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VOL. XXV

April, 1919

No. 1

Federal Government Launches Housing Program and Indorses Necessary Home Building

THE interest of the nation, now engaged in prosecuting what will have to be a decisive war, demands that there be the greatest possible concentration of skilled and unskilled labor in war and shipbuilding industry centers. This makes the need of proper housing accommodations imperative, and Congress has placed O. C. Eidlitz, a noted construction engineer, in charge of the housing program and made an appropriation of \$50,000,000. Realtors and home-building contractors in cities which will require part of this expenditure will do well to co-operate with the government's program in every way possible, in order that workers' barracks and dwellings may be made available as quickly as possible.

There are two ways of going about this solution of the dwelling problem in these centers, especially in so far as they affect married men and their families. One, is thru the erection of temporary quarters which can have no home sentiment, and which will deteriorate rapidly—probably before the period of the war, should this keep up over a more or less lengthened period. The other way would be to plan for the future; erect buildings which would be homes in the fullest sense, and add to the prosperity and attractive appearance of the town or city taking the initiative in their erection. In this way a desirable addition to the population of any city would be permanently

satisfactorily housed, and given opportunities to make new ties and attachments, would remain in their new locations at such other occupations as the industries, which furnish their present source of employment, cannot help but take on in time of peace.

Recent interviews and correspondence with Secretary McAdoo have brought out clearly the fact that the Government does not wish to interfere with, or disrupt, the internal business organization of the country to any greater extent than is imperatively demanded. There is the hope held out that, given the required mobilization of men and material in war and shipbuilding industry centers, the government would encourage needed home construction thruout the country in every way possible, and enable the use of local stocks of materials and available labor. Interpreted in this connection, Secretary McAdoo's recent remark concerning home building in war time, coming from a recognized successful business man to business men generally, is susceptible of a very favorable interpretation.

Where homes are vitally necessary in a community everyone concerned will be doing a patriotic duty in seeing that they are erected. In this connection it is interesting to note that, notwithstanding the fact that Canada has been in the war for a longer period than the United States, two of its leading cities have advised National Own Your Home Headquarters of their intention to conduct 1918 own your home campaigns, their local conditions having become urgent enough to justify this step.

Homes for Workingmen



Practical Plans for Industrial Housing

The AMERICAN BUILDER takes pleasure in presenting on the nine pages following a collection of TWENTY-FOUR industrial housing designs—real homes for workingmen of the sort so urgently needed right now in hundreds of cities and towns in practically every State of the Union. The AMERICAN BUILDER has for years been featuring the type of dwellings wanted at this time to house the nation's war workers; it is the greatest available repository of housing designs and data, and the AMERICAN BUILDER readers—the house building contractors—are the men who are handling the great bulk of this industrial housing work.

The Challenge of the Housing Problem

Noble Foster Hoggson

President, Hoggson Brothers, Builders, New York

A CHALLENGE not only to the sound judgment, but to the idealism of the American business man lies in what has come to be called the "industrial housing problem." Behind these matter-of-fact words is a world of vital significance affecting the greater, more efficient, more beautiful America for which forward-looking men are beginning, in a large way, to plan.

The solution lies neither in sentiment alone nor in unmitigated business sense; it is comprehended, however, in that mixture of the two qualities which makes for the greatest social value and personal success in industry.

The practice of providing suitable homes for workers is in its infancy in America. England has solved the problem with characteristic British

slowness and throness. But in America, the land is as yet too new, the genitive forces of industrial opportunity as yet too prolific, labor as yet too plentiful, to have brought this incidental but altogether vital problem to more than a merely tentative solution.

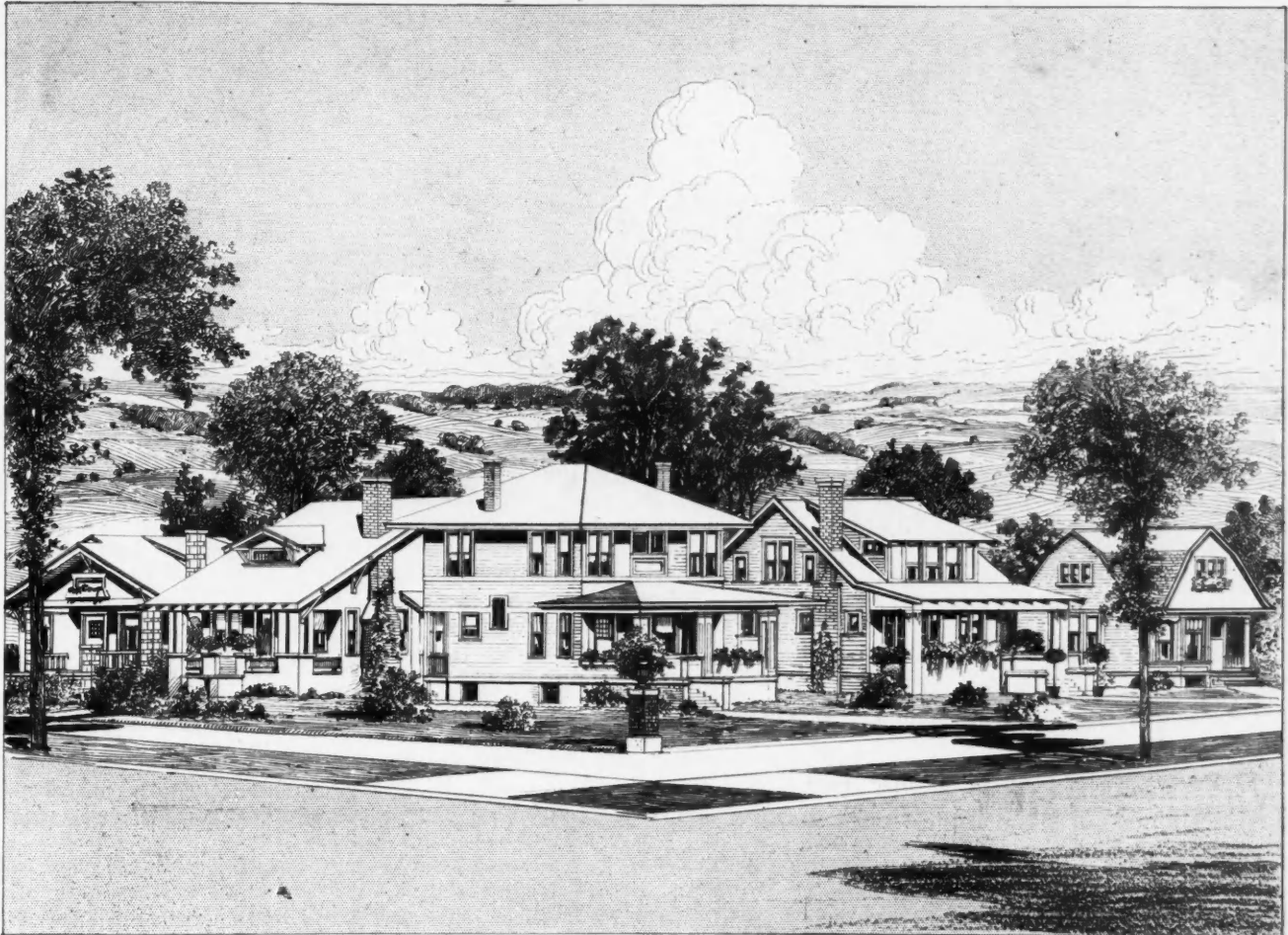
The Great War, however, has been the Great Precipitator—it has crystallized conditions that would otherwise have been a generation, a century or a quintet of centuries in flux. The housing problem in the United States has been moved up at least a

generation. Where yesterday it was with many industrial organizations a matter of sentiment or casual experiment, it is today a problem of grim necessity, tho it will never find a real solution until sentiment mingles with business judgment to produce a humanly like-

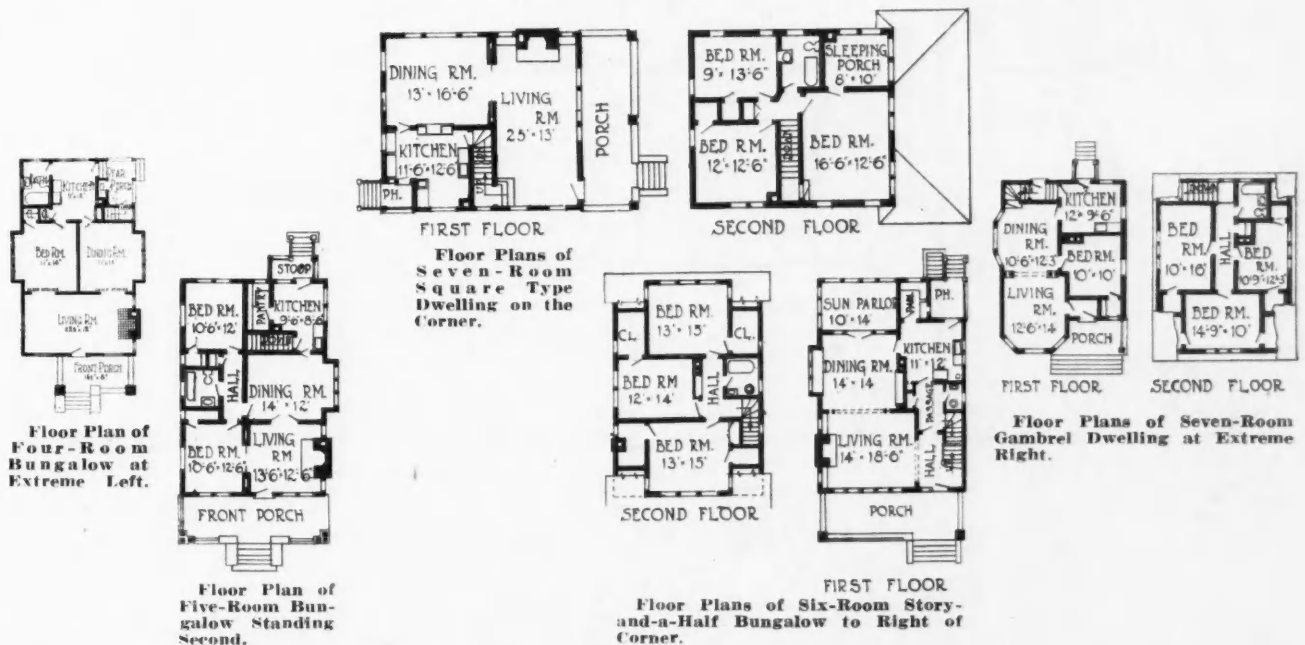


Brown in "The Chicago Daily News."

Efficiency Demands Not Bunkhouses for War Laborers But Real Homes for the Workingman and His Family.

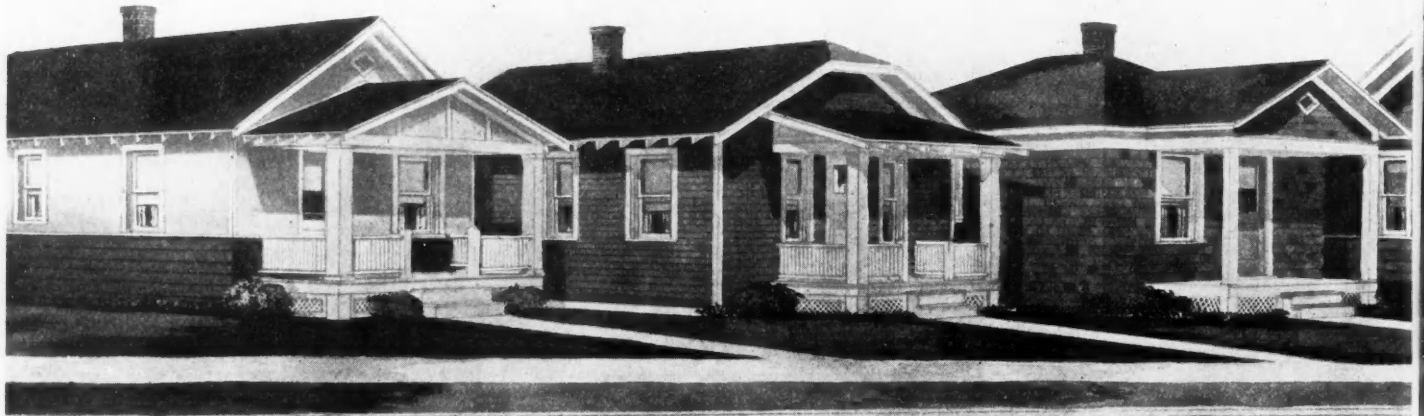


A Pretty Corner in a New Industrial Suburb Showing an Assortment of Five Very Practical and Popular Types of Homes—Floor Plans Indicated Below.



able, workable and altogether satisfactory result. The reason why the housing problem cannot be dealt with solely in a cold, logical, business fashion should be apparent to everyone. That it is not apparent is evident from the fact that many attempts at solving the problem in America have resulted unsatisfactorily.

The English student of the housing problem provides a dwelling that combines comfort with ample space and general coziness. There is usually a garden, a breathing space, the mercy of vines and trees to soothe the weariness from toil-worn senses which too often do not sense their own needs. The garden is no less important than the sanitation, the ventilation—

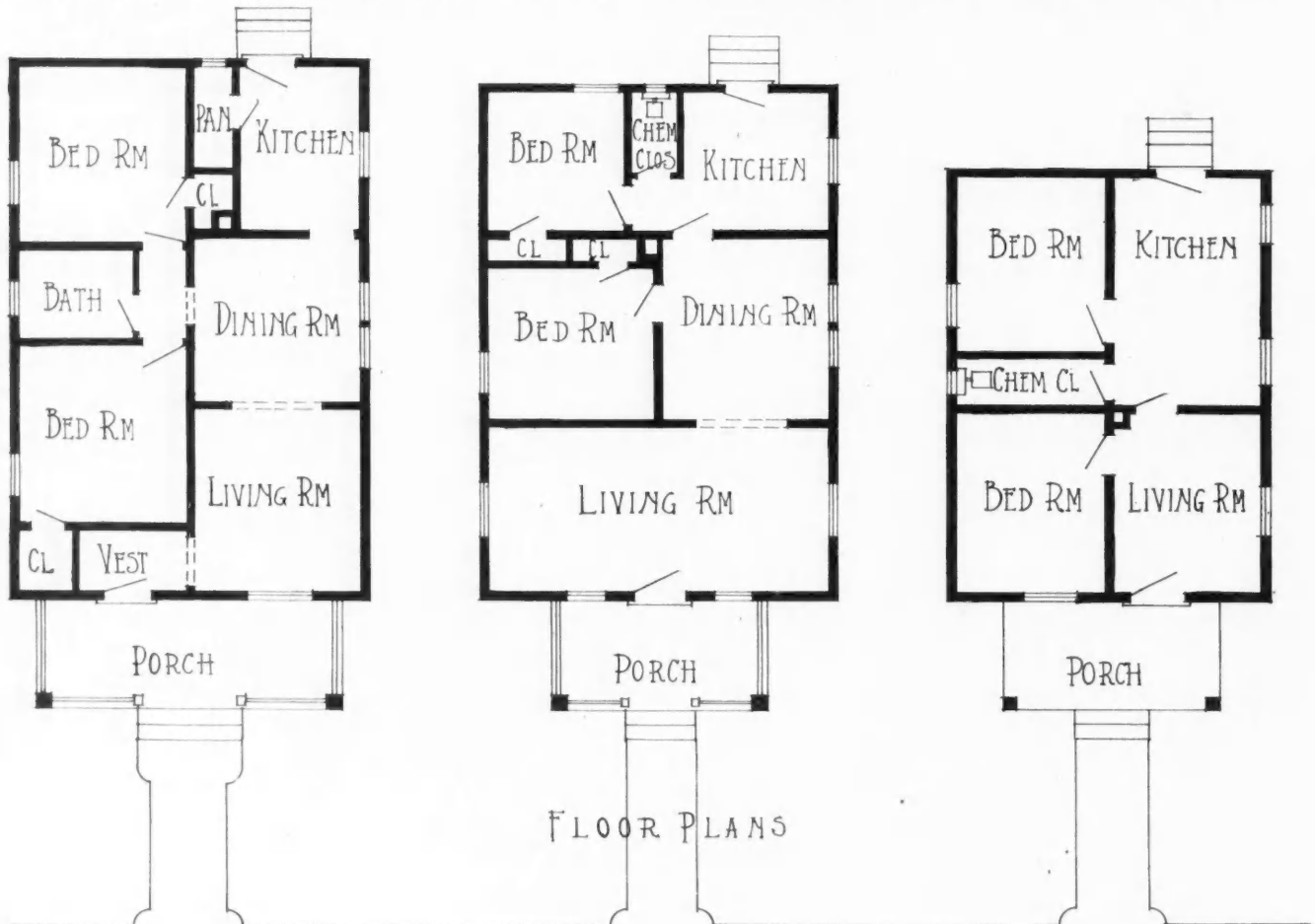


A Street of Six Well Designed Workingmen's Cottages Showing a Pleasing Variety of Roof Lines and General Treatment. The Floor Plans to
They Range in Size From Five

even more important in many respects than the house itself.

There is no need to point out the obvious fact that the competition for labor in the United States is stif-

fening daily. The appeals for conscription of labor, the efforts of manufacturers to prevent competitive bidding for labor, the general but usually mistaken complaint of labor shortage—all bear witness to this



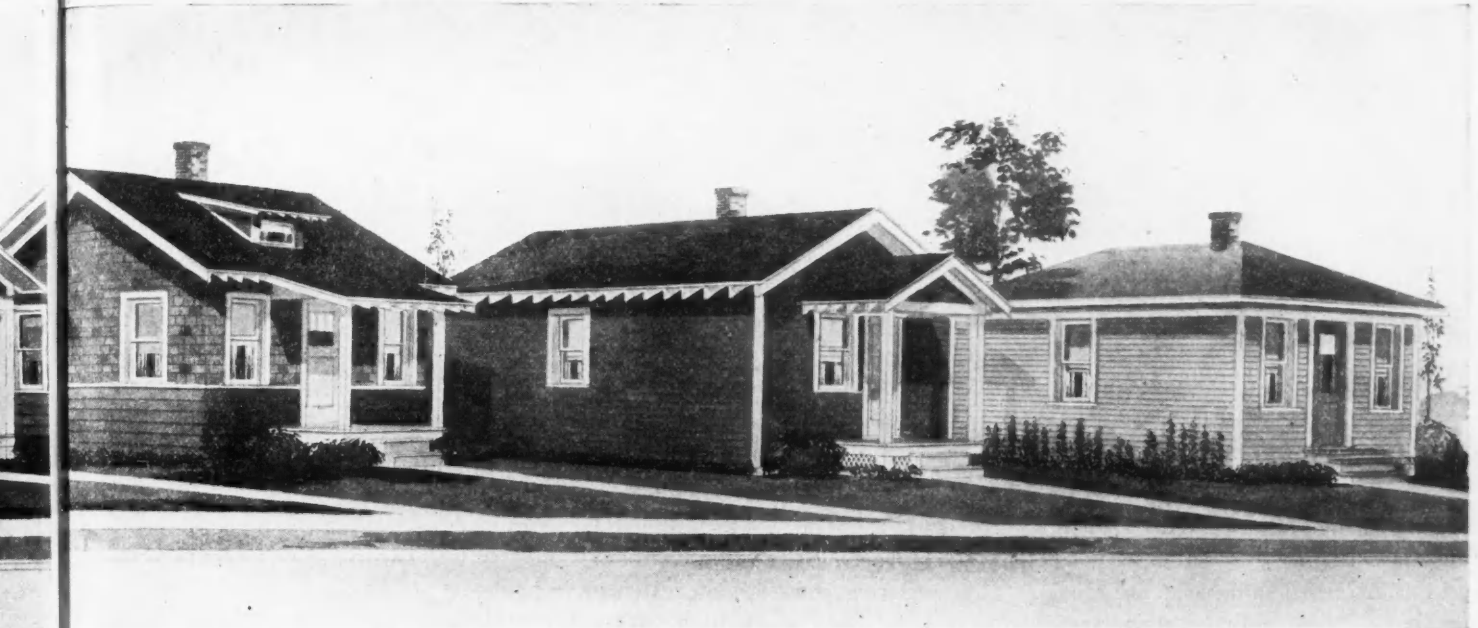
FLOOR PLANS

Five-Room Stuccoed Cottage.
Size 20 by 30 Feet.

Five-Room Sided Cottage. Size 20
by 28 Feet 6 Inches.

Four-Room Shingled Cottage.
Size 18 by 24 Feet.

FLOOR PLANS OF THREE COTTAGES ILLUSTRATED ABOVE.

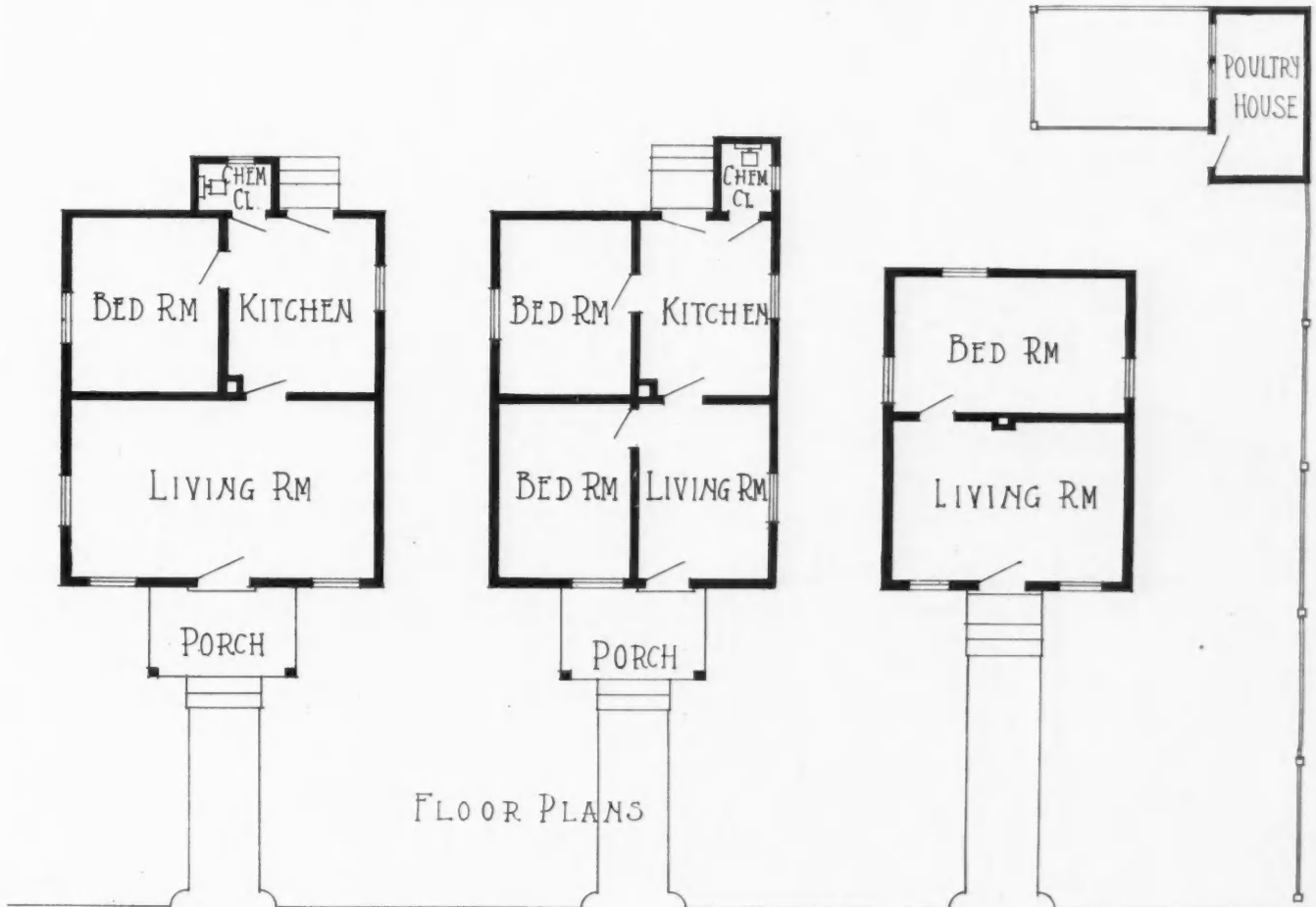


Plans to correspond are illustrated below. Each of these cottages is a narrow lot design, 20 feet being the widest and from that down to 14 feet. Plans for a five-room and bath to two rooms.

fact. Far more practicable than all the solutions thus far offered is proper housing.

But proper housing does not mean mere shelter. Man is a sentimental animal. His holiest sentiment

centers about the home. Home ties mean contentment; if they do not, they are not ties for long. They mean attachment to locality, they mean a vital interest in the community; they mean, most of all, a sense of

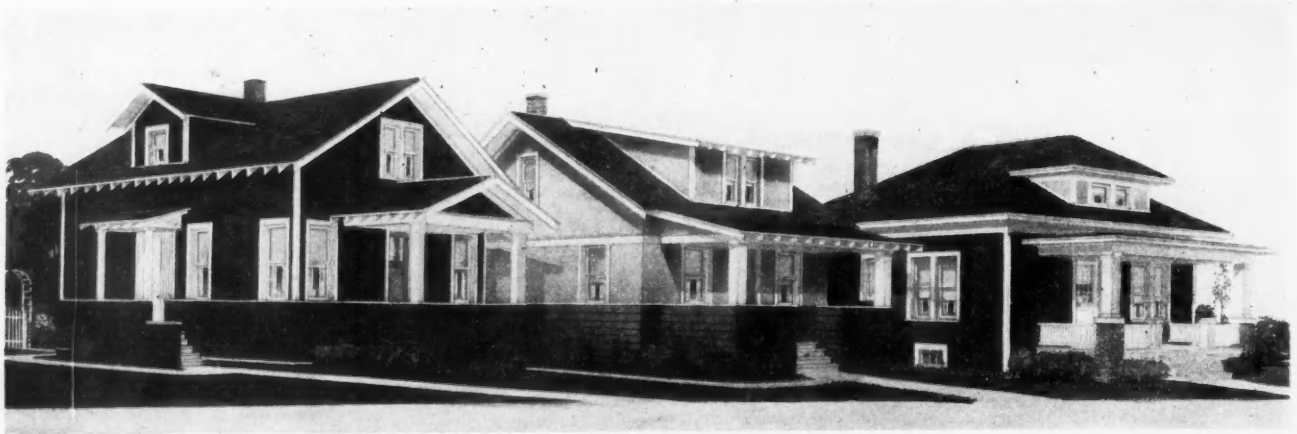


Three-Room Shingled Cottage.
Size 18 by 21 Feet.

Four-Room Sided Cottage.
Size 16 by 21 Feet.

Two-Room Hip Roof Cottage.
Size 14 by 18 Feet.

FLOOR PLANS OF THREE COTTAGES ILLUSTRATED ABOVE.



A Street of Three Pretty Story-and-a-Half Industrial Homes of Strikingly Different Appearance to Avoid Monotony. These Houses are 24 Feet Wide to Go on 30-Foot Lots. They are of Six Rooms and Five Rooms Each.

security which implies—the psychologists and the workman themselves tell us—permanence, comfort and enthusiasm in one's surroundings. This was the meaning of the English cottage and garden.

The problem of housing then, is, first of all, one for the employer.

The problem is also one for the community and particularly for those members of the community who profit most by its healthy, sound and consistent growth. Chief among these members is the banker. But mer-

chants should also be interested, as well as the owners of traction companies, and all those who are possessed of a disinterested civic pride.

So in the cities where the individual employer cannot meet the problem, it is properly one for a stock company composed of employers, bankers, merchants, and those advocates of civic betterments who prefer a garden suburb to long rows of poorly planned, ill-built, altogether mentally and financially depressing flats and shacks—miscalled cottages.

There is, however, a larger and more important phase of the problem than any thus far considered here. The new world contact which has been thrust upon us within the last few years brings an obligation to create a new, more beautiful, more efficient, more glorious America. The foundation of that America must be labor; well paid, contented labor; and only such labor can be depended upon in the period of all-inclusive readjustments and reconstruction which may be thrust upon us at any time by the end of the World War. Proper housing, housing that, no matter who the laborer or what his habits, creates the permanent home sense, will be an important determining factor in the situation.

As the future of America depends upon such labor, it is naturally a proper object of government encouragement.

We have built our nation by aid to homesteading farmers; one of our chief privileges and obligations today is to apply ourselves to the problem of adequately homing, not housing, labor, to the future greatness and glory of America.



First and Second Floor Plans of Street of Three Industrial Homes Illustrated Above.

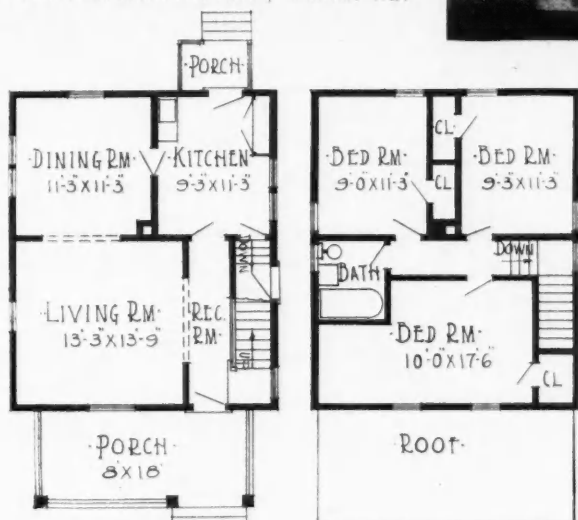
Types of Economy Cottages

The two cottages here shown border on the severely plain order and call for a minimum expenditure for mill-work and fancy fittings,

In the upper design the continuation of the concrete pillars to the top of the porch balusters imparts an appearance of substantiality that is not without architectural and sale value.

The roof lines of porch, dormers and main structure are unusually good. Roof lines, it should be borne in mind, make or mar the appearance of any structure.

The reception hall in this design to the right gives that touch of privacy so much desired by many, and affords convenient access to kitchen, without trav-



First Floor Plan Second Floor Plan
Arrangement of Two-Color Dwelling Above.
Size 22 by 26 feet.

ersing living or dining room, and to the upper story.

The second floor plan shows three bedrooms and bath. The front room is of unusually large dimensions for a cottage of this character.

The perspective view and floor plan of the design below are qualified to speak eloquently in their own behalf.

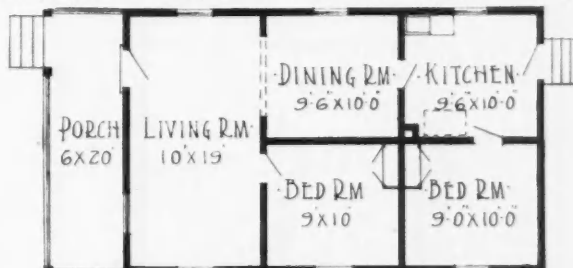
Our great hobby is to aid you to build at the very lowest

Neat Two-Color Dwelling. Size 22 by 26 feet. A few two-story houses should be worked in with any street of cottages to break the monotony of sky line.

cost, in the very best manner, and with the very best materials, exactly the type of home that suits you.

Material for the cottages now before you, and for others of the same general type, can be supplied out of stocks on hand in most lumber yards. Materials that are produced in very large quantities are produced at a very low cost, and for that reason supplies of materials for the construction of these types of homes can be obtained on advantageous terms.

We are strongly of the opinion that the municipalities that provide the best homes for workmen at the least cost are going to attract to themselves not only industries the most to be desired, but also the best class of workmen. It has been proven in many cities that labor congestion is to a



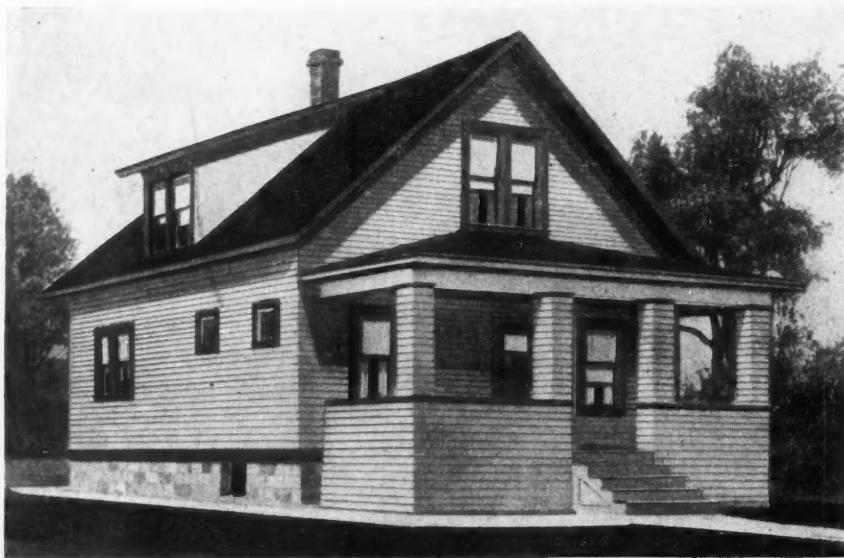
Arrangement of Economy Hall Illustrated Below. Size 20 by 32 feet.



This is Economy Hall. Size 20 by 32 feet, and containing five good rooms. Nothing about this house to run into money, yet comfort is here.

great degree due to the fact that workmen who properly consider themselves and their families will not move to a city that has not taken the necessary precautions to provide for the health and comfort of the worker and those depending upon him.

The AMERICAN BUILDER is of the opinion that if the manufacturers themselves would arrange to finance the erection of the necessary number of houses to provide for those requiring them, and would give attention to the development of such a scheme along the most approved lines, they would not only receive an ample financial return from the investment, but also make the workmen far more content and, in addition thereto, would have no difficulty in attracting labor to their particular localities.



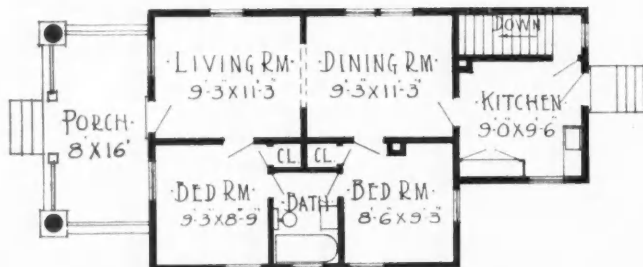
Cottage with Boxed Porch. Size 22 by 26 feet. This is a story and a half structure containing five rooms and bath.

Two Compact Homes

Utilization of the space which the walls enclose is one matter to which the builder should give close attention when considering plans. It costs money to enclose a cubic foot of space. If a benefit is realized from this outlay the space enclosed must be available for use. The cost of enclosing it is the same, whether or not it can be used.

For these reasons the close utilization of the enclosed area in the two examples given on this page should appeal to the builder of moderate means.

There is no waste of room on the first floor of the cottage with boxed porch. On the second floor the space under the eaves may, if desired, be covered with rough flooring, and in that event will be available for storage.



Main Floor Plan Dual Roof Line Cottage to Right. Size 20 by 34 feet.

Boxing up the porch in the manner shown gives the occupant of a home of this character the benefit of an additional room of ample dimensions for summer use. The enclosure adds a touch of privacy which is a welcome feature to many. Properly fitted with porch furniture this is a summer parlor which increases the attractions of this house.

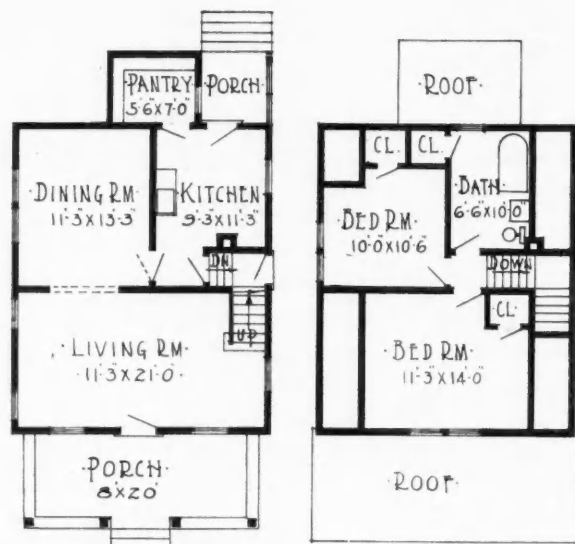
Building largely is a question of taste and the ordinary builder follows inclination to the limit of his pocketbook.

To many the dual roof line cottage illustrated to the right will have an attraction and appeal that will outweigh those of the other design. This is a

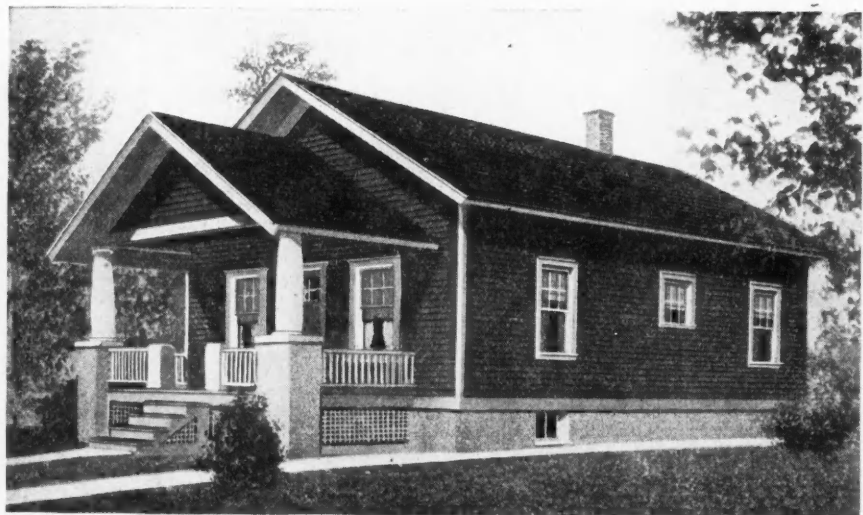
home all on one floor and has much to recommend it. The living room and dining room open together to make the best use of the space. Two bedrooms and a bath are provided. The kitchen addition is well placed.

Possibly there is not as much difference in the cost of these two houses as many might assume. That is a point on which it would be well to consult with local lumber dealers regarding current prices on the several kinds of material called for.

In this magazine you will find many designs and types of residences and farm buildings. The plans are suggestive, rather than final, and we are placing them before you with the idea of giving you aid to build the home that suits your requirements and whose cost meets your views in that important respect.



First Floor Plan Second Floor Plan
Arrangement of Boxed Porch Cottage Above. Size 22 by 26 feet.



Dual Roof Line Cottage. Size 20 by 34 feet. Altho low in cost, this little house has all the cozy convenience of the modern bungalow.

The Old and the New

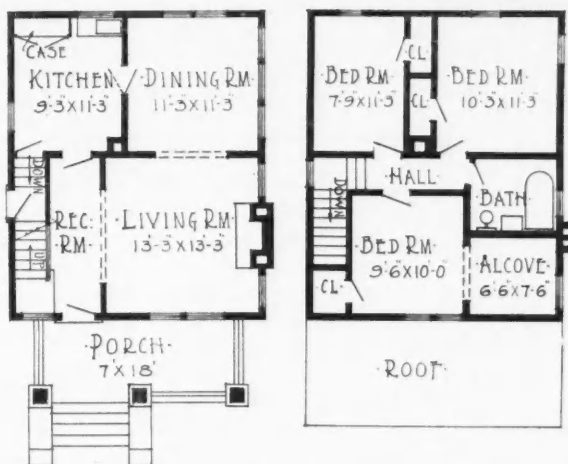
Here we have two excellent examples of old and new architectural designs. The one to the right is extremely attractive. The porch is brick to rail height, the pillars being surmounted with wooden columns of appropriate proportions. The outside chimney betokens a fireplace, an added comfort and attraction in any home.

For its size this residence has more modern appointments and ideas than any residence whose plans we have examined.

Neither of the homes shown on the page are very large, but either one affords excellent living accommodations for a small family.



Two-Story Cottage with Good Lines. Size 22 by 26 feet. This is the type of home for department managers and foremen. It is modern in every particular



Arrangement of Cottage with Good Lines. Design above to right. Size 22 by 26 feet.

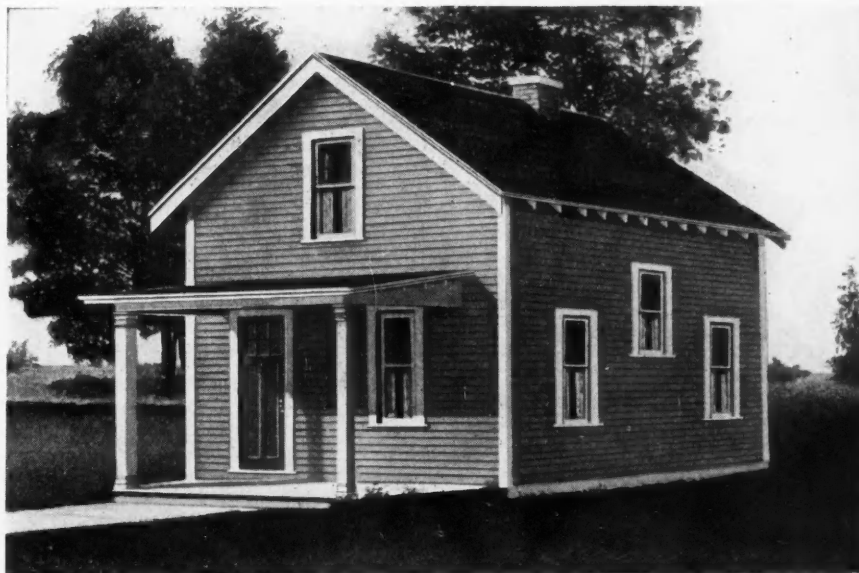
Housing Uncle Sam's Shipworkers

Plans are being prepared by the Emergency Fleet corporation for the expenditure of \$50,000,000 approved by Congress for housing the men who are to build the ships that are essential to the winning of the war. These workers and

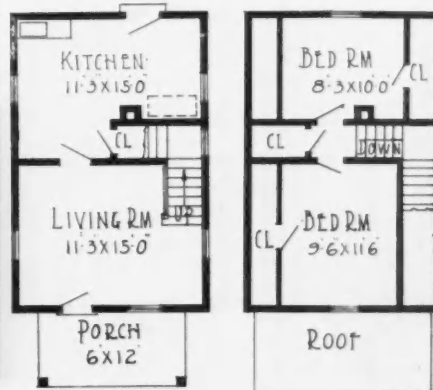
their families must have suitable living quarters if efficiency and contentment are to obtain in the shipyards. The influx of many thousands of artisans into the various communities has made necessary the construction of large numbers of new dwellings. The shipbuilders cannot be housed suitably in mere barracks or temporary shacks. R. Clipston Sturgis, of Boston, one of the nation's leading architects, sets forth in an article in the *Daily News* that the dwellings for the workmen should be constructed with a view to permanency as well as to comfort. Such construction involves careful planning.

It is gratifying to know that J. Rogers Flannery, director of housing for the Emergency Fleet corporation, promises that the men of the shipyards shall be protected from "exploitation thru high rentals." This, as Mr. Sturgis says, is fundamental to the success of the undertaking. An exceptional opportunity is afforded the Government to build workmen's homes in such a manner that a standard will be established for the whole country. Because the Government can both build and maintain these dwellings, it is in a position absolutely to insure proper living conditions for wage workers' families at reasonable rentals.

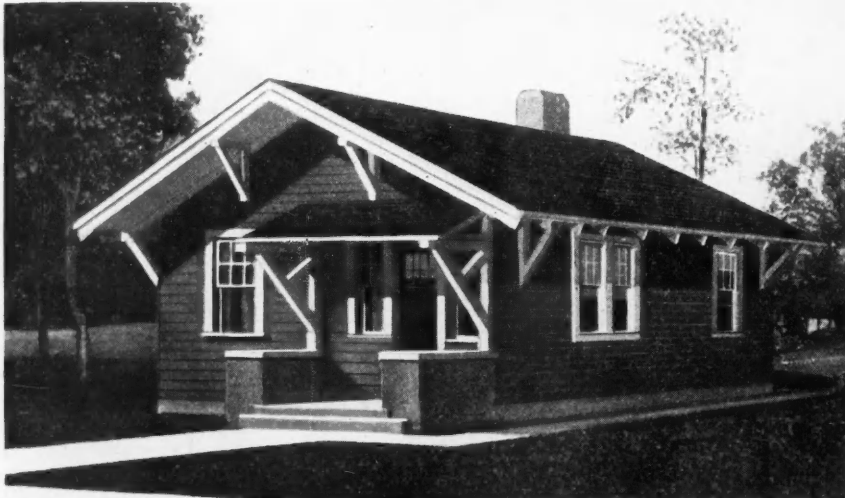
Wisdom suggests the adoption of Mr. Sturgis' proposal that the Government housing shall take the form of complete and well equipped model villages or towns. Intelligent construction of this sort cannot fail to have a permanent and widespread influence in increasing the comfort and promoting the health of dwellers in American industrial communities.



An Old Style Cottage. Size 16 by 24 feet. There are two big rooms on the ground floor and two bedrooms upstairs.



First and Second Floor Plans of Cottage to Left. Size 16 by 24 feet.



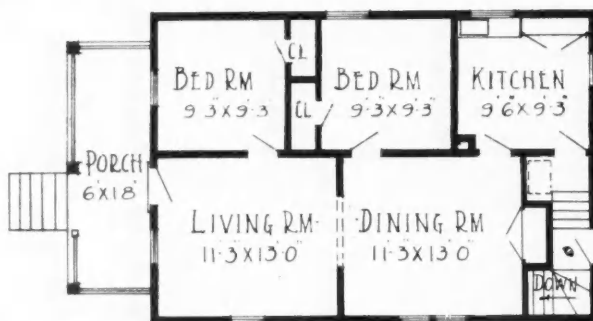
Our Bracket Design. Size 20 by 26 feet. An attractive little home with two bedrooms, combined living room and dining room and a good kitchen.

Two Tasteful Cottages

Our idea has been to place before builders and others concerned with industrial housing many excellent examples of cottages from which selections may be made.

You may have had some difficulty in reaching a decision, perhaps we could help you in that.

Or, possibly we do not give exactly the type of structure you want. We have other plans, and access to yet other plans, so that we can furnish a design that in some degree



Floor Plan of Design Below. Size 22 by 32 feet.

meets with your ideas, and after we get that far along we can have the plan changed to suit your express needs or wishes.

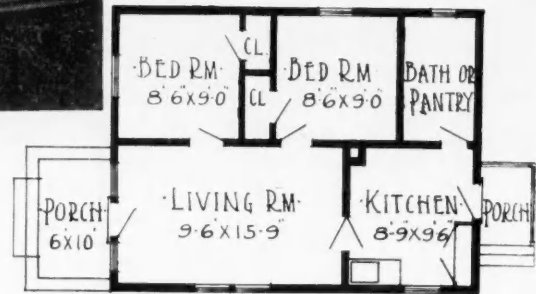
We have called this little cottage above our Bracket Cottage. Brackets cost money, but they give such an air of distinction to a home that the outlay is justified by the results secured. This statement is made with the reservation that the plan must be correctly drawn. A bracket on the wrong kind of a house is as sadly out of place as anything could be.

There is an unusually attractive air to this cottage. The wide overhang, capably supported by the brackets, the small lights in the upper sash, the broad arms to the entry porch or stoop, and the bracket supported shed roof over it have all been employed to their full architectural value. Floor plan shows economical use of the space enclosed.



Just a Cottage—BUT—contentment and efficiency for any worker and his family are contained within its walls. Size 22 by 32 feet.

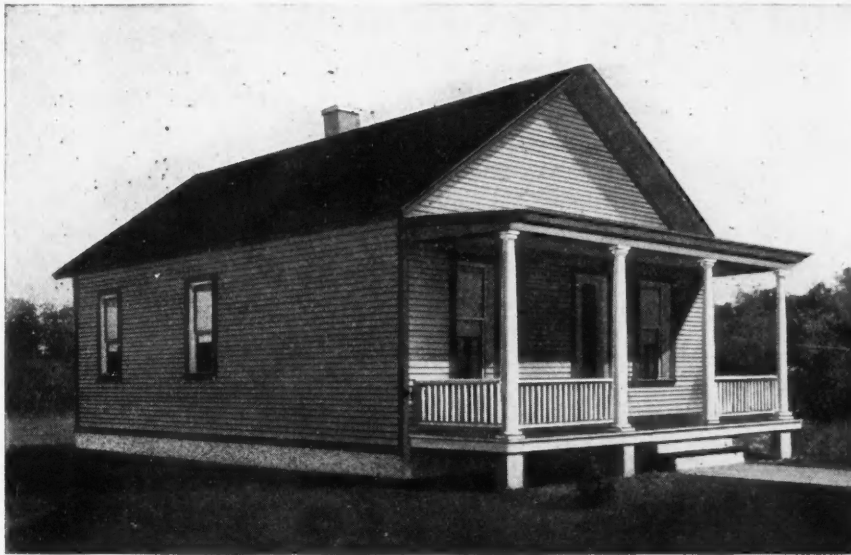
In the design at the bottom of the page, which we have labeled "Just a Cottage," attention is directed to the size, 22 by 32 feet. This gives five rooms on one floor, but does not provide a bath. Here, again, we find the living and dining room forming one large room for special occasions. In this case we would suggest that 2 feet be added to the width of the front porch. It will prove an excellent investment. If the additional width makes the roof too flat for shingles, metal or composition roofing will solve that slight difficulty.



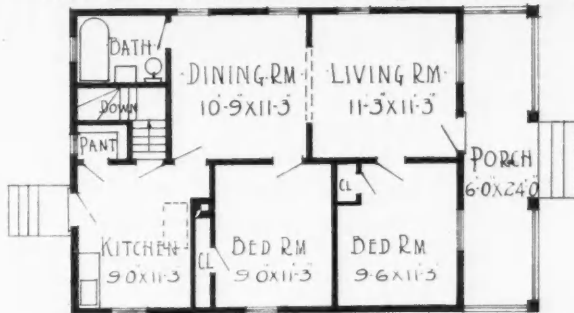
Main Floor Plan of Bracket Design. Size 20 by 26 feet.

We understand that four walls do not make a home, but if the walls are correctly planned and the design is correctly studied and carried out the plan adopted and the method of construction employed will have much to do with the happiness and comfort of the occupants. And, please remember, you can't be happy if you are miserable from any cause.

With most people, dissatisfaction is cumulative; that is, when once found lacking in some important respect, any number of little deficiencies which have previously been overlooked are at once magnified and piled up against the object, a corresponding number of its good points being simultaneously forgotten. It is well to guard against such a condition in the home by spending a little more time in the selection of the design—don't give up until you are satisfied. Then when you finally have your home built, keep up your interest by arranging the furniture in several different ways. Don't overlook an opportunity to make the home more comfortable, more attractive.



A Cottage for Use. Size 24 feet by 30 feet 6 inches. This is one of the tried and true small house designs. It meets the popular need.



Arrangement of Cottage Above. Size 24 feet by 30 feet 6 inches.

Including a Southern Type

To those who examine this collection of small house designs casually, some here shown may appear to be very much on the same order. A closer examination of floor plans and perspectives will disclose a radical difference in style, size and arrangement.

All of the factors mentioned have a bearing on the cost; and cost, we all know, is a controlling element in all building enterprises. It is for these reasons we are presenting a number of examples of somewhat similar types of cottages.

The design above shows a cottage somewhat larger than those of the same class heretofore illustrated. This residence contains five rooms and bath and the arrangement shown on the floor plan is an excellent one. The cased opening between living rooms gives the occupant the many advantages of a large living room, for the dining room may be subordinated if occasion demands.

In the design at the bottom of the page is shown a type of southern cottage, narrowed to eliminate the hallway thru the building, usually a feature in southern construction of residences.

This cottage has a comfortable, home-like appearance that will appeal strongly to many.

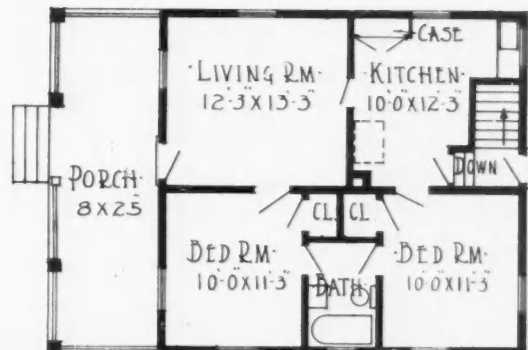
The one roof, covering porch and main structure, is an architectural triumph. The lines of the building are simple to the point of severity, but the result is pleasing.

Another result is secured by reducing the cost for material and work. Perhaps the suggestion of a dormer in the front stretch of roof would improve the general effect.

In this residence we find the bath conveniently located between the two bedrooms and of easy access from kitchen or living room. The sleeping apartments are of good size and well lighted and ventilated.

In both structures the porch area available for use in warm weather will prove a boon to the occupant. Either porch may be widened slightly at a moderate cost and thereby increase its usefulness, without detracting from the appearance of the building.

An important feature of the small house is the basement. It is often possible to greatly increase the convenience and usefulness of a little four or five-room cottage by spending a small additional amount in finishing the basement up in first-class fashion. A good basement requires plenty of light. In order to obtain it, the house must be so proportioned that it can be built high enough to allow the use of good sized windows in the foundation walls without giving a "high and dry" appearance. A concrete floor is needed, of course. Most men like a work bench and a few tools with which to do all sorts of odd jobs. The basement is the right place for this little shop, for it is seldom that enough room is required to make the construction of a separate building advisable.



Main Floor Plan of Cottage Below. Size 25 by 27 feet.



A Southern Type of Cottage for Use Where a Fairly Generous Sized Lot Can be Had. Size 25 by 27 feet.

Report on Industrial Housing

PREPARED BY BENJAMIN WILK OF THE UNIVERSAL PORTLAND CEMENT CO. PROMOTION BUREAU, WM. M. KINNEY, ENGINEER IN CHARGE

WAR from an industrial standpoint is emphasizing a condition which should have been corrected in years past. Manufacturers, especially those with large orders demanding quick delivery, and, therefore, increased facilities, have been confronted with the necessity of providing living facilities, have been confronted with the necessity of providing living quarters for their workmen or of accepting cancellation of orders. These facts have focused attention thruout the country on the necessity for providing adequate and sanitary homes for workmen.

Tho the present congested conditions in manufacturing centers have tended toward a general acknowledgement of the problem, solution of the question has already been attempted individually by a number of large corporations with varying success. Until recently, however, such solutions have not been given wide publicity, as they were not supposed to affect directly the majority of manufacturers.

Employer Interested in Employee

Now, however, it is agreed that the employer should take a direct interest in the housing of his employes. Instead of waiting for the speculative builder to provide houses at a cost far beyond the means of the average workman, the manufacturer is realizing that he should make use of his financial strength by building groups of houses in units of 25 to 500, which can easily sell or rent at a cost of at least 25 to 30 per cent below that usually required by the builder of single houses. It is no longer a question of policy. It has become in many instances a case of necessity.

Men at the head of large concerns are studying the employes much more carefully than they ever did in the past. Employment departments are being established as integral parts of individual factories to hire men and provide them with the right job in accordance with each man's ability. In a talk by A. H. Young, Supervisor of Labor and Safety, Illinois Steel Co., South Works, South Chicago, Illinois, at the Fifth Annual Congress held at Detroit in October, 1916, as published in the Proceedings of the National Safety Council, this modern method of handling workmen is well discussed. An instance of co-operative employment is seen at Kenosha, Wisconsin, where the manufacturers are organized into a Manufacturers' Association—an important part of which is its employment bureau.

Housing of Workmen Must Be Considered

On the other hand the housing of the newly employed has not been sufficiently considered. Construction of new industries and enlargement of existing factories without making provision for the housing of the new workmen has created congestion and bad housing in many communities. In the Journal of the American Institute of Architects for September, 1917, mention was made of a big factory that was completed in record time under pressure of war. It soon developed that not a single house suitable for a workman's occupancy could be had in the town and the factory was to employ 1,000 people. Resulting conditions can easily be imagined. An editorial in the Saturday Evening Post for October 13, 1917, comments very pointedly on the need for workmen's



Unusual Panoramic View of One of the Best Known of Industrial Housing Projects at Duluth, Minnesota, Organized and

houses. This need is evident when we realize that in some districts beds are used by two and sometimes three shifts per day. Married men, moving to new places, attracted by better wages, are compelled to leave their families behind. Under such conditions it is plain to see that men cannot work energetically and efficiently. In order to stabilize labor and reduce the enormous cost of training new employes, due to labor "turnover" frequently from 200 per cent to 400 per cent, better housing conditions are absolutely necessary.

Analysis of the problem indicates that the average manufacturer has been centering his thought on securing maximum production inside his factory without paying attention to what the employe does outside of working hours. He has not realized that the efficiency of men depends largely on how they live and what they do when not at work. As one manufacturer interested in housing has stated: "It is not so much a question of surroundings in a factory that affects the workman, because he is more directly interested in the size of his pay envelope; but if the manufacturer can provide comfortable and sanitary homes so that the workman will find his home a place in which to spend his idle hours, then the workman will unconsciously do more work because of his hap-

pier frame of mind and better physical condition."

Housing of Workmen in Foreign Countries

The question of housing workingmen is not a new one. It has been treated from a social standpoint for a number of years. In Europe the governments are directly interested and have provided schemes by which a workman can build a home for himself by borrowing from his government, on certain conditions. The development of government assistance in building



Suggested Type of Six-Room Concrete House with Two Different Styles of Roof Treatment.



Carried Out by the Universal Portland Cement Company. All of These Buildings are of Concrete Block Construction.

houses is especially marked in New Zealand, Austria, Germany and England. In some cases, the government has gone so far as to build colonies for workmen, in which the houses are sold outright on payments. Various housing laws have been enacted and housing associations have been organized in many foreign countries to take advantage of these laws.

At the present time, England, because of the conditions arising from the war, is building communities for workmen. The most recent scheme and the one which has been termed: "easily the first thing in cottage plans and elevations for the whole world," is that known as Well Hall, situated about a mile from Woolwich. It consists entirely of permanent dwell-

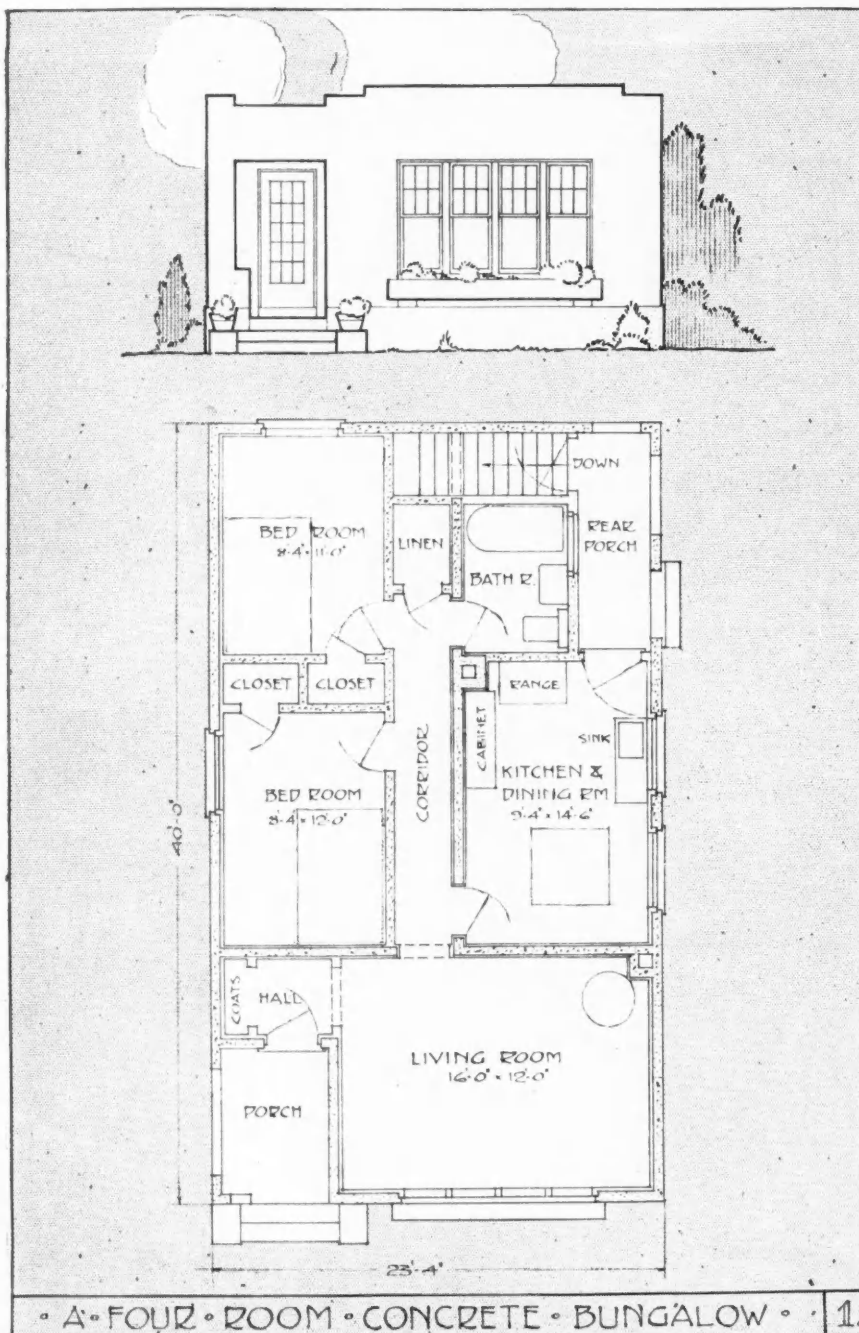
ings for workmen. A picturesque town with winding streets, preserving the traditions of English rural life was planned. Already 16 houses have been built, containing from two to four rooms and bath, which are rented for a sum within the means of the ordinary workman. In a description of this development, an article in the Journal of the American Institute of Architects for September, 1917, states:

"Of primary importance in the consideration of the underlying reasons which led to the building of Well Hall is the fact that in spite of urgent necessity, it was decided to make it a permanent enterprise rather than a merely temporary one. This has been the consistent policy of the British Government, except where urgency made it impossible to wait upon permanent construction. The difference in cost between permanent and temporary work is measured by a small margin and it was decided that it would be folly to throw away money upon makeshift expedients."

With the coming of peace there will certainly be a demand for homes to take care of the returning soldiers and to provide for those industries which during war times have been neglected.

Special Problem of Workingmen in America

Conditions in England and the countries on the Continent indicate what the United States may expect, but we must take into consideration the fact that the workman in the United States lives on a much higher plane than the man similarly situated in foreign countries. The problem here frequently involves the foreigner with a family, who is accustomed to poor accommodations and is in the United States merely to accumulate money which he expects to spend in his home country. He lives as cheaply as possible, and, therefore, lessens to that extent the standard of his fellow employees. By creating in such men the desire to make homes for themselves in America, employers will be developing a supply of labor constant in quantity, largely eliminating the enormous



Suggested Design for Four-Room, Flat Roof, Concrete Bungalow.

