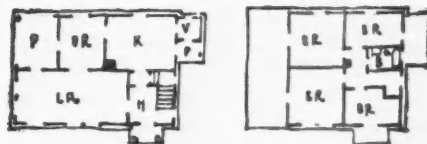
Floor Plans of Alteration Two.



View of Front and Left Side from Street Showing Living Room and Porch Additions. Alteration Three.

Alteration Three

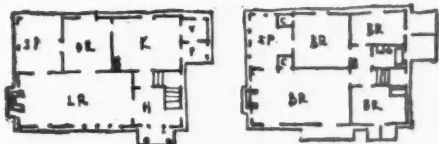
The living room in the original house is small; this plan shows an inexpensive method of enlarging it. A one story extension is built at the side of the house; half is part of the living room and half a sitting porch. The roof is slightly pitched and is concealed with a solid wood parapet. A new entrance porch matches the extension in style. At the right side there is a kitchen vestibule with similar roof treatment. The approximate cost of new work, exclusive of painting, is \$1,200.



First Floor. Second Floor.
Floor Plans of Alteration Three.

Alteration Four

Here is shown a plan for enlarging the house slightly in a way that gives it an extremely attractive appearance. The living room is extended as in alteration three, and the extension is carried up two stories and roofed over. This also enlarges the main bedroom and provides a sleeping porch. A new outside chimney gives a fireplace in both living room and main bedroom. An entrance porch, casement windows in the living room and a kitchen vestibule are other additions. Approximate cost, \$2,500.



First Floor. Second Floor.
Floor Plans of Alteration Four.



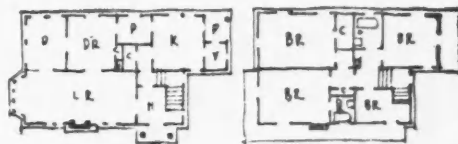
View of Front and Left Side Showing Greatly Improved Appearance from Lengthening the Front.

Alteration Five

This alteration shows a complete development of the old house into a beautiful and modern home. The whole house is extended at the left as in alteration three, and another extension at the right enables a pantry to be included between the kitchen and dining room. On the second floor there are now four bedrooms, three of very good size, and two bathrooms. The exterior has an unusually attractive appearance with a new outside chimney, a feature of the front. Approximate cost of new work, \$4,500.



View of Front and Right Side from Street Showing Development of Old House Into a Luxurious Modern Home.



First Floor. Second Floor.
Floor Plans of Alteration Five.

INSTRUCTIONS IN ROOF FRAMING

LESSON TEN—By JOHN T. NEUFELD

EDITOR'S NOTE: *The question of correct roof framing seems to be one of perennial interest among our readers, if we are to judge by the number of questions and answers on that subject which are sent in monthly for the Correspondence Department. AMERICAN BUILDER therefore conducts this department for the benefit of its readers who may have roof framing problems. Write in your problem and Mr. Neufeld will answer it, and some questions and answers will appear in this department of AMERICAN BUILDER for the benefit of others who may be interested. We want to make this department the place where YOU can solve your roofing problems.*

Finding the Area of Roofs

FINDING the area of a roof" does not come under the general heading, "Roof Framing." However, as the same methods that are used to find the lengths of rafters may be used to find the area of roofs, it is thought advisable to devote a little space to this subject.

The usual method to find the area of a roof is to divide the roof into triangles, rectangles or trapezoids and to find the area of each and add together for the total area. This method is rather long if the roof is of irregular shape.

Area by Length Per Foot Run Method

A method that is much simpler is based on the "length per foot run" of the common rafter. By this method we find the area of the roof in plan and then

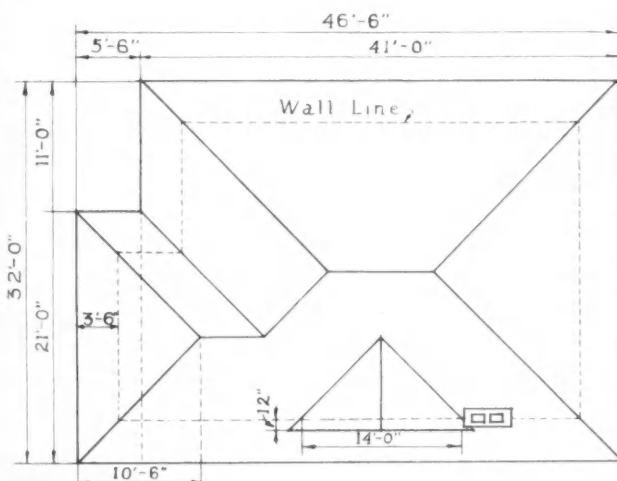


Fig. 48. Plan View of a Hip Roof.

multiply this by the "length per foot run" of the common rafter taken in feet—or we add a certain percentage to the area in plan.

Fig. 48 shows a roof in plan. The area of this roof in plan is the area of the main part, plus the area of the small addition.

$$\begin{array}{r} \text{Main part } 41 \times 32 = 1,312 \text{ square feet} \\ \text{Addition } 5\frac{1}{2} \times 21 = 115\frac{1}{2} \text{ square feet} \end{array}$$

$$\text{Total} \dots\dots\dots 1,427\frac{1}{2} \text{ square feet}$$

This includes the dormer roof, but there is one place where the area in plan is duplicated. The eaves of the dormer extend over a part of the main roof. On this area we have a double roof. We, therefore, add this area to the above.

$$\text{Dormer eaves in plan, } 15 \times 1 = 15 \text{ square feet.}$$

$$\text{Total area of roof in plan, } 1,427\frac{1}{2} + 15 = 1,442\frac{1}{2} \text{ square feet—say, } 1,443 \text{ square feet.}$$

This roof is one-third pitch. The length per foot run of the common rafter is 14.42 inches or 1.202 feet.

For every square foot in plan we have 1.202 square feet of roof area.

Therefore, to find the area of the roof we multiply the area in plan by this number.

$$1,443 \times 1.202 = 1,734.486\text{—say, } 1,735 \text{ square feet.}$$

The table gives the "length per foot run" of the common rafter in inches and also in feet.

Area by Adding a Percentage

If we find the difference between the area in plan and the area of roof we find the amount that must be added to the area of the roof in plan to get the actual area of the roof.

For example, a roof with a one-third pitch has 1.202 square feet of roof area for every square foot of plan area. We must, therefore, add .202 square foot to every square foot of plan area; .202 is 20.2 per cent, therefore we add 20.2 per cent to the area of the roof in plan to get the actual area of the roof.

$$\begin{array}{l} \text{Area of roof} = 1,443 \text{ square feet} + 20.2 \text{ per cent of } \\ 1,443 \text{ square feet; } 20.2 \text{ per cent of } 1,443 \text{ is } 291.486. \\ \text{Area of roof} = 1,443 + 291.486 = 1,734.486 \text{ square feet—say, } 1,735 \text{ square feet.} \end{array}$$

The following table gives the length per foot run for the various pitches and will be found useful in figuring areas of roofs. To find the area of a roof with help of the table, first find the area of the roof in plan, includ-

ing all projections. Then multiply this area by the "length per foot run" given in feet in the fourth column; or add the percentage given in the last column to the area in plan.

Remember when using this table we must consider the whole space covered by the roof. This includes the projection measured horizontally on the rake, as well as on the eaves.

Table for Finding Roof Areas

Pitch	Rise per Foot Run	Length per	Length per	Percentage to Be	
		Foot Run in Inches	Foot Run in Feet	Added to Plan	Square Feet or Per Cent
1	24	26.83	2.236	1.236	123.6
23/24	23	25.95	2.162	1.162	116.2
11/12	22	25.06	2.088	1.088	108.8
21/24	21	24.18	2.015	1.015	101.5
5/6	20	23.32	1.943	0.943	94.3
19/24	19	22.48	1.873	0.873	89.3
3/4	18	21.64	1.803	0.803	80.3
17/24	17	20.81	1.734	0.734	73.4
2/3	16	20.00	1.667	0.667	66.7
5/8	15	19.21	1.601	0.601	60.1
7/12	14	18.44	1.537	0.537	53.7
13/24	13	17.69	1.474	0.474	47.4
1/2	12	16.97	1.414	0.414	41.4
11/24	11	16.28	1.356	0.356	35.6
5/12	10	15.62	1.302	0.302	30.2
3/8	9	15.00	1.250	0.250	25.0
1/3	8	14.42	1.202	0.202	20.2
7/24	7	13.89	1.158	0.158	15.8
1/4	6	13.42	1.118	0.118	11.8
5/24	5	13.00	1.083	0.083	8.3
1/6	4	12.65	1.054	0.054	5.4
1/8	3	12.37	1.031	0.031	3.1
1/12	2	12.17	1.014	0.014	1.4
1/24	..	12.04

Cutting the Roof Boards

It is often desirable to know what numbers on the square must be used to obtain the miter cut for the roof boards.

The rule here is the same as for the "side cut of jack," only for the cut for the roof boards the mark is made along the shortest distance on the square.

The rule is "Take the length of the common rafter on one arm of the square (say the blade) and the run of the common rafter on the tongue, mark along the tongue to obtain cuts for roof boards and along the blade for side cut of jacks." This applies only to even pitched roofs.

For uneven pitched roofs we take what is known as the tangent to the common rafter, instead of the run of the common rafter. This is the distance from the foot of the first common rafter to the foot of the hip. On even pitches this is the same as the "run of common rafter."

In Fig. 49 the square is placed in a position to illustrate this cut. The blade has the position that the

first common rafter has on a building. The tongue gives the distance between the foot of the common rafter and the foot of the hip rafter. These numbers indicated by the square in this position are the numbers to be used for cutting the roof boards. The number on the tongue in this case is $10\frac{1}{2}$ and the number on the blade is $12\frac{1}{2}$ as the run of the common rafter is $10\frac{1}{2}$ feet and the length of the common rafter is $12\frac{1}{2}$ feet (exact, 12.6 feet).

If we take the length per foot run on the blade and 12 inches on the tongue we obtain the same cut. Mark along the tongue. For this roof the length per foot run is 14.42 inches. Therefore we may take $14\frac{1}{2}$ and 12 on the square for the same cut.

Problems

1. Find the area of the roof for a house 20 feet wide and 32 feet long with one-fourth pitch hip roof and overhanging cornice 1 foot on the horizontal.
2. What is the area of a gable roof for a house 22 feet wide and 30 feet long, eaves extending 1 foot 6 inches on the horizontal, both on the end and also on the sides? Roof has one-third pitch.
3. What would be the area of a one-third pitch hip roof for the same building, with the same pitch and the same overhang on all sides?
4. What per cent must be added to the plan area of a five-twelfths pitch roof to obtain the area of the roof? To a three-eighths pitch roof? To a seven-twenty-fourths pitch roof?
5. Give the numbers to be used on the square to obtain the cuts for the roof boards for the pitches: One-third, one-fourth, five-twenty-fourths, five-eighths.

*Answers to These Problems Will Be Found
On Page 192*

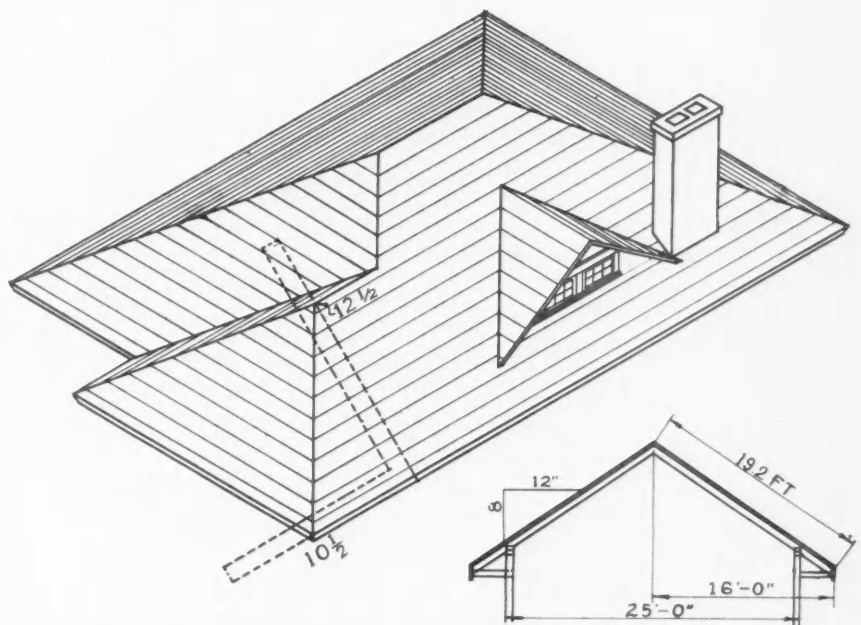


Fig. 49. Isometric View of a Hip Roof.

Year-Round Construction Solves Seasonal Unemployment

Builders, Architects, Building Labor—As Well as the General Public—Will All Profit By Extending the Building Season

A MOVEMENT is on foot to foster winter work in the building industries with a view to continuous operation throughout the year. The aim is to eliminate seasonal unemployment and secure the full efficiency of the industry as a whole.

As it is now, the industry itself and the public generally must pay for the unemployment of these men—over a million building trades workers—for three months every year. This represents an efficiency of only 75 per cent out of a possible 100 per cent, and, of course, is reflected in higher prices to the public for the building work crowded mainly into nine months of the year. Theoretically, wages during these nine months must be at least 25 per cent more in order that the workers may receive the income they would secure for a full year's work. This accounts, in part, for the high cost of building during active construction seasons. The same inefficiency is represented in higher cost of building material and equipment due to the short season.

This movement to correct seasonable unemployment is fostered by the Government and is receiving the support of representative manufacturers, dealers, builders, architects, labor unions and the press.

The movement had its inception back in 1921, at the time of the President's conference on unemployment. At that time Secretary Hoover of the Department of Commerce appointed a committee to investigate and report. For this committee he selected some of the best brains in the building

industry and placed at their command the full resources of his department, including the active assistance of John M. Gries, chief of the Division of Building and Housing, and his staff of experts. The committee's investigation has been very thorough, extending over a period of several years, and their report has just been published in book form.* A summary of Secretary Hoover's foreword to this report was printed in the September number of AMERICAN BUILDER.

The committee makes out a strong case in favor of winter construction, both as to being practical and profitable. The United States Weather Bureau prepared for them some very interesting figures showing the average number of days in which winter work was practicable in nine representative cities in various sections of the United States. A summary of these figures is shown on the next page and, together with the graph showing seasonal labor conditions, is reprinted by permission of the publishers.

Class 1 represents the days on which the temperature fell below 18 degrees at some time or the maximum did not rise above 24 degrees at any time.

Class 2 represents those days on which the lowest temperature was between 18 and 24 degrees above zero, but the temperature reached or exceeded 25 degrees during the day.

Class 3 represents those days on which the lowest temperature ranged between 25 to 32 degrees above, inclusive.

*Copyrighted and published by McGraw-Hill Book Company, Inc., New York City. Price \$2.50.

Table 1.—Comparative Weather Conditions for Nine Cities

All figures are 10-year averages expressed in days.

City	Apr. 1 to Oct. 31	Nov. 1 to March 31		Total days per year	Class 1 ²	Class 2 ³	Class 3 ⁴	Total Classes 1, 2 and 3	Total cold or rainy working days, Nov. 1 to Mar. 31 ⁵
		Occurring on warm days	Occurring on freezing days						
St. Paul, Minn.	3.45	0.50	0.00	3.95	58.6	19.9	27.4	105.9	106.40
Denver, Colo.	1.90	0.10	0.65	2.65	27.7	21.8	37.1	83.6	83.70
Chicago, Ill.	4.60	2.05	0.85	7.50	24.2	16.6	31.4	72.2	74.25
Boston, Mass.	6.45	2.90	3.30	12.65	20.3	19.7	31.7	71.7	74.60
New York, N. Y.	5.60	3.60	3.90	13.10	14.3	16.2	33.4	63.9	67.50
St. Louis, Mo.	5.75	3.50	1.85	11.10	14.9	12.0	29.3	56.2	59.70
Atlanta, Ga.	6.35	5.35	0.15	11.85	1.7	4.9	15.4	22.0	27.35
New Orleans, La.	4.95	4.70	0.00	9.65	0.0	0.2	1.7	1.9	6.60
San Francisco, Calif.	0.80	5.40	0.00	6.20	0.0	0.0	0.0	0.0	5.40

¹ Precipitation: Rain, snow, or sleet of 0.05 inches and over per hour (water content).

² Class 1 (colder days): Days on which temperature fell below 10 degrees at some time, or did not rise above 24 degrees above at any time.

³ Class 2 (medium days): Lowest not below 18 degrees but temperature reached or exceeded 25 degrees during the day.

⁴ Class 3 (warmer days): Lowest between 25 degrees and 32 degrees.

⁵ Total cold or rainy working days: November 1 to March 31. Sum of days in column 2 and column 8. The term "working days" includes all except Sundays and holidays.

(Computation by Division of Building and Housing, Department of Commerce, from United States Weather Bureau Records.)

A study of the temperatures in this table shows by an average of temperatures in these nine cities that on only 18 out of 122 working days between November 1st and March 31st was the temperature too cold for successful winter work. This is less than 15 per cent, without considering snow, sleet or rain. However, the latter only amounted to an average of 4.3 days when precipitation would be sufficient to stop work. These are ten-year averages and should be reliable.

Building, of course, is a business, and like any other business, operated for profit. Unless it can be shown that winter operation is profitable for builders, then it should not be advocated, because it would not rest on a sound economic basis. But many builders, in counting their profits from warm weather operation, fail to write off the loss occasioned by winter idleness. The question is: is this loss from winter idleness greater than the extra cost of winter construction would have been? The answer is, in many cases, that a fairly continuous year of operation would show a greater net profit than would a year in which operations were practically suspended for three months. During these three months the builder must meet the interest on his plant equipment investment. He must add the value of his own time. He must add whatever overhead or office expense, rentals, etc., which run on during the winter and the loss of efficiency involved in reforming a disbanded organization in the spring.

One of the strongest factors in favor of winter

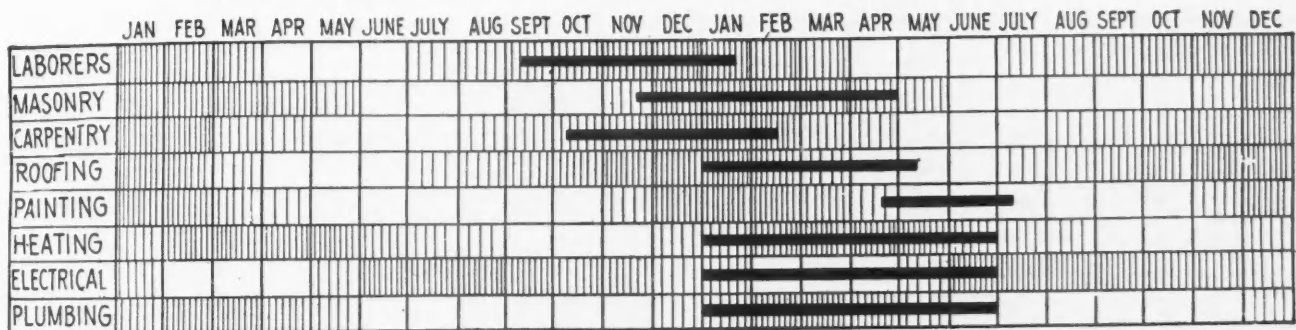
work is the more favorable labor market during these months. In addition to high wages, it has been common to pay premiums during the warm weather season. The demand for skilled building labor has outrun the supply during these months. But, during the winter months, it is a different story. There is an ample supply of skilled labor available. "Green" or unskilled workers need not be taken on. And the efficiency on the work would show a corresponding improvement.

The graph which is shown herewith is called the Parker Chart, having been prepared by Mr. William Stanley Parker, a member of Mr. Hoover's committee and vice-president of the American Institute of Architects. Mr. Parker's portrait appeared in the June number of AMERICAN BUILDER. The graph is reproduced from a tracing furnished by the Division of Building and Housing, Department of Commerce, and depicts those months during which the various skilled building trades are all employed as well as the months during which this labor market is most favorable to the employer. Would it not be wiser for owners, architects and builders, to plan their building program so that they will enter the labor market for at least a portion of their requirements at the most favorable time?

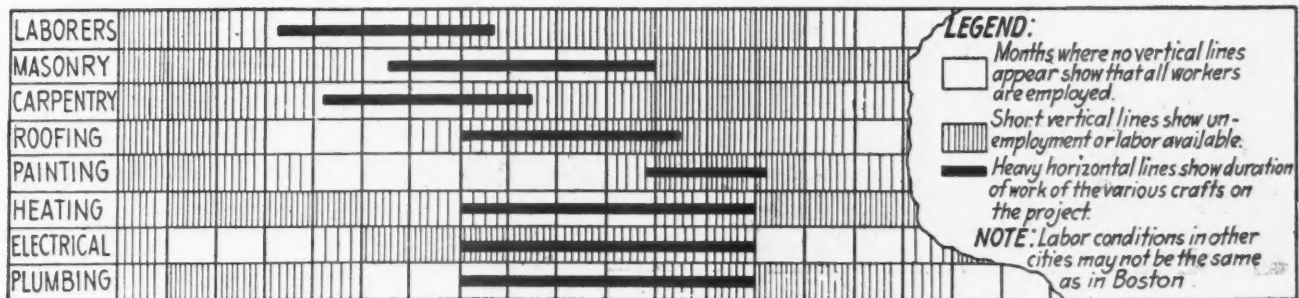
Winter construction costs are undoubtedly higher than those of the warm weather season, due to the extra false work, protection, heating, etc., necessary to protect against frost and snow. The increase in cold over warm weather costs is small, according to evidence gathered by the

Planning Construction with Reference to Labor Supply

RECORD OF FACTORY BUILDING ACTUALLY STARTED IN SEPTEMBER (FAVORABLE LABOR SUPPLY)



IF START HAD BEEN POSTPONED UNTIL APRIL (UNFAVORABLE LABOR SUPPLY).



LEGEND:
 Months where no vertical lines appear show that all workers are employed.
 Short vertical lines show unemployment or labor available.
 Heavy horizontal lines show duration of work of the various crafts on the project.
NOTE: Labor conditions in other cities may not be the same as in Boston.

The Heavy Black Lines on This Chart Show the Months During Which Each Trade Worked. Where these heavy lines pass through white squares, labor is completely employed, but where it passes through the heavily shaded squares, the labor supply is most favorable to the builder, whether considered from the standpoint of quantity, quality or cost.

Hoover Committee. The increased cost on 30 typical contracts selected showed an average increase of only $3\frac{1}{2}$ per cent over warm weather costs.

The question may well be asked: "Why has building been confined largely to the warm weather season?" The Hoover Committee's report declares that "Custom, not climate, is mainly responsible for seasonal idleness in the construction industries." One proof of this is found in the fact that building lags throughout the winter months in those portions of the United States where there is little frost, even during January and February.

A survey made by a large manufacturer of gypsum products revealed an instance where winter building effected a saving of \$87,710 on a building costing \$750,000. The total cost of protecting it from the weather is said to have been but \$3,683.

Bricklayers who had received, during warm weather, \$16.00 and even \$20.00 a day, were glad to work on this building during the cold weather for \$10.00 per day. Their efficiency on cold weather work was found to be 18 per cent greater than it had been during the warm weather season.

Similar savings were made on other classes of labor and \$16,030 was saved on the price of materials compared with what they had been during the peak of the building season.

Seasonal operations cuts down the efficiency of the building industry about 25 per cent and we have the spectacle of hundreds of thousands of workers idle for three months of every year.

A survey conducted by the Master Builders' Association of Wisconsin recently in Milwaukee showed the percentage of working days after deducting winter idleness. The percentages of the total working days in Milwaukee were as follows: tile setters, 90 per cent; structural iron workers and hoisting engineers, 60 per cent; carpenters, painters, plasterers, lathers, plumbers and electricians, 85 per cent; steam fitters, sheet metal

workers and concrete finishers, 75 per cent; marble setters, slate roofers and composition roofers, 70 per cent; bricklayers, 65 per cent, and common laborers, 80 per cent. Not only are masons, carpenters, steel workers and the craftsmen who actually build idle during most of the winter, but thousands of factory employes engaged in the manufacture of building material and equipment are also affected. Architects, draftsmen, builders, contractors, realtors and others feel the blight of this winter idleness, and banks, bondhouses and railroads suffer a loss of revenue. For, as Secretary Hoover says, "Construction is the balance wheel of American industry."

Winter Concrete Work

It seems somewhat strange that a form of construction most easily injured by frost—that is, concrete—has been the one most commonly carried on during cold weather. As notable examples of this may be mentioned the Drake Hotel and the Furniture Mart, Chicago. These jobs went steadily on during the winter and many times concrete work proceeded on these contracts when the thermometer was not far above zero. Surely, if concrete work can be conducted during cold weather, then other forms of winter construction would be both possible and profitable.

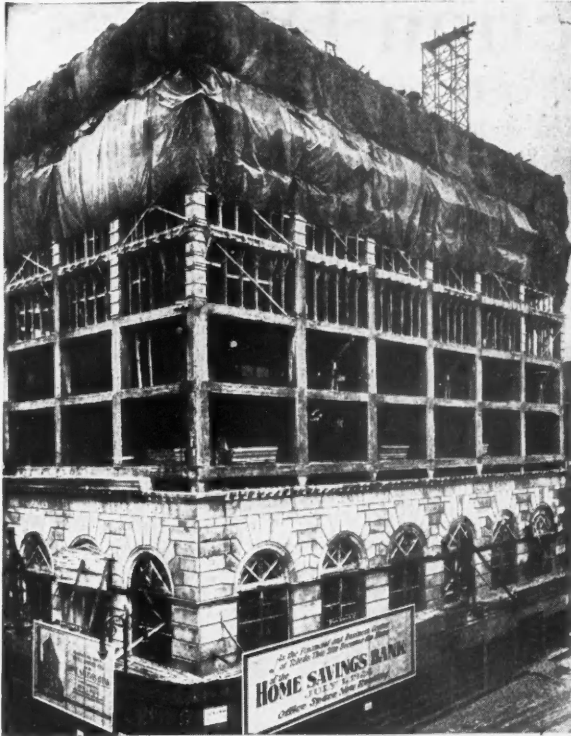
The argument in favor of winter construction applies with particular force to the large building where the investment is a heavy one. If the site alone is worth several million dollars, time becomes an element of particular value. Interest continues at the same rate in cold as in warm weather. To this must be added the deferred profits lost by delays in completion. Indeed, we probably owe most of our progress in winter construction to these two factors: penalties for delay on the one hand, and premiums for hastening construction on the other stimulating builders to greater ingenuity in winter methods.

The foundations of the new building for the Milwaukee Journal were put in during cold weather early in the present year under a tarpaulin tent, which covered the entire area of 150 by 200 feet. Not only was the aggregate heated but 400 salamanders were kept burning day and night under the enclosure. This resulted in a first class job.

Some of the smaller buildings erected in winter have been entirely enclosed by wooden enclosures. This was done in the case of one large residence of stone built during winter months in northern Maine. This style of construction was dubbed "Building in Cocoon."



A Grillage of Steam Pipes for Heating Aggregate, as Installed by the Thompson-Starrett Company. As soon as the steam pipes have been covered with sand and gravel to a depth of three feet, steam is turned on in the pipe grillage and the aggregate kept at 70 degrees F. day and night.