"turnover" in hiring employes, which, as already mentioned, frequently amounts to as much as 400 per cent per year. A definite instance has been shown where a factory employing 10,000 men had to hire 40,000 men during the year to keep up its production.

Economy of Large Scale Production

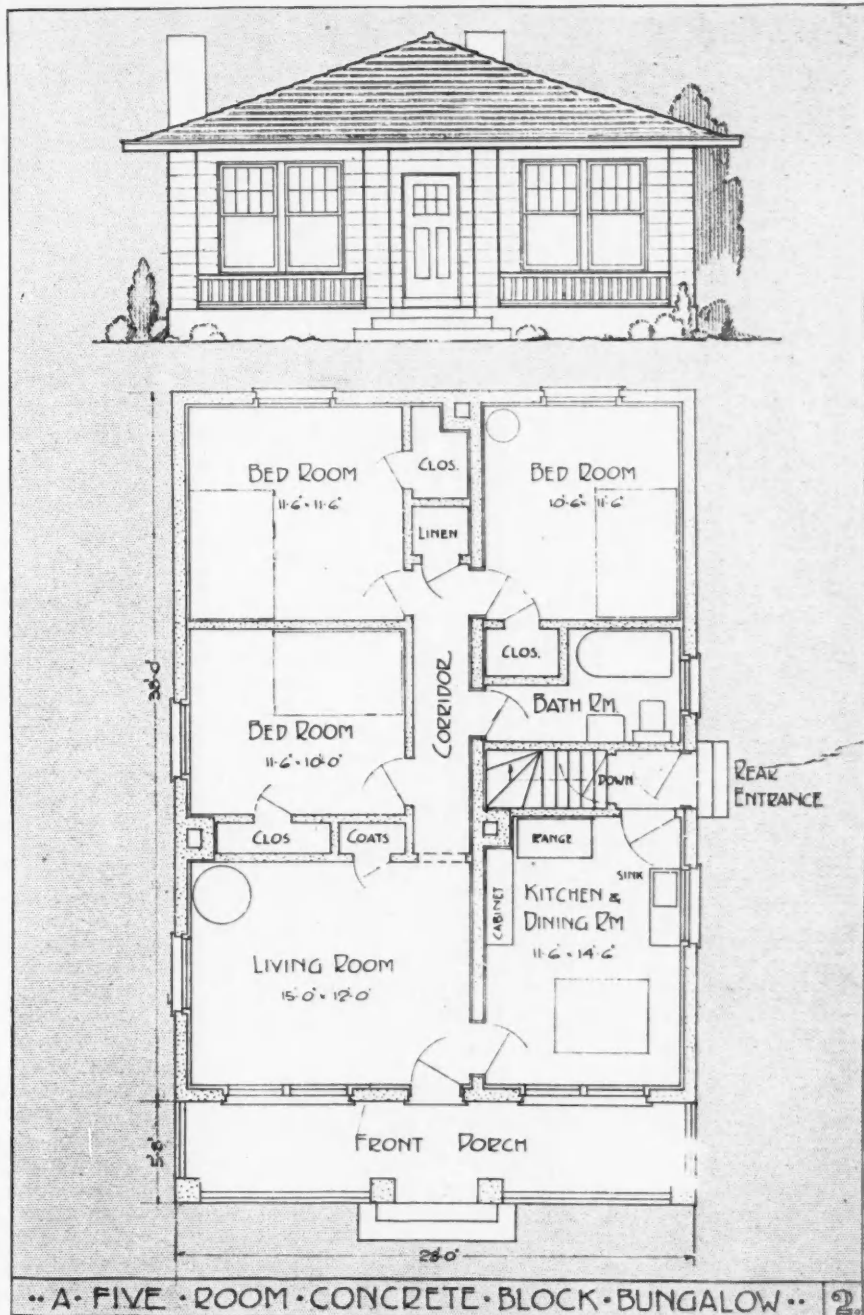
It is evident that the cost of hiring, training and releasing 30,000 men a year, even at a unit rate of a day's wage, amounts to a large sum, which ought to be considerably lessened. One ready available means is by the construction of homes for workmen on a large scale.

With modern methods pointing out the economy of large scale production it is now a cause for wonder that the problem of large scale house production has not heretofore been given more careful thought and study. Large builders are agreed that the future will see the introduction of high class organizations in the construction of houses in large quantities.

In fact, one prominent contracting company, the Aberthaw Construction Co. of Boston, has just shown the possibilities in introducing modern factory methods in house construction by the erection of 100 concrete houses at Donora, Pennsylvania, for the American Steel & Wire Co. The same is true with the work being done by the Unit Construction Co. of St. Louis, Thompson-Starrett Co. of Chicago and New York, Mellon-Stuart Co., Pittsburgh, and Stone-Webster Co. of Boston. Other large contracting companies are studying the field of building large groups of houses, as they realize that this is one of the most promising developments in this country.

Several Cities Working on Problem

During the past few years several communities in the United States have been taking up this question of building houses in quantities for workmen, prominent among which are Bridgeport, Connecticut; Akron, Ohio, and Kenosha, Wisconsin. The manufacturers in each of these cities, confronted by a lack of proper housing facilities, determined to make provision for the housing of their employes. The work they have



Suggested Design for Five-Room, Hip Roof, Concrete Block Bungalow.

done along this line has emphasized the fact that houses should be built on a large scale to affect savings which will place comfortable living quarters within the reach of the average workman.

Kenosha Idea

A study of the situation at Kenosha, Wisconsin, shows what can be done in similar communities. When the manufacturers of Kenosha, in the early part of 1916, found that they could not hold skilled laborers because no suitable homes were available, they organized to secure a supply of good houses. Arrangements were made for the organization of the Kenosha House Building Co., composed of a

(Continued to page 136.)

AMERICAN BUILDER BUILDING PLANS



Complete Blue Prints for Sun Parlor-Dwelling

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

THE AMERICAN BUILDER introduces this month a decided innovation—a set of blueprints giving complete working drawings for a modern residence.

This set of blueprints is bound in securely as a four-page insert, immediately following this page. There is no danger of these plans getting lost or mislaid.

We trust that AMERICAN BUILDER subscribers will be able to make frequent use of these blueprint plans. Preserve them carefully. A set will be presented each month until every type of dwelling, as well as many other buildings, shall have been thoroly covered. Our

architectural draftsmen are already at work preparing some of these designs, drawing them up specially for this particular purpose. Preserve each issue carefully until the time comes when you want to work from this set of blueprints.

A photograph of the completed residence, as built near Chicago, is illustrated below. This is a beautiful, modern, sun-parlor, square-type dwelling, sided with wide boards to the second story sills and stucco above. Eight rooms, including the sun parlor, are provided. It would be difficult to imagine the more convenient or harmonious working out of the floor plans.



Modern Square-Type Sun-Parlor Dwelling Containing Eight Rooms. Complete Working Plans for This Dwelling are Presented on the Four Blueprint Pages Following.

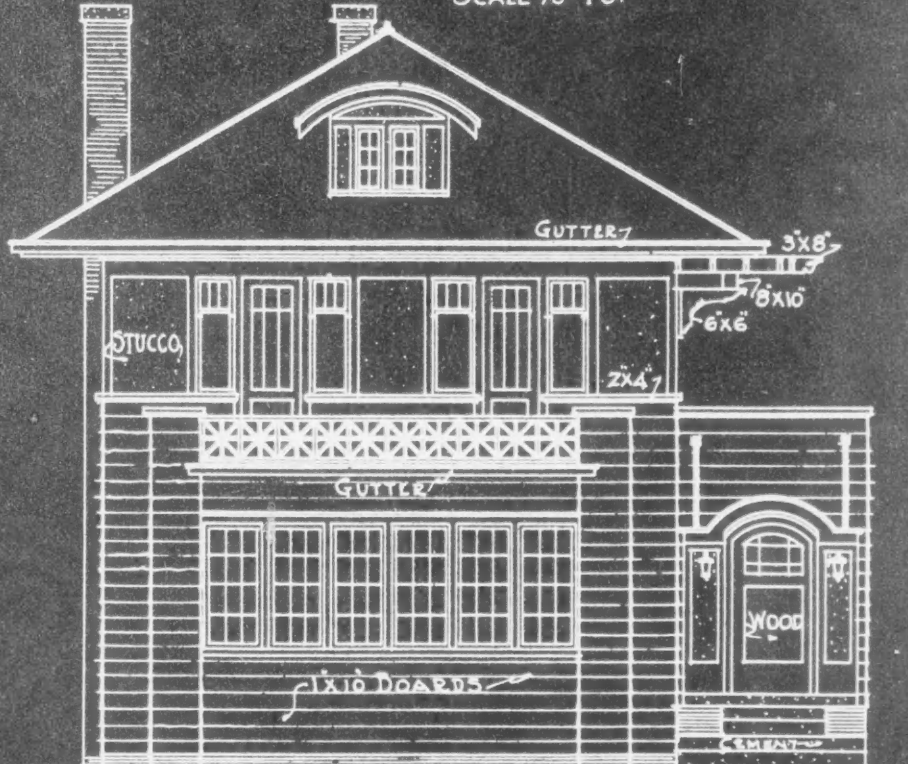




AMERICAN BUILDER BUILDING PLANS



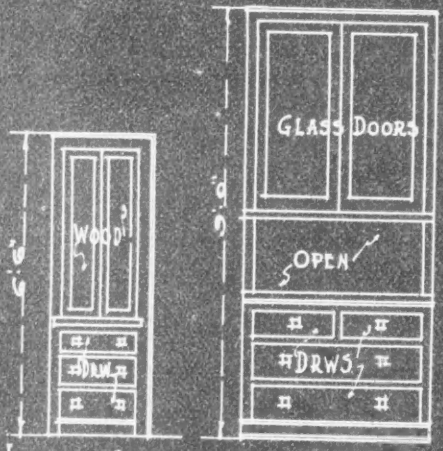
SIDE ELEVATION.
SCALE 1/8" = 1'-0"



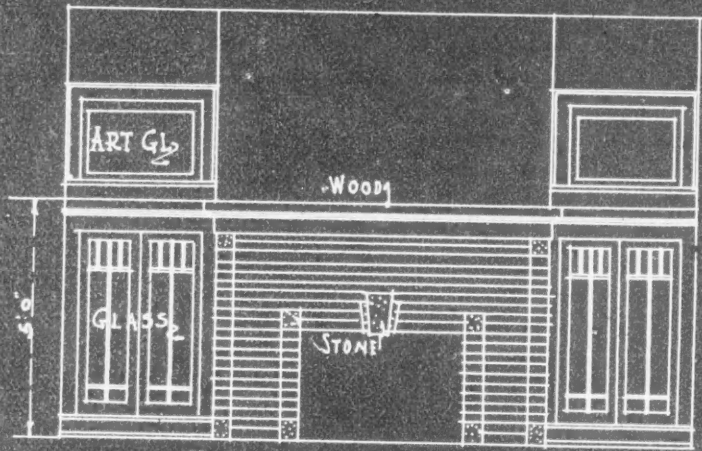
FRONT ELEVATION
SCALE 1/8" = 1'-0"

PLANS OF A TWO STORY EIGHT ROOM RESIDENCE
SHEET No 1.

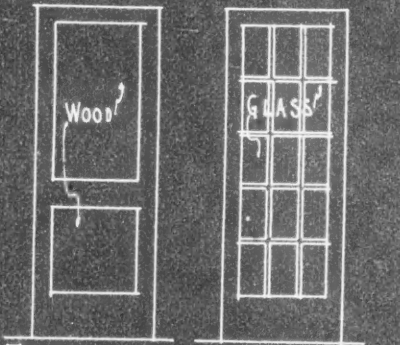
AMERICAN BUILDER BUILDING PLANS



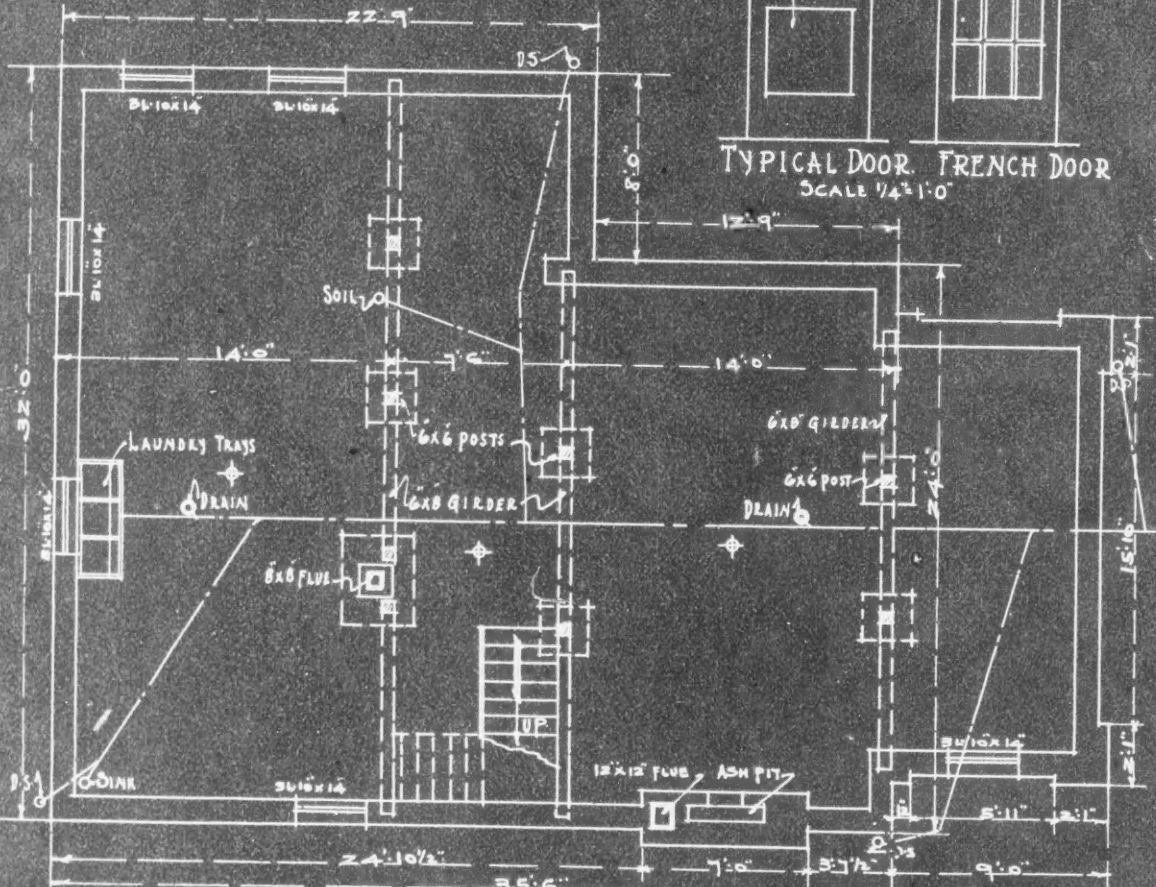
LINEN CASE CHINA CASE
SCALE 1/4"=1'-0"



FIRE-PLACE & BOOK CASES
SCALE 1/4"=1'-0"



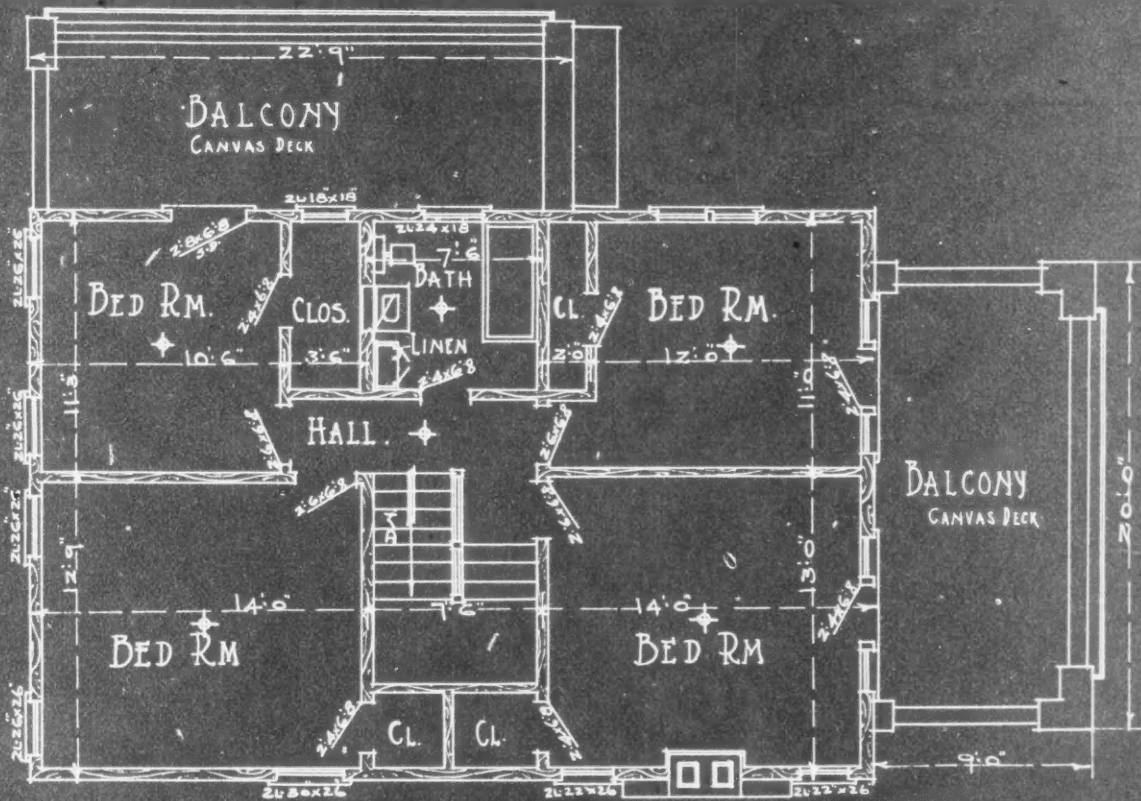
TYPICAL DOOR. FRENCH DOOR
SCALE 1/4"=1'-0"



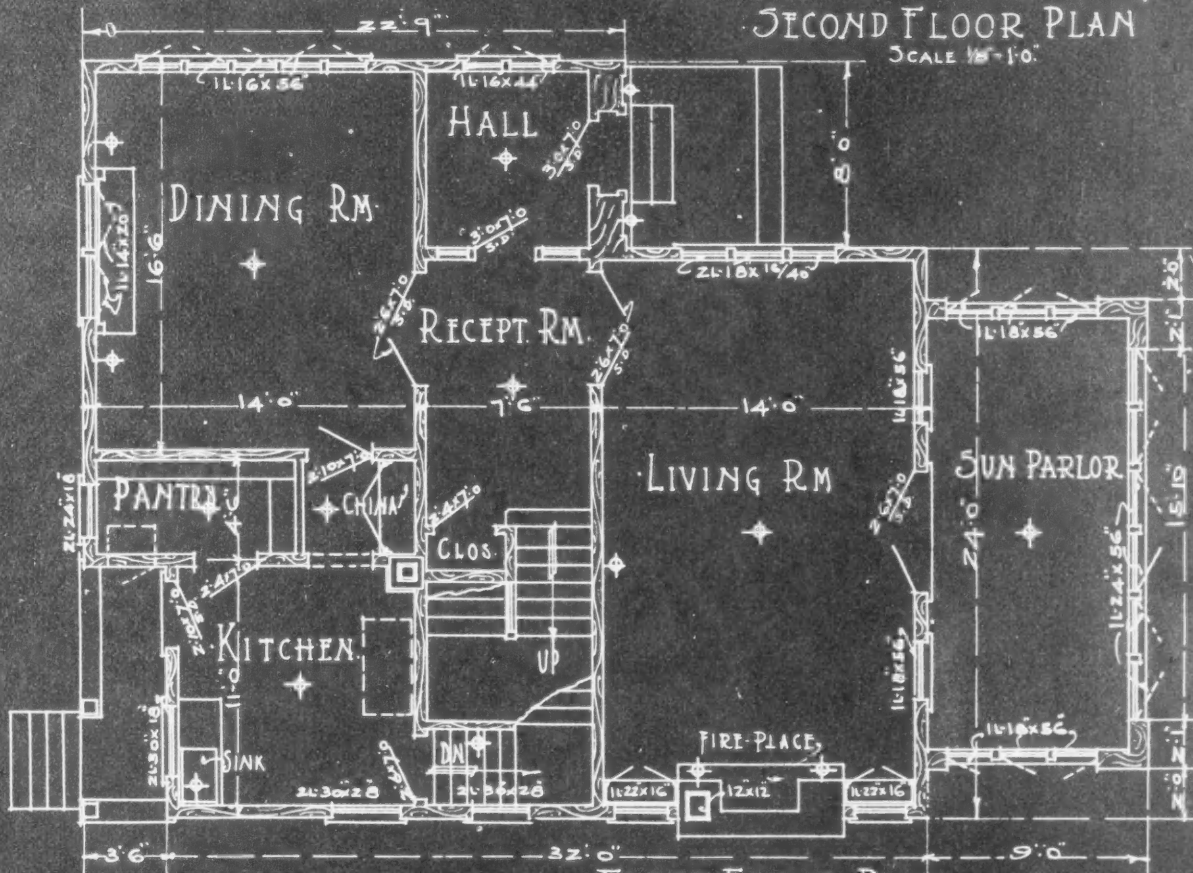
BASEMENT PLAN
SCALE 1/8"=1'-0"

PLANS OF A TWO STORY EIGHT ROOM RESIDENCE
SHEET No 2

AMERICAN BUILDER BUILDING PLANS



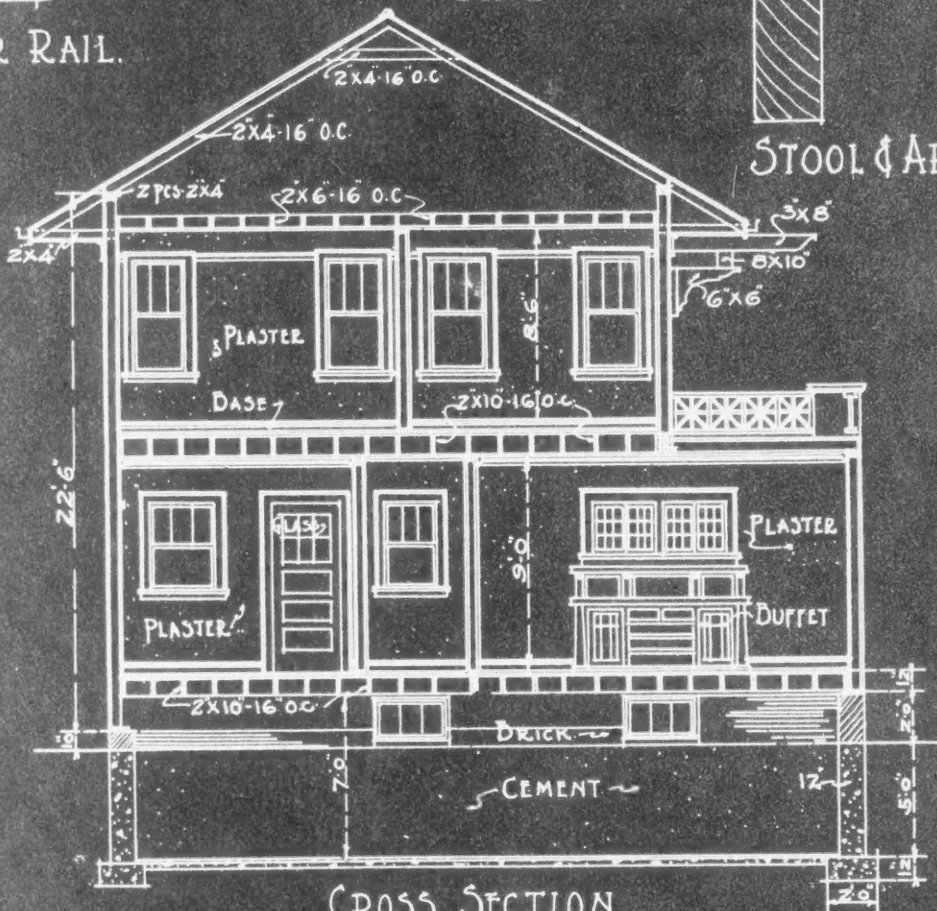
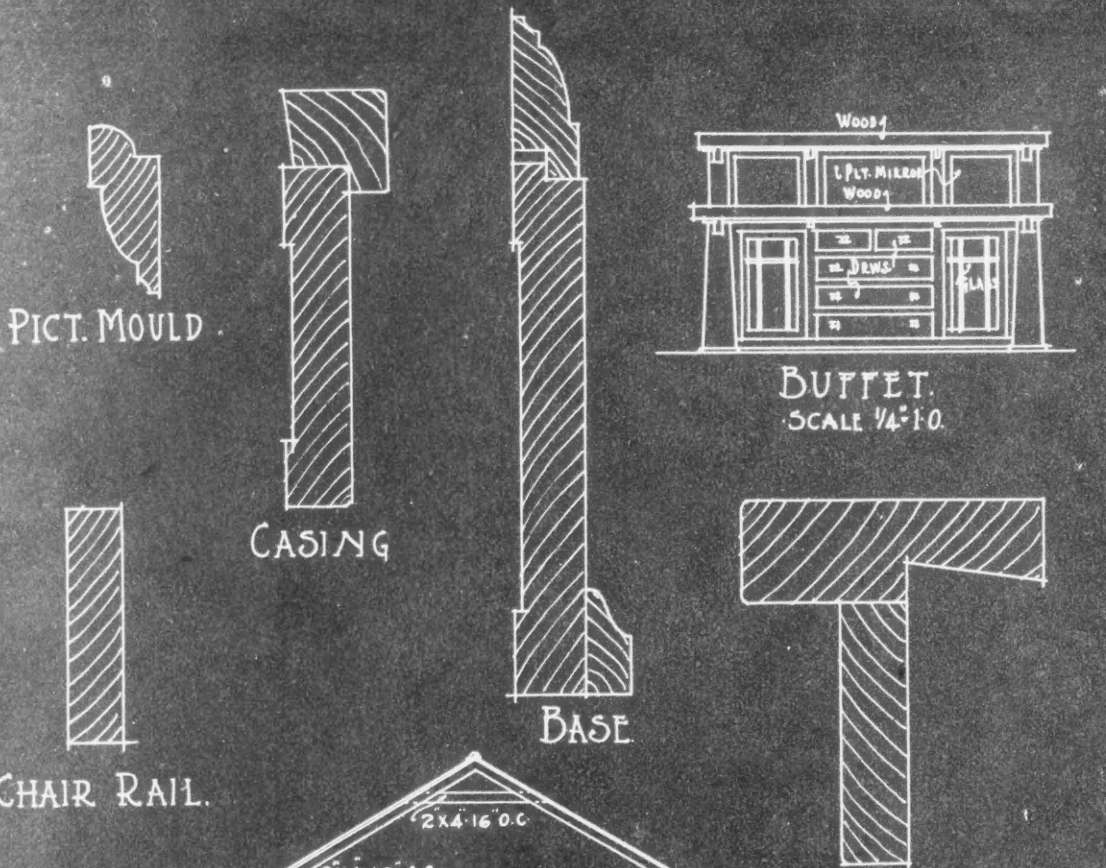
SECOND FLOOR PLAN
SCALE 1/8" = 1'-0"



FIRST FLOOR PLAN
SCALE 1/8" = 1'-0"

PLANS OF A TWO STORY EIGHT ROOM RESIDENCE SHEET No 3

AMERICAN BUILDER BUILDING PLANS

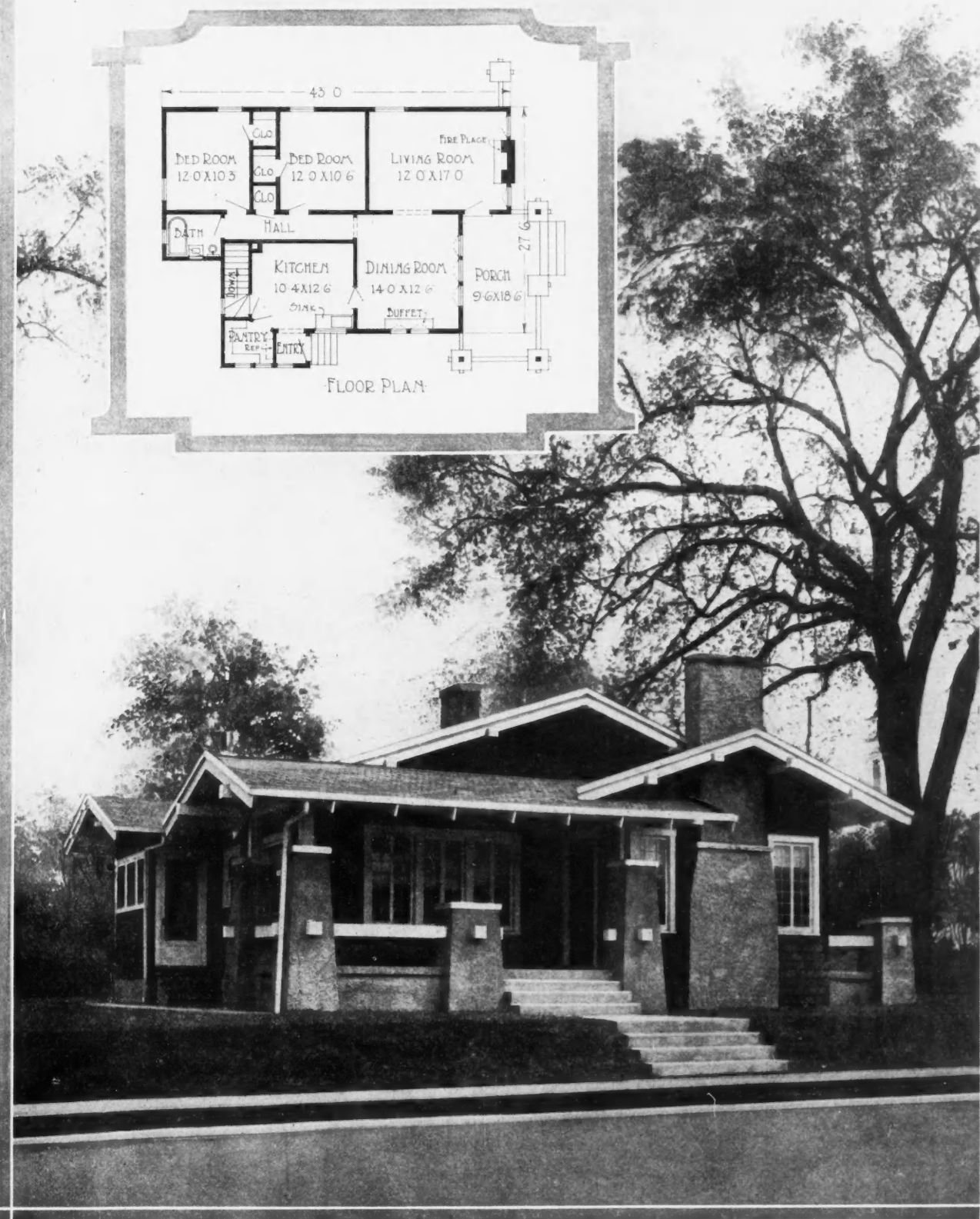


CROSS SECTION
SCALE 1/8" = 1'-0"

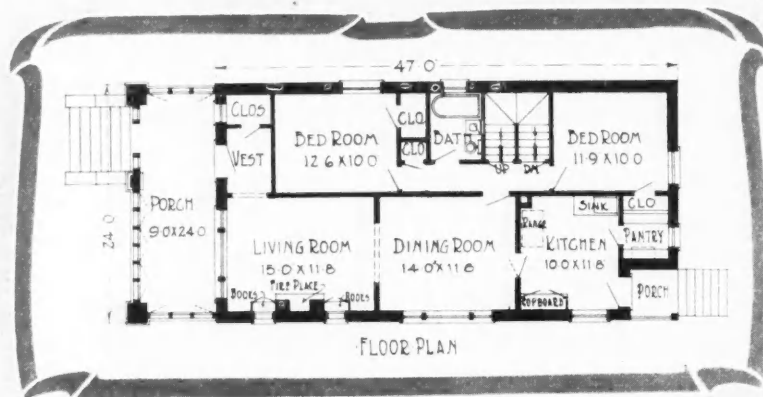
PLANS OF A TWO STORY EIGHT ROOM RESIDENCE SHEET No 4



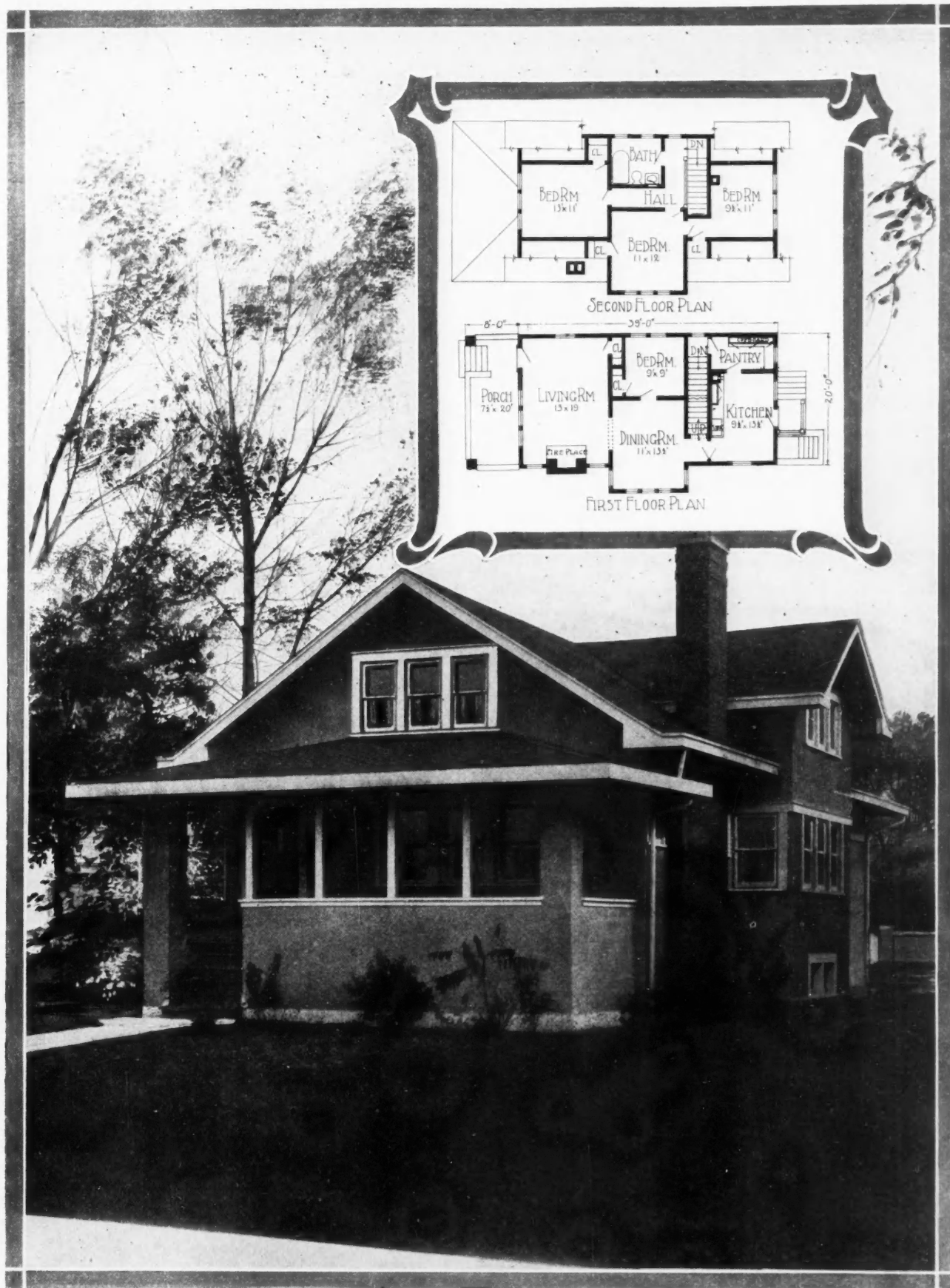




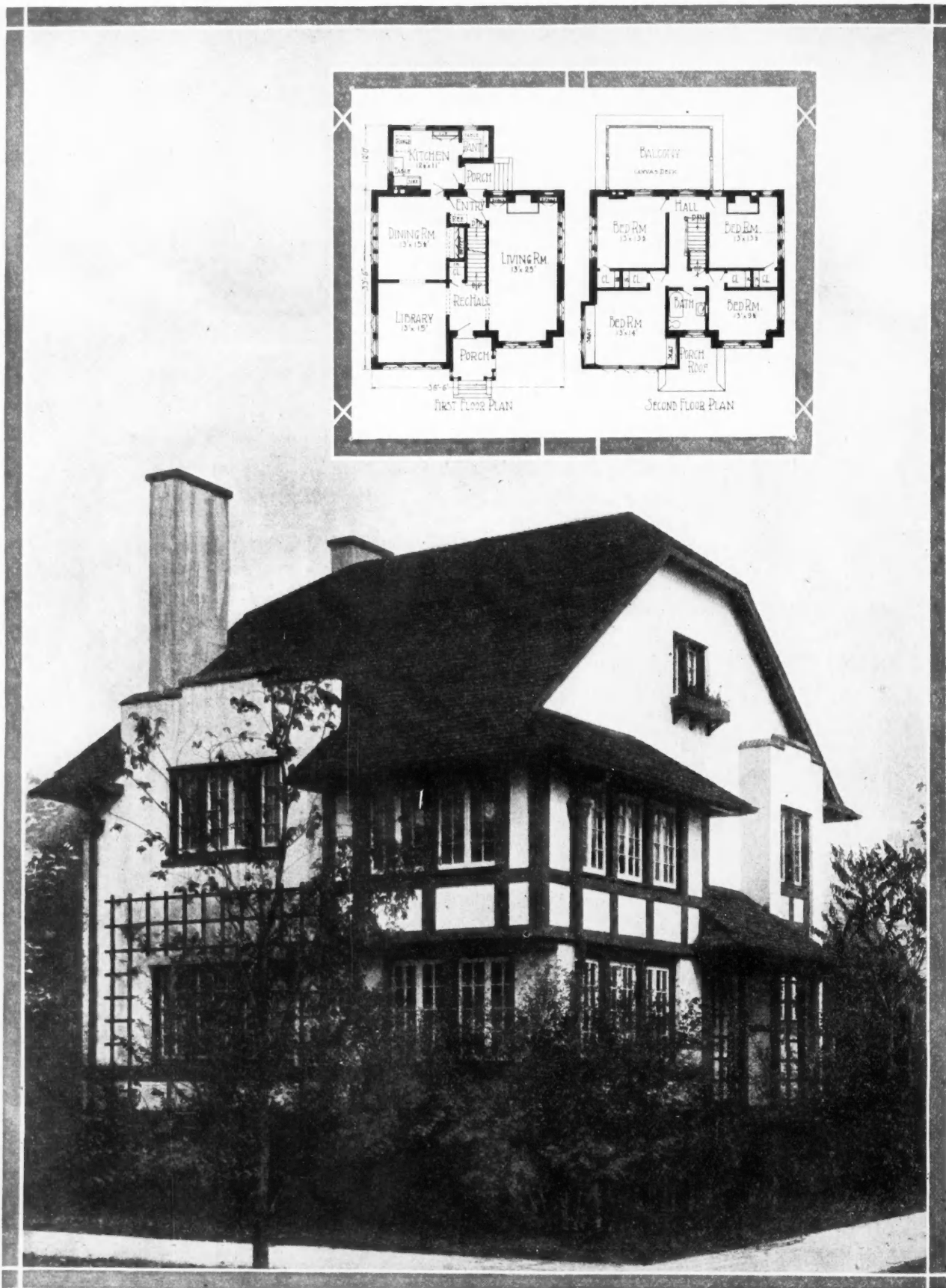
A WESTERN BUNGALOW. Cement plastered porch columns of exaggerated size, the big concrete chimney, the low roof with wide spreading eaves and exposed rafters, and the generous expanse of casement windows, give this house a look of richness and distinction. The size is 27 feet 6 inches by 43 feet. Five good-sized rooms and bath are provided.



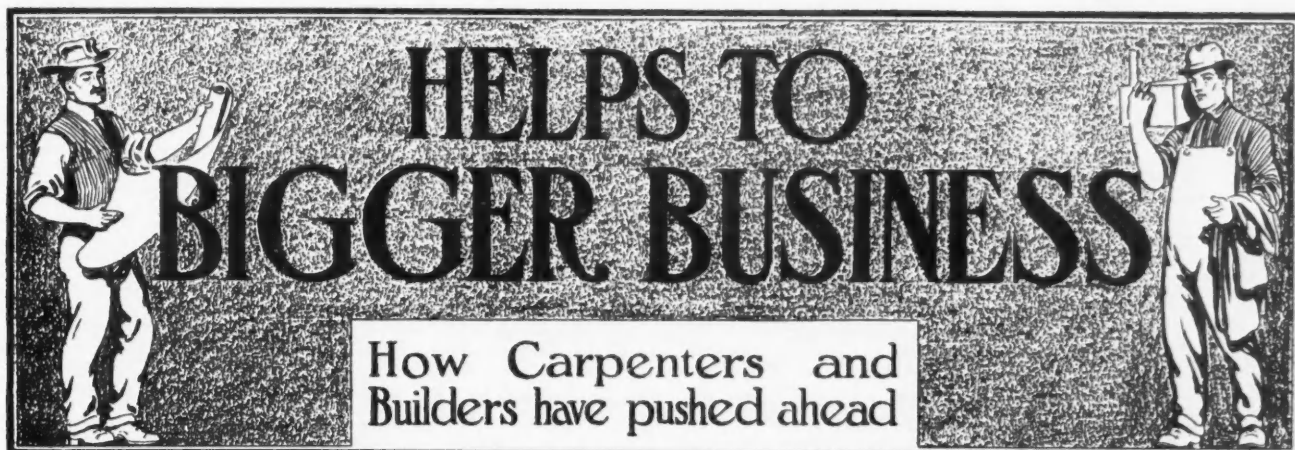
BBRICK COTTAGE WITH GLAZED-IN PORCH. Here is the popular city cottage. It is 24 feet wide to go on a 30-foot lot. The front porch is glazed in for the sun parlor. The connecting living room and dining room are pleasant apartments. The kitchen is conveniently located and the suite of two bedrooms and bath is well arranged for privacy.



STUCCOED COTTAGE OF SEVEN ROOMS. Here is beauty combined with economy and sound building sense. In a house measuring 20 by 39 feet, we have four good rooms downstairs and three bedrooms and bath up under the roof on the second floor. Look at that big living room and the comfortable porch all ready to be screened for a summer parlor.



AN ENGLISH STYLE DWELLING. When our soldier boys get home from Europe we will see more of this style residence built. The English half timber with overhanging second stories and snubbed off gables will be brought back from the other side. This design is consistent both in its exterior architecture and the arrangement of the rooms. Size of the main section is 36 feet 6 inches by 33 feet 6 inches.



Generating Current for Electric Lighting

The Second of a Series of Three Articles by this Author on Farm Electric Lighting

Note: Sam's embarrassing experience in figuring out the electric lighting equipment for the Judge's new house, as narrated last month, has given other builders as well as Sam, the hunch to study into this farm electrical plant proposition. The following article gets right down to the technic of the matter. Study it.—Editor.

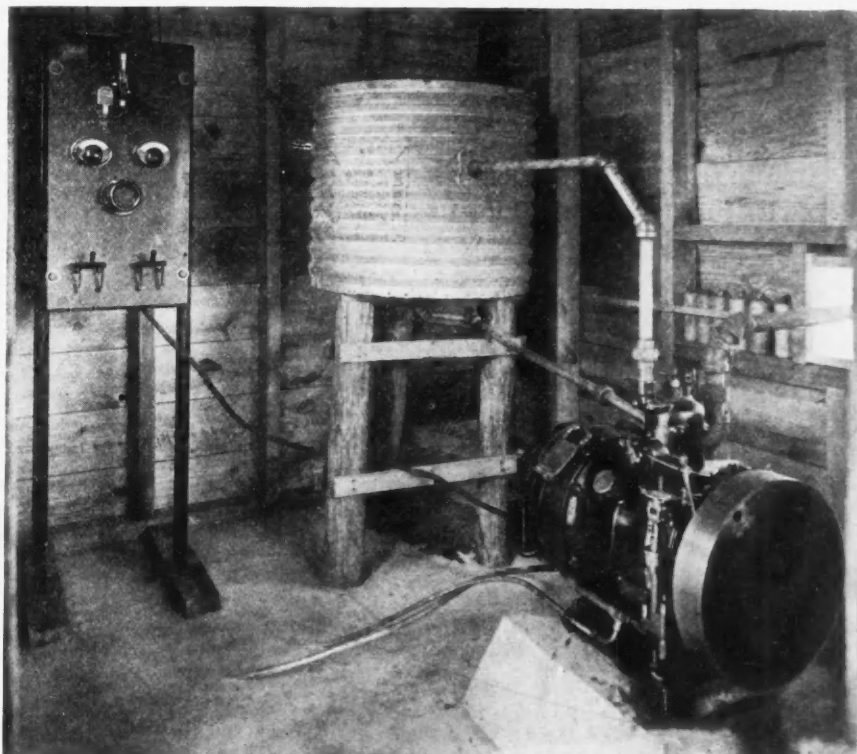
HERE are three principal systems of private lighting suited to country and suburban residences. Of these, the *electric* is perhaps the most satisfactory where conditions are favorable. There are several matters that should be taken into consideration before committing one's self to it. Some of the main advantages are these: An excellent light; safety in respect to fire; suitability to children and servants. But it is not always inexpensive. Nor is there ease of regulation of individual lights. While there are electric lamps whose intensity may be varied they are not yet in general use.

The cost is a large consideration. The current may often be purchased and frequently at advantageous prices. But the time when the current is to be had will, in many cases, be only a fraction of the 24 hours. There may also be added the fact that the purchasable current is of the alternating type. Where a storage battery is employed in the plant, direct current is required. But, even so, this is not an insurmountable difficulty by any means.

The owner has several alternatives. First, he may generate the whole of his current and for the full 24 hours. In passing, it may be said that in general an electric plant should not be installed except with the purpose of a full 24-hour service. Disappointment is sure to arise if it is impossible to get light at every moment of the day or night. The electric generator may

be run in a variety of ways. It may have its own special engine—which may be a small steam engine, a gas engine or an electric motor. Which to select should be determined by local conditions. The steam engine may be run by a boiler fired by soft coal, hard coal or fuel oil. Unless there are special reasons to prefer the steam engine, the gas engine will usually fill the requirements very satisfactorily. Such an engine may be run on gasoline, or, by making a few alterations, on kerosene. The electric motor is used for driving the generator in such cases as those where

(Continued to page 120.)



Farmhouse Installation of Electric Light. Generator is Driven by Gasoline Engine Capacity Equals 1 k.w. Switchboard and Water Tank. House of E. W. Rice, Jr., Rexford, N. Y.

Farm Buildings To Aid Food Production



Barn for Valuable Dairy Cows

Dairy cattle, like everything else, have gone way up in price. It doesn't take much of a cow today to sell at one hundred dollars, and plenty of thorobreds are bringing ten times that amount.

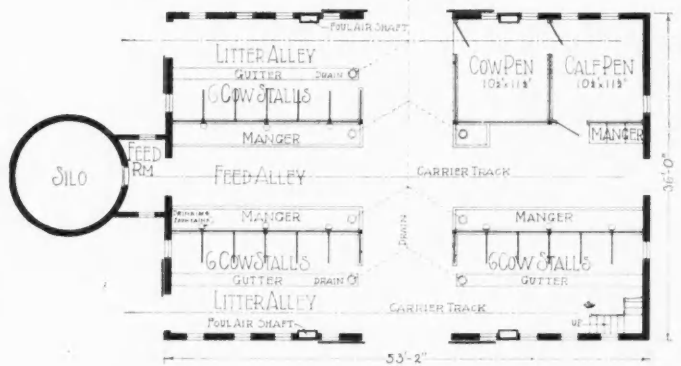
They are worth it, too. A high-priced cow is often the biggest money-maker for her owner, and the best food producer for the nation.

Valuable dairy cows should be well housed. No animal can produce efficiently when stabled in an uncomfortable or insanitary way. A clean stall and clean manger, plenty of sunshine and fresh air, protection from the cold, and pure drinking water piped to the stall and within reach at all times, add anywhere from 10 to 50 per cent to the yield from each cow over what it would be under the ordinary neglected conditions of stabling and feeding.

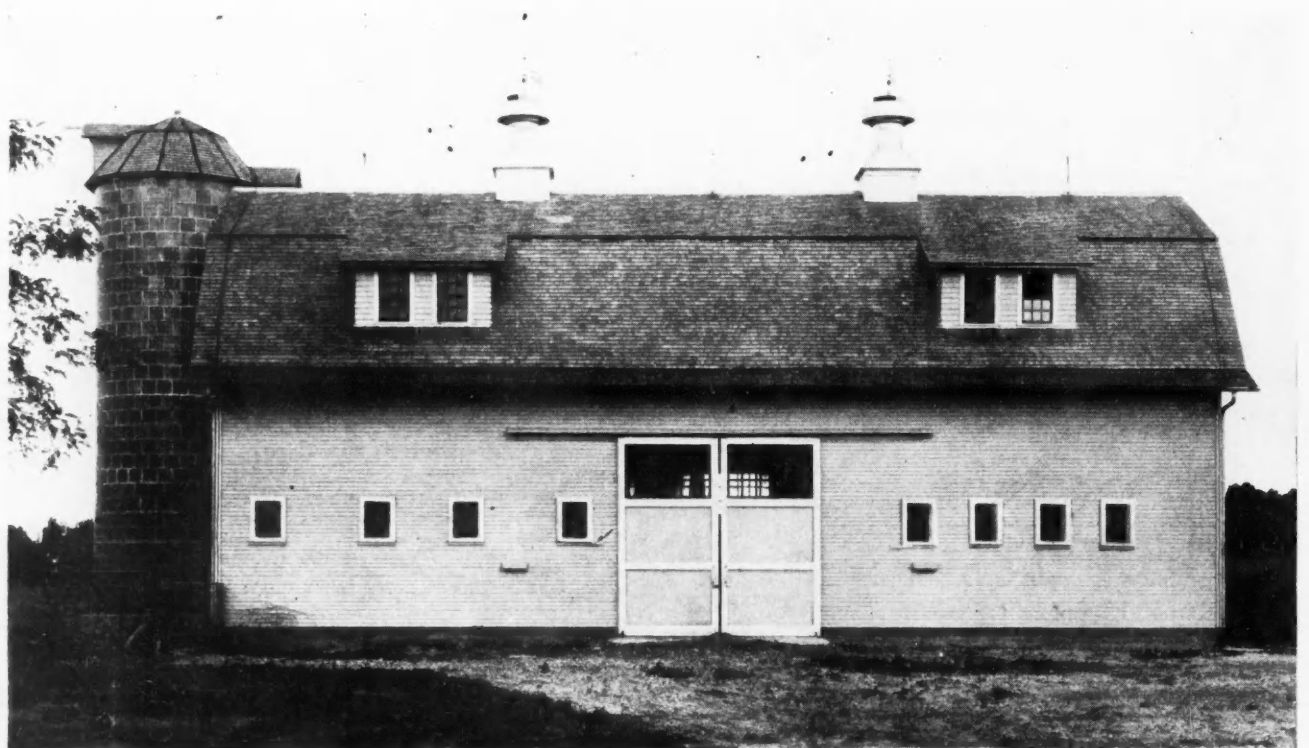
Any cow that's worth keeping at all, is worth taking care of and housing in the proper stable. For thro-

reds—prize stock—it pays to go still further and give them quarters in line with their value.

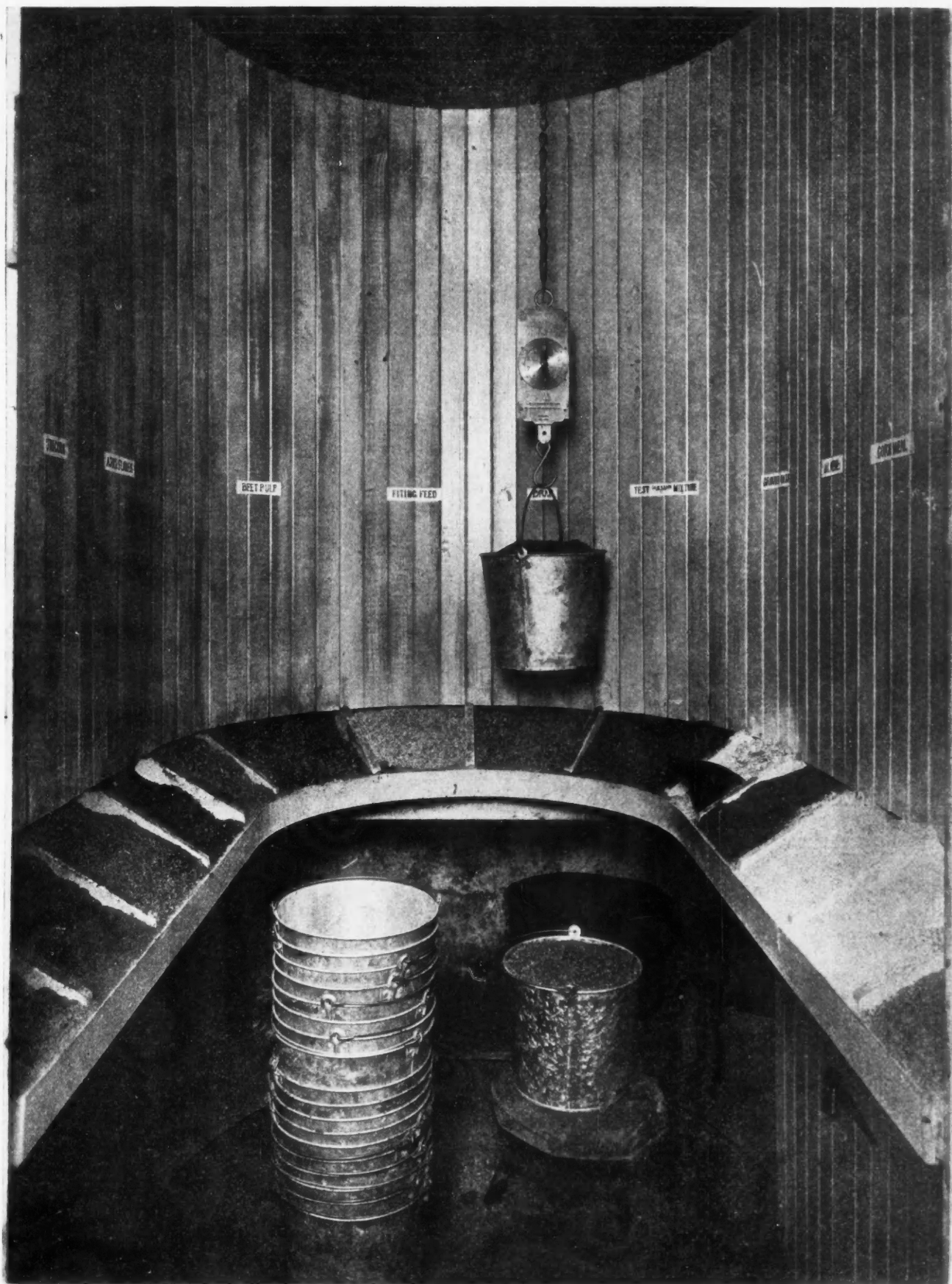
Such a barn is illustrated below. The driveway across the barn is special. Some would dispense with this, thereby gaining stall room for six more cows. As it is, the layout is generous in size.



Floor Plan of Dairy Barn Illustrated Below.



Barn for Eighteen Dairy Cows in Stanchions and Two Large Pens. Stable Arranged to Drive Thru. Size of Barn, 53 Feet 2 Inches by 36 Feet. This Barn Is an Excellent Design for a Small Herd of Thorobred Cattle.



EFFICIENCY IN THE FEED MIXING ROOM.

Here is a dairy stable feed room with bins arranged in a semi-circle. A scoop box at the bottom of each bin brings each kind of feed out where the farmer or his feeding expert can get to it easily. A heavy spring scale is hung by a chain from the ceiling in a convenient position for weighing up the various rations. Neatly lettered signs or labels tell what is in each bin: as, "beet pulp," "fitting feed," "bran," "test mixture," "ground oats," "oil meal," "corn meal," etc. These bins run up to the second floor and are filled from overhead. Dairying is coming to be more and more a scientific study and the present mountain high prices of all kinds of feed make it doubly important to control the feed mixing and rationing with accuracy. This feed mixing room illustrated is at Pencoyd Farm, Bala, Pa.

Community Hog House with Concrete Run Yards

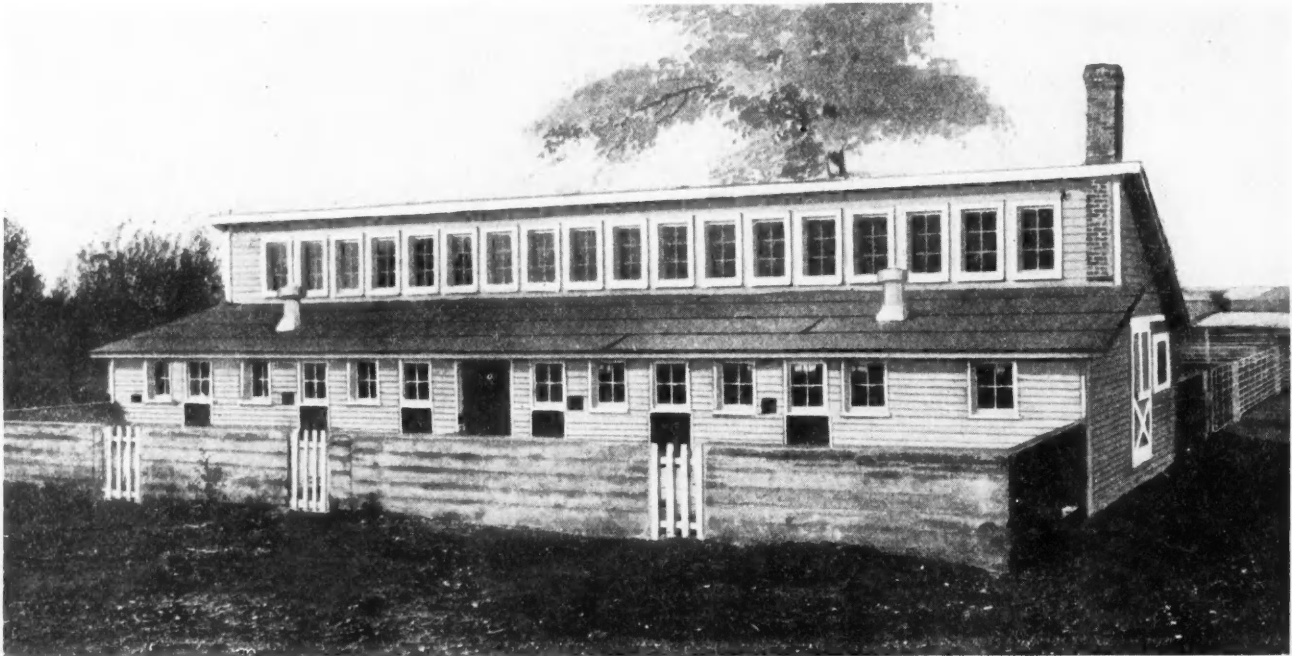
If you want to make money on hogs, you must give them a proper place to live in. The best profits are made only when a dry, sanitary, comfortable and convenient hog house is provided.

It is a mistake to think a hog does not need to be

He has no thick coat of hair or wool or feathers like other farm animals to protect him from the cold weather, or from being sunburnt in the hot sun.

So a warm house is needed in the winter, especially for the brood sows, and shade must be provided for summer.

Moreover, it is recognized that the best way to keep



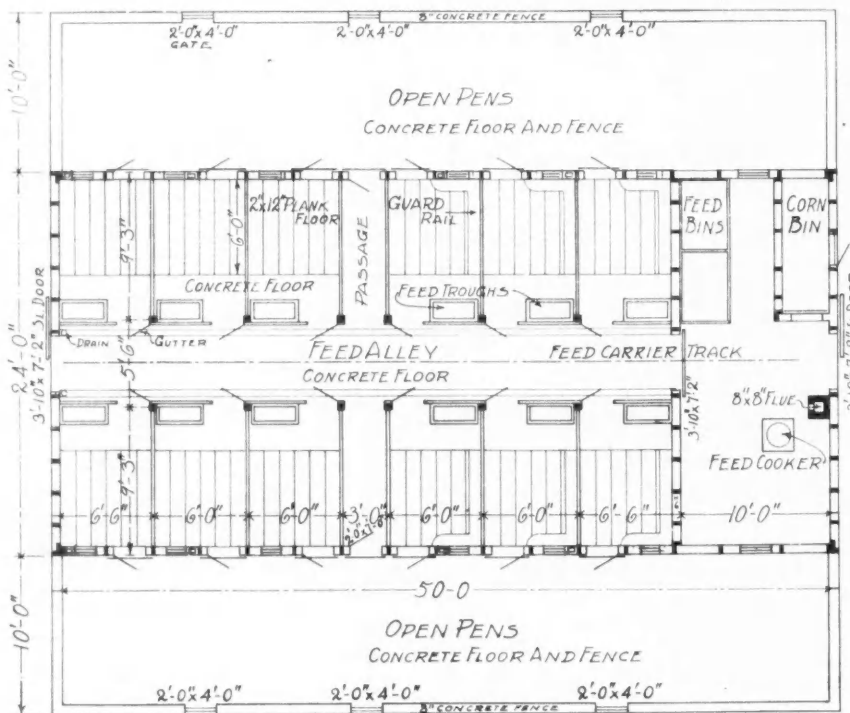
This Community Hog House has a Concrete Yard Along Both Front and Rear. The Pigs in the North Pens Don't Have to be Driven Across the Feed Alley and Thru the Other Pens to Get Them Out. Twelve Individual Pens, Size 6 by 9 feet 3 Inches, Besides a 10-Foot Space for Feed Bins and Cooker, are Provided in This 50-Foot Building.

protected from the weather. Having been originally a native of warmer climates, nature has not provided a pig with much in the way of protective covering.

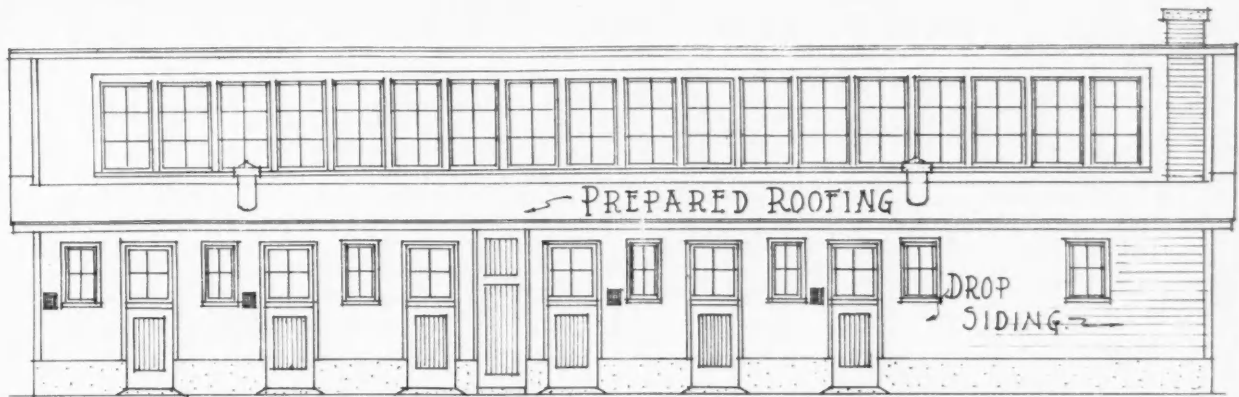
swine healthy and guard against the ravages of disease is to provide sanitary conditions—a hog house that is well lighted and ventilated and with a smooth, impervious floor that can be easily cleaned.

These considerations, plus that of the labor that is saved in feeding and caring for hogs in a well-planned building, have made country builders pay a good deal of attention to this class of work, and farmers are more and more putting up big modern hog houses.

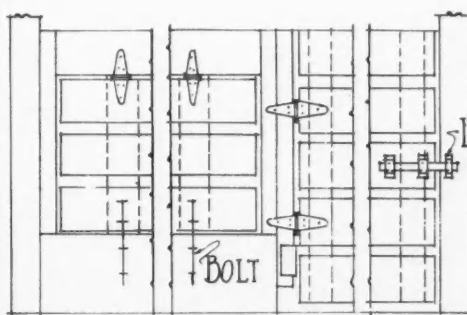
The accompanying designs shows one containing twelve pens and a large feed room. It is of the half-monitor or sawtooth roof type to face south. The details of this building itself are exceptionally well handled, and the two concrete yards enclosed with monolithic concrete fences are quite a striking feature. Movable fence panels of woven wire or of wood can be thrown across from building to fence at several points to separate any pens or group of pens.



Ground Plan of Community Hog House with Concrete Yards as Illustrated Above.



FRONT ELEVATION



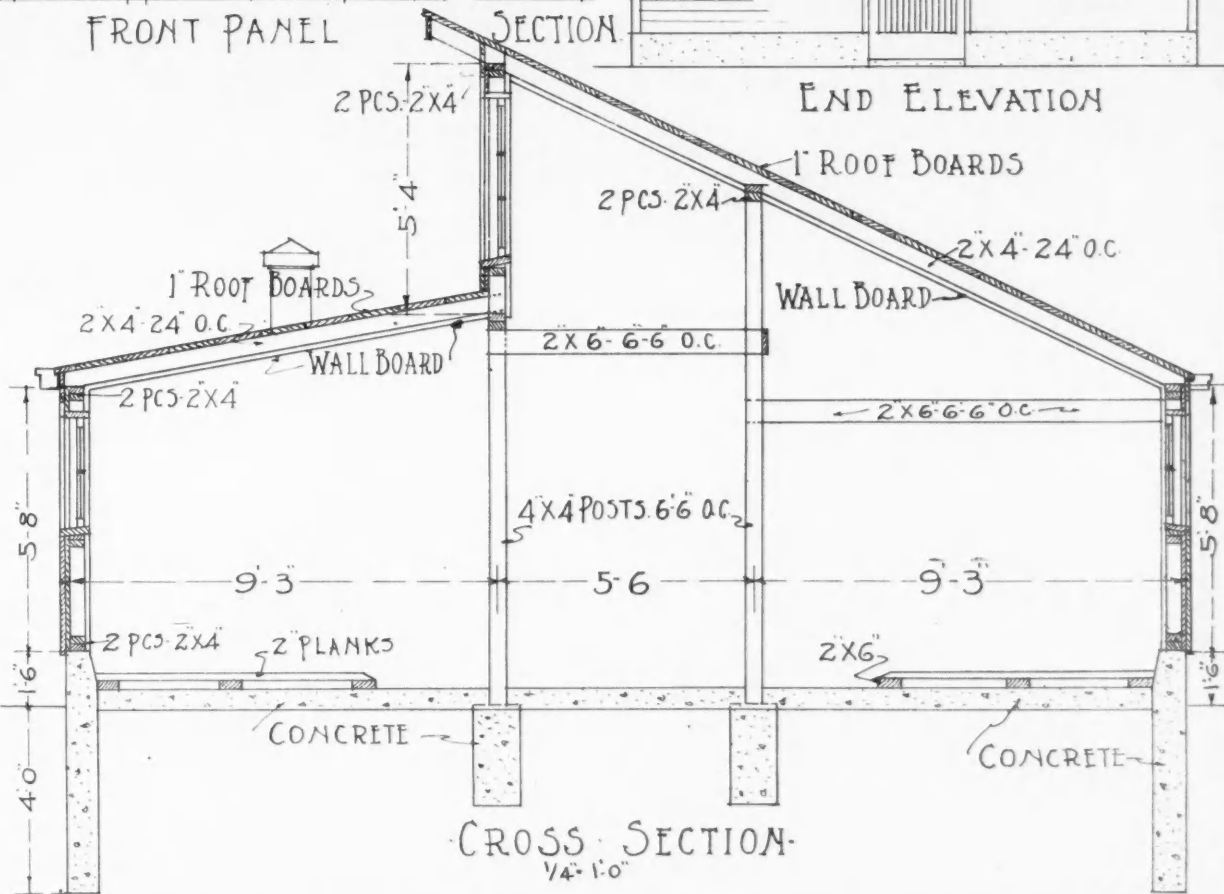
FRONT PANEL



SECTION



END ELEVATION



CROSS SECTION
1/4" = 1'-0"

COMMUNITY HOG HOUSE WITH CONCRETE YARDS.

Working Drawings of Community Hog House Design Illustrated on Opposite Page. Elevations Drawn to Scale 3/8 Inch Equals One Foot. Cross Section Detail, 1/4 Inch Equals One Foot.



Arrangement of Seed Corn Storage House to Right.

Profitable Farm Buildings

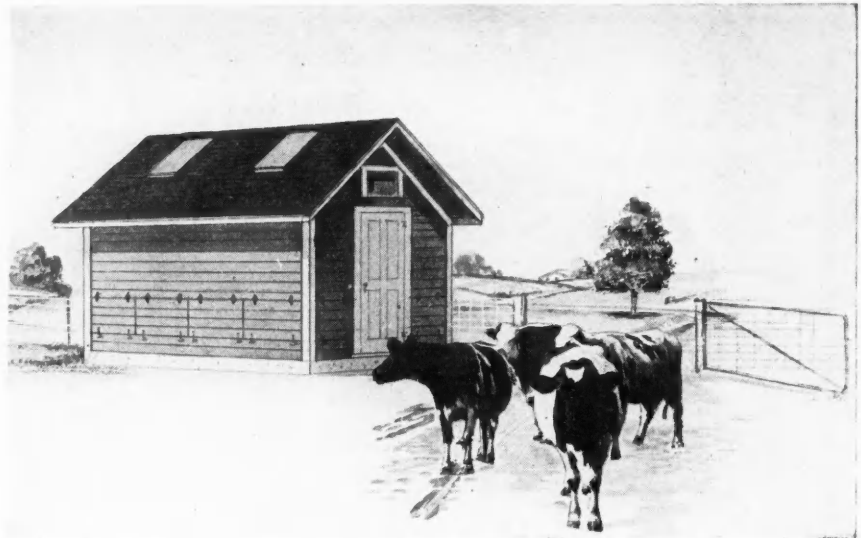
Not many years ago it was generally thought the hog could root for himself. Now it is *known* he should have care and attention if he develops and produces in the proper way.

Buildings which do not call for a heavy expenditure, of the types here shown are instruments of profit.

The design illustrated at the bottom of the page, for example, not only assures adequate protection of the swine from the elements, but the feed storage room adjoining—into which corn and other food may be shoveled from the wagon—lessens the time required to feed and care for the hogs.

In case of blooded stock, or if there is any reason to segregate the different pens, the space adjoining the hog house may be fenced to provide pens for outdoor exercise.

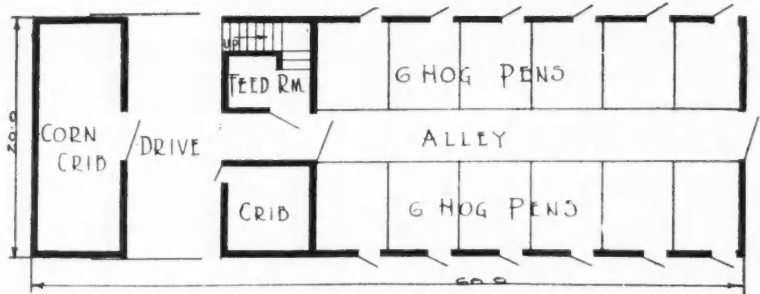
ANOTHER aid to profitable farming is furnished by the very practical seed corn house. The hinged doors and the roof ventilators insure rapid circulation of air which is necessary



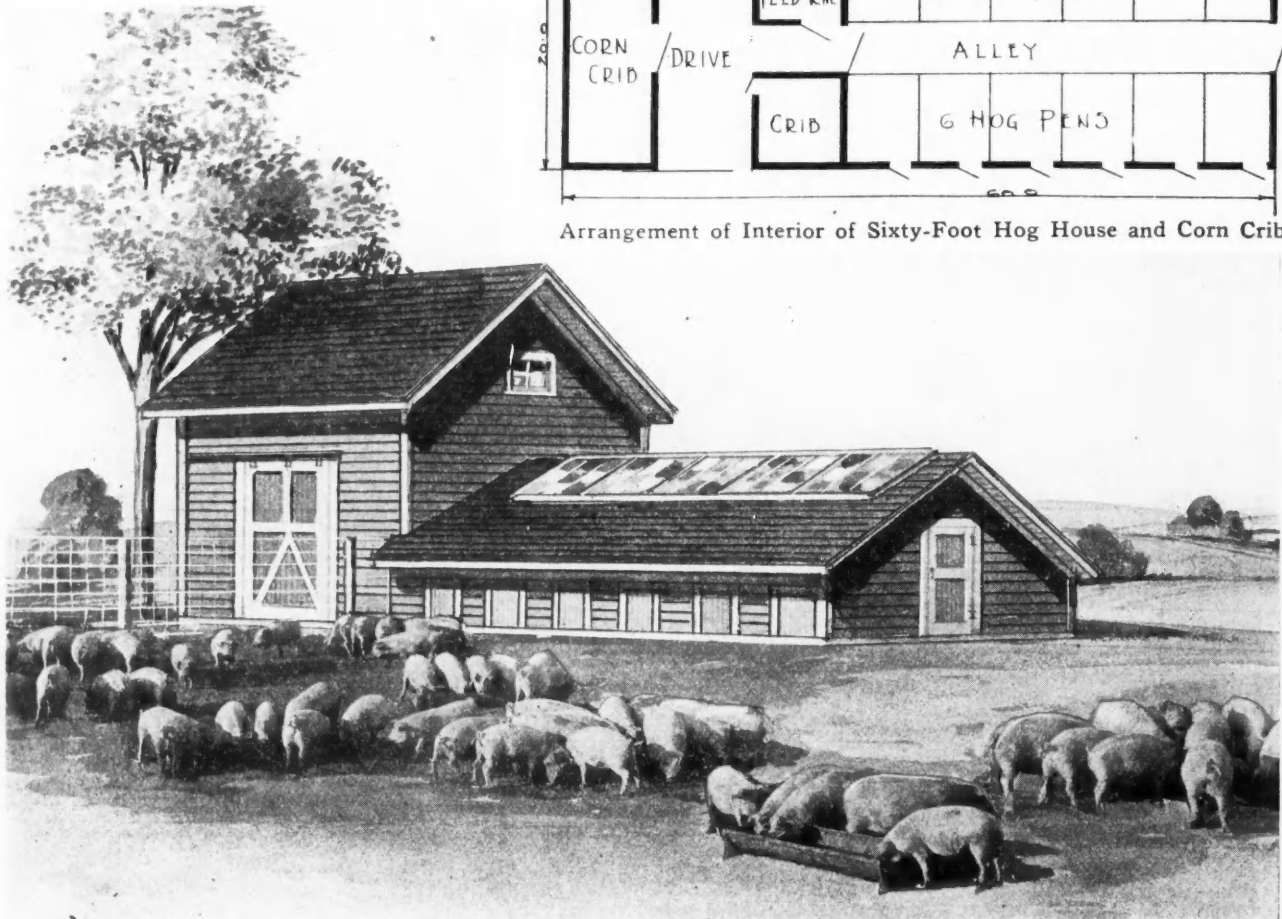
Seed Corn Storage House with Doors All Along the Sides Which Open for Ventilation. Size 10 by 16 feet.

to evaporate the moisture in the corn at the time it is harvested and thereby prevent deterioration of its germinating qualities.

In case of a dashing rain both the vents and the inlets may be closed in a moment's time, thus giving absolute protection for the grain. Here again we would say that wise investments in building are a certain source of profit to the farmer.



Arrangement of Interior of Sixty-Foot Hog House and Corn Crib.



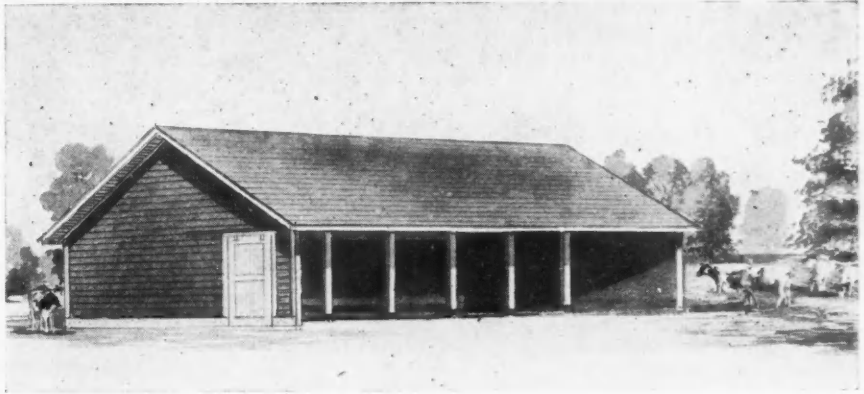
Hog House with Corn Crib and Feed Room Annex. Size 20 by 60 feet. This is a great Labor Saver for the Hog Raiser.

Loose Stock Sheds

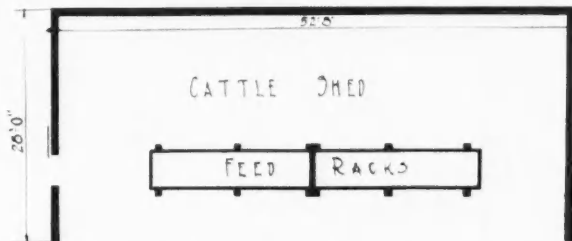
Here are two types of stock sheds, available for beef cattle, young horses, calves and similar stock. One is an independent structure, the other is attached to and made a part of the gambrel roof horse barn.

Nonproductive stock should have shelter from the cold and rains and winds of the fall and winter months. This, especially, is true of beef cattle that are being fattened for the market. If a food animal must produce sufficient heat to overcome any and all weather conditions it will not put on fat so fast as one that is correctly sheltered.

The capacity of the horse barn is



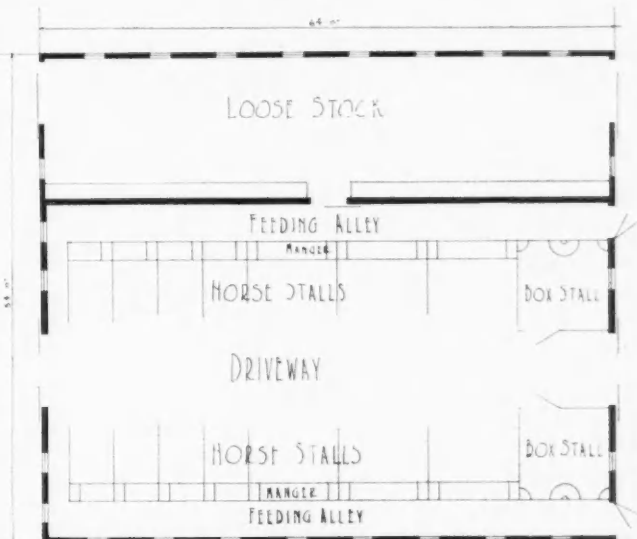
Enclosed Cattle Shed Well Liked by Stock Feeders. Size 20 by 32 feet.



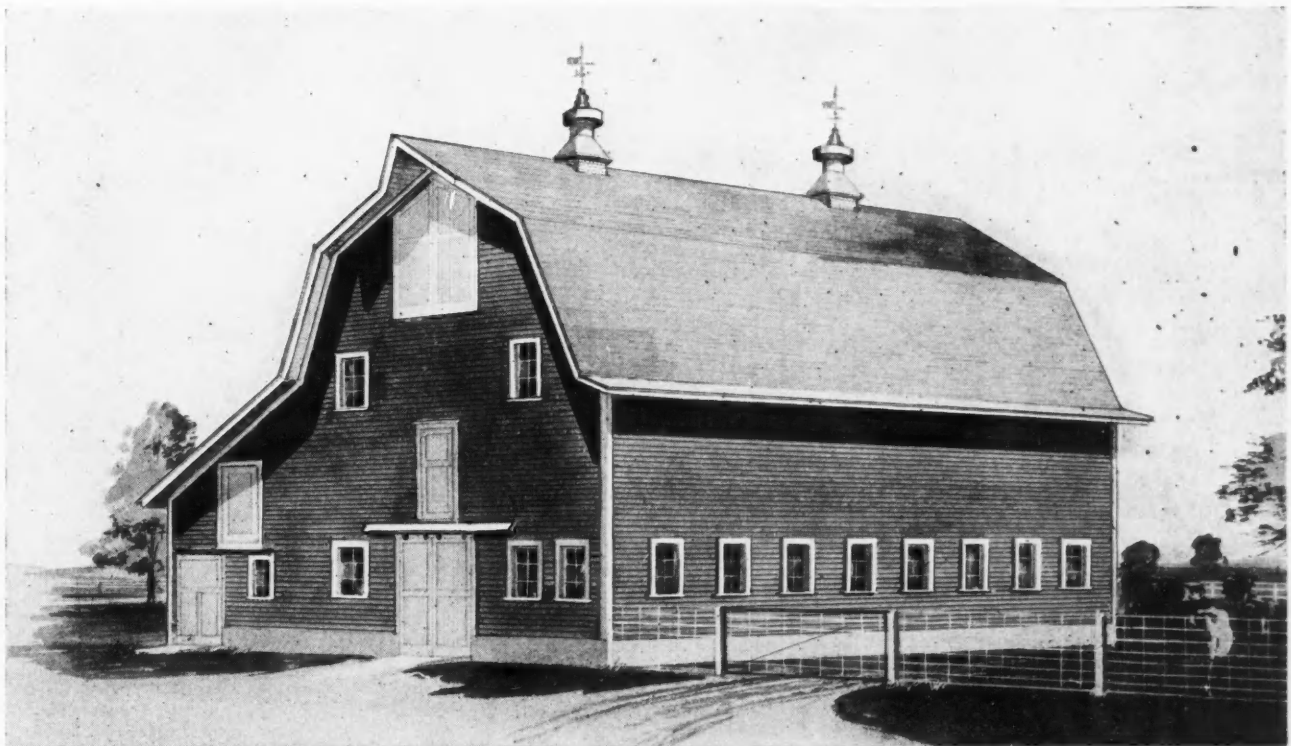
Floor Plan of Enclosed Cattle Shed Illustrated Above.

larger than required on many farms. Accommodations have been provided for twenty-two head of stock. There is ample room in the mow for hay and grain.

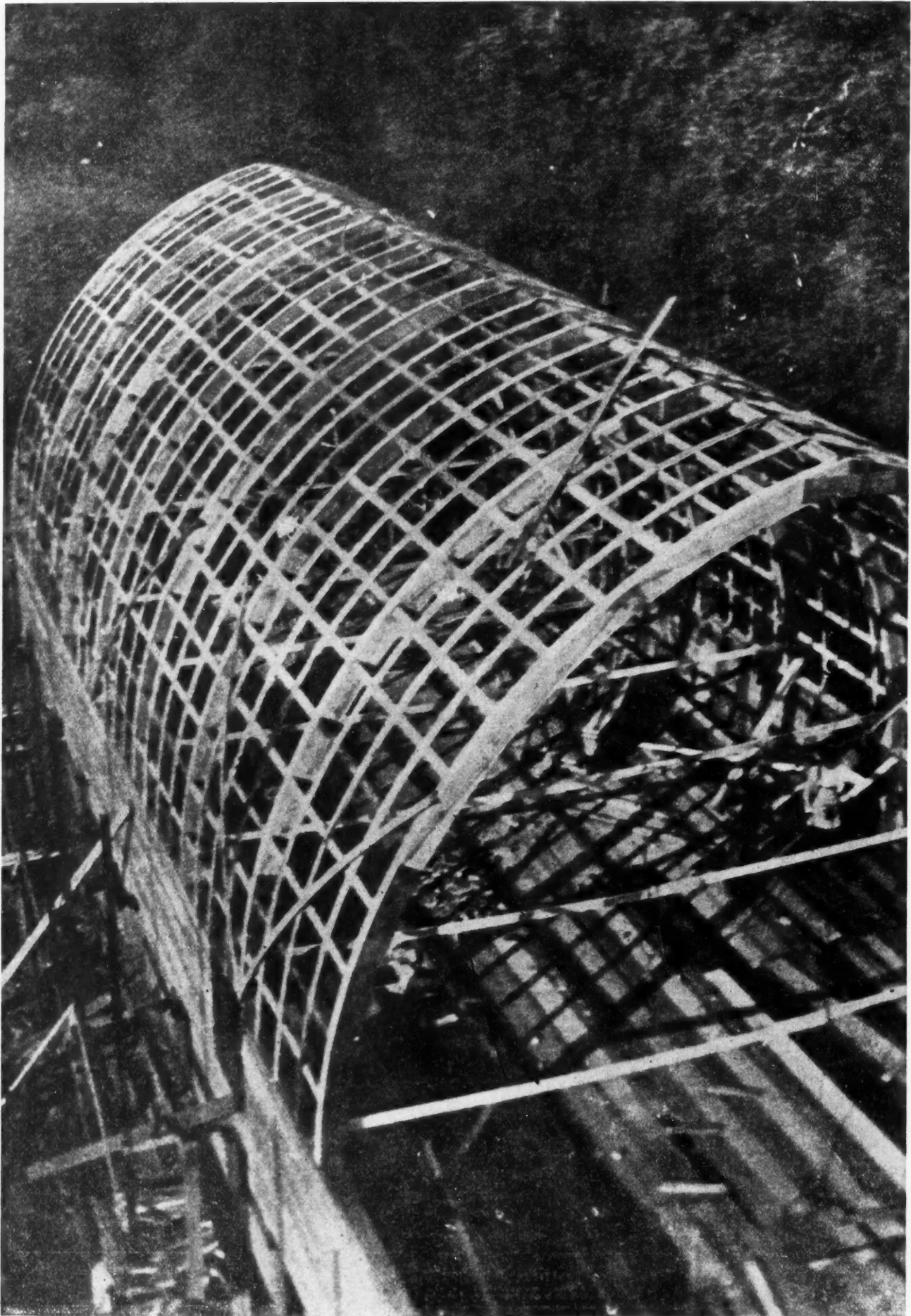
Many farmers are inclined to regard an investment in buildings solely as an outlay from which no benefit will be secured. A good barn or a good stock shed is an investment in plant and equipment on the part of the farmer just as improved machinery or a better arranged factory building is an investment in plant facilities on the part of the manufacturer. Both should yield handsome returns to the owner.



Arrangement of Horse Barn with Loose Stock Shed. Size 54 by 64 feet.



Sixty-Four-Foot Gambrel Roof Horse Barn, with Loose Stock Shed. Size 64 by 54 feet.



Frame for Gothic Roof as Built by E. G. Opitz, Paynesville, Minn. Principal rafters are built up out of 2-by-10's, ten feet long, each sawed lengthwise to the circle and re-assembled to make the curve. Segments are then spiked together, three feet thick, breaking joints to form the complete rafter. (For detail drawing of this see page 52.)

How I Switched from Gambrel to Gothic

By E. G. Opitz, Builder

Paynesville, Minn.

THE lumber was already being hauled for a gambrel roofed barn, when the owner, Mr. C. T. Halvorson, decided to change it to the Gothic style. So I designed this roof in the evening to begin work on the next day.

This style is practically new in this territory and has attracted considerable favorable and also unfavorable comment.

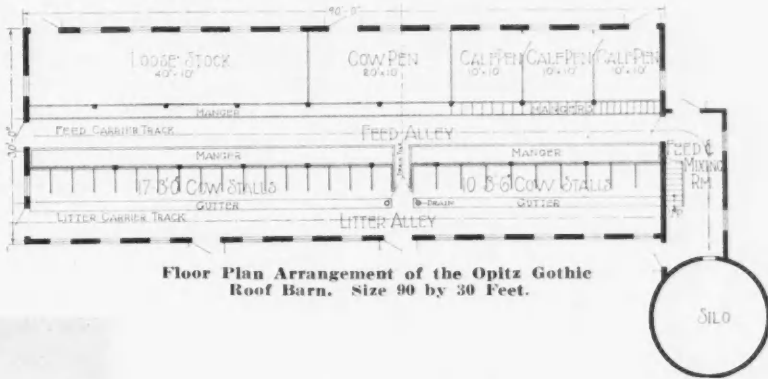
There are several points about a barn of this type that are still unsettled in my mind:

1. Is there a tendency of the shingles to curl up at the butts in time, any more than on an ordinary roof?

2. Is there a marked tendency to spread at the plates if properly reinforced?

3. I built up these trusses out of 2 by 10's, three thicknesses, and spaced same eight feet. Is this strong enough?

4. Up to about how wide a span is this style of roof practical?



Floor Plan Arrangement of the Opitz Gothic Roof Barn. Size 90 by 30 Feet.

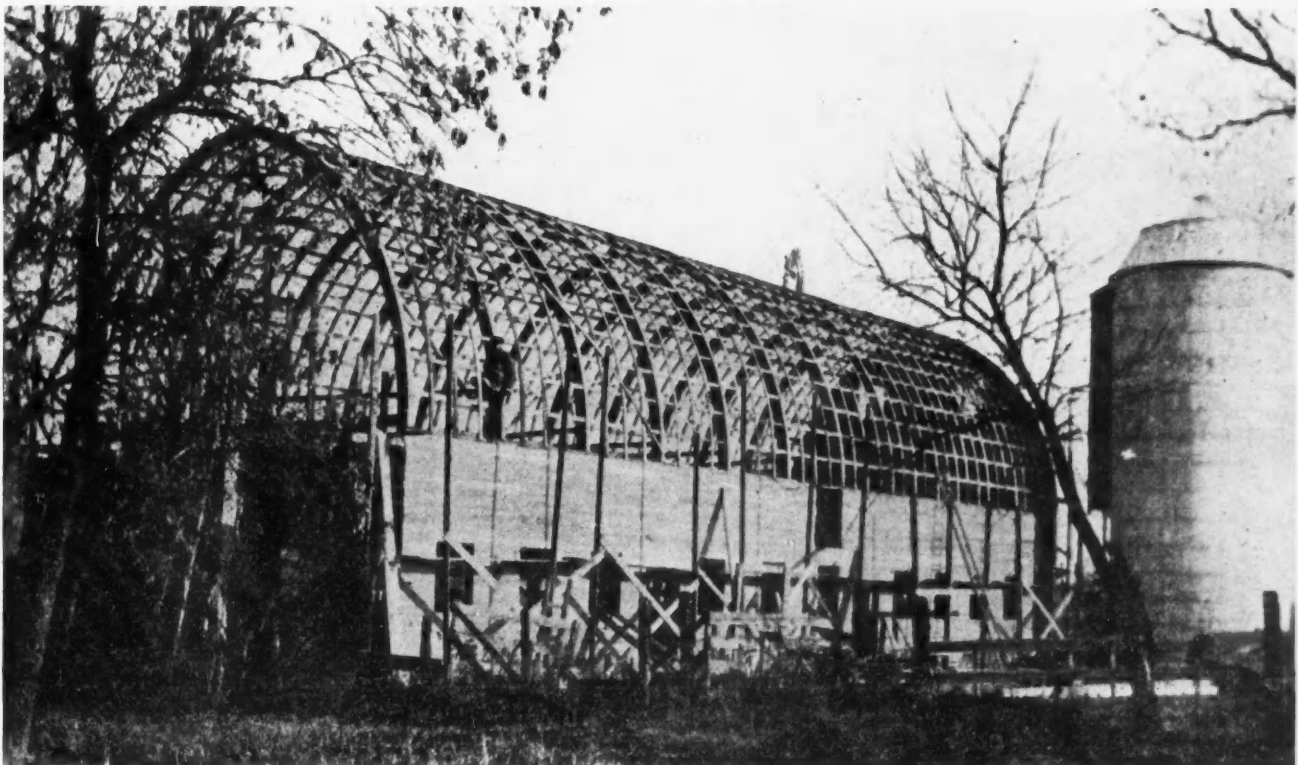


Raising the Roof Trusses.

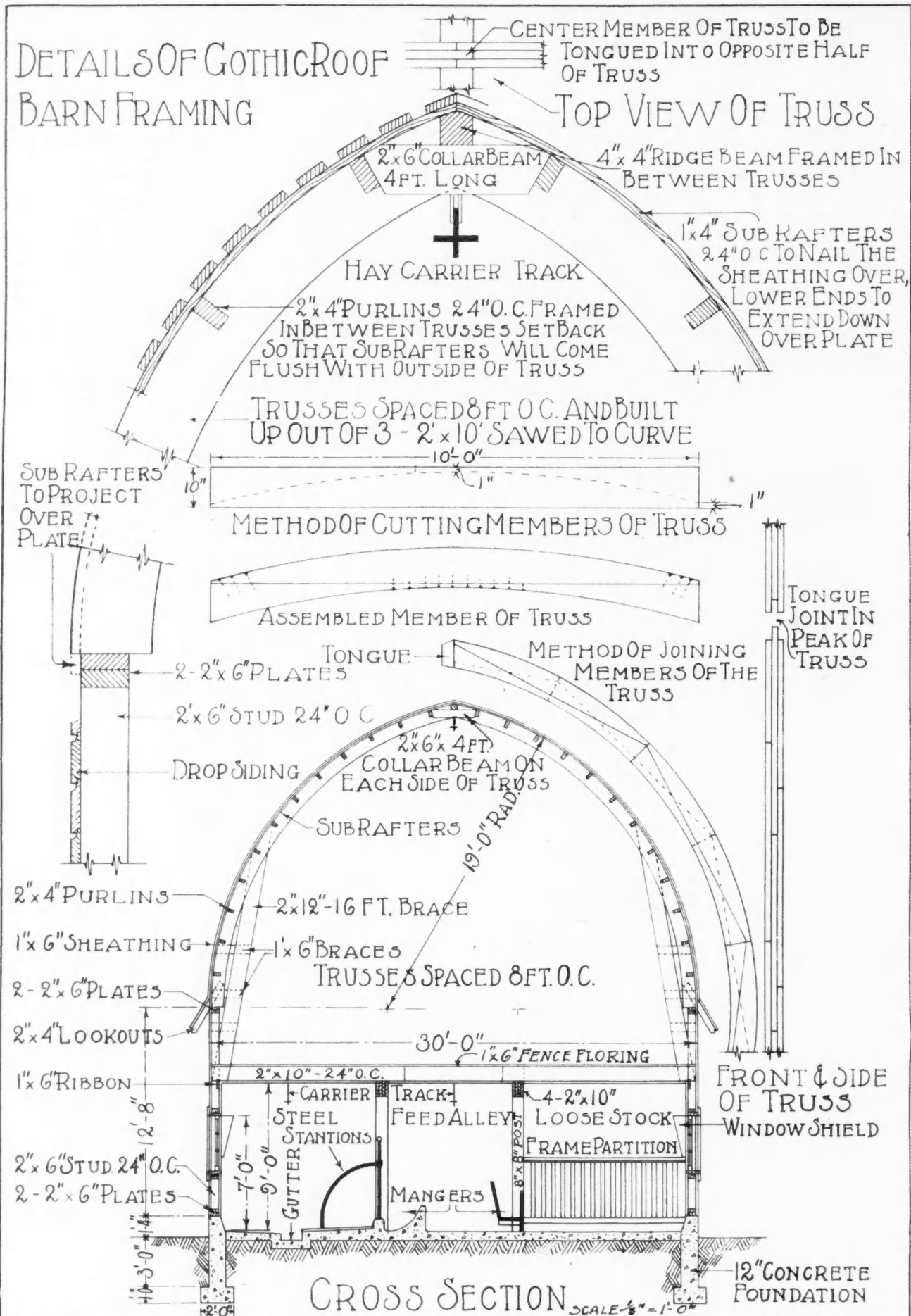
I used two 2-by-8's for plates, and after roof was complete, I placed one 2 by 12-inch, 14 feet from joist to side of truss and securely tied same to studding, plate and truss, to prevent spreading of plate. Plate is about 4 feet 6 inches above joists. I have several jobs ahead for this style of roof, in spite of the usual knockers of anything new.

I am strongly in favor of this style of roof, for strength, beauty and hay room. As far as the labor is concerned, I fancy this style also.

First, we built the big halves of the trusses on the



Gothic Roof Barn Built Near Paynesville, Minn. The Farmer Had the Lumber All Ordered and on the Site for a Gambrel Roof Barn When He Decided He Wanted it Gothic Roof Instead. E. G. Opitz, the Builder, Tells How He Handled This Job.



Details of Gothic Roof Construction as Used by E. G. Opitz in Barn. Illustrated on Pages 49 and 50.



Brooder House Viewed From the Rear, Showing Fuel Storage Tank Piping and Vent for Gas Heater.

day mow floor, then the halves were lifted onto horses on a level with the plates, the butts of the truss resting on the plate where they were to stand when in place. Then the halves were fastened together at the top, the tongue on one slipping into groove of the other, then spiked. Then the 2 by 6-inch collar beam, 4 feet long, was spiked on one side and a 1 by 8-inch nailed on the opposite side, making a joint that absolutely could not give. A tie was then placed from butt to butt to prevent them from spreading when being raised.

These arch trusses are the easiest barn truss that I know of to raise. The first one raised was plumbed and braced securely, then the second one was raised at a space of 8 feet. Then the 2-by-4's, already cut, were placed between the trusses, and set back $\frac{3}{4}$ inch from edge of truss so that roof boards would nail to trusses. The 2-by-4's were started at the bottom by two men on each side. They form a ladder from which to work up. A 4 by 4-inch was placed at the top. When the 2-by-4's were finished, the 1-by-4's were handed up and

they were started at the top and worked down. The trusses were set $\frac{3}{4}$ inch over plates so the lower ends of the 1-by-4's were nailed to plate. This process was repeated for each truss. When frame was completed, it was the stiffest roof frame I have had the privilege of being on. The roof boards were started at the ridge, as we then had the 2-by-4's to stand on. When shingling, we spliced our ordinary staging uprights and built one flat staging on roof. Then the rest was shingled from 2 by 4-inch staging, as usual.

I have been in several Gothic barns that were too weak at the plates, consequently the roof had sagged in time, or had been shoved in by an extra heavy wind. The plates and the gables are the vital places in the roof frame. If they give under a sudden push from the wind, the rest of the roof, no matter how strong the trusses, has to give also. The Gothic roof without ties or braces at the plates is strong enough for average heavy winds, but I believe that for safety against cyclonic winds, a medium heavy brace should



Interior of Gas Heated Brooder House.



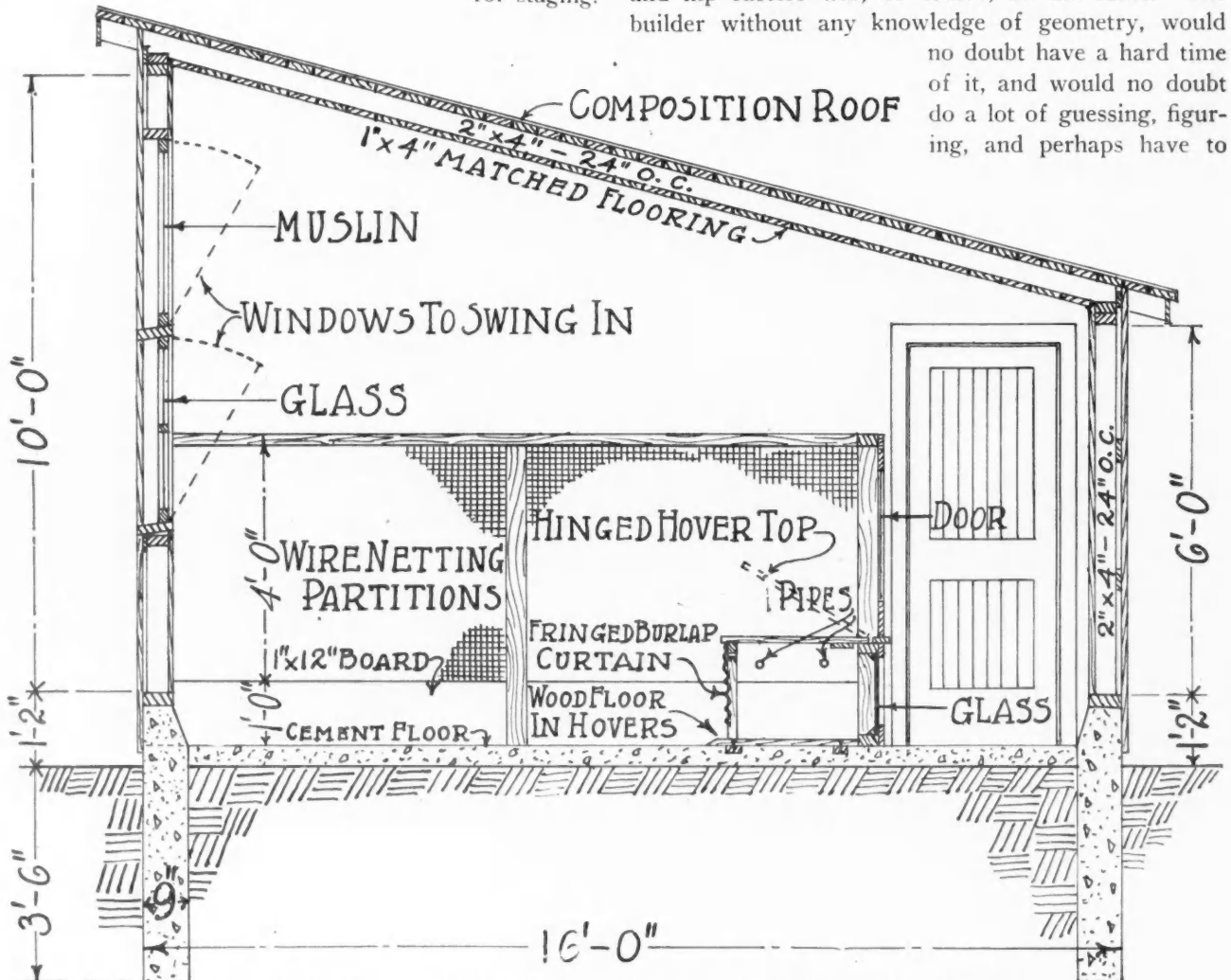
An Inexpensive Brooder House Made of Rough Lumber and Covered with Tar Paper or Ready Roofing. This Little Poultry House is Well Lighted and Ventilated. The Heater is Gasoline Heated as Illustrated in the Two Upper Photos.



Incubator Chicks Doing Well in Brooder House.

be used, as I have shown in sketch of C. T. Halvorson's barn. These braces were placed after barn was practically complete and we did not need the planks for staging.

In the article in the March AMERICAN BUILDER about the barn in North Dakota, it was stated that it is a difficult task to lay out a hip rafter. The valley and hip rafters will, of course, be the same. The builder without any knowledge of geometry, would no doubt have a hard time of it, and would no doubt do a lot of guessing, figuring, and perhaps have to



Cross Section Showing Construction of Poultry House Illustrated on Opposite Page.

work it out on the ground, as I have seen them do. But it is only a simple geometrical problem, and I could work it out in 10 minutes, given the radius and run of the common rafter.

Do you think a Gothic roof could be designed for a 50-foot span? There is an old barn in this vicinity of that span that will soon have to be rebuilt. When I have time, I am going to try and work out a modern roof for it.



Plant for Producing Chicks

The proper brooding of chickens is one of the most difficult operations on many poultry farms, especially for the beginner. Brooding with hens is the simplest way to raise a few chickens, but artificial brooders are necessary where winter or very early chickens are raised, where only Leghorns or other non-setting breeds of poultry are kept, or where large numbers of chickens are raised commercially.

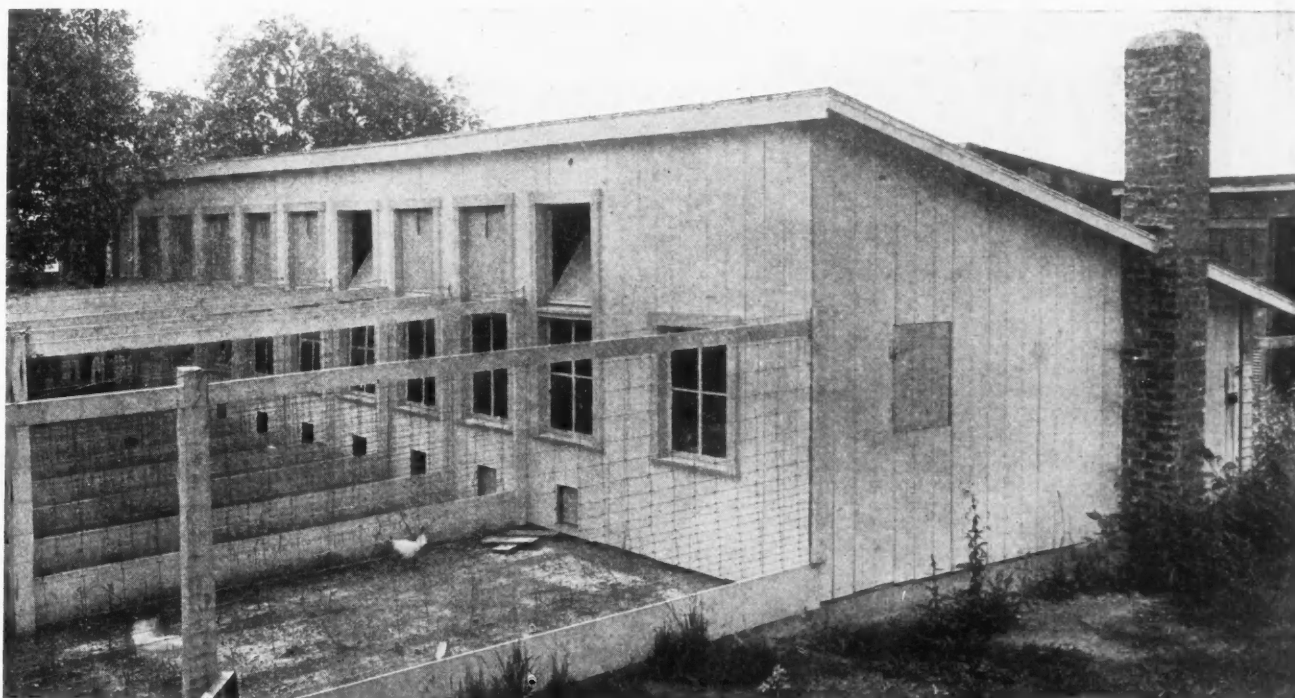
A building for such a poultry

smaller poultry farm. The little heater is placed in the rear end, along with fuel bin and feed boxes.

In this system of artificial brooding, hot water pipes are used, and sometimes steam, tho the hot water is supposed to give a more mild and uniform warmth. The brooders are heated either by overhead or bottom heat, or by a combination of these two methods. Too much bottom heat does not give good results. Many pipe systems have a hover or cover over a section of the pipes in each pen, a piece of wool felt or cotton



Ground Floor Plan of Poultry Establishment Illustrated Below.



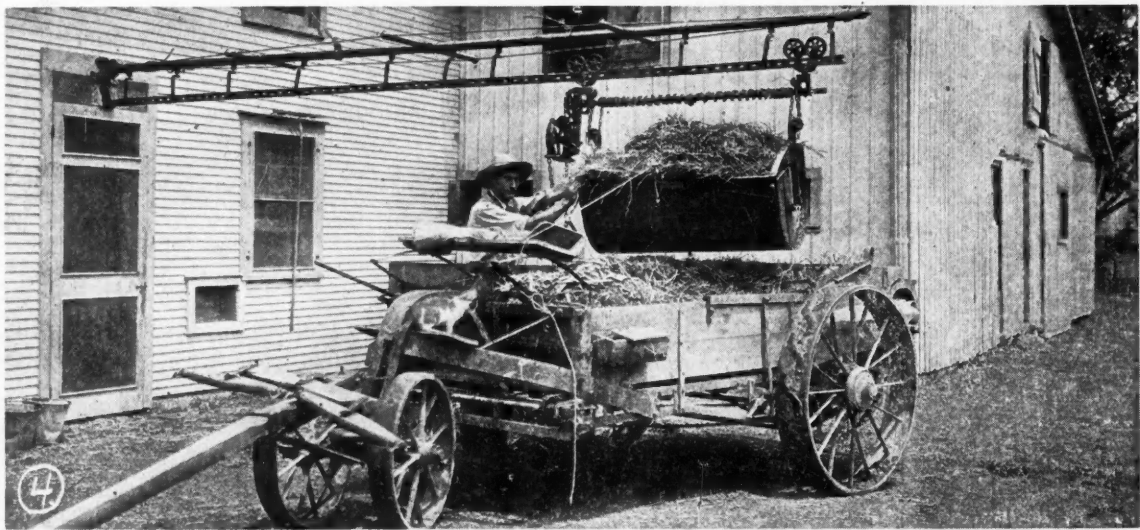
Poultry House Containing Twelve Individual Coops and Heated Hovers to Accommodate Sixty Chicks Each. Each Coop has Its Separate Outside Run Yard.

establishment is illustrated in the accompanying photograph, floor plan and cross section detail. It is a building 16 feet wide with a series of individual coops along the front; feed alley to the rear. A series of twelve of these coops, each with a capacity of 60 chicks, is provided in this building, 56 feet in length. For a bigger establishment this building could be lengthened out almost indefinitely, or it could be shortened appreciably from the size here indicated for

flannel being used for this purpose. Some of the latest mammoth brooders are constructed on this principle and are giving good success. The labor of brooding a large number of chickens is less than where small individual brooders or hovers are used.

The best temperature at which to keep a brooder depends on the style of the hover, the age of the chickens, and the weather conditions. It will run from 90° up to 100°, the average being 93° to 95°.

Farm Building Equipment to Aid Food Production



PROPER EQUIPMENT FOR FERTILIZING.

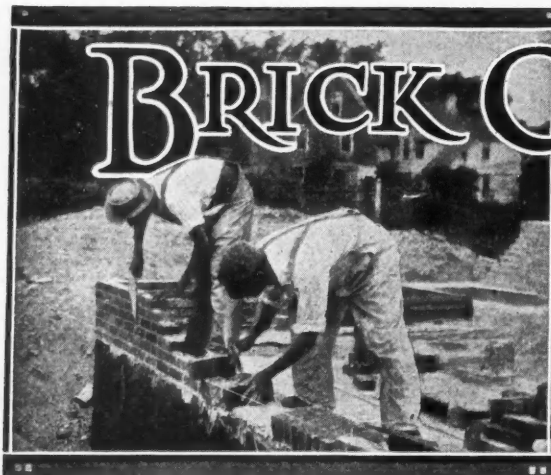
(1) Pumping liquid manure from cistern. (2) Pulverized lime stone for correcting soil acidity. (3) Sprinkling liquid manure on fields. (4) Manure spreader and trolley track litter carrier are an unbeatable combination.

Food Crops Increased and Labor Saved by Use of
Proper Farm Equipment



BIG CROPS RESULT FROM FERTILIZING.

(1) Hay loader hustling in the crop in Winona County, Minn. (2) Mowing mixed timothy and clover. (3) An elegant stand of clover in Minnesota.



BRICK CONSTRUCTION

for Modern Carpenters and Builders



Fire-Stopping in Masonry Walls

By Ralph W. Ermeling, Architect

WHEN a masonry wall is used to support floors on two sides—as a party wall, or one which separates portions of the same building—and the floor joists are placed end to end in the wall it is an easy matter for fire to pass thru the wall if the joists burn or fall from position on either side. This hazard may be overcome very simply by staggering the joists as shown in Figure 1. They should be evenly spaced to get as much separation as possible. Such construction virtually makes a fire wall—if the wall is thick enough. Fire walls in dwellings should be at least 12 inches in thickness.

To carry out the same idea around fireplaces in a party wall, Figure 2 shows them placed a little off center, and the framing of the floor separated from the brickwork of the fireplaces by a 2-inch space filled with a fire-proof material such as mineral wool. If

the filling seems to be too great an expense, the space which is left open around the brickwork is a protection if a brick corbel or other fire-stopping is used at the floor. Incombustible fire-stopping materials should be employed wherever possible, however, as the possibility of fire getting by them is decreased, especially as their use lessens the chances for defective workmanship in framing and fitting. There is a variety of materials which make excellent fire-stopping—anything that is unburnable and that can be conveniently used, such as brickwork, cinder concrete, stone, gypsum, tile or other masonry materials, asbestos, metal lath and plaster, or mineral wool. Poor conductors of heat are to be preferred. When the fire-stop is of masonry sufficient mortar should be used to fill all joints and interstices.

A firewall running from front to back may be effective for most of the building, but if a combustible cornice is used across the face of the building and it passes across the front of the firewall, the effect of the wall is lost at that point as the fire has an opportunity to run along in or under the cornice and so carry the fire beyond the firewall. The surest way to prevent such a possibility is to separate the cornice where it passes the firewall. This is illustrated in elevation in Figure 3, and in section in Figure 4. Incombustible cornices are naturally the safest and most substantial and require less expense for maintenance. Even if the framework is of wood, it is wise to cover the surface with incombustible material where practical. Metal lath and cement plaster or stucco could be used on flat surfaces on the underside of cornices.

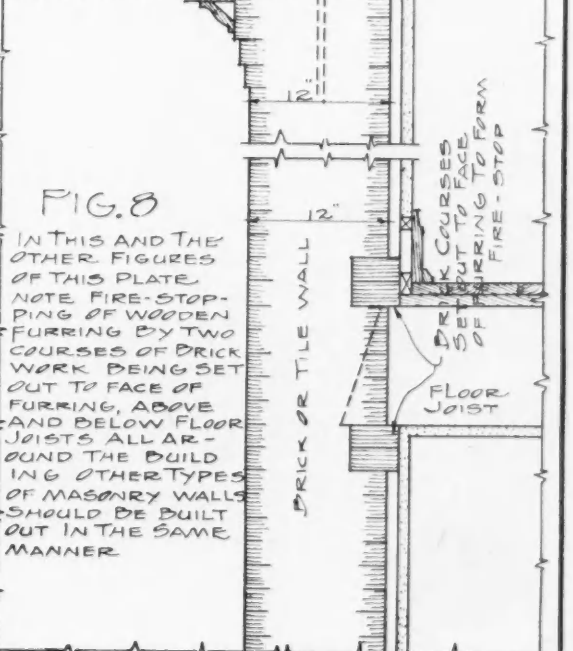
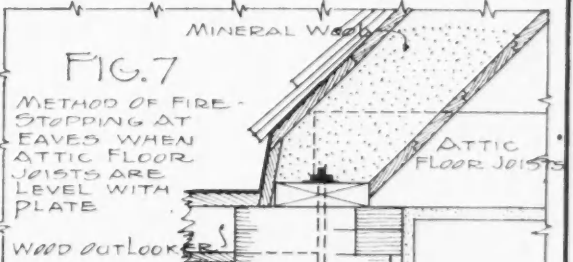
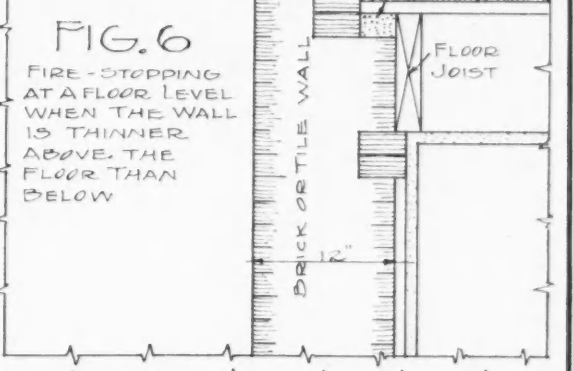
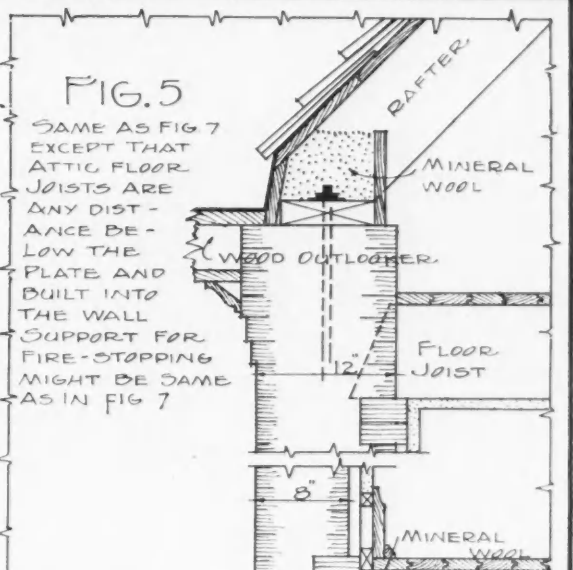
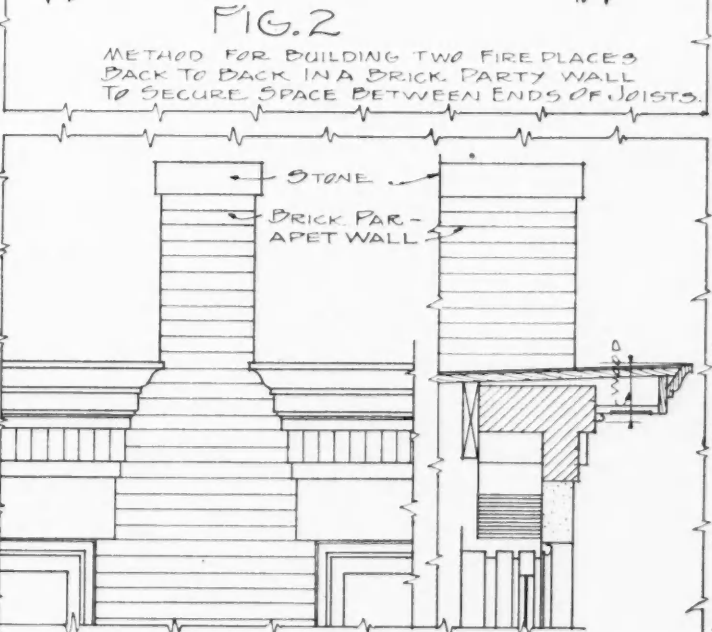
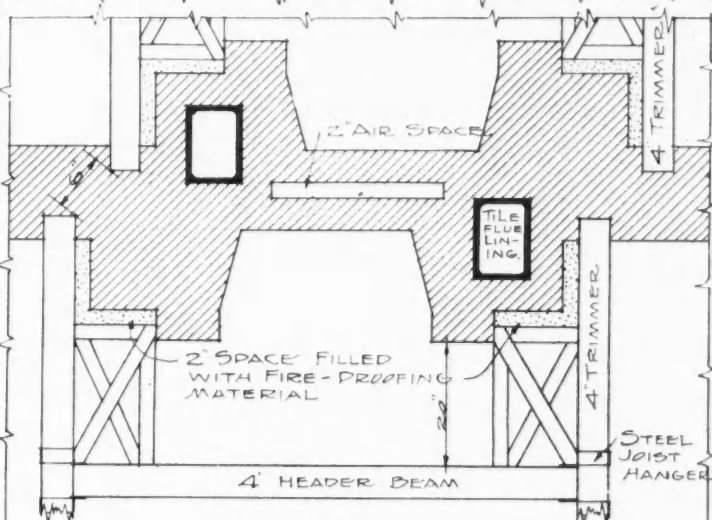
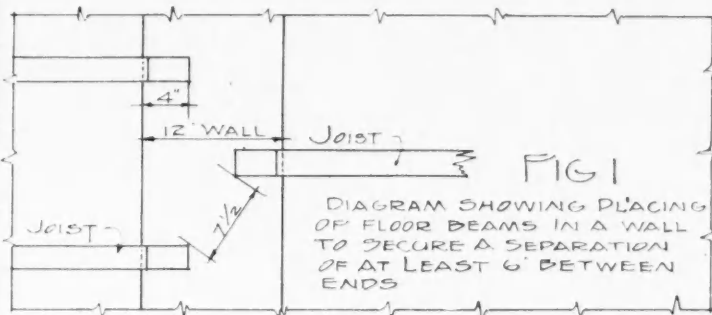
When sloping roofs are built on brick walls there are several modes of construction commonly used. Two of them are illustrated in Figures 5 and 7. Sensible and inexpensive ways for fire-stopping at floors are shown also in Figures 6 and 8. It is a simple matter to corbel out below and above the joists or to leave out a couple of laths above the floor and fill the space



Newest Type Two-Flat Building with Large Sun Parlors.
Building of Face Brick and White Terra Cotta Trim.

(Continued to page 128.)

DETAILS OF FIRE RETARDING CONSTRUCTION



Details of Brick Walls with Mineral Wool Filler at Eaves and Floors; Also Double Fireplace Detail.



Painting the Interior (Continued)

THE HARDWOOD FLOOR AND HOW TO SMOOTH AND FINISH IT

By Ralph G. Waring

Specification Engineer

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

BEFORE the walls are prepared, the floors should be taken care of approximately at the same time as the standing trim in order that both may be protected against absorption of moisture from the plaster. A most necessary precaution, and at the same time, one very seldom observed, has to do with the running of the heating apparatus for at least a week before any finishing of any kind is undertaken. If this were done more often, there would be little, if any, opening up of floor and other joints to show unfinished portions later on, when the contract has been completed. Heating the house carefully, allowing much free ventilation from opened upper sash, will correct a multitude of finishing evils which invariably crop up after the house has been occupied some time.

Floor finishing, as a general thing, is a difficult task to perform to the owner's satisfaction and still be of a cost commensurate with the value of the contract. On high grade selected figured woods or marquetry floors the mechanical surfacing must be perfection itself. A machine sander, either gasoline or electric, is the best all round investment; since capable hand scraper men are exceedingly scarce. A floor can be satisfactorily finished by using the weighted scrapers propelled by a spring or by being pulled toward the operator. To be sure they take off a shaving but they also leave marks where the stroke started, except when handled by capable men. They are fundamentally right in their design and operation and are able to produce high grade work. In lieu of mechanical sanding machines the other alternative can only be found in men capable of using scrapers when working on their knees. Well sharpened scrapers will beautifully surface a quartered oak floor, especially if a small portion of floor about to be scraped be wiped over lightly with gasoline to which has been added a cupful of raw linseed oil to each ten-quart pail of gasoline.

This method will save much hard pushing and back-ache; will allow the scraper edge to last longer, and if scraped off reasonably soon after application, will not effect or discolor flooring of even so light a wood as bird's eye or curly maple.

After scraping, careful sanding with No. ½ or No. 1 paper should follow. For this work blocks of some heavy wood like oak, East India mahogany, or other dense material sized to 1¼ inches by 3½ inches by 5 inches, and covered on the lower face with ¼-inch battleship linoleum or Spanish felt will be a great aid in speedy sanding. The top edges of the blocks should be carefully rounded to prevent blistering the hands; and if given two coats of shellac will prevent sweating of the hand while in use. It is advisable to leave scraper shavings on the floor behind the workman to act as a protection while the remainder of the floor is being surfaced. When the entire floor is complete the room should be thoroly cleaned and closed to allow the dust to settle. Use shoes with rubber heels only.

The method of finishing the floor must be determined largely by the conditions under which it is to be used. If the family is wealthy, with sufficient servants, and the floor is high grade material, the use of filler, shellac, and two coats of wax is to be recommended. Under these conditions the floor can be cleaned with a cloth and gasoline when slightly marked or worn and easily repolished once a week or so.

If, on the other hand, the floor is in a house where there is but one servant and possibly children, filler, shellac, and varnish are to be judged the best materials. These conditions, together with the factor of much wear will recommend the use of the above materials for floors in public buildings. The varnish used should be exceedingly high grade material; tough; elastic; quick drying; free from white abrasion marks when in use; and proof against spotting from hot or cold water.

For natural finish, it is best to *fill* the floor, using either a stock silex filler from a local paint store or similar material made up by the finisher himself. Pine and maple floors do not need to be filled, in so far as the wood itself is concerned, but a better surface will be obtained by using a filler nevertheless in order that all *joints* and *cracks* may be filled level and smooth.

Prepare the filler by mixing 12 parts raw linseed oil, six parts Japan drier, and one part turps. To this add enough finely ground floated silex to make a stiff putty. Let stand over night and in the morning reduce with turps to the consistency of skimmed milk. Tint the above *natural* filler with colors ground in oil to suit the finishes as desired below:

Antique oak: Use raw umber, Vandyke brown, and kill the yellow cast with a very small amount of ivory black; avoid lamp black.

Dark oak: Use burnt umber, burnt sienna, ivory black.

Golden oak: Use burnt umber, Vandyke brown, a little chrome green to liven the tone and bring out the golden cast. Avoid a greenish tint.