The Home Savings Bank Building, Toledo, Ohio, Under Construction During Cold Weather in February, 1924. Architects, Walker & Weeks, Cleveland, Ohio; builders, the Henry J. Spieker Company.

A club house for the Lake Placid Club, Lake Placid, New York, was erected during the cold winter weather of the Adirondack region entirely within a wooden frame covered with canvas.

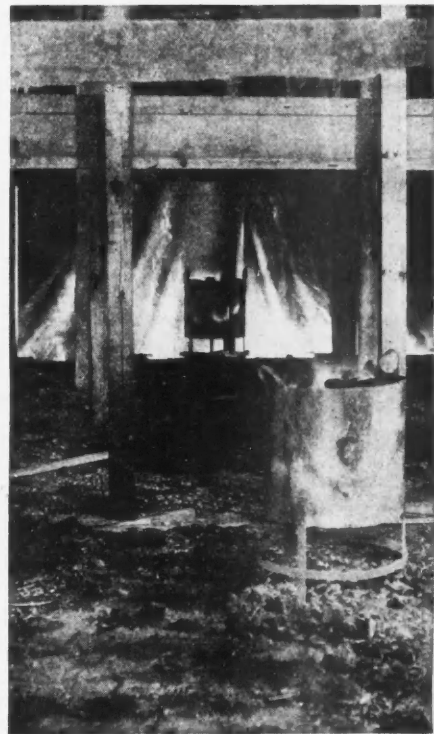
The ordinary method in constructing reinforced concrete buildings in the winter has been to use canvas or tarpaulin enclosures carried up well above the forms where the concrete is poured, enclosing at least one floor above. Canvas ends should not be left loose to flap in the wind, which might blow them over a hot salamander and start a fire. There is apt to be considerable gas from salamander fires and precautions should be taken where there are quantities of form lumber which might ignite.

The first and commonest precaution to take when concreting in cold weather is the heating of the mixing water and the aggregates. This is done in several ways. Forms must be cleared of snow and ice. A treatment with live steam is one effective way of accomplishing this. In addition, the temperature of the mixture must be high enough so that it will remain above freezing point until it has set, unless anti-freezing compounds are used, when it may safely drop several degrees below 32° F. Heating the mixing water presents no problems and is done by ordinary methods. A number of efficient water heaters are on the market for this purpose, varying from open tanks up to heaters with steam coils. One common method employed by contractors on winter work is to immerse a steam coil in a water barrel.

Sand, gravel and crushed stone are often heated by simply lighting a fire in a length of old steel stack and piling these materials over it. For big jobs, the best way is to have a grillage of steam pipes laid, over which these aggregates are piled. Jets of live steam are also used for this purpose but are not as efficient applied from the top as when the steam is allowed to escape from pipes at the bottom of the pile.

When concreting in severe weather, great precautions should be taken to see that none of the concrete freezes before it has set. Thermometers should be freely used to check temperatures of setting concrete.

It should be borne in mind that the hardening of concrete is not a process of drying out; on the contrary, it requires moisture for proper setting. Rapid evaporation will retard the setting and



Behind the Curtain in Cold Weather Construction, Showing the Use of Salamanders Under Forms Within the Canvas Enclosure.

weaken the concrete. Therefore, in winter work, protect the setting concrete with wet sand, sawdust or burlap so that the water necessary to the chemical action of hardening concrete may not be lost by evaporation. Setting concrete must not be exposed to freezing temperatures for at least 48 hours, and, when the cold weather is severe, it is advisable to maintain the temperature of the concrete above the freezing point for from three to five days.

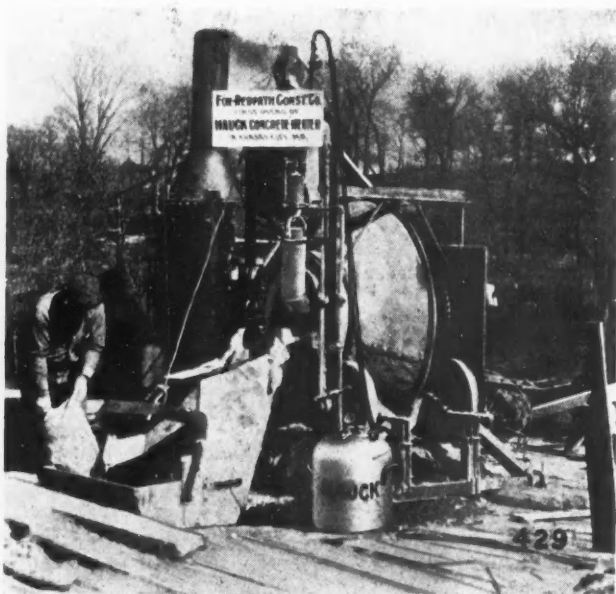
EDITOR'S NOTE: Copies of the charts shown on page 139 with the shading and lettering but otherwise blank may be secured from the Division of Building and Housing, Washington, and builders are urged to write for them and plot in their own jobs so that they may gauge the labor situation to the best advantage.

Winter Construction Devices

Successful Winter Contracts Depend Largely Upon Proper Equipment and Materials, Many of Which Are Available to the Builder

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.*

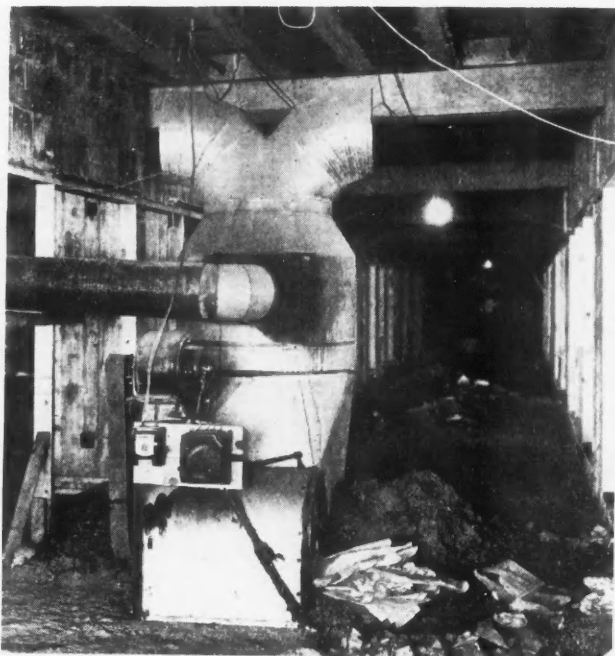
ONE very useful device for winter work is the portable torch or oil heater which throws a flame against the setting concrete or can be directed within the drum of the mixer. The illustration gives a very clear idea of how this is accomplished. A kerosene flame is forced out under pressure, the compressed air being provided by means of an air compression chamber. It is claimed that only in extremely cold weather is it necessary to reduce the speed of mixing when one of these heaters is used to heat the mixer. Even in the coldest weather, it is only necessary to reduce the speed of the mixer from 10 to 30 per cent. The use of this device obviates the necessity of heating water and aggregate separately and promises both efficiency and economy on many types of concrete construction. A smaller device of the same general type is also useful as a thawing torch which can be carried in the workman's hand. The firm manufacturing this device also furnishes asphalt and tar kettle heaters with the same type of burner. They are said to be smokeless. These can also be used as portable water heaters.



Kerosene Torch Is Extremely Useful for Thawing Pipes, Keeping Frost Out of Concrete Setting in Walks, Floors, Etc. The manufacturer also supplies torches for concrete mixers as shown here.

Salamanders are probably used today in greater numbers than any other form of heating device in unfinished buildings. They have stood the test of time and workmen are thoroughly familiar with their use. Their chief merit is their small size, easy portability and the ease with which they can be placed close alongside where the heat is required. Coal and coke are the favorite fuels. Both closed and open types are used.

We show herewith cut of an excellent closed type of salamander, to which a flue connection can be made, if desired. This is a very useful feature when it is desired



This Large Heater Burns Any Fuel and Furnishes Forced Circulation of Heated Air, Which Is Blown Out of Large Vents at the Top in Any Desired Direction by Means of a Motor-Driven Fan. It is said to be exceptionally effective in cold weather construction to protect concrete from frost or to dry out the plaster. Full details furnished in regard to this heater on request.

to heat a temporary shop or office. The legs are of special design so that they will not buckle even when red hot. The ash pans are effectively designed to prevent hot embers or ashes from dropping on the floor. These are furnished in three sizes which weigh, with grate top and ashpan, 75 pounds, 60 pounds and 35 pounds. The smallest size is useful where light weight is desirable, especially on scaffolds or in out of the way places.

For thawing out frozen pipe lines, valves, conveyors, and other equipment, a useful type of thawing torch is shown herewith. The model illustrated has a swing joint. It has a special thawing burner not affected by windy or cold weather, and produces a flame 2½ inches in diameter, 23 inches long, which should be very useful in winter work.

A special type of heater is now on the market which bids fair to be quite extensively adopted for winter work as it has proven quite efficient and has many advantages. This is a large heater with a motor driven fan which blows the heat out under pressure through short distributing pipes. Soft coal, coke or anthracite



This Salamander Burns Any Fuel. Top and ash pan can be used interchangeably. A smaller scaffold model is also furnished.

may be used and oil and gas burners can readily be installed in them. Ten of these heaters were used in winter work on the Furniture Mart, heating floor floors at a time. While used in this case, mainly, for drying out the plaster, Wells Brothers Construction Company, who were the general contractors, will use them quite extensively on future winter concrete work. The illustration shows one of these heaters in actual use at the Furniture Mart while it was under construction. This type of heater finds its main efficiency in producing an air circulation, drawing in cold air at the bottom and blowing the warm air out at the top.

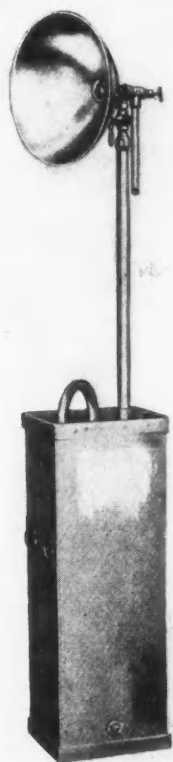
Carbide Lights Useful

Daylight fades early in winter and it is therefore advisable for builders to provide artificial illumination on winter work. In most of the large contracts where construction has continued throughout the cold weather, time and early completion date have been factors of prime importance. When the building is of reinforced concrete, an excellent plan is to have a crew of carpenters working nights on form work, so that concreting may proceed steadily throughout the ensuing day. The bright white light from carbide is very useful on these and other cold weather contracts. It is an

advantage, even during the day shift, should the light fade before the whistle blows.

By taking advantage of the night shift, progressive contractors are securing work against their competitors, in view of better estimates and better records of completion. They are also getting greater profits out of their work by utilizing expensive plants throughout two or more shifts per day.

In order to get the best results from night work by eliminating delays to men and machines, it is essential that the work be well lighted. One form of light that is now used all over the country and which is giving good service is the portable acetylene flare light. The accompanying illustration shows one of the acetylene lights of this type. This is a 10,000 c. p. light, is 6 feet high, weighs 60 pounds and is equipped with handles so that it may be carried from place to place without difficulty. It will burn for 12 hours on 8 pounds of carbide at a cost of $3\frac{1}{2}$ c per hour, the makers say. The flexibility of these lights allow the rays to be thrown in any desired direction or swiveled, by means of the reflector, in any position, either horizontal or vertical.



A Powerful Carbide Light Which Is Extremely Useful in Winter Work. It is furnished to supply either 8,000 or 12,000 C. P. Smaller models also furnished.

When calcium carbide and water are combined, a combustible gas called acetylene is generated. Calcium carbide, usually called carbide, comes in several forms. The form most generally used is ordinary commercial carbide in lumps about 2 inches by $\frac{1}{2}$ inch in size, as this size yields the greatest number of cubic feet of gas per pound, and is obtainable everywhere. The charging and lighting are easily performed by unskilled labor.

Anti-Freezing Compounds

There are a number of these accelerating and anti-freezing compounds on the market. Varying claims are made for these. Some manufacturers claim that concrete mixtures treated with their compound will set without freezing at temperatures as low as 18 degrees. Others set the safety point at 24 degrees and still others at 28 degrees. Some of these anti-freeze compounds are also waterproofers and hardeners.



This device Throws a Kerosene Flame Within the Mixer Drum of a Concrete Mixer and Thoroughly Heats the Mix. It is said to produce hot concrete—from 70 to 90 degrees in winter weather. Further details will be furnished on request.

It is claimed for some of these compounds that they will perform the following functions:

1. Accelerate the setting time of concrete.
2. Prevent brick mortar from freezing.
3. Densify concrete and reduce its permeability.
4. Produce a smooth workable mass for finishing concrete floors and save half the finishing time and expense.

Solvay calcium chloride, either plain or with organic compounds, is perhaps most generally used as an accelerator. There is a gum compounded with calcium chloride which is said to stop electrolytic action and therefore prevents corrosion of the reinforcing steel.

Manufacturers, as a rule, do not disclose the formula used in each compound. A salt is generally included which sets up a chemical reaction and generates heat, besides hastening the crystalizing action in the concrete.

An efficient accelerator will save about four hours in the initial set with a corresponding quickening of the final set.

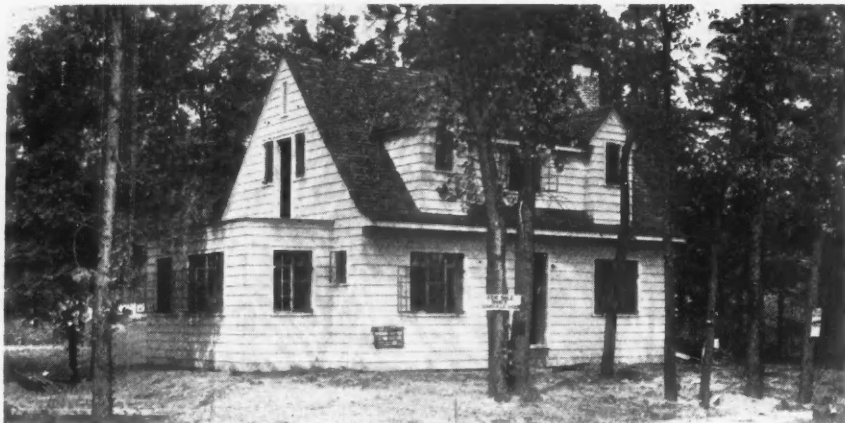
Mr. Charles Catlett, a geologist and chemical engineer of national reputation, perfected a concrete accelerator in crystalline form, which is essentially an oxychloride of calcium. The products of its decomposition in water are calcium chloride and finely divided hydrated lime, both excellent in their effect upon the setting of concrete. This not only shortens the setting time but also hardens and strengthens the concrete.

The visibility of the white powder is claimed to be an advantage, in that here is no danger of its being added twice, omitted from the mixture or being in any way mistaken for water. This compound is now on the market and was used in the construction of the Francis Scott Key Memorial Bridge at Washington.

Practically all accelerators recommended for concrete are beneficial in portland cement mortar mixtures, especially where brick or other masonry are to be laid up in cold weather. However, ordinary brickwork for dwellings and small buildings is quite generally being laid up in freezing weather without protection. It is called "frozen brickwork" and has received the sanction of the building ordinances of many large cities, including Chicago, which is supposed to have the severest ordinance of any. However, if brick walls are to carry heavy loads, this practice is unsafe.

Alumina Cement Now Made in U. S.

A special cement is now on the market which, it is claimed, effects a saving of 27 days in the final set of concrete, reaching a compressive strength of 4,789 pounds within 24 hours, and increasing thereafter. It is particularly valuable in concrete work where great strength is required and can be used in colder weather than other cements. It owes its high early strength to its principal ingredient—bauxite—obtained from high grade aluminum ore.



Winter Construction May Be Expedited by the Use of Steel Casement Sash Units, Which Are Assembled at the Factory, ready to Frame Into the Walls. Once the windows are closed against the weather, the interior work may be carried on in comfort in any sort of weather.

Steel Casements Expedite Winter Work

THE builder engaged in winter residential building will do well to bear in mind that the selection of such materials, equipment, etc., that will conserve time and labor and enable him to advance his job as rapidly as possible, is of considerable importance. If, by careful planning he can close things in before severe cold weather arrives, he can then proceed with his inside finishing in an efficient and comfortable manner.

Among those numerous items which contribute to the success of such a program are steel casement windows. Although they represent only a small part of the job, they are, by reason of their design, a great help to the builder in cutting down his time and advancing his schedules.

The fact that they are completely assembled at the factory makes it unnecessary for the carpenter to do any cutting or fitting. The frames and swing leaves are accurately fitted in the course of manufacture, and all that is necessary after the windows are delivered is to screw them into wood bucks or frames in the masonry openings and finish off around them. Aside from pointing up and glazing, the installation is complete. A further convenience is afforded by the removal leaves which may be taken out of the frames and carried to a warm room for glazing.

In the event that the builder desires to set the windows directly into the masonry, special fins are provided at the head and jambs to insure solid, weather-tight anchorage. All that is necessary in such construction is to set the sill, raise the window into position and brace temporarily with a light scantling, and build up the wall around it.

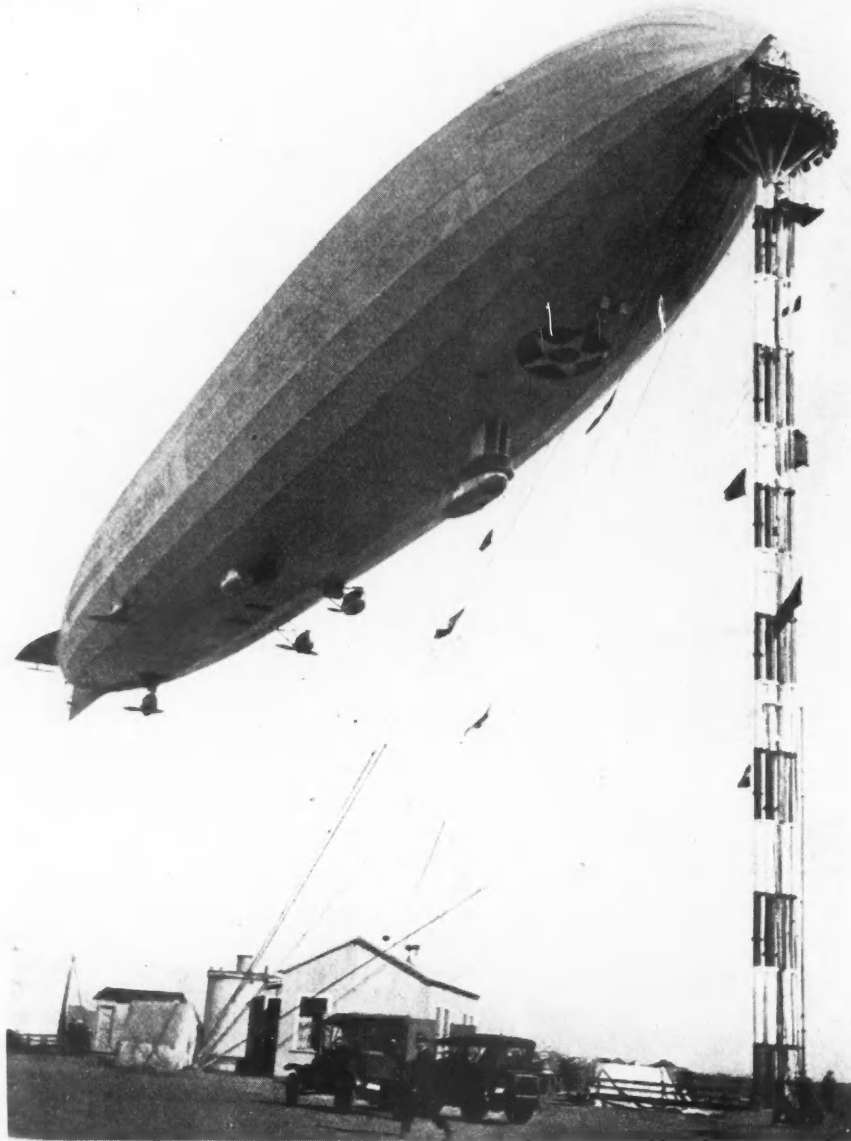
Incidentally, this practice has much to recommend it. It enables the builder to eliminate practically all wood trim if he so wishes, and to reduce by just that much the time and work necessary to complete the installation.

The foregoing comparison is made on the assumption that wood windows, if

used, would also be of the casement type. If the decision is to be made between steel casements and the ordinary double-hung wood window, there are several additional points, such as the elimination of all weights, pulleys, etc., which might very naturally influence the contractor in favor of steel casements.

There is little question that windows of the casement type are gaining in popularity, and builders who wish to influence their clients to use equipment of this type will find that in most cases the idea will be welcomed by the prospective home owners, who will be quick to realize the charm of casement windows, and the practicability of the steel construction.

Mr. Glenn E. Routier, a Detroit builder, has recently tested out the idea and found it both feasible and helpful. "Without a doubt," says Mr. Routier, "the steel casements we used on our last job assisted us in closing in our houses much sooner than could have been done with wood windows."



The Giant Airship, Shenandoah, of the U. S. Navy, Moored at San Diego After Having Crossed the American Continent on Its Recent Trip. The ship underwent minor repairs before starting its return voyage to the Atlantic Coast. Notice the type of mooring mast used. An elevator may be seen on the right of the mast, about one-third of the way down from the circular platform.

Parables of Bildad the Builder

No More Harmful to Slip on Ice at Bildadville Than on Banana Peel at Palm Beach, He Decides

"**B**ILDAD," announced My Wife, "let Us go to Palm Beach this Winter. The Snufpuffs and Doolittles are Going."

"Why Palm Beach?" quoth I. "Why not Medicine Hat?"

"The Weather Report says They have Such beautiful Winters down There," she Explained.

"Weather my Eye!" says I. "What does the Weather Man amount to Any More? He is Batting 1½ per cent. We are on the Verge of Another Glacial Age. Me for My Own Insulated Home fireside This Winter. I would Rather Slip on the Ice here in Bildadville than on a Banana Peel in Palm Beach, anyway."

"I don't See how We can Stand it Here another Winter," she Answered in Rebuttal. "Mother almost Keeled Over when she Visited us Last Christmas and Junior is Troubled all Winter Long here with Asthma, Catarrh and Spinal McGinnis."

I was on the Verge of Saying that if It kept my Mother-in-law away The Cold Winter was worth While, but Being a Peaceful man I Forbore.

"I believe in Saving for a Rainy Day," Taunted Mrs. Bildad, "but I Never Bargained on a Whole Summer Full of Rainy Days. And Dear Knows what Winter will be!"

"Knit yourself a Pair of Bed Sox and I can Stand it," I rejoined, "but Ask me Not to Leave my Work. There are penalty Clauses in the Last Two Jobs I undertook, and They mean All Winter work if I want to Crawl through under the Contract Line by Spring."

But how to Keep on Working? My Crew is Already busy with Sundry Insulating and Weather-stripping jobs, but Those require not Much planning, being Inside Work, mostly. And my chief Competitor, believing the World is Approaching an End, has Betaken himself away, Leaving me with Two Reinforced Concrete jobs of His own, in addition to my Own two Contracts. I purpose to Carry one Reinforced job to completion by Building a frame Shell about the Forms, keeping the Workmen comfortable Inside and having the Same Heated by Stoves. My aggregate Shall have been Warmed by Salamanders and Bonfires and by Igniting the Moonshine captured in the Course of the Year by the Police; which, Since it scorches the Throats of the drinkers, Likewise Possesses Sufficient strength to Warm up my Concrete against Freezing before a Set. Likewise with my Brick and Stone job; I make them Warm enough Before laying so they Set well Before Jack Frost inserts His nippers. Methinks I shall Get by; Bildad always Has.



"My Aggregates Shall Have Been Warmed by Salamanders and Bonfires and by Igniting Moonshine Captured by the Police in the Course of the Year."



HOW DAN DOES IT.

A Department for Passing "Life Savers" along to other Builders.

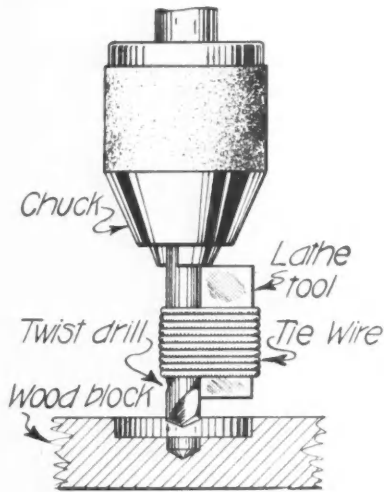
\$2 for an Idea

Dan is an ingenious cuss. Nothing ever stumps him. He always knows the way out when he runs into a tough problem out on the job or in the office. Dan is going to edit this Department and will pay \$2.00 each for every good idea he can use here to show and tell other builders "how to do it." Send him a rough sketch and a short description of what the tough job was and how you handled it.

Address Dan Do-It, care of American Builder, 1827 Prairie Avenue, Chicago, Ill.

Emergency Counterbore for Wood

SOME time ago we had a job which required the boring of several hundred holes in wooden blocks. The bolts that were to go into the holes had to be flush with the top surface of the blocks.



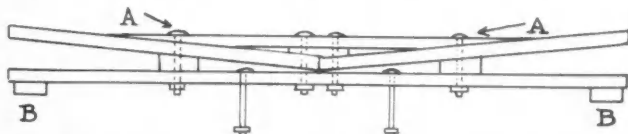
This Equipment Proved Efficient in the Boring of Several Hundred Holes for Bolts, Where the Heads of the Bolts Had to be Countersunk.

This required a counterbore tool, which we didn't have on hand. The accompanying illustration shows one we improvised. A straight nosed lathe tool of the proper size was bound securely to the twist drill by means of soft copper wire. The drill was inserted into the chuck so that the top edge of the lathe tool was up tight against the chuck jaws, thereby preventing the counterbore from working upward when pressure was applied. The cutting edge of the lathe tool was of course properlyground. With the drill spindle running at high speed, and by feeding the tool lightly, the work was accomplished very satisfactorily.—

T. W. BARKER, Chicago, Ill.

Auxiliary Truck Seat

OFTEN it is desirable to have more workmen ride on a truck than can be accommodated comfortably on the



A Springy Auxiliary Seat for Workman Can be Made from Two Inch Stuff as Shown in the Drawing. It will fit in either of two positions on the truck.

regular seat. The illustration conveys an idea for a seat which may be made easily from leftover pieces of 2-inch stuff.

The sketch is given to convey the idea, the dimensions being left optional, except that between the points AA the distance should be exactly the width of the truck body at the point directly in front of the truck seat.

The seat when used in this manner bolts to the floor of the truck directly in front of the regular seat. It was especially designed for use on a city street cleaning truck and so mounted is useful where the workmen must get down often. It may be easily removed.

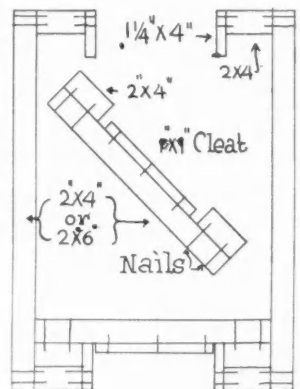
To use the same seat behind the regular seat, make the cleats BB so that they will just fit over the outside of the truck body.—BERT W. CULBERTSON, JACKSON, MISS.

Knockdown Cap Forms

THE interlocking feature of the forms I use for moulding concrete caps for piers and particularly for chimney caps has saved me the worry and expense of broken caps.