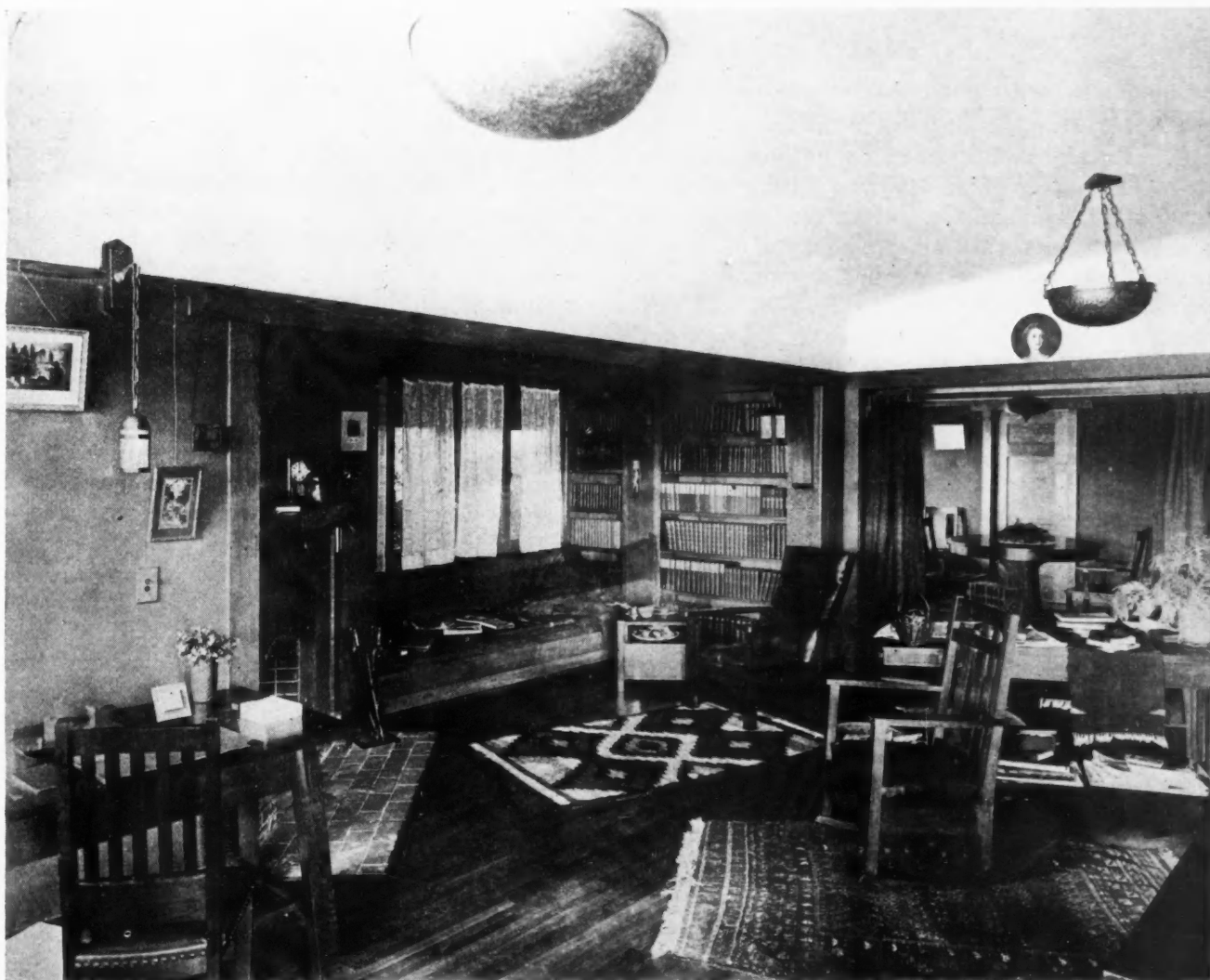
(Continued to page 148.)

An Inviting Fireplace Corner

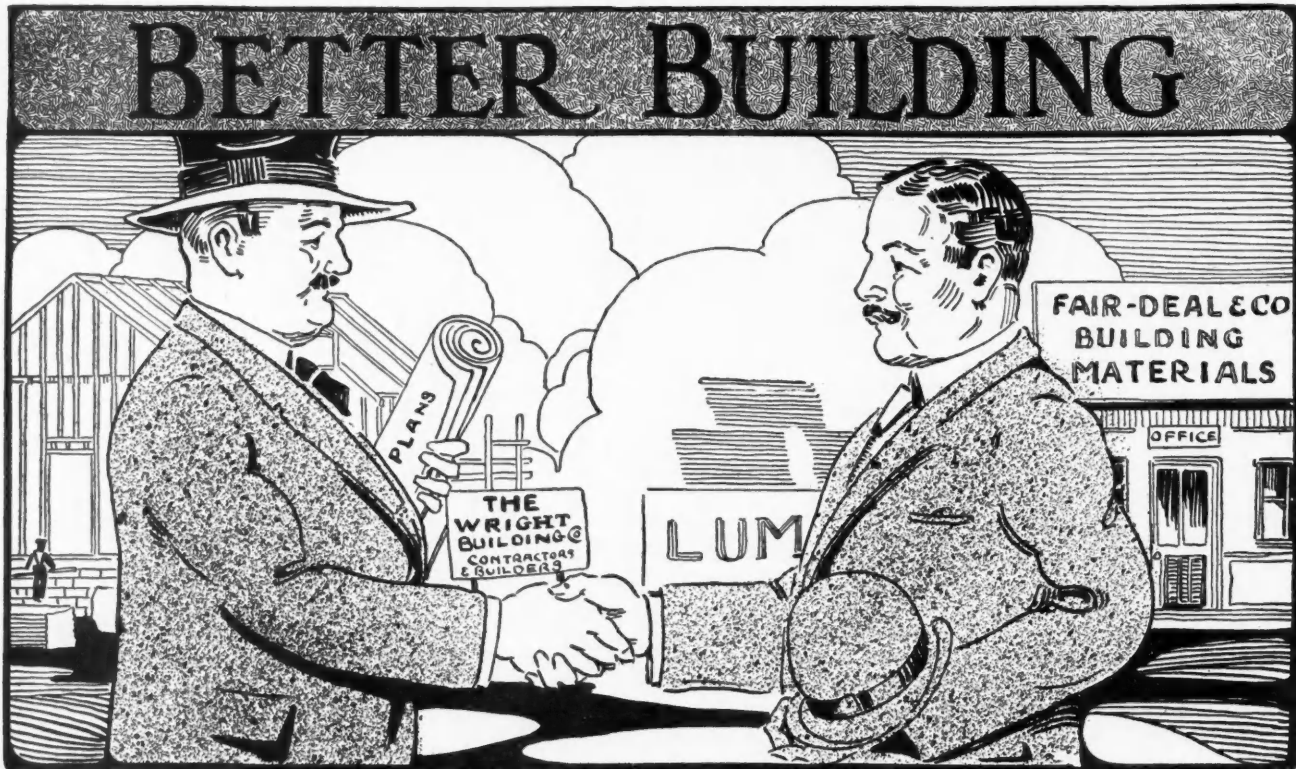
THE accompanying illustration shows an especially well-planned fireplace corner. Created as a sort of alcove to the living room, this fireside retreat not only affords the maximum of comfort and enjoyment on the winter evening, but also lends charm and attractiveness to the room as a whole. As a suggestion, this photograph deserves to be closely studied.

This alcove contains, besides the fireplace, a single long window seat and considerable built-in shelving for books. Designed somewhat in the shape of the letter V with the point cropped off by the group of four casement windows, one of the diagonal-running end walls possesses both a wide and a narrow section of book shelving and the other includes the fireplace and a single narrow book case. Beneath the window group is the built-in seat, which, designed with a hinged top, is of the box type and is used as a fuel receptacle. An interesting detail of the corner is the lantern-like lighting fixture suspended from the casing above the reading chair. The fireplace is of extremely simple design its hearth being of brick, its facing of cement plaster over brick and its mantel-shelf of wood.

CHARLES ALMA BYERS.



Interesting Alcove in Living Room Having a Deep Window Seat and Fireplace Set at an Angle.



Dealer-Contractor Good-Will Best for Building

How to Store Asphalt Shingles

A METHOD FOR STACKING ALL STYLES OF STRIP SHINGLES AND WIDE SPACE SHINGLES IN WAREHOUSES

THE advantages of a systematic method of storing asphalt shingles in a warehouse are many. The method here described is being used with much satisfaction and success by a good many dealers and manufacturers; and with the hope that it may offer a useful suggestion we take this opportunity to tell you about it.

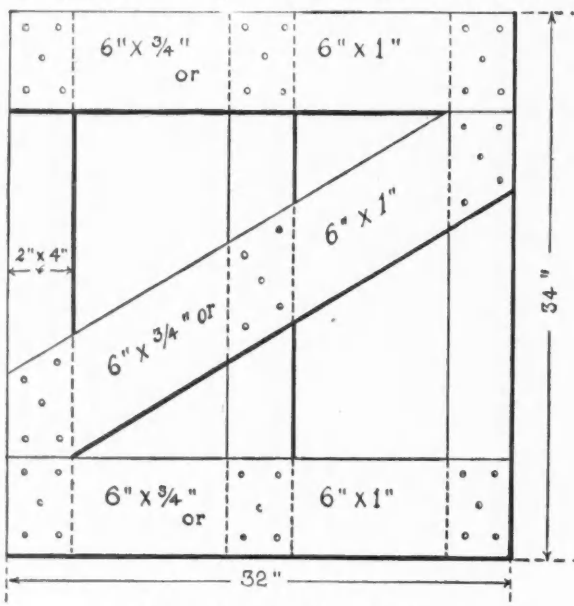
Such a method economizes space. It keeps stock in orderly condition. It prevents an accumulation of weight upon shingles at the bottom of a pile, with

possible sticking in hot weather as a result. It allows easy stock-taking. It makes it easy to move stock out in the order received. It costs little, and when the investment is once made it does not need to be repeated.

Strip shingles should be stacked flat, and never over four packages high.

We recommend supporting standards as illustrated in figure A. The style of construction may be altered as desired, but the question of safety should always decide whether alterations are justified. Safety depends upon the kind of lumber used, how well the structure is made, how much weight it must carry, and upon what kind of floor surface it is placed—level, sloping or uneven. It is much better to have the standards too strong rather than too weak. The standards one manufacturer uses in his storehouse are made from green spruce or hemlock stock, securely nailed; when the lumber dries out or "seasons," the wood shrinks onto the nails and produces a stronger standard than could be made with seasoned lumber. Use plenty of ten-penny nails.

There are three legs of 2 x 4 inch stock, firmly nailed together top and bottom by a 3/4 x 6 or a 1 x 6-inch piece, and braced diagonally as illustrated. Three standards are sufficient for a 12-foot section (figures B and C) and they should always stand on end as shown in figures B and C. Three planks are used as a top for the section. These planks should be at least 2 by 8-inch stock, and may lie loosely on top of the standards, which are firmly wedged between the



Side view of Standard

Figure A. Side View of a Standard Used for Stacking Asphalt Shingles, as Described.

shingle packages as shown. The weight of the shingles against the standards is sufficient to hold them without nailing or bracing. The planks are uninjured, and may later be used for any purpose desired.

Altho the standards illustrated were made out of new lumber—green spruce or hemlock—second-hand or used stock may be used if desired. It is well to be sure that it is strong enough, and that the standards are strongly built. Your judgment will tell you how much you may safely change this method and still get the desired result.

Two tiers of strip shingles is as high as you can conveniently work from the floor, because of package weight. If overhead room permits, you may build three tiers high, but in moving out stock the shingles should be taken from the top tiers first. When building more than two tiers high, a man can work on top of the second tier. Two tiers, however, will get a large amount of stock into a small space.

Wide space shingles and individual shingles should be stacked on edge, and never over four packages



Figure B. Asphalt Strip Shingles Stack in a Boston Warehouse, Using the Tier Method Described.

high. If stacked three packages high, you can conveniently build three tiers high.

Standards for tiers are just the same as those used for strip shingles, except in dimensions, which are as follows:

Wide Space Shingles—three packages high—32" high, 42" wide; four packages high—41" high, 42" wide.

Individual Shingles—three packages high—29" high, 39" wide; four packages high—38" high, 39" wide.

Wide space shingles and individual shingles are stacked in tiers three packages wide, as shown in figure C.

If planks longer than 12 feet are used, it may be advisable to use more than three standards per section; but this is a matter of judgment.

The sections may be erected parallel to or at right angles to a wall or partition. If parallel to a wall, without end support, the weight of the shingles will probably be sufficient to prevent the tiers from tipping endways. If the floor is level, the tiers probably will not tip sideways.

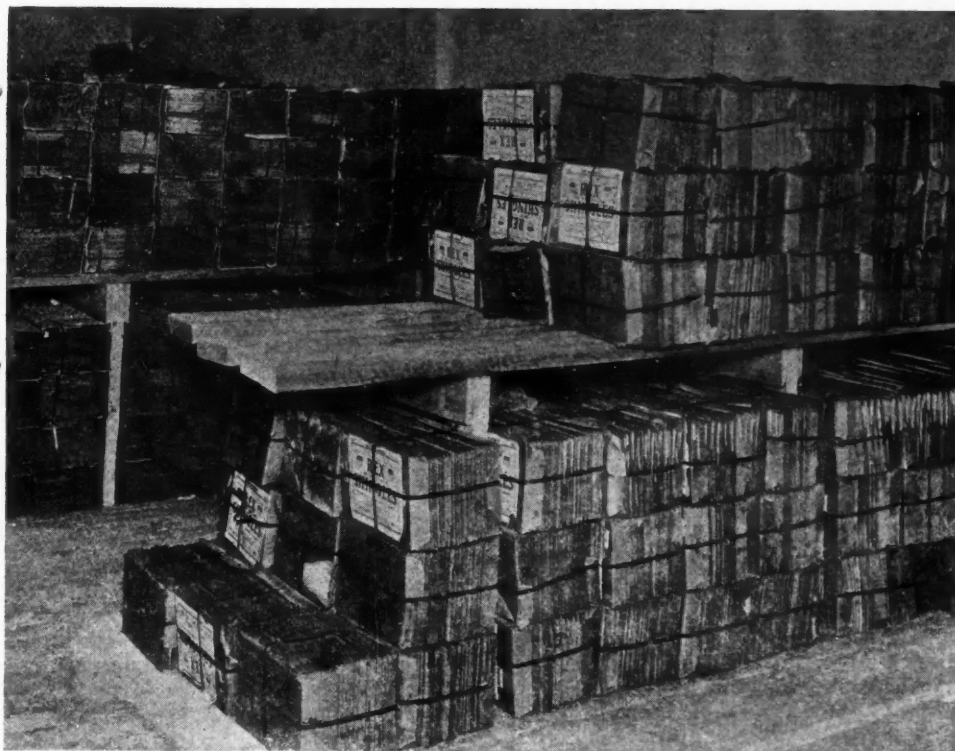


Figure C. Asphalt Wide Space Shingles Stacked in a Boston Warehouse, Using the Tier Method Described.

Help Solve the Transportation Problem

CONCRETE SUGGESTIONS TO SHIPPERS BY THE NATIONAL ORGANIZATION OF BUSINESS PAPERS

THE growing menace of the freight transportation situation has induced the Associated Business Papers, Inc., New York, thru their executive committee, to formulate a plan for definite, practical co-operation by shippers to relieve terminal congestion and keep freight moving.

The following plan calls for action, now, and shippers everywhere are urged to bring it to the attention of the proper organizations for that purpose.

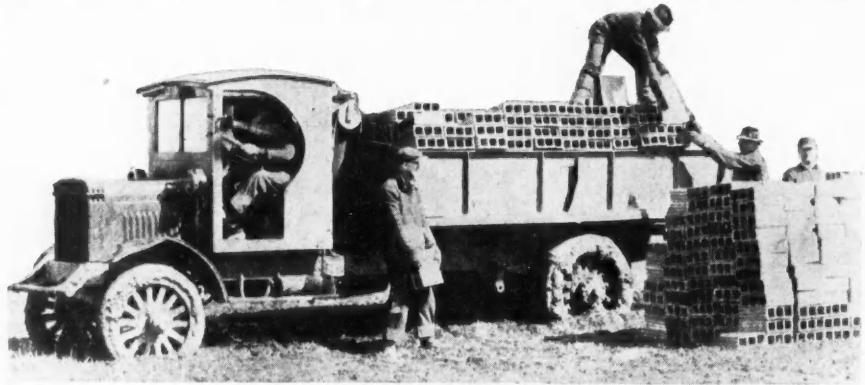
To win this war we must do things. Do them quickly, with less labor and less waste. We must increase valuable activity and decrease wasteful activity. We are at present suffering from a decrease of activity all along the line. This decrease comes from the inadequacy of the distribution system. It is time for the producer of raw material, the manufacturer, the warehouseman, the jobber and the dealer to understand that distribution, the movement of materials from the point of production to the point of fabrication and the movement of goods from the point of fabrication to the point of consumption is the foundation of all industrial endeavor.

Government Needs Your Co-operation

Neither the efficient control of government bodies, nor the wisdom of the railroad men can solve the whole problem. A large part of the difficulty is the local and short haul difficulty, resulting in congestion which extends back into the main arteries of transpor-

tation. It is time for the business man in all lines of endeavor to realize that he is not merely a buyer of transportation, at a price per mile or per ton, but that adequate transportation service is absolutely necessary to the profits of his business. At the present time the interest charges on goods in transit frequently amount to very much more than double the cost of the transportation, while the cost of waste, due to inability to secure materials and ship goods, runs into much larger figures.

For these reasons all men who secure their livelihood from the production of materials or goods and the



Brick and Tile are Hauled Within a Radius of 25 Miles from the Kilns Without Ever Seeing a Freight Car.

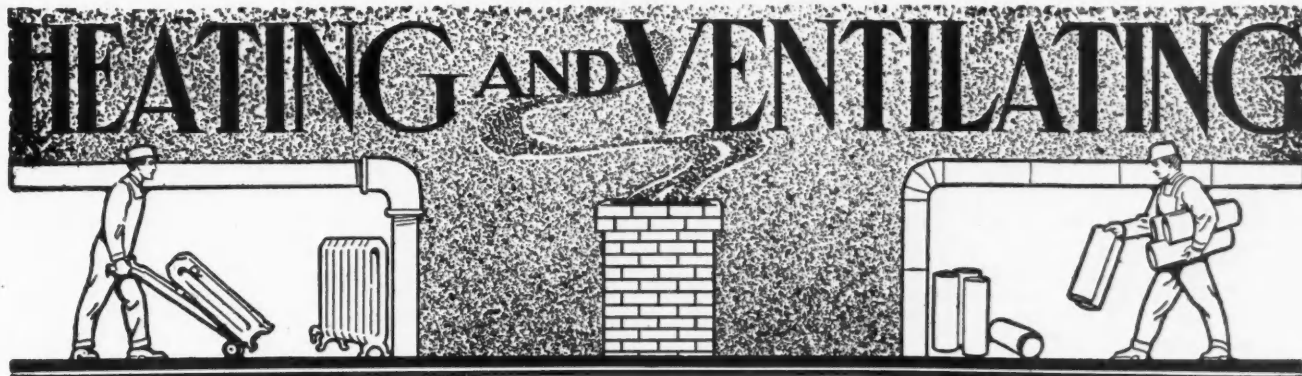
sale of those products, should be interested in pushing for these items, which will enable us to build up an adequate transportation system.

The government has now assumed control of the railroads, and Director General McAdoo has surrounded himself with an able staff of practical and successful railroad operators. A national highway committee has been appointed with Roy D. Chapin, president of the Hudson Motor Car Company, as its head and the Board of National Waterways Association is working with the official committee on this problem. Under these circumstances, and having in mind that we have not in our industries displayed any well-organized efforts to aid in the solution of the traffic problem, it is our recommendation that the matter will be best served by our full co-operation with these government bodies. It is time to quit kicking about rules which are established in the endeavor to clean up the situation, and to co-operate in such a whole-hearted and intelligent way that the tangle of transportation difficulty may be more rapidly untied and the situation clear in record time.



Building Contractors Find that Motor Trucks Make Them Largely Independent of Transportation Troubles.

(Continued to page 132.)



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

By K. G. Smith

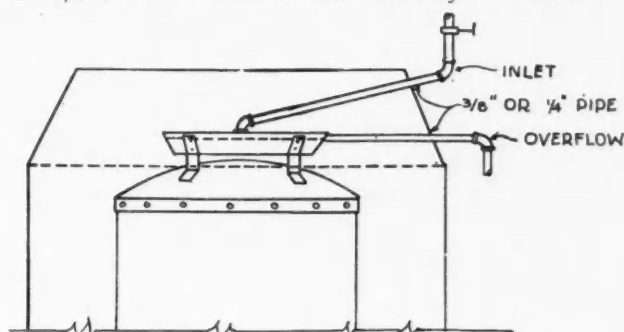
Engineering Extension Department, Iowa State College

Air Moistening

At the present time, a great deal of attention is being paid to the moistening of air, or "humidity," as it is called. Dry air is not unhealthy because of impurity, but because it prevents the proper action of the membranes lining the nose and throat. If these membranes are in a dry unhealthy condition, they are unable to throw off the disease germs which lodge upon them and the result is colds, sore throat and a hacking cough; and causes a person to be nervous and feverish. It is a fact, too, that a room properly humidified will be comfortable at a lower temperature than one in which the air is too dry. The air in most of our dwelling houses in the winter time is much too dry for health and comfort. A good test is the frosting of the windows. If frost does not gather freely in cold weather on windows exposed to the outside air, it is certain that the air in the house is too dry. If double windows are used, they must be opened or have the ventilator opened for a time in order to apply this test. For an accurate determination of moisture in the air a hygrometer is used. This instrument measures what is called the "relative humidity" of the air expressed in per cent as 30%, 40%, 50%, etc. This means simply the amount of moisture in the air compared to what it could hold. That is, a relative humidity of 50% means that the air contains 50% or one-half as much moisture as it could hold at that temperature. For healthful conditions a relative humidity of 40% is recommended. The humidity of most dwell-

ing houses in the winter time is from 20% to 30%, and even less.

Warm air will hold much more moisture than cold air, hence moisture must be added to outdoor air when heated to room temperature, in order to keep the relative humidity at the same point. To furnish this additional moisture, furnaces are provided with water pans. Water in the pan has no appreciable effect unless it evaporates rapidly. Four or five gallons a day or more is not too much to evaporate in the average house. To evaporate this amount, the pan must be set well up into the warm air space and have a large surface of water exposed. The small pan set low down in the furnace jacket, evaporating a gallon or so every two or three days has practically no effect. If a good water pan is not provided, or if it is set too low, an effective one can be installed on the top of the combustion chamber inside the jacket as shown in the figure. To do this, cut a hole in the front of the jacket with a pair of tin snips and insert a pan built as shown. Make a water and overflow connection, close the hole with sheet tin and cover with asbestos. No solder should be used on the pan or the connections and the pan should be heavy enough to resist rusting and corrosion. The bottom of the pan should not be less than 1½ inches from the top of the furnace or it will impede air circulation and cause the furnace to burn thru at that point. Keep this pan full or nearly full of water all the time. Many furnaces have special appliances for moistening the air in which the water supply is automatically controlled. These, of course, are more satisfactory than the home-made water pan described above.



Home Made Water Pan for Humidifying.

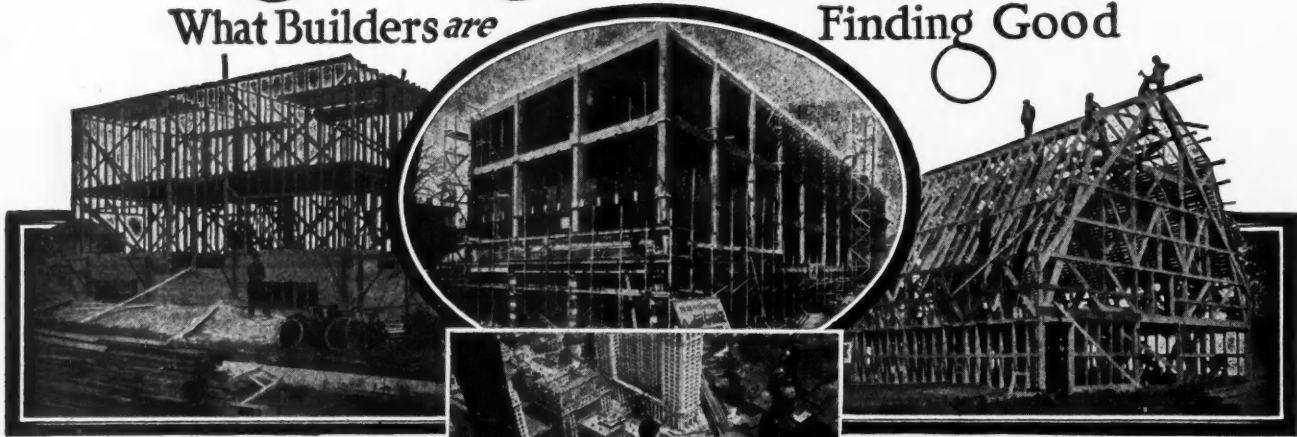
Care of the Furnace

The length of time a furnace will last depends upon the care taken of it, not only in the heating season, but at other times. In fact, a furnace, if left dirty and rusting, deteriorates more rapidly when idle than when being use. To get the best results, a furnace should

(Continued to page 128.)

OUT ON THE JOB

What Builders are Finding Good



EDITOR'S NOTE: The American Builder does not accept payment in any form for what appears in our reading pages. In order to avoid any appearance of doing so, we omit the name of the maker or

seller of any article we describe. This information is, however, kept on file and will be mailed to anyone interested; address American Builder Information Exchange, 1827 Prairie Ave., Chicago.

"Olive Knuckle" Hinge

This hinge is a copy of the popular French olive-knuckle hinge which was sold at about \$3.50 per pair in wrought iron, and on account of the high price was used only on the better class of residences and apartments. The uniqueness and graceful beauty of this style hinge have set the architects and art lovers to talking. They wanted it, but the price was too high.

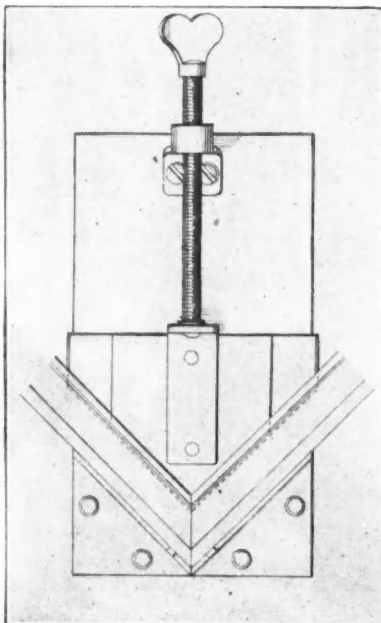
Accordingly, a Chicago manufacturer undertook to duplicate the olive-knuckle hinge in malleable iron. Three finishes are offered—sand blasted, brass and bronze. The price puts it in competition with ordinary butts.

A fine effect is had by using the sand-blasted hinge and painting or staining to match the woodwork.



"Olive-Knuckle" Hinge in Malleable Iron.

A New Miter Clamp



This New Miter Clamp Holds Mitered Joint While Nailing or Gluing.

An improvement in clamps is offered for use in securing picture frame sections or other small mitered pieces while gluing or nailing them. It is claimed to be very simple and practical, and will engage the mitered ends of two members and hold them in such fashion that they will not split when nailed together.

The clamp has a frame plate upon which is slidably mounted a clamping plate provided with flanges.

Fire Doors Save Hardware Store

When G. E. Cole, proprietor of the Cole Hardware Company, Carnegie, Okla., purchased the automatic fire doors shown on the side of the building in the accompanying photograph, a half block of frame buildings stood in the foreground of the picture—where the tile and machinery appear. That was in 1910.

Two years later (1912) the frame buildings caught fire, a strong south wind carrying the flames directly against the Cole Hardware Company's building. The whole block and in fact the entire business district of Carnegie were likely to be swept by the onrushing flames. As the flames approached the Cole store, however, the fire doors automatically closed, sealing the wall tightly against the Fire Demon which threatened its destruction, blocking the flames absolutely and confining their devastation to the half block mentioned. In the words of Mr. Cole himself, who was in his place of business at the time, "I would not have known there was a fire out there by the way things were in the store."

This photograph was taken in February, 1918, six years after the fire. The fire doors have been repainted and the hardware is intact and as rigid as ever, presenting an impressive testimonial to the value of fire door protection. These doors and automatic fire door hardware were made by an Illinois manufacturer.



The Fire Door and Window Shutters Still in Good Shape and Giving Service Six Years After the Fire.

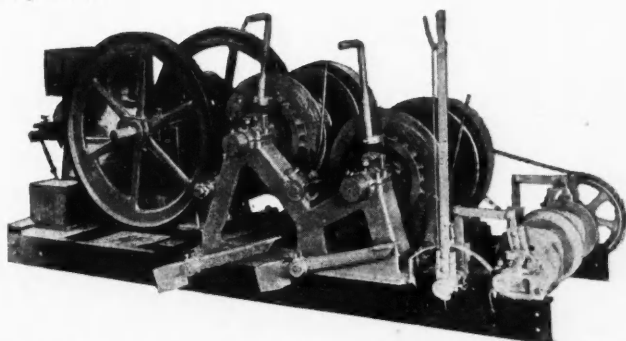


Hot Water Radiator Heats Bathroom or Other Detached Room.

How to Heat the Bath Room

The pipeless furnace will heat all of the open rooms of a house from the central register. How to get the warmth into the bathroom has been a teaser. Above is illustrated the method recommended by one furnace manufacturer. A coil in the furnace heats water for the tank, and also circulates hot water thru a radiator in the bathroom. All furnaces have openings for a water coil and the same coil can be used to heat both radiator and hot water tank.

How to install this kind of a heating plant is easily explained.

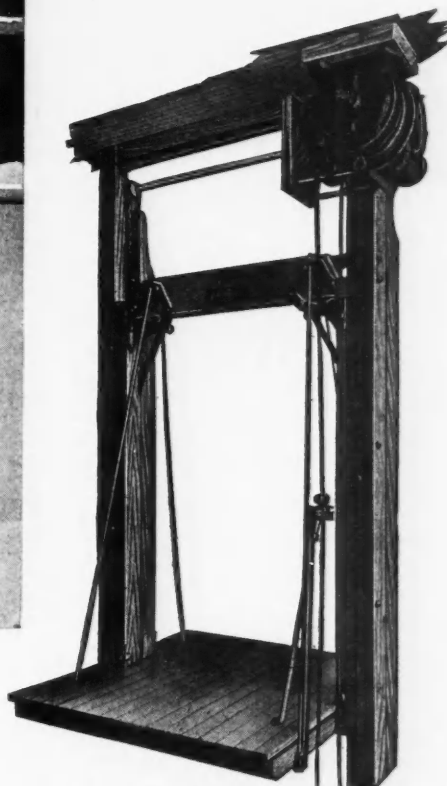


New Double Drum Hoist and Boom Swinger with Horizontal Gas Engine.

Double Drum Hoist and Boom Swinger

An interesting development in hoists brings together in one mounting, a pair of hoisting drums and a boom swinger for derricks, together with gas engine to operate. This rig can be equipped with either horizontal or vertical engine or electric motor.

The boom swinger is a very simple device and an inexpensive one. Building contractors who have used this outfit are enthusiastic about it. They say it is O. K. in every particular.



Hand Power Elevator Equipped with Electric Motor.

To Equip a Hand Power Elevator with Electric Motor

How to change a hand power elevator into an electric elevator is illustrated in the accompanying sketch. It represents a small elevator for retail store purposes, or in places where they do not care to handle a load to exceed about 1,500 pounds. The motor, controller and winding machine are all in one piece and can be attached to any hand power elevator at a very small expense. It is a great benefit over a hand power machine. This machine is controlled by a cable passing down thru the hatchway; pulling down on the cable throws the current into the motor so as to raise the platform, and by pulling up on the cable it will reverse the current in the motor, turning the motor in the opposite direction, thereby lowering the platform.

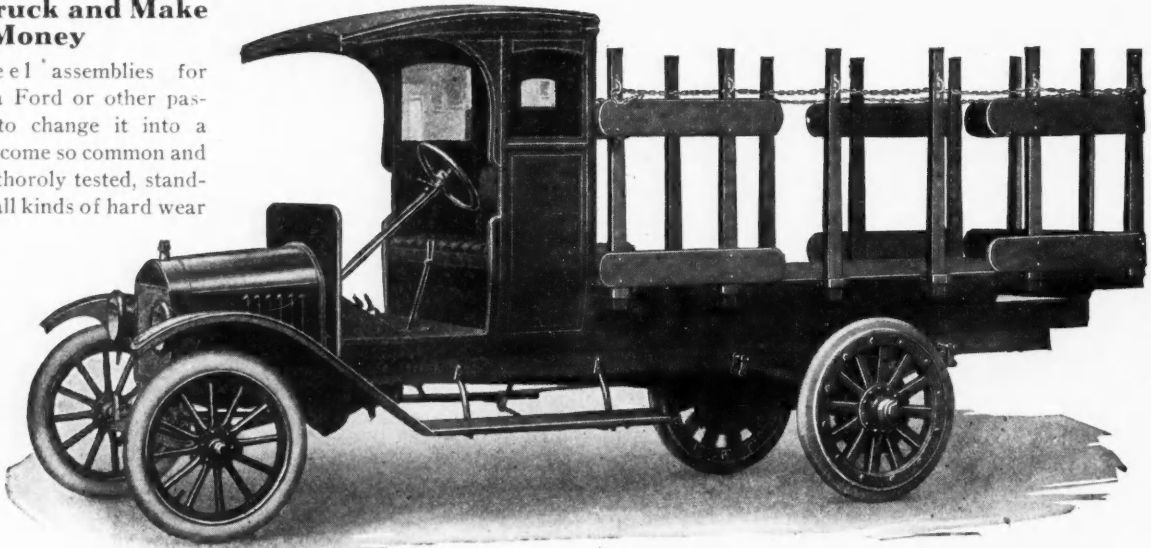
There is also an automatic stop on the platform which the cables pass thru, and you can stop the elevator at any floor automatically, if desired, and you can also lock the elevator at any floor desired.

Make a Truck and Make Money

Rear wheel assemblies for attaching to a Ford or other passenger auto to change it into a truck have become so common and have been so thoroly tested, standing up under all kinds of hard wear and heavy usage, that there is no longer any question about the practical success of this idea.

The illustration shows one of the newest of these attachments.

It is meeting with considerable favor among builders, because of its adaptability. This attachment will go on any car and can be had in one-ton, one and one-half-ton and two-ton sizes. Quite an assortment of bodies can also be had.

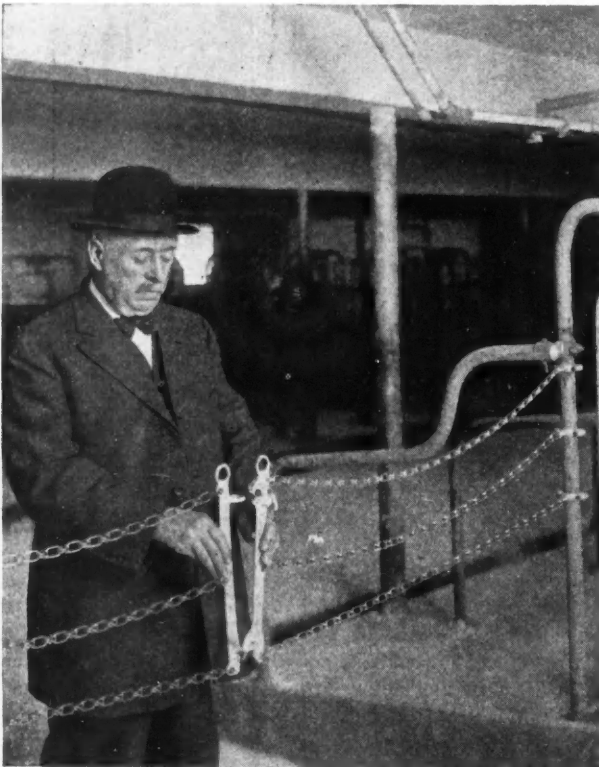


Light Passenger Car Remade Into Substantial Truck With Special Contractor Type Body.

Chain Alley Gate for Dairy Barns

The farmer doesn't want the cattle running down into the feed alley; but a few are sure to get in there unless they are fenced out. A regular gate wouldn't do at all. Most of the time a farmer would find it in the way.

An ingenious chain gate for this special purpose has been perfected. The two center bars lock together with a spring catch. A touch from the human hand releases it, but no "critter" can operate it.

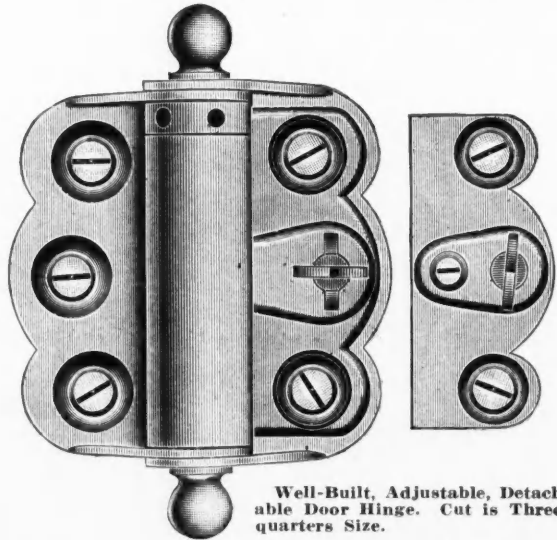


The Inventor Testing New Chain Alley Gate in His Experimental Barn.

Adjustable - Detachable Door Hinge

A high grade adjustable-detachable door hinge for use on large, heavy, first class screen doors is one of the new things of the present season. It is a strong, durable and very practical hinge.

After the door is once hung it can easily be taken down or replaced by turning the button on the flange of the hinge, which holds it firmly in position. No screws to bother with



Well-Built, Adjustable, Detachable Door Hinge. Cut is Three-quarters Size.

and all that is left exposed to the weather is the small plate on door jamb and when the door is replaced the plates are covered with the flange of the hinge.

The tension of the closing power of the spring is easily adjusted.

These hinges are made of wrought steel, bronze or brass metal, finished in the regular builders' hardware finishes.

Sawdust Bricks Good for Building Houses

Some curious uses are found for the better kinds of sawdust. A great many houses are partially constructed of sawdust as in the instance of a form of brick made from this valuable by-product. Mortar, containing a large quantity of sawdust, and a sort of stucco, is now being made entirely of sawdust. Sawdust is also pressed into various forms and objects and finished in good imitation of oak, rose wood, mahogany and other high priced woods.

CORRESPONDENCE



Questions Answered and Ideas Exchanged.

Our Readers are Requested and Urged to Make Free Use of These Columns for the Discussion of all Questions of Interest to Carpenters and Builders

Good Word for Patent Insulation

To the Editor:

Chester, Iowa.

In reply to Mr. Fred W. Koch's question in regard to insulating vs. back-plaster, would like to say that I have built a good many houses in this community and for the past six or eight years have hardly built one without putting "Flaxlinum" between the studding. This material is made in $\frac{1}{4}$ inch and $\frac{1}{2}$ inch thicknesses, and is made in the proper widths and bent to fit in between the studding, nailed every foot with 1-inch large head roofing nails. This material is quickly put in, and should be pushed nearly back to the sheathing so as to cut down the outer air space, which naturally is the cold air space and leave the inner, or warm air space, as large as possible. I know from experience that this material is far ahead of any back-plaster or any other material I have ever used.

Here's to the AMERICAN BUILDER. GEO. M. SPENCER,
Contractor and Builder.



\$10,000 Milled on Portable Machine

To the Editor:

Malad, Idaho.

Enclosed find a photograph of myself and crew of carpenters making frames for three dwelling houses, using a Parks planing mill combination.

This small piece of machinery saves me both time and money, and more than paid for itself in savings the first season. The combination, including men on the other side, turned out buildings and work valued at \$10,000 during the last six months.

T. F. BUDGE,
of Wass & Budge,
Building Contractors.

Some Kicks About Builders' Hardware

To the Editor:

Watertown, N. Y.

Here are just a few points that may interest your readers. They are in the form of questions in regard to builders' hardware, especially.

FIRST, WHY DO THEY make mortise locks with the face plates so short that the screw holes are so close to the mortise that often they will not hold?

SECOND, WHY DO THEY make rosettes so small that the screw holes are so close to the spindles that a screw-driver has to be used at an angle, making it very hard and awkward to insert the screws?

THIRD, WHY DON'T THEY make all spindles and knobs with one end threaded to make adjustments properly, instead of the cheap-skate way of using washers, which always leave the spindles chucking in and out.

FOURTH, WHY DON'T THEY make a mortise lock and latch thin enough for a $1\frac{1}{2}$ -inch door so that there will be wood enough left on each side to hold the escutcheon?

Now, Mr. Editor, if I am not too much of a grouch, I will at some later date continue my kicks on builders' hardware and various other things that pertain to our trade as I see them.

I find in my work, which is general repairing of the better homes, that there does not seem to be much consideration for the man who has to install much of the hardware as now made. I have been at this work for thirty years, and I must confess that there has been very little progress made in that time, especially in the ordinary run of all trimmings for doors, windows, cupboards and the like. I think the fault is greatly to be placed at the feet of the



Wass & Budge, of Malad, Idaho, and Their Power Woodworking Establishment.

carpenters who have continued to use it without ever making any effort to get a better class. The most improvement I see is in the double-acting hinges and automatic door checks and out-swinging fittings.

In the Correspondence Department I saw a call asking for something to keep the hands soft and free from chapping in cold weather. I suggest that he get some mutton tallow and melt it down in water, then adding about one ounce of powdered camphor to it while boiling for about one-half hour; then put away to cool. The tallow will form a cake. It will be found that it has a strong smell of camphor. When working out in wet weather I have found that by rubbing a little of the tallow into my hands over the fire at night, I have no trouble with sore hands. Glycerine is bad for some skin and is useless in wet weather.

Yours for better hardware.

J. M. KANE,

General Carpenter and Contractor.
"The Fix It Right Man."



40 by 90-Ft Gothic Barn in Canada

To the Editor:

Rouleau, Sask., Canada.

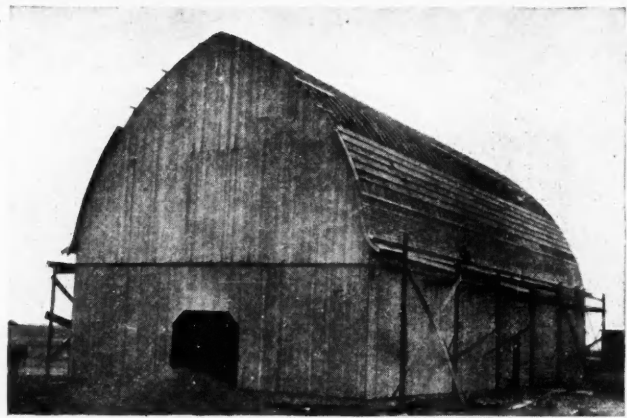
I am enclosing two views of a heavy timber frame barn, size 40 by 90 feet of the Gothic type, which is very much in vogue at the present time.

This barn is the best in this locality, and was erected by Chas. F. Langerman, local contractor of this place.

The view taken in the loft not only shows the large amount



Interior of McPherson Gothic Roof Barn.



Exterior of Gothic Roof Barn Built by Chas. R. McPherson.

of space available in this style of roof, but also gives a good view of the construction of same.

CHAS. R. MCPHERSON.



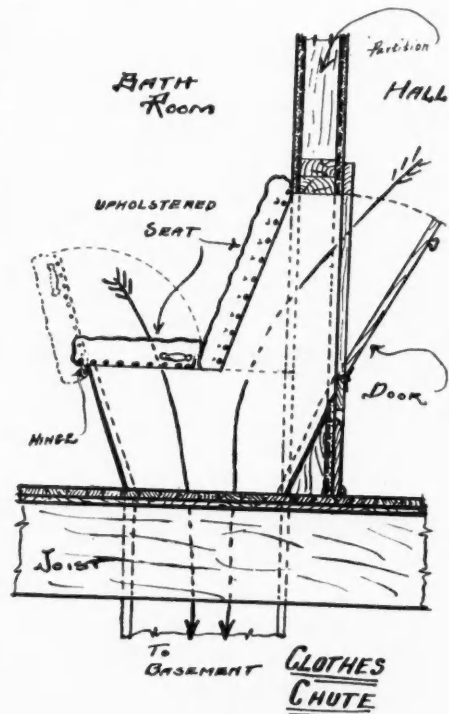
Laundry Chute Makes Bathroom Seat

To the Editor:

Jamieson, Ore.

I believe in passing a good thing along, and hope I will not be "butting in" if I submit herewith a rather rough sketch of a clothes chute I originated and installed in the construction of a modern bungalow not long ago.

It provides for a comfortable upholstered seat in the bathroom, with just a simple lift of the seat bottom being all that is necessary to deposit clothing in the chute, and it takes up no more room than an ordinary chair. The door on the outside, sitting flush with the wall, occupies no valuable



Sketch of Laundry Chute Top.

space, and is only a few steps from any bedroom that might open into the hall. Note that it does not permit a view into the bathroom, even tho both doors may be open.

It is neat, not in the way, is practically two chutes in one, no trouble to build, and saves enough steps in a month to pay for building it.

F. MULKEY,

Cabinet Maker, Contractor and Builder.



First Aid for Sore Hands

To the Editor:

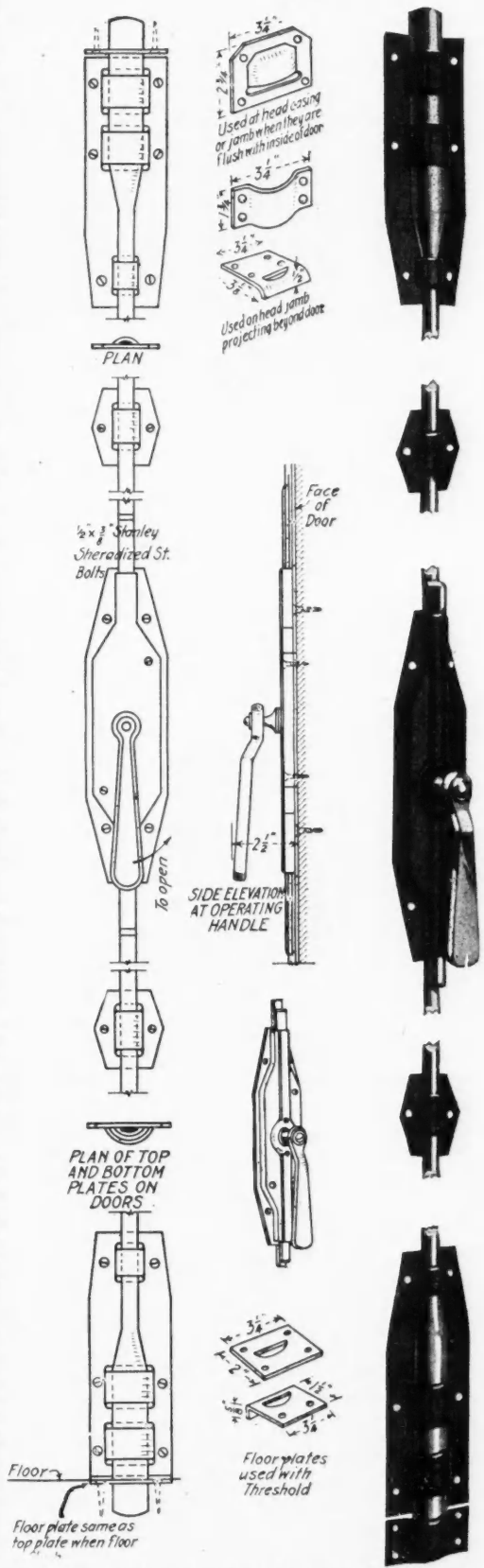
LaFargeville, N. Y.

C. E. Holcombe asks about sore hands and how to prevent them. A mason once told me that he did not use any soap

(Continued to page 72.)

Stanley Garage Cremone Bolt

No. 1052



ESPECIALLY designed for heavy doors. This Stanley Bolt meets perfectly every demand made on it and operates smoothly in the hardest of service. It is made of heavy garage wrought steel; the bolt proper is Stanley Sherardized. Lengths from 7 to 9 feet are available. With this Bolt are shipped strike and floor plates as illustrated to meet all conditions. This Bolt is operated by the handle only—a turn of it locking the door both top and bottom. Warping is prevented because this Bolt braces the door firmly.



is noted for its thorough reliability. It satisfies every requirement without the necessity of ordering something "Special."

Everything you need to equip the garage is here. Stanley Hinges are well made, strong and trustworthy.

Stanley Garage Bolts are certain in action and operate surely and easily.

Stanley Garage Latches and Pulls are made to permit of a comfortable grip and don't break or get out of order.

Stanley Garage Door Holders lock the doors open preventing them from swinging against and injuring the car entering or leaving the garage.

Stanley Garage Hardware is carried in stock by the leading builders' hardware dealers. Write for our complete book on Stanley Garage Hardware. Sent free on request.

THE STANLEY WORKS

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

NEW YORK, 100 Lafayette St.

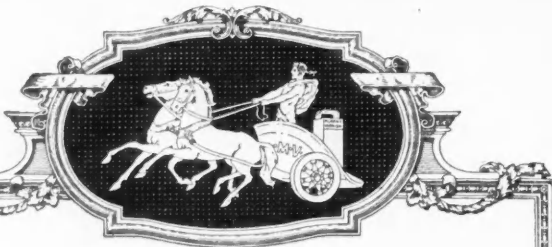
CHICAGO, 73 E. Lake St.

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

Stanley Garage Hardware is adaptable for factory and mill use

Bolt for use on heavy doors, prevents warping, operated top and bottom by lever handle. Bolt $\frac{3}{4}$ -inch wide, $\frac{1}{2}$ -inch thick, half oval, has $1\frac{1}{2}$ -in. throw and is adjustable at $\frac{1}{4}$ -in. intervals to 6 in. beyond its size. Comes in lengths of 7'-0", 7'-6", 8'-0" and 8'-6". Size next under required height should be used. Furnished in practically any lengths on special order. When used in concrete floors, take flat floor staple and long lag bolts with nuts applied.

Detail of Heavy Cremone Bolt No. 1052



Economical and Best

This year—with labor and materials costing more than ever—the contractor must economize in every possible way. That is why he should finish with

Murphy Varnish

"the varnish that lasts longest"

It is so manufactured from the best oils and gums that it flows freely and works easily under a brush. A little of it goes a long way. It is easily applied and cuts down labor costs.

Use these *longest-lasting* products for beauty, durability and economy.

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

Write for full information

Murphy Varnish Company

Franklin Murphy, jr., President

Newark

Chicago

Dougall Varnish Company, Ltd., Montreal, Canadian Associate

ANA

Correspondence Department

(Continued from page 70.)

on his hands in cold weather, but he was working in cement so it might not apply to a carpenter.

Personally I have a good soap or rather a soap paste that is a help. I have used vaseline, plain and carbolated, sweet oil, glycerine—and a mixture of quinine, bencole, cream, mentholated—also honey and almond cream.

If the hands crack I have found it best to burn the cracks out with carbolic acid, nitrate of silver or caustic potash. In mild cases peroxide is good.

One trouble we have is splinters. When in a good place, one can get them out with a sharp knife. A pair of pointed tweezers is also handy to have. I have a pair, made from an old bow pen, which generally gets them, even when under the nail.

If too far under the nail, where you cannot get it out, try a paste of soap and sugar. Put on a good bit and wrap a cloth around it. The next few hours will find the sliver to the front.

As for blood blisters, the first and last thing I do is to run a needle (sterilized) thru the sound skin and let the blood out. When under the nail I make a poultice of bread and milk. Or even drill a hole in the nail and let out the blood.

JOHN UPTON.



Asks for "Help Wanted" Page

To the Editor:

Mapleton Depot, Pa.

I enjoy the AMERICAN BUILDER very much, and if you will accept a suggestion, I believe all readers will appreciate a page of advertising covering "Help Wanted."

I believe the AMERICAN BUILDER a good medium in which to display this class of ads for carpenters wanted, and I am at a loss to know why reliable firms should not give you a liberal patronage.

S. M. DOYLE.

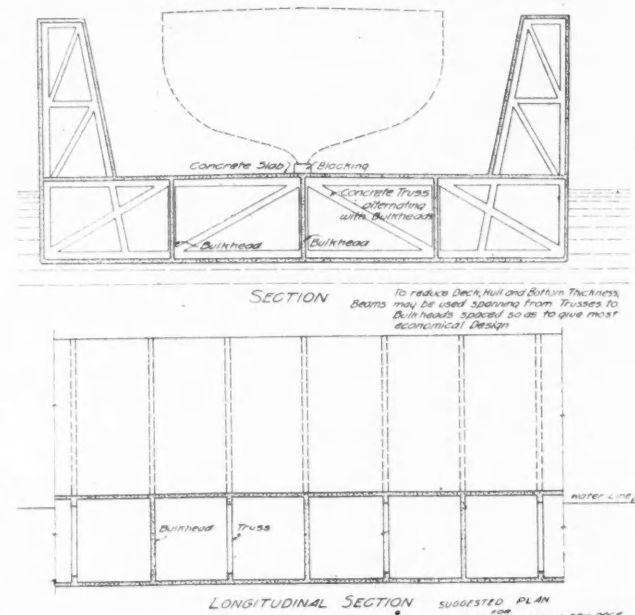


Concrete Floating Dry Docks Pronounced Practical

To the Editor:

Chicago, Ill.

Concrete ships and barges are being successfully built and a floating dry dock of reinforced concrete is now in service in



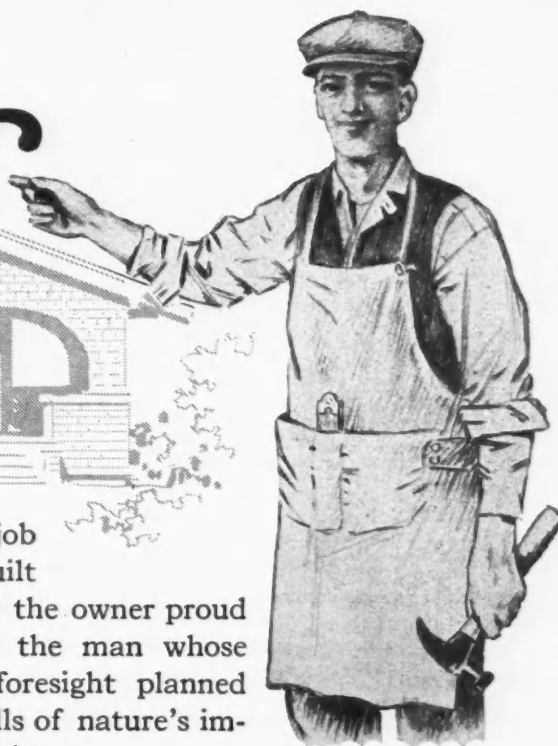
Proposed Scheme for Concrete Floating Dry Dock.

Norway. Our rapidly expanding merchant marine will require many of the latter class of floating structures.

The inclosed print showing a suggested plan for a floating

(Continued to page 74.)

A Job To Be Proud of



There you are—the job done—the house built and a house to make the owner proud and prouder yet the man whose handiwork and foresight planned the roof and walls of nature's imperishable covering.

Rite-Grade INSPECTED RED CEDAR SHINGLES

ON the bundle of Red Cedar Shingles illustrated above is the Rite-Grade inspection mark adopted by fifty associated mills because they believe in manufacturing a shingle that is up-to-grade—a product that the building contractor is satisfied to show as his handiwork and the architect safe in specifying.

Rite-Grade inspected means that the Official Bureau of fifty associated mills guarantees under the Rite-Grade mark (incorporated in the manufacturer's own label or stencil) uniform size, thickness, grain, grade and selection.

FREE PLAN BOOKS

Address below for House Plans and Farm Buildings.

Shingle Branch West Coast Lumbermen's Association
426 Henry Bldg., Seattle, Wash.

(Continued from page 72.)

dry dock of reinforced concrete will be of interest to you. Such a structure could be built at moderate cost of materials readily obtainable, would require little or no maintenance and give long service. Its economy is apparent.

This is simply an idea, for we have not worked out details. However, it is perfectly feasible, practical and economical.

J. E. FREEMAN,

Engineer, Technical Division Portland Cement Association.



New Porch Brightens Up Farm House

To the Editor: Onsted, Mich.

You will see that I enclose check for another year's subscription, which will doubtless be my last one that I will send, as I am now 73 years old and have quit the big heavy jobs.

I am taking more interest in porches, and enclose herewith photo of one that I built last season, as I thought you might possibly want to make use of it in your publication. This porch is built on an old farmhouse just to bring the looks up-to-date, and brighten up an old set of ancient farm buildings; but it would not hurt the looks of a new house very much.

I think I have taken the Builder ever since you began publishing it, and am under great obligations to it for my success. It has kept me in the lead of all other builders about here.

J. HAND.



Modern Porch Built Onto an Old Farmhouse.

Pipeless Furnace Questions and Answers

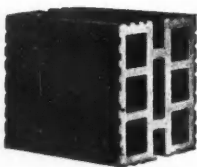
To the Editor: Lockport, N. Y.

In regard to the pipeless furnace, I would like to have J. D. Eddy or somebody else explain how:

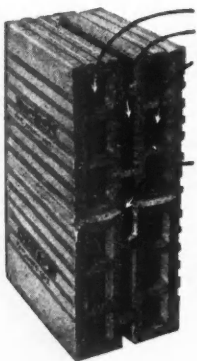
1. We are going to heat the kitchen when we are baking pancakes or a lot of other work which either has smoke or odors that we don't want all over the house—we cook with gas. (Answer: Have your hot water tank in the kitchen, heated by coil in furnace.—Editor.)

2. How will we heat two rooms, one for the children to play in and one for us to visit in, and still not be dis-

(Continued to page 76.)



No. 47 Block
8 1/2 x 10 1/2 x 12"
Pat. July 31st, 1917



Three separate tiers of dead air spaces insulate against outside heat or cold.

Broken mortar joints prevent frost or moisture penetrating to inside wall.

Sides grooved to clinch plaster, no furring necessary.

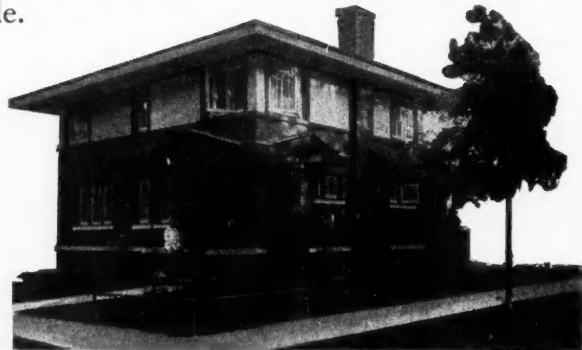
Denison Load Bearing Tile

Carries the entire load, no time lost waiting for steel. It is the strongest hollow tile on the market.

Demonstrated by actual test to withstand a load of over 70,000 pounds per square foot of bearing surface. Note the bearing webs which are placed with scientific accuracy to give strength where strength is

needed, but no weight is given where weight is not needed. A valuable feature of the Denison Load Bearing Tile is the broken mortar joint which absolutely prevents frost or moisture following through the mortar to the inside wall and damaging the plaster, wall, paper, or tinting.

A hollow tile building is permanent and everlasting. It is warmer in winter and cooler in summer. You are assured of a satisfied customer if you build with Denison Load Bearing Tile.



Residence of Mr. Fred Lippert, Mason City, Iowa.

Send for our free portfolio of detail and prices at your nearest shipping point.

Made by the
Mason City Brick & Tile Co.
900 West 8th St.
Mason City, Ia.

“Why should this asbestos roofing cost more?” asks your customer



AND you can't blame him. At ten feet they look alike—look black or gray—wrapped in paper-bound rolls. This is your cue to forget that you are selling roofing by the sheet and to start to sell fire safety and wearing economy.

Tell your customer what Johns-Manville Asbestos Roofing is made of—that it is actually a rock-felt that turns fire like a granite brick turns an axe edge. Tell him that its binder is real asphalt, and that natural asphalt will not carry fire.

Then prove it all to him by directing the flame of a blow-torch against a sheet. A little of the binder will melt, but the asbestos base will be unaffected. Then test other roofings the same way and see what happens.

Sell safety at a fair price. That's merchandising—and good advice to the buyer; he will see it every time.

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

10 Factories—Branches in 61 Large Cities

JOHNS-MANVILLE ASBESTOS ROOFING



SUPREMACY



The Wedge-Dowel Construction prevents sagging and opening at the joints.

THE great popularity of Morgan Doors among home-builders rests on five things:

- Beautiful, selected woods
- Extra thick veneers
- The All-White-Pine Core
- The patented Wedge-Dowel Construction and
- The positive guarantee of satisfaction

They offer the best value for the contractor because they do not require constant re-trimming and re-hanging. When the job is done it's finished, once and for all; and they insure satisfied customers.

Send for Morgan Millwork Handbook Today

It tells you all about Morgan Doors and Morgan Millwork.

Morgan Sash & Door Company

Dept. 74 Chicago

Morgan Millwork Co., Baltimore
Morgan Co., Oshkosh, Wisconsin



The All-White-Pine Core prevents swelling, warping and shrinking and insures perfect service in a door.

Correspondence Department

(Continued from page 74.)

turbed by the children's noise. (Answer: Might as well leave the door open as the noise will come thru anyway; at least no door we have yet found is noiseproof for our children.)

3. Suppose I have a daughter taking music lessons. How can I get away from the music or she get away from the noise of the younger children, and still each have heat? (Answer: See answer to question 2.)

4. Suppose some one of the family is sick and the whole house has got to be just as quiet as the sick room. (Answer: A detached room can be heated by a hot water radiator from furnace coil.)

5. How can you heat a bathroom enough to take baths, and if there were five or six in the family to take a bath Saturday night when the doors were shut the heat would stop, and by the time the last one got around to take a bath, would not the room be getting cold? (Answer: Why all wait till Saturday night?)

I will close for this time.

ERVEY W. COBB.



Home-Made Saw Rig

To the Editor:

Martel, Ohio.

Here is a photo of our school building and also our home-made saw rig which I used to do all the cutting and ripping.

W. F. KURTZ,

Carpenter and Contractor.



American Tools Abroad

To the Editor:

Dundee, Scotland.

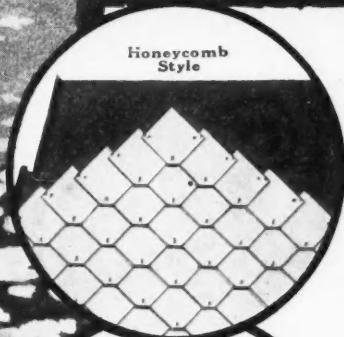
No doubt you will be surprised at the source from which this letter comes. In passing I would like to say, that I still get your magazine forwarded here to me; which you will agree, goes far to prove its value to me.

I am very much interested in American things; but, of course, the present crisis has knocked things a bit "out" right now. I am always interested in tools of my trade, new or improved, and I have found this is a feature of your magazine. Some times I feel inclined to write some of your advertisers regarding their goods, for it is impossible to get some of the newest on this side, even in pre-war days, unless it be some of the well-known firms, such as Disston, Stanley, B. & S., and Starrett, but I always hesitated when I considered the distance, etc. Most firms on your side would consider it waste of time to make the offers they do in their ads to Yankee carpenters, to those on this side—I mean in regard to their literature and service departments. I admire this latter scheme as typically Yankee and up to the moment. I am in touch with a tool dealer in my town who specializes in American goods, and I have been instrumental in guiding him along these lines.

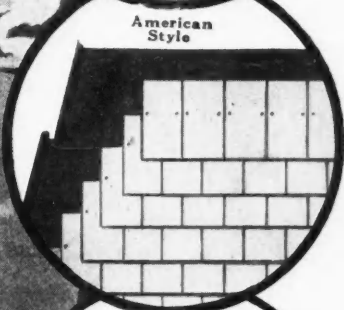
After this "affair" is over, I intend to carry on in the same way, and I would suggest that you tell your advertisers that the AMERICAN BUILDER goes farther than the States, not only

(Continued to page 78.)

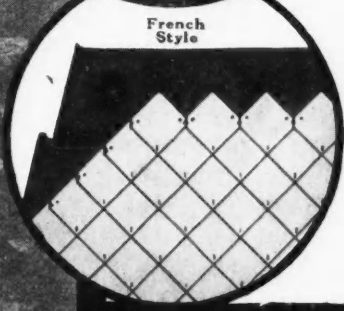
Everlasting



Honeycomb Style



American Style



French Style

Everlasting will be the satisfaction of the owner of a home covered with Ambler Asbestos Shingles, for, like the monuments of Ancient Egypt

AMBLER Asbestos Shingles

are time and weather resistant, in addition to being absolutely fireproof. They bring trade and profit to the Contractors and Builders who specify them, and satisfied customers who become their willing salesmen.

Made of the best Portland Cement reinforced with long, strong Asbestos fibre, they grow harder and tougher with exposure to the elements. Many designs and three non-fading colors: Indian Red, Newport Grey and Blue Black.

A word from you will bring the whole story—prices, pictures and samples.

Keasbey & Mattison Company

DEPT. B-1

Ambler, Pa., U. S. A.

Manufactures of Ambler Asbestos Shingles, Asbestos Corrugated Roofing and Siding, 85% Magnesia Pipe and Boiler Covering, and Asbestos Building Lumber

(Continued from page 76.)

to Britain, but I first saw it in Sydney, Australia, some few years ago, after which I became a subscriber.

The same conditions exist where I am now. In France, American things seem to be just getting here. Some of the aforementioned firms are in evidence already, but they are behind the U. K. here as regards to that business.

I have derived great benefit from the AMERICAN BUILDER and that is why I have it forwarded to me wherever I may be.

Hoping you will always carry on during the world crisis, and a speedy restoration to normal conditions, I am

R. C. JAMES.



For Modernizing The Old House

To the Editor: Decorah, Ia.

Here is a photo of a two-story, two-flat building being remodeled for our county attorney, C. N. Houck, showing Bishopric lath. This material is in answer to the question, "How can I make that old house warm and good looking?" This not only makes it warm, but makes it look swell, when used with stucco or Kellastone.

R. H. STEWART.



How to Make an Upholstered Chair

To the Editor: LaFargeville, N. Y.

One of our readers, H. R. Carr asks about how to build a low massive arm chair to be upholstered. As I have built a Morris chair, and also a couch, perhaps I can help some.



Old House Being Remodeled Into a Two-Flat Building; Stucco Board Ready for Plastering.

The frame work should be well made and put together with mortise and tenon joints.

Where it is to be covered with upholstery one need not be particular as to the finish, but all joints should be square and true.

The seat should be some two feet square and should be about fifteen inches from the floor. This allows for a cushion.

The legs may be of wide stuff, say 1½ by 3 inches. The arms should be wider than this.

After the frame is put together you will want some springs or you may want regular furniture springs. Those from

(Continued to page 82.)

"BEAUTIFUL BIRCH FOR BEAUTIFUL WOODWORK"

Are YOU that 100th man?



ABOUT ninety-nine men out of every hundred who design and build buildings, great and small, are agreed about "Beautiful **birch**" being beautiful, economical, durable, workable, and because of these virtues ideal for interior trim, veneer doors, floors, etc. *All-purpose hardwood!*

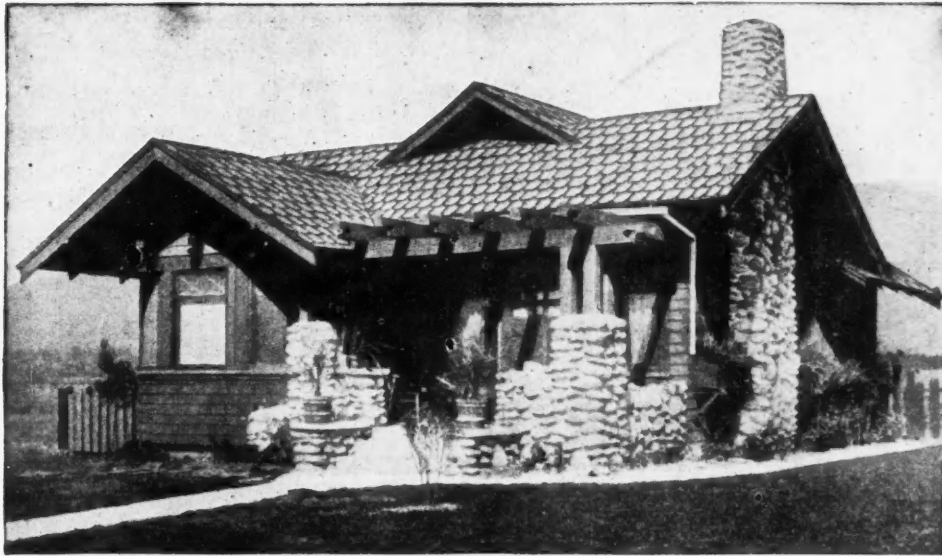
Are you that 100th man who is a stranger to "the hardwood that makes good?"

If so, our **birch** book and set of finished panels will wise you up. (If not, get them anyhow!)

Get both NOW, so you will not miss any of the business which our advertising is stirring up, every day, EVERYWHERE.

NORTHERN HEMLOCK AND HARDWOOD
MANUFACTURERS' ASSOCIATION
201 F. R. A. BUILDING OSHKOSH, WISCONSIN

"THE HARDWOOD THAT ALWAYS MAKES GOOD"



We Create the Demand— You Reap the Profits

ARE YOU GOING TO BE THE LUCKY MAN?

We develop the roofing business in your city, and all *you* have to do is to take the orders, do the work and make a good big profit.

We interest and convince your prospects with illustrated literature to the extent that he is **90** per cent. sold before you call on him.

You don't need a lot of money to go into this ART CRAFT proposition. Only a very small investment is necessary. Your money is not tied up.

Art Craft Roof

Red

Green

Silver-Gray

The only roof that nails right over old roof or direct to boards. Art Craft roof is applied in strips, but the effect is that of individual shingles or tile as shown in above illustration.

Art Craft is guaranteed material. It must give satisfaction. It can't leak or rip off. It costs only half as much as a shingle roof and is many times better.

Art Craft will improve the looks of any home, whether it be a mansion or humble cottage.

Don't delay in sending this coupon for big samples and complete information about Art Craft Roof and our plan for putting contracts into your hands. Your profit is sure and liberal. Send the coupon today—NOW.

BIRD & SON

76th at Ashland Ave.

Chicago, Ill.

Bird & Son,

76th at Ashland Avenue, Chicago, Ill.

Send me samples and complete information about Art Craft and your plan for giving me contracts.

Name.....

Address.....



The Sign —

of superiority on Black Sheets, Galvanized Sheets, Corrugated and Formed Roofing and Siding Products, and Roofing Tin Plates, is this special and added mark which indicates that *Keystone Copper Steel* has been used.



Look for this special mark below regular brands

Keystone Copper Steel is an alloy made by adding a certain amount of copper to well made steel, thereby producing a material of increased ductility, which gives greater wear and added durability. The remarkable production record of Keystone products proves that consumers realize that an eminently satisfactory material is now available, and at reasonable cost, which will prevent rust and corrosion to highest possible degree.

American Sheet and Tin Plate Company

General Offices: Frick Building, Pittsburgh, Pa.

DISTRICT SALES OFFICES:

Chicago Cincinnati Denver Detroit New Orleans New York Philadelphia Pittsburgh St. Louis

Export Representatives: UNITED STATES STEEL PRODUCTS COMPANY, New York City

Pacific Coast Representatives: UNITED STATES STEEL PRODUCTS COMPANY, San Francisco, Los Angeles, Portland, Seattle



The Proof—

of excellence is found in the high quality, consistent service and rust-resistance possessed by *Keystone* products. Careful and conclusive tests—by actual time and weather—have substantiated every claim we have made for

Keystone Copper Steel

Sheet and Tin Mill Products

Scores of independent, impartial and unprejudiced tests have resulted in thousands of staunch advocates of Keystone Copper Steel. The jury of Awards of the Panama-Pacific International Exposition, San Francisco, Cal., after careful investigation awarded this material the *Grand Prize* (highest award) for *general excellence* and *greatest merit*. Send for booklet "*Facts*"—interesting to builders and users of sheet metal products.

American Sheet and Tin Plate Company

General Offices: Frick Building, Pittsburgh, Pa.

MANUFACTURERS OF

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

This
Book of
Interiors
Offered
Free to
Your Prospects



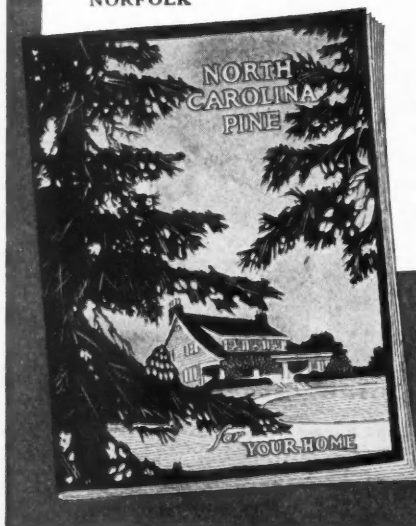
Let Us Help You Land More Contracts

WHEN you hear of a man who thinks of building, send us his name and address. We will immediately mail to him—free—one or two very handsome books in which he is sure to be interested. We will also write him, stating that his name has been furnished by you. This, you see, will have a tendency to bring the two of you together, and probably give rise to a friendly feeling on his part.

Our Home-Builder's Book is crammed with practical ideas, pictures and floor plans information the home-builder is sure to appreciate. Our book of interiors shows, in full color, the beautiful effect which may be secured by using North Carolina Pine, variously stained and enameled. Our Farm Building Book is a regular \$1 volume, containing 160 pages of plans for farm buildings. All Books FREE.

By the way, you ought to have these books yourself. If you have not already received them, write us today.

North Carolina Pine Association
72 Bank of Commerce Bldg.
NORFOLK VIRGINIA



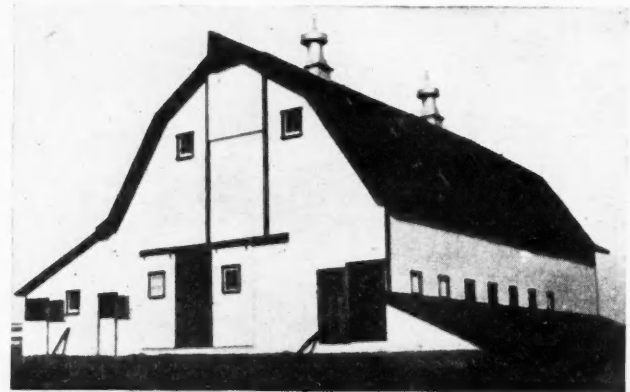
Another Book
That Your
Prospects
Will Surely
Appreciate
Sent Free

Correspondence Department

(Continued from page 78.)

an old bed could be used. They should be about four inches apart each way in the seat and about the same in the back. There should also be something of the kind in the sides and arms.

After they are in place they must be tied with strings running in both directions which will keep them in place. There should also be a covering of burlap, then padding and excelsior. Then a cover of denim and last use leather or cretonne fastened with nails to match. JOHN UPTON.



Thanks From a Barn Builder

To the Editor:

Stronghurst, Ill.

I am sending you a note of appreciation of the magazine, AMERICAN BUILDER. It has done me much good. I am also sending a photo of a barn I built last summer.

JOSEPH NEGLELY.



Better Work and Less Speed "Locking" That Door

To the Editor:

Madelia, Minn.

Here are a few words from a corner in southern Minnesota to let you know that we are not asleep.

We are busy every day and have been nearly all winter. We have a small shop located at the foot of Main Street and have it equipped with a power saw and planer, driven by an electric motor. We can make almost anything that can be made of wood. We make nearly all our own millwork.

We see that a reader from Lexington, Neb., in March issue, is asking if anyone has used Unifelt for insulation—asks their idea as to its value as compared with back-plastering.

I have not used Unifelt but am using Flaxlinum and think that it is far better than back-plastering, as you can calk it into most any crevice and crack and the cost is not beyond reach. To my best judgment and experience think it well worth the extra cost in a cold climate where anyone is building a good house.

Now a word to our brother mechanic from Creighton, Neb., in March issue, who classes himself as a speedy lock mortiser and who roasted our brother in January issue, for being slow when he gives an explanation of how he goes about filling, hanging and mortising the lock in the door complete in 43 minutes.

Now the way our Twin Valley man explains everything I would judge he has done a good first-class job and according to the best of the experience I have gained from my own practice and from other skilled carpenters I have employed for the last 20 years, I would say our Twin Valley man did rather well.

(Continued to page 84.)

The Greatest Building Material

TEN of The Long-Bell Lumber Company's large, modern mills manufacture Southern Pine. That wood's good qualities are so varied and its adaptability so superior that it is unsurpassed as an all-purpose building and structural material.

Our Southern Pine products include every form into which that wood is manufactured: heavy structural timbers of the very best dense, durable Longleaf; sturdy house framing, sheathing, siding and flooring material; soft, beautiful Short-leaf Pine for finish and interior trim; car material; creosoted fence posts, telephone poles and paving blocks.

Two completely equipped hardwood mills manufacture Gum and Saline River White Oak lumber. Our hardwood flooring plant uses the latest type of machinery and makes our famous "Forked Leaf" Brand Oak Flooring. That flooring is guaranteed to be of superior grade and perfect manufacture.

Long-Bell Brand Lumber

"The Kind That Makes Good"

is the best that good timber, modern mills, and years of experience can produce. LONG-BELL BRAND LUMBER gives customer satisfaction, gains customer confidence, builds business, meets every requirement. Let us tell you why you should specify LONG-BELL BRAND LUMBER.

Our "Forked Leaf" Brand Oak Flooring stands in a class by itself—there is none better. Ask us why!

You will better serve your own interests and those of your customers by having your local lumber dealer supply you with LONG-BELL BRAND LUMBER. Thousands of good dealers sell it—any good lumber dealer can obtain LONG-BELL BRAND LUMBER for you.

THE LONG-BELL LUMBER COMPANY

Dept. S, R. A. Long Building, Kansas City, Mo.



(Continued from page 82)

Now, as for our Creighton man, he does not say nor explain how he fits and hangs the door. He very likely uses half surface butts, which take less time than the regular, and maybe didn't care how the door fitted after it was done.

He says he can fit, hang and lock one in 30 minutes and do it all day. Now, he did not say he mortised in the lock, he just said lock one.

Now, if he fitted, hung and mortised the lock in and did a good job, that would be completing 18 doors every 9-hour day. That is going some. He has got me and all my relatives bested.

Who is next? Now I am in for speedy work, but first of all I am in for good work and if there is anything about a house where work should be done carefully and well. I think it is fitting and hanging doors and windows. What is worse about a new house than a door that rubs or binds here or there?

The best I can do is to fit, hang, mortise in lock, and trim up door complete, ten in 9 hours.

P. C. PAULSON.
Contractor and Builder.

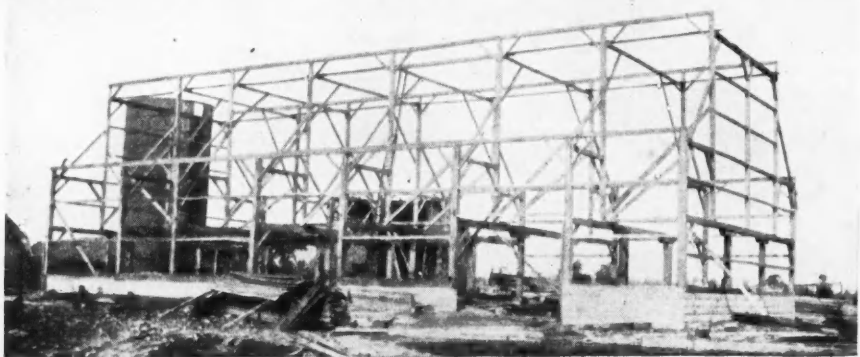


Raising Bees Thing of the Past for This Man

To the Editor: Broadway, Ohio.

An article I saw in your last issue, called a Raising Bee, reminds me of some of the same kind I used to have.

I am enclosing a snapshot of a barn I erected for H. O. Gunder, size 44 by 88 feet, solid frame native timber. The



Heavy Timber Barn Frame with 27 Feet Clear Space Thru Center.

construction is a little different, as all the ties you see in the center come out after the roof is on, leaving 27 feet entirely open thru the center and only the purlin posts on the sides. I have built balloon or self-supporting barns, but find they cost more here, have no more room, and are not any more substantial.

Myself and three men raised this barn in one day, except the purlin plates, which one man and myself put on the next morning. Two sections were 7 by 7 inches, 55 feet long. I use no other power than my hand jacks and blocks, which I carry in my Ford. No gin pole or derrick to bother with. We do not call the whole neighborhood to raise a barn anymore.

I get a lot of good information from the AMERICAN BUILDER. I use the advertising department by showing it to my patrons and ordering anything they select, which I feel I can always recommend without fear of any fraud.

Wishing you success for the future, as the past has spoken for itself in the BUILDER every month, I am,

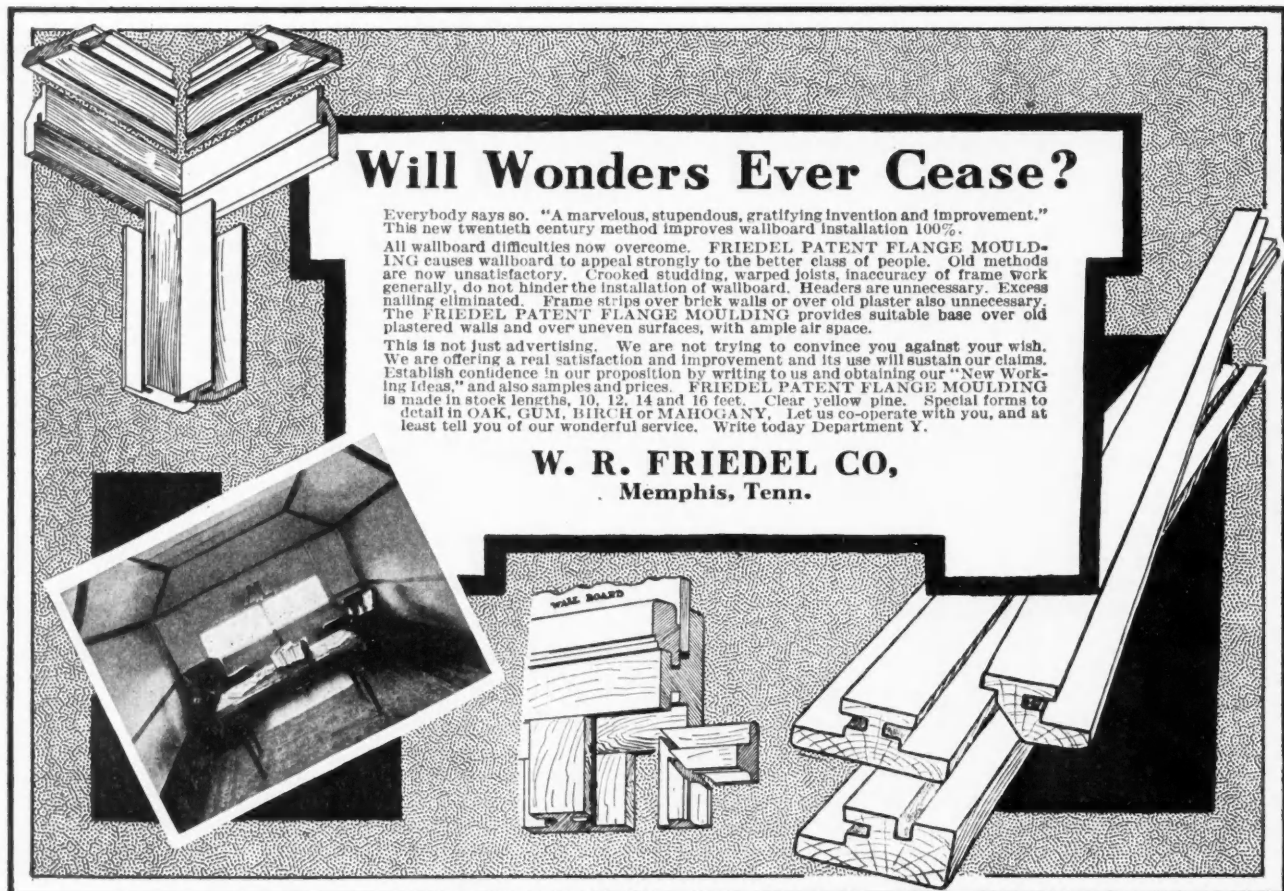
J. H. CLARK, Contractor and Builder.

Will Wonders Ever Cease?

Everybody says so. "A marvelous, stupendous, gratifying invention and improvement." This new twentieth century method improves wallboard installation 100%. All wallboard difficulties now overcome. FRIEDEL PATENT FLANGE MOULDING causes wallboard to appeal strongly to the better class of people. Old methods are now unsatisfactory. Crooked studding, warped joists, inaccuracy of frame work generally, do not hinder the installation of wallboard. Headers are unnecessary. Excess nailing eliminated. Frame strips over brick walls or over old plaster also unnecessary. The FRIEDEL PATENT FLANGE MOULDING provides suitable base over old plastered walls and over uneven surfaces, with ample air space.

This is not just advertising. We are not trying to convince you against your wish. We are offering a real satisfaction and improvement and its use will sustain our claims. Establish confidence in our proposition by writing to us and obtaining our "New Working Ideas," and also samples and prices. FRIEDEL PATENT FLANGE MOULDING is made in stock lengths, 10, 12, 14 and 16 feet. Clear yellow pine. Special forms to detail in OAK, GUM, BIRCH or MAHOGANY. Let us co-operate with you, and at least tell you of our wonderful service. Write today Department Y.

W. R. FRIEDEL CO,
Memphis, Tenn.





Why you don't have to wait for Black Rock Wallboard

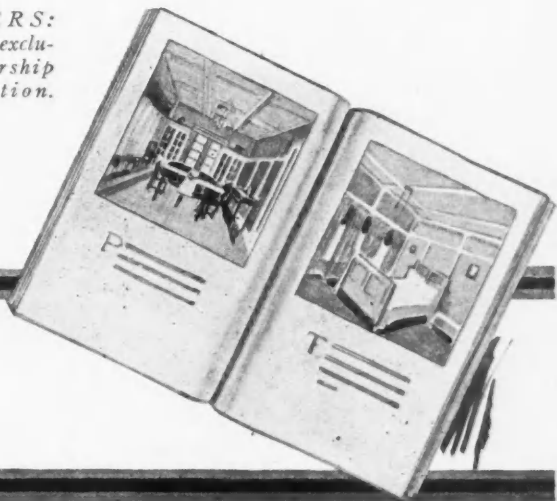
The exclusive Black Rock dealer in your city is a valuable man for a builder to know.

Most wallboard jobs are rush jobs, and, next to quality, prompt delivery is everything. It is our immense resources, both of forest and factory, that make prompt deliveries of Black Rock Wallboard possible at all times.

Quality? If you have ever seen a 3-year-old job of Black Rock Wallboard, you know how well it looks and how well it wears.



*DEALERS:
Write for exclusive
dealership
proposition.*



SEND FOR FREE WALLBOARD BOOK

This handsome, illustrated booklet shows photographs of many actual Black Rock Wallboard jobs, and tells how Black Rock Wallboard is made. Sent free on request, with a piece of Black Rock Wallboard for your examination. Ask about our Free Plan Service.

BLACK ROCK WALLBOARD COMPANY
1505 Ontario Place, Black Rock, N. Y.

This Farmer Turns Builder; Also Makes His Own Concrete Blocks

To the Editor:

Meriden, Conn.

Here is a photo of my farm house, which I built myself, out of blocks made at odd times, right here on my farm. I had never made a brick or block in my life until I set up my press and commenced to operate it.

I spent nearly a week in making up mixtures and facing, and changing moulds, and seeing what I could do and what I could not do.

I found I could do everything to my satisfaction that was described in the block machine circular and I have managed to do some things and do them well that were not described.

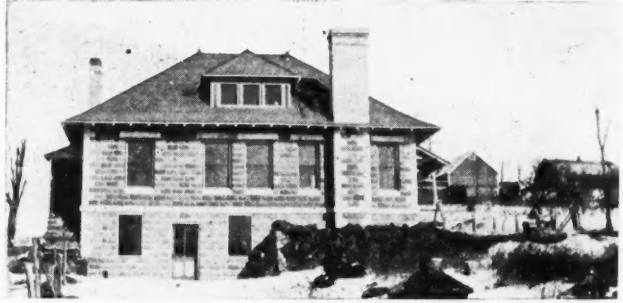
I still have the machine and expect to keep it for quite a while yet, as I have yet to make blocks for a reservoir for water located on a hill, also a building to close in a water wheel and an electric generator where I propose to make electricity for lighting all my buildings.

Also, if I am to help win this war I have got to make me some blocks to build a good hog house.

All of this work must come in between the general farm work. In the construction of all these concrete buildings I have made all the blocks and bricks with my regular farm help.

They were made in cold weather and everything cured by steam in the dead of winter in about 48 hours' steaming. I certainly am convinced that curing by steam is really the proper method.

The house on the hill was laid up in the months of December, 1915, and January, 1916, and not a sign of deterioration by freezing of the blocks, bricks or mortar in the whole building.



Concrete Block Farmhouse of C. A. Kinney.

I accomplished this feat by piping into the air space five lines of live steam, corking up the open space at night with burlap. This steam would set the mortar on a cold day in two hours in good shape.

I find this concrete work very interesting and fascinating, using all the ingenuity and originality that you possess. You will never arrive at the end wherein there is nothing more for you to learn.

I love my farm and I am proud of the beautiful concrete buildings that stand thereon.

C. A. KINNEY.



A Chance for the Gothic Roof Experts

To the Editor:

Marion Jct., S. Dak.

I would like to get some information thru the columns of the AMERICAN BUILDER. How would be the easiest way to put up a Gothic barn roof like Plate 1, which appeared in the February number? What length of the 1 by 12 boards does it require for the truss rafters for a 36-foot span, and also for a 30-foot span? What cut would they get at the

(Continued to page 88.)

Hidden Strength

That smooth outside fibre covers a wood core that puts



Trade Mark Registered, U. S. Patent Office, No. 94746

in a class by itself for **strength, rigidity and toughness**. Compo-Board walls won't warp, shrink, chip, crack or mar with the knocks of furniture. They keep out heat, cold and moisture.

It's a "right hand" material for any carpenter.

There are 1001 jobs that can be done with Compo-Board more satisfactorily, quicker and with less muss, fuss and worry.

Compo-Board is the only wall board with the wood core. Sold in strips 4 feet wide by 1 to 18 feet long by dealers everywhere.

Send For Sample and Interesting Booklet

The Compo-Board Co.

5777 Lyndale Ave. N.,
MINNEAPOLIS - MINNESOTA



Fiberlic

Wall

Board

Fiberlic

Wood Grain

Panels

The material from which it is made, the fact that the pulp is chemically cleansed and that the *fibre lengths* give the finished product that *natural reinforcement* that is lacking in ground wood boards, is in itself a guarantee of the superiority of Fiberlic from strong, permanent, economical and sanitary construction.

MacAndrews & Forbes Company

200 Fifth Avenue, New York City

Factory: Camden, N. J.

We're Working for You, Mr. Carpenter—

Advised her to upsonize said the carpenter

No more cracked ceilings or torn faded paper!

UPSON BOARD

PROCESSED

Such a splendid place to shop

UPSON BOARD

BLUE

Walls of Clear

Sunny UPSON Works White Magic

UPSON BOARD

CENTER



Qualifications for membership:

HONOR—A recognized reputation for fair and honorable business dealings.

QUALITY—An honest product of quality truthfully represented.

STRENGTH—A responsible and substantial financial standing.

SERVICE—A recognized reputation for conducting business in prompt and efficient manner.

Look closely at these advertisements—part of the Upson 1918 big publicity campaign running in nationally-read publications like the SATURDAY EVENING POST and the AMERICAN MAGAZINE.

Note how consistently we recommend the Carpenter to buyers of Upson Board. We guide them to depend on your advice and services in installing their wall board.

We feel that this work—and profit—belongs to you. It is our policy, in writing to prospective users of Upson Board, to invariably instruct them to "see the carpenter, so as to be sure of a workmanlike, satisfactory job"—rather than rely on their own efforts, no matter how simple the job may be.

Do you know of any other wall board manufacturer who tries to safeguard the Carpenter's interests?

But above all, the most important service we render the Carpenter is in giving him a board on which he can unflinchingly depend to make his every wall board installation quick, easy and profitable, without come-back or risk to reputation. If you have had unfortunate experience with irresponsible wall boards, you will appreciate what the DEPENDABILITY of Upson Board means!

No other work the carpenter does brings him a higher percentage of profit of greater satisfaction than the installation of DEPENDABLE, Blue-Center Upson Board.

It is not like other Wall Boards. The superiority of Upson Processed Board is acknowledged by our invitation to membership among the Rice Leaders of the World—an association composed of twenty-two leading manufacturers, banded together to promote the betterment of business methods, and subscribing to the principles of: HONOR in Business, QUALITY in Product, STRENGTH in Finance and Efficiency in SERVICE.

Millions of people are learning the difference between this DEPENDABLE board and cheap, inferior imitations that are not made good to make good. They learn this truth not only from the nation-wide Upson advertising, but from the owners of half a million Upsonized homes and thousands of Upsonized factories, stores, garages and other buildings.

Every Upsonizing job is an ad for the Carpenter. It boosts his reputation; brings him desirable trade.

Write us today for your Upson Board samples. Put them to every practical test. See for yourself how different this "standardized" board is from every other wall board on the market.

We will also send you useful hints on wall board application and on proved methods of building the most profitable trade.

UPSON BOARD IS NOT LIKE OTHER BOARDS

1. It is nearly twice as strong as any other wood pulp board.
2. The only wall board that looks, feels and works like wood.
3. Cuts, handles, fits and applies more easily. Carpenters have found they can install from 25% to 30% more Upson Board a day than any other wall board.
4. Does not pull from the nails, or warp, buckle and twist on the walls—like soft, punky boards.
5. The one wall board SCIENTIFICALLY PROCESSED; kiln-cured, like interior trim; genuinely water-proofed; surface-filled to give a perfect painting surface.
6. Cost of finishing included, it is by far the most economical board for your customers.
7. Made in the most complete line.
8. Holds the efficiency record of less THAN ONE COMPLAINT TO EVERY 2,000,000 FEET SOLD AND USED.

THE UPSON COMPANY

Fiber Board Authorities

53 Upson Point, Lockport, N. Y.

"What UPSON does today; imitators attempt tomorrow"

Make Spare Time Profitable

Keep a few bundles of Upson Board handy, for use in your shop. In any spare time you have you can turn out cabinets, screens, store window trims, simple household furnishings, etc. They are easy to make and sell, and will bring you in many an extra dollar.



Walls of Clear

Upsonizing works magic in a house! It transforms stained, rickety plaster and rotted, luring paper into walls of enclosing beauty.

UPSON BOARD

For Walls and Ceilings

Sunny UPSON Works White Magic

UPSON BOARD

Better than Plaster for Walls and Ceilings

UPSON BOARD

The Most Dependable Board Made in America

Better than Plaster for Walls and Ceilings

UPSON BOARD

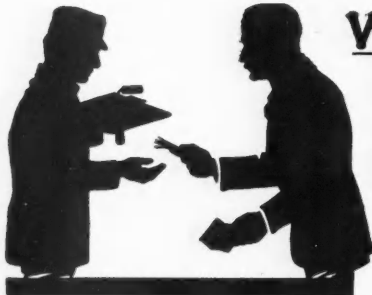
The Most Dependable Board made in America

Just wipe it off!

UPSON BOARD

The UPSON COMPANY

53 Upson Point, Lockport, N. Y.



Why Divide Profits with the Plasterer?

Recommend Carey Wall-board, then apply it yourself

or have your cheapest men apply it. Thus you save the plasterer's profit for yourself while your customer gets a better and more attractive job, all of which means future business for you.

Carey
WALL BOARD

is a better wallboard. It is twice as strong as pulp boards, hence a more suitable building material. The plies are cemented together with asphalt, making it waterproof. You can buy it in attractive wood finishes in addition to plain gray and tan.

You owe it to yourself to write for free samples and full information.

THE PHILIP CAREY COMPANY

General Offices:

1021 Wayne Ave., Lockland Cincinnati, Ohio

PLASTERGON WALL BOARD

Is
Waterproof

and will safely resist all moisture which the board encounters in use. Will not warp or buckle—and will give absolute satisfaction to you and your customers.

Economical

in these times of war-saving, Plastergon Wall Board with its low price, will present a saving to your customers that they cannot afford to overlook.

A Profit Maker

to you not only in the resale of the board, but in the application of it as well. Let our Service Department help you with your individual needs.

Samples and complete information on request

PLASTERGON WALL BOARD CO.

201 Philadelphia Ave. Buffalo, N. Y.

Correspondence Department

(Continued from page 86.)

joins and at the peak to the 27-foot radius? How many boards is it necessary to nail together to make the rafters strong enough? And also, how are the other rafters which are nailed together of 1 by 2 strips bent to stay at the required shape? Is it necessary to give them any braces? Please give details. How do you find the 27 foot radius of any span?

Hoping to see this in print soon, I am

T. P. DECKERT.



The Red Color Crooked

To the Editor:

Mexico, N. Y.

I note in your March issue, a request from Bro. Tom L. Anderson, that some clever brother advise him how to straighten his door. I desire to say, that while I lay no claim to being clever, I have straightened several doors that were sprung in a like manner, by rabbeting out at one side of the hole for the knob spindle, about $\frac{3}{8}$ to $\frac{1}{2}$ inches deep, by 1 to $1\frac{1}{2}$ inches wide, and to within 6 or 8 inches of the end of the door rail, all according to size of the rail; then nicely fit in a piece of good sound timber that is just a trifle longer than the opening when the door is sprung back straight.

I thought that I would get along without the AMERICAN BUILDER this year, and so sent you stamps for the January issue with a request that you discontinue its coming anymore; but you have sent the February and March issues, each more interesting than the last. So you will find enclosed a check for subscription for one more year, as I find it such interesting reading. I usually read the ads first and so note the "new progressives."

As you some time ago asked for suggestions as to the betterment of the magazine, I am pleased to give you at this time my views—which may surprise you. They are in regard to its color. I think it is very attractive both in design and color, but one day I happened to lay a copy (that somehow had gotten damp) upon a very nice light spread on the center table, and when my wife removed it she found both the design and color on the spread. She soon convinced me that it was not so nice as I had thought, so I would suggest that, if possible, you use a color scheme that is damp-proof.

Wishing you continued success in the publication of the AMERICAN BUILDER, which I consider the foremost magazine of its kind, I am

A. R. NELSON.



Who Will Tell How to Make Combination Storm Door?

To the Editor:

Fond du Lac, Wis.

I wish you would publish in your valuable AMERICAN BUILDER, in the near future, how to make a combination storm door. I would also like to see a little more on shop work.

AL. ZOELLNER.



Concrete Mixing Costs Wanted

To the Editor:

Cleveland, Ohio.

If your information exchange covers this, I would be obliged.

(1). A house basement and garage have to have a cement floor. The house basement is leveled off 7 inches below the finished floor and then covered with cinders 3 inches; then on top, 3 inches of concrete; 1:2:4 mix and a 1 inch top coat, 1 to 2 mix. The garage is leveled off 9 inches below

(Continued to page 90.)



*Cornell-Wood-Board as an interior finish
for offices*

*Cornell-Wood-Board transforms idle attics
into cheery rooms*

A Peace-time Building and Repair Convenience Has Become A War-time Necessity

Cornell-Wood-Board finds favor with contractors and builders because it is economical and easily put up. Many building, alteration or repair programs, which would otherwise be halted because of labor and material shortage, may now be successfully concluded with the aid of Cornell-Wood-Board.

When bids are close, the saving in expense, time and labor effected by specifying Cornell-Wood-Board often makes it possible to secure the contract and still make a neat profit.

Cornell Co-operation with contractors and builders is comprehensive. Our Department of Decoration and Design will supply you with drawings, color suggestions and cost estimates free—simply send us blueprints or rough sketches.

Cornell-Wood-Board

Excels for Walls, Ceilings and Partitions Repairs, Alterations or New Work

Cornell-Wood-Board is a non-conductor of heat and cold. It will not crack, buckle, split or warp, and nails right over the old walls or direct to the studding. It meets the requirements of cottage or mansion.

Cornell-Wood-Board has hundreds of uses, among which are its special adaptability for the Walls, Ceilings and Partitions of Residences, Garages, Bungalows, Dairy Barns, Chicken Houses, Schools, Offices, Theaters, Stores, Churches, Industrial Buildings, Army Cantonments and Farm Community Houses.

*Write for Free Samples of Cornell-Wood-Board and complete
information regarding our Co-operative Selling and Service Plans*

CORNELL WOOD PRODUCTS CO.

Dept. 104

175 W. Jackson Blvd.

Chicago, Ill.

(Continued from page 88.)

finished floor, 4 inches of cinders, 4 inches concrete, and a 1 inch finish coat. The house has 2,608 square feet, and the garage has 752 square feet.

(2). Another house and garage with cement floor. The house has 3,393 square feet, and has 3 inches cinders, 3 inches concrete, and a 1 inch top coat. The garage has 525 square feet, and has 4 inches cinders, 4 inches concrete and a 1 inch top coat.

Cinders cost \$2.10 per ton, sand \$2.85 per ton, crushed stone \$3 per ton, and Portland cement \$3.16 per barrel. Laborers wages are 55 cents per hour; cement finishers wages 65 cents per hour. Please give me figures on machine mix and hand mixing.

HARRY JS. HEWAT.



Planned by Manual Training Teacher

To the Editor: Wolcott, Ind. In most of the letters that I read in your valuable paper I hear much about what to do in the winter. With me it is what to do in the summer, as I have the supervision of the shop work and drawing in three commissioned high

schools and generally spend my spare moments in planning some building.

Am enclosing a picture of one designed and built for Mort Kilgore, cashier of the First National Bank of Goodland. It is a brick veneer with asbestos shingles, and red oak trim thruout. Much of the furniture is built in, including bookcases, linen closets, cabinets, beds, etc. This kept me busy for one vacation.

I use your magazine in my senior class and several of the boys are subscribers. I find that they and their parents are much interested in it, and they come to me with many of their building problems.

A. J. REAMES,
Supervisor of Manual Training.



Wants to Make Fuel Briquets of Shaving and Saw-Dust

To the Editor: Kent, Ohio.

Can you inform me of some process of working planing shavings and sawdust into "Briquets" for fuel purposes? The process would, of course, have to be in a measure, inexpensive.

F. A. COFFEEN,
Contractor and Builder.



Who Can Beat Seven Minutes for Setting a Mortise Lock?

To the Editor: Tucson, Ariz.

In last month's issue one of the brothers spoke of its requiring 43 minutes to set a mortise lock. Surely he must have made some mistake or means hardwood doors. Forty-three minutes seems inconceivable to me. But just to be sure, I have been making some inquiries among the boys. And every last one of them gave me the same time. I had, myself, figured on 15 to 20 minutes under ordinary circum-

(Continued to page 94.)



Are you landing the store fronts going up in your community? Mail the coupon for store front book and detail folio and we'll show you how to do it. Your cost is lower—your margin of profit greater and the mechanical result most pleasing and satisfying.

What Step Have You Taken To Overcome War Conditions?

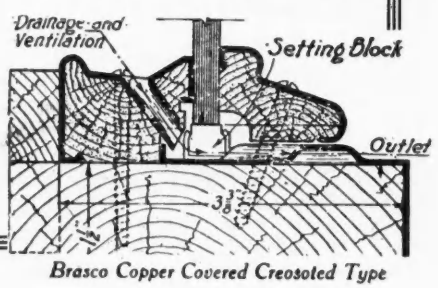
Keen minded store keepers like Rexall, Walkover and many others, are *improving* and making more *effective* every *selling force* they command. Their *store fronts* are their *greatest* selling forces—and the installation of thousands of Brasco Copper Store Fronts is the result.

Because Brasco beautifully and distinctively "sets off" their merchandise displays.

Because Brasco is commended by the most prominent architects of the country—Because Brasco costs less.

BRASCO MFG. COMPANY, 5029 S. Wabash Avenue, Chicago, Ill. A. C. 3-2-18
Please send me, without obligation or expense on my part, BRASCO DETAIL FOLIO Store Front Book. Also tell me how to land the store front work in my community.
Name.....
Address.....
Business.....

See Sweets Catalog, Pages 855 and 866
Brasco Mfg. Co.
5029 S. Wabash Ave.
CHICAGO, ILL.



Brasco Copper Covered Creosoted Type

Use Beaver Board and get the job through on time

Remember how plaster "held up" that last job? How the plasterers were busy on another job and couldn't get started for ten days; then how long it took when they did get started and how much time it takes plaster to dry?

All this time the job stood still; you and your carpenters lost time or moved tools and benches off to another job. *You lost money because of this delay.*

Use Beaver Board and not only get the job through on time but make that extra Beaver Board profit.

Time is money for you. Beaver Board saves time. Therefore this sturdy lumber product is a money-maker for you. Just give this question serious thought, let us send you some interesting literature, and we'll tell you more about the service of our Department of Design and Decoration.

THE BEAVER BOARD COMPANIES
34 Beaver Road Buffalo, N. Y.

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

Manufacturers also of Beaver Greenboard and Beaver Blackboard.

Distributors in principal cities. Dealers everywhere.



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



BEAVER BOARD

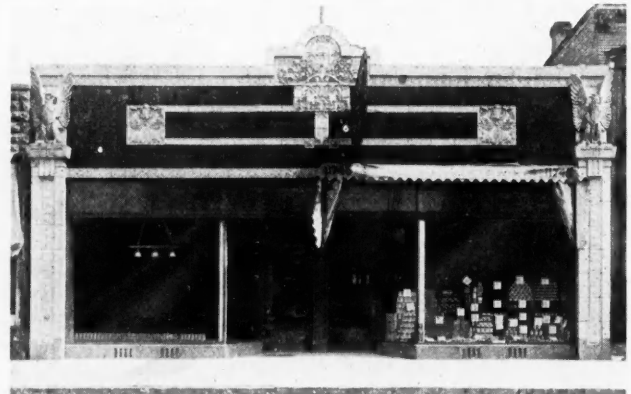
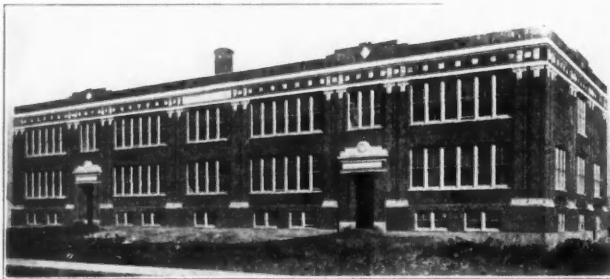
FOR BETTER WALLS & CEILINGS

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

MIDLAND

MADE
TO ORDER

CARRIED
IN STOCK



FOR BIG
BUILDINGS

FOR LITTLE
BUILDINGS

MIDLAND STOCK WHITE

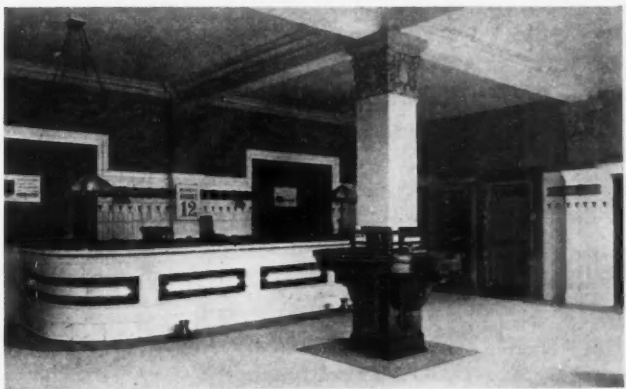
MIDLAND TERRA COTTA COMPANY

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

TERRA COTTA

ORNAMENTAL
STOCK MOULDS

DELIVERED
ON TIME



1918 PLATES
NOW READY

★★★★★
★★★★★

DEPENDABLE
SERVICE—*Always*

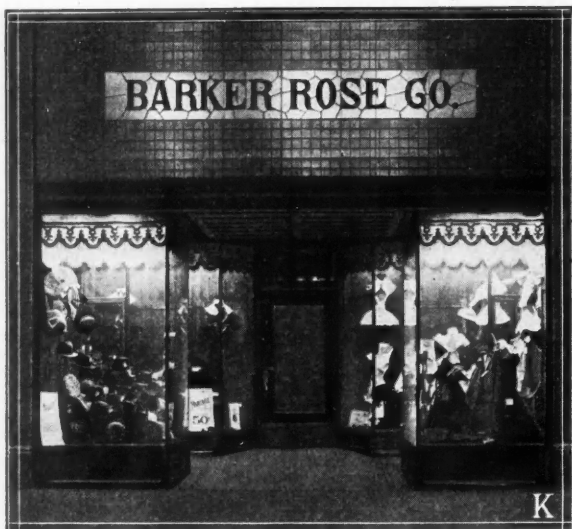
ENAMELED TERRA COTTA

SUITE 1515 LUMBER EXCHANGE, CHICAGO

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

Kawneer

STORE FRONTS



Make Use of Our Designing Service

Send us measurements and data on the store front jobs in your locality. Our Engineering Department will prepare a special design to fit the need of each particular case.

This service---it is backed by 15 years of success---assures you and your client the latest ideas in sales-pulling show windows, besides the warranty of superior quality that backs every KAWNEER Store Front.

Go after the jobs in your locality. Send for our Portfolio of Designs and show your merchants what a customer-pulling advantage they can obtain through a KAWNEER Store Front.

Don't Overlook the Coupon Below—Send It Today

KAWNEER MFG. CO.
BERKELEY, CAL. NILES, MICH. GUELPH, ONT.

✂ Pin this to your letterhead.

Send me Catalog J and Portfolio of Designs

Correspondence Department

(Continued from page 90.)

stances, white or Oregon pine doors, with redwoods 3 to 5 minutes less.

The best time I ever made on setting a mortise lock was 7 minutes. But I don't ever expect to repeat it. About two months ago I started at 4:10 to "lock the back door." We were quitting at 4:30 and wanted to lock it for the night. So I worked rapidly. *Everything* went smoothly. Seemed like every tool, each piece and screw, were right at hand as wanted. The lock set perfectly the *first time*. Keeper likewise. Well, it was just 4:17 when I got back to the bench. That is the quickest time I ever heard of. But it was purely accidental. Don't believe I could duplicate it in six months. However, I *do* claim that 20 minutes is plenty of time to set a mortise lock in a pine door, and men who call themselves mechanics should do it in 15 minutes. H. J. BLACKLIDGE.



Matching Mahogany Finish

To the Editor: East Bloomfield, N. Y.

I have an old mahogany table, on which I put a new mahogany top. Would you kindly tell me what to use and how to finish the old and new wood so it would look the same? The old part is now in the old-fashioned brownish shade.

THOMAS NEENAN.



Hand Lotions for Mechanics

To the Editor: Butte, Mont.

In answer to Mr. C. E. Holcombe's inquiry relative to the care of the hands, here are two prescriptions:

1. Take a four-ounce bottle, with three ounces glycerine, one ounce alcohol, and thirty drops carbolic acid. Wash in hot water and apply same while hands are damp before bedtime.

2. Compound tincture of benzoin, ten drops; alcohol, two drachms; rose water, one-half drachm; glycerine, one ounce. Wash in hot water and apply before bedtime.



C. A. NEWMAN.

Pipe Sizes and Scaffold Nails

To the Editor: West View, Ohio.

In answer to Mr. Louis Brandenburg's inquiry in regard to sizes of pipe will say that the area of a $\frac{1}{2}$ -inch pipe is .1963, and six of them would be 1.1781 square inches. The nearest size of standard pipe which area is nearest the total of six $\frac{1}{2}$ -inch pipes is $1\frac{1}{4}$ inches. The area of a $1\frac{1}{4}$ -inch pipe is 1.2272 square inches; a $1\frac{1}{2}$ -inch pipe, 1.7671 square inches.

In regard to building scaffolds, I always aim to put enough nails in to be sure it is safe.

L. A. OSBORNE,
Carpenter and Contractor.



The Door Hanging Debate

To the Editor: Tucson, Ariz.

Bro. A. C. Schnake, Centralia, Ill., has sure got some good stuff on door hanging, especially what he says about *the preliminaries*. I am finding more and more that where the *preliminaries* are handled in a workmanlike manner, on *any* manner of work, the *rest is easy*. About the grounds—we are using a new one now. We have a number of strips $4\frac{1}{2}$ inches by 7 feet, of $\frac{7}{8}$ -inch stuff. These we tack onto the door studs. When plaster is on we remove, take out nails and tie in bundles for the next job.

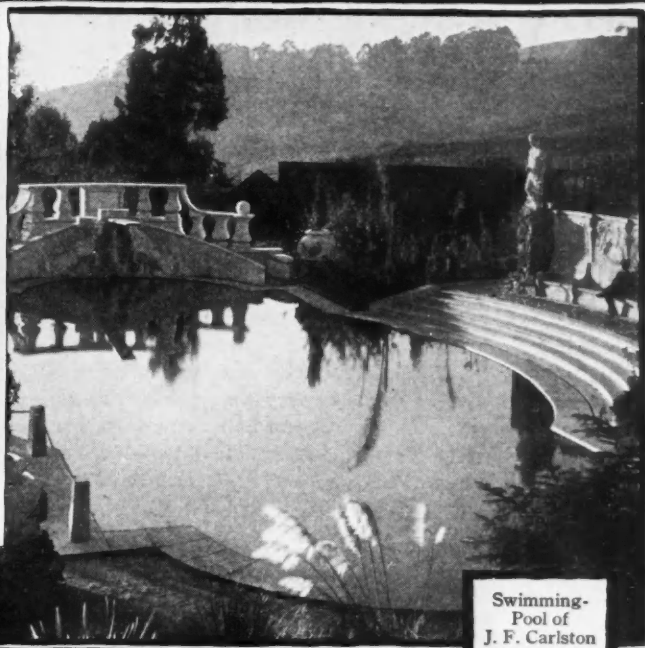
Sometimes we mortise jambs on the bench. Otherwise I fit my door, kick a chisel under to hold it right height, and stick my knife point at "7 and 11." Remove door and drop

(Continued to page 96.)



William Penn Hotel
Pittsburgh
Pa.

**Two Widely Contrasted
Examples of GF
Waterproofing Service**



Swimming-Pool of
J. F. Carlston
Oakland, Cal.

The first picture shows the William Penn Hotel of Pittsburgh. GF No. 10 Integral Waterproofing Paste was used for waterproofing the concrete.

The second picture is that of an outdoor swimming - pool on the beautiful estate of J. F. Carlston, Oakland, Cal. GF No. 10 was used on the interior of the pool.

GF No. 10 is a smooth, white Waterproof-

ing Paste which is first dissolved in the gauging water and then carried into every void in the concrete mixture that the water itself penetrates.

Upon contact with the constituents of cement the waterproofing paste forms a chemical compound which renders all the little pores in the concrete mass permanently water-repellent.

GF WATERPROOFINGS

Its absolute solubility in water insures uniform distribution throughout the mass. It forms with cement a perfect and permanent waterproofing, and in no way affects the set or strength of concrete. It is so simple to use that it reduces labor cost and eliminates imperfections due to careless workmanship. It is a great deal more satisfactory and about ten times as cheap to waterproof the

concrete while it is being mixed than after the job is completed.

GF No. 10 Integral Waterproofing Paste is only one of the 23 GF Waterproofing materials which together constitute a service equal to all waterproofing and concrete hardening problems that may arise in the experience of the engineer or builder.

They are covered comprehensively by the GF "Waterproofing Handbook." Free to any interested engineer or builder.



Trade Mark
Reg. U. S. Pat. Off.

THE GENERAL FIREPROOFING COMPANY, Youngstown, Ohio

Manufacturers of all types of Metal Lath, Concrete Reinforcements, and Waterproofings

Branch Offices: New York City, Chicago, Philadelphia, San Francisco, Kansas City, Atlanta, Cincinnati, Buffalo, Utica

The Best Dealer in Your Town has GF Products in Stock

(Continued from page 94.)

it into some kind of a jack. There are a dozen varieties, but *some* kind of a jack is essential to fast door hanging. Also have a saw horse with a shelf underneath it, for tools. Saves time and saves *back*. Now grab a butt and lay it on the upper jamb mark, using it as a *square*, when marking *size* of mortise. Now slip it to the lower mark. Turn and repeat on the door. Next, the butt gauge. Mark width, depth, in same order. Now the butt chisel. A sharp, slanting cut just below top of mortise, then straight, *on the mark*; same at bottom of mortise; then quick, sharp blows about $\frac{1}{8}$ inch apart the whole length of mortise. Now place chisel on *depth* gauge line, and *with the hand* drive it crosswise of the grain. The chips come out surprisingly easy. With a little practice the blows will be just heavy enough to cut to the depth mark. On the bench the router is *all right*, but I never had any success trying to stand on one ear and use it on a "perpen-plumbular" jamb.

Now work the door mortises in same manner. Place the butt halves, one screw in each, in same order. In fact, about half your speed is gained by this same idea of *doing a thing in exactly the same manner every time you do it—until you find a better way*. As soon as you find a new kink, *try it out*. If it beats yours, *keep it*. Hang the door—and drive the balance of the screws.

H. J. BLACKLIDGE.

To Hang That Door

To the Editor:

Lockport, N. Y.

I have been a reader of your valuable magazine for several years. I am much interested in the entire paper and especially the Correspondence Department.

I fit and hang doors about the same as A. C. Schnake. I leave my stud opening $2\frac{1}{2}$ inches larger than door, but

always have two studs on each side, which gives me good nailing all around. I always wedge and nail jambs five times on each side. I use a very simple device for holding doors for planing. I take a piece of 2 by 10 inch, about 18 inches long and cut out a slot a little wider than the door is thick, and 7 or 8 inches deep, and then nail a $\frac{7}{8}$ -inch piece about 20 inches long crossways on each end of the other edge of 2 by 10 inch. Then I put it on the floor with notch up and stick in some nails so that they will stick into floor to keep it from sliding; put one end of door in notch and wedge it tight and it is all ready for plane.

ERVEY W. COBB.

More About Door Hanging

To the Editor:

New Hartford, Iowa.

Enclosed please find check for AMERICAN BUILDER for the next year, as I can't afford to be without it.

I see quite a number of articles in regard to hanging doors, but fail to see any that have it the same as I do it.

Now for my way, to begin with I start to hang my door before the frame is set. I take the jambs on the bench and lay off the hinges so that when frame is set, the door will swing in the desired direction. Then I proceed to mortise for my butts, spacing them to suit size of door. I find this method of putting in butt gains before jambs are set very easy, as you can lay jamb flat on bench and stand up and do the work, making the operation much quicker and easier than the old way. Otherwise, I proceed as brother A. C. Schnake does in his method given in the February issue. I have a door jack for holding doors to dress which I made myself, but will not take the time or space to describe it at this time.

H. F. CAMP,

Contractor.

EXCELSIOR Wire Products

"VISCAYA"—The magnificent residence of James Deering, Esq., at Miami, Florida, exhibits many features of marked distinction in construction as well as planning and decoration. As an example, we show here a beautiful tea room opening onto a court—the entrance closed by the famous Pisani gates. This room is an excellent example of the Neopolitan Classic of the late Directoire period. The associate architects were F. Burrall Hoffman, Jr. and Paul Chalfin.

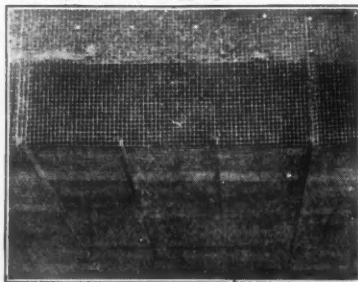
EXCELSIOR WIRE LATH—72,000 square feet of it was used—both inside and out. There were many problems in wall construction which were successfully met with Excelsior Wire Lath.

We invite you to send for Booklet F, giving more explicit detailed information.

WRIGHT WIRE COMPANY, Worcester, Mass.

Excelsior Wire Lath in Flat Ceiling Construction

This illustration shows a method of using Excelsior Wire Lath with iron furring in the construction of a flat ceiling. The tie wires hold the lath securely to the furring. As you will see, there is no sagging.



This Man is a "Die Setter"

He makes the dies through which the rods are drawn to produce the wires of proper diameter. His work, of necessity, must be accurate to the thousandth part of an inch.



One
Good Turn
Deserves
Another



Hog House—Medusa Waterproofing used for facing Concrete Blocks

The first good turn was the facing of the concrete blocks used in the construction of this hog house at Bigfoot Prairie, Wisconsin, with

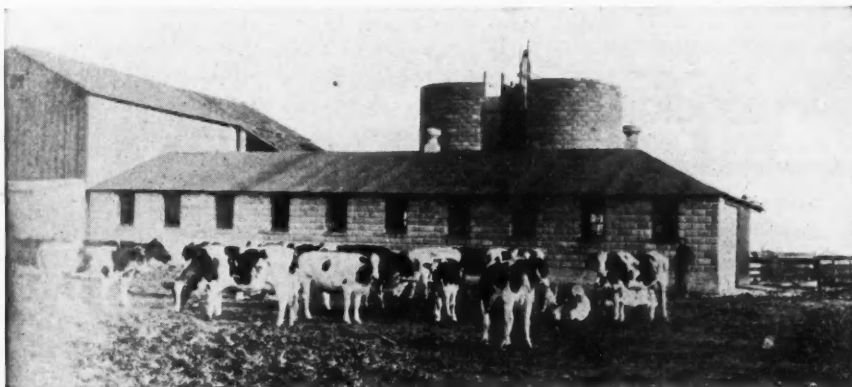
MEDUSA WATERPROOFING
PATENTED PASTE AND POWDER

The results were so wholly satisfactory to the customer of the Cement Products Construction Company, Walworth, Wisconsin, that he had the Company take a second turn and build his dairy barn and two silos—using **Medusa Waterproofing** as in the first case.

The first cost of these buildings was comparatively low and it was the last, for **Medusa Waterproofing** makes concrete work permanent, as well as watertight. The interior of the hog house was so dry that the succeeding owner turned it into a granary.

Your reputation as a builder depends just as much on how a building **lasts** as it does on how it **looks**.

Medusa Waterproofing will make your concrete jobs **everlasting**.



Dairy Barn and Silos Made Damp-proof by Medusa Waterproofing

The Sandusky
Cement
Company

Dept. G

Cleveland - Ohio

Write for booklet "Medusa Waterproofing." It contains information that you can use every day.



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

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

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

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

You can get "Artfashioned" Brick from your Local Dealer

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

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

MADE IN IOWA!

WITHOUT OUR ESTIMATE YOU HAVE NO COMPETITION

The
Whitacre-Greer Fireproofing Co.

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

Waynesburg, Ohio

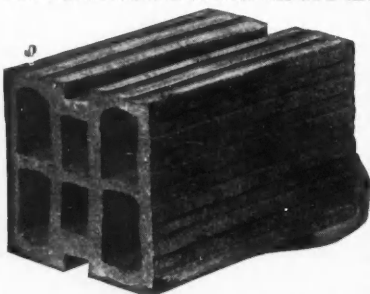
Chicago Office:
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7138 Jenkins Building

FIREPROOFING MADE OF PURE FIRE CLAY

**"HEAVY DUTY" INTERLOCKING
TILE**

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



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

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

Better to Throw Away the Warped Door

To the Editor: Watertown, N. Y.

In the March number, Mr. T. L. Anderson asks how to straighten a crooked door. I think there is only one way to do, and that is to replace it with a new one. It will be the cheapest in the end. Such a door should not have been used, as it is impossible to hang such a one and expect it to stay put. It was probably made of lumber that was sappy and hard on one side and soft on the other, which caused it to shrink unevenly. No amount of bracing will cure it—make fire wood of it.

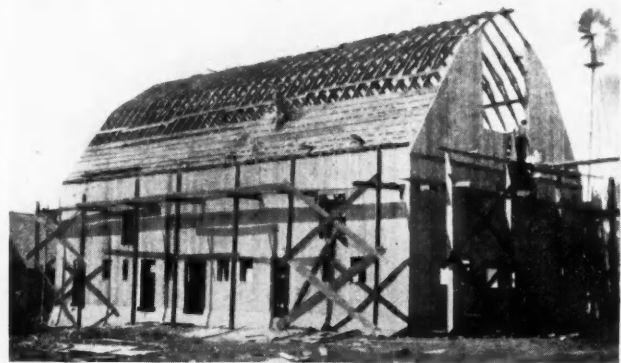
J. M. KANE.



From an Iowa Builder

To the Editor: Gowrie, Iowa.

Enclosed you will find a photo of a barn which I and my brother built last summer. This barn is 38 by 64 feet in size, and the foundation of concrete extends 2 feet above grade. Doors are cut down in foundation as shown. The studding in walls are spaced 4 feet on centers, 4 by 6 used for studs. All joists and rafters are spaced 2 feet on centers. Barn



Barn Built by C. J. Johnson & Bro., Near Gowrie, Iowa.

boards and metallic battens are preferred for wall covering in this locality.

As my subscription runs out with the February issue, I am also enclosing check for \$2.00. Please renew my subscription, as I would not think of missing any numbers of the AMERICAN BUILDER. Every number finds me waiting for it.

C. J. JOHNSON,
C. J. Johnson & Bro.,
Builders and Contractors.



Burnt Out, Builds New

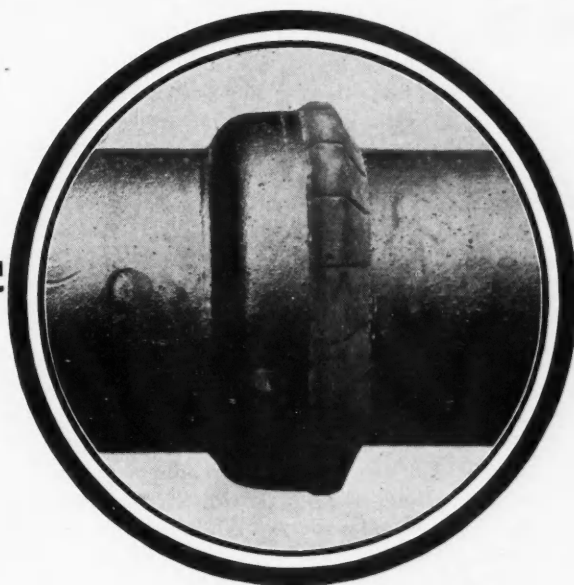
To the Editor: Cavour, S. D.