Where it is difficult, if not impossible, to get an ordinary nailed-together form from around the finished cap without damaging or ruining both the cap and the form, this interlocking form is easily removed. The cleats serve as handles. By tapping either of the innermost component sections of this form until contact with the cement is broken, then sliding the section of the form up and out the form is released.

Properly constructed, it lasts for years, saves caps, saves lumber, saves time, saves temper and it is ready for use again immediately.—BERT W. CULBERTSON, JACKSON, MISS.

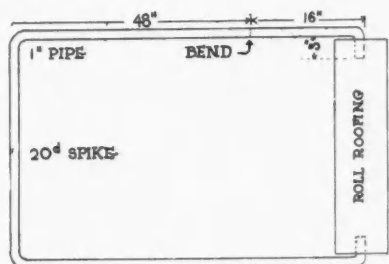


The Interlocking-Knock Down Features of this Form for Concrete Chimney Caps and Pier Caps Make It Possible to Use It Many Times.

For Laying Rolled Roofing

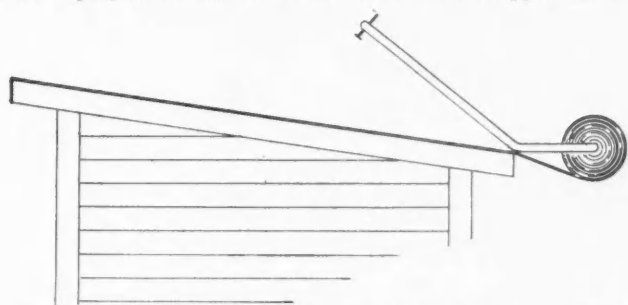
WHEN placing lengths of prepared rolled roofing on a roof it is difficult to get the correct length of the strip

and allow sufficient to turn down over the eaves of the building. To save handling the piece but once and to save the danger



The Diagram Illustrates the Construction of a Convenient Device for Laying Rolled Roofing. The side view of the device is shown below.

The upper end of the strip is attached to the upper edge or the gable of the roof and the side members of the tool are sprung apart until the bent ends will enter the ends of the roll. The roll is then allowed to unroll and to extend out beyond the edge of the eaves sufficient for the proper length to be marked. It is then drawn back and cut. At the handle end of the tool a hole is drilled through the pipe and a spike is driven into this and left to project an inch or more. This when dropped on the

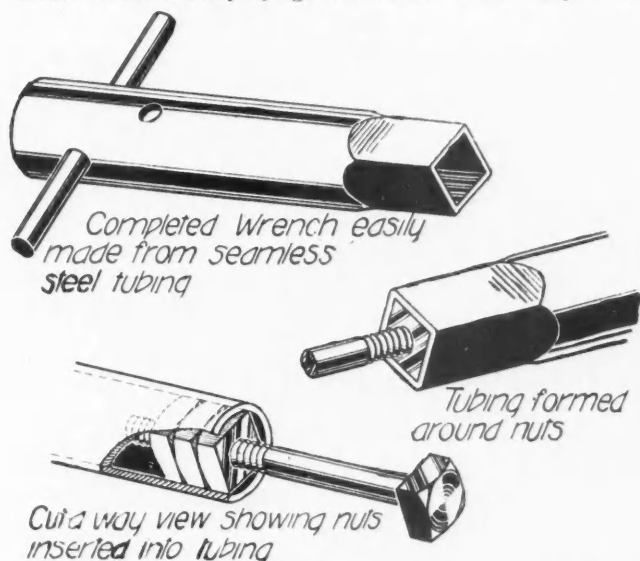


The Manner of Using the Tool in Applying Rolled Roofing Is Shown in the Drawing. Notice the spike in the handle to prevent the tool and material from rolling off the roof.

uncovered board roofing penetrates sufficient to hold the roll from unwinding or rolling down the sloping roof while the piece just cut off is being nailed.—GEORGE G. McVICKERS, North Bend, Nebr.

A Convenient Tool

SOCKET wrenches are among the most useful tools comprising a workman's tool kit, and can readily be made as shown in the accompanying illustration. Secure a piece of

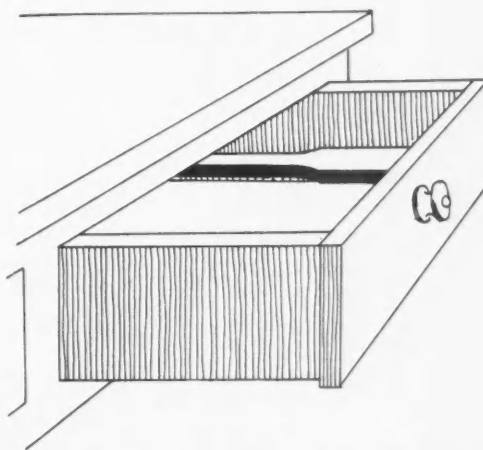


A Socket Wrench Is a Convenient Part of a Workman's Equipment. Here is illustrated a method of making one to fit the size nut most often encountered.

seamless pipe or tubing with the inside diameter large enough for the insertion of a nut of the desired size. Screw about two or three nuts onto a fairly long bolt, and insert into one end of the pipe. This end of the tube should then be heated red hot, and hammered down so as to make a snug fit on each face of the nuts. By hammering first one side and then the other, and rotating the pipe, a nice fitting can be obtained very easily. If the pipe becomes cold during the hammering, reheat to a red heat, and continue the forming operation. After the pipe has been completely formed around the entire set of nuts, clamp the bolt into a vise and drive off the pipe. The tube is then cut to the desired length, usually about six inches, and 1/4 or 5/16 inch holes are drilled about 1/2 inch from the end of the insertion of a handle. If the wrench was formed for a square nut, drill two holes at right angles to the face. If a hexagon wrench was formed, drill three holes in the same manner. Seamless steel tubing is the best material to use, and by securing a number of short lengths of various sizes, one can make up a very complete socket-wrench kit. It is advisable to have the hammered ends of the tubing case-hardened. If there is no means available for doing this, take them to the local blacksmith, who will undoubtedly be glad to case harden them for a reasonable sum.—T. W. BARKER, Chicago, Ill.

Convenient Handle for Carrying Shop-Drawer

CARPENTERS often find it convenient to remove one of the work-bench drawers, with its contents, so that the same may be carried from place to place about the workshop, and many steps are thus saved. An additional handle is almost



Carrying Tools from the Work Bench to Any Part of the Shop Is Made Easy if the Bench Drawers Are Made with a Convenient Handle Like That Shown in the Drawing, Which Interferes Very Little with the Use of the Drawer in the Bench.

necessary in such instances, however, and the one herewith described is recommended for its simplicity.

A narrow strip of material, about 1 by 2 inches, is cut to fit snugly inside the drawer as shown. This is dressed to provide a smooth and rounded handle and should be fastened securely to prevent accidents.

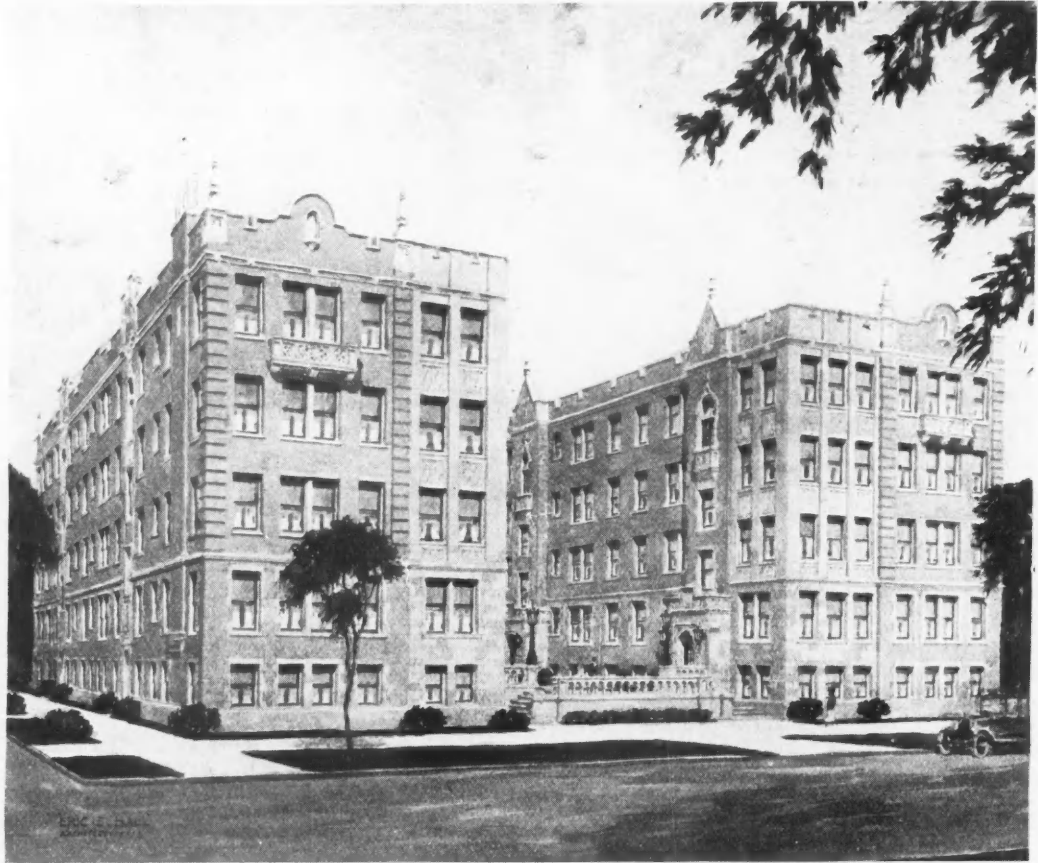
The operation and usefulness of the drawer while in the bench are in no way impaired by this additional handle.—G. E. HENRICKSON, Argyle, Wis.

An Impressive Apartment

ERIC E. HALL
Architect

PELHAM PARK MANOR, a co-operative apartment erected at Pine Grove Avenue and Addison Street, Chicago, is designed in Tudor Gothic architecture of unusual beauty and distinction. The same refinement of detail has been followed throughout the interior design in the fixtures, fireplaces, plaster ornaments and other fittings.

About one-third of the apartments are occupied by the tenant owners, the rest being rented on the usual plan. The capital stock issue was \$160,000 with a bond issue of \$425,000 against the property.



Exterior View of Pelham Manor, a Semi-Co-operative Apartment Building Located at Pine Grove Avenue and Addison Street, Chicago, Which Was Completed This Spring.



PINE GROVE AVE. 3500 to 3600

ADDISON ST. (one block to Sheridan Rd)

Typical Floor Plan of Pelham Manor Apartments Showing the Well Designed, Comfortable Arrangements with Rooms of Ample Size and Plenty of Light and Air.



1924 Building Volume Leads 1923

THE volume of building permits issued and plans filed throughout the country during the first nine months of the present year was between six and seven per cent ahead of the corresponding period in 1923, according to the Monthly National Building survey issued by S. W. Straus & Co. This is indicated by the complete official reports from the 320 leading cities and towns which showed \$2,778,740,612 compared with \$2,601,816,803, a gain for the nine months' period of \$176,923,809.

The Eastern and Southern sections of the country made praiseworthy gains during the three-quarters period. In the East a 16 per cent increase was shown while the forty-nine leading cities of the South made an aggregate increase of 13 per cent. The Central and Far Western sections of the country displayed slight losses.

Among the large cities, New York made a new high record during the three-quarters of the year, the total in plans filed for the period being \$681,693,000 compared with \$575,015,000 last year, a gain of \$106,678,000 or nearly 20 per cent. Detroit, Philadelphia, Boston, San Francisco, Milwaukee, Baltimore, Dallas, Denver, Providence, Louisville and Rochester made gains worthy of notice.

General Increases in September

The showing in September was slightly better than for the nine months' period. Every section of the country revealed greater potential activities. The Southern cities gained 20 per cent; Eastern, 12 per cent; Western, 4 per cent, and Central, 2 per cent.

The twenty-five leading cities of the country gained about \$12,000,000 over September, 1923, and \$17,000,000 over September, 1922.

The reports indicate that in both New York and Chicago the gain in building activities has been somewhat checked. Plans filed in New York were \$45,748,315 as against \$44,104,374 in September, 1923, and \$49,628,756 in September, 1922. Chicago reported the issuance of building permits amounting to \$22,228,200 as compared with \$27,874,705 in September last year, and \$12,263,100 in September, 1922.

An interesting feature of the month's report was the return of Los Angeles to third place among the cities of the country, although it ranked fourth for the nine months' period.

Detroit continued to show tremendous building activities, the amount of permits issued being \$12,542,789, compared with \$9,708,726 in September, 1923. Large gains for the month also were made in Cleveland, Boston, San Francisco, Washington, Milwaukee, Indianapolis, Cincinnati, Denver, Providence, Philadelphia, Baltimore, Dallas and Louisville. All of the twenty-five leading cities of the country showed gains in September, excepting five.



Concrete Products Standardized

STANDARDIZATION of cement products building units was effected at a meeting of a number of representatives of companies interested in the industry in Chicago, October 16. Concrete blocks, concrete building tile and concrete brick were reduced to standard sizes, which are to become standard in production—that is, at the factories—on June 1, 1925.

For concrete blocks, a uniform height of 7 7/8 inches, with a minus tolerance of 1/8 inch and a length of 15 7/8 inches with a minus tolerance of 1/8 inch were adopted for the standard widths of 6, 8, 10 and 12 inches, the widths subject to a minus tolerance of 1/4 inch.

For building tile a face of 5 by 12 inches was adopted for widths of 3 3/4 inches, 8 3/4 inches and 12 3/4 inches with a plus or minus tolerance of 3 per cent on all dimensions.

All concrete brick, rough and smooth, are to be of a standard size, 2 1/4 by 3 3/4 by 8 inches.

Partition tile was standardized as 12 by 2 inches with 3, 4, 6, 8, 10 and 12-inch depths, subject to a plus or minus tolerance of 3 per cent on all dimensions.

R. M. Hudson, chief of the Division of Simplified Practice of the United States Department of Commerce, attended the meeting in person. It is planned to revise the standards established at the end of a year if such revision appears to be necessary or expedient.



Prominent Engineers Form Firm

THEODORE L. CONDRON and Chester L. Post, engineers of Chicago, announce the formation of the firm of Condron and Post to continue the practice carried on by them under the name of the Condron Company since 1912 and by Mr. Condron since 1901.

The firm will specialize in consultation with and advice to other engineers, architects and investors regarding plans for steel or reinforced concrete buildings. The practice will include designing, estimating and supervising the construction of bridges, buildings, towers, reservoirs and other projects of a similar nature.



Heed Made Garford Executive

THE Garford Motor Truck Company, of Lima, has announced the appointment of Mr. Rushmore B. Heed as vice-president in charge of sales. Mr. Heed is well known in the motor truck industry, in which business he has been active since 1916 when he left the automobile insurance field to join the sales force of the Diamond T.

SUMMARY FOR SEPTEMBER AND THREE-QUARTERS OF 1924, BY REGIONS

PREPARED BY S. W. STRAUS & CO.

No.	Cities	Three-quarters 1924	Three-quarters 1923	Sept., 1924	Sept., 1923	Gain or Loss Three-quarters	Gain or Loss Sept.-Sept.
92	Eastern	\$1,327,246,118	\$1,145,368,497	\$109,619,072	\$97,533,901	\$181,877,621 + 16 per cent	\$12,085,171 + 12 per cent
105	Central	840,614,714	858,504,647	91,040,004	88,965,335	17,889,933 — 2 per cent	2,074,669 + 2 per cent
49	Southern	239,288,670	211,197,031	23,508,914	18,994,404	28,091,639 + 13 per cent	4,514,510 + 20 per cent
74	Western	371,591,110	386,746,628	40,777,811	39,028,812	15,155,518 — 4 per cent	1,748,999 + 4 per cent
320	Total	\$2,778,740,612	\$2,601,816,803	\$264,945,801	\$244,522,452	\$176,923,809	\$20,423,349

Wallace Calls Utilization Meeting

BECAUSE it is believed that diminishing forest resources will, within the next generation, have a radical effect on wood-using practices, manufacturing enterprises and living conditions in this country, Secretary of Agriculture Wallace has called a National Conference on the Utilization of Forest Products, to meet in Washington, November 19 and 20.

It is stated by the officials of the Forestry Service that approximately two-thirds of the present forest cut is lost in the process of conversion and through inefficient use. Approximately one-third of this loss is believed to be preventable, and it is to discuss ways and means of avoiding this waste that the conference will meet.

A number of interested groups have been invited to send representatives and the Forest Service is anxious to have the attendance include leading representatives of associations, industries and other agencies interested in the manufacture and use of forest products.



Model Homes Contest for Boys

THE Illinois Lumber Merchants' Association announces a Model Homes Contest in connection with the annual convention to be held in Chicago, Sherman Hotel, February 4-5-6, 1925. Two hundred dollars in cash prizes are offered, divided as follows: First prize, \$100; second prize, \$50; third prize, \$25; fourth prize, \$15; fifth, \$10. All Illinois boys eighteen years and under are invited to enter this contest and compete for the cash prizes.

Any school in the state of Illinois, or any boy or company of boys, not over eighteen years of age, can compete for these prizes by constructing a model home and exhibiting it at the annual convention of the association, February 4-5-6, 1925. Entries can be made by an individual, a school, a society, or the manual training department of any school, but models must be made by boys not more than eighteen years of age.



Sheetrock Mill Rebuilt

THE United States Gypsum Company has just finished completely rebuilding the Sheetrock wallboard unit of its plant at Fort Dodge, Iowa, increasing its capacity to 225,000 feet a day and making this plant one of the three largest gypsum-working establishments in the world. This construction cost \$150,000 and provides for further expansion up to a daily capacity of 50,000 feet more than the plant had before this year.

These changes were effected, without interruption to operation of the old plant, within four months after issuance of the authority. The wallboard machine was designed and built by the Gypsum Company and embodies all the improvements developed in its six other Sheetrock mills. On the first day of operation, it produced within 5,000 feet of its total capacity. This is the fourth considerable construction done by this company in 1924.



Plumbing Engineers to Meet

AN exhibit of plumbing, heating and ventilating materials will be an additional feature at the three days' institute of lectures and demonstrations to be held on November 12, 13 and 14 at Carnegie Institute of Technology for the plumbing, heating and ventilating engineers of Pennsylvania, according to the latest announcement from the Pittsburgh institution. The exhibit, it is pointed out, will be restricted to a display of materials manufactured in the Pittsburgh district. Reservations have already been made for 20 exhibitors.

Henry Robinson Towne, 1844-1924

HENRY ROBINSON TOWNE, chairman of the board and one of the founders of the Yale & Towne Manufacturing Company, died October 15 at his home in New York City. He was eighty years old.

It was in 1869 that Mr. Towne formed with Linus Yale, Jr., the firm which has grown to be one of the best known in the world in its field. Mr. Yale, an inventor, died just two months after the partnership was formed and shortly



Henry Robinson Towne, One of the Founders and the Chairman of the Board of Yale and Towne, Who Died October 15.

afterward Mr. Towne succeeded him as head of the corporation and a factory soon was opened in Stamford, Conn., with thirty employees. For a year or two the growth of the enterprise was slow, but under Mr. Towne's guidance it expanded until it has become one of the largest of its kind in the world, covering more than 20 acres and capable of employing 5,000 men.

Mr. Towne continued as president of the company until 1915, when he resigned to become chairman of the board and was succeeded by Walter C. Allen.

Mr. Towne became president of the Merchants' Association of New York in 1908 and served until 1913. He was a past president of the American Society of Mechanical Engineers and at one time treasurer of the National Tariff Commission Association. He wrote several books, among them "Towne on Cranes" and "Locks and Builders' Hardware."

He is survived by a son, John H. Towne, a director of the Yale and Towne Company.



T. L. Smith Branch Office Changes

THE T. L. Smith Company of Milwaukee, manufacturers of concrete mixers and pavers, announce the appointment of Mr. B. L. Rider, formerly of the Northwestern Engineering Company, as manager of their New York office, 50 Church Street, New York City.

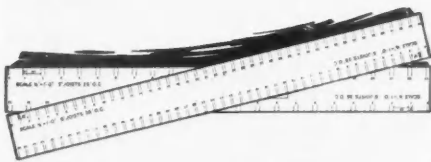
WHAT'S NEW?



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 Practical Aid for the Builder

SINCE the practicability of the steel dome method of reinforced concrete construction can no longer be questioned for buildings of the "light occupancy" class, architects, engineers and contractors find themselves working more and more



This Scale Tells at a Glance the Number of Steel Dome Units Needed for a job.

frequently with floor plans involving long span concrete joists. To assist in the practical planning and laying out of such work a firm engaged in the manufacture of steel

domes used in such construction has designed a very useful scale, which offers a method of determining at a glance just how many of the steel dome units will be required for any particular piece of work.

The scale is so designed that it may be applied to blueprints of $\frac{1}{8}$ or $\frac{1}{4}$ -inch scale and will tell the correct number of steel domes needed for 5-inch joists spaced 25 inches, center to center, or 6-inch joists spaced 26 inches, center to center.

The scale is of white celluloid, 12 inches long by $1\frac{1}{4}$ inches wide. The computations are arranged along each edge of the scale, thus furnishing the standard computations mentioned.

The scale is furnished to interested architects, engineers and contractors without charge.



A Trailer Mounted Mixer

IN concreting lamp post bases there is often a lot of time lost in moving the mixer from one set-up to the next, and getting ready to pour—but the Electric Contracting Company, of Chicago, has cut this lost time down to a small item.

The photos show the outfit they are using, a 14-S mixer with a drop-down power loader, mounted on a trailer.

The mixer is ready for action as soon as the trailer stops—and ready to move on at once, as soon as the pour is completed. It travels at motor truck speed

to any part of the city, and the mixer—either a 21-S or 14-S—gives a big output and cleans up the work quickly.

In order to be able to discharge concrete right out of the mixer into dump bodies mounted on Ford trucks, the mixer was blocked up on the trailer. But, as the illustration shows, the drop-down power loader is filled directly from wheelbarrows on the ground.

The picture also shows the steep discharge angle of the power loader skip when in raised position. As is usual with power loader operation, one complete batch is assembled in the power loader while the batch ahead is mixing.

The mixing buckets in the drum handle the concrete fast, and the discharge chute has a steep angle, so that an entire mixed batch can be discharged in 12 seconds under perfect control, without slopping.

Except for the special mounting and drop-down power loader, the mixer is a standard machine with rail tracks for the main drum bearings, turning on mime-car-wheel rollers. The rail tracks take all the wear of the rollers, so that there is no wear whatever on the outside of the drum shell.

The first mixer with a drop-down power loader and trailer mounting was a 21-S machine purchased for pouring lamp post bases by the city of Chicago, Department of Gas and Electricity.

The results with this unusual outfit were so good that the Electric Contracting Company of Chicago adopted the same



Mounting This Mixer on a Special Type of Trailer and Providing Special Hoisting Equipment Greatly Facilitate Pouring Concrete for Lamp Post Bases.

idea, using a 14-S mixer of the same make with the same kind of loader and trailer mounting.

The users report that one of these makes a saving of \$25.00 a day, as compared with results given by mixers previously used—having ordinary wheel mountings and power loaders of the usual type.



Salvaging Used Brick

THE problem of cleaning brick is one which is well worth study on the part of the contractor who wrecks old buildings to make way for new structures or for the material firms which find they can realize a substantial profit from buying material of this kind and selling it after it is made fit for use again.

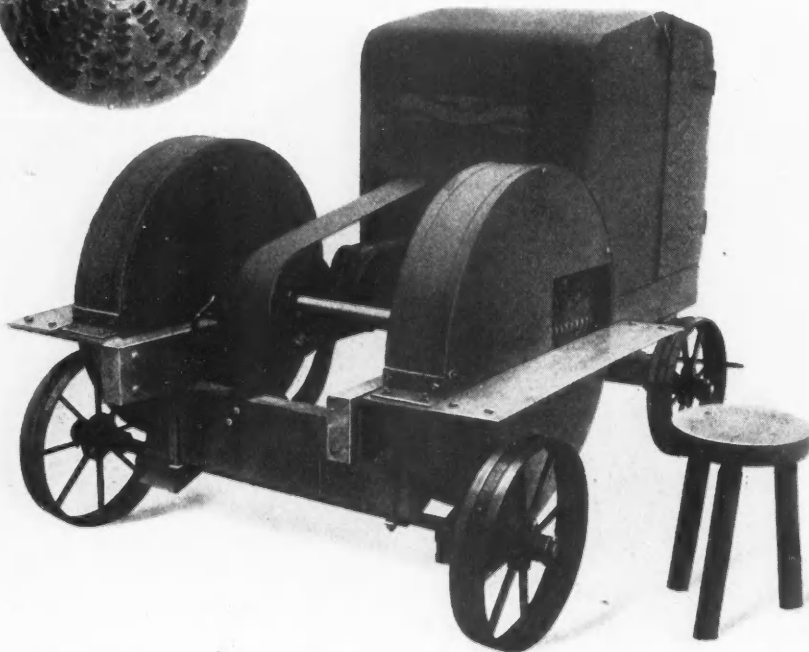
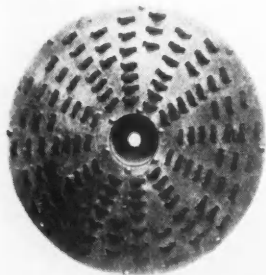
A machine made especially to meet this problem is now available to contractors and others interested. And it has been shown by comparative tests that two men with the machine will clean more bricks than six men working by hand, materially reducing the labor costs.

The cleaning of the bricks is done by the cutter illustrated, which is revolved rapidly within proper guards while the bricks to be cleaned are pressed against it, rapidly removing the mortar. The machine is equipped with two of these cutters, one on either side, to enable two men to work at the same time.

Details of the cutting head are shown in the illustration. Several hundred star-shaped cutters and round washers revolve on twenty-four radial rods mounted in the cutter head. These cutting elements are staggered in the mounting in such a manner that the whole face of the brick is cleaned and the brick is brought to a true, flat surface. The cutters can be renewed easily.

The rolling principle of the cutters is considered very important by the manufacturers, who declare that this insures long life for the cutting edges and requires a minimum of power to operate as well as preventing a sharp impact on the brick and practically eliminating breakage.

The two cutter heads are mounted on a shaft which is driven at a speed of 500 r.p.m.



Reclaiming Used Bricks Is Done Rapidly with This Machine. To the left above is shown the cutter head of special design.

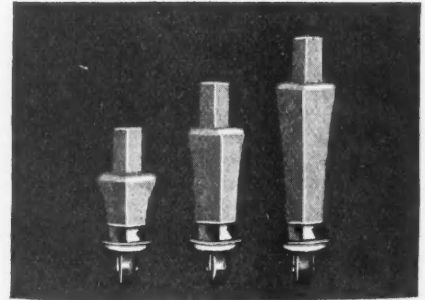
by a 2 h.p. gasoline motor. A substantial housing protects the engine in stormy weather. The machine is conveniently mounted on a truck so that it can be backed up to the pile of brick, providing maximum convenience for the workmen. It is built low to provide for a saving of time in reaching for bricks and is provided with low seats for the workmen.



New Kitchen Cabinet Features

THE woman's viewpoint is being studied today by builders more than ever, for they have found that the little conveniences which appeal to women will often swing a lease or a sale. Then, too, women are intensely modern and want the latest and best. This applies to kitchen cabinets as it does to other equipment.