In the October issue you illustrated and described two large barns that I built in this vicinity, and in quoting from my letter in regard to some of the "skeptics" on the question of "the self-supporting roof," I said, "They admit that it's there for keeps, fire and cyclones alone excepted."

Well, the owner of these barns, Mr. Lindquist, was unfortunate in having his barn go in the first exception. One early morn, the fore part of November, it was discovered on fire, and with a strong wind there was no chance to save it. Also the wind was just right to take a small barn and the double crib and granary, moreover, six head of horses, four cows, and five calves, went with the barn. Whether the fire was of incendiary origin or spontaneous combustion has not been determined; there were about 40 to 50 tons of millet and alfalfa hay in the barn, but Mr. L says it was thoroly dried before it was put in.

He has the pluck tho and I built him a shed 30 by 60 feet for the rest of the cattle as soon as he could haul the lumber, and as the foundation and floor of the double granary was

(Continued to page 100.)



Vitrified Clay Pipe

"THE PERMANENT PIPE"

*For Tight, Economical, Lasting
House Drains and Sewers*

The "Vitrified" policy calls for tight sewers and drains that will render service indefinitely without stoppage or need of repairs.

There was a day when half-joined pipe were hastily laid in a trench and as hastily covered up. The buried pipe, like the buried head of the ostrich, was supposed to be safe. Don't blame pipe for the inevitable bad results of "ostrich" workmanship.

Vitrified Clay Pipe is as perfect a material as industrial art can devise for the business or conducting fluids underground. But its perfect satisfaction to the user depends upon the man who installs it.

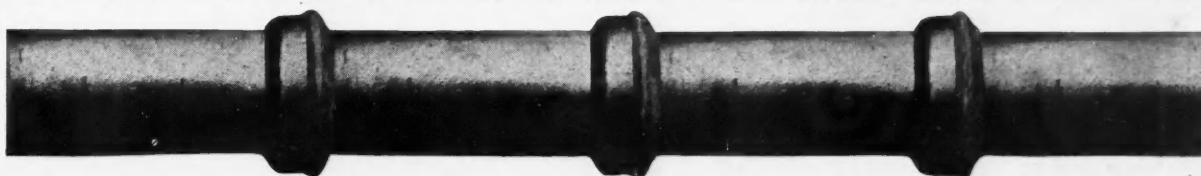
We want him to install it right. Our engineering department is at his service to advise in the latest and best methods.

Building contractors are relied upon by thousands and thousands of home builders to advise them in the details that make a satisfactory home.

You are safe in telling them to use Vitrified Clay Pipe for house drainage and sewerage. It is the material that withstands corrosion best, that defies the ordinary forces of decay for hundreds of years if need be. Remember also that Vitrified Clay is not war material.

Its price has remained proportionately conservative.

THE SEWER PIPE MANUFACTURERS' ASSOCIATION
JOHN L. RICE FIELD COMMISSIONER SECOND NATIONAL BLDG AARON, OHIO



(Continued from page 98.)

not damaged any, we are building another on the same foundation. As soon as the ground is in shape to put in the wall for the barn we will start a new one, tho not as large as the one that burned. It will be 36 by 48 feet, 14-foot posts, for horses, milch cows, and calves that he feeds.

Next I have just finished reading the discourse of several pages on the art of hanging doors, February issue. I can agree to some things and others I cannot. He says, "The ordinary door casing is 5¼ inches wide."

Well, now, out in the wild and woolly West that is *out* of the ordinary. Here we use more of 4¼ and 4¾-inch; but the way we do here when using the wide casings is to block between the double studs each side the opening with pieces of 2 by 4, and still use the "cheap screw and jack-leg" rule of 2 inches. In that way we have something solid to nail to, the jamb I mean, and when the kids slam the door it will not spring enough to crack the plaster, and you have plenty of room to nail the outer edge of the casing solid.

One other thing, as one of your correspondents said some time ago, I always gain the jamb for hinges on the bench, as it can be done in less than half the time, in case I am using full mortise butts I have no trouble in making the hinges "jibe" if I *do* gain the door *last*. With these few (?) exceptions, I will endorse the rest of his letter.

In conclusion I will say the February issue is a "Hum Dinger" and every farmer in the U. S. A. ought to have one.

WALTER B. MOORE, Contractor and Builder.



Painting an Auto

To the Editor:

LaFargeville, N. Y.

In your February issue, W. H. Cottis asks about painting a Ford; Mark Twain said: "Before you give a man advice, find out what kind of advice he wants."

There are two ways of painting an auto. Here are both:

The first and simplest way is to go or send to some supply house, and get what they call an "auto painting outfit." This contains something like the following: One half gallon auto body paint, any color desired; one quart body varnish; one lb. steel wool; one pint auto top dressing; two-inch varnish brush; two-inch oval brush; three-inch rubberset brush; cotton waste; steel shavings, and directions for use. It will cost about \$5.00. Or you can buy the auto body paint alone, with the varnish in it ready for use. One gallon will be enough. It will cost about \$2.50. Almost any desired color can be purchased.

The other way is somewhat different.

This is more like the work of the professional carriage painter in that it consists of using putty where needed, then several coats of paint, each one rubbed down with sand paper and the last with pumice stone, powdered. This is to be followed by several coats of varnish, each coat rubbed down before the next coat is applied and plenty of time given for drying between coats.

As this car is supposed to be a Ford and the owner to do the work himself we do not expect it will be the work of a professional.

I do not see any objection to the proposed coat of lead and oil as a primer if it is properly applied, allowed to dry, and the gloss rubbed off before the next coat is put on.

JOHN UPTON.



Hood for Gothic Barns

To the Editor:

Ostrander, Minn.

I liked your February issue with the farm buildings in it. We have built barns with Gothic roofs since 1914. They look best with a hood over hay door square out from gable on each side of door casings, and following curve of rafters with fascia of wood parallel with curve of gable.

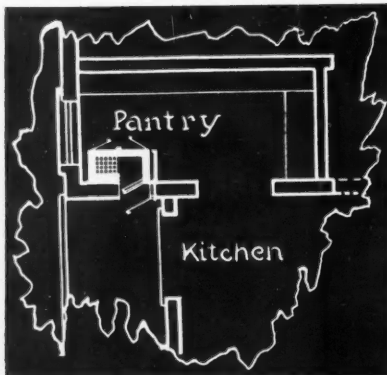
AXEL SCHONSLEY.



Specify the Herrick Outside

Icing Refrigerator on this Residence

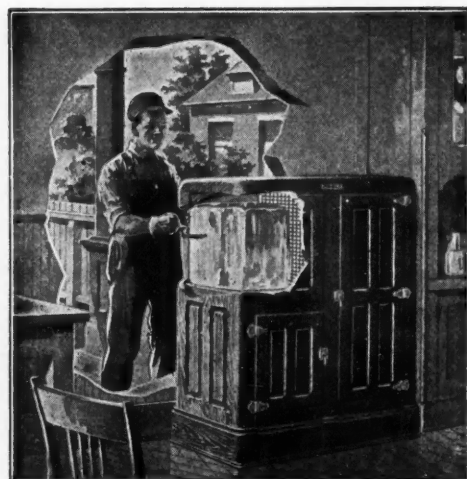
**No Ice Needed in Fall or Winter.
Filled From the Outside in Summer.
Progressive Builders Put Their
Refrigerator Problems Up To Us.**



Our Free Plans

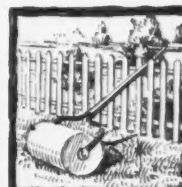
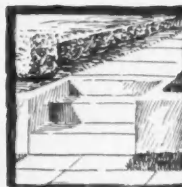
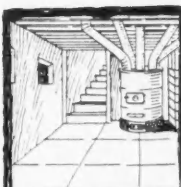
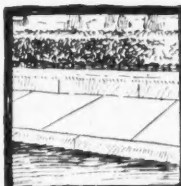
will be sent to you on request. Build up your reputation by suggesting and specifying the Herrick Refrigerator. Scientifically constructed. Assures perfect air circulation. Keeps foods clean and fresh. The Herrick requires no ice in cool weather.

For complete plans and details see editorial pages of this issue. Write for free plans and catalog.



Herrick Refrigerator Company
WATERLOO, IOWA

Thinking of making any of these Improvements?



Use Concrete

The concrete way is the saving way to build these days. The original cost is not unreasonably more than that of temporary construction, and concrete can't rot, rust or burn. It requires no painting—no replacing. Water and age merely increase its strength. There is no patented or secret process involved. Just mix

ALPHA THE GUARANTEED PORTLAND CEMENT

well with water, good sand and pebbles or crushed stone and place in forms (reinforcing required for some structures), and the result will be as enduring as if the construction were hewn from solid rock. ALPHA CEMENT is tested hourly by chemists, while being made, and every bag goes out guaranteed to fully meet standard specifications.

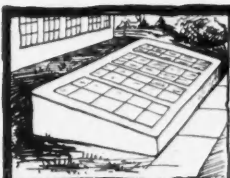
Our handbook—ALPHA CEMENT—HOW TO USE IT, 96 pages illustrated—tells the story better than we can tell it here. If you live East of the Mississippi you may have a free copy (Ask for Book No. 10), also the practical ALPHA Service Sheets on any of the following concrete improvements. This puts you under no obligation. Check the subject that interests you.

- | | | |
|-----------------|---------------|-----------------------|
| Walkway | Manure Pit | Piers for Small Boats |
| Driveway | Septic Tank | Garden Furniture |
| Roads | Tennis Court | Greenhouse |
| Small Bridges | Concrete Roof | Fence Posts |
| Culvert | Silo | Gate Posts |
| Foundation | Corn Crib | Walls |
| Gutter and Curb | Storage House | Sills |
| Storage Cellar | Smoke House | Lintels |
| Spring House | Hog House | Garages |
| Small Dam | Poultry House | Porch Cellar and |
| Milk House | Dipping Vat | Stable Floors |
| Ice House | Tanks | |

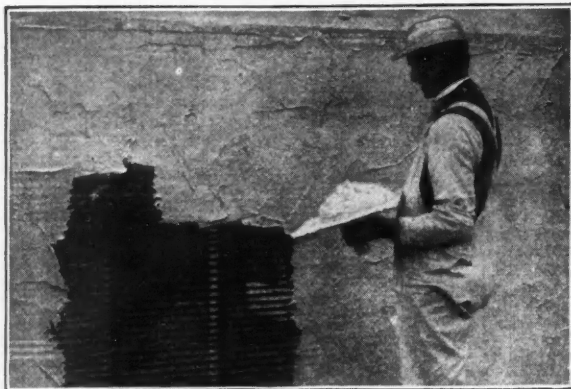
ALPHA PORTLAND CEMENT CO.

GENERAL OFFICES: EASTON, PA.

Branch Offices: New York, Boston, Philadelphia, Pittsburgh, Baltimore, Savannah



Concrete for Permanence



Plastering Rib Lath

Note heavy scratch coat, due entirely to stiffness of Rib Lath

No More Cracked and Streaked Plaster

Contractors everywhere are finding that the use of Hy-Rib and Rib Lath products prevents cracked and streaked plaster. Wood lath absorbs moisture, expands and causes the plaster to crack and streak. Our metal lath does away with this trouble.

Use **Hy-Rib and Rib Lath**—and you save forms, stiffening channels and labor. This metal lath is so stiff and rigid that supports may be placed a greater distance apart, saving in the cost of supports and labor in installation. Moreover, it provides a **permanent, fire-proof** construction.



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

HY-RIB

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

RIB LATH

A superior metal lath with beaded ribs that span between the studs, making it exceptionally stiff and rigid and permitting the wider spacing of studs. Provides a perfect clinch for plaster and prevents cracking or streaking of plaster. Saves time, labor and material in erection.

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

Write today for free copy of Hy-Rib Handbook, containing specifications, tables, illustrations, etc. Address Dept. H-44.

Trussed Concrete Steel Co.
YOUNGSTOWN, OHIO
Representatives in Principal Cities



CATALOGS BULLETINS & BOOKS RECEIVED

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

"A Technical Hand-Book on Expanded Metal Lath" has been prepared by the Berger Manufacturing Company, Canton, Ohio, and is attracting considerable attention among architects, contractors and builders. It is a book of forty-eight pages and covers, size 8½ by 11 inches, very well illustrated with working drawings, perspective sketches and photographs. A statement of the publishers is that the material in this book is entirely new and original, the drawings never having been published before. Compiled by men of wide experience in the use of metal lath.

"New Homes for Old" is the enticing title of a twelve-page, illustrated pamphlet issued by the Atlas Portland Cement Company, New York City. It tells in story form what happened to the Symonds House, and illustrates in a series of before and after photographs how a half dozen other old-style dwellings have been made new by overcoating with cement plaster.

"White Pine in Home Building." A second edition of this worth-while home-building book has come from the press, and is being distributed by the White Pine Bureau, St. Paul, Minn. In the spirit of the series of "White Pine Monographs," this book illustrates some perfect examples of Colonial architecture. Architects and builders will find the photographs inspiring. Some floor plans are given, and there are a number of detail photographs. Some interesting cost data shows relative cost of white pine with other woods for these houses.

Page's Gas Tractor Book. The Norman W. Henley Publishing Company, New York City, have published a book of 500 pages, size 5 by 7½ inches, by Victor W. Page, entitled "Modern Gas Tractor—Its Construction, Utility, Operation and Repair." All of the various elements of this important subject are discussed in simple terms. Illustrations comprising both working drawings and photographs make clear the construction and operation of all the principal commercial tractors and accessories. It is a timely book, satisfactorily handled.

"Internal Combustion Engines and Tractors" is the title of a new book of 160 pages and covers, size 6 by 9 inches, just issued by the International Harvester Company of America, Chicago, Ill. This book is compiled from a series of lectures delivered by one of the engineering staff of the Harvester Corporation, Major Oliver B. Zimmerman, of the U. S. R. Engineer Corps. The book contains a quantity of very useful and timely information.

General Supplies and Equipment for railroads, steamships, contractors, power houses, machine plants, machine shops, and all forms of industrial activity are featured in the big general catalog of Geo. B. Carpenter & Co.,

(Continued to page 104.)

TONCAN
METALS
Resists Corrosion



The Exterior Sheet Metal Work And the Punishment it Gets

Every building owner is anxious to *reduce* his *upkeep expense* as well as the annoyance of frequent replacements and repairs, therefore you should give careful attention to the selection of the sheet metal in all its various forms for his buildings.

The ventilators, skylights, window frames, conductor pipe, eaves trough, cornice flashings, roofing and siding must be able to withstand the *severe corrosive* influences constantly present in the atmosphere. Otherwise they are a constant expense and a nuisance.

Therefore, be sure that the sheet metal is *durable*. It will mean a *saving* to the building owner in the end.

Toncan Metal Sheets *resist corrosion*. Years of service *have proved* that there is no sheet metal made from iron ore that is more *durable* or more *economical* than Toncan Metal.

Toncan Metal owes its extreme durability principally to its *purity, homogeneity* and *scientific process of manufacture*. It is a *modern* metal sheet designed to withstand *modern* atmospheric conditions.

Practically anything that can be made out of sheet metal can be made out of Toncan Metal Sheets. Both, black and galvanized Toncan Metal is procurable, and it can be bought *formed up* into any of the above mentioned products, *ready for use*.

Write for a copy of "*Corrosion—The Cause—The Effect—The Remedy*"

Jobbers and Tanners everywhere sell Toncan Metal Sheets and Products

The Stark Rolling Mill Co., Canton, Ohio *Sole Makers*

Catalogues, Bulletins and Books Received

(Continued from page 102.)

Chicago, Ill. It is a veritable encyclopedia of such materials—a book of 1,084 pages, size 7 by 9 inches. An index of thirty-seven pages lists the contents.

Truck and Tractor Trailers from one-half ton to ten tons capacity are featured in the catalog of the Rogers Bro. Company, Albion, Pa. It is a booklet of twenty-four pages, size 8½ by 12 inches. Illustrates the various standard and special models of trailers which this company manufactures, and gives specifications in detail concerning them.

Andrew's Opera Chairs are presented in the Fifty-second Annual Catalog of the A. H. Andrews Company, 115 S. Wabash Avenue, Chicago. Fifty different styles of chairs are illustrated, suitable for any style of moving picture show house, school auditorium, or other use. The booklet is printed on heavy paper in two colors, and illustrates this line of goods most effectively.

"Conveying by Gravity" is accomplished by a line of very ingenious equipment offered by the Lamson Company, Boston, Mass., and illustrated in a new catalog or hand-book of forty pages, size 7 by 10 inches. Conveying by gravity in factories, warehouses, and industrial plants by means of roller chutes, slides, spirals and other gravity conveyors is illustrated by photographs of actual installations in use in many different lines of industry.

Pumping Outfit on Easy Terms

An innovation in contractors' supply circles is the proposition of a prominent concern to furnish the power pumping outfit illustrated below on easy terms—a nominal payment down and the balance monthly for ten months.

As builders are often pressed for funds at the beginning of a contract, it is likely that such an arrangement will be quite a convenience and appreciated by a good many.

This pumping outfit weighs 725 pounds, is mounted on steel wheel trucks, complete with one and one-half horsepower gas engine. The pump has a capacity of from 3,000 to 4,300 gallons per hour.

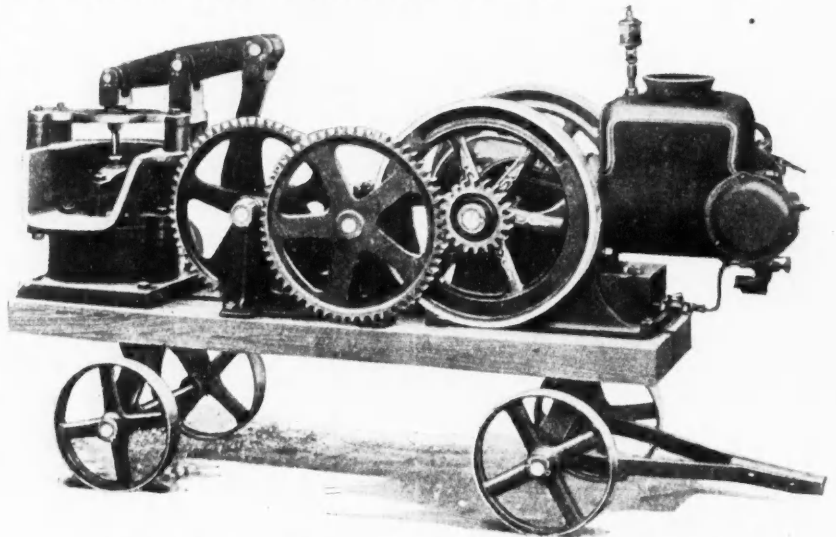
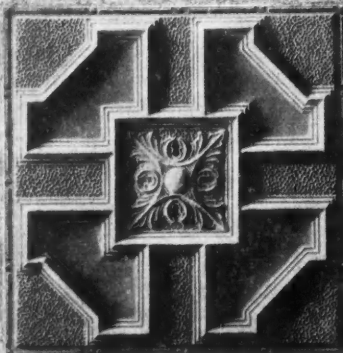
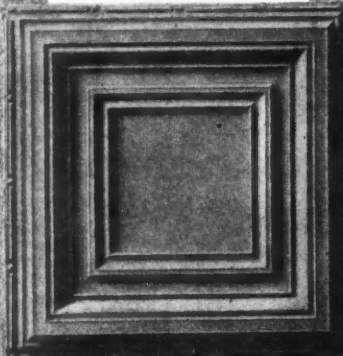


Illustration Shows Pumping Outfit with Safety Guard Detached.



Stucco—Style No. 4064



Colonial—Style No. 4056



Greek Cornice—Style No. 4244a

Perfected by 900 Tons Pressure

Berger wanted something better than the drop-hammer for forming "Classik" Steel Ceilings. Skilled engineers were set to work. The result was a draw-press of special design that applied an even pressure of **more than nine hundred tons** to every plate of

"BERGER'S"
Classik
STEEL CEILINGS

"Classik" Ceilings have all the beauty of molded plaster—every sharp relief, every bit of intricate detail, reproduced with unequal accuracy under this enormous pressure—and they possess also **the permanence of steel**. Why not consider "Classik" Steel Ceilings for the buildings you are planning? Design Catalog D-3 is yours on request.

The Berger Mfg. Co., Canton, Ohio

Branches: Boston, New York, Philadelphia, Chicago, St. Louis, Minneapolis, San Francisco
Export Dept.: Berger Bldg., New York City, U. S. A.



"VENDOR" SERVICE

The Reliable

Roofing Slate Service

**Genuine Bangor
Albion Bangor
Jackson Bangor
No. 1 Pen Argyl**

**Slatington Big Bed
Washington Big Bed
Trout Creek Big Bed
Franklin Big Bed**

The various qualities of Roofing Slate quoted above are the product of the following companies and are sold EXCLUSIVELY through the Vendor Slate Company.

WE CAN MAKE IMMEDIATE SHIPMENTS IN ANY QUANTITY—IN ANY SIZE—IN ANY QUALITY.

Genuine Bangor

Genuine Bangor Slate Co.
Old Bangor Quarry
American Bangor Quarry
Bangor Excelsior Quarry
Star Quarry
Royal Quarry
North Bangor Slate Company
North Bangor Quarry
Bangor Washington Quarry
Bangor Quarry Company
Bangor Union Quarry
East Bangor Consolidated Slate Co.
East Bangor Consolidated Quarries
Bangor Central Slate Company
Bangor Central Quarries
Bangor Supreme Slate Company
Grand Central Quarries
New Bangor Valley Slate Company
New Bangor Valley Quarries
Bangorvein Slate Company
Peerless Quarries

Albion or Jackson Bangor

Jackson Bangor Slate Company
United States Quarry
Valley Quarries
No. 5 and 6 Jackson Bangor Quarries
Albion Vein Slate Company
Stoddard Quarries
Genuine Bangor Slate Company
Albion Quarries
M. L. Tinsman Slate Company
Tinsman Quarries

No. 1 Pen Argyl

Hercules Slate Company
Hercules Quarries
Hammann Slate Company
Northampton Quarries
Shimer Slate Company
Alpha Quarries

**Slatington Big Bed
Washington Big Bed
Franklin Big Bed
Trout Creek Big Bed**

Provident Slate Co.
Genuine Washington Slate Co.
Genuine Franklin Slate Co.
Prudential Slate Co.
Washington Slate Co.
Trout Creek Slate Co.
Blue Mountain Slate Co.
Blue Valley Slate Mfg. Co.
Custard Slate Co.
Carbon Slate Co.
Thomas Slate Co.
Ellis Owens Slate Co.
Lobb, Parry & Co.
Henry Quarries Co.
Royal Blue Slate Co.
Highland Slate Co.
Manhattan Slate Co.
Roberts Bros.
Blue Vein Slate Co.
Ellis Owens Sons Slate Co.
Pennsylvania Slate Co.

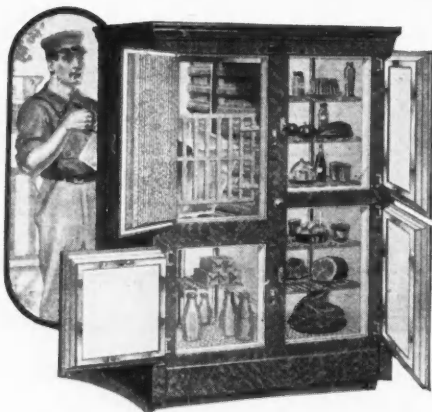
THE LARGEST SHIPPERS OF ROOFING SLATE IN THE WORLD



VENDOR SLATE CO.
I N C O R P O R A T E D
EASTON, PENNSYLVANIA



WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER



Specify the McCRAY

IN your plans for either remodeling an old building or erecting a new one—include the McCRAY Refrigerator. The many desirable features—convenience of location, outside icing arrangement, sanitary drain system, accessibility, exterior finish, etc., can be provided for best when the plans are being made.

MCCRAY

Sanitary Refrigerators

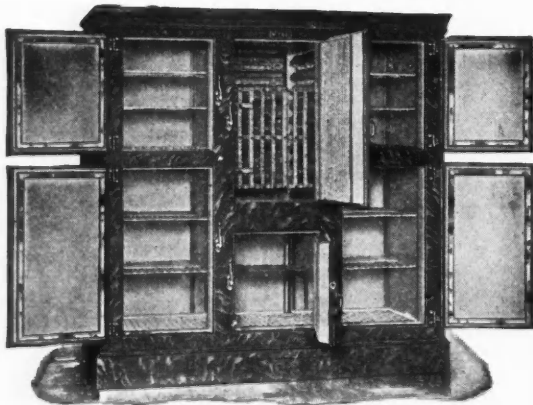
include every possible convenience in refrigerators. Their patented system of refrigeration which keeps all food in a dry cold state, eliminating all dampness and impurities—their sanitary conveniences, water sealed drain trap, opal glass linings, and many other features make them the most desirable and efficient refrigerators for the modern building.

Free Plan Service

We will be glad to send you blue prints and detailed specifications for including the McCRAY Refrigerator in your plans, as well as the helpful suggestions of our experts. Simply send us rough sketch of floor plan and our draftsmen will prepare plans for the refrigerator, estimates, etc. Avail yourself of this service at once. There is no charge.

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

MCCRAY REFRIGERATOR CO.
860 Lake Street, Kendallville, Indiana
Salesrooms in All Principal Cities



NEWS OF THE FIELD

The Greatest Insurance Business in the World

More than \$12,000,000,000 of insurance upon the lives of members of the military and naval forces of the United States has been written by the Bureau of War-Risk Insurance of the United States Treasury.

A year ago the total amount of life insurance in force in the United States was about \$22,000,000,000. In a few months the United States Government has written more than 50 per cent of that amount.

It furnishes this insurance to the beneficiaries at the same rate that private companies would furnish it in times of peace. This insurance is bought and paid for at regular rates by the beneficiaries, except that the Nation assumes the additional risk that being in the military and naval service of the country entails upon the beneficiaries.

When Americans give up their private occupations and in obedience to the call of their country and the law of the land, often at great financial sacrifice, face the dangers of war and offer their lives in the service of their country, it is but right and just that upon the nation and not upon them should be put the added cost of insurance their dangerous occupation incurs.

Secretary McAdoo says that the soldier and sailor insurance is the justest, wisest, and most humane provision ever made by any nation for its fighting forces. This opinion is shared in by the soldiers and sailors and by the people of the United States. The injustice, the partiality, the inequalities and other evils of the old pension system are replaced by a just, fair, and generous insurance system which over 90 per cent of the fighting forces of the nation have hastened to take advantage of.



Luminous Paint Instead of Electricity

A Boston hotel with a large electrical sign, when compelled to cut off its illumination under the recent Fuel Administration order prohibiting such uses of current, had the sign painted with luminous paint, which is said to be a fairly satisfactory war-time substitute.



The New Name is Truscon Steel Company

A business organization often finds in its successful growth that its original name is inadequate to cover its wider fields of activity. An example of this kind is the Trussed Concrete Steel Company which in its early days, years ago, devoted itself exclusively to reinforced concrete, introducing many new reinforcing products such as the Kahn Bar, Floretyles, etc.

For many years, however, the activities of this organization have expanded far beyond the concrete field so as to include a large variety of steel products.

Fortunately, in selecting a name embracing all its present activities this company can readily follow the trend of pop-

(Continued to page 108.)



The Complete Working Plans of This Attractive 8 Room Residence Are Given on Page 34.

THE character of the Plumbing for your home is of paramount importance. Whether you select the plans of the residence illustrated, or have others under consideration, see that the specifications call for

Wolff Plumbing

*The Standard of Quality
for Over 60 Years*

All Wolff fixtures, and every part necessary to complete installations, are made in our own factories, of the best grade of materials, and represent the most modern development of scientific sanitary plumbing. Ask the editor of this paper, your architect or builder—they know.

L. Wolff Manufacturing Co.

Manufacturers of Plumbing Goods Exclusively

General Offices:
601 WEST LAKE ST.

CHICAGO

Showrooms:
111 N. DEARBORN ST.

(Continued from page 106.)

ular suggestion. For years the company has been generally known by the name "Truscon"—a simplified abbreviation of the longer name. For this reason "Truscon Steel Company" has been selected as the new name of the company.

Aside from this simplification of the name of the Truscon Steel Company, there has been absolutely no change in the company, its organization or management in any way. Representatives, locations and everything about the company are identically the same.

The new name is the Truscon Steel Company, with plant and general sales offices at Youngstown, Ohio, and representatives in principal cities.



The Bostwick Steel Lath Co. Increases Capital

The Bostwick Steel Lath Company of Niles, Ohio, held a meeting of its stockholders on Dec. 29, and increased the stock from \$100,000 to \$400,000. The purpose of this was to take care of increased business.



An Ideal Officer

Bruce Anderson, secretary of the Ideal Engine Company, of Lansing, Mich., and well known to concrete mixer manufacturers, contractors and builders thruout the country, is a first lieutenant in the regular army and expects to leave soon for France.

Lieut. Anderson, who is a son-in-law of R. E. Olds, automobile manufacturer of Lansing, was one of the first to offer his services to his country upon declaration of war with Germany. He entered the officers' training school at Fort Sheridan, Ill., and upon being commissioned a first lieutenant was ordered to Fort Sam Houston at San Antonio, Texas.

Lieut. Anderson is an officer in Quartermasters' Machine Repair Shop No. 304, and the character of his work makes valuable the experience he gained during the several years he was an executive of the Ideal Engine Company.



Beach Mfg. Co., in New Factory

The illustration shows the new plant of the Beach Mfg. Co., Montrose, Pa., manufacturers of the Beach line of sawing machinery. The old Beach plant was burned out in November, 1916, and within a few months work was begun on the present factory. This covers 40,000 sq. ft. of floor space and is built entirely of concrete and steel. The company employs about 100 men.



Johns-Manville in New Quarters in St. Louis

The St. Louis branch of the H. W. Johns-Manville Company is now comfortably installed in their new building on the southeast corner of Olive and Eleventh Streets. The six-story edifice of modern fireproof construction thruout is a worthy addition to the retail district of St. Louis.

The building, with a 55-foot front on Olive Street and 109 feet on Eleventh, has six floors and basement, and is equipped

(Continued to page 110.)



LEARNED \$220,000 IN FOUR MONTHS

This Is Richard A. Oldham

Mr. Oldham was telegraph operator for the Illinois Central Railroad for twenty years. He is fifty-eight years old. During all those twenty years, he drew the customary monthly salary of a telegraph operator—no more—no less. One day he read one of my advertisements and the possibilities of making money in the Auto Tire Repair Business. In a few weeks he had purchased and installed a Haywood outfit, and was doing business for himself. He was **His Own Boss**. A short time ago he wrote us that his income in four months was as much as it had been in Two and One-Half Years as Telegraph Operator. You men who have been left at home—who are beyond the draft age, can and must take up the burdens left behind by others. Oldham is a living example of what can be done. I have 500 places to be filled now. 500 stations where tire repairing is neglected, because there is no one to do it.

I Must Have 500 Men to fill these places within the next 60 days

I have a big interesting book to send you—a book about tires—it explains this business—gives inside figures and profit. Gives actual proof of success—letters of others who are now operating Haywood Shops and making big money. What these men have done you can do. \$2,500 to \$4,000 a year is conservative. One machine will give you a start. You can see business all around you—everywhere there are automobiles there are tires that need repairing. You know that. All you do is open a shop—put out a Haywood sign, and auto owners will come to you and the service you bring them.

Sign the coupon and mail it today, or send a post card or letter.

HAYWOOD TIRE & EQUIPMENT CO.
M. HAYWOOD, Pres. 696 Capitol Avenue, INDIANAPOLIS, IND.



M. HAYWOOD, Pres.
HAYWOOD TIRE & EQUIPMENT CO.
696 Capitol Avenue, Indianapolis, Ind.

Dear Sir: Please send me your book on Haywood Tire Repair Plants and full particulars on your National Tire Repair Service and details of your FREE school of tire repairing.

Name

Address

The Nationally Advertised Home Heating Plant That Renders Supreme Service



Also manufacturers of the Genuine Round Oak Stoves, Boiler Iron Ranges and combination Coal & Gas Ranges.

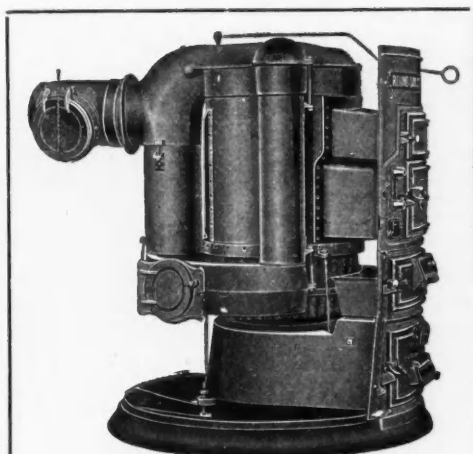
In recommending or specifying new heating plants or *replacements*, bear in mind these important Round Oak facts.

The Round Oak Moistair Heaters, according to the verdict of *unprejudiced authorities*, absolutely *head the list* in super-service, fuel saving, and lasting satisfaction rendered.

They have stood the test of time for more than 47 years—their exclusive *Health Conserving* features have established their prestige—they have won on merit the approval of over 69,000 users from whom we as yet have to hear other than commendation.

Round Oak Moistair Heating System

The Only Heating System that Automatically Ventilates and Humidifies



Five Star Points of Round Oak Supremacy

- ***Comfort**—Circulates pure, warm, everchanging air, free from dust, gas, and smoke—automatically humidified like nature's way.
- ***Health**—The one heating system that automatically ventilates and properly moistens the air you breathe.
- ***Economy**—Longest fire travel, steals most heat from chimney. Perfected hot blast, extra-deep fire pot and combustion chamber over size guarantee complete combustion with all fuels—Absolute control.
- ***Convenience**—Single regulation controls entire system. Automatic sprinkler guarantees dustless removal of ashes—extra-large ground feed doors—Burns all fuels.
- ***Durability**—Materials used stand highest physical tests. All hinge pieces drilled, not cast. Never a bolt where a rivet will do! Tight fittings guaranteed. Renders more than a generation of Supreme Service.

The Round Oak Moistair Heating System not only uniformly *heats* the home but automatically supplies the required amount of humidity demanded by *health*. Circulates pure, warm, ever changing air—air free from dust, gas, smoke.

Burns all fuel with greater economy—mighty easy to operate—simple in principle of construction—lasts more than a generation—built for a generation of service—Fully Guaranteed.

47 Years of Practical Experience Can Build No Better

Endorsed by Technical experts as the last word in the healthful and economical heating of homes—now being Nationally advertised in leading publications.

Read opposite the 5 Star Points of Round Oak Supremacy. Write for our Sales and Profits Book, also Moistair Book, featuring the Round Oak Moistair Heating System.

LEARN THE FACTS! — SEND COUPON NOW!

THE BECKWITH COMPANY

Round Oak Folks Established 1871
164 FRONT STREET DOWAGIAC, MICH.

“SHOW ME” PROFIT COUPON

THE BECKWITH CO.
164 Front St., Dowagiac, Mich.

Gentlemen:

Please send your Book on the Round Oak Moistair Heating System and show me how I can profitably handle, recommend or specify them.

Yours truly,

Name _____

Address _____

(Continued from page 108.)

with separate elevators for passenger and freight service.

The show room, 55 by 72 feet, with the entire front and side of glass, is the feature of the new establishment. One hundred and twenty-two running feet of show windows afford an unusual opportunity for the display of the entire Johns-Manville line. To supplement the show cases, five kiosks have been built in the rear of the show room to demonstrate the proper roofings to be used on various surfaces and the correct application of the different materials. This practical demonstration of Johns-Manville roofings has attracted much favorable attention from the many callers.



Archer Iron Works Again Enlarge

It was just a year ago that we reported that the Archer Iron Works, builders of the Archer end discharge mixers, had increased the floor space and capacity of their plant 50 per cent. Now the continued increase in business is forcing another addition.

This time they are building a second story, clear across the front of their big shop at 2434 W. 34th. Place, Chicago, and are moving their offices to this new room. By taking their offices off the main floor and giving this space over to manufacturing processes they gain some much needed space. The new room will house a large drafting room, experimental department as well as the executive and sales offices.



Fruehauf Trailer Company Enlarges

Capital stock of the Fruehauf Trailer Company of Detroit, manufacturers of semi-trailers of one to ten-ton capacities, has been increased to \$150,000, and the following officers elected: President and treasurer, A. C. Fruehauf; vice-presi-

dent and general manager, Harvey C. Fruehauf; secretary and sales manager, E. L. Vosler. Production of trailers has been doubled during the last two months and the dealer organization is now being enlarged.



Regular Motor Truck Freight Lines Predicted

"Within the very near future, probably during 1918, a system of motor truck lines will connect the most important transportation centers of the country, with fleets of trucks running on regular schedules and making connections at important intersecting points with branch lines extending out into tributary territory," prophesies H. P. Branstetter of the Kissel Kar.

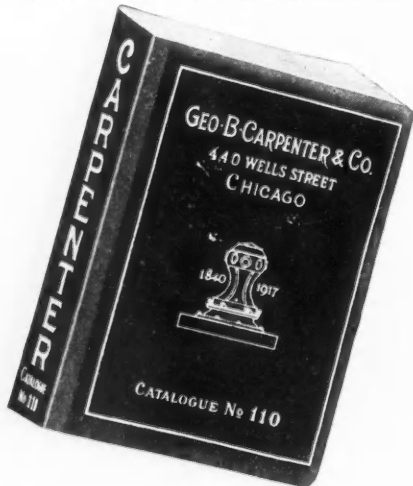
"While everyone knows that the transportation problem is one of the most serious of the many for which this country must find the solution, everybody does not realize the important part which the motor truck will play in solving it.

"Viewed in one way, the utilization of the motor truck has increased with remarkable rapidity, and yet, when you look at it from another viewpoint, it is surprising how slow business has been to take full advantage of the enormous saving of time and labor which the motor truck makes possible.

"The motor truck may fairly be said to have supplanted the team for hauling and delivery purposes. But we do not as yet realize the extent to which it is going to relieve the railroads from handling a large tonnage of small and troublesome freight, and to improve transportation service thruout the country.

"Some beginnings have been made and the results have proved most successful. Motor trucks are now running on

(Continued to page 112.)



A Real Necessity NOW

GEO. B. CARPENTER & CO

Catalogue

Now, more than ever, our new catalogue is needed on account of the dislocation of all normal sources of supply in every line of industry. You need everything that will help you; our 1100-page Catalogue will be your best friend—a real "buyer's help." You can have it on request. Send for it now; it will simplify a lot of things for you. Address Dept. 1.

Ship Builders' Equipment & Tools
Carpenter Tools
Electricians' Tools
Machinists' Tools
Machine Shop Equipment
Foundry Supplies
Blacksmiths' Tools
Contractors' Equipment
Mill Supplies
Well Diggers' Tools
Railroad Supplies
Tackle Blocks

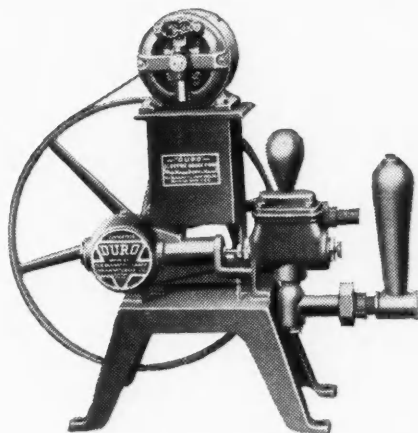
Wire Rope
Plumbers' Supplies
Roofers' Supplies
Paving & Cement Finishing Tools
Boiler & Engine Room Supplies
Grain Elevator Supplies
Hoisting Engines
Pile Drivers
Air Compressors
Pipe Fittings
Fire Fighting Equipment
Rubber & Oiled Clothing

Cotton Duck
Marine Equipment
& Hardware
Boilers
Engines
Derricks
Winches
Chain
Pipe
Bolts
Screws
Nails

Nuts
Paints
Oils
Cordage
Belting
Packing
Hose
Tents
Awnings
Flags
Pumps

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

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER



The Duro Automatic Electric Residence Water System, made by the Burnett Larsh Mfg. Co., is one of the 200 building products you will find at the Building Material Exhibit.

HAVE you considered the Duro Residence Water System for your building jobs? This is but one of 200 products on display at the permanent

Building Material Exhibit

Entire Second Floor, Insurance Exchange Bldg.
Jackson Blvd. and Wells St., Chicago

***“Look
Before
You
Build”***

Here you'll find many ways for making a better building and saving money. Here you can get figures and place orders if you wish and save valuable time. 12,000 visitors monthly. *It's free to see.*

(Continued from page 110.)

regular schedule between some adjacent cities. In England they have carried the system much further, and 'goods trains' trucks, with a string of trailers, traverse many parts of the country.

"In this development, as in so many others, the war has taught us more than we would otherwise have learned in many years. Where would the French and British armies be without their enormous fleets of motor trucks and 'lorries?' What the motor truck is doing today behind the lines in France, it can do for us in this country.

"Motor truck trunk line systems with tributary lines serving tributary districts, would be of immeasurable advantage to manufacturers in many lines, to wholesalers, retailers and to the consumer, to say nothing of relieving the railroad congestion. The manufacturer would be enabled to make quicker and more frequent deliveries to wholesalers or to retailers. The retailers' trading radius would be greatly enlarged—he would be able to give good service to a much greater number of customers. The consumer would be benefited because he would be brought nearer to the manufacturer, the wholesaler and the retailer.

"It would work just as well the other way. The farmer would be brought nearer to his market. The products of his farm could be transported more quickly and at more frequent intervals to the town or cities where his buyers are.

"We have the roads, and we can have the trucks. There is no reason why we should delay longer in making the fullest use of them. In fact, it is absolutely necessary that we do so in the near future, if we are to bring our national productivity and prosperity to the maximum."



WE are in the war to win.—Every loyal citizen.

A Bit of Financial History

The credit of the United States was so high and unquestionable that in 1900, two years after the Spanish War, 2 per cent bonds were offered at par and oversubscribed. This is a financial performance no other nation has ever equaled.

United States 4 per cent bonds in 1888, sold as high as 130 and in 1901, brought 139 $\frac{7}{8}$ on the stock market.

The United States has never defaulted on any of its bonds. Not one of its bondholders has ever lost a cent of principal or interest except those who voluntarily have taken losses by selling their bonds in a period of temporary price depression. One hundred cents on the dollar, principal and interest, has the United States always paid.

Back of the \$250,000,000,000 to \$300,000,000,000 of our national resources stands the rugged honesty of America. Liberty Loan Bonds are the safest security in the world.



Government Demand for Lumber Continues

Lumber requirements of the government for national defense will be heavy during 1918, it is forecasted in a report of the Southern Pine Emergency Bureau.

"We are advised by our Washington office that there is a large amount of prospective business in sight, which will be brought forward as the plans of the government progress," says the Bureau. "Both the Secretary of War and the Secretary of the Navy will in the future refer their lumber requirements to the Lumber Director of the Council of National Defense for his recommendation as to purchase."

The report presented to the annual convention of the Southern Pine Association in New Orleans, February 19 and 20, shows that the Bureau had placed lumber orders for the

(Continued to page 114.)



Is It Wooden Lath
OR

Which is likely to cause cracks in the wall sooner or later and to result in the ruin of costly wall decorations; and which is a constant fire risk—

SYKES EXPANDED CUP METAL LATH

The Self-Furring Metal Lath which is easy to apply — gives a perfect key — insures long life and rigid strength. Metal Lath throughout the house is a good investment. But in corners and around chimneys, Metal Lath is particularly desirable.

Let us send you booklet and sample of Sykes Metal Lath.
It is the best for Stucco Work as well as for Interior Work.

Sykes Metal Lath & Roofing Co., 504 Walnut St., Niles, Ohio



Practical Fire Resistive INDUSTRIAL HOUSES

Can Be Constructed to Excellent Advantage With
Berger's Expanded Metal Lath, Metal Lumber
and RIBPLEX

Such substantial fire-resistive construction lowers cost of upkeep, reduces insurance rates and lessens depreciation.

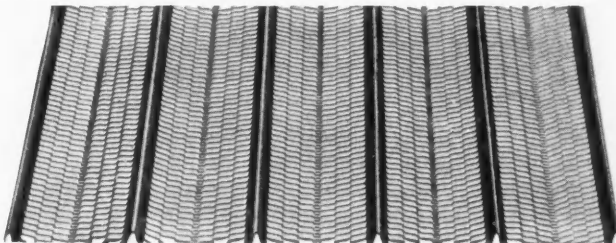
It is safe, sanitary, satisfactory and, in the long run, cheaper.

Metal Lumber joists and studding have proven their worth in hundreds of buildings of every type and in the severest of fire tests.

Ribplex, an expanded metal lath with ribs, gives reinforcement which permits wider spacing of joists and studding and practically eliminates centering or separate furring.



FRONT ELEVATION No. 1-



Ribplex—Section of Standard 6-Rib Plate.

It is used to excellent advantage for stucco and plaster, and it makes a splendid reinforcement for light-weight partitions and concrete roofs which are fire resistive, permanent and economical.

Send for sample of Ribplex with literature, Technical Bulletin No. 12 on Metal Lumber and our New Metal Lath Bulletin No. 16 which gives much interesting material on Metal Lath construction.

ADDRESS DEPT. K-3

The Berger Mfg. Co.
CANTON, OHIO

BRANCHES:
 BOSTON NEW YORK PHILADELPHIA
 CHICAGO ST. LOUIS MINNEAPOLIS
 SAN FRANCISCO

EXPORT DEPARTMENT:
 BERGER BLDG., NEW YORK CITY, U.S.A.

The five room house plan shown here is only one of many that have been prepared by our engineering department for use with Ribplex, Berger's Expanded Metal Lath and Metal Lumber.

These materials are well adapted to the construction of fire-resistive houses of any type. Our Engineering department will be glad to assist in the planning of any group of Industrial houses. Correspondence is invited.





LOUDEN Barn Plan Book

Free To
Carpenters and Builders

Building new barns or remodeling old barns is the order of the day among farmers, to care for more live stock and bigger crops. It's a field where carpenters and builders find an unusual opportunity for profitable work.

Let Louden Help You Get This Business—

- FIRST**— We want to send you postpaid without charge or obligation, a book that really surpasses anything ever written on barn building. "Louden Barn Plans" is not a catalog. The open book shown above is a fair sample of its 112 pages, devoted entirely to barn building; 74 suggestions of barns and other farm buildings with full descriptions and estimated cost of each. Gives cross section views, details of truss, floor and roof construction; chapters on drainage, ventilation, concrete work, etc. We want to send you this book *NOW*. The coupon or a post card brings it to you.
- SECOND**— Our Barn Architectural Department, the greatest organization of barn experts in America, is at your service for suggestions and preliminary blue prints. Just give us a rough outline of what you have in mind and we will be pleased to help you work out a plan that will best meet the needs of your customer. No charge for this service.
- THIRD**— If you will send us the names of farmers who contemplate building or who ought to build, we will send them our literature and help you get the business.
- FOURTH**— We want to send you the Louden general catalog, showing the full line of Louden modern steel barn equipment which is now in use in over a million barns—recognized as standard everywhere.

Let us co-operate with you. Fill out and mail us the coupon or write us a postal today.

The Louden Machinery Co.

(Established 1867)

5518 Court St., Fairfield, Iowa

Louden Machinery Co.,
5518 Court St., Fairfield, Iowa.

Please send me without charge or obligation, the book checked below.

- Louden Barn Plans
 Louden General Catalog

My Name _____

P. O. _____ State _____

(Continued from page 112.)

government totaling nearly 750,000,000 feet to December 31, 1917.

Eight thousand, nine hundred and twenty-one cars of ship timbers, totaling 148,320,546 feet, had been shipped to December 29, 1917, on orders placed by the Bureau, it is announced. Total ship schedules which the Bureau is to furnish aggregate 239, or 366,006,990 feet, leaving a balance due on that date of 217,686,444 feet.



Chicago the World's Greatest Lumber Market

Chicago is the world's greatest lumber market. The total receipts of lumber at this point during 1917, according to statistics compiled by the Board of Trade, show that a new high total of 3,354,117,000 feet was reached. This was 11 per cent more than the receipts of 1916, and an even greater amount in excess of any previous year's receipts since the beginning of the record in 1850. The shipments of lumber from Chicago during 1917 amounted to 1,518,866,000 feet, or 45 per cent of the receipts, leaving 1,835,251,000 feet which was used in construction in Chicago, or went into local stocks.

The shingle receipts last year are reported as 611,721,000, and shipments as 414,765,000—another high record showing the importance of this city as a general distributing point for structural materials.

Local statisticians who like to juggle with figures, calculate that the lumber received in Chicago last year was sufficient to build 170,000 cottages, each capable of affording comfortable homes for the average-sized family, and that the shingles that were shipped into Chicago during the same time would cover 1,400 acres of roof laid in the usual fashion. To use a perhaps more easily understandable illustration in this day of automobiles, the quantity of lumber shipped into Chicago last year was sufficient for the construction of separate garages for 1,118,000 average-sized cars, which, if placed end to end, would reach from Chicago to the North Pole.

The total amount of lumber received in Chicago during the past sixty-eight years that the record has been compiled amounts to 97,248,836,000 feet. This quantity of lumber is equivalent to the loading of 4,800,000 freight cars of average capacity, and sufficient for construction of comfortable houses for 25,000,000 people. Reduced to the equivalent of a board 12 inches wide and 1 inch thick, it would be 18,400,000 miles long.



150 by 60 Foot House Built in Three Hours

What is believed to be a record for fast building was established at Camp Joseph E. Jackson at Black Point near Jacksonville, Fla., recently when 104,000 feet of lumber were converted into an army warehouse measuring 150 by 60 feet in less than three hours. A working gang of 280 men were moved to the site on which the building now stands at 10:50 o'clock in the morning, and at 1:45 the same afternoon the last nail had been driven and the building was ready for occupancy.

The sills of the building are 8 by 13 timbers and exactly three minutes after starting work they were all set. Fourteen minutes later all the floor joists were in place. Then enough of the floor was laid so that the posts could be erected and the remainder was laid while the building was being closed in. There was no rehearsal or drilling of the men and no picking of individuals or gangs—but all the material was on hand.



NEXT time you are sick don't quit work and keep on eating; quit eating and keep on working.

\$15⁰⁰
Cash

For this Improved

ALOE

**Pumping
 Outfit**

Balance - \$15⁰⁰ a month



**Sold on 10 Days
 FREE TRIAL**

*Illustration shows
 Pumping Outfit
 with safety guard
 detached.*

Pays for itself while you use it

Make more money by adding this durable, efficient and economical Pumping Outfit to your equipment. It will help you speed up your work—avoid costly and annoying delays caused by flooding—and will more than pay for itself in the time, trouble and money it will save you. Our partial payment plan places this high grade Pumping Outfit in your hands at such small outlay that you will scarcely miss the money.

The Pumping Outfit YOU Need

The Aloe Pumping Outfit is a single unit of best construction and high efficiency. Operates at a cost of 3¢ per hour—requires no attention while running—and will lift from 3000 to 4300 gallons of water per hour in actual service, capacity depending on conditions under which pump is operated. Engine is rated 1½ h. p. and develops 2½ h. p. under brake test—cylinder bore 3¼ in.—piston stroke 5 in.—crank shaft 1¾ in. forged steel. Normal speed of engine 500 r. p. m. which can be reduced while in motion by simply moving speed changer lever. Has large water hopper, galvanized iron fuel tank and fitted with high grade oscillating magneto—no batteries required. Pump is of 3 in. Diaphragm pattern specially designed for power use—normal speed 60 strokes p. m. Outfit mounted on hand portable truck, with heavy wheels. Dimensions 5 ft. 3 in. long—24 in. wide—38½ in. high over all.

**Operates at cost
 of only 3¢ per
 hour.**

**Specially de-
 signed engine and
 pump — mounted
 on hand portable
 truck.**

**Complete unit—
 all ready for
 work.**

**Will lift 3000 to
 4300 gallons per
 hour.**

**Weights only 725
 lbs.**

**Sold on easy
 terms at regular
 cash price—
 \$165.00 f. o. b.
 factory.**

The Best—by Test

These outfits are in use in practically every country in the world—and are employed by the U. S. Government in Navy Yards and on large construction jobs. They form part of the equipment of hundreds of the largest contractors and builders. They are numbered among the labor saving devices in the factories and plants of the most representative manufacturers.

Ten Days Free Trial

So confident are we that this Pumping Outfit will meet your requirements in every way that we make you this liberal and unprecedented offer. Send for this Pumping Outfit—use it for ten days—put it to any test—and if you do not find it satisfactory in every particular—we will take it back without a word—and you will not be out one cent.

Send us \$15.00—That Is All— And this complete Pumping Outfit will be shipped to you at up on this offer—remember, you run no risk—our 10 day Free Trial offer protects you in every way. You will find this the best, strongest and most efficient Pumping Outfit ever offered at our price of only \$165.00—f. o. b. factory—and presents an opportunity you cannot afford to miss. Don't put this off—attend to it TODAY—right now—and we will show you what big value and prompt service you can always expect from the Aloe Co.

*Makers since 1860
 of high grade Engi-
 neering Equipment.*

**A. S. ALOE CO. 621 OLIVE ST.
 ST. LOUIS, MO.**

Farm Machinery Sheds Do Their Bit

THE American farmer with his "Field Artillery," or farm implements, holds the balance of power for ending the world war, according to the opinion of A. D. Wilson, Federal Food Administrator for Minnesota, as expressed at the recent convention of the Western Retail Lumbermen's Association at Royal Alexandria, Winnipeg.

Mr. Wilson continued: "The outcome of the war depends largely on the spring drive on the farms. Owing to the extremely high prices of farm machinery, we recommend unusual effort in repairing all machines for use." He urged the building of good machinery barns and the repair of old barns declaring that the protection of machinery from inclement weather was a patriotic duty at this time and, in fact, an absolute necessity if the war is to be won.



For a Nation of Home Owners

ONE of the discouraging signs of the times in this big republic of ours, remarks The Pittsburgh Observer, is "the passing of the home owner. The last census shows that of our twenty million families, fewer than six million families, representing over half our population, own no homes at all. The passing of the home owner is being accompanied by a general desertion of the rural districts, a rapid decline in the number of our citizens engaged in agriculture,

and the concentration of the people in the cities, where more than half of the people are already gathered."

This is a very pertinent comment on a characteristic of the present age which is not often given the attention it should. The big city is the magnet which draws the rural population of today, and once there, the trend of humanity is toward the apartment house on the one hand and the tenement on the other. The "buy a home" movement, just now making headway in various parts of the country, is destined to correct this tendency and to educate people to see the advantage of building homes of their own and thus developing those qualities of independence and self-sufficiency which characterize home-owning citizens. A home-building campaign should be started in every locality, and our readers should give it strong support.



Lumber Cut of 1917 Enough for Two Million Bungalows

ALMOST forty billion feet of Lumber—enough to build 2,000,000 bungalows—was produced in the United States during the year 1917, according to a preliminary estimate made by the Forest Service. The estimate is based on the reports of 17,000 mills made to the Forest Service and the National Lumber Manufacturers Association. An equal number of mills are yet to report to these agencies, but it is not

(Continued to page 118.)

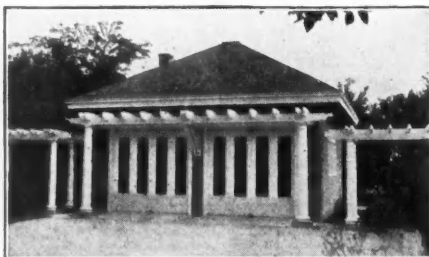
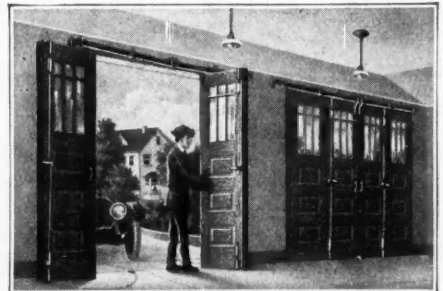
Slidetite Goes Over the Top

of every garage door where the owner seeks elegance, convenience and economy.

Installed over the top of the doorway, inside the garage. Slidetite Garage Door Hardware is out of sight and out of the way, giving opportunity for distinctive architecture. Takes away that barn door effect.

Simple to install. Easy to operate. Accessible adjustments equalize settling of building walls and bulging floors.

Saves heat. Saves space. Doors can't sag. Can't swing in the wind. First cost reasonable. No aftermath of unexpected expense for repairs or additional hardware. A complete outfit which covers every requirement of the garage builder. Adapted to any garage, public or private.



SOLD BY THE BEST HARDWARE TRADE EVERYWHERE

Write for illustrated book "Distinctive Garage Door Equipment." Sent without obligation

Richards-Wilcox Manufacturing Co.

SAN FRANCISCO
LOS ANGELES
NEW YORK
CHICAGO

AURORA, ILLINOIS, U.S.A.

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

PHILADELPHIA
MINNEAPOLIS
BOSTON
ST. LOUIS

"A hanger for any door that slides"

WAGNER CLOZTITE HANGER

For Folding Sliding Doors



The great advantage of this hanger is that very little clearance room is required—not more than the width of one single door, usually about 30 to 34 inches. By putting the track on the outside, no clearance room whatever is required. The hanger and track work just as efficiently on the outside of building as on the inside because the trolleys and top of track are fully protected by the Wagner leader track. No sagging, no chance for trolley to come off track, on sticking of doors. The Wagner Cloztitle Hanger is

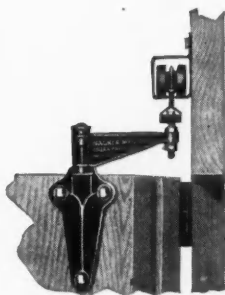
The Ideal Hanger for Garage Doors

In using this hanger two or three doors are hinged together and operate as one door. When open, the doors fold up compactly and are entirely out of the way. When closed, the door fits just as snug and tight as an ordinary hinged door in your home, making it dirt-proof, storm-proof and water-proof.

Doors are hinged together and hung to the jamb being supported at the opposite side by one Wagner Cloztitle Hanger operated in Wagner, self-cleaning, dirt-proof track. In four and six door openings, two hangers are used—one hanger for each set of two or three doors hinged to either side of jamb. Adapted for openings of any width and may be used with any number of doors, from two to six, having a total weight not exceeding 600 lbs.

Simpler, stronger, easier to attach than any other hanger or device designed for folding-sliding doors. It has a decided advantage over the extended track or adjustable bracket method in that it is much simpler and there are no adjustments to get out of order. There is less strain on the track and brackets, for the track is fastened directly to the wall at all points the same as for ordinary sliding doors.

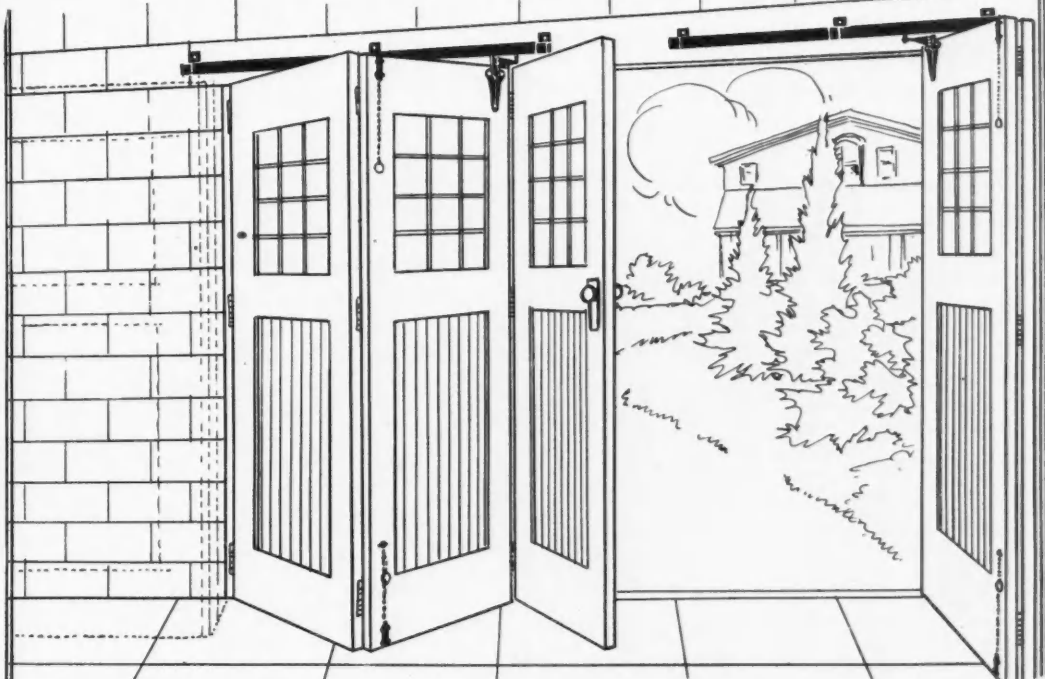
Substantially constructed of malleable iron. Has roller-bearing trolley wheels and the hanger bolt revolves on a heavy duty ball bearing swivel, insuring silent and easy operation of the doors at all times.



Doors Open



Doors Closed



Get This Free Book Before You Build a Garage

The Wagner Garage Door Hanger Book shows all kinds of plans for garage doors of any size. Illustrates and describes the Cloztitle and other Wagner Garage Door Hangers—also Wagner Hangers and Tracks for Barns, Warehouses, Docks, etc. If you are going to build a garage or other building with sliding doors you need this book.

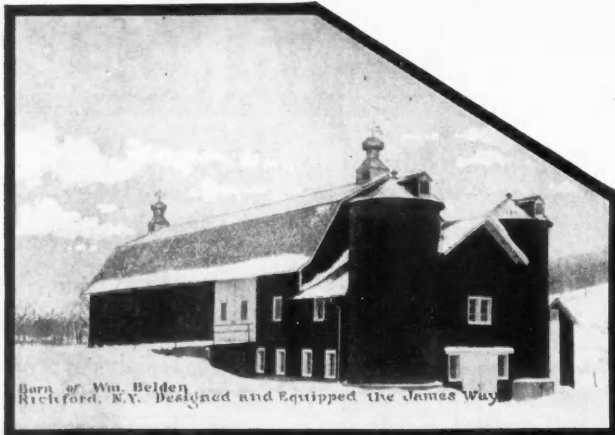
Wagner Hangers Meet Every Need—Ask Your Dealer

Leading hardware dealers sell the Cloztitle and other Wagner Door Hangers and Tracks. In the Wagner line you'll find the right type of hangers and tracks for every purpose. Your dealer can supply you. Ask for and insist upon having Wagner Hangers and Tracks.



WAGNER MANUFACTURING COMPANY

DEPT. N
CEDAR FALLS, IOWA



Barn of Wm. Belden
Richford, N.Y. Designed and Equipped the James Way

This Should Be Your Greatest Year for Barn Building

Labor conditions demand labor-saving barns! Especially is this true of dairy barns. And the same war situation that causes a labor shortage is increasing the demand for milk in America.

As a result, thousands of farmers are planning to build new and better barns—or to remodel the old barn. They are ripe to listen to persuasion—eager to learn how “The James Way” of building and equipping barns will make up for the “help” they can’t get.

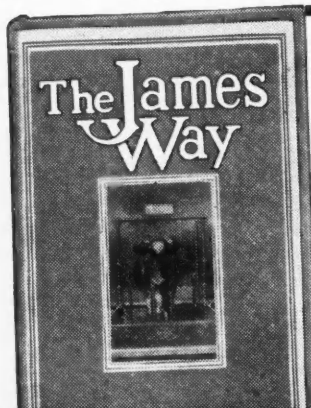
The Free 312-page book—“The James Way” will post you so that you can post them. And we will be glad to co-operate and help you land barn building contracts in your neighborhood. Send us the names of farmers you know who intend to build or remodel barns and the size of their herds and we will send you a copy of this valuable book FREE.

James Mfg. Co.

GB-75 Cane St.
Ft. Atkinson, Wis.

(East of Ohio Address)

GB-75 Williams St.
Elmira, N. Y.



(Continued from page 116.)

expected that the subsequent reports will alter this estimate radically.

It is significant to note, however, that the reports of approximately 700 mills whose production is almost equal to the aggregate production of the remaining 49,000 other mills show that the total of lumber cut of these mills in 1917, was 600,000,000 feet less than the total shipped. This is ascribed to labor conditions principally.

The government's war time demands for lumber require an accurate census both of last year's production and of the mills' capacities for 1918, and so officials of both agencies in charge of the work are urging the delinquent mills to report as soon as possible.

The estimate is based upon the reported cut of 845 identical sawmills each of which cut five million feet or more lumber in either 1917, or the preceding year. The reports of these mills indicate that in nine states there was an increase in production and in the rest of the country a decrease. The largest increase was in Missouri, where the gain over the 1916 cut was almost 44 percent. In the South, Louisiana, Georgia, Florida, and Alabama showed increases varying up to about 10 percent. Wisconsin and Michigan, in the North, and Washington and Oregon in the Northwest, were the only other states in which the cut increased. North Carolina, with a decrease of more than 22 percent, showed the greatest falling off in production. Maine had a shortage of about 20 percent. The reports from other states indicate varying percentages of decrease, with an average for all states of two percent.



Repairing and Remodeling Bring Opportunity for Wall Board

With new building construction being concentrated largely on industrial plants and similar lines, work on dwellings resolves itself very generally into repairs and renovations.

This is wall board's opportunity to ingratiate itself with the carpenter—and incidentally, the carpenter's opportunity to familiarize himself with this product and its possibilities.

There is no question of the increased market thus suddenly opened for wall board. Nor is there any doubt that the carpenter can satisfactorily and profitably meet and foster this demand, if he will exercise discrimination in the selection of the proper quality of board.

Heretofore, this little “if” has been the chief deterrent to a more general use of wall board products by the carpenter.

Building experts recognize the fact that there is obtainable a standardized quality of board which commends itself in every way as an improved interior lining and which has won a legitimate place among building materials. It has demonstrated its fitness in use and practicability of installation, for virtually every kind of building—from the modest garage or unpretentious farmhouse to the palatial dwelling or public edifice. It has won the endorsement of many leading architects and contractors.

But numerous imitations and irresponsible boards have appeared on the market—to confuse the carpenter. The essential requirements for wall board are many and exacting, and lacking these, the inferior boards have been a fruitful source

(Continued to page 120.)

Zinclad

EVERLASTING SHINGLE NAILS

Are now used more than ever before, because roof costs are much higher and good builders say they must use Zinclad's to be absolutely sure that their roofs will last. Get these everlasting shingle nails from your lumber dealer with every purchase of shingles.

W. H. MAZE COMPANY, Peru, Ill.



(Continued from page 118.)

of complaint from both the carpenters and their customers. Some boards, for instance, have been so soft and flimsy, or so brittle as to be cut, fitted and applied only with the utmost difficulty. Often they have pulled repeatedly from the nails. Then, after installation, they have given trouble in painting and also have lacked permanency under varying conditions of use and climate. As a result, more than a few carpenters using such boards have been prejudiced against wall board in general.

There are manufactured, however, very dependable wall boards which are applied easily and quickly, and which almost invariably give entire satisfaction under every condition of use. In fact, the percentage of complaint is smaller than that for almost any other building material. Board of this quality is thoroly dried or "seasoned" in the kilns; waterproofed, to effectively resist dampness or even ordinary leaks; and surface filled, to give a proper painting surface. It has great strength and extreme hardness and stiffness.

Any carpenter can readily obtain samples of the various kinds of wall board; and a few simple practical tests will indicate which boards are worthy of his confidence. Inquiry among the trade will also elicit information as to the reputation of the board and of its maker and the measure of co-operation he gives the carpenter.

Wall board installations made with good quality board, carry substantial profit. The work is easy and agreeable,

and a worth-while trade is soon established with little effort. For example, a good job done in substituting wall board for a cracked plaster ceiling usually leads to orders for installing the board elsewhere thruout the house.

Public knowledge of wall board grows with the rapidly increasing demand for it. Whether he wills it or not, the carpenter is naturally looked to as an authority on wall board matters, and it behooves him to be prepared to give proper advice and service.

This repairing and remodeling season should add considerably to the sum of his wall board experience.



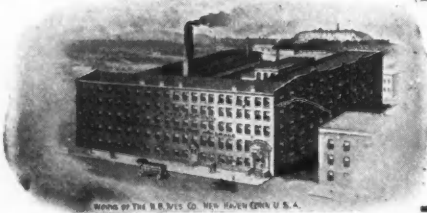
Generating Current for Electric Lighting

(Continued from page 43.)

alternating current may be purchased to advantage.

The next matter to settle is the question of the storage battery. The problem will not be so much as to whether to use such a battery as what kind and size. Practically, a storage battery must be used in the ordinary case. It affords the only means of getting a 24-hour service with a short period of operation for the generating plant. A storage battery is, in effect, what its name signifies. It "absorbs" current at one time and discharges it at any time. The current

(Continued to page 122.)



THE H. B. IVES CO.

NEW HAVEN, CONN., U. S. A.
ESTABLISHED 1876 INCORPORATED 1900

MANUFACTURERS OF
BUILDERS' HARDWARE
HIGH GRADE WINDOW AND DOOR SPECIALTIES

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\$3.00



TAKE YOURSELF FOR INSTANCE

YOU are no exception to the general rule—YOUR interest in saws is intensely *practical*. YOU pass before the numerous displays of saws on the market today that look only half ready for use, but YOU invariably always stop before the exhibition of the World's Record Simonds Blue Ribbon \$3.00 Saw.

WHY IS THIS?

The answer is very simple, indeed, because any true mechanic can tell a good saw when he has it in his hand for just one minute. Simonds Blue Ribbin Saw has the proper balance and weight. It is an exceptional saw in all respects. Apple wood handle, carved and polished. A man's size hand hole. Brass screws. Simonds special crucible steel blade. Straight back or sway back. 24 or 26 inches. Simonds saws never fail. Have YOU tried one? Buy them from your dealer or direct from us. Write for our free book "Carpenter's Guide Book."

SIMONDS MANUFACTURING COMPANY

"The Saw Makers"

FITCHBURG, MASS.

17th St. and Western Ave., CHICAGO

5 Factories and 11 Branches

GOODELL PRATT

1500 GOOD TOOLS



Automatic Screw-Driver

No. 111

With Ratchet and Locking Device

THIS tool will operate either right or left hand, automatically or by using the ratchet mechanism. It can also be used as a stationary Screw-Driver by setting the shifter knob at the star marked on the ferrule.

The spiral has just the right angle for giving plenty of power with sufficient speed for all purposes.

The spiral and spiral nuts are made of hardened steel. This form of construction makes the operation easy by insuring smooth-bearing surfaces at all times. It also prolongs the life of the tool by permitting the threads of the spiral and spiral nuts to withstand the strains to which they are subjected in a tool of this power.

Each Screw-Driver is furnished with three interchangeable tool-steel blades.

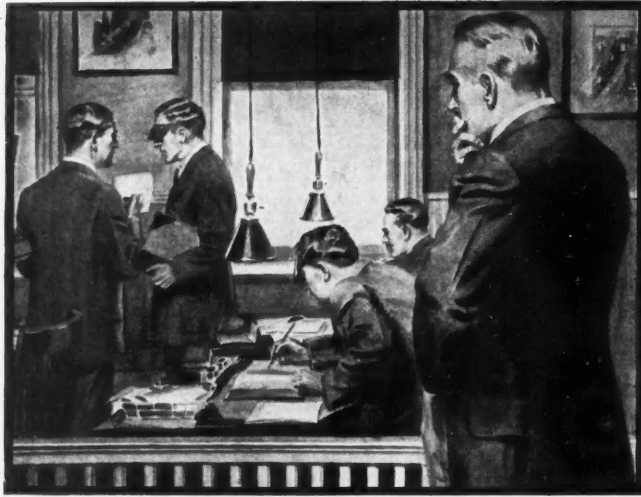
The length extended, with blade in place, is 18 inches. Length closed, without blade, 10 inches. Price \$2.00.

GOODELL-PRATT COMPANY

Toolsmiths

GREENFIELD, MASS., U. S. A.





The Boss is Sizing You Up

Whether you know it or not, he's on the lookout all the time for men he can promote. He's ready and anxious to give YOU bigger work with bigger pay once you prove you can handle it.

If you *want* to get ahead, if you want to be somebody, to climb into a position of responsibility and good money—

Get Ready—Your Chance Will Surely Come

Choose the position you want in the work you like best—then train for it. You can do it in spare time in your own home through the International Correspondence Schools.

More than 130,000 men *right now* are putting themselves in line for promotion through the study of I. C. S. Courses. This way to success is always open. All the I. C. S. ask is the chance to tell you about it. No cost to find out. Just mark and mail this coupon now.

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| <input type="checkbox"/> Architectural Draftsman | <input type="checkbox"/> BUSINESS (Complete) |
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| <input type="checkbox"/> Building Foreman | <input type="checkbox"/> Stenographer and Typist |
| <input type="checkbox"/> Concrete Builder | <input type="checkbox"/> Higher Accounting |
| <input type="checkbox"/> Plumber and Steam Fitter | <input type="checkbox"/> GOOD ENGLISH |
| <input type="checkbox"/> Heating and Ventilation | <input type="checkbox"/> Common School Subjects |
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| <input type="checkbox"/> Foreman Plumber | <input type="checkbox"/> SALESMANSHIP |
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| <input type="checkbox"/> ELECTRICAL ENGINEER | <input type="checkbox"/> Railway Mail Clerk |
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Name _____

Occupation
& Employer _____

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and No. _____

City _____ State _____

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

Generating Current for Electric Lighting

(Continued from page 120.)

charged into it must, however, be of the direct variety. Now we never get out of a storage battery as much current as we put in. That is, we pay a kind of "brokerage" fee in order to get our current stored. We should remember, then, that 1 kilowatt-hour of current taken from the storage battery costs more money than 1 kilowatt-hour taken directly from the generator. Accordingly, we make arrangements to get as large a total, in general, from the generator as we can, and leave only a small amount to come from the battery. That is to say, we arrange, if conveniently possible, to operate the generator during the few hours when light is in most demand. Our aim should be, if possible, to run the steam or the gasoline engine at or near capacity in order to get economical operation. The storage battery, if of the acid variety, may be arranged to take excess current and "store" it away. It may be advisable, accordingly, to arrange for a clean 4, 5 or 6-hour run early in the night with the idea of supplying upwards of 75 to 90 per cent of the current that will be needed in the 24 hours. During this run, we may very well aim at operating the engine at capacity. This capacity may or may not be greater than what is required for the maximum demand of the lights. It is a question of economy, of future demand, etc. It will probably not be very good economy to use an engine having a capacity much in excess of the present needs, as in such case we may be forced to operate a good deal at too low a speed. If all we want to provide for is an excessive demand for light for a few nights in the year, then a good way will often be simply to have a big storage battery capacity. The great feature about a battery is that we may use it at any time, day or night.

Storage batteries may be charged slowly or rapidly. Approved practice seems to require that the rate be such as to accomplish a full charge in 8 hours. Ordinarily, however, the battery will only now and then require a full charge. It is possible to put a full charge in in 5 hours, but this is not recommended for constant practice. The rate at which the energy in a battery is used up has an effect on the total to be obtained from it at that rate. Thus, if we draw out current at a rapid rate, the total obtainable at that rate will be less than if we draw out at a slower rate. We can however, withdraw the remainder at a lower rate, so that the energy is not exactly wasted to any very considerable extent. But this matter of rate of withdrawal is something we can not fully control. We have, for example, a big demand for the energy in the battery. There is nothing much that we can do but go ahead and use it, especially if the demand comes when it is impossible to make the generator help. Perhaps it will be well to be more explicit? Suppose we have a 110-volt battery charged to capacity with 100

(Continued to page 124.)



DEVOE

LEAD and ZINC PAINT

Fewer Gallons—Wears Longer

DEVOE protects your clients' property and also the reputation of the architect or builder who authorizes its use.

The Guarantee of Purity on every can is absolute assurance that the package contains only pure white lead, pure white zinc, pure linseed oil, pure turpentine dryer, pure tinting colors—and **NOTHING ELSE**.

Naturally DEVOE Lead and Zinc Paint goes further and wears longer than paints adulterated with barytes, whiting, silica and other worthless "extenders."

DEVOE is all paint—100% paint—PURE paint to the last drop in the can.

Many old colonial homes have been preserved by using DEVOE Lead and Zinc Paint, the purity of which has added years of life to the properties to which it was applied.

DEVOE

The oldest paint manufacturing concern in the United States. Founded in New York 1754

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HAVE YOU?

Have you specified Clinton Mortar Colors for that new building yet? Every brick building should have Clinton Mortar Colored Joints.

Clinton Mortar Colors

Clinton Mortar Colors are the very best. They go hand in hand with Permanent Construction. Add to the selling value of your building—so give the proper care and attention to the Coloring of Mortar Joints—same as you would do in ordering the correct quality and color of face brick.

Clinton Colors are packed with great care. Request our samples and catalog.

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Costs Half For FLOORS and Woodwork

And gives you better looking, longer lasting results. You may think it can't be done—but just get a gallon and see! Does the work of shellac, lacquer and all of the highest priced inside varnishes.

NOW YOU Degrah

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instead of "Shellac"

Degrah is entirely different from any product on the market. Dries in three hours. Hardens over night. Resists everything. Gives an unusually high, natural gloss or rubs to a flat wax-like finish. By all means use Degrah this spring. Say to your dealer, "I want Degrah." If he hasn't it and won't get it for you, take nothing else. Tell us, and we will see that your wants are filled at once.

Send for sample on paper with full particulars

Don't forget Keystona Flat Finish and Edelvise Enamel — for Walls, Woodwork, Radiators and all Metal Surfaces. Both are unequalled for the highest class work.

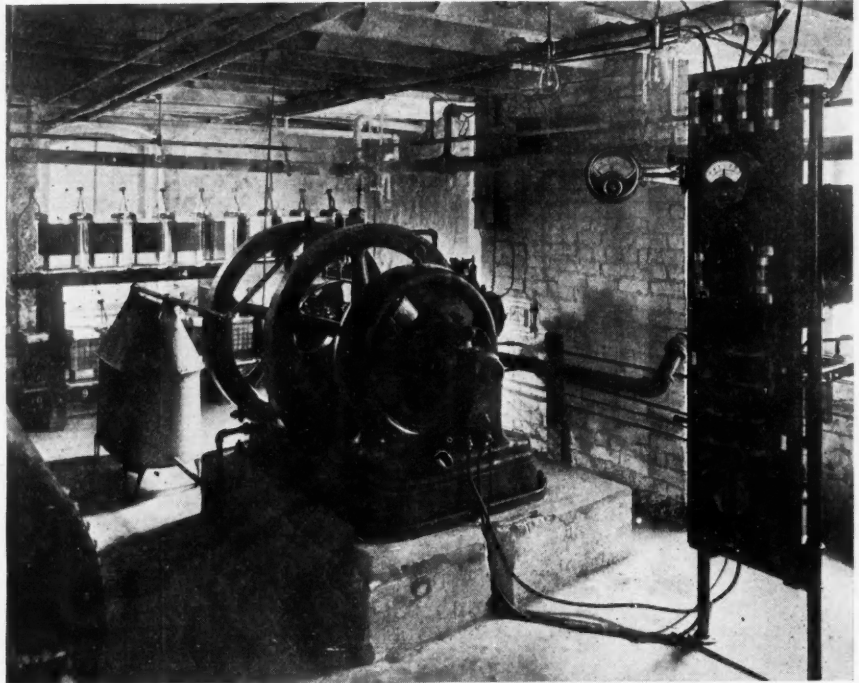
Keystone Varnish Company
2008 Keystona Bldg. Brooklyn, N. Y.

Generating Current for Electric Lighting

(Continued from page 122.)

ampere-hours of current. If we take the energy out gradually at the rate of $12\frac{1}{2}$ amperes per hour, the battery will last for 8 hours, giving a total of 100 ampere-hours. But, we may have an excessive demand for light—enough demand, say, to call for 50 amperes per hour. We can get the current at this rate, but the battery will be exhausted in one hour, insofar as furnishing current at this rate is concerned. The total energy obtained will only be 50 ampere-hours, which is one-half the total energy put in. The remaining 50 ampere-hours, or thereabouts, may be gotten, but we will have to slow up on the rate. Now, if we have a battery of such size that it is ample for an ordinary, regular demand for 10 or 12 amperes per

hour for several hours, we should do very well with the particular battery mentioned. The same battery will be capable of handling four times as many lights but it will soon be incapable of operating the full total of lights. Still, it is an advantage that we can make the excessive call. The current will perhaps cost more



Generator Capacity Equals 6 k.w., 450 r.p.m. Kerosene Engine Direct Connected to Generator, 10 h.p. Storage Battery in Background. Switchboard on the Right (Foreground). 32-Volt System. Huntington County Infirmary, Huntington, Ind.

per kilowatt-hour, but, even so, we get our abnormal demand taken care of at an expense which is scarcely to be objected to, since it soon passes away.

A big, generous storage battery is a good thing. An engine, whether steam or gas, that is too big for its

(Continued to page 126.)

CONVINCE YOURSELF

Follow the lead of successful contractors of today.
We show you how to do it with

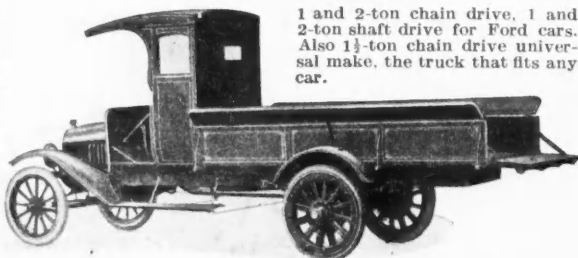
THE HOOSIER MAKE-A-TRUCK

The HOOSIER MAKE-A-TRUCK is the only answer to the cheap hauling question. You can no longer say, "I can't afford it." Simply attach a Ford chassis to the HOOSIER MAKE-A-TRUCK—you then have a dependable truck with only one-third usual cost. Maintenance expense only while in action. Now is the time to buy. By writing now you can secure agency in your territory and save yourself the agent's commission. You need a HOOSIER MAKE-A-TRUCK—so sell him one and make profit for yourself. Make quicker trips—more trips—and carry heavier loads. Multiply your profits and territory by three.

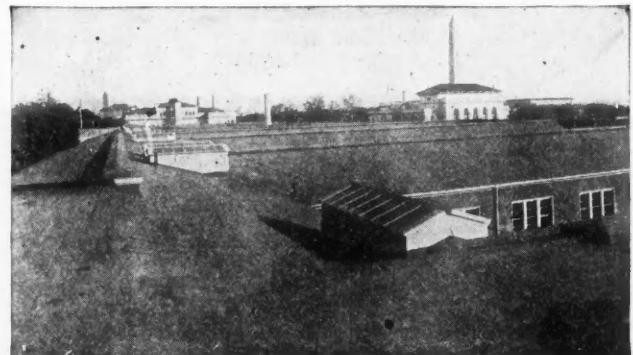
Save yourself this agent's commission. Enlist our transportation experts to solve your hauling problems. Write today.

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1 and 2-ton chain drive. 1 and 2-ton shaft drive for Ford cars. Also 1½-ton chain drive universal make, the truck that fits any car.



The Food Administration Building, Washington, D. C., Covered with 900 Squares Green Rex Slate Surfaced Roofing.

When the Government needed roofing—quickly—for the new Food Administration Building, those in charge of construction remembered **Flintkote Service**—and **Flintkote** quality.

When the Army Cantonments started building, close service by those who supply the materials was necessary. **Flintkote** delivered over 100,000 squares of standard roofing required without the slightest delay that might hinder the work.

This is the kind of service **Flintkote** always endeavors to give every customer.

Catalog, Samples, Prices on Request

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BAYONNE

ROOF AND DECK CLOTH



After all, the test of a good roof is to be found in its ability to withstand the attacks of weather. The nooks and corners on eaves and gables must be leak-proof, weather-proof, wear-proof.

BAYONNE ROOF AND DECK CLOTH

offers all these advantages. Easy to lay. Fits perfectly into the corners. BAYONNE is economical, too. Costs less, wears longest. Unaffected by changing temperature. Cannot crack or corrode. Prepared by patented process.

BAYONNE is especially adapted for roofs, sleeping porches, conservatories, piazzas and other places exposed to constant wear.

Sample Book "N" Gives Prices and Laying Instructions. Write for it.

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EXTRA DENSE LONG-LEAF PINE



THE MORE YOU'LL REALIZE THE VALUE TO YOU OF RECOMMENDING IT.

"BOGALUSA" is the name *BY WHICH TO BUY* the BEST LONG-LEAF PINE THAT GROWS.

FOR ALL STRUCTURAL USES, SPECIFY "BOGALUSA"—that is your guaranty. And unless you can identify the lumber delivered as real "Bogalusa," you'll refuse it as "not per order."

WRITE US. (Cutting 1,000,000 feet a day still leaves us time to take an interest in YOU.) There's a real value for you in the Bogalusa Book. (Free.)

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BOGALUSA

"THERE'S A DIFFERENCE"



When properly laid, Con-Ser-Tex affords a neat, smooth, hard surface which will remain so under the most severe wear.

INDESTRUCTIBLE

CON-SER-TEX is a special, chemically treated cotton fabric which is not subject to the deteriorating effects of oil in Paint-Dry Rot nor mildew. It is not affected by rain, snow, sun, wind, heat nor cold. It is ideal as a roof or floor covering—it is sound-proof, and a non-conductor of heat and cold. Easy to lay—saves labor costs and eliminates the necessity of the expensive roof and floor lumber. Make lower bids by using Con-Ser-Tex for roofs and floors.

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Stop Those Leaks!

THE easiest and quickest way of repairing leaks in radiators, pumps, water jackets, motor head gaskets, hose connections, etc., is to use Johnson's Radiator Cement. This will stop the leaks in just a few minutes without laying up the car. No mechanical experience is required—all you have to do is remove the cap and pour the cement into the radiator.

JOHNSON'S RADIATOR CEMENT

Quick—Efficient—Harmless

Johnson's Radiator Cement contains no powders, cement or anything which can coat or clog the cooling system, and is absolutely harmless in every respect. It will ordinarily seal a leak in from two to ten minutes.

Johnson's Radiator Cement blends perfectly with the water until it reaches the leaks—just as soon as it comes in contact with the air it forms a hard, tough, pressure-resisting substance which is insoluble in water making a permanent seal.

Quarts. . \$1.75 Pints. . \$1.00 Half-Pints. . \$.65

Write for our folder on "Keeping Your Car Young"—it's free.



If your dealer cannot supply you, use attached coupon.

S. C. JOHNSON & SON, Dept. ACB 4
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I enclose \$1.00 for which please send me, all charges prepaid, a pint of Johnson's Radiator Cement. Also send me, free your booklet on "Keeping Your Car Young".

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My Dealer is

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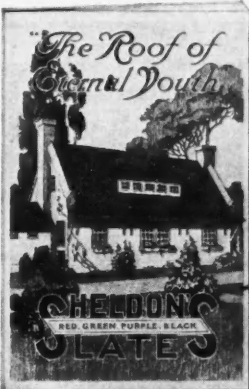
(Continued from page 124.)

job is hardly economical. However, a good, big boiler is to be regarded as an advantage. With a big storage battery, our demand will ordinarily be for a comparatively slow discharge. Besides, we will be ready for an excessive demand lasting for a time.

Storage batteries are made up of cells. These are united *in series*, as a rule. That is the positive terminal of one cell is connected to the negative terminal of the cell ahead and the negative terminal to the positive terminal of the cell behind. This arrangement leaves two terminals, a positive and a negative, unconnected. These may now be connected to like terminals in the circuit. The amperage of the battery will remain the same as the amperage of the single cell. If greater amperage is required we may use larger cells. Or, we may divide the total battery into two groups of cells. We then connect the cells in each group in series, and finally connect the two groups *in parallel*. Connecting *in parallel* is done when all the positive cell terminals are connected together and all the negative cell terminals. When this is done the voltage will be that of a single cell, but the amperage will be the number of cells multiplied by the amperage of a single one. Suppose that we have 60 cells of 1.9 volts each and of 10 amperes each. By connecting up 30 cells in series, we get the equivalent of a cell of 57 volts and 10 amperes. Similarly, with the other half. We now connect the two groups in parallel. The voltage will remain at 57, but the amperage will be 20. It will probably be better, at least for small plants, to use cells which singly have the right amperage.

We get the voltage required by using a sufficient number of cells and connecting them in series. Thus, if we decide to use a 32-volt system for the house, we will use, say, 17 cells, each having a voltage a little less than 2. The size of cell will depend upon the number and size of lights. The number and size of the lights will have, on the contrary, little or no influence on the voltage, but they will have everything to do with the amperage. So, we pick a size of cell having the right amperage capacity. A voltage around 32 is considered *low voltage*. We may, if we choose, use a *high voltage*, say 110, for our system of lights. Low voltage is suitable for cases where the wire distance from generating plant to the house lights is 300 feet or less. High voltage is suited to cases where the distance is greater than 300 feet. However, high voltage may be used for the shorter distances. There is some advantage in using 110 volts because many accessories are readily obtainable for currents of that voltage. Fans, iron, toasters, and even vacuum cleaners are, however, obtainable for use with low voltage currents. The low voltage will naturally give less of a shock than higher voltages.

NOTE: In an early issue, the American Builder will present the third of a series of articles setting forth fully the technical details of farm home lighting.—EDITOR.



This Book Gives the Real Facts about

SHELDON'S SLATES
RED - GREEN - PURPLE - BLACK

WHETHER you are an owner, a builder, or a roofer, it is up to you, in these times, to investigate roofing values searchingly.

When artificial roofings are represented as "equal to slate" and "as attractive as slate," why not get the *real thing*—Sheldon's Slates?

Sheldon's Slates are *far superior* to any artificial roofing. They are more economical. Cost nothing for upkeep—first cost the only cost. Last indefinitely. Even the manufacturers of prepared roofings admit that they are more *artistic*.

Write for book illustrated above and learn the REAL FACTS about slate—Sheldon's Slates

F. C. SHELDON SLATE COMPANY, Granville, N.Y



From Quarry To You

with the greatest speed and safety. Use G. F. T. Roofing slate. First cost the last cost. No risks. Nature's own roofing. It is not an experiment. Fire, storms, snow, rust, etc., cannot damage Genuine Franklin Tunnel roofing. Write for catalog.

SLATINGTON SLATE CO., SLATINGTON, PA.

MANUFACTURERS OF ROOFING

"SLATES OF QUALITY"

MOTTLED GREEN AND PURPLE - WEATHERING GREEN
UNFADING GREEN - MAMMOTH VEIN POULTNEY SEA GREEN
GENUINE BANGOR FROM OUR CELEBRATED BANGOR UNION QUARRY
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We furnish "SLATES OF QUALITY" in random widths, graduated thicknesses and in one or varied colors; SEE SWEET'S CATALOGUE.

THE AULD & CONGER CO.
ESTABLISHED 1870.
We publish a handy book "THE SLATE ROOFER" CLEVELAND, O.



KRAGSTONE STUCCO
AMERICAN MAGNESIA PRODUCTS CO. CHICAGO

A high grade magnesite stucco that bonds perfectly to any surface, and that cannot check or crack. Beautiful and permanent.

If you will write us, we will send you catalog, samples, covering capacity and prices. We will also tell you about our proposition to make you our local agent. Address:

American Magnesia Products Co.
413 West 12th Place, Chicago, Ill.
Dealers Wanted

You Can Build Up a Prosperous Business With KRAGSTONE STUCCO

ROOF SLATE

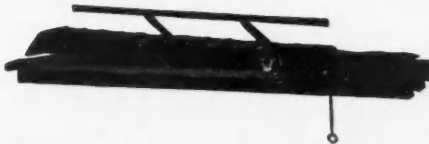
Of every kind. Black—also the varying delicate shadings and rich tones of Red, Green and Purple—clear and in mottled effects.

Structural Slate — Slate Blackboards

E. J. JOHNSON, Inc.
Quarriers of Slate
19 West 44th Street, NEW YORK



The Bessler Movable Stairway as it appears when folded



Nothing visible in room below except a neat panel

Use Every Square Inch of Floor Space by Specifying

The Bessler Movable Stairway

A modern invention of substantial and attractive design that gives all the advantages of the stationary stairway without wasting a single square foot of floor space—a boon to progressive builders.

Made in sizes and lengths for adaption to all ceiling heights and conditions of building. Is ideal in its simplicity and practical in its operation.

Do not complete your 1918 plans and estimates without first investigating the Bessler—the stairway that gives the answer.

Write us today for our Special Contractors' Proposition and our free informative booklet covering all details.

THE BESSLER MOVABLE STAIRWAY CO.
AKRON, OHIO CONTRACTORS' DEPT.

Fire Stopping in Masonry Walls

(Continued from page 58.)

between the furring strips with plaster. The use of brick corbels is to be preferred, however, as the brick form a complete unburnable fire-stop for the full length of the wall not broken up by combustible furring strips as when plaster is used between them. Hollow tile or gypsum block furring are entirely fire-proof, and, as the plaster is applied directly on the blocks, no laths are required.

In constructing any kind of a building if the chances for fire to spread by passing thru openings in the walls and partitions, thru floors back of plastering, or any other place that is out of sight is kept in mind, it is not difficult to devise ways to prevent it from spreading. Simple, inexpensive materials that are most easily adaptable to the position they are to occupy in the construction of the building add but very little to the cost. A little brain work in advance based on old fashioned common sense will suggest the practical thing to do. It is not necessary for the builder to indulge in complicated construction—but if fire-stopping is sensibly employed the man you are building for or to whom you hope to sell your building will understand that he is getting a safer structure. Every building planned and built as nearly unburnable as possible makes a better risk for the insurance underwriters and helps to lower premiums.

Installation, Care and Operation of the Home Furnace

(Continued from page 65.)

have the radiating surfaces brushed off twice or more during the winter in order to keep them free from soot, especially when burning soft coal. This is an easy matter in some furnaces and more difficult in others. Dirty, sooty, radiating surfaces cut down the heating capacity. Oftentimes when the fire is low an old broom can be pushed thru the firing door and the surfaces of the combustion chamber brushed off inside. If the soot sticks, a hoe can be used.

In any case, when the furnace is laid up for the summer, the whole radiating surface should be cleaned and brushed. Ashes should be swept out and the grates cleaned off. All smoke passages should be thoroly cleaned. The smoke pipe should be taken off and brushed out and laid away in a dry place. It may be replaced, but in this case, dampness may gather in it from rain coming down the chimney. To keep the interior of the furnace dry, put a small box of un-slacked lime on the grates and leave the doors open so that air can circulate freely thru the gas passages. Papers should not be burned in a furnace during the summer because moisture formed by combus-

(Continued to page 130.)

MAKE good. Don't explain. Do the thing you are expected to do. Don't waste time in giving reasons why you didn't or couldn't or wouldn't or shouldn't.—Safety Hints.



Good Products cannot be covered

When in search for the easiest and most common-sense method of obtaining the desired results—just order Willis Sheet Metal Products.

Our 25 years of experience in the installing of and manufacture of skylights, ventilators, etc., grants us the privilege of calling ourselves specialists in this line. Consult with us. It will cost you nothing. We guarantee satisfaction and are receiving repeat orders every day. This proves the high quality of our sheet metal service.

Willis Skylight Ventilators

Willis Skylight Ventilators are constructed of the best quality of sheet metal with condensation gutters and bars. Strongly braced. Largest glass area possible. Side sash operate from floor, either single or in batteries. All styles. Reinforcing bars prevent sagging, buckling, bending, or breaking. Any inexperienced workman can install Willis Skylight Ventilators with only a hammer and screw-driver. Their construction is exceptionally simple and practical. Why experiment with others?

Have you a copy of our large illustrated, 167-page catalog? This catalog describes everything in sheet metal building materials. When in need of fireproof windows and doors, cornices, ornaments, metal roofings and ceilings, lath and corner bead, etc., specify Willis Products. Our aim is to keep prices right and insure quality always. Our service is unequalled. Try it. Write for catalog today.

Address Department "X"

Willis Mfg. Co.
Galesburg, Illinois



Royal Ventilators For Farm Buildings

Ventilation for farm buildings is a necessity. Actual tests have shown that live stock kept in well ventilated buildings thrive and are healthier all around than stock kept in ill-ventilated buildings.

Talk ventilation to your farmer customers. All good barns are well ventilated. Ever notice some of the large dairy barns? They all have ventilators and most of them are Royal Ventilators.

Let us send our catalog. It illustrates and describes our farm building ventilators and other ventilators we make. Write for it.

ROYAL VENTILATOR CO.
417 Locust Street, Philadelphia, Penna.



EFFICIENCY

Efficiency is the end and aim of EVERY manufactory these days—the mills, shops and factories right in your locality. Efficiency depends on the health of the individual worker.

Efficiency is promoted by Fresh Air—proper ventilation and—

“GLOBE” VENTILATORS exhaust the overheated or impure air, gases, steam, etc., permitting a continuous flow of fresh air without drafts.

Their exhaust capacity is as great as any and greater than many of this type of ventilator. Because of their simple construction they are absolutely “trouble-proof” and they are so well made that they will last as long as the building itself.

Don't install just ventilators—install “GLOBE” ventilators. It PAYS both YOU and your customer.

1918 Catalogue and Detailed Information on Request to Dept. F

GLOBE VENTILATOR CO.
TROY, NEW YORK



HELP WIN THE WAR

FOOD PRODUCTION IMPORTANT MEANS




No more essential factors than proper ventilation, light and sunshine.

TIP TOP Ventilators. TIP TOP More Sun (hog house) Windows are great producers for dealers, contractors and users. Neat in appearance, scientific in construction, effective in operation. Now is the time for success. Send today for dealers and contractors cooperative plan.

ANDERSON MFG. CO.
Des Moines, Iowa



—Use Better Barn Equipment—

and Barns you build will show More Profit.

Buckeye Stalls, Stanchions and Litter Carriers will make your barns more profitable. Cows will give more and better milk when stabled in comfortable quarters. Our equipment is simple and accurate in construction, easily assembled and gives comfort to the cow. Different from all others. New Interlocking Connections.

Write today for our catalogs

MAST, FOOS & COMPANY
Box 110 :: SPRINGFIELD, OHIO



Furnish The Best

The farmer knows that contented cows insure bigger profits; they give more and better milk when housed in comfortable ventilated barns.

Badger Cupolas satisfy because they do what a cupola should do—ventilate. They're strong, handsome, durable and highly efficient. Light in weight and shipped complete ready to erect. No need to build framing of any kind. Made of high grade galvanized steel—rain, rust and snow-proof. Screened to exclude birds.

Write for free catalog and prices.

Badger Corrugating Co.
La Crosse, Wis.

CHIEF ALL-STEEL CUPOLA



New-improved, scientifically designed ventilating cupola for all buildings. Up-to-date in design, material and construction. Used and approved on hundreds of farms. Made of heavily galvanized steel with base strongly braced. Can't rust, rot, or blow off. Absolutely storm-proof and bird's-nest proof.

Easy to Install—Sure to Please Your Customers

Chief Cupola saves time and labor installing—base bolts directly to roof and cupola bolts to the base. Only six bolts needed. Meets all requirements—insures adequate ventilation—satisfies all users. Write for full description, prices, etc.

Shrauger & Johnson Co.
430 Walnut Street, Atlantic, Iowa

"MILCOR"
Ventilators
 Are Best for
BARNS
 Creameries
 Cheese Factories
 Etc.



"MILCOR" Ventilators and ventilating systems are architecturally correct and give perfect ventilation. Attractively stamped base. Superior construction and galvanizing.


Write for Ventilating Plans and Literature

Milwaukee Corrugating Co.
 Ventilating Dept.
 Branch at Kansas City, Mo. Milwaukee, Wis.

Get All The Profit

Profit is figured in two ways—that which you make on the job and the jobs your reputation brings you. Get both profits by recommending and equipping the barns you build with

O-K Heavy Galvanized Steel CUPOLAS



They are easy to erect—shipped ready to install. Absolutely Bird, Storm, Rust and Rot Proof. Neat in appearance. Every owner realizes the importance of proper ventilation in his barns. **O-K Cupolas solve the problem and sell themselves.** Every one you erect adds to your reputation. **Special Prices to Contractors and Builders where we are not represented.**

Write For Full Particulars, Sent FREE

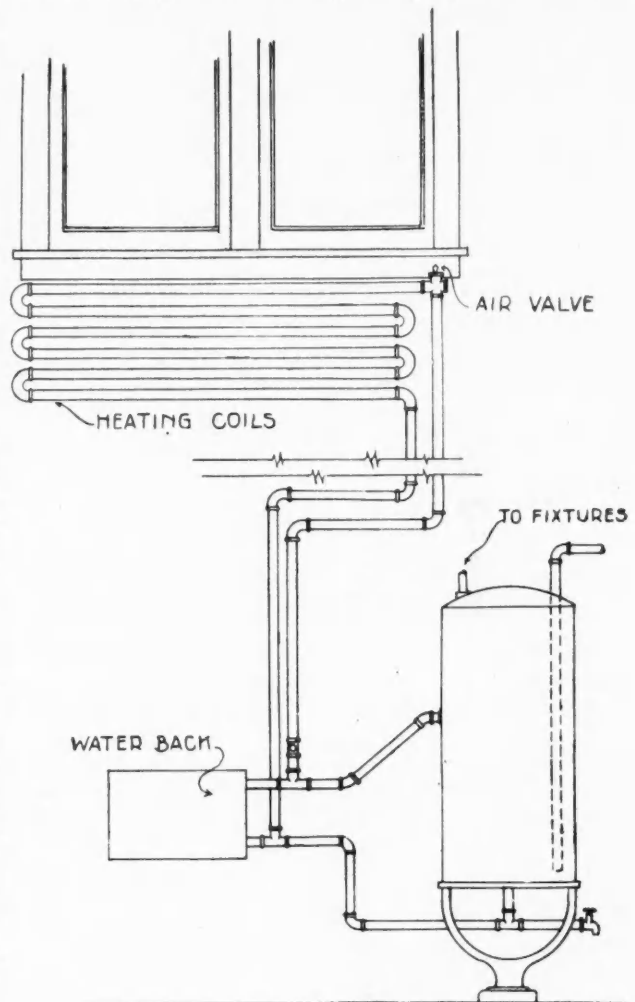
PHILLIP BERNARD CO.
 2400 Floyd Ave.
 SIOUX CITY IOWA

(Continued from page 128.)

tion condenses on the cool metal surface and causes rusting and corrosion.

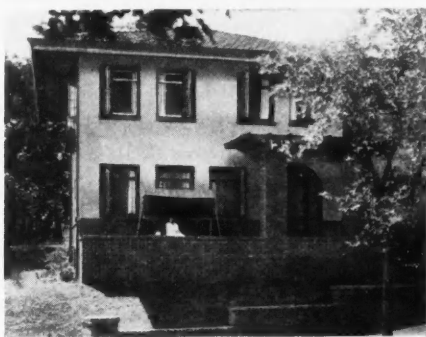
The Hot Water Tank

Most furnaces are connected with a range boiler in the basement. The water is heated by a hot water back in the furnace. At times the water in the tank rumbles and pounds in a very annoying manner. This



Heating Coils Connected to Hot Water Tank.

may be caused by too small piping or by piping clogged with dirt or lime. Sometimes if the heating surface of the hot water back is large the water will be heated to the boiling point in which case some rumbling is inevitable. The only remedy under these circumstances is to keep the water from becoming overheated. This may be done and the excess heat utilized at the same time by connecting the hot water back to a radiator as well as the tank in the manner shown. A standard radiator may be used instead of the wall coil, but will occupy more of the available space in the room. The coil should be on the exposed wall and preferably under a window. An air valve should be placed at the highest point of the coil. If this is not done air may collect and impede or entirely stop the circulation. As the coil is subjected to city water pressure of 40 to 60 pounds per square inch, it must be made strong enough to withstand this and have all joints tight.



Get This Profitable Business

THERE are dozens of people right in your own community who have already become interested in Whitney Windows thru our national advertising. There are many others who will want Whitney Windows when explained to them. They are also being installed in schools, stores, hospitals and other buildings. Why not get this business? There is good money in it for you. Whitney Windows can only be installed with patented

WHITNEY CASEMENT WINDOW HARDWARE

It overcomes all the faults and disadvantages of ordinary hinged casements, as well as sliding sash windows, and introduces many new features very much desired by home and building owners. Made in three grades to suit all requirements.

Write for our proposition and illustrated booklet.

WHITNEY WINDOW CORPORATION
1420 E. FRANKLIN AVENUE, MINNEAPOLIS, MINN.



SIMPLEX WINDOWS Are most desirable for—
SLEEPING PORCHES, SCHOOLS, HOSPITALS & FACTORIES or wherever maximum ventilation is desired.

WEATHER & BURGLAR-PROOF
Reversible — Weightless — Noiseless

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

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

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

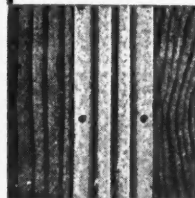
Protect Your

barns and buildings from weather and vermin. Line your grain bins or wagon boxes with

METALLIC BATTEN STRIPS

They allow for expansion and contraction of siding 5, 6, 7, 8, 9 and 10 foot lengths—interlocking joints. Easily cut; no waste. Nailed directly to siding. Write for free sample

Metallic Batten Company
Owensville, Indiana



End View Showing Batten Open.—Pat.



METAL WINDOW STRIPS

(Patent Pending)

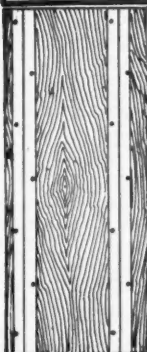
Installed in *HALF* the time, at *HALF* the cost of old style weather strips

INSTALLING AGENTS WANTED NOW

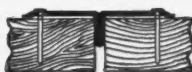
to get ready for fall business

KEOKUK METAL WINDOW STRIP CO., KEOKUK IOWA

Wind-Proof—Rain-Proof—Rot-Proof Chief Galvanized Iron Barn Bats



Make your buildings tight. Chief Galvanized Steel Strips fill the cracks between boards and make strong, neat, weather-proof joints. Keep out vermin. Cannot rot, warp or split like wooden batten. Always fit. Allow for contraction and expansion of boards without loosening nails. Furnished in 6-7-8-9-10 ft. lengths with interlocking joints. Write for full information.



Shows end view of Chief Batten with joint closed. Siding expanded. Note position of the batten in the crack.

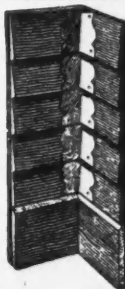


Shows end view of Batten with the joint open and siding contracted. Chief Battens automatically accommodate expansion and contraction.

SHRAUGER & JOHNSON
430 Walnut St. :: Atlantic, Ia.

Chief Metal Building Corners

Warp-Proof—Rust-Proof—Fit Anywhere



They make a corner with the smoothness and neat appearance of a "mitred corner" and save the time and labor of beveling down the siding. Made of heavy galvanized steel. Fit any corner—inside or outside and make a smooth corner that does not hold dust or moisture. Cannot warp or split, and prevents warping of the siding.

Chief Corners protect buildings from injury and are practically indestructible. Furnished ready perforated for nailing to the siding. Put on easily and quickly. Can be painted any color or left unpainted as desired.

Write for free sample and full information



SHRAUGER & JOHNSON :: 430 Walnut St. ATLANTIC, IOWA

Help Solve the Transportation Problem

(Continued from page 64.)

It is recommended for this reason that, generally speaking, the shipper should be urged to foster movements in the following directions:

For the Improvement of Railroad Service

1. The provision of adequate rules to secure the full efficiency of transportation service.
2. This includes establishing proper charges for freight and demurrage and the enforcement of equitable rules for loading and unloading, shipping and packing.

For the Highways

1. The extension of paved highways.
2. Provision for keeping these highways open at all seasons.
3. Proper provision for the maintenance of these highways.

For the Waterways

1. The construction of barges and small tow boats to provide for the adequate use of existing waterways.
2. Provision for putting into shape existing waterways that have been allowed to become obsolete.
3. Provision for the wise extension of these waterways to correlate with the railroad system.

As a measure of relief from the present congestion, it is recommended that the shipper be advised that he can materially aid himself in the improvement of his

own transportation conditions and the elimination of the excessive costs of not being able to do business, by carrying out the following suggestions:

In Connection With the Railroads

1. Co-operate and put it over. Do not kick at changes.
2. Load and unload promptly. Do not wait for a convenient season.
3. Load to capacity.
4. Do not reconsign en route. Decide the destination before the goods leave.
5. Pack securely and mark plainly.

In Connection With the Highways

1. Make a survey of all the incoming and outgoing freight handled within zones of 10, 25, 50 or 75 miles from your city.
2. Ship all goods to be delivered within the above zones over the road by motor trucks.
3. Demand that all goods to be shipped to merchants in your city and originating within the zones mentioned be delivered by motor trucks.
4. Make a census of all motor trucks in your town available for this work.
5. Take up with your local offices of the national express companies and your local haulage and express concerns as to how far they can extend their present delivery routes.
6. Select a committee of the best traffic managers

(Continued to page 134.)



Moncrief

Pipeless Furnace

A furnace with a tremendously big reputation for successful economical operation.

Built of the best material by experienced workmen.

We wish to send you our complete catalog. Mail us a card today, it will save money for you on your next job.

The HENRY-MILLER FOUNDRY COMPANY
CLEVELAND, O.

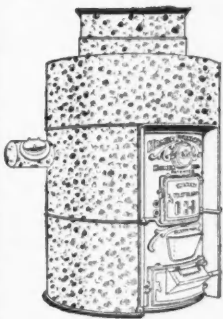


Four Rooms or Fourteen

Built in five sizes, with heating capacities for the cottage or church, the Home Ventilator will absolutely satisfy your heating requirements.

HOME VENTILATOR FURNACE
The Original Patented Pipeless Model - Built by the Homer Furnace Co., Homer, Mich. The Largest Exclusive Pipeless Furnace Factory in the World

No heat is lost by radiation in the Home Ventilator and fuel bills are reduced to the minimum as a result.



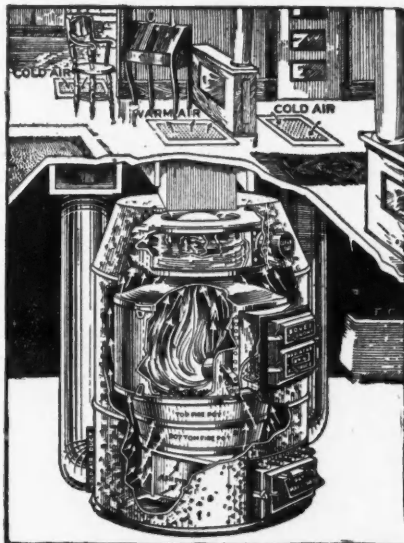
Because of its simplicity, the Home Ventilator costs little more than one good heating stove.

Investigate at once our attractive agency proposition. Send for our catalog and dealers' prices today. Let us forward complete information about the original patented pipeless furnace—the Home Ventilator.

Address all communications to Department C.

**HOMER FURNACE CO.
HOMER, MICHIGAN**

BOVEE'S PIPELESS CENTRAL HEATING SYSTEM AND OTHER FURNACES



Every home can now have a first-class high-grade heating system in an old house as well as new. Heats as much as three large stoves. Costs but little more than a good stove.

We furnish either our UPRIGHT FURNACE for burning hard coal, soft coal or wood; or our HORIZONTAL FURNACE with large doors 16x16 inches for burning 4-foot wood or soft coal.

Either style furnace furnished in any size necessary to heat the house.

USUAL SYSTEM WITH PIPING TO EACH ROOM FURNISHED WHEN DESIRED. Write for our three color catalogue, free.

BOVEE FURNACE WORKS
50 Eighth St. Waterloo, Iowa

Pipeless Profits

BUILDERS and dealers all over the country are making big profits on the Mueller Pipeless Furnace. There are hundreds of pipeless furnace prospects in your community waiting to be sold. You can sell them. It's quick, easy money and every sale makes a friend and a Mueller booster.

MUELLER PIPELESS FURNACE

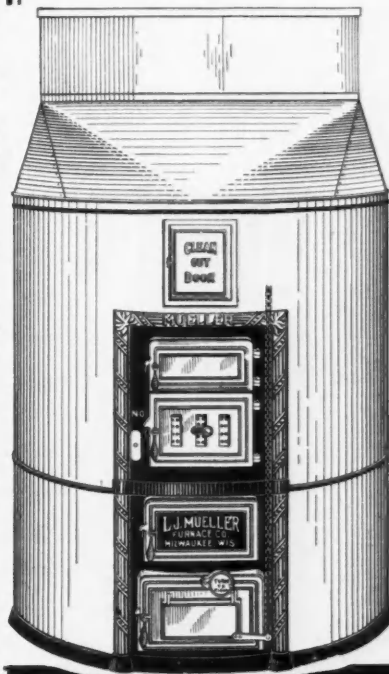
The Mueller Pipeless has made a record for fuel saving and efficiency during the past severe winter which has given it a nation-wide reputation. It's a real furnace with sixty years of furnace

building experience behind it. Write today for our proposition to builders and dealers.

L. J. Mueller Furnace Co.

Makers of Heating Systems of All Kinds Since 1857

218 Reed Street
Milwaukee, Wis.
U. S. A.



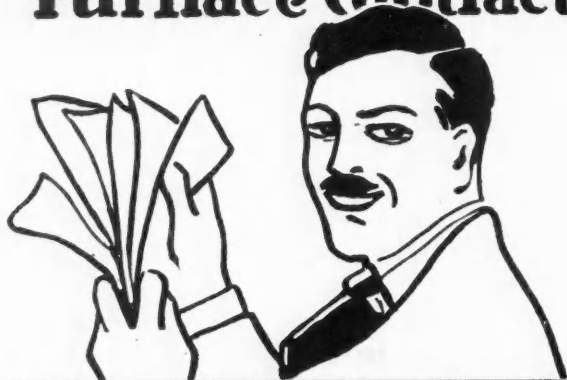
Mail This Coupon Now

L. J. MUELLER FURNACE CO.
218 Reed Street Milwaukee, Wis., U. S. A.

Gentlemen: Without obligating me in any way please send me your catalog fully describing and illustrating the Mueller Pipeless Furnace.

Name
Address
City State

Furnace Contracts



You can pile up a nice profit without interfering with your regular business by taking up our Agency Proposition for installing

Hero Pipeless Furnaces

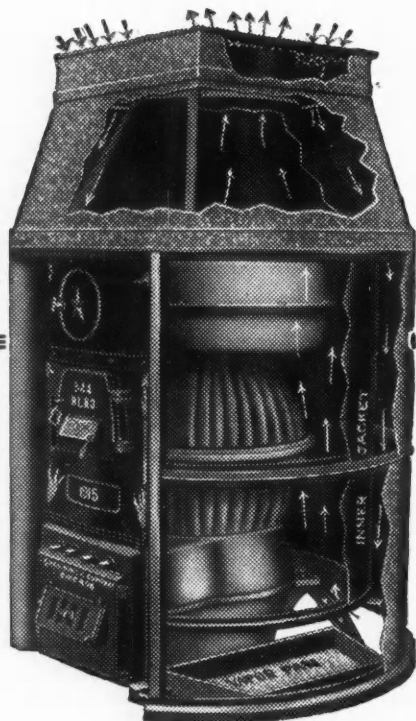
They are easily and quickly installed; they are the simplest, most practical furnaces for heating homes, stores, or halls; they represent an economy in installation as well as "First Cost;" and they are sure to give complete satisfaction to users.

HERO FURNACE C O M P A N Y

57 W. Lake Street Chicago, Ill.

Formerly

CHAS. SMITH COMPANY



WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

Help Solve the Transportation Problem

(Continued from page 132.)

of the concerns in your city to lay out a detailed plan to suit your own local conditions and determine upon the fair rates to be charged.

7. Arrange for a sufficient number of receiving platforms or warehouses where you can use horse wagons and motor trucks up to 3-ton capacity to deliver and set down goods, leaving for the larger trucks the running between the main points in the zones. Do not try to make the trucks running overland between the main points do pick-ups and deliveries. It cuts down their efficiency and makes the maintenance of schedules impossible.

8. Put some trucks in the overland haul work on definite leaving schedules so that goods can be delivered to the receiving platforms or warehouses in time to make up full loads to any given points.

9. Arrange a return loads bureau. Arrange with the local telephone companies to give your regular telephone number to any inquirer calling up and ask-



Motor Trucks Used by Builders Get the Materials Right Onto the Job No Matter What the Road Conditions Are.

ing for return loads bureau. Post notices in the offices of all of your merchants that you have established a return loads bureau. Post similar notices in conspicuous places in the smaller towns and cities through which trucks running to or from your city will have to pass. This will enable your trucks and those of private truck contractors doing this kind of haulage and entering your city to quickly collect loads to be transported to their home cities.

10. Bring all pressure to bear upon your mayor and the governor and thence to your highway commissioners to keep all the main highways leading out of your city open during the remaining winter months.

11. Bring all pressure to bear on the proper authorities toward the resumption of the construction of main line highways at the earliest possible moment this spring and for a proper maintenance of the roads all year around.

In Connection With the Waterways

1. Secure information upon transportation available on existing waterways covering short hauls.

(Continued to page 136.)

Does it Pay to Experiment The Modern Way Furnace Company Finished Experimenting Years Ago



Today thousands of MODERN WAY heaters are giving entire satisfaction, because they are scientifically right, and mechanically correct.

With our foundry capacity doubled, we are in a position to give you service with a Real Pipeless Furnace.

Get our proposition today.

THE MODERN WAY FURNACE CO.

Offices: 7th Floor Shoaff Bldg.
FORT WAYNE, IND.

Jahant Pipeless Furnace Burns Every Kind of Fuel



For the heating of the home or building of open construction the Jahant Pipeless Furnace has proven to be the best. Because of its scientific construction the Jahant Furnace will save from \$20 to \$30 on the average coal bill.

Built for Service

Jahant Furnaces are built to give the best service possible to be had and they will last a lifetime. Our Engineering Department will give their advice absolutely free in regard to any heating problem involving the Jahant Furnace. They will make drawings and plans and advise whether or not the pipeless furnace is suitable for your use. We have been manufacturing and selling Jahant Furnaces for 35 years and have never had one returned. The service we have rendered to others we can also give to you.

Contractors and Builders

The Jahant Furnace with its Down Draft construction burns oxygen from the air, giving perfect combustion, saving 1/2 to 1/2 on the coal bill.

Jahant Furnaces give universal satisfaction—once sold they stay sold. We guarantee each Jahant Furnace. We pay the freight when shipping. It will be well worth your time to investigate our proposition—it's a money maker for you. Write today for catalog and literature.

The Jahant Foundry and Heating Co.
104 Jahant Bldg., Akron, Ohio

HOLLAND FURNACES MAKE WARM FRIENDS

Always—A Reason Why!
Have YOU Discoverd It?
A Leader! 125 Cities! 6 States!
YOUR Coal Bills Cut One-Half

This modern Fuel-Saving **Holland Furnace** rings true to the heart of every home. Leads in sales in over 125 cities in the states of Ohio, Indiana, Michigan, Illinois, Wisconsin and Iowa. Write for our **FREE CATALOG**.

CONTRACTORS! BUILDERS!
Pass the Word Along

Big Profits—Sure Sales—More Work For You. Guaranteed Service and Quality. Send us floor plans of new or old buildings for quotations and Heating Plans. Our experts gladly answer promptly all questions about **Holland Furnaces** and **Holland Service**. Write for our special proposition to Contractors and Builders.

"World's Largest
Installers of
Furnaces"

HOLLAND FURNACE CO. HOLLAND MICH.

HOLLAND, MICHIGAN

TWO FACTORIES:

CEDAR RAPIDS, IOWA

ASK ANY

LUCKY OWNER

(Continued from page 134.)

2. Get behind the movement for immediate production of barges for the large canals, such as the Erie barge canal, which would relieve the freight situation between the lakes, coal regions and the important centers on the Atlantic seaboard.

3. Take up with the traffic manager of your business and the traffic expert of the local chamber of commerce the possibility of the use of waterways for any part of your freight movement and arrange shipping plans accordingly.



Report on Industrial Housing

(Continued from page 33.)

real estate man and a lumberman, which was to build the houses. The original plan called for 400 dwellings. Bids were asked for and a contract made with Nelson Brothers at Kenosha, for the construction of houses in groups of 50—the third 50 not to be started until the first 50 were completed. Materials were purchased in large quantities at a considerable saving. John Nolen, the well-known city planner of Cambridge, Massachusetts, was called into consultation and helped lay out the subdivision in which the houses were to be built. A variety of plans were selected and the location of the houses arranged with an eye for attractiveness. They are mostly of the five and six-room bungalow type. To inform the workmen that houses were available, posters were put up at

the various factories and there was immediately a demand for these houses, the cost of which, including a lot and improvements, ranged from \$2,500 to \$3,000.

Financial details called for a first installment of \$100, after the application of the purchaser is approved by the manufacturer for whom he works. Installments per month are \$18 for a \$2,500 house and \$20 for a \$3,000 house. The second mortgage, equalling \$900 on a \$3,000 house is handled by the House Building Co., while the first mortgage of \$2,000 is handled by the banks with whom arrangements have been previously made. When the second mortgage is paid up the purchaser receives a deed. He is charged 6 per cent interest on unpaid sums and the difference between this amount and his installments is applied on the principal. Conditions have so arranged themselves that the Kenosha House Building Co. will be taken over by the Kenosha Homes Co., which was organized early in the development to act for the manufacturers of the city. It has been found that two companies are not necessary, and the Kenosha Homes Co. will build all future houses.

A most unusual result of the construction of the houses by the Kenosha House Building Co., was the impetus given to additional construction by independent builders, which amounted to over 600 houses since the development was started. Of the 400 houses

(Continued to page 138.)

CONTRACTORS—BUILDERS—CARPENTERS DO YOUR OWN PLUMBING-HEATING

New Hardin Easy Way

Any handy man with a few ordinary tools can easily install our plumbing or cut-to-fit heating outfits with the aid of our plain installing plans and instructions and *save one-half*. Our new method is perfect, simple and easy. You save high cost of skilled labor, save unnecessary material.

PLUMBING-HEATING Cut-to-Fit

Every carpenter, contractor and builder needs our free, complete and valuable Handy-Man Book. It shows and describes over 10,000 different plumbing and heating fixtures and supplies with special wholesale price discount sheet to contractors and builders. This book clearly explains and shows our *new Hardin simple method*. Shows you how easily you can install any kind of plumbing or heating plant our new, original, practical, cut-to-fit easy way. No loss or waste. Gives many practical suggestions on what fixtures to select and how to install them, also the proper heating plant to meet your requirements. Tells you how to save on material, time and labor by installing plumbing and heating this new, original, practical and economical way. Write for Free Handy-Man Book.

\$500,000.00 Plants Behind Our Guarantee

HARDIN-LAVIN CO.

40 YEARS AT 4532-42G Cottage Grove Avenue CHICAGO, ILL.



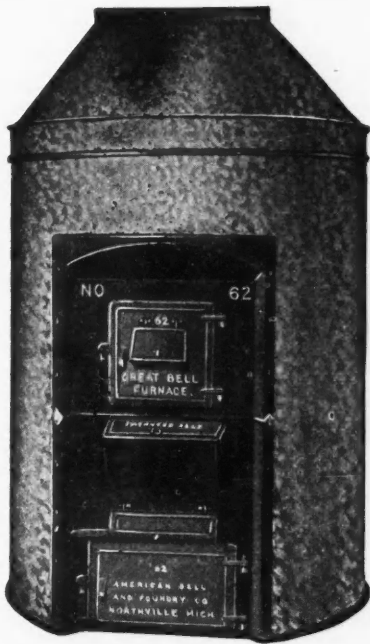
Hot Water or
Steam Boiler



Pipeless
Furnace

The Great Bell

-original-Pipeless-Furnace



Father of Them All

We have thousands in use. Sizes, styles and prices to suit all. \$50.00 and up.

Made for the building where a furnace is needed, but where the cost has been prohibited.

The GREAT BELL PIPELESS FURNACE will heat any one or two-story building in the most efficient manner with the least effort and the lowest relative cost. While Cost is secondary to Service in this furnace, our methods of production and sales have reduced the cost so low that no builder can afford to overlook our proposition.

And we guarantee our furnaces to be and do all we claim for them in both catalog and correspondence.

Write for our catalogs, describing the various styles, prices and specifications of the Great Bell Furnaces.

American Bell & Foundry Co.

27 Cody Street, Northville, Mich.

50% Less Fuel Producing 100% More Heat

Guaranteed by Bond

The Only Furnace that Insures Clean Air

Big Money for You

Meets Abnormal
Costs of Material
and Labor

Simple to Install
Easy to Operate

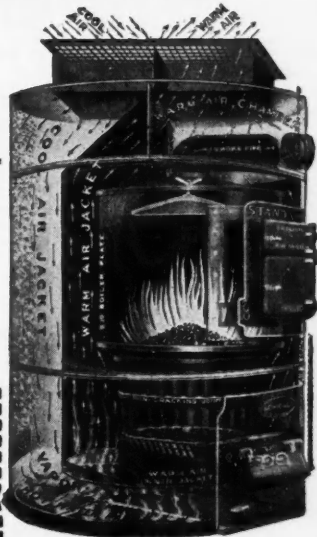
We Want Good,
Active Men to
Represent Us.