The latest kitchen cabinet idea is embodied in a model with detachable legs of varying length so that the baking board, table top and other working surfaces can be brought to just the right height to be conveniently under the housewife's hands. With a set of these detachable legs a cabinet can be quickly and easily adjusted for short, medium or tall workers.



Height of the Kitchen Cabinet May be Suited to Individual Preference by Using a Set of Legs of Proper Size. Three of the sizes are shown in the upper illustration. Below is shown a silver compartment which will win the approval of the housewife.

This follows the more recent teachings of those interested in making housework more pleasant through making it less tiring. It is asserted that bending and assuming an unnatural and unhealthy position while working over a table or cabinet too low or too high is responsible for much of the fatigue of the home worker.

To have table silver instantly available in the kitchen is another convenience which makes a strong appeal to the housewife. One kitchen cabinet manufacturer has brought out a model containing these and a dozen other features of great convenience to make housekeeping orderly and attractive. A velvet-lined silver drawer is provided. The pad in the bottom of this compartment lifts out readily for brushing. Another compartment is provided alongside for freshly laundered tea towels. The cabinet also contains a very convenient flour bin and sifter, rolling shutter with full width opening, white porcelain top, ant-proof casters, 10- and 14-piece glassware sets and the usual racks, drawers and shelving for convenient disposal of dry staples, spices, as well as pots and pans.

JOHNSON'S FLOOR VARNISH



You know Johnson's Floor Wax—it's used all over the world for finishing and polishing floors. We want you to know Johnson's Floor Varnish, too. Our Floor Varnish is just as good as our Floor Wax. To prove this statement we offer you a pint can absolutely FREE. Just fill out and mail the coupon below.



“Made To Walk On”

Johnson's Floor Varnish dries dust free in two hours and hard over night. It imparts a beautiful, high lustre—has good body—will give long wear and is absolutely water-proof. Johnson's Floor Varnish will stand all reasonable tests—hot and cold water—the tramp of feet—atmospheric changes, etc.

Johnson's Floor Varnish is tough and durable. It gives a beautiful high gloss which will not chip, check, mar, blister or scratch white. It is pale in color, so can be used on the lightest floors and linoleum. May be rubbed if desired.

Johnson's Floor Varnish is unexcelled for use on tables, chairs, furniture, woodwork and trim of all kinds—also for oil cloth and linoleum. Do not hesitate to use it wherever a beautiful, durable varnished finish is desired.

FREE TRIAL OFFER

Fill out and mail the attached coupon for a pint of Johnson's Floor Varnish FREE and all charges prepaid. There is no obligation whatever connected with this offer—all we ask you to do is use it and compare it with other brands.

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You will find Johnson's Floor Varnish of the highest quality. If you are unable to purchase it advantageously from your regular source of supply, write us for prices, mentioning references.

One gallon of Johnson's Floor Varnish is sufficient for 550 to 650 sq. ft. You only require 1 gal. of it for varnishing a floor 15' x 20'—two coats.

Varnished floors can be kept in perfect condition by waxing them occasionally with Johnson's Liquid Wax. It cleans, polishes, preserves and protects—all in one operation.

Our varnish plant is thoroughly modern and every gallon of Johnson's Varnish is made by experts. Our varnish line includes Sani-Spar Varnish, Linoleum Varnish, Rubbing and Polishing Varnish and Coach Varnishes.

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“The Wood Finishing Authorities”
 (Canadian Factory—Brantford)

Please send me FREE and all charges prepaid, a pint of Johnson's Floor Varnish. I will test it and report results to you. Also send Free your 25c book on Wood Finishing.

My Name.....

My Address.....

City & State.....

I buy varnish from.....
 (Enclose business card or letterhead.)

Increasing Ford Truck Capacity

A DEVICE which makes a one-ton Ford truck capable of caring for nearly twice the normal load and adds greatly to both the power and speed range of the truck cannot fail to interest the contractor who has such a truck as part of his transportation equipment.

An auxiliary transmission for Ford trucks which accomplishes this end is now available to builders. This transmission differs from other mechanisms employed for a like purpose in that it is installed directly back of the motor and adds nothing to the unsprung weight of the truck. The transmission is a complete unit, and in the position in which it is placed it is easily accessible and does not change any of the Ford units or add to the cost of servicing.

The transmission allows the power of the truck to be increased when traveling in low speed by a further gear reduction and the speed in high to be increased. This, the manufacturers say, tends to greater economy in operation and eliminates a great deal of the vibration. It also is stated that in second speed the motor may be used as a brake in coasting down hill. The compression of the motor keeps the car in control with a minimum of braking.

The auxiliary gears are controlled by a lever, as shown in the illustration. It is positive and safe in operation. The mechanism is light in weight and compact in size.

The additional cost of installing this transmission on a Ford truck is a very small fraction of the price of the truck.

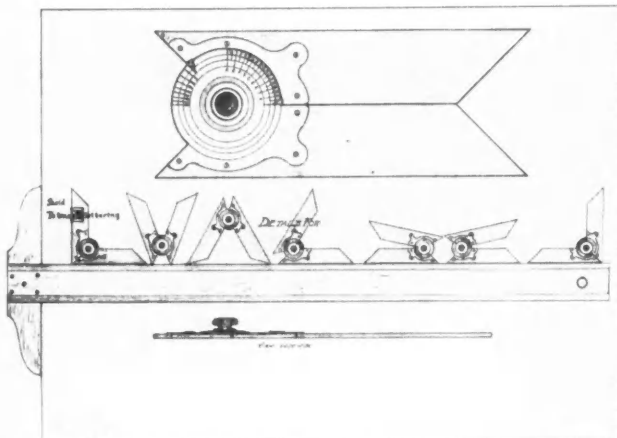


A Drafting Room Convenience

A PROTRACTOR which may be set at any desired angle, for lettering or for many other uses by the draftsmen, has been perfected and placed on the market by a draftsman of many years' experience, who developed the convenient device after feeling the need of something of the sort for a number of years.

The principal feature of the protractor, as may be seen from the accompanying illustration, is a pair of eight-inch transparent blades which are adjustable by single degrees from 1 to 90 degrees. When once set to an angle, the opposite angle is always ready by simply reversing the instrument on the T-square.

The tension or set screw answers for a knot in holding the



This Adjustable Protractor Is Very Convenient for Lettering and Many Other Drafting Room Uses.

protractor and reversing the blades and moving it back and forth. This is especially useful in tracing as it eliminates danger of dragging and blotting and can be picked up in an instant.

The protractor can be used for lettering at any desired angle and with the lettering shield, shown in the drawing to the left of the illustration, the instrument can be moved back and forth over the lettering without blotting.

The readings given are as follows: degrees from 1 to 90; pitches of roofs by eighths from 1/8 to 8/8; fall or grade from one inch to the foot to 12 inches to the foot.



Automatic Heat Regulation

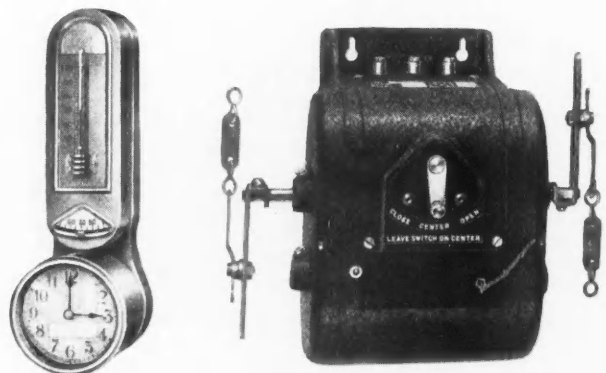
COMPLETELY automatic control of room temperatures, so sensitive that the heating plant will be properly regulated when the heat in the living quarters varies from one degree from the predetermined temperature, is offered in a device which is made to function in any type of furnace, steam, hot water or hot air, and burning any type of fuel.

The latest development in this field is the automatic change in room temperature at certain hours through regulation by a clock. By this means the householder, after setting the clock properly, can be assured that his furnace

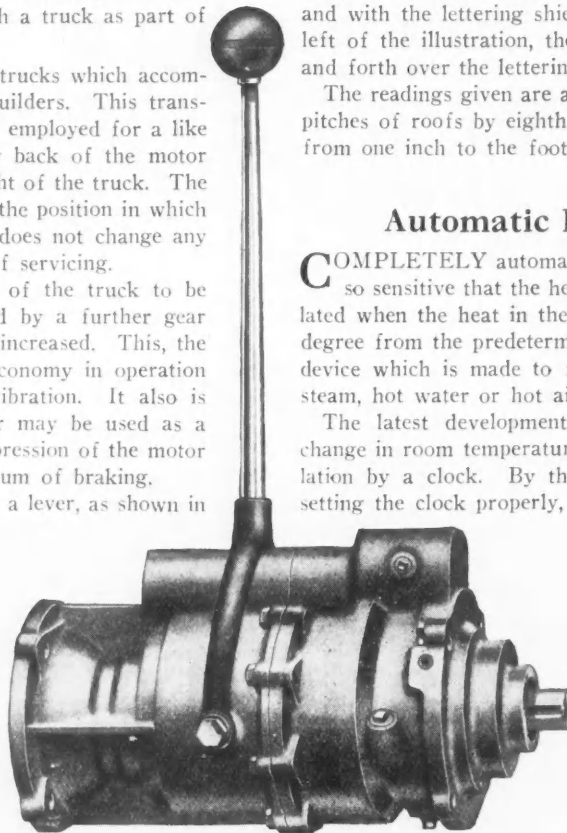
will be opened up some time before he has to "roll out" on a cold winter morning and that everything will be warm when the time for arising comes.

In one type of this combination service offered, the clock has an eight-day, seven-jewel movement, which will, without attention, turn down the fires at a certain hour determined by the homeowner and turn them up again before time to get up in the morning.

The heat control is accomplished by the use of two units, illustrated here. The first, a thermostat, with clock attached, is placed in the living quarters. It is set to maintain the heat at any desired temperature. Behind the screen of the instrument is a sensitive coil of metal which, when it is subject to one degree drop of temperature will contract in such a manner that an electric circuit is formed in which is included the other portion of the mechanism, the motor, installed near the furnace. When this contact is made in the living quarters, the motor opens the furnace drafts. If the room temperature goes above the pre-determined point, the coil of metal expands, forming another circuit which actuates the motor to close the furnace drafts and check the fire.



Heat Comfort Is Provided by This Equipment, the Thermostat at the Left Installed in the Living Quarters and the Motor at the Right in the Furnace Room.



More Power in Low and More Speed in High Is Provided by This Auxiliary Transmission for Ford Trucks.

All These Books for 50 Cents

*a complete library on
home building*

Get This Newest Book

SIXTY-TWO NEW HOMES, in picture and plan, for every locality—many especially suitable for California, the West and Southwest, two-story singles, two-families and double houses.

The best variety and the latest styles, all in this newest book just off the press. Beautifully printed in rotogravure. Each designed by a well-known architect for beauty and economy. Working drawings at nominal cost for every home shown. *10 cents a copy for "The Home You Can Afford."*

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THE SIXTY HOMES shown in picture and plan in "Your Next Home" do not duplicate those in the newest book "The Home You Can Afford." Send for both books. All homes actually built and lived in and designed by capable architects. At ten cents each these two booklets give you 122 good brick homes for which working drawings are available at nominal cost.

The Book of Modern Methods

Illustrations and data on money-saving methods. Valuable tables of material and labor costs. Complete details of Ideal Brick Hollow Wall and latest reports of strength of brick work—25 cents a copy.

Farm Homes of Brick

Plentiful variety for every locality and family requirement. Full of practical suggestions for economical and comfortable arrangement. Pictures and floor plans. Price 5 cents a copy.

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Enclosed find _____ cents. Please send me the books marked below.

- "The Home You Can Afford" (10 cts.)
- "Your Next Home" (10 cts.)
- "Brick—How to Build and Estimate" (25 cts.)
- "Farm Homes of Brick" (5 cts.)

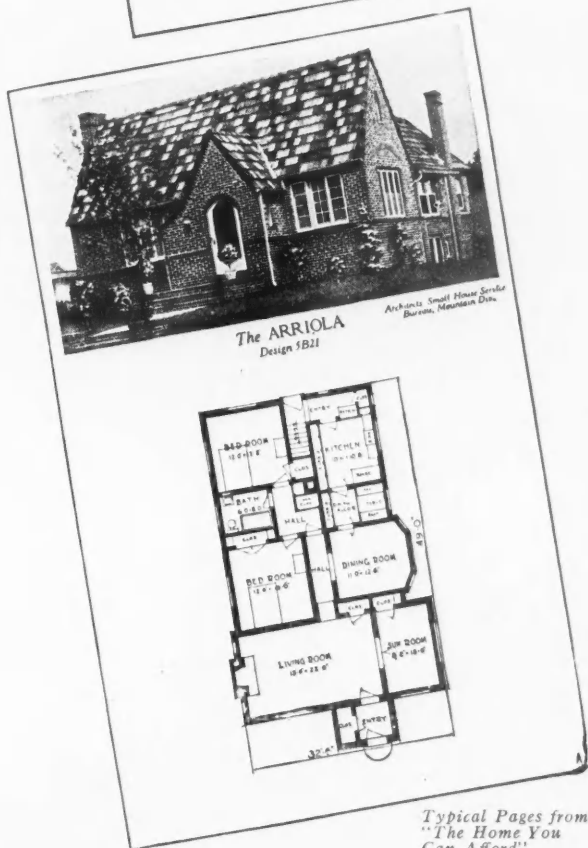
Name _____

Address _____



The OSSEO
Design 5B22

Architect Small House Service
Bureau, Houston, Tex.



The ARRIOLA
Design 5B21

Architect Small House Service
Bureau, Houston, Tex.

Typical Pages from
"The Home You
Can Afford"



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by invitation
of THE MASTER
HOUSE BUREAU

The Common Brick Manufacturers' Association of America

2131 Cleveland Discount Building, Cleveland, Ohio

San Francisco Office 811 Sharon Bldg.

New York Office: 25 West 45th St.

Complete information and booklets may be secured from any of these
affiliated organizations:

California Common Brick Mfrs.' Ass'n,
342 Douglas Bldg., Los Angeles.

Louisiana-Mississippi Brick Mfrs.' Ass'n,
904 Carondelet Bldg., New Orleans.

Detroit Brick Mfrs.' & Dealers' Ass'n,
404 Penobscot Bldg., Detroit.

Pacific Northwest Brick Mfrs. Ass'n,
524 Burke Bldg., Seattle.

Chicago Brick Exchange,
614 Chamber of Commerce.

Connecticut Brick Mfrs.' Ass'n,
226 Pearl St., Hartford.

With this latest development, the eight-day clock, which is guaranteed for five year, the heating system may be set for two changes in each twelve-hour period if it is desirable, and need not be touched or rewound for more than a week.

The equipment is applied to coal, oil and gas-heating installations.

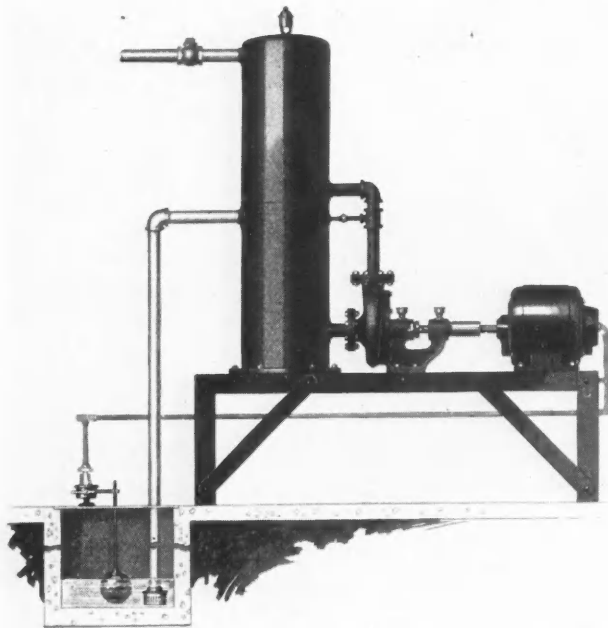


Keeping the Cellar Dry

A DEVICE which automatically will care for any seepage water in basements, engine and fly wheel pits and in general sump applications is one which is often needed by the builder to meet the special requirements of some client.

The outfit illustrated here meets the requirements for such a service in a particularly efficient manner, since it requires almost no attention and automatically starts its pumping operations at any time that the water reaches a predetermined level and is shut off when the height of the water is sufficiently reduced.

The unit shown is easily installed and operated, requiring only a small sump in the lowest part of the drainage area.



This Equipment Automatically Cares for Seepage Water in the Basement or Other Places Where Needed. It can be connected to the ordinary electric light circuit and is self priming.

It can be operated on a house-wiring circuit.

The size shown, which is one of many sizes produced by the manufacturer, has a capacity of 10 gallons a minute, with a total head of 15 feet. It is equipped with a one-quarter horse power motor, furnished for either single phase or direct current. The floor space occupied is only 12 by 30 inches and the total weight is 225 pounds. It is furnished as shown, less the piping, wiring and conduit. The pump is assembled completely to the tank.

The unit is started and stopped by the rise and fall of the water. The primer, which is a patented feature, is made sectional, with a top and bottom tank. The lower tank always remains full of water, which is sufficient to prime the pump. When the float switch cuts the current to the motor, the water from the top tank seeks its level in the lower tank.



A Simple, Inexpensive Truck Hoist

THE contractor who includes a Ford truck in his transportation equipment (and where is there a builder without at least one?) has often felt the need for a simple, reliable

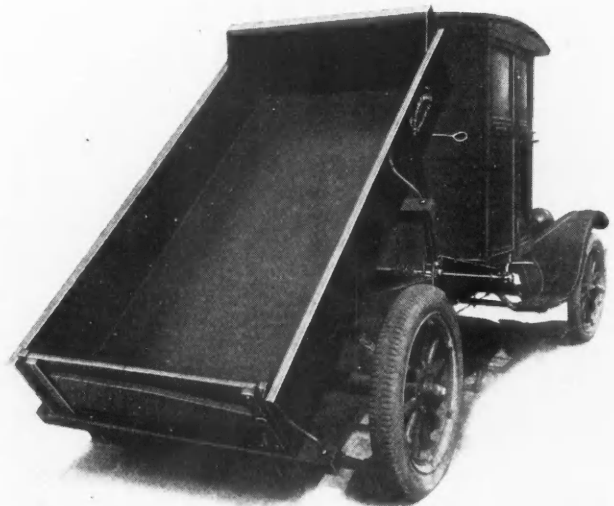


This Hand Hoist for Fords Takes No More Than an Inch Between the Cab and Body.

and inexpensive hoist which could be attached to the truck without any mechanical difficulty and which would make a practical dump body available to him. Such a device is available and is attached in a manner which does not interfere with the carrying capacity of the truck.

The hoist is easily and simply attached. It is not necessary to drill holes in the chassis frame of the truck or to alter it at all. The hoist and the hinges for the body either bolt into holes already in the frame or are clamped on. The attachments are adjustable to all sizes, styles and makes of bodies with very little alteration. It is claimed that the hinge, instead of weakening the sill, actually strengthens it where they are attached.

The body is easily and quickly dumped, the hoisting being accomplished by hand, either with a pump handle or a crank motion. Because of a special latch construction, the load cannot dump, accidentally. The installation usually requires no space between the cab and the body and never requires more than one inch of space. The mechanism is entirely independent of the cab and can be attached to trucks without cabs as well as to those equipped with them. The shipping weight of the hoist is about 100 pounds.



The Hoist Mechanism for Fords Is Simple and Has a Positive Latch.

PEERLESS

Dome Damper



*For True Liveability Nothing
Can Equal the Fireplace*



With the Peerless Automatic Ash Trap (above) and Peerless Ash Pit Door (right) the fireplace is given the final touch of convenience that makes its use a constant delight.

Write for catalogue showing full line of Peerless Fireplace Equipment.



Peerless Quality In:

- Grates
- Andirons
- Portable Baskets
- Fire Sets
- Fenders
- Screens
- Gas Heaters
- Gas and Coal Stoves
etc.



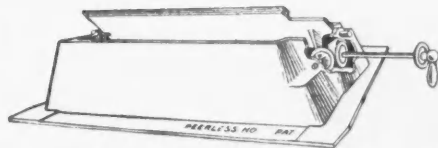
ADD a fireplace, with cheerful, crackling, burning fire, to a house, and it acquires that indefinable spirit which makes it a home; to be really lived in.

And no longer need you, nor your client, approach the subject of the fireplace doubtfully, wanting its charm and attraction in the new home but fearing its efficiency.

Equipped with a Peerless Dome Damper an open fireplace can be controlled and will heat as satisfactorily as any other heating method. Nor must it be used in conjunction with another form of heat. If the fireplace is correct in proportion to the room size, it will furnish all the heat needed; moreover, the Peerless increases its radius so that instead of warming but a small area directly in front of the fire, the whole room is heated.

The advantages of the Peerless, in controlling every condition of draft, and regulating the fire from kindling to ashes, are numerous; and all are thoroughly practical.

Let us send you working dimension tables, and full particulars concerning any detail of construction, installation or operation.



Peerless Dome Damper No. 21 is shown above. Operated from opening of fireplace by brass-handled, notched control rod. Other types operated from face and breast of fireplace.

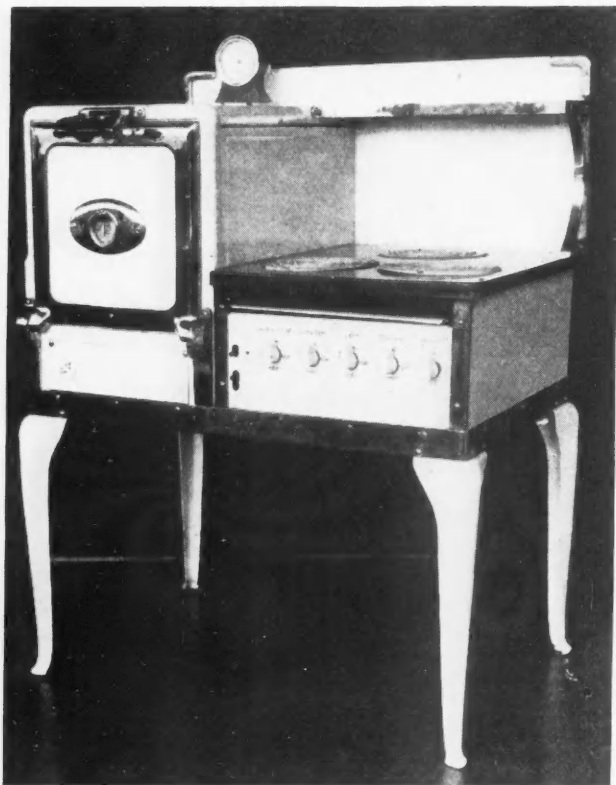
Made of finest, heat-resisting materials, with simply constructed working parts, the Peerless calls for no attention and once installed is there forever.

PEERLESS MANUFACTURING CO.
INCORPORATED
LOUISVILLE, KY. U.S.A.

Largest Manufacturers of Fireplace Equipment in the World

Small Range Has New Features

TO meet the demand for a cabinet type electric range for use in kitchens of limited space, yet of sufficient cooking capacity for the ordinary sized family, a single oven range of small and compact size has been designed.



For Smaller Apartments This New Electric Range Will Fill a Long Felt Need for Equipment for the Kitchen of Limited Size. It may be obtained in the white vitreous enamel finish, as shown, or in black japan finish.

The new range is full automatic in operation. A clock automatically turns on the current, while a thermostat turns it off at any desired temperature.

Another feature of the range is the thoroughly insulated oven, which is made of sheet steel and finished both inside and out with a heavy coat of blue vitreous enamel, which prevents rusting and makes it easily cleaned.

The oven (size 14 by 14 by 17½ inches deep) is heated with two 1,500-watt units of the open brick type, and the three-surface units, consisting of one 8-inch 1,000-watt, one 8-inch 1,500-watt, and one 6-inch 1,000-watt, are also the open brick type.

The units are controlled by three heat-reciprocating snap switches with arrow-shaped buttons, which indicate the position so that they can be read at considerable distance.

The ranges may be obtained in both black japanned and white vitreous enamel finish.



Tennis Season Extended

WHY should tennis be restricted by the whims of weather? The question has long been foremost in the minds of many tennis enthusiasts.

Two years ago the "Triple A" club, Amateur Athletic Association of St. Louis, decided to surface some of its popular tennis courts with asphalt roofing, as a possible solution to this

problem. It was done as an experiment, for the club's director felt the need of courts that would be available immediately after rains.

This eliminates the cause for most of the time lost from the tennis courts during the playing season, for no careful groundkeeper will allow players on the courts under his care until the ground is dry and hard enough so that the feet of the players will not cause permanent damage. Often the players must wait until the clay courts have been rolled and remarked after a storm.

Today, this experiment has received the approval of club officials, and has met with favor among many ardent tennis players. They found that they acquired extra-playing days, as the asphalt roofing used on these courts dries quickly after rain and gives practically the same firm, resilient surface through most of the year.

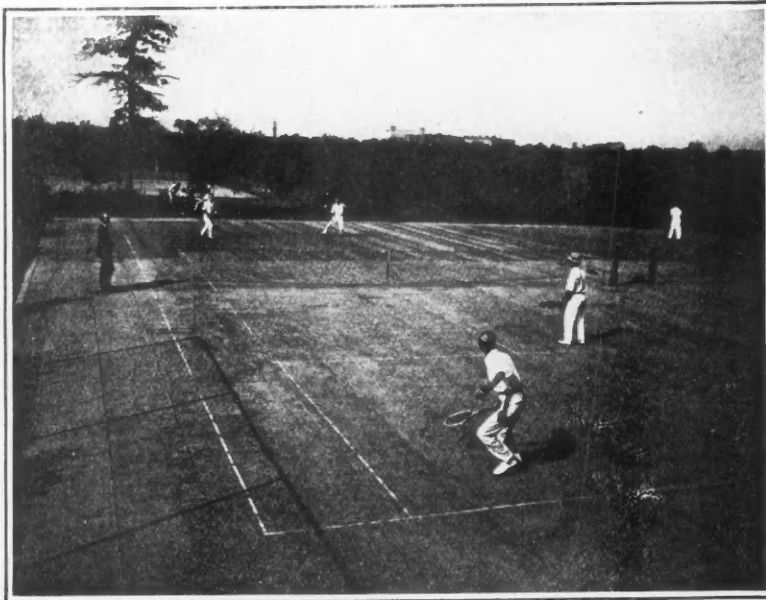
In most parts of the country, out-of-doors tennis has been extremely handicapped, limited to the warm, dry days in summer. Clay courts are generally considered ideal for the sport, but rain makes them unfit to be used for some time. Cement courts are held by many players to be too hard on the feet and wearing to the body.

Tennis is now a leader in its brief season, but ranking players believe this popularity will be increased if longer playing time can be secured. Month after month, the "Triple A" courts have been put to the test of hard playing—and the roofing surface is now recognized as being highly practical.

The laying of the courts at this St. Louis club was accomplished in a short time. First a cinder base was put in and thoroughly rolled and leveled, giving the proper drainage to the court. Then a layer of roofing was spread over and nailed down with long nails every six or eight feet, simply to hold it down until the top layer could be cemented to the bottom layer. The top layer of roofing was laid in such a manner that its seams come in between the seams of the bottom layer of roofing.

In putting the roofing down, each roll was cut into three lengths twelve to thirteen feet long, to eliminate buckles, and, furthermore, the roofing was not lapped or butted, each layer being laid ¼ to ½ inch apart. It was found that after the roofing had been in use these seams practically closed themselves up.

Out of this experiment of "roofing" the courts may come the long-desired solution to the natural handicaps of tennis.



Wet Courts no Longer Trouble the Members of the "Triple A" Club of St. Louis. The courts, using a base of well packed cinders and covered with an asphalt roofing, are available immediately after any rain.

SAVE 80% of Floor Surfacing Costs

Yes, sir, it is a strong statement and it may seem "too good to be true"! But there's indisputable evidence to back it up and that evidence is in the form of statements from hundreds of contractors and builders who know by experience that it is true. The

American Universal FLOOR SURFACING MACHINE

actually does the work of six fast hand scrapers at about twenty per cent of the cost and saves its owner eighty per cent.

But that's only half the story. The "A. U." does *better* work than any hand scraper can turn out. You find no waves, chatter marks or imperfections of any kind in the "American Universal" surface. It is as smooth and flat as a table top.

Another thing! Good hand scrapers, as you well know, are hard to get and hard to keep. The "American Universal" solves this labor difficulty. One unskilled man is all you need to operate it and with a day or two practice he will do the work of *six hand scrapers* and turn out a *perfect job*.

Better Business—Bigger Profits

Hand scraped floors are often a source of dissatisfaction on the part of your customers, a source of annoyance to you. The beautiful, flawless, "American Universal" surface pleases the customer, wins his enthusiastic praise and goodwill. That means better business.

When you can take six good men off the unprofitable job of hand scraping and put them on some job that is more satisfactory to them and more profitable to you, and replace them with *one man*, you are solving a labor problem, materially reducing your payroll, cutting down your operating costs and adding cold, hard dollars to your income.

Make \$5,000 to \$10,000 a Year More— Keep Busy During Winter

Scores of Builders have not only added \$5,000 to \$10,000 to their yearly profits but, by going after resurfacing jobs during winter months, turn off season losses into profits. Through the use of "American Universal" Floor Surfacing machines, these men established independent branches of their businesses. A number of them keep five to ten "American Universals" busy every day in the year on jobs for other contractors as well as on their own work. And they are doing this without the slightest interference with their established contracting business.

Write Us for Free Details and full particulars regarding the wonderful, money-saving, profit-building possibilities "American Universal" machines offer to the live contractor and builder. Have us send you descriptive literature and letters from dozens of enthusiastic users.

The American Floor Surfacing
Machine Co.
515 S. St. Clair St.
Toledo,
Ohio

Your inquiry will not oblige you in the least.
WRITE NOW!



American Floor Surfacing Machine Co
515 S. Saint Clair St.
Toledo, Ohio

Please send me without obligation, full information regarding American Universal Floor Surfacing Machine.
() I am a contractor and want machine to use on my own work
() I am interested in surfacing floors "The American Universal" way for others in business.

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

SAVE THE WAGES OF THESE SIX MEN!

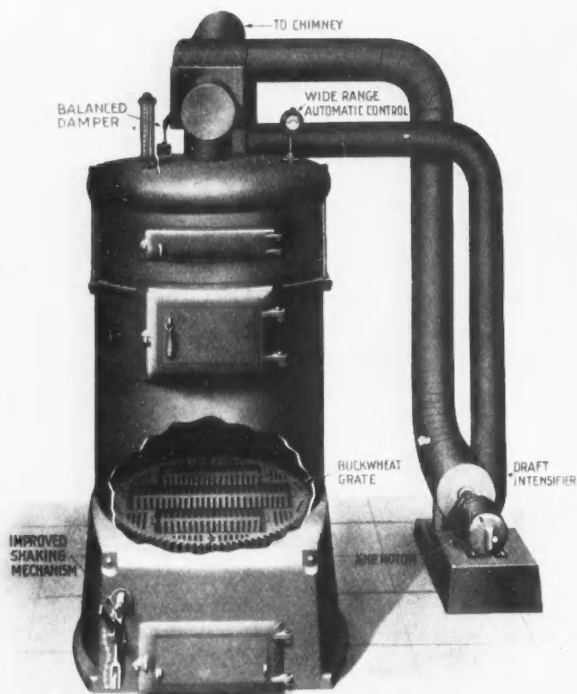


For Heating Economy

OF more than passing interest is the announcement by the anthracite coal operators that a group of engineers working under their direction have perfected an economical device for attaching to the average home heater to burn buckwheat. Buckwheat is the small cheap size of anthracite which sells at about half the price of the larger sizes. This announcement of a simple appliance for burning buckwheat will appeal to the average home owner because it is claimed that it will cut his coal bill in half.

The new device is believed to be the first appliance to supply induced draft to an ordinary house heater. It is being studied carefully by engineers, architects and heating engineers.

The mechanism is quite unusual in construction, and comprises but three parts—a special grate for burning buckwheat, a blower to induce draft and an automatic control. The grate is fitted with a cleverly conceived locking device which limits



A Device Now Available Allows the Householder to Make Use of the Cheaper Grades of Anthracite in All Types of Furnaces, effecting a Considerable Saving in the Fuel Bills.

the stroke of the shaking lever, thus preventing loss of coal.

The blower consists of a fan directly connected to one-eighth horsepower motor. It is noiseless. The blower need only be operated an hour or so in the morning, and at night under normal conditions. As the temperature reaches the desired heat, a balanced damper automatically closes the exhaust from the blower and the coal burns under natural draft. Conversely when the temperature drops below the desired heat, the blower is started automatically. Recent tests have shown that the cost of current to operate is less than three cents a day.

It is said that this equipment will heat the average home as economically as the larger buckwheat-burning heaters and boilers heat large residences and apartments.

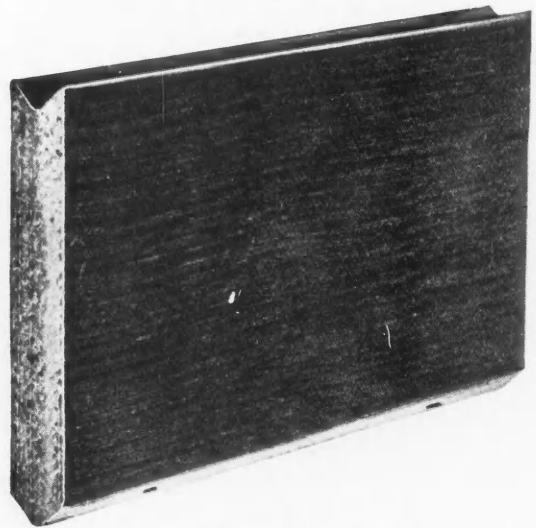
The development and marketing of this burner is part of the broad campaign of public education being conducted by the anthracite coal operators to visualize the most economical method of using anthracite coal, and particularly the small cheap sizes. The program comprises the maintenance of five

permanent service stations where home owners might go for helpful information on the proper way to heat their homes. These bureaus are in New York, Brooklyn, Philadelphia, Boston and Washington. Heating experts are in charge. There is also an interesting exhibit in each of the approved heaters, boilers and grates for burning buckwheat as well as of the new device.



New Method of Laying Oak Floors

AN oak flooring which is finished, filled, varnished and waxed at the factory is now on the market. It reaches the job all ready for laying, requires no scraping, sanding or finish-

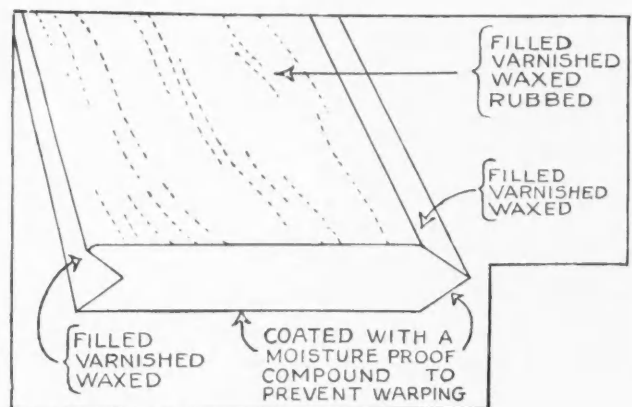


Oak Flooring Now May Be Obtained Already Finished Before It Is Laid. Filler, varnish and wax are applied at the factory in the manner in which furniture is finished.

ing and the furniture can be moved in on it as soon as the last nail is driven.

The varnished and waxed finish of the flooring is claimed by the manufacturers to be equal to that of the best furniture and exceptionally durable. The use of this flooring, it is said, does away with the delay and expense involved in scraping, sanding, filling, first coat, rub down and final finish which formerly had to be done on the job.

It will be noticed from the illustrations that the tongue and groove in this flooring take the form of a "V." The advantages claimed for this are that it reduces the depth of the cracks between boards, makes nailing easier, quicker and more secure. Hard driving up is declared to be unnecessary. In fact, it is claimed for this flooring that it can be very quickly and easily laid.



The Unusual Shape of the Finished Flooring Is Shown in the Drawing. Instead of the usual tongue and groove, the flooring is matched by means of a wedge shaped projection and a corresponding groove. It is claimed that this makes nailing quicker, easier and more secure.

ELECTRIFY ALL BUILDINGS

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

The Electrical Home Efficient

The Largest Part of Wiring for the Home Is for Lighting Which Should Receive Adequate Attention to Insure Comfort

By RUTH HILL

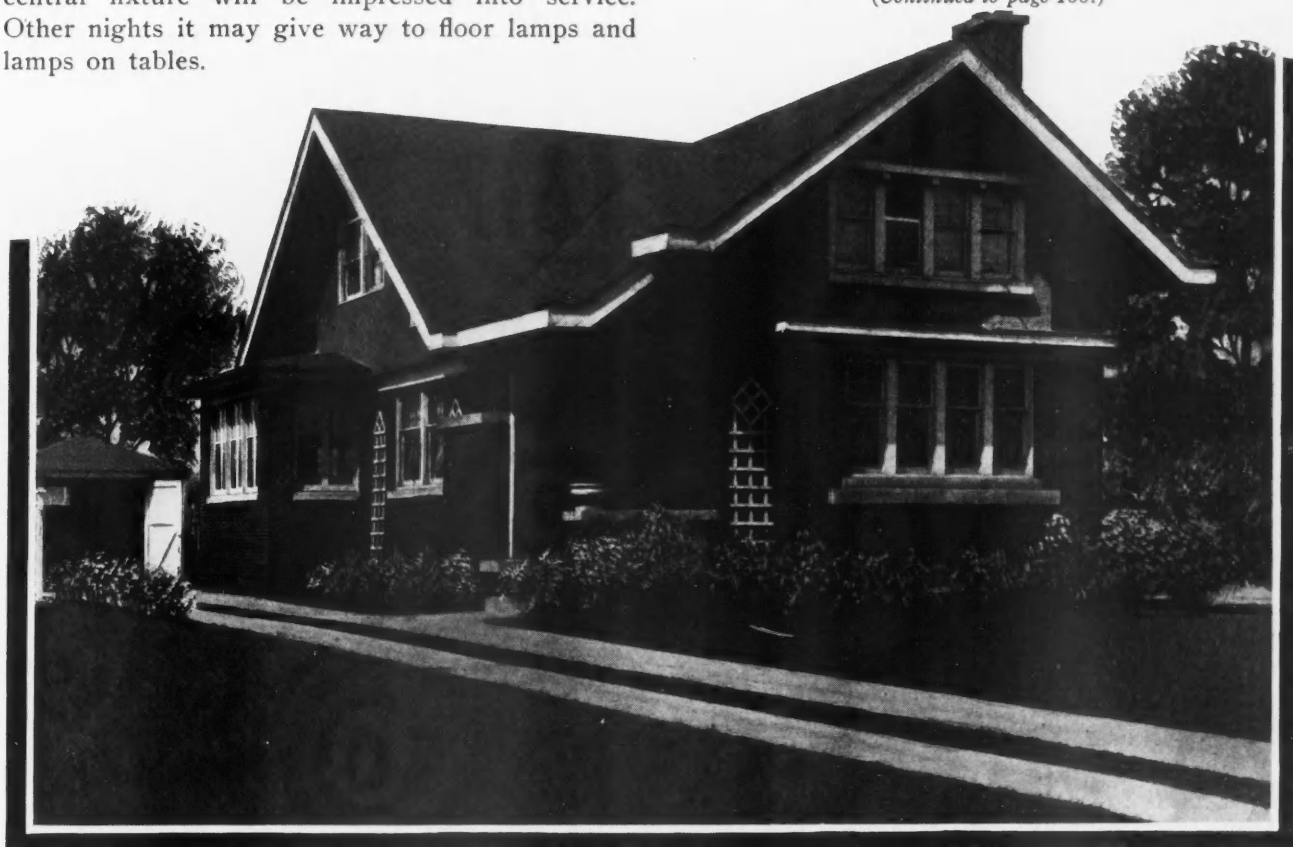
BY far the major portion of home wiring is concerned with the lighting. How important good lighting is to the physical welfare of the family, to its comfort and to the appearance of the house is just being fully realized.

Since the living room of today has many functions, quiet home evenings, and parties, the lighting should be flexible enough to suit each mood and occasion. For gaiety and festive occasions the central fixture will be impressed into service. Other nights it may give way to floor lamps and lamps on tables.

It must be remembered in choosing fixtures that wall brackets are often very decorative and seldom very useful. Few of the things we do are done near the wall and if a bracket light is large enough to throw the light where it is wanted it is usually unsightly.

In the dining room the table is the chief point of interest, and although the hideous dome fixtures of the gas age are largely responsible for a period

(Continued to page 166.)



The Comfort and Convenience of This Brick and Stucco Home Are Assured in a Large Measure by Adequate Plans for Wiring. (See Page 166.)

When Housekeepers read and



Charge 'em

With Sprague BX Cable it is easy for your contractor to wire the garage for electricity. Then you take the **Tungar** to the motor car battery. How to plan complete wiring in your home told in the new fully illustrated book, "The Home of a Hundred Comforts" the book that thousands have sent for. Write today for your free copy.

Address Section P512 Merchandise Department General Electric Company Bridgeport, Conn.

GENERAL ELECTRIC

Wishing or wiring

Sixty-seven home-making women out of every hundred can only wish for such conveniences as electric vacuum cleaners, washing machines and cooking devices. Their houses are not electrically wired.

For these women—complete electric wiring should open the door to better and easier housekeeping. Plenty of G-E Twin Convenience Outlets as shown in the picture make all electrical appliances handy servants.

How to plan complete electrical wiring in your home, new or old, is told in this new fully illustrated book, "The Home of a Hundred Comforts," the book that thousands have sent for. Write today for your free copy.

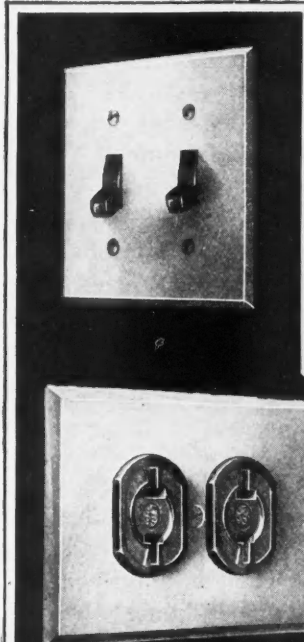
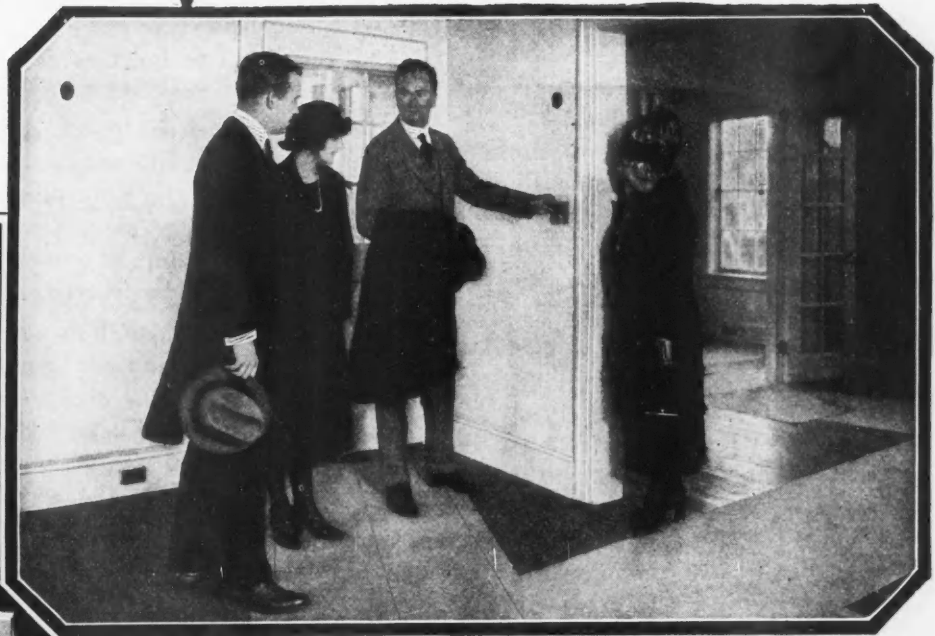
Address Section R11 Merchandise Department General Electric Company Bridgeport, Connecticut

GENERAL ELECTRIC

Month after month advertisements like these are increasing the desire of millions of housekeepers for a completely wired home.

GENERAL ELECTRIC MERCHANDISE

When they stop and ask



"How is the porch lighted?"—you show them how all outside lights are controlled from inside and how with switches at every doorway one need never be in the dark.

The two meanings of "Complete Wiring"

To the housekeeper complete wiring means opportunity for more leisure—many comforts and conveniences—a most valuable addition to her new home.

To the builder it means a small additional investment—a good price—a quick sale.

Complete wiring of the best quality can yield more profit per dollar invested than any other item that is put into the house.

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

G-E Two-Gang Tumbler Switches at every doorway give complete control of light from one room to another. G-E Twin Convenience Outlet permits 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 BA-10



Merchandise Department

General Electric Company

Bridgeport, Connecticut

DEPARTMENT

ELECTRIC

of dome aversion, with the new and attractive types now made for electricity, the pendulum is swinging back again. Domes are recommended not only by lighting authorities, but by interior decorators as well. The dome is hung a little over two feet above the table and it should be deep enough so that the incandescent lamps cannot be seen by those sitting at the table.

Whether a dome or a fixture of another type is used, a center fixture in the dining room is superior to brackets alone. There are many places for decorative lights. On the buffet or serving table they frequently take the form of electric candle sticks.

In the bedroom one must be able to see in the mirror well to dress in comfort. This means that the light must fall on one's face for unless there is light on an object it cannot be readily discerned. The methods commonly employed to make the use of the mirror as comfortable as possible is to hang a light in front of the mirror or to place a bracket on each side. If it is a dresser mirror, portable lamps can be placed on the dresser. Whatever method is chosen, a center fixture will give additional light that is very welcome. A lamp by the bedside is good to have for night-time emergencies or for reading in bed.

In the bathroom the problem of the mirror is again encountered. A bracket at each side of the mirror has become the standard practice. If the bathroom is very large, these will need to be supplemented by a light in the middle of the room. White opal glass shading is commonly used because of its satisfactory qualities. It does not absorb as much light as most other types of adequate shading and it can be cleaned easily.

The kitchen for many years has tolerated lighting as out of date as closed-in plumbing. This is the single light dropped from the center of the ceiling with an unshaded incandescent lamp. Besides being glaring the shadows produced when a fixture of this sort is used are very annoying. By having the 100-watt lamp close to the ceiling and equipped with a glass-diffusing globe, a kitchen the size of the one in this house is well illuminated. There is plenty of light, light of a good quality and no objectionable shadows.

In the plan it will be noted that all except the smallest closets have lights in them. The use of a lamp close to the ceiling with a pull chain to turn it on and off is advised. It is possible to have a switch which

lights the lamp with the opening of the door, but on the whole the pull chain is more satisfactory.

A wall bracket is placed at the curve of the stairway, from the first floor to the second and in a corresponding place on the stair first floor to the cellar. The location is chosen so that both the head and the foot of the stairs will receive light.

For the front porch light a rugged lantern fixture is in conformity with the appearance of the house. On the back porch a light is essential but it can be very inexpensive. All that is necessary is a small lamp in a weather-proofed socket. The lamp should be frosted.

The light switch is one of the most important factors in making a comfortable home. At the entrance of each room there should be a control so that there will be no stumbling or difficulty in finding where to turn on the light. Some fixtures, such as that in the second floor hall need what is known as a three-way switch. That is one that is controlled from two places. A study of the wiring plans shows the expedient use of three-way switches.

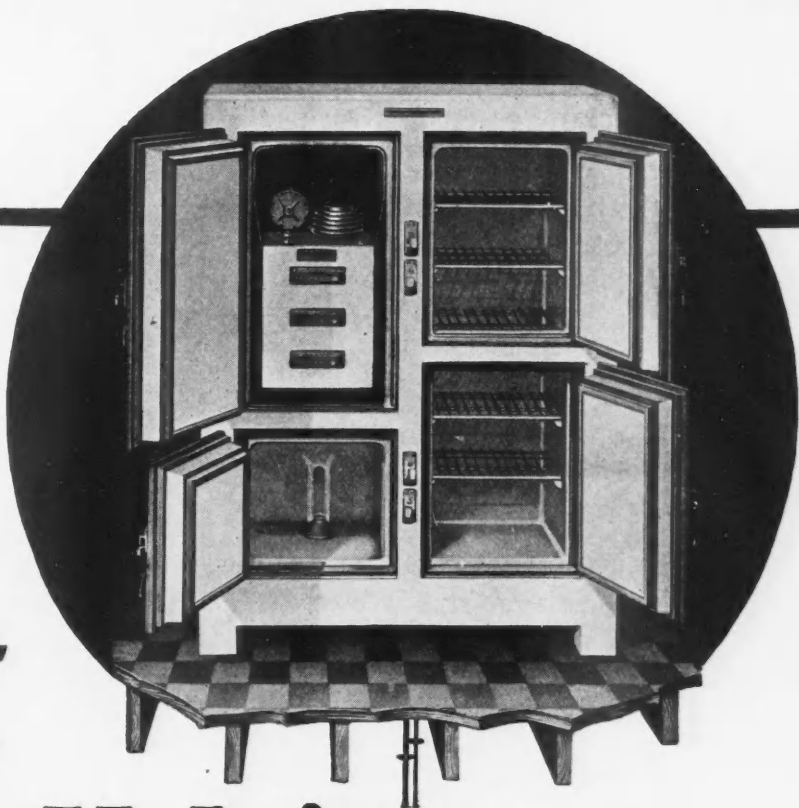
In considering estimates the items should be carefully checked and noted. There are many things that it is wise to specify. If possible, the meter should be located so that it can be read from the outside of the house. Then it makes no difference whether or not anyone is home when the meter reader comes. He can read his meter without having to ring the bell or disturbing the occupants of the house.

To provide for future needs the distributing panel should be provided with extra circuits.



FIRST & SECOND FLOOR PLANS

Adequate Wiring for the Six-Room Home Illustrated on Page 163 Is Shown in These Floor Plans.

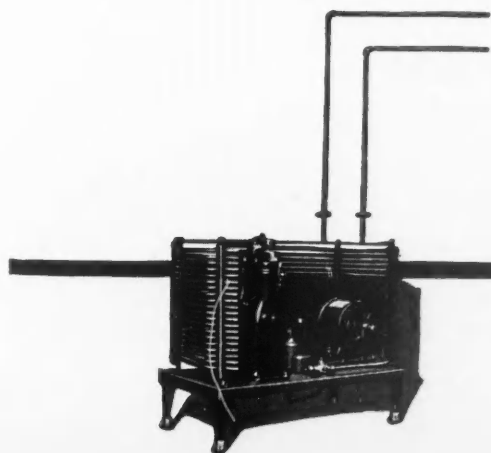


This
Fact
 -about Kelvinator
stands out bold and clear

Kelvinator—and Kelvinator alone—points to innumerable actual cases where installations made from five to ten years ago are still operating as efficiently as ever. It was these pioneer Kelvinator installations that established electrical refrigeration as an accomplished fact, and Kelvinator as the pioneer successful system.

Kelvinator makes available to architects and builders complete and authentic data on residence and apartment work—plus a field organization of years' experience, prepared to be of genuine aid.

Popular and technical literature on request.



KELVINATOR CORPORATION
 2024 WEST FORT ST., DETROIT, MICHIGAN

(102)

Kelvinator
 The Oldest Domestic Electric Refrigeration

"Red Seal" Will Certify Adequate Wiring

Official Poster Authorized By Which Builders and Buyers May Identify Houses Which are Adequately Wired

A QUALITY mark for the electrical wiring of homes which will identify the wiring of the home as the carat mark identifies the quality of gold jewelry is the object of a project being sponsored by the Society for Electrical Development, known as the Red Seal Plan.

This plan, adopted in the United States by the society after a year of successful operation in Toronto, Canada, is simple and effective. It proposes the definite marking of those homes which are adequately wired in accordance with modern standards. The mark, in the form of a red seal, is displayed in the form of a weather-proof poster during the construction of the home, and later is permanently affixed to the meter box. A certificate showing that the home has been wired according to the specifications of the society also is given to the home owner, to enable him to show the quality of the equipment if the home should be offered for sale.

The value of the plan for the builder lies in the fact that it will establish nationally, through local units, a definite standard of house-wiring, which the public will learn to recognize and which will serve as a basis of comparison and a method by which the public may judge the finished home, as in regard to the wiring.

"The Red Seal Plan," those sponsoring it say, "is intended to provide a reasonable standard which can be applied to the average home. It must necessarily be higher than the present standard, since common experience has shown that the ordinary wiring job is inadequate to meet the needs of the public."

The standard is to be mainly a matter of numerical value, that is, the number of circuits, switches, lighting and convenience outlets, properly located to provide for the convenient use of the various light, heat and power applications.

The plan provides that the local representatives of the league shall draw up specifications to suit various types of homes and submit them to the Society for

Electrical Development for approval. When these specifications are approved they will become the standards for the Red Seal Homes in the community for the current year, subject to revision each year thereafter.

The Red Seal Standard, it is explained, while higher than the average, also may be below the ideal. It does not represent the maximum nor the minimum. It is between the two, a practical standard which will permit the user to obtain convenient electrical service with an outlay for wiring which bears a proper relation to the total cost of the house.

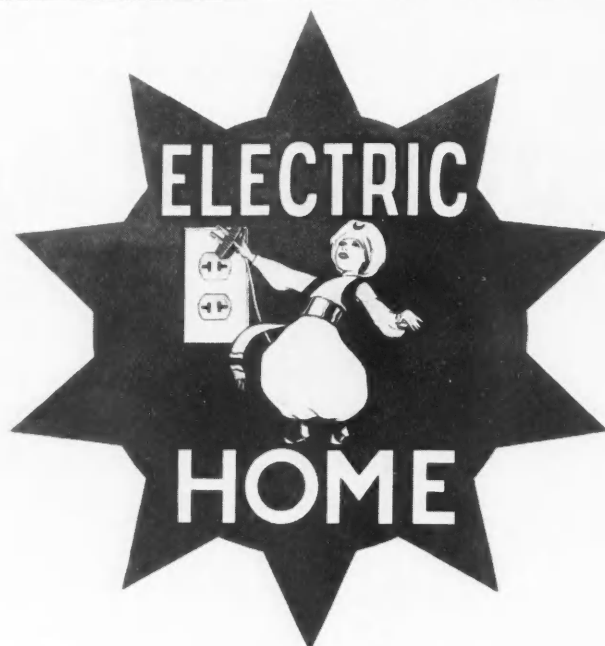
It may be noted that the Red Seal is granted to the home itself and is not granted by the indi-

vidual contractor to his customer. Also that the Red Seal must be granted to any home which meets the standards established, regardless of who made the installation.

The Red Seal will mean a standard value for home wiring established by a recognized authority.

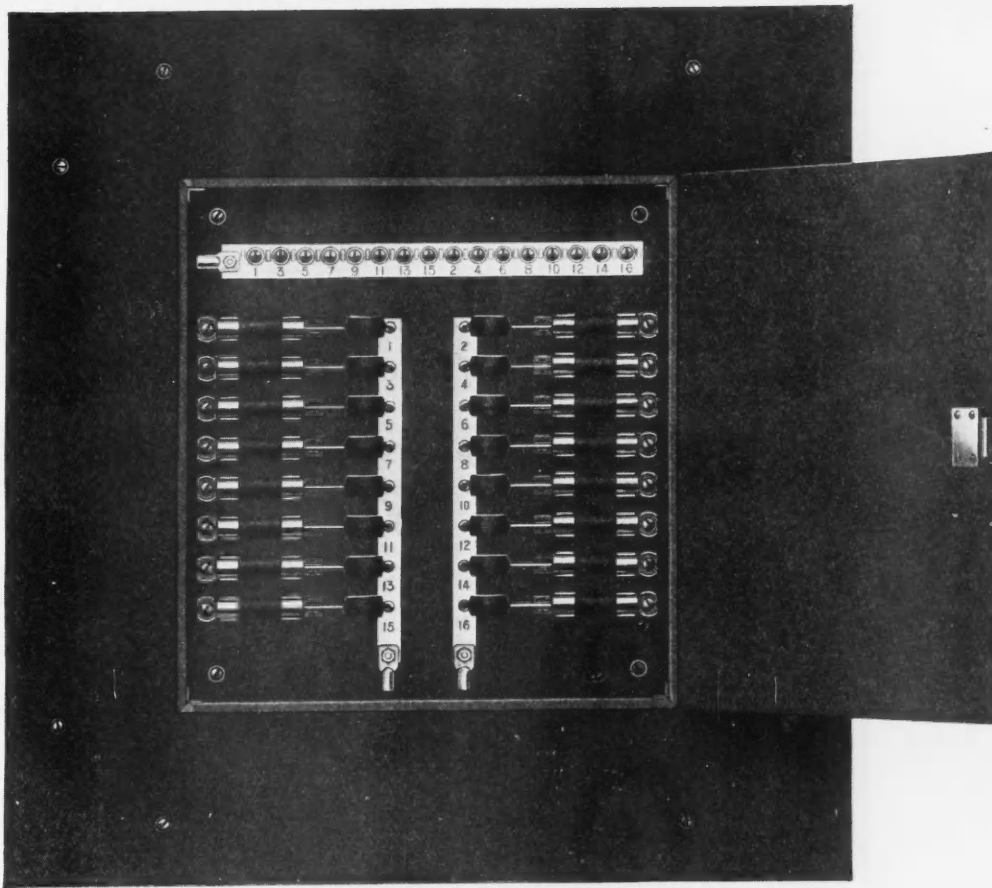
Local electrical groups interested in establishing the Red Seal as a standard of home wiring in their communities should get in touch with the Society for Electrical Development, 522 Fifth Avenue, New York, N. Y.

THIS SEAL certifies that the ELECTRICAL WIRING in this house has sufficient convenience outlets, switches and other essential facilities to provide for CONVENIENT ELECTRICAL SERVICE



Approved according to the standards established by the
Electrical League
Seal No. _____ Location _____

This Mark on a Home During Construction Means That It Is Adequately Wired. A similar symbol is permanently attached to the meter of the dwelling.



G-E Solid Neutral Panel Boards

That its line of panel boards may be complete, the General Electric Company has developed solid neutral types in keeping with the late 1923 edition of the National Electrical Code. Under Sec. 807, "Fuses for Branch Circuits," the new code provides for the use (subject to local inspection) of only one fuse in a grounded neutral system where the grounded conductor is identified throughout.

This form of construction permits: Decreased Installation Cost, Less Wall Space.

These advantages of the solid neutral type of board are apparent because single-pole branch switches and fuses are used, decreasing panel height, while the solid neutral bus across the top of the panel decreases the panel width.

Solid neutral live front and safety types are available to meet the requirements of large residences, hotels, hospitals, office buildings and similar structures.

Reference: Descriptive Sheet 67910.



54C-103

GENERAL ELECTRIC

GENERAL ELECTRIC COMPANY, SCHENECTADY, N. Y. SALES OFFICES IN ALL LARGE CITIES

"The Best Lighted Building"

Electrical Men of Pacific Coast Claim That San Joaquin Light and Power Building Is Illuminated More Efficiently Than Others

ENGINEERS, architects and contractors are interested in the construction, materials used, interior arrangement and exterior illumination of the new million-dollar office home of the San Joaquin Light and Power Corporation, Fresno, California. Electrical men of the Pacific Coast claim it is the best lighted building in the world. Nearly three hundred floodlights are used to create any colored lighting scheme desired from the sidewalk to the top of the red tile roof, 174 feet above the street. The electric sign, San Joaquin Power, has letters 8 feet high, visible many miles, with more than 600 globes in the sign. Live steam is piped from the basement to huge cauldrons on the promenade of the tenth floor, where the steam is released into clouds through different col-

ored lights, producing a very novel effect. The two radio towers are 235 feet above the sidewalk. All rooms are heated, cooled and ventilated by washed air, passing through water and violet-ray machines in the basement. All windows are kept closed the year round, thus maintaining an even temperature in the winter and eliminating dust in the summer. Health of employes and working efficiency are said to be improved by the electrically-charged air. There are a thousand lights of the indirect-ray system, 350 tumbler switches and 250 base or floor plugs in the rooms, 400 windows and 300 doors, each room having outside windows. Walls, floors and ceilings are noise-proof, increasing working efficiency. Three noiseless elevators, costing \$62,000, operate at a speed of 600 feet a minute.

Auditorium, stage, motion picture projecting room, library and cafeteria for employes are on the tenth floor. More than 200 carloads of cement, rock and sand were used in construction work, costing nearly \$70,000 for these materials. More than 125,000 feet of lumber were used for concrete forms and over 100,000 cubic feet of concrete was poured into these forms. Weighing five tons each, the radio towers are 65 feet high. The building was erected by the R. F. Flechlin Company, architects and builders. The building design was executed by Raymond F. Shaw, architect of this firm. Exterior illumination was approved by W. D'Arcy Ryan, designer of the famous Tower of Jewels lighting at Panama-Pacific Exposition, San Francisco, 1915.

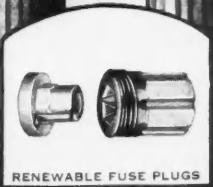


The San Joaquin Light and Power Corporation Building, Fresno, Cal., Built by the R. F. Flechlin Co., Architects and Builders; Raymond F. Shaw, of the Flechlin Company, Architect. The lobby of the building is shown to right.

H & H DEVICES



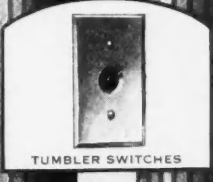
SUPPORT YOUR WORK



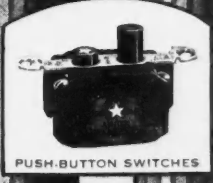
RENEWABLE FUSE PLUGS



CONVENIENCE OUTLETS



TUMBLER SWITCHES

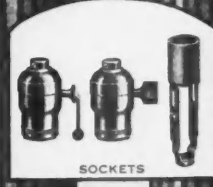


PUSH-BUTTON SWITCHES

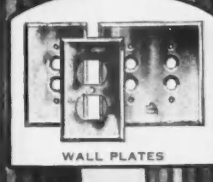
Building well—

YOU'LL want it to show in the electrical work, wherever owner or tenant touches a wiring device. We build well so *you* can, in every place where a switch on the wall speaks for what's *in* the wall and the structure! For good wiring, complete wiring; great buildings or modest buildings; *de luxe* jobs or competitive-price jobs, we're *with* you—with the quality that supports you.

The "Architect's Handbook" of H&H Wiring Devices comes in just as handy to the Builder. We'll gladly mail you the "Handbook."



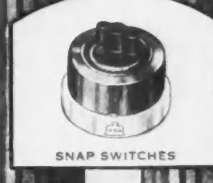
SOCKETS



WALL PLATES



WARNING LIGHTS



SNAP SWITCHES

THE HART & HEGEMAN MFG. CO.
HARTFORD, CONN.



How Dan Does It

How to make a hen lay:
Strike her twice with a hammer. Hen becomes much provoked and exclaims:
"Dawgonnit! I'll lay for you!"



No Refund or Exchange Allowed

An ancient car chugged painfully up to the gate at the races. The gatekeeper, demanding the usual fee for automobiles, called.

"A dollar for the car!"

The owner looked up with a pathetic smile of relief and said:

"Sold!"



Use Your Head

A woodpecker pecks
Out a great many specks
Of sawdust
When building a hut;
He works like a nigger
To make the hole bigger—
He's sore if
His cutter won't cut.
He don't bother with plans
Of cheap artisans.
But there's one thing
Can rightly be said,
The hole excavation
Has this explanation:
He builds it
By using his head.

—The Linographic.



Off Color?

"There'll be an important meeting" announced the colored preached, impressively, "right after the preach-in! All the deacons must attend. The subject of this meeting is, 'What color we gwine whitewash de church?'"



Forgotten Memories

Pat—That was a foine sintiment Casey got off at the banquet last night.

Mike—What was it?

He said the sweetest mimories in loife are the ricollections of things forgotten—*Kreolite News*.

Do You Believe in Signs?

Irate Old Lady—Mr. Conductor, I gave you a dollar. Where's my change?

Conductor—Read that sign, lady. Doesn't it say, "This car goes through to Umphville without change?"



Cause and Effect

"Why is it that a red-headed woman always marries a very meek man?"

"She doesn't. He just gets that way."



Heroic Conduct

A new definition of an optimist is a young man who is making \$15 a week and proposes to a girl who says she just loves children.—BILL CHEW, from Lakewood.



Preparedness

He—We're coming to a tunnel. Are you afraid?

She—Not if you take that cigar out of your mouth.—*Bison*.



Correct

"Is pants singular or plural?" asked the teacher.

"If a man wears 'em it's plural," replied the boy.

"Well, if he does not—"

"Then, it's singular."

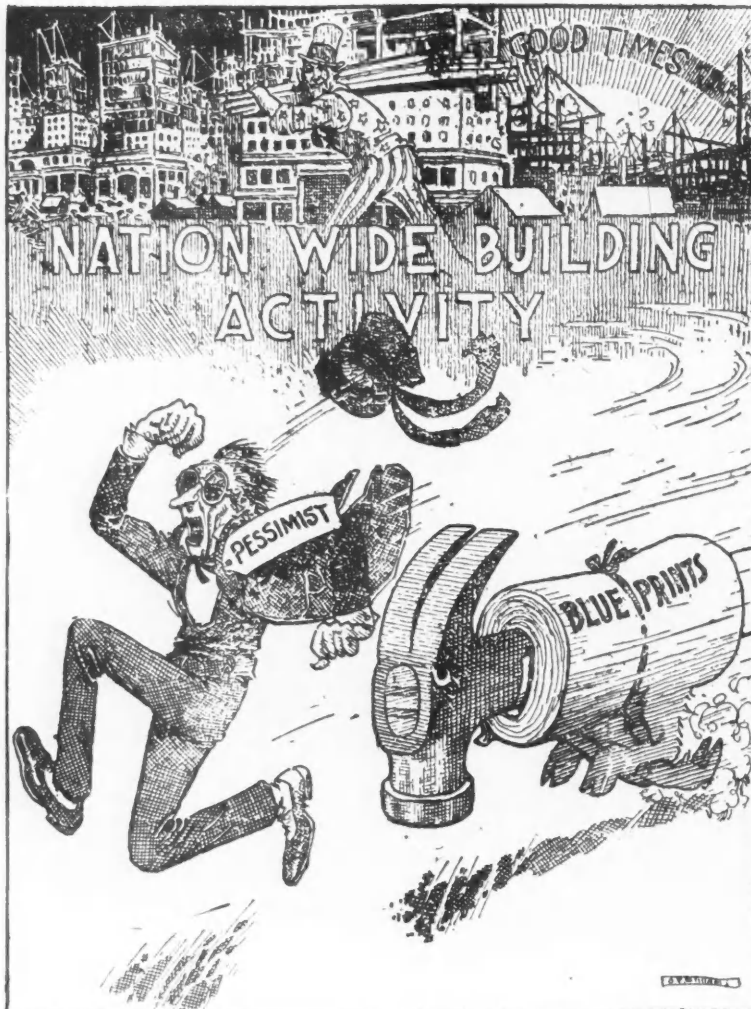


I Never Thought of That

Jimmy giggled when the teacher read the story of a man who swam a river three times before breakfast.

"You do not doubt that a trained swimmer could do that, do you?"

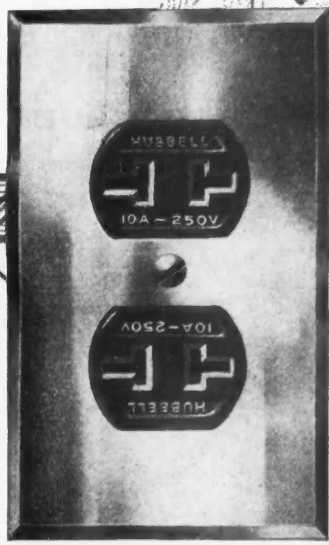
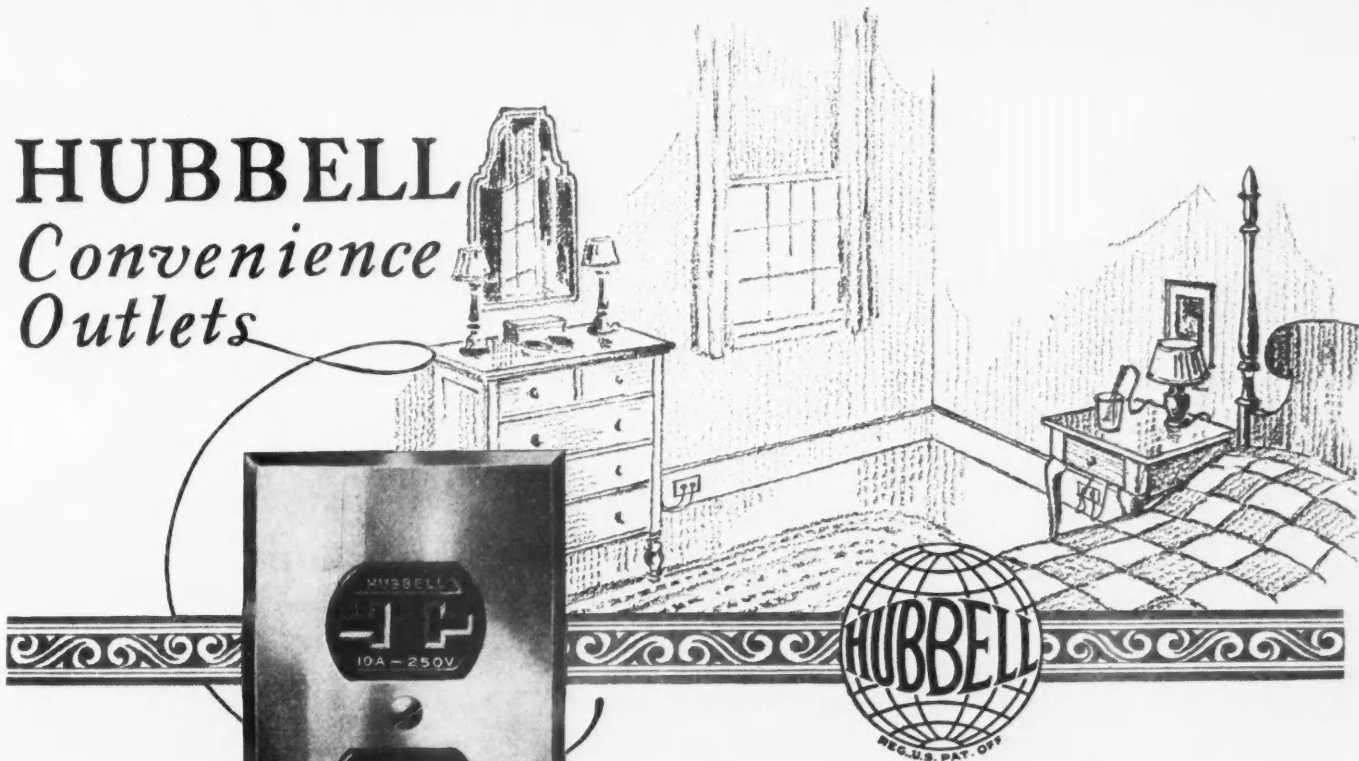
"No, sir," replied Jimmy, "but I wonder why he did not make it four, and get back to the side where his clothes were."



The Gloom Chaser.

From the Chicago Herald and Examiner.

HUBBELL Convenience Outlets



Duplex Convenience Outlet. Porcelain Side-wired Body No. 7525. Plate No. 6258.

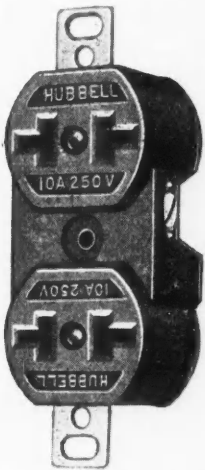
Porcelain for Permanence

For permanence—specify Hubbell Porcelain Convenience Outlets.

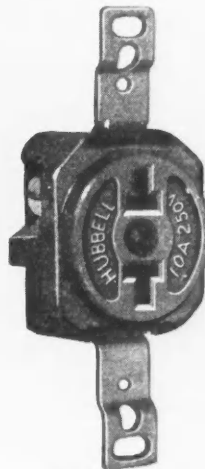
Porcelain does not deteriorate nor absorb moisture; its insulating qualities are unexcelled and permanent.

Porcelain does not chip—it is mechanically strong.

Hubbell Convenience Outlets are made in both side- and top-wired types, porcelain or composition. Plates—struck-up or solid brass.



Duplex Side-wired Body. Black Porcelain—No. 7525. Composition—No. 7575.



Single Side-wired Body. Black Porcelain—No. 7500. Composition—No. 7550.

HARVEY HUBBELL INC.
ELECTRICAL WIRING DEVICES
BRIDGEPORT CONN. U. S. A.

2533-U

ELECTRICAL WIRING DEVICES

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

How to Lay and Finish Oak Floors

Much of the Beauty and Usefulness of Floors Depends Upon Proper Workmanship in Laying and Finishing

By W. L. CLAFFEY



THE laying of oak flooring is not difficult. Any first-class carpenter can make a good job. Some judgment and care is necessary in order to produce the best results.

A sub-floor should be used under the 13/16-inch, 3/8-inch, 1/2-inch and 5/16-inch thicknesses.

The sub-floor in new houses should be reasonably dry and laid diagonally. Shiplap of 6-inch or 8-inch width is preferred. This should not be put down too tight and should be thoroughly dried and cleaned before the oak flooring is laid.

It is well to use damp-proof paper between the oak flooring and the sub-floor. Do not use ordinary building paper or rosin sized paper. The quantity required is small, and the very best quality of damp-proof stock should be used. Where sound-proof results are desired a heavy deadening felt is recommended.

It is very important to leave about 1/2 inch space on all sides between the oak floors and the baseboard, to allow for expansion in event any dampness later gets into the oak flooring. This opening is covered by the quarter-round or base moulding. Oak flooring should be laid at right angles to the sub-floor in old houses. After laying and nailing three or four pieces use a short piece of hardwood 2 by 4 placed against the tongue and drive it up. Care should be taken in driving up 3/8-inch flooring not to break the tongue, which is fragile. Also do not drive up excessively tight.

Proper Nailing

The nailing of oak flooring is very important. All tongued and grooved oak flooring should be blind nailed. The best floor can be spoiled by the use of improper nails.

We strongly recommend the following kinds of nails:

For 13/16-inch thickness, 8d steel cut light flooring nail.

For 1/2-inch thickness, 6d bright wire finishing nail.

For 3/8-inch thickness, 4d bright wire casing nail.

For 5/16-inch S. E. No. 16, 1 1/8-inch barbed wire flooring brad.

The maximum distance between nails should be:

For 13/16-inch thickness.....16 inches

For 3/8-inch thickness..... 8 inches

For 1/2-inch thickness.....12 inches

For 5/16-inch S. E.2 nails every 8 inches

Another excellent nail for oak flooring is the wire cement coated nail, whenever it can be obtained.

After the flooring is laid and thoroughly swept, it should be expertly scraped to insure a perfect polished

surface. Scraping can be done by one of the many types of power or hand scraping machines generally used by contractors and carpenters. Always scrape lengthwise of the wood and not across the grain. A floor after scraping should be thoroughly gone over with No. 1 1/2 sandpaper to obtain the best results in finishing. After this the floor should again be swept clean, and the dust removed with a soft cloth. It is then ready for the finish.

Finishing Oak Floors

The finishing of an oak floor is a most important feature, involving cost, color and finish desired. Per-



Laying 5/16-Inch Square Edge Oak Flooring.

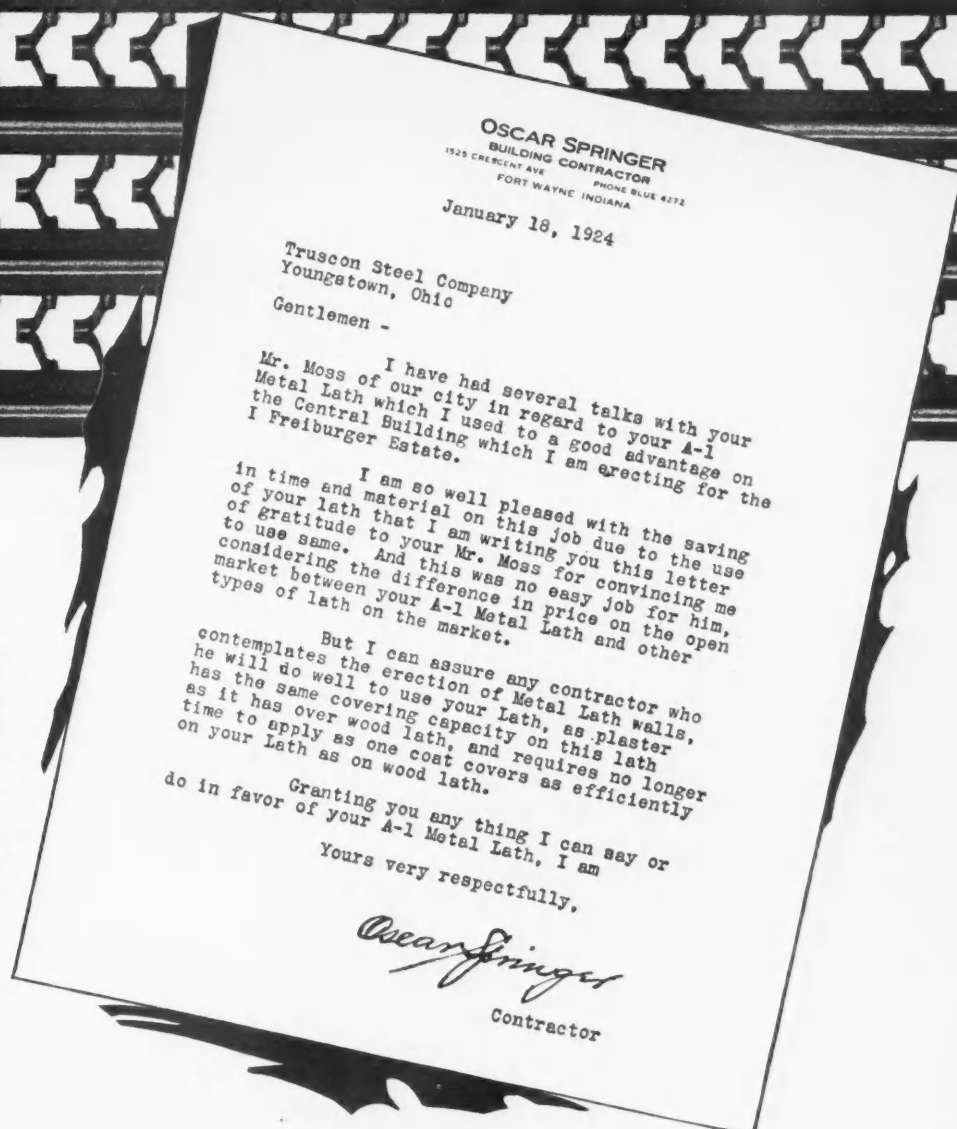
sonal taste and artistic or decorative effects are the guide for the floor finisher.

The "clear" grade of oak flooring should have a natural oak filler—color of oak. For the "select" and "sap clear" grades a light golden oak filler should be used, and after the floor is filled, it should be gone over with a little burnt umber mixed with turpentine to darken light streaks. This will make the "select" and "sap clear" grades appear similar to the "clear" grade, except that the color will be slightly darker. In filling the "No. 1 common" grade, a dark golden oak filler should be employed, and the light streaks should be darkened in the same manner as the "select" and "sap clear" grades. With a little care in finishing this grade, splendid results can be obtained.

First treat the floor with a paste filler of the desired tone to fill up the pores and crevices.

To thin the filler for application, one has a choice of using turpentine, benzine, wood alcohol or gasoline to get the right consistency. Never use a liquid filler. When the gloss has left the filler rub off with excelsior

The unusual rigidity and key of 1-A lath enables the plasterer to cover a greater area in a given length of time, and results in a true, smooth, attractive surface. When used with $\frac{1}{2}$ " grounds its cost is practically as low as wood lath.



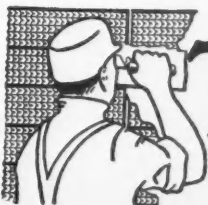
"Pleased With Saving in Time and Material"

The letter above is but typical of many builders' experiences with Truscon Metal Lath. Although the initial cost of Truscon Metal Lath is slightly more than the cost of wood lath, the big saving in time and material just about balances the difference in price. In taking into consideration the added value of a fireproof home there is no doubt but that metal lath is a profitable investment.

Truscon Metal Lath also insures a big saving in time and labor, as it is readily applied. It can be accurately ordered for the job, so there will be no waste in left overs. Other Truscon Home Building products are: Steel Casements, Steel Lintels, Metal Corner Bead, Steel Basement Windows, Steel Joists and Steel Garage Doors. Send for the Home Builder's Encyclopedia, which gives many helpful hints on beautifying and protecting the home.

TRUSCON STEEL COMPANY, YOUNGSTOWN, OHIO

Warehouses and Sales Offices from Pacific to Atlantic.
For addresses see phone books of principal cities.
Canada: Walkerville, Ont. Foreign Div.: New York.



TRUSCON
HY-RIB
METAL LATH



WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

or cloth, rubbing against the grain of the wood. This will make a perfectly smooth and level surface. It keeps out dirt and forms a good foundation, which is the keynote of successful floors. Allow the filler twelve hours to set or dry. Then apply two coats of white shellac before applying the wax treatment. When varnish is to be used, give one coat of filler and one or two coats of varnish.

A wax or varnish finish may be used. The wax finish is preferred by many, due to economy and ease of renewing places that show wear. The renewing may be easily applied by housekeeper or servant.

Wax Finish—The best method of applying the wax is to take cheesecloth and double it to get added thickness; then fold into a sort of bag. Put a handful of wax inside and go over the floor thoroughly. It will be found that the wax works through the meshes of the cheesecloth and gives an even coating over the floor. This prevents waste and excessive wax in spots. After the floor has been gone over with the wax and allowed to dry about twenty minutes, it is ready for polishing. Rub to a polish with a weighted floor brush, first across the grain of the wood, then with it. (A clean soft cloth may be used in place of the brush if

desired.) Then a piece of woolen felt or carpet should be placed under the brush to give the finishing gloss. After waiting an hour, a second coat of wax should be applied in the same way and rubbed to a polish.

Varnish Finish—This is usually more expensive than the wax finish, but it gives a very hard surface, which at the same time is elastic. One or two coats should be applied after the application of the paste filler. Any of the standard hardwood flooring varnishes will give good results.

Floor Oil Finish—When a high class finish is not desired an economical finish may be had by the use of light flooring oil, made expressly for this purpose by many paint and varnish houses and oil makers; it serves as a filler as well as a finish, and is particularly recommended for oak flooring in public institutions, office buildings, and stores. This oil keeps the dust from rising and preserves the floor.

Much of the satisfaction of oak floors depends upon the manner in which they are laid and finished. Even the best of materials, if laid in a slipshod manner, will show the results of carelessness. And a floor of good material certainly deserves the careful attention of the builder who guards his reputation.



Workmen Laying the 13/16 Oak Flooring in the Community Recreation Association Club House, Evanston, Illinois. W. L. Claffey, author of this article, was chairman of the committee in charge of the construction of the club house, where his long experience in the building field proved valuable to the association he served.



Build Your Houses "Bright and Airy Everywhere"

That's a sales argument that never fails to get results. Back it up with "Fenestra Windows in every room," and you've gone a long way toward closing a sale.

Fenestra modern steel windows make every room more bright and pleasant and livable. They help prolong the life of a home, and add to its appearance and value, yet they cost little if any more than wood windows. Fenestra Windows save time in installation, and because they can be quickly obtained, already assembled, they eliminate many costly delays in construction.



Upstairs ~ in the Basement ~ in the Garage

Fenestra Casements are of beautiful English design and add charm and interest to the finest home. And they are entirely practical—they admit maximum daylight and fresh air and keep out the storms. Wide, out-swinging leaves, operated by attractive iron or bronze hardware, open and close easily. The sash never warps, swells or rattles; glass may be washed on the outside without danger or inconvenience.

Fenestra Basement Windows, made of solid steel, admit as much as 80 per cent more light and air than wood windows. They change dark basement waste spaces into sunny, airy, usable work rooms or play rooms for the children.

These modern windows are more secure against fire and intruders, they cannot warp or stick, and they last as long as the building.

Fenestra Utility Windows have a wide, easily-operated ventilator that allows dangerous gases and foul air to escape, and the broad panes of this Fenestra type admit far more light than wood windows of the same size.

These windows lock automatically in closing and because they are made of solid steel they are fire-proof, yet their cost is surprisingly low.

Fenestra

WINDOWS FOR THE HOME

Detroit Steel Products Company
2260 East Grand Blvd.
Detroit, Mich.

Please send me the name of your nearest dealer, and detailed information on your

- Fenestra Steel Casements
- Fenestra Basement Windows
- Fenestra Utility Windows

Name

Address

MOTOR TRUCKS *and* TRAILERS



Points on Carburetor Care

Proper Carburetion is Essential to the Efficient and Economical Operation of Trucks and Its Importance is Too Often Forgotten

THE heart of a motor truck engine is its carburetor. The importance of giving proper attention to this vital part cannot be emphasized too strongly. Many irregularities of running which seem to be symptoms of serious difficulties are due to faulty operation of the carburetor. Moreover, the carburetor determines to a large extent the amount of gasoline used. This is important since the cost of gasoline is approximately one-fourth of the total expense of truck operation. The following concise points regarding the motor truck's carburetor deserve careful consideration.

Careful attention to the condition of the truck may mean much to the contractor, especially when such equipment is depended upon to do its part in finishing a job on time when a penalty is attached to delay.

1. Keep your carburetor properly adjusted to insure gasoline economy. A rich mixture will over-heat the engine and cause carbon in the cylinder heads, besides losing power. A lean mixture will give loss of power and may set fire to the carburetor.

2. To test for rich mixture, open the air valve slightly, admitting more air. If the engine speeds up, the mixture is too rich. Close down slightly on spray nozzle or low speed adjustment. To test for lean mixture pull out the choke knob on dash a short distance. If engine speeds up, the mixture is too lean and needs to have the low speed adjustment opened slightly. Having adjusted these to your satisfaction throttle down engine and then open throttle suddenly. Engine should pick up speed smoothly and rapidly and should not backfire at carburetor. If it backfires, the mixture should be made richer from high speed adjustment.

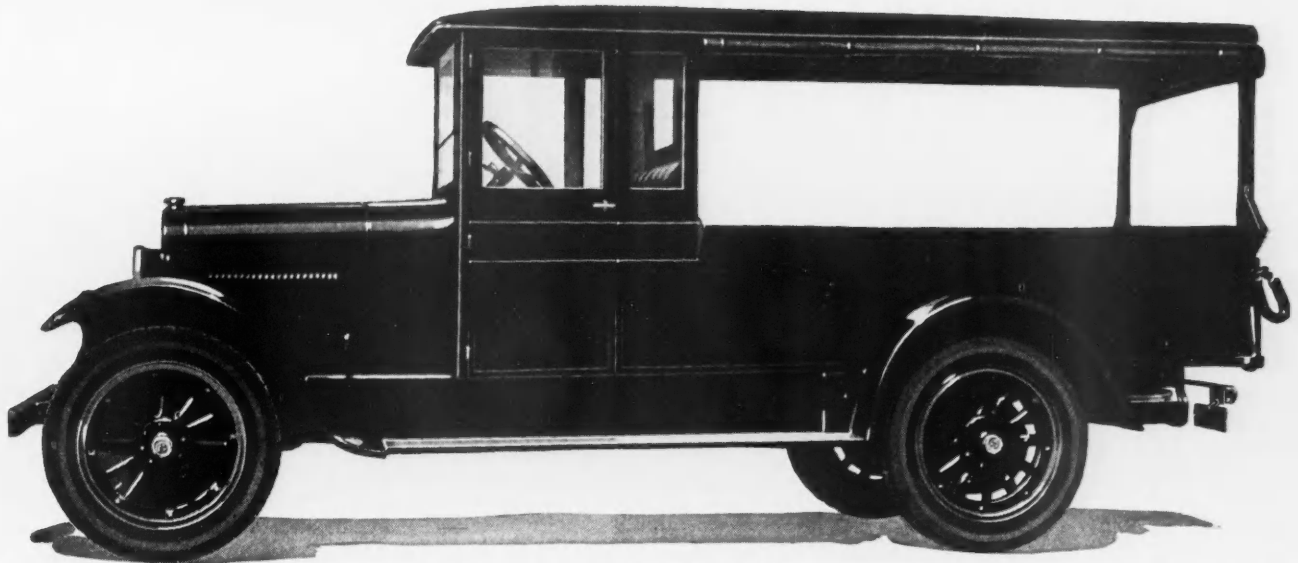
3. To test the adjustment on the road, run the truck a few blocks throttled down. When there is a

clear space ahead, open the accelerator, smoothly and rapidly. The car should pick up speed rapidly and evenly and the engine should not struggle or give explosions at the carburetor or muffler.

4. A leak in a carburetor is usually caused by a punctured float, or a worn float or choke valve pin. When the level of fuel in the float bowl reaches the proper height, the needle valve controlling the flow of gasoline into the reservoir of the carburetor should shut off. If it does not work properly, the adjustment should be checked up, and the valve and its seat examined for dirt or grit. Perhaps the needle valve is worn, in which case it should be carefully ground into a good seat.

5. A carburetor should be cleaned occasionally. Every make of carburetor has a strainer gauge in the gasoline line, usually near the place where the gasoline enters the float chamber of the carburetor. The strainer should be removed and thoroughly cleaned at weekly intervals when the truck is operating full time.

6. There is one condition that is sometimes mistaken for leaking of a carburetor. The gasoline now in use is of a very heavy grade and if the motor is not kept at an efficient temperature while in operation the heavier constituents of the gasoline will condense in the manifold and remain held there by the suction from the pistons. After the motor has been stopped there is no longer any force to hold this gas in suspension, and it then runs back into the carburetor where it drips out through the lower air valve. The only remedy for a condition of this kind is heat. The motor should be kept hot by use of radiator and hood covers. It is also advisable to protect the manifold as much as possible from the cold air being driven back onto it by the fan.



BROTHERS

Like their 1½ ton truck—with which Graham Brothers advanced from twentieth to sixth position in the industry in three brief years—their new ONE-TON represents a distinct achievement in the commercial haulage field.

Impressive appearance, well built bodies, quick acceleration, volumes of reserve power, sturdy frame and axles, easy handling, comfortable riding, extremely low upkeep cost—and dependable service everywhere!

Its advantages are so numerous—and so pronounced—that even a casual examination will quickly satisfy you of its exceptional merit. Dodge Brothers Dealers will gladly show you the body best suited to your needs.

GRAHAM BROTHERS
 Detroit & Evansville
 A DIVISION OF DODGE BROTHERS

in price!

1 TON CHASSIS
\$1175
1½ TON CHASSIS \$1375
F.O.B. Detroit

DEALERS EVERYWHERE

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Care of Truck Hydraulic Hoists

Hoist Should Be Examined Once Each Week, Checked for Air in Oil and Oil Supply Replenished if Necessary

THE hydraulic hoist should be examined once a week to see that the cylinder is adequately filled with oil. To do this proceed as follows: Raise body high enough to get at hoist. Use wooden props to hold body in raised position. Pull lifting arms down by hand. Remove all pipe plugs on top of cylinder. Pour light oil in large hole on top of cylinder at rear end. With control handle in "raising" position, rotate pump by hand until oil flows out of small hole on top of cylinder, front end. This assures that all pipes will be filled and air removed. Replace all plugs tightly. Start hoist and lift body from wooden props.

If air is found in the oil in sufficient quantity to interfere with the action of the hoist, it may be removed in the following manner. Raise body and prop in position, as described above, and remove plugs. If a considerable quantity of air is present in oil, be careful to loosen plugs slightly at first and allow the excess of air to escape before removing plug entirely. After foaming at filling hole has ceased, pour oil in slowly, which will force the foaming oil out of holes. Also rotate pump by hand slowly to help out in the air removing operation. Be careful to see that all pipe connections are tight, and that stuffing box around piston rod is tight enough to prevent any oil drip.

See that the piston packing leather is always in good

condition, and that relief valve in piston is in working order. To make sure on these points, proceed as follows: with body blocked up, drain oil from hoist. Disconnect crosshead from piston rod, remove cylinder head and withdraw piston rod assembly. Examine the upper leather packing carefully to be sure same is not cut or torn at any point. Should piston leather be cut or torn, remove and replace with new leather. Before removing piston from rod, the relief valve cage must be unscrewed from piston.

Examine relief valve and spring, being sure that spring presses valve tightly against its seat, that valve has an oil-tight bearing on its seat and operates freely in its cage or housing.

Do not decide to remove piston assembly until you have carefully checked up on quantity of oil and position of control valve and have examined carefully all pipe joints.

To ascertain whether pump is worn: disconnect pump driving shaft and if gears or body are badly worn, it will be indicated by excessive endwise movement of shaft. On new pumps, or pumps in good condition, this shaft has only about three one-thousandths of an inch end play. When replacing gasket between cover and body of pump, use very thin paper, one thickness only.



Part of the Truck Equipment of the Century Lumber Company's Main Yard in Des Moines, Iowa. This is one of the largest retail yards in the country.



Fordson Reduces Hauling and General Power Costs

Building supply dealers, contractors and manufacturers everywhere, depend on Fordson for low-cost hauling, excavating, grading, and general power work.

Fordson Power, ample for the heaviest hauling and adaptable to power oper-

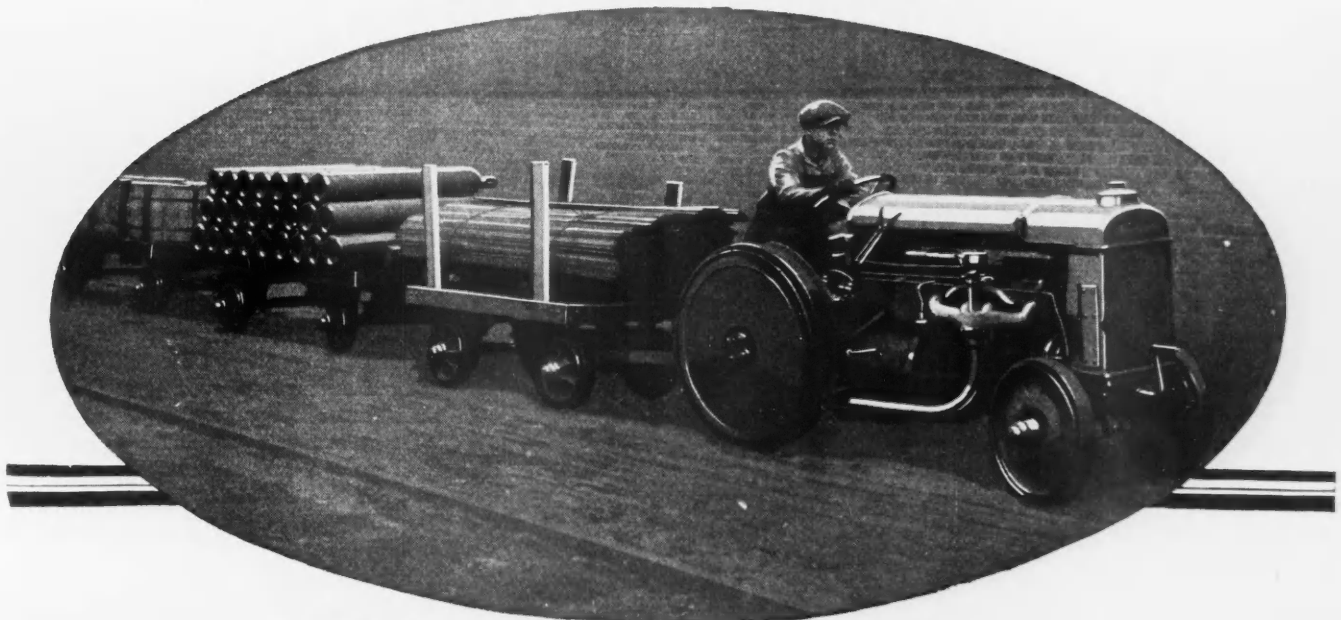
ations of all kinds, can be applied to your business at a big saving in time, labor and money.

Let your nearest Authorized Ford dealer demonstrate!

Fordson Tractor \$495, f. o. b. Detroit

Ford

CARS · TRUCKS · TRACTORS



WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER



CORRESPONDENCE

Questions Answered—Ideas Exchanged

That Linoleum Problem

To the Editor: Lincoln, Neb.
IN the August number, Mr. Bopp, of Kirkwood, Mo., submitted an answer by diagram of a problem previously submitted by Mr. Brush, of Hauppauge, N. Y., concerning the cutting of a piece of linoleum eight by eight feet so that it would cover one square foot more than contained in the original piece. It concerns also what the shape of the rearrangement would be. The answer, according to Mr. Bopp's diagram is five by thirteen feet and, while it may appear plausible to some, it stands to reason that no matter how the linoleum may be cut, it cannot be made to cover more than in the original piece.

The solid lines in Fig. 1 show the size of the original piece and also the two necessary cuts to be made to cover the supposed enlarged space as indicated by the broken lines. The pieces after being cut are represented by A, B and C, with their respective dimensions.

Fig. 2 shows the relocation of these pieces and, while the cuts form a perfect fit, it will be seen that the top of piece A, instead of being 5 feet, is but 4.9231 feet wide, thereby lacking .0769 foot of the filling out to the side lines of piece B on the left, while piece C lacks the same amount on the right of piece B. These two strips, when joined at their bevel ends are exactly 13 feet long and this accounts for the supposed extra foot gained. (See this worked out in full in the illustration.)

It will be noted in solving this problem that inches with

their subdivisions in common fractions have not been taken into consideration because the work is simplified by omitting them. It is then a straight decimal proposition. In other words, it is on the same basis of one hundred cents to the dollar.

For example, the decimal .0769 foot in U. S. money would be read as seven cents, six mills and nine-tenths of one mill. The first digit would represent its numeral in tenths of a dollar, but in this case the first digit is .0, consequently there are no dimes. This measure is as applicable to the foot as it is to the dollar, and with a straight decimal scale it requires no further figuring. But it becomes necessary in the absence of it to reduce .0769 foot to the decimal of U. S. Standard foot by multiplying it by twelve, which reduces it to inches and decimals of an inch, the answer being .9228 inch.

In this case the decimal is less than inch, which still leaves the problem in a puzzle for many to readily ascertain just what part of an inch in common fractions this represents, because most of the measuring instruments used by carpenters do not contain a scale divided into tenths of an inch. Well, it is a shade more than eleven-twelfths of an inch, the overrun being less than one-hundredth part of one inch. See the comparison.

A. W. Woods.

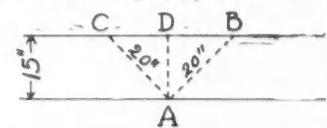


Making Square Cut With Rule

To the Editor:

Here is a method for sawing a wide board square by using a two-foot rule and without using a square.

Make a mark on one edge of the board where you want to cut it off, say, at "A." Lay the rule diagonally across the board



at "B" to any figure on the rule that is wider than the board to be cut, and mark at "B." Using the same figure on the rule, reverse and mark the board at "C." Exactly half way between "B" and "C" will be the point "D." A line connecting it with "A" will be square cut.

PEDER PEDERSON.



Brass Tacks?

To the Editor:

Chicago, Ill.

For years I have heard the expression "brass tacks." The matter has been given particular emphasis lately through the fact that General Dawes, in his acceptance speech, used the expression. Also a brass manufacturer in Bridgeport, Conn., is sending out a little souvenir brass tack, claiming its derived meaning is something fundamental and genuine.

I would like to know just how this expression originated, as I have heard several different explanations. Can your readers help me out? R. M. HUBER.

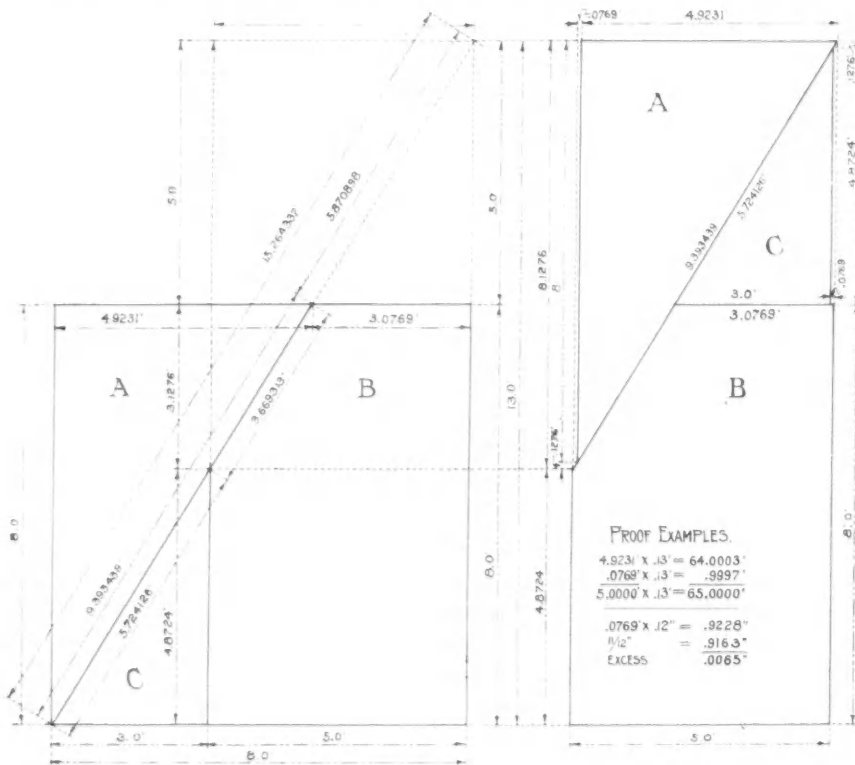


FIG. 1.

FIG. 2.

The Two Diagrams Shown Here Are Presented by Mr. Wood to Prove His Contention That 64 Square Feet of Linoleum Cannot be Made to Cover 65 Square Feet of Space.



Longer Life

THE stamina of the GMC One Ton Truck especially warrants your looking it over before you decide on a truck to do light hauling.

This GMC is a true One Ton capacity—yet fast.

It is a piece of equipment that will still be giving you fine service years hence—with minimum outlay for keeping it in condition.

For:

Every GMC part is designed with extra strength.

GMC design provides for easy replacement of worn parts when wear finally occurs.

Even the cylinder walls are removable and renewable.

And full pressure lubrication to every engine bearing surface like that found in costly passenger cars keeps wear at the low point in the GMC engine.

GMC Trucks go longer to make your money go farther. Ask for a catalog.

GENERAL MOTORS TRUCK COMPANY
Division of General Motors Corporation
 PONTIAC, MICHIGAN

General Motors Trucks



CLIP AND MAIL

GENERAL MOTORS TRUCK CO.,
 Dept. 9, Pontiac, Mich.

Send me the GMC Catalog.

Name _____

Business _____

Address _____



School Boys Build Garage

To the Editor:

Chicago, Ill.

I am sending you an interesting photograph of the result of the activities of a manual training class in Sterling Kan. Instead of the usual little trifles manufactured in such classes, the boys of the Sterling High School were set to work building a "life size" and practical garage.

As a result of the work, the boys felt that they were really doing worth-while carpenter work and the garage grew to completion rapidly under the direction of the instructor. It later was sold at public auction and now is in use daily.

This appeals to me as a really practical form of trade training that not only provides the boys with real and practical knowledge, but is something that they will do with enjoyment.

GEORGE F. PAUL.

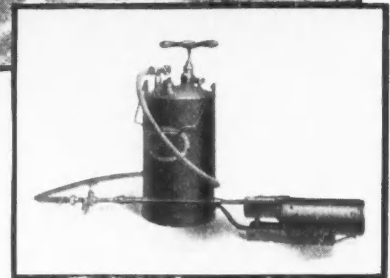


Prevents Costly Delays and Shut-Downs During Winter Months

Concrete Heaters and Thawing Outfits



Concrete Heater



Thawing Outfit

The first concrete heater was made by Hauck and put to successful use in the winter of 1915. Ever since Hauck Heaters have been used to concrete throughout the winter months because:

1. **Aggregates are Heated in the Drum While Mixing** so that the batch discharges at 60 to 90 degrees even in ZERO weather.
2. **Concrete Retains Temperature.** This kind of mix when properly covered will hold the heat 96 hours.

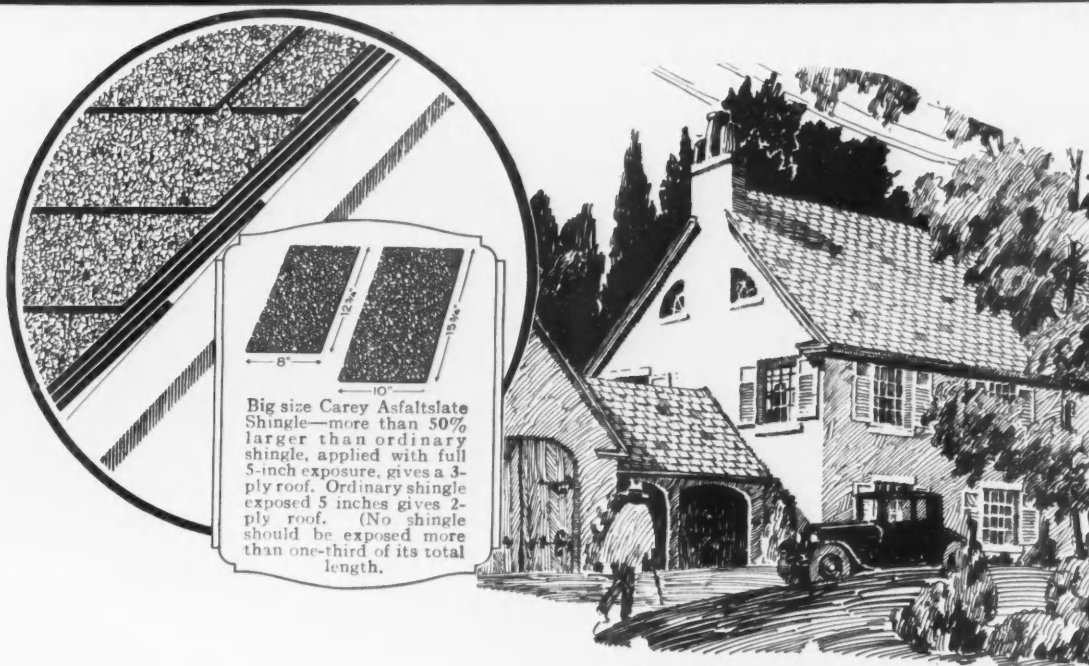
We would like to send you Bulletin No. 1002 describing Hauck Heaters and Thawers. Write for it today.

3. Saves Time and Labor.

Hauck Concrete Heaters have the approval of Public Service Commissions, State Highway Commissions, and Municipal Inspection Bureaus. Hauck Thawing Outfits are used for thawing out frozen pipe lines, valves, etc., **frozen concrete forms**, melting ice and snow around structural work, thawing out frozen hoppers on R. R. cars, frozen material piles, etc.

HAUCK MFG. CO. 142 Tenth St. BROOKLYN, N. Y.
Established 1900

See Editorial Pages
138 to 143 on
Winter Concrete Work



Leading Contractors Have Adopted This Shingle as Standard!

THE contractor who desires to standardize his business so that he can handle jobs easily and without confusion, quickly realizes the value of supplying the Carey Asfaltslate Shingle.

First, he is attracted to it because it is "the Shingle that Never Curls." It is known by his customers. This one feature gives it preference.

Then, too, he realizes that it not only is permanent, but gives real protection to the building. The heavy felt base, thoroughly saturated with asphalt and

covered with natural slate, resists the elements, heat, cold, rain and snow. Finally, the Carey Asfaltslate Shingle is easier and less expensive to apply.

In the large size, 10 x 15 3/4 inches, it allows a 5-inch exposure (with an unusually deep shadow line) and yet makes a three-thickness roof. Less time, less nails, less bother!

These few facts give you an idea why so many leading builders have adopted the Carey Asfaltslate Shingle as standard. If you'll write us we'll give you additional facts.

THE PHILIP CAREY COMPANY

510-530 Wayne Ave., Lockland, Cincinnati, Ohio

Carey
ASFALTSLATE
SHINGLES

THE SHINGLE THAT NEVER CURLS

THE PHILIP CAREY COMPANY,
 510-530 Wayne Ave., Lockland, Cincinnati, O.

Gentlemen: Please send copy of "Before You Build" booklet to

Name _____

Firm _____

Address _____

The Robbers; *A Familiar Story Told in Verse*

(More Truth Than Poetry to Much of This!)

To the Editor:

White Hall, Ill.

Here is a little story which I have written in rhyme which I thought might provoke a little mirth and possibly a serious thought or two among the boys:

I

My friend "Jim," a lawyer of some small renown,
Built him a nice little home in our country town.
He's proud of the place, as of course he should be,
And he took great delight when he showed it to me.
I told him I liked it, for I thought it quite nice,
So he just beamed with pleasure 'till I mentioned the price!
Then his face scowled in anger, said he: "This is true,
I was just simply robbed by that whole 'bloomin' crew."

II

He cursed all the workmen, said he: "They're to blame";
And he branded each one with a sulphurous name.
He mentioned the masons and plasterers, and flew into a rage.
He said that this country had now reached a stage
Where men like bold pirates (as in stories of old)
Now robbed you in wages of chests full of gold.
They are not sailing the high seas, but they are here by the
scores,
And we must meet their demands or just live out of doors.

III

And the carpenter crew, with their hatchets and saws,
He said they are no better than Jess James' outlaws,
For the little they did at that awful high wage
Was as much of a holdup as robbers did ever dare stage.
Then the short-memoried plumber, why said he: "That blamed
hound,
He's paid half of the time for just riding around,
He would come out on the job and relight his short snipe,
Then go back to the shop for a small piece of pipe."

IV

And the electrical workers, why said he: "It's a sin
The prices they charge for what they put in;
They were here such a short time, we
hardly got acquainted.
But when they presented their bill I just
simply fainted."
The painters, they robbed him; yes,
robbed him outright;
Their work, it was good, but their price
was "a fright,"
And the tinner was a skinner that would
sure get his share,
So was the dude of a "millman" who
put in the stair.

V

He spoke of the "heat men"; then started
to swear,
And consigned 'em to that place where
there's heat and to spare.
Though fulfilling their contract (which
was a business-like form),
Their price would for some time keep
him quite warm,
He said that one day, when he felt rather
blue,
He came out to the job and found the
whole crew.
Everything was a moving with full force
and power.

There were twenty-five men to be paid by the hour,
So he figured it up on a piece of new board,
And six months at that rate would have wrecked Henry Ford.

VI

This man is my friend and his charge was so grave,
That I said to him, "Jim, there no use to rave,
For I'm one of the boys that works at the trade,
And you can see for yourself all that I've ever made!
I've worked hard and steady for several long years,
And my financial progress just makes me shed tears.
You may search through this country wherever you may
And you will find most of the boys about the same way.

VII

"They may have an old Ford, a home of their own,
And a few rusty tools which they don't like to loan,
But if one inherits wealth, he drops out of the rank,
And buys him a business or goes into a bank,
Where he sits in an office all walled in with glass,
A gentleman of influence in the financial class,
And when I go in and ask him for a loan,
The first thing he says is, 'well, what do you own?'"

VIII

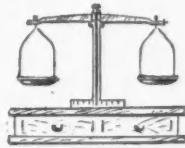
"You're a laborer, I believe, and you work by the day,
And you're not rated, I see, in a financial way.
Well, money is tight and business is slow,
And securities now must be "gilt edge," you know!
Then my friend scratched his head and said he:
"Bill, I'll quit,
For you boys do, I suppose, earn about all you get,
And we may blame you or praise you, it matters not which,
This one thing is certain, you seldom get rich;
But it's an honor to be a craftsman with a trained eye and
skilled hand,
For his work is a thing that for ages will stand,
And whatever he builds he may build it with care,
And leaves marks of his worth and character there."

WILLIAM H. BLAKE, Carpenter and Builder.



"And the Carpenter Crews with their Hatchets and Saws,"
He said, "are no better than Jess James' Outlaws,
"For the little they did at that awful high wage
"Was as much of a holdup as Robbers ever did stage."

THE WHEEL CARRIES the Load



Perfect Balance

You can't work Sterling Wheelbarrows and others on the same job and keep peace for very long with the boys.

It isn't because they're built better and last longer—it's because **they wheel easier** and **balance the load over that 10 spoke wheel.**

The boys like the Sterling just as much as the boss and the blacksmith do and they know there's a difference in the way that a Sterling wheels.

Why not send for the Sterling catalog? It gives both sides of the story.



Sterling Wheelbarrow Company

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DETROIT
CHICAGO
ST. LOUIS
SPOKANE

Books, Bulletins and Catalogs for You

THE literature and publications listed here are available to readers of the *American Builder*. They may be obtained from the firms mentioned and will be forwarded without cost except where a price is noted.

Skintled Brickwork, price 15 cents, issued by the Common Brick Manufacturers of American, Cleveland, Ohio, is in the form of a booklet of the proper shape and size for the files of the architect or builder. This valuable publication gives the new methods of obtaining interesting surface effects with common brick, as exemplified by Chicago architects. The publication is illustrated with a number of interesting pictures and on a number of these working directions for laying brick to obtain the skintled effect are given. The publication is issued as Volume 1, No. 1 of Brickwork Working Details.

How to Preserve Metal is the subject of a booklet issued by the Arabol Manufacturing Company, 110 East Forty-second street, New York City. The publication describes Metalol, a product of the company for the preservation of metal work of all sorts.

Boca Solid Steel Sash is described and illustrated attractively in Catalog F-24, issued by the Bogert & Carlough Co., Patterson, N. J. The catalog gives the details of the construction of the patented Boca lock-joint, the details of the Boca sash members and describes and illustrates the different assemblies of the sash for all types of buildings. Valuable and interesting tables of symmetrical combinations are presented in the publication, together with installation details and the descriptions of mechanical operators for sidewall sash, and other sash hardware made by the company. The Boca steel doors and partitions also are given a place in the publication.

Ampinco Showers is the name of an attractive booklet published by the American Pin Co., Waterbury, Conn., describing and illustrating a number of Ampinco shower and concealed bath fixtures. The booklet not only gives attractive halftone illustrations of the fixtures, but also accurate and detailed diagrams showing their installation.

Compressed Air Utilization is discussed in a two-color folder, illustrated in an attractive manner and issued by the Novo Engine Company, Lansing, Michigan. The folder illustrates, shows the uses of and describes a number of the compressed air outfits manufactured by the Novo company.

New for Old is the title of a most attractive and interesting booklet issued by the Atlas Portland Cement Company, 25 Broadway, New York City, which describes and illustrates the startling transformations of old buildings treated with an overcoat of stucco made of Atlas white portland cement. The remodeling of a number of different types of buildings are shown, illustrating the possibilities of the material used. A table in the book gives the amount of cement and sand required for stucco work.

The Milcor Architectural Sheet Metal Guide, published by the Milwaukee Corrugating Company, Milwaukee, Wis., is in reality a reliable reference work on the use of Milcor sheet metal building products. The 66-page book, attractively illustrated, is a mine of information as to the products of the company and their proper application.

Rocbond Flooring is an attractive booklet issued in colors by the Rocbond Company, Van Wert, Ohio, describing and illustrating the applications of Rocbond flooring to banks, stores, offices, schools, hospitals, automobile salesrooms, restaurants and kitchens. The sanitary features of the flooring material, the beauty obtained through its proper decoration and the permanence and low maintenance costs of the flooring are emphasized.

Allmetal Weatherstrips Pay Real Profits

Every building needs Allmetal Weatherstrips. With winter near at hand, everyone is planning ways to keep warm and healthy. Sell them Allmetal Weatherstrips.

Allmetal Weatherstrips are made of zinc and bronze and are interlocking. Makes windows and doors storm and windproof, cutting down materially on fuel bills. Illustrations show sturdy construction.

Let us send you full information and details on how to make money on Allmetal Weatherstrips. We offer a liberal proposition.

ALLMETAL WEATHERSTRIP CO.

231 West Illinois Street

Chicago, Illinois

SEND BACK THE COUPON

Allmetal Weatherstrip Co.,
231 W. Illinois St., Chicago, Ill.

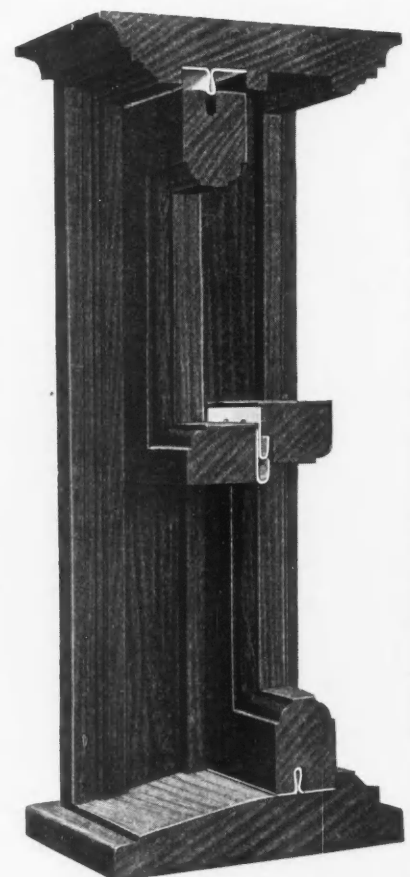
Gentlemen: Without obligation, please send me samples and literature.

Name.....

Address.....

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

*Illustration
shows how
Allmetal
Weatherstrip
is put on
sash.*





Is the roofing you now use the kind of roofing building owners want?

Is it long-lasting — economical — attractive — fire-resisting? Will it lay flat, stay flat and remain waterproof?

That's today's standard of a good roof. And that's the standard set for all roofings of the Genasco Line.

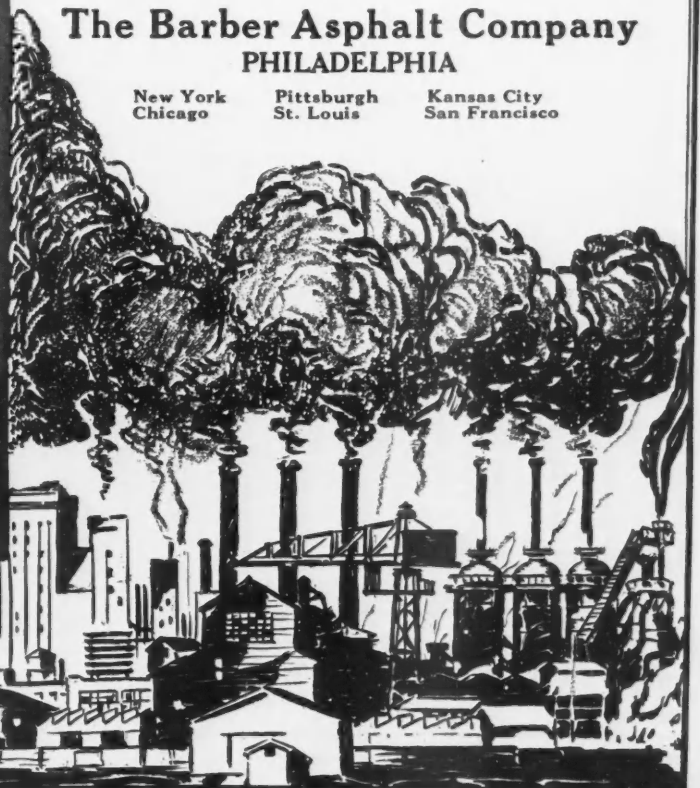
Genasco Roll Roofing is built on a foundation of tough rag felt, chosen because of its great strength and power of absorbing the waterproofing saturant.

It is heavily waterproofed on both sides with layers of Trinidad Lake Asphalt Cement — a nature-made product far superior to the artificial "asphalts."

There's a Genasco Roofing — roll, shingles or built-up roofing — for every type of building. Write for illustrated booklets.

The Barber Asphalt Company PHILADELPHIA

New York Pittsburgh Kansas City
Chicago St. Louis San Francisco



Books, Bulletins and Catalogs for You

THE literature and publications listed here are available to readers of the American Builder. They may be obtained from the firms mentioned and will be forwarded without cost except where a price is noted.

Rules for Grading California White and Sugar Pine, recently revised to conform to American Lumber Standards, are published in convenient pocket form by the California White and Sugar Pine Manufacturers Association. It is stated that the former grades and sizes of the association were well within the minimum standards fixed but that it was found necessary to make numerous changes and additions to the former rules in order to bring them more closely in line with the national program.

Fireproof Construction of various types are compared and given with an analysis of types of fireproof construction in a pamphlet issued by the Portland Cement Association, Chicago, Ill. Both of the papers are reprinted from the Journal of the Western Society of Engineers, the first by Chester L Post, and the second by Arthur F Klein, both members of the society.

Wiring Devices is the name given by the Bryant Electric Company, 1421 State street, Bridgeport, Conn., to their voluminous and complete catalog for 1924. This substantial and attractive publication of more than 200 pages lists and describes more than 5,000 wiring devices. It is published in three styles, as a looseleaf catalog, as a bound catalog measuring 7½ by 10 inches, and in a pocket edition.

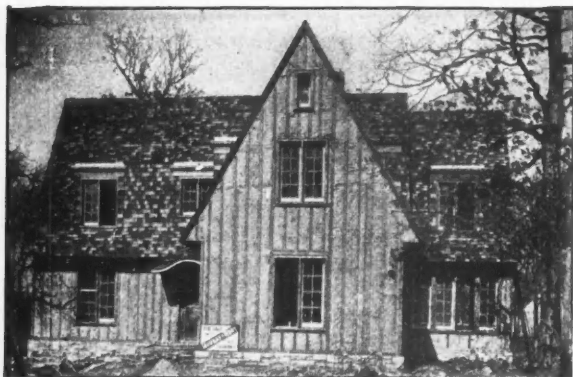
Protection for the Roof and Cellar are treated in a pamphlet issued by the Consumers' Asbestos Corporation, 110 West Fortieth street, New York City. This describes the methods of repairing roofs with Roof Proof asbestos products and of waterproofing the cellar with "Damp-Prufe."

The Carnegie Institute of Technology, Pittsburgh, Pa., recently has issued two interesting bulletins, announcing the course in bricklaying, masonry, and reinforced concrete and in the second, the courses offered in electric equipment and construction. ✦

Answers to Roof Framing Problems on Page 137

1. The area in plan is $22 \times 34 = 748$ square feet.
Area of roof is $748 \times 1.118 = 836.264$ square feet—say, 837.
2. The area in plan is $25 \times 33 = 825$ square feet.
Area of roof is $825 \times 1.202 = 991.65$ —say, 992 square feet.
3. The area of a hip roof for the building of problem 2 would be the same, 992 square feet.
4. The per cent to be added to the area of the plan of a roof to get the area of the roof is as follows:
Five-twelfths pitch, 30.2 per cent; three-eighths pitch, 25 per cent; seven-twenty-fourths pitch, 15.8 per cent.
5. Cut for roof boards for one-third pitch is $14\frac{1}{2}$ and 12.
For one-fourth pitch, $13\frac{1}{2}$ and 12; for five-twenty-fourths pitch, 13 and 12, and for five-eighths pitch, $19\frac{1}{4}$ and 12.

These numbers are obtained by using the length per foot run and 12 on the square; 12 representing the run. Mark along the arm of the square on which the 12 is taken.



House near Chicago, showing its "underclothing" of Cabot's Quilt, with furring strips over the Quilt, on which the outside finish is laid. Roof also insulated. Leon E. Stanhope, Architect, Chicago

Underwear for Houses

Underclothing makes people warm because it prevents the heat of their bodies from escaping. You can make your houses warm in the same way.

Cabot's Insulating Quilt

prevents the house heat from escaping. It insulates the whole house and saves the heat from the heater—that costly heat. It keeps the house warm on the smallest amount of coal; saves one-quarter to one-half of the coal bill. Makes the house comfortable for all time. Preserves health and saves doctor's bills. Makes the house cooler in summer. Quilt is not a mere felt or paper, but a scientific insulator that makes the house like a thermos bottle.



Sample of Quilt with full details, and references to dozens of users, sent FREE on application.

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

342 Madison Ave., New York
24 W. Kinzie St., Chicago

Cabot's Creosote Stains, Conservo Wood Preservative, Stucco & Brick Stains, Damp-Proofing

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HEED

BUY
THE BEST
HARDWARE
FOR
HARD-WEAR

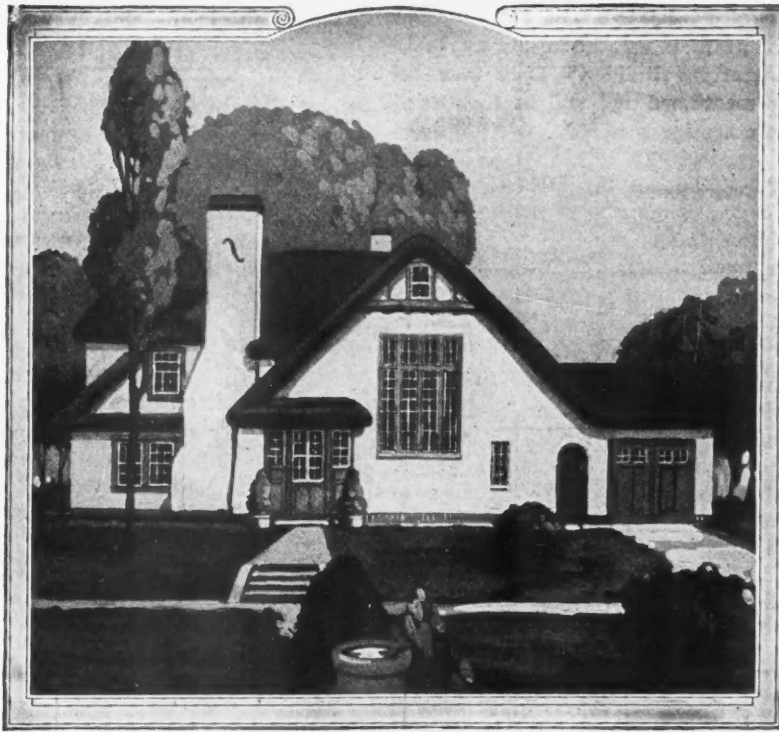


UTILITY
DURABILITY
BEAUTY
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BOMMER

BOMMER SPRING HINGES ARE THE BEST

Your DEALER handles them,
Get New Catalog 47, you need it.

BOMMER SPRING HINGE COMPANY
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BROOKLYN, N. Y.



The Foundation of Good Will

YOUR reputation as a builder depends on the skill and care you use in constructing your buildings and on the material you put in them.

ASBESTONE Everlasting Magnesia Stucco has for 18 years demonstrated its superiority to contractors and home owners. Its elasticity and great tensile strength insure permanence and smoothness of surface.

In building with ASBESTONE you are using the best the market affords and at a very reasonable price.

Ask your dealer or write us for samples in color tints and pebble dashes. Ask for our new ASBESTONE book.

FRANKLYN R. MULLER, Inc.
208 Madison Street, Waukegan, Ill.

ASBESTONE

EVERLASTING MAGNESIA STUCCO



ASBESTONE Stucco for Exteriors ♦ **ASBESTONE Plaster for Interiors**

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

Books, Bulletins and Catalogs for You

THE literature and publications listed here are available to readers of the American Builder. They may be obtained from the firms mentioned and will be forwarded without cost except where a price is noted.

Rensselarville, An Old Village of the Helderbergs, by William A. Keller, is No. 4 of volume 10 of the interesting series of architectural monographs issued by the White Pine Bureau, Merchants Bank Building, Saint Paul, Minn. The publication deals with a number of excellent examples of Colonial architecture found in a village in the southwestern part of Albany County, New York State.

Truscon Steel Products, and the part they served in the construction of the immense foundry of the Studebaker Corporation, South Bend, Ind., are interestingly told in a booklet published by the Truscon Steel Co., Youngstown, Ohio. The publication has a wealth of interesting information concerning the construction of large structure, which occupies enough ground so that four Woolworth buildings could be laid side by side in the space it occupies. Nearly nine million pounds of structural steel were used in the building operations.

Colormix, a concrete hardener, waterproofer and dust-proofer in permanent colors for concrete floors is described in detail in a booklet published by the Master Builders Company, Cleveland, Ohio. The processes of installing the concrete floors colored with Colormix are described and a number of the attractive installations of the floor illustrated in color.

Drafting Room Furniture is listed and described in Catalog F-24, just issued by the C. F. Pease Company, 813 North Franklin Street, Chicago, Ill. A very complete line of

drafting room equipment is illustrated and described in detail.

Experiences of Operators of the American Universal Floor Surfacing Machines are outlined in a recent bulletin issued by the American Floor Surfacing Machine Co., Toledo, Ohio. Testimonials from owners of the machine in all parts of the United States are presented with pictures of many of the operators.

The Lamneck Laundry Dryer is illustrated and described in a bulletin issued by the W. E. Lamneck Company, Columbus, Ohio. The manner in which the dryer meets one of the most perplexing problems of wash day and the details of its operation and construction are detailed. The increasing demand for laundry dryers as a built-in feature of the home and the advantages of such an installation are discussed.

Arktite Circuit Breaking plugs and receptacles are described in Bulletin No. 2055, issued by the Crouse-Hinds Company, Syracuse, N. Y. As is indicated by the name, Arktite, these products are so constructed that the arc formed by pulling the plug is so completely confined in a chamber of insulating material that it is impossible to form a short circuit of ground. The air and gases confined in the chamber expand rapidly and smother the arc. Full details of the construction of these products, together with the specifications for the different types and sizes are given in the bulletin, as are directions for wiring the plugs and receptacles.

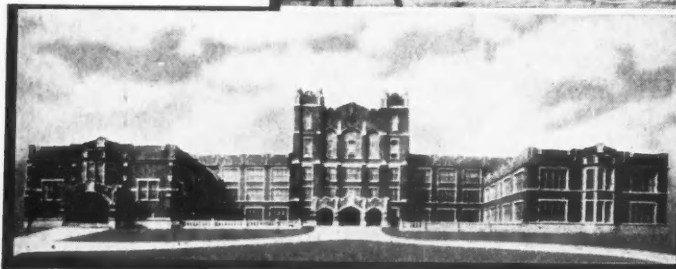
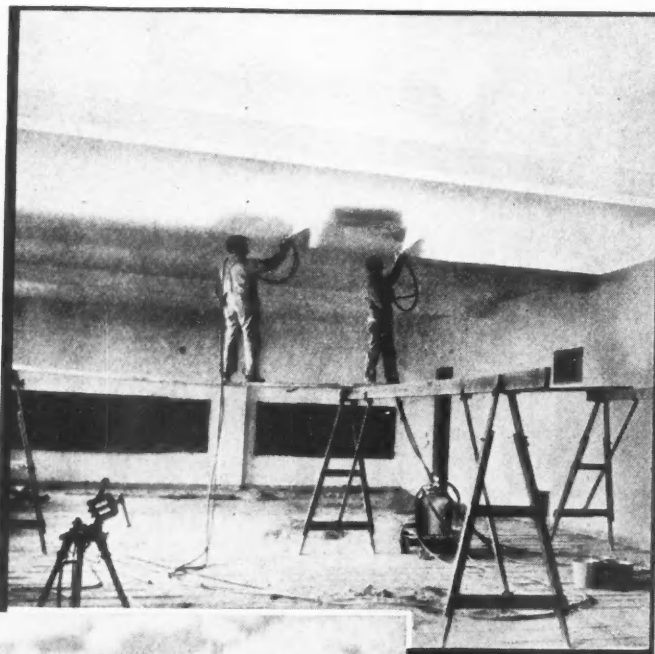
Stearns Material Handling Methods are described in catalog No. 102, issued by Stearns Conveyor Company, Cleveland, Ohio. Among the products listed are belt conveyors, bucket elevators, pan conveyors, rotary and shaking screens, pivoted bucket carriers, idlers and other equipment. Stress is laid on the success of high pressure lubrication as applied to their belt conveyor idlers. Other patent features of the products manufactured by the Cleveland firm also are advertised.

Better Painting—Greater Profits

IN the new 2000-student capacity high school building pictured below, the wall and ceiling surface was spray-painted with DeVilbiss equipment.

The contractor who did the spray-painting reported that three coat work, greater in hiding power and highly superior in quality, was done with a coverage of over 600 sq. ft. to the gallon of paint; further, that on the entire job he effected a saving in excess of 70% on the single item of labor.

The larger picture at the right shows the spray-painting operation in one of the class rooms.



RESULTS produced on a wide variety of work, over a period of years, show that spray-painting with DeVilbiss equipment insures an improvement in quality of work and an increase in net earnings.

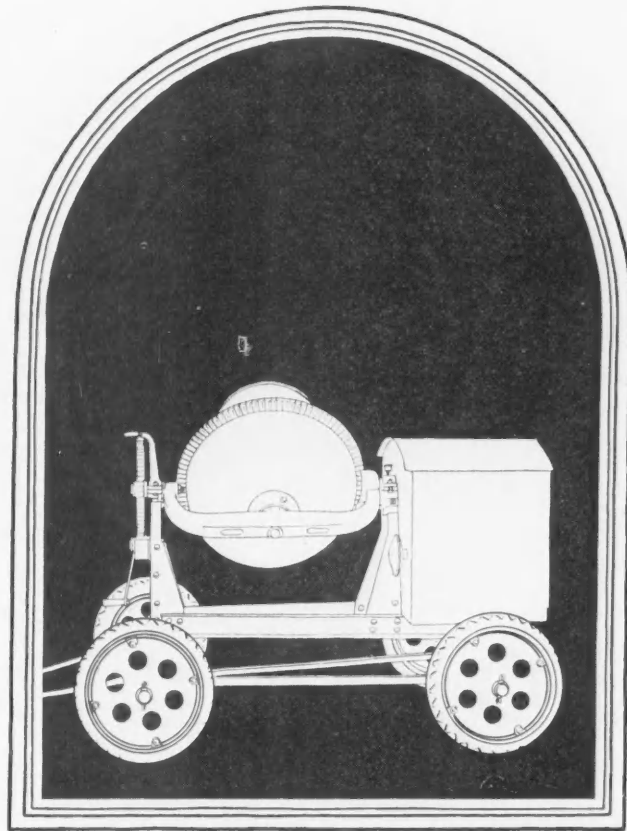
This school was an average job. The contractor produced a superior quality of painting throughout and saved 70% in labor costs. He gave his customer the benefit of part of that saving and still made considerably more money than he ordinarily would. Both as to quality and to lower cost of work, this painter made for himself a completely satisfied customer who will prove to be a substantial business booster.

Painting the DeVilbiss way, on all classes of work, will average 4 to 5 times faster than brush painting. The coatings applied reach all places, and are uniform, free from defects and greater in hiding power. There is no dripping and spattering. The painting is done quickly and without confusion.

For further consideration of this important matter of painting better and making greater profits, we'll gladly mail you additional facts about the DeVilbiss Spray-painting System and what it will enable you to do. Address—

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

DeVilbiss
Spray-painting System



A small mixer that is built to big mixer standards

IN this new Leach-Oshkosh 3 1/2-Tilter, you will find the same advantages that you have always associated with larger mixers.

The same ruggedness is found in the hot riveted structural steel frame and sturdy bridge-like construction of the truck. The same safeguard against careless operation—even neglect—is found in the fool-proof construction of every working part, particularly in the large oil chambers that assure proper lubrication of the vital bearings

for long periods.

It has the same efficient mixing action, the same ease of operation, an equally dependable engine. Even the wheels are a smaller duplication of the sturdy self-oiling wheels used on the larger Leach Mixers.

Down to the last detail every inch of this mixer shows that it has been built with the full realization that *small requirements are just as exacting as large requirements.*

LEACH *Oshkosh* MIXERS

Leach Company



Oshkosh, Wisconsin

—formerly

Oshkosh Mfg. Co.

AB12-M-BTG