Write today for our special
agency proposition

MAIL TODAY

Standard Heater Co.
438 W. Ontario St., Chicago
Send me your Special Agency
Proposition to Contractors.

Name.....
Address.....



STANDARD HEATER CO.
438 West Ontario Street
CHICAGO, ILL.

Mr. Builder: Increase Your Income Right Now—This Month

Here's something right in your line—a Chemical Closet that you can sell to a home builder cheaper than a wooden privy and make a bigger profit for yourself. Here's something you can sell at odd times or turn over to your son or your foreman to sell.

RO-SAN Chemical Closet

An absolutely sanitary, odorless indoor closet that may be placed anywhere in the house. Abolishes the germ breeding out-door vault. A comfort and convenience when there is no sewer connection. Germs killed by chemical. Easily emptied as the ash pit of a stove.

AGENTS WANTED

We want one live carpenter contractor in each town to act as our agent. Hundreds of builders are selling these fixtures. Good profit for little work. We help you sell them. Write today for complete details.

ROWE SANITARY MFG. CO.
904 Rowe Building Detroit, Mich.
Ask about the Ro-San Washstand. Hot and cold running water without plumbing



Comfort Indoor Closet

Odorless Sanitary Germ-Proof

No Sewer, No Waterworks, No Plumbing Needed
This modern home necessity is fast taking the place of the unsightly, unhealthy, inconvenient out-house in the back yard. Thousands now in use and all giving complete satisfaction. Can be put wherever convenient in the house. No odor whatever. Gives city convenience in the country or town.

Cost Less Than Out-House

Anybody can afford one. Saves those cold night trips out-of-doors. Impossible to get same amount of comfort for the money another way. Sold on 30 days' trial and under sworn guarantee to refund all money if not entirely satisfactory. Send for description and prices today. Be fair to your family.

AGENTS MAKE BIG MONEY EASILY

Comfort Indoor Closets sell themselves as fast as people understand about them. Contractors and carpenters are making big money by merely suggesting this closet. Write for details of this exclusive agency offer. Send postal now before somebody else gets your territory.

Comfort Chemical Closet Co., 304 Factories Bldg., Toledo, Ohio



**Was \$100
Now \$49**

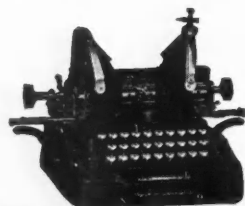
**NEW OLIVER
NINE FOR
HALF PRICE**

The Oliver Typewriter Company created a nationwide revolution on March, 1917, when it announced its new plans. No more expensive sales force of 15,000 men! No high office rents in 50 cities! No idle stocks!

But dealing direct with the people—cutting out all middlemen. The old plan cost the buyer a needless \$51 per machine. We now save that and give it to you. So the new price for standard \$100 Oliver is \$49.

The Oliver Nine—our latest model—direct from the factory to you. It is the finest, the costliest, the greatest typewriter ever built. Used by the leading concerns.

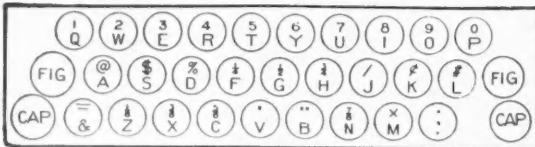
Who would ever pay over \$49 again for a new typewriter? Especially when we not only make a new low price, but also give the lowest terms—about 10 cents per day—over a year to pay.



Over 600,000 Sold

And remember, carbon copies of everything written, for your records.

Our new price and terms ought to sell an Oliver to every contractor. Longhand writing will be out of date among progressive men.



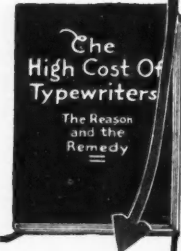
Free Trial—No Money Down

FREE BOOK

Just send for our amazing disclosure entitled "The High Cost of Typewriters—The Reason and the Remedy." Then ask for a trial. You are not put under the slightest obligation. It is our new-day way of selling. It saves money for both of us. You act as your own salesman—the Oliver itself must convince you. You pocket the \$51.

Send in the coupon below today for one copy of this sensational book that exposes the secrets of the typewriter world. (609)

Canadian Price, \$62.65



THE OLIVER TYPEWRITER COMPANY
2404 Oliver Typewriter Bldg., Chicago

Mail me your book and further information—all free and without obligation to me.

Name

Street Address

City State

**STARTLING
FACTS**

**Contractors'
Special!**

For contractors, our Special Oliver Nine is unbeatable. Besides being the best for ordinary correspondence, none can equal it for figure work. It has the characters you need, as shown on the keyboard herewith.

Report on Industrial Housing

(Continued from page 136.)

planned by the Kenosha House Building Co., 125 have already been built and others will be constructed in accordance with demands.

From the builder's and manufacturer's standpoint the success of the scheme is definite. That the workmen appreciate what is being done for them is proved by the waiting list for houses that are to be constructed.

Other Plans

The success of the venture at Kenosha has appealed to the neighboring city of Racine, a busy town of 38,000 population, about 10 miles north of Kenosha, where the manufacturers are now hard pressed for proper accommodations for their workmen. A local real estate company realized the opportunity and plans on building an initial 50 houses. The scheme differs somewhat from the Kenosha idea in that the manufacturers will be required to guarantee only the first \$500 that the workingman is to pay. The houses will be allotted to the applicant on payment of 10 per cent of the purchase price—the difference between that figure and \$500 being guaranteed by the employer. No second mortgage will be required, but the purchaser will be given a deed after the payment of a certain sum on the first mortgage which will be handled by the real estate company.

Bridgeport, Connecticut, expanded sensationally because of war contracts, with the natural result that housing conditions became very bad. The problem was then taken in hand by the Chamber of Commerce of that city. John Nolen, the city planner, was called in to report on conditions and make suggestions. His report is the basis of the plan now being used to provide proper living quarters in Bridgeport.

At Akron, Ohio, the Goodyear Tire & Rubber Co., has developed a large tract of land, handled by the Goodyear Heights Realty Co. The houses cost somewhat more than the ordinary workman can pay, but the demand for the first group of dwellings was so great that another tract of land and houses has been put on the market, available for 1,000 families. An insurance feature in connection with the payment is unique, in that the owner may take a diminishing life insurance with a reliable insurance company, which in the event of death, will pay one or both of the mortgages, depending upon the amount of insurance taken. A booklet has been issued by the Goodyear Co. describing in detail the Goodyear Heights development and showing exactly the payments necessary in making a purchase.

These housing projects point out clearly the movement which is expanding steadily. Developments by individual companies have also been undertaken at Concrete, Col., by the United States Portland Cement Co.; at Mineville, N. Y., by Witherbee-Sherman Co.;

(Continued to page 140.)



Safety 1st

Consider This—It Pays

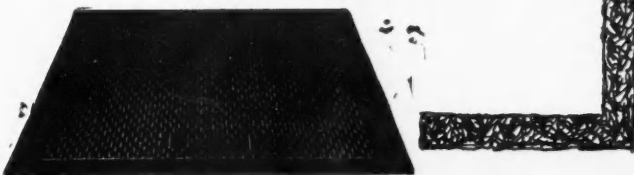
THE slogan of the hour is "safety first." Truly a proper slogan for this large and congested world. You can profit by this slogan, and we will help and show you how.

If you will devote a few hours of your time to the boosting of the Canton Sidewalk Doors, you will be surprised at the many sales easily made, and the starting of many extra jobs that their installation suggests.

Stir Up This Business

The Canton Sidewalk Doors and Coal Chutes have a world wide reputation. Burglar Proof. Made of the best materials. Protected when open by stay rods and chains. This proposition offers exceptional opportunities for you to make many added profits, and also to bring in extra jobs. Write for our catalog B-6.

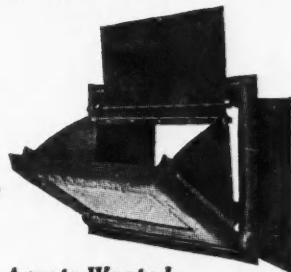
CANTON FOUNDRY & MACHINE CO.
CANTON, OHIO



THE AUTOMATIC COAL CHUTE

Will Answer Every Requirement

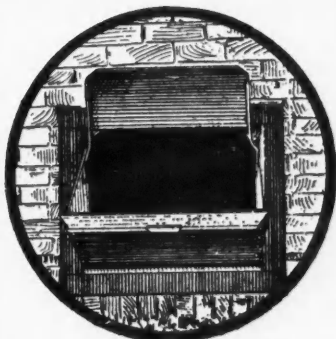
Opens Automatically
Closes Automatically
Locks Automatically
Fool Proof
Order one from your dealer or direct from



Agents Wanted

THE WESTERN IRON & FOUNDRY CO.
Wichita, Kansas

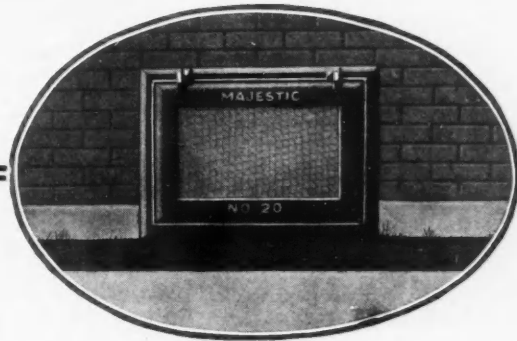
KEWANEE ALL-STEEL COAL CHUTES



Five good reasons for installing the Kewanee. It locks automatically on the inside. Can be opened from the first floor by means of a chain in the lock. All steel construction, and cannot be broken. Guaranteed for five years. Easy to install in an old building as well as a new.

Write today for Contractors' and Dealers' Prices

KEWANEE MFG. CO.
KEWANEE, ILL.



Go After These BIG PROFITS NOW!

Get the Spring house repairs business. Replace broken, damaged basement coal windows with neat, attractive Majestic Coal Chutes and add these big profits to your income.

Majestic Coal Chutes

protect the building, sidewalks and lawn from damage—simplify coal delivery—and increase the value of the property. They are durably made—absolutely burglar proof.

You can easily install Majestic Coal Chutes in place of any basement window. They please the owners—one sale brings a lot more.

Write for free catalog of Majestic Building Specialties

The Majestic Co., 800 Erie Street, Huntington, Ind.

Make Your Own Brick

and
\$20 to \$50
Extra Daily Profit

10000 Brick
or
1000 Blocks
Daily



The Helm Press

Be independent of the clay brickmaker and dealer. Put yourself in a position to make more money on your contracts, to take bigger jobs—more profitable jobs without worry of delays or lost time eating into your profits. With a Helm Press you can make 10,000 Brick or 1,000 Blocks a day—\$20 to \$50 daily profit. Operates under 80,000 pound pressure. No tamping—no burning—every brick or block perfectly true. A big demand in your own community for this superior kind of building. Equip yourself to supply it.

Helm "Dry Wall" Building System

Appeals to builders, contractors and architects. It overcomes the opposition to concrete because it offers absolutely Dry Wall construction. It saves money for builders, as no furring and lathing are required, and it makes rigid walls and fireproof walls. This is the system which is bound to get you business and give you the advantage over all other products.

Send for Our Valuable Book FREE

Let these FREE books tell you all about this great opportunity which is open to you today. It will tell you all the details of this system, about the building system. It will show you how easy it is to start a profitable business. It tells how each product is made, how it is cured and sold. Write today. Use a post card or coupon.

Helm Brick Machine Co.
474 Mitchell Street
Cadillac, Mich.

Gentlemen—Please send FREE your book on Concrete and Helm Presses.

Name.....
Address.....

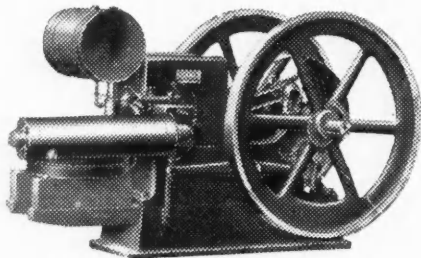
HELM BRICK MACHINE CO.
474 Mitchell St.
CADILLAC, MICH.

(Continued from page 138.)

at Duluth, Minn., Gary Ind., Donora, Pa., Wilson, Pa., McDonald, Ohio, and Maxwell, Pa., by the United States Steel Corporation, thru its subsidiaries; at Youngstown, Ohio, by the Buckeye Land Co., a sub-

WITTE Kero-Oil ENGINES

Immediate Factory Shipment



2, 3, 4, 6, 8, 12, 16 and 22 H. P.

Direct from the Largest Exclusive Engine Factory in the world, selling by mail. Nothing but engines. Quick service—**Big Saving**—90-Day Trial, 5-Year Guarantee. Fuel cost **one-half less** using kerosene. Write for new book (copyrighted) "**How to Judge Engines**," printed in colors and fully illustrated, showing how I can save you \$15 to \$200—sell you on practically your own terms—Cash, Payments or No Money Down.—Ed. H. Witte.

WITTE ENGINE WORKS

1771 Oakland Ave., Kansas City, Mo. 1771 Empire Bldg., Pittsburgh, Pa.

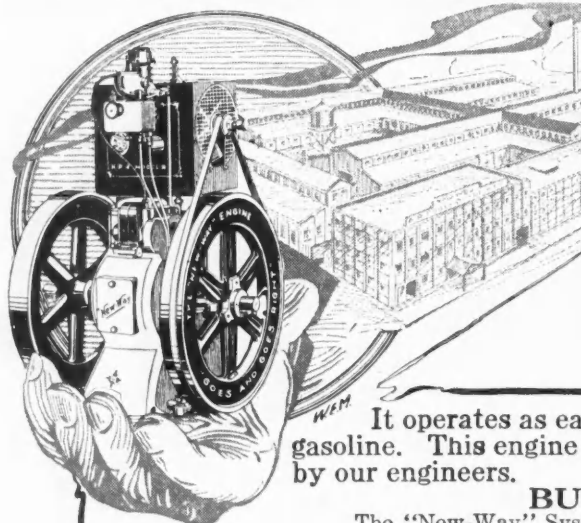
siary of Youngstown Sheet & Tube Co.; at Nanticoke, Pa., by the Delaware, Lackawanna & Western Railroad; at Midland, Pa., by the Crucible Steel Co.; at Sparrows Point, Md., by the Bethlehem Steel Co.; at Worcester, Mass., by the Norton Co. In many mining communities and saw mill centers groups of houses have been built by the employers, but due to the continual changing of local conditions these have not been erected for permanence. Such "company" houses are usually built after a single pattern and are, therefore, somewhat monotonous. They are usually rented at a low rate.

Study of the various developments shows that housing propositions can be grouped into three distinct classes. First: where a factory or mill is located at a considerable distance from any other factory and the surrounding homes must be treated as an isolated community. Second: where several factories making various products are located in a single town. Third: where a real estate company plans on building a large number of houses.

How a Housing Development Should Be Started

In developing a housing proposition a social survey of the community should first be made to determine what limits should be placed on the cost of the houses and how many should be built. Usually there are two distinct grades of workmen—the unskilled laborer whose wage in normal times will average \$15 per

(Continued to page 142.)



Here it is!

THE "New-Way" KEROSENE ENGINE

GOES AND GOES RIGHT

It operates as easily on kerosene as the ordinary engine does on gasoline. This engine is the result of years of designing and perfecting by our engineers.

BURNS ALL THE FUEL

The "New-Way" System of carburetion delivers a perfect gas to the combustion chamber which by being properly ignited and entirely consumed produces the same power as an equal amount of gasoline.

FUEL BILLS CUT IN TWO—FIGURE IT OUT

The 6 H.P. "New-Way" Kerosene Engine under full load will consume 6 gallons of kerosene per day. A gasoline engine uses an equal amount of gasoline.

6 gal. per day—300 working days.....1800 gals. fuel consumed by either engine in 1 yr.

1800 gals gasoline—25c per gal.....\$450.00
1800 " kerosene—12c " ""\$216.00

Saving in fuel for one year.....\$234.00
With a perfect and efficient engine now available in the "New-Way" no one can afford to use anything but kerosene for power.

A 365 DAY ENGINE

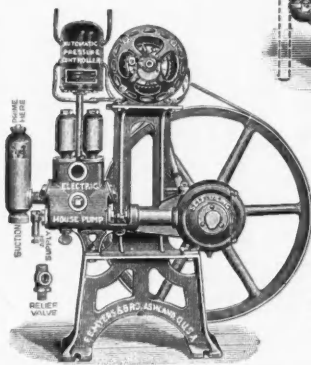
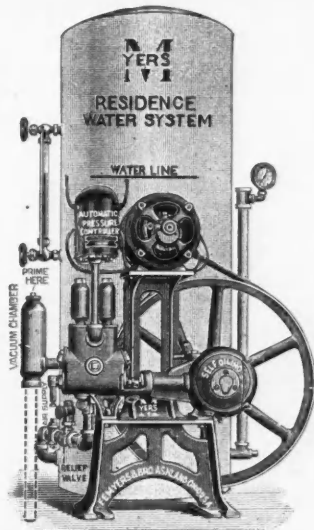
The "New-Way" Kerosene Engine will operate 365 days every year with no more care and attention than is required by a gasoline engine.

SPECIFY THE "NEW-WAY" KEROSENE ENGINE FOR YOUR **THE "New-Way" MOTOR COMPANY** LANSING, MICHIGAN, U.S.A.

Send for Catalog No. 12
60 Race St.

MYERS ELECTRIC HOUSE PUMP

WHEN you are drawing up plans for new residences, or when you are building them, do not fail to consider the Myers Electric House Pump when the water supply comes up.



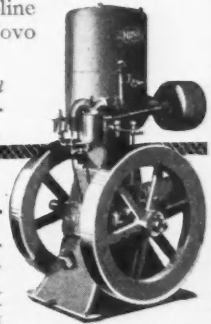
Here is a new Myers Pump with many labor saving and practical features designed for operation by any electrical current either from city service wires or from private power and lighting plants and built in one size only to furnish water for all household purposes.

It is automatically controlled, self-oiling, working parts are covered, and will furnish an economical water supply for any home. Write today for information and late circular.

F. E. MYERS & BRO., ASHLAND, OHIO

YOU CAN use kerosene successfully in a Novo Kerosene Engine. This engine requires no more attention than a gasoline engine, and the operation is exactly the same as when using gasoline. Either gasoline or kerosene may be used in the Novo Kerosene Engine.

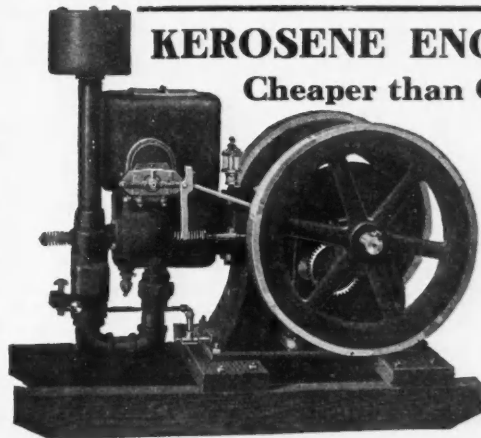
Write today for our booklet "Standardized Power" Every power user should have it.



**NOVO
STANDARDIZED
POWER**

Novo Engine Co.
Clarence E. Bement,
Vice-Pres. & Gen. Mgr.
800 Willow St.
Lansing, Mich.
Chicago Office—
Lytton Building

KEROSENE ENGINES Cheaper than Gasoline



The
Brownwall
Engine &
Pulley Co.
Holland, Mich.

The Power
For YOU

Every Purpose

THE EXPERT'S CHOICE FILE



Does twice the work of an ordinary file—in half the time. The Expert's Choice increases the value of your time by over 50%. By spending 25 cents you can make it back on your first filing job alone. It's in the Quality—in the cut of the tooth and in the length of the stroke.

Frank Luther, Chicago, says: "The Expert's Choice File files 18 hand saws and is cheaper at a cost of 50c than the ordinary file at any price."

You get your money back if the Expert's Choice does not prove to be the most economical file you have ever used. DELTA SAW FILES are made for fine or coarse teeth—also for that extra hard saw. Buy your tools of the dealer who sells Delta Files. He is the quality man.

Trial Offer If your dealer cannot supply you, send us 15c, 20c or 25c for trial file, sent prepaid. Do this today—find out what a real file is.

"THE HIGHEST GRADE FILE MADE"
DELTA "HAND SAW" FILES

CARPENTER'S SPECIAL 15¢ EACH

MECHANIC'S FAVORITE 20¢ EACH

EXPERT'S CHOICE 25¢ EACH

DOES TWICE THE WORK IN HALF THE TIME
THE FILE YOU WILL EVENTUALLY USE

DELTA FILE WORKS

PHILADELPHIA,
PA.

Look for
This Sign
at Your
Hardware
Store

HAND FORGED, INDIVIDUALLY TEMPERED



GERMANTOWN MASTER BUILDER

Broad Hatchets, like all other "Master Builder" tools, are absolutely right in design, quality of material and workmanship. They are made for the man who wants a tool that he can depend upon in any emergency. Every one of them, before leaving our factory, is subjected to a special test many times as severe as the tool will ever undergo in actual service. Perfectly balanced; second growth hickory handle; the thin bit with swell bevel throws a chip and prevents wedging. "The Best That Money Can Buy." \$1.50 and \$2.00 each.

Germantown Tool Works, Philadelphia, Pa.
Branch: 62 East Lake Street, Chicago

The best Auger Bit File made — We will deliver on receipt of 30 cents each.

Report on Industrial Housing

(Continued from page 140.)

week, and the skilled man with an average wage of \$25 per week. It is generally agreed that the monthly sum that can be set aside for renting or for purchasing a house should not exceed the weekly wage. Figuring this return over a yearly period, and capitalizing this amount at 9 per cent or 10 per cent, to take care of interest, depreciation and overhead expenses, will give a figure within which the houses must be built. In other words, \$15 per week means \$180 per year. Capitalized at 9 or 10 per cent, this equals \$1,800 or \$2,000, the maximum cost of a house and lot for a \$15 per week worker. The \$25 a week man will, on the other hand, be able to purchase a

home costing \$3,000 to \$3,250. It is essential that all financial arrangements be worked out before the plan is accepted. The purchaser must know how much he is to pay per month and how many years it will take before he owns his home.

In the particular case where a single manufacturer provides for his employes, it is usually best to handle the real estate and building affairs thru the hands of a subsidiary company, presumably having no connection with the parent company. In the state of Illinois, a law went into effect June 29, 1917, which allows for the incorporation of companies dealing in real estate. Prior to this date no incorporated company could handle such matters.

(Continued to page 144.)

Permanent, Fire Resistive Construction

Metal Lumber joists and studs strengthen the structure, prevent cracks in plaster and stucco, give splendid fire resistance and lower insurance costs.

BERGER'S Metal Lumber

has been used in hundreds of buildings of nearly every type in this and foreign countries as light weight, easily erected, fire resistive, permanent construction.

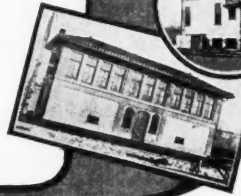
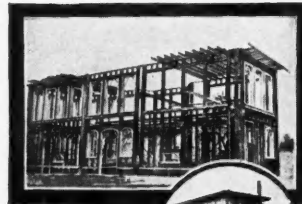
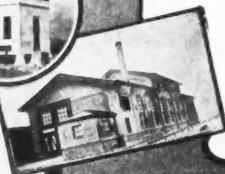
The illustration shows a group of the Detroit River Tunnel Company's Towers erected with Berger's Metal Lumber.

Write for Bulletin L-3.

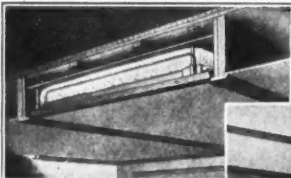
THE BERGER MFG. CO., Canton, O.

Branches: Boston New York Philadelphia Chicago St. Louis
Minneapolis San Francisco

Export Department: Berger Bldg., New York City, U. S. A.



THE Circulation of American Builder is 36,000 copies monthly, a circulation which represents in one grouping the largest number of intelligent, discriminating, wide awake building contractors, architect-builders and dealers in building materials enjoyed by any publication in the building field.



Lowest installation cost



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

SORLIEN CEILING BED CUTS COST OF BUILDING

A sleeping porch equipped with Sorlien Ceiling Beds is a valuable addition to your home.

You can install one or more "Sorliens" in your present porch without detracting from its usefulness by day.

The "Sorlien" gives to small homes the convenience of a den, library or sewing room by day, and converts these rooms into comfortable bed rooms by night.

If you are planning on building and wish to reduce costs without omitting convenience, put your problem up to us.

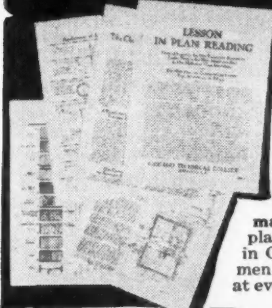
Price of bed \$45.00, f. o. b. Minneapolis. Write today for booklet.

Sorlien Ceiling Bed Company

406 Sixth Ave. South

Minneapolis, Minn.

Free Lesson



In Plan Reading

Send now for this FREE lesson which we will send to prove how quickly you can learn Plan Reading by our new easy method. Not a penny to pay for this lesson. Without a good knowledge of plans your opportunities are limited. The man at work doesn't get the chance to study blue prints or to have their meaning explained. We make the chance for you. We place in your hands plans used in actual building work by contractors in Chicago and other cities, and you get lessons by men in charge of building work who will help you at every step and make you an expert plan reader.

WE TEACH

Plan Reading

Use and meaning of all the lines. Floor plans and elevations. Reading dimensions. Detail drawings. Laying out work from plans. Practice in reading plans from basement to roof, etc., etc.

Construction

Brickwork, stone work, carpentry, plans and specifications. Every detail explained for residences, office buildings, factory buildings, school houses, apartment buildings, bank buildings, etc., etc.

Estimating

Figuring on every kind of building work fully explained. Labor and material. Problems worked out from plans. Practical builders' methods studied from plans and specifications of actual buildings of every kind.

Arithmetic

A complete course arranged for builders and contractors.

Architectural Drafting
Also other branches of drafting. Send for special catalog on these courses.

Builders' Course On Easy Payments

Our Builders' Course gets right down to the things you need to know. And you can get it on easy payments. A small first payment when you enroll—then payments monthly—so small you will never feel the cost. At least send and find out what this course really offers and how you can make more money by learning what we teach you in a short time.

Learn By Mail Use your spare time at home to learn how to be a better workman, a better foreman or a better contractor. And even after you complete the course you have the privilege of consulting us when you want suggestions. We will always be ready to help you.

WRITE!

Get this information now. Learn how to make more out of your work or out of your business by knowing more about it. All this information is free. Send for Free Lesson and this information—now. Just send request on a postal card.

Chicago Technical College
436 Chicago "Tech" Bldg., Chicago, Ill.

This trade-mark is displayed millions of times yearly in farm papers

1866 CURTIS WOODWORK

"The Permanent Furniture for Your Home"

Ask a Curtis dealer for details regarding Curtis advertising to home-builders and Curtis service to the dealer and contractor, or write to

The Curtis Companies, Service Bureau
1911-2011 S. Second Street, Clinton, Iowa
The makers of CURTIS Woodwork guarantee complete satisfaction to its users.
"We're not satisfied unless you are"



Oak Floors "America's Best Flooring"

Always attracts a better class of buyers or tenants and invariably increases the selling and renting values. This is a proven fact.

Oak Floors are made in $\frac{1}{2}$ inch and $\frac{3}{4}$ inch thicknesses and in four grades. $\frac{3}{4}$ inch is used very extensively and economically over old pine floors in remodeling old houses.

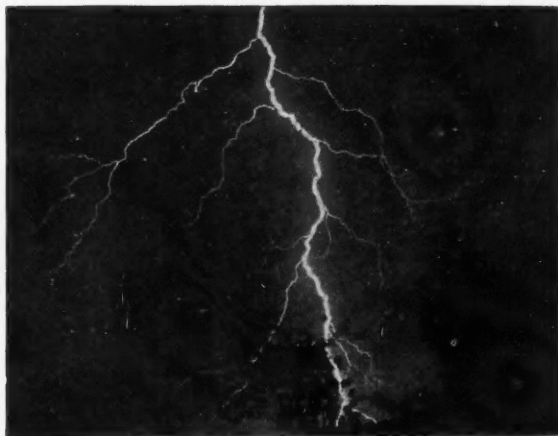
Carpenters and builders during dull periods find $\frac{3}{4}$ inch **Oak Flooring** a very profitable side line and **business getter** to lay over old pine floors in old houses. $\frac{3}{4}$ inch **Oak Flooring** is very beautiful, durable and economical. The modern woman wants **Oak Floors** because they simplify house cleaning and housekeeping besides being the ideal floor for the home.



WRITE FOR FOLDERS

OAK FLOORING MFRS. ASS'N.
Union Trust Bldg., Cincinnati, O

Protect Life and Property
Cheapest Insurance Known



Lightning Rods

CARPENTERS--BUILDERS
"GO OVER THE TOP" WITH
BARNETT SYSTEM
Guaranteed Lightning Protection

Why let the big extra profit go to the other man after you have done the hard work erecting the buildings? This easy profit belongs to you. You are the logical man right on the job to install this protection on every building you erect. The owner's confidence in you will make it easy for you to secure this additional work and profit on the same job.

Our Rods are in big demand. Made of pure copper endless cable, no rust (no joints) with attractive fixtures, easily put on buildings. Two hours extra work rods the building, and puts profit in your pocket. Money back guarantee with each job. Hundreds of our Carpenter agents began in a small way, now doing a big business. Secure the agency now. Write today for free Catalog, cable samples, and prices.

JOS. L. A. BARNETT & CO., Cedar Rapids, Iowa



MAKE \$50 TO \$75 EXTRA A WEEK

Earn \$27⁵⁰ A Day Easily



Sold direct at Wholesale Price in open territory.

Carpenters and builders can earn this money by working all or spare time. Start now to own a business of your own. Akron Lighting Systems are wanted in homes, stores, churches and public buildings. Best and cheapest light known. Uses common gasoline. Absolutely safe. Permitted by Insurance Companies.

Sell Akron Lighting Systems They are simple, dependable and durable. Have latest patented improvements. Give an abundance of bright, clear, soft, steady light which is restful to the eyes. Complete line of portable lamps and lanterns. Lamps are clean—no smoke, no wicks to trim and odorless. They will burn in any position whether standing erect or upside down. Lantern is storm-proof, bug-proof and wind-proof. Gives a 400 c. p. light. Is absolutely safe; can be dropped or rolled without danger of exploding. Fully guaranteed. Exclusive territory to Agents. Outfit Free. Write NOW for catalog and agent's proposition all Free.



AKRON GAS LAMP CO., 304 Gas Building Akron, Ohio

Makes a Perfect Roof

BECAUSE

The convenience and lightness of wood. All the protection of Asphalt. Easy to lay—low in cost. Perfectly tight—do not leak.

WINTHROP

TAPERED

ASPHALT SHINGLES
The Only Kind Tapered Like Wood

Thick at the butt—thin at the top. Tough, pliable and resists fire and weather. Easy to lay, like wood shingles, with ordinary shingle nails. Ask for a sample shingle.

Beckman-Dawson Roofing Co.
Asphalt Shingles Factory, Argo, Ill.
1413 Y. M. C. A. Bldg., Chicago, Ill.



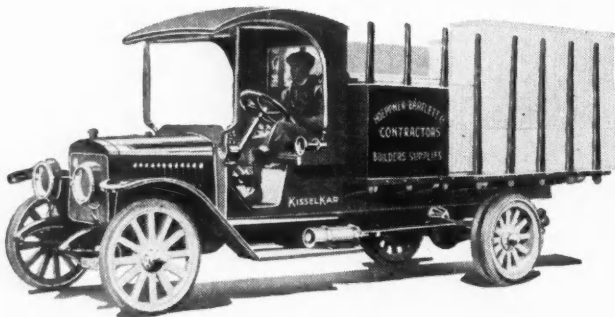
KISSEL

Five Sizes

TRUCKS

Keep Your Goods Moving

The wider delivery areas—greater hauling distances and closer shipping schedules, due to the present transportation requirements, call for the dependable performance, uninterrupted service and economical maintenance of the Motor Truck.



Kissel Trucks meet today's war cry—"Keep the Goods Moving" in a made-to-order fashion. The Kissel-built motor, perfected worm drive rear axles, heat-treated frame, sturdy springs and 10 years' truck-building experience, give Kissel Trucks a leadership for solving economically the haulage and delivery problems of owners in the building business.

See your Kissel Truck dealer—investigate the ALL-YEAR Cab—an exclusive Kissel feature—early deliveries—order now—don't delay.

Kissel Motor Car Company

Hartford, Wis., U. S. A.

KISSEL

With the ALL-YEAR Cab

TRUCKS

Report on Industrial Housing

(Continued from page 142.)

Where several factories are so located that their employes can live advantageously in a separate subdivision, a company can easily be organized, in which stock can be held by several companies in proportion to the number of employes. This company would be managed by an outsider and would have no direct relation with the manufacturers except in so far as the applicants for homes would have to have the approval of their employers. This company could superintend the construction of the houses and take care of all details regarding sale and payment.

Real estate companies can operate on a large scale in building homes for workingmen, by so locating their houses as to be within walking distance of the factories which they are to serve. Arrangements could be made with the employers so as to guarantee to a certain extent the money invested in the houses, and with banks to handle first mortgages. Such first mortgages could easily be taken up to two-thirds of the cost of the houses.

Advantage of Building on Large Scale

The outstanding advantage of building on a large scale is clearly the saving resulting from building a number of houses of somewhat similar design at one time, also the buying and financial strength of the housebuilding company, which eliminates entirely the usual second mortgage man whose services mean a distinct addition in cost to each house.

Features in Design of Workingmen's Houses

For workingmen it has been determined that a house must have at least four rooms. The kitchen and dining room can be combined. There should be a living room and two bedrooms. Where there are a number of children, three bedrooms should be provided—one for the parents, one for the male children and one for the female children. A basement is not absolutely necessary except where a heating plant is installed. By the use of a flat roof instead of a gable roof, the cost will be materially reduced, while the house can also be made attractive. In comparing a flat roof with a gable roof of one-quarter pitch, it is quickly seen that there is a saving in material of 2½ per cent besides the lessened cost of labor, due to the ease with which a flat roof is constructed. Such a roof should be furred to create a dead air space, making the house cool in summer and warm in winter. Rooms should be 8 feet high and in a small house one room should have at least 120 square feet of floor area, and the bedrooms at least 90 square feet of floor area. Economy will also be secured in a two-story dwelling by placing the bathroom directly over the kitchen. The ideal house usually suggested is the single-family house, but for economy the semi-detached two-family house where the two houses are alongside each other is desirable. In such an arrange-

(Continued to page 146.)

DAMP-PROOFING PERCOPROOF COMPOUND

Makes Foundations Impervious to Moisture

Eight Thousand Gallons of Percoproof were used for waterproofing the Cincinnati General Hospital Buildings ::

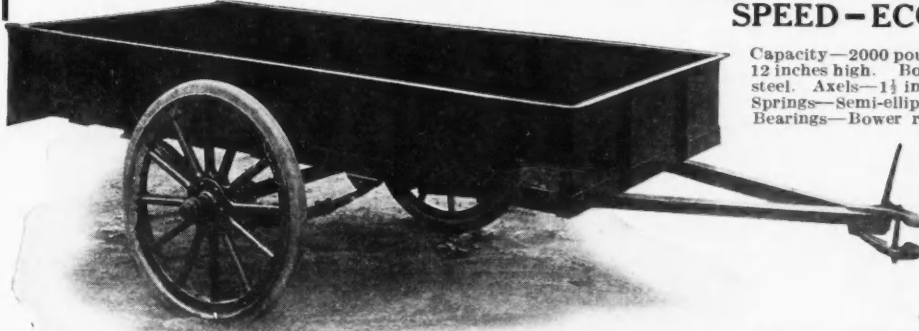
A PPLIED with a brush direct to foundation walls, concrete construction, masonry, or stucco surfaces, Percoproof forms an unbroken, elastic facing that fills every pore and crack and prevents all seepage and moisture from penetrating. Unlike ordinary waterproofing materials, Percoproof contains no oil and requires no thinning. It comes ready for use and is equally satisfactory in all climates and at all seasons. *Write for our damp-proofing booklet.*

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



Contractor's Handy Auto Trailer

SPEED - ECONOMY - STRENGTH



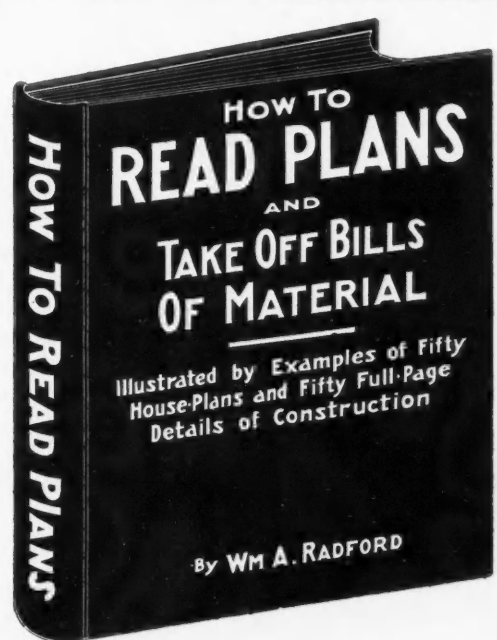
Capacity—2000 pounds. Body—8 feet long, 46 inches wide, 12 inches high. Body and under frame built of open hearth steel. Axels—1½ inch square bed, special high carbon steel. Springs—Semi-elliptic, oil tempered and double heat treated. Bearings—Bower roller. Wheels—1½ inch spoke, artillery type, second growth hickory. Tires—32x2, solid rubber. Weight—534 lbs.

Other models with gates at front; also extension tongue which permits carrying lumber, poles, ladders, etc. 30 feet long.

Write for Catalog C.

Rogers Brothers

COMPANY
Albion - - - Pa.



HOW TO READ PLANS
AND
TAKE OFF BILLS OF MATERIAL

Illustrated by Examples of Fifty House-Plans and Fifty Full-Page Details of Construction

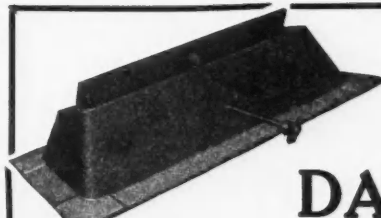
By **WM A. RADFORD**

This book contains the latest and most reliable, practical information on original drawings, tracings, blue prints, and rough sketches. It shows how to figure inside and outside dimensions, heights, openings, take off quantities, and a vast amount of other data that is indispensable to the man who has to do in any way with construction or the use or estimating of materials.

Price, \$1.00, Postpaid

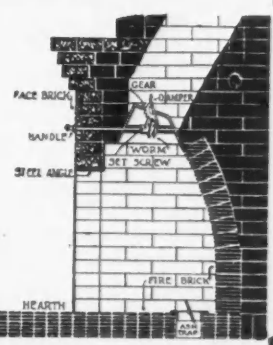
American Builder, Chicago, Ill.

Improved Fireplace DAMPERS



Stover Dampers make the building of fireplaces easy. The labor saved by their use reduces the cost considerably.

Catalog 1740 describes these and other new style dampers in detail, gives valuable suggestions as to fireplace construction and shows a large assortment of other fireplace fixtures.



If you build fireplaces, send for this catalog. *It's free.* We manufacture builders' and household hardware, windmills, feed mills, gasoline engines.

Stover Mfg. & Engine Co.

725 East Street Freeport, Illinois

STOVER MFG. & ENGINE CO., 725 East St., Freeport, Ill.
Send us Catalog 1740.

NAME.....
BUSINESS.....
CITY..... STATE.....

Report on Industrial Housing

(Continued from page 144.)

ment not only is there an elimination of one wall, but there is also an additional saving in cost of improvements, plumbing, heating and wiring.

In working up a housing project, it may seem advisable to build some homes for renting purposes. In such case, it would be well to design for more than two homes in a single group. By building six or eight houses alongside each other with the rooms two deep, economy, sanitation and attractiveness can be secured. It has been found that where houses are built together in this manner, they can be secured for \$200 to \$400 less than when detached houses are constructed.

Arrangements must often be made for the single men. Large houses accommodating from 30 to 50 men should be built. One or two large, comfortable rooms on the first floor for reading and lounging purposes should be combined with roomy dining halls and well laid out bedrooms. Such boarding houses can be run very profitably by a man and wife experienced in similar undertakings.

Suggested Designs for Workingmen's Dwellings

In order to furnish definite suggestions in planning a housing development, several designs of workingmen's houses have been prepared, and are included in this report. These houses, tho economically designed, are comfortable and will be especially attrac-

tive and valuable for workingmen having a wage of \$20 per week.

Varying the appearance of a group of houses by putting the corner houses closer to the sidewalk than those in the middle of the block, by placing the long side of the houses parallel and other perpendicular to the sidewalk, by arranging for nearby playgrounds and parks, by planting trees and shrubs on the lawns, housing developments can be built up which will attract a thrifty type of workman and will stabilize the best labor and promote a feeling of loyalty between employer and employe.

In the Bulletin of Labor, 1904, G. W. Hanger, points out certain features that are likely to crop out in housing developments.

Housing Problem a Business Proposition

Employers should look at the housing problem as a business proposition. It is just as necessary to provide good homes as it is to provide first-class machinery. Both mean increased production at a lessened expense. Capital invested in houses is just the same as capital invested in a factory. Both are necessary to secure maximum efficiency. Each particular housing development must, however, be studied by itself. Local conditions such as public opinion, attitude of labor unions, type of industry, number of workmen, previous conditions of housing, availability of transportation, cost of land, cost of building material, and

(Continued to page 148.)

Wait A Minute!

Do not pass over this announcement to every contractor and builder before reading it and learning of this BIG MONEY MAKING PROPOSITION.

SOLD! SOLD!--PROFIT! PROFIT!

Yes, they are sold upon sight. Garage owners appreciate TOPPING FOLDING GARAGE DOOR HANGER SETS every time. They are completely sold on the proposition, and all you have to do is to get after their order. Big money is made every day by our thousands of contractor or builder representatives.

TOPPING FOLDING GARAGE DOOR HANGER SETS are the simplest and strongest on the market today. They offer many new ideas in garage hardware. If there is anything new, the TOPPING FOLDING GARAGE DOOR HANGER SET has it. Packed in complete sets. Automatic locking device can be opened or shut by any member of your family. Neat appearance, last forever, and every sale brings another.

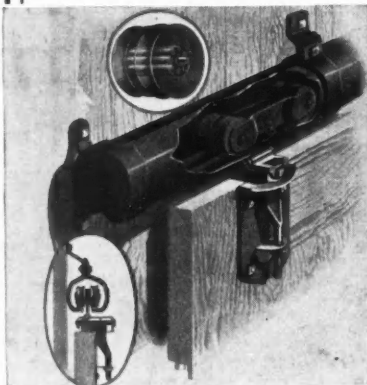
Investigate our proposition at your local dealers, and get acquainted with the TOPPING FOLDING GARAGE DOOR HANGER SET. It means profit to you.

Use Red Rib Barn Door Hangers

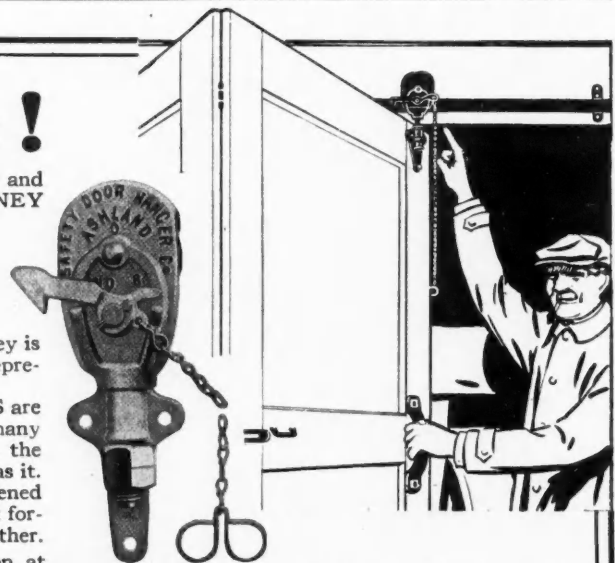
They are especially adapted to the use of heavy barn doors. They are designed by experts to withstand the strain and wear brought upon barn door hangers. Consider lasting qualities, and you will find none better than the "Red Rib" Hangers. Solid, double-grooved wheel. Very strong trolley. Sheds water. Bird proof. Tandem wheel. Hinge hanger. Noiseless. Roller bearing wheel. They are absolutely guaranteed.

There is money in this proposition for you. Investigate it at your local dealers. Or, if by chance, he does not carry them in stock, write for our money-making proposition to contractors and builders, and descriptive literature.

Safety Door Hanger Company
Ashland, Ohio

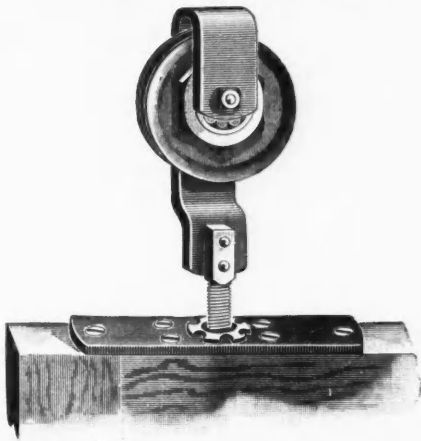


Does Not Sag or Bind



LANE'S

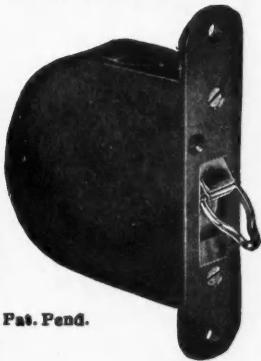
New Model Parlor Door Hangers



Noiseless fibre tread roller bearings; vertical adjustment; an excellent hanger at moderate cost.

Lane Bros. Co. Cherry Street
Poughkeepsie, N. Y.

Caldwell Sash Balances Uniform Mortises



Pat. Pend.

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

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

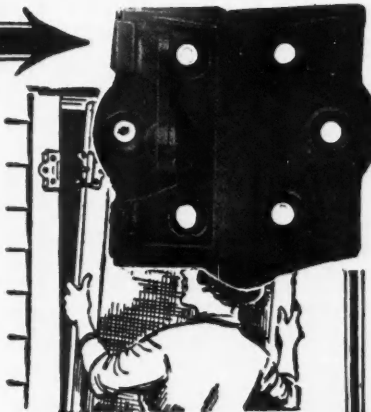
JIFFY!

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

Ask Your Dealer to Show You a JIFFY HINGE

They are inexpensive, made in a variety of finishes and are sure to make a neat satisfactory job. If your dealer cannot supply you, write for samples and prices.

ROCK CITY MFG. CO.
Wabash, Ind.



Griffin Pressed Steel Door Stops

No. 640

Are drawn into shape from one piece of high quality Cold Rolled Steel making them extra strong—guaranteed **indestructible**.

The rubber bumper is made from the best rubber and is backed up by a metal disc, which in turn is knurled, "ENTRENCHED," in place—and will stand all the "Banging" one can possibly give it, and absolutely cannot work out of place.

Beautiful Yet Plain

Compare this beautiful, plain door stop with the ordinary kind. It is modern and when finished in any of the various Griffin Hardware Finishes, it harmonizes with the beautiful interior finish of the Modern Home or Building.

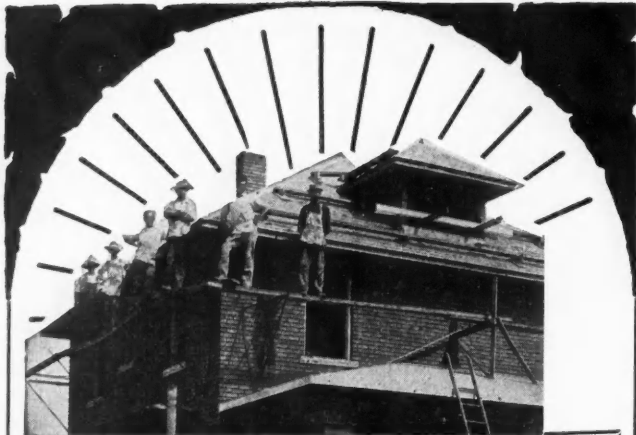
No sharp edges or corner to cut the hand on, catch the clothes, as the woodwork is dusted. This is the door stop your customer is looking for. Have your Hardware Dealer show **them to you**.

Send for complete circulars and information at once

The Griffin Mfg. Co.
Erie, Pennsylvania

30 Warren St.
NEW YORK

17 E. Lake St.
CHICAGO



Your Men—

Your men will appreciate the convenience and safety afforded by the use of "Reliable" folding scaffolding brackets.

Thousands of dollars are spent every year by contractors in the payment of accident claims. Why take chances on this? But this is not all. They are easily put up. Five nails and five minutes. Low cost. All steel metal. Tested. And biggest and best of all reasons is that they fold in a compact manner, thus allowing them to be carried from job to job with the greatest of ease.

AND DON'T MISS THIS

They can be used as easily on either BRICK or STUCCO construction as on frame. Have you a copy of our catalog? Write for it.

ELITE MANUFACTURING COMPANY
Ashland, Ohio

WHY NOT?

WHY NOT let your men work in greater safety? Why not do away with the old-time methods of using wooden scaffolding? They are cumbersome to carry from job to job, and at the present price of lumber they are very expensive.

Do your scaffold work the modern way. Buy "TROUBLE SAVERS;" quickly applied, ten minutes to put up, and easily carried from job to job.

This idea is worth money to you. Give them a 30-day trial at our expense.

STEEL SCAFFOLDING CO.

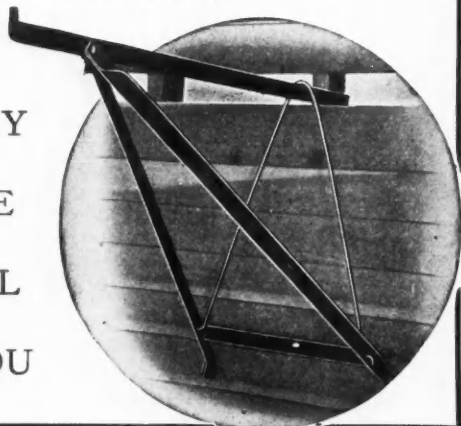
Evansville, Ind.

30-DAY

FREE

TRIAL

TO YOU



(Continued from page 146.)

finally, the attitude of the employer must be considered.

What that attitude should be is evident to every one who has studied the housing problem. Employers thru their housing developments have the power not only to increase the efficiency of their workers, but also to develop better citizens.



Painting the Interior

(Continued from page 61.)

Walnut: Use burnt umber and Vandyke brown.

Mahogany: Use burnt sienna, rose lake, Vandyke brown.

The reduced filler is laid on *across* the *grain*, working in strips three or four feet wide with the grain. Finish up the brush work with the grain of the wood. If properly prepared the filler will set in 15 to 20 minutes, depending on the temperature of the room which should be about 70° F. For this reason do not cover too much territory in laying on the filler since it will get very stiff and difficult to handle. Use pieces of burlap in pad form to *rub* the filler into the pores by working *across* the *grain*. Use a clean piece to wipe lightly *with the grain* in order to leave a clean, smooth, well-filled surface free from streaks. If the filler sets too hard and cannot be cleaned off with burlap it must be sanded off with paper and gasoline. This is mighty hard work, so be careful. If wiped too soon, the filler will pull out of the pore and the work is wasted. Watch the work carefully and see that the surface is left clean and the pores leveled off. This cannot be done with a filler made on a pumice stone or cornstarch base. The latter material will bleach or fade and shrink in the pore. Allow at least 36 hours for the filler to dry in order that the subsequent coats may not sink and cause a pitted surface as will happen if varnished in 10 to 20 hours.

After proper drying the floor should be carefully sanded, using No. ½ or No. 1 paper, rubbing only just enough to remove any filler streaks and leave a surface clean and bright. Wipe off the dust carefully and then use either varnish or shellac as the circumstances demand. Even a varnished floor has a better surface if a coat of *very thin* shellac is used as a *size coat* beneath the varnish. This will produce a much clearer surface and if shaded lightly with worn out, clean, No. ½ paper, will offer a splendid foundation for the varnish.

The floor should be carefully wiped free from dust preferably with a slightly moistened chamois or better still a piece of clean cheesecloth which has been dipped into floor varnish and wrung out very dry. When shaken in the air for a minute it produces a "tacky cloth" which will perfectly clean a floor, auto body, or piano case free from all dust, lime or rubbing materials.

(Continued to page 150.)

HORNET MANTELS

The salability of any house is doubled when you show the purchaser the beauty and comfort of

Hornet Mantels

They add 100% to any interior. The model shown here gives an idea of our line and prices. It is offered in selected Oak or Birch, Mahogany finish, Piano Polish. Stands 7 feet high. Note beveled mirror, enameled tile and grate.

Priced at Only \$29.00

Study our full line of Gas Logs, Fire-sets and Screens in helpful catalog. Gives directions for installing. Get this book for future reference.

Hornet Mantel Co.
1147 Market Street
St. Louis, Mo.

Below—
One of 40
styles
shown in
Our Big
FREE Catalog

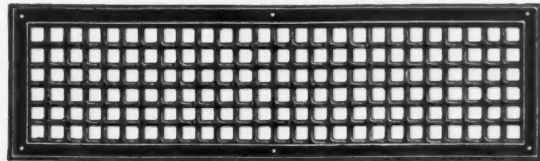


World's Largest Mantel House

"H & C" Steel Grilles

FOR HEATING OR VENTILATING PURPOSES

"H & C." Steel Grilles can be made in practically any size desired and finished to match hardware. Several different styles are regularly furnished and are illustrated in catalog 16.

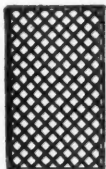


Class 570, here shown, has 1/2" square holes with 1/4" fret-work between. Class 575 is similar, having 3/4" square holes. These Grilles can be furnished in one piece as wide as 33" and in long lengths.

Get full information from us

The Hart & Cooley Co.
23 Booth Street, New Britain, Conn.

Wire Window Guards



Counter Railings
Elevator Enclosures
Tubular Hand Rails
Brass and Bronze Work

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

The Cincinnati Mfg. Co., Cincinnati, Ohio

Hinge Your Screens at the Top

Only full-length screens hung from the top will keep out all the flies all the time.

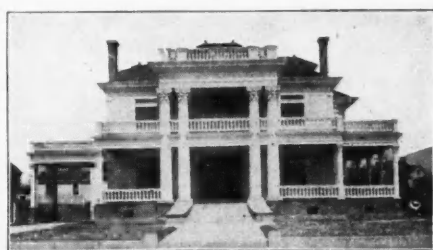


Kees Gossett Hangers

furnish the quickest and easiest method of hanging full length screens. Screens so attached can be easily swung out for window washing, always fit tightly when in place, and can be taken down in a jiffy. Storm windows can be hung on the same hangers. Cheap, simple, durable.

Write for free samples. Ask also for free samples of building corners.

F.D. KEES MFG. CO. Beatrice Neb Box 552



Koll's Patent Lock Joint Wood Columns

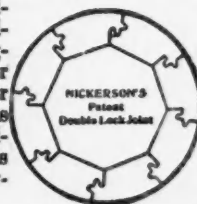
For Exterior and Interior Use
When writing, enclose 10 cents and ask for Catalogue U-40.

HARTMANN-SANDERS COMPANY
2155 Elston Avenue, CHICAGO, ILL.
New York Office—6 E. 39th Street

THE BEST COLUMNS

for Porch, Interior and Pergola use the **NICKERSON Patent DOUBLE LOCK JOINT**
THEY CANNOT COME APART

We Specialize on Detail-work. "Vignola" is our Standard for proportions when Architect's details are not furnished.



Clinch you Trade by giving them the very best Column. Ours have the best Construction and correct shape.

All kinds of interior trim to detail.

Write for Catalogue No. 4.

NICKERSON MFG. CO.
KNOXVILLE - TENNESSEE
Members Knoxville Builders' Exchange

Painting the Interior

(Continued from page 148.)

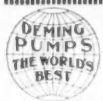
Use a high grade, four-inch rubber set badger or China bristle, chisel varnish brush and lay out the work about three feet wide and working the short way of the room, brushing out the edge nearest the workman to a thin feather. Always work from the unfinished to the finished portion and move as rapidly as possible. Floor shellacing and varnishing is no easy job and like everything else requires practice to render perfect. It is common sense of course to start the work in such a manner as to permit the workman to leave the room without walking on freshly varnished work. Nevertheless a good man gets caught once in a while if there is much hurry.

Let all the floor varnish stand at least three days between coats, a week is much better. There are varnishes which will dry quite hard over night but are not worth a great deal. When you consider that a properly applied coat of floor varnish is but 1/500 of an inch in thickness it is only fair that it be given all the opportunity possible to procure toughness and hardness, knowing the extremes of wear and tear to which it will be later subjected.

Sandpaper between coats; clean off with a "tacky cloth" and give a second coat after drying. This last may be rubbed with pumice stone and a damp but not wet felt pad. Clean off and wipe to a polish with a good cleaning oil. Avoid "washing down" with cold

water to harden the varnish as I have seen recommended several times and observed in practice. It profits nothing and produces a false *surface* hardening which prevents the proper drying and hardening of the under coats. This same idea applies to paints, especially porch paints which I have several times seen treated as above. The results were invariably disastrous and above all should be avoided on fine flooring.

Where shellac and wax are used, orange shellac is to be preferred for all floors but natural finish maple and birch where white shellac should be employed. The stock shellac as it is offered for sale in the stores should be reduced one half with denatured alcohol before using. Avoid the use of wood alcohol as I have known of several cases of temporary and total blindness resulting from exposure to fumes of this alcohol. The shellac should be applied quickly and carefully, avoiding all cross brushing, bubbles and lapping. Do not attempt to go back over and touch up any "skips" or "holidays." It is best to allow the entire floor to dry three hours or more, sand, and give a second coat. When dry the floor may be rubbed over with a wax pad, made by enclosing a pound of floor wax in some tough, coarse cloth, and rubbing the floor so as to leave a thin layer of wax over the work. Let stand an hour. Polish across the grain with a weighted brush or box which has a brussels carpet face. Finish by polishing with the grain. For dark woods use black wax or wax tinted with dry colors as desired.



DEMING

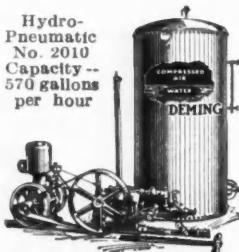
Co-operation brings you Profits

JOIN forces with your local plumber. Sell a Deming Water Supply System to every home builder---have your local plumber make the installation. You both pocket an extra profit. Write today---get the Deming Catalog---with it comes the facts and figures on water supply installations.

The Deming Company

99 Depot Street, Salem, Ohio

Hydro-Pneumatic
No. 2010
Capacity --
570 gallons
per hour



As Handsome and Enduring as Granite

KELLASTONE
IMPERISHABLE STUCCO

Can be applied in zero weather. Bonds perfectly with wood, brick, concrete or tile. Fireproof, waterproof, cold-proof and crackproof. **Most economical when its lasting quality is considered.** Write for booklet.

National Kellastone Co.

1330 Mallers Bldg.

Chicago

Kellastone Sanitary Flooring is Sanitary and Seamless

CWC
**WATERPROOFING
PRODUCTS**

Ceresit Waterproofing Compound
Cem-bric Covering Compound
Indurite Concrete Hardener
Radiolite White Enamel

Get the Ceresit Waterproofer and learn about these waterproofing products.

CERESIT WATERPROOFING CO.
910 WESTMINSTER BLDG., CHICAGO

CERESIT
TRADE MARK
REGISTERED

Short Talks With Our Subscribers

Who Will Handle the Industrial Housing?

"INDUSTRIAL HOUSING" has broken into society.

Some of the nifty architects, their regular work gone glimmering, have suddenly taken quite an interest in it—the high-toned architects who formerly wouldn't look at anything less than a millionaire's residence. They have come forward now as expert professional advisors to the American laboring man on all matters pertaining to his domicile.

Some of the results have been amusing, that is, they would be amusing were this not so serious a situation.

For instance, on one project we know of, consisting of a street full of four-room frame cottages, there were specified a solid porcelain bathtub and other sanitary fixtures to match, all of the most expensive type. The architect evidently thought he was still engaged in designing millionaire's residences, so he specified a bathroom to cost almost as much as all of the rest of the cottage put together!

The factory executive who—needing three hundred new homes for his increased working force—had placed his housing commission in the hands of this architect would have done better had he called in a practical house builder.

The essential thing in industrial housing work is to keep sensible and practical. Stay down on earth and

follow the principles that have worked out right in American home building. To read some of the current literature on industrial housing, one would be led to believe that the one and only important thing is to lay out the streets in graceful curves, and then design the houses in the English cottage style so that landscape painters will flock in and set up their easels in front of them.

The AMERICAN BUILDER has for years been featuring exactly the types of houses that suit the great majority of the American people. The AMERICAN BUILDER readers are the men who have made it their life business to build this kind of houses. Where in the past they have been building them singly and in groups of three or four, they will now have to build them by the score and by the hundred.

We are confident they can do it too. With added equipment and bigger gangs they will prove just as efficient at house building by the wholesale as they formerly were building in the smaller quantities.

The shortage of workingmen's homes is surprisingly widespread. The housing need is not confined to the big industrial centers. The house building contractor using local labor and employing local building materials is the logical and best available man to handle the industrial housing proposition.

EDITOR AMERICAN BUILDER.

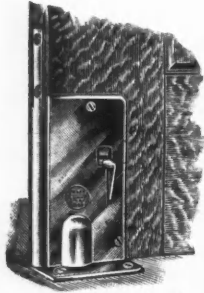
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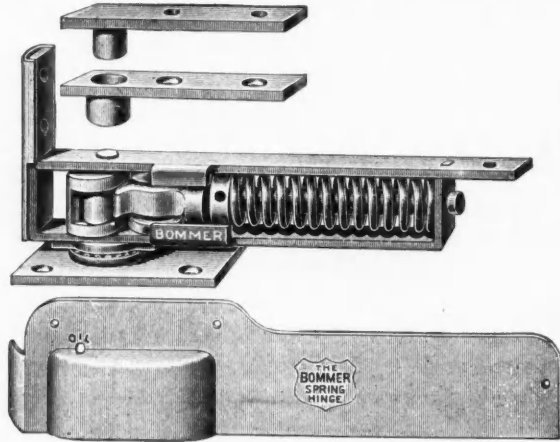


